

**THE EXTENT OF COMPLIANCE WITH OCCUPATIONAL
SAFETY AND HEALTH REGULATIONS AT REGISTERED
WORKPLACES IN NAIROBI**

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DECLARATION

This management research project is my original work and has not been presented for award of any degree in any other university.

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This management research project has been submitted for examination with my approval as University Supervisor.

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DEDICATION

To my wife, Lilian; daughter, Stella and sons, Tobias and Eugene for their patience and care.

ABSTRACT

The objective of the study was to determine the extent to which employers have implemented Occupational Safety and Health regulations at their workplaces. It further determined the measures organizations have put in place at their workplaces to comply with the occupational safety and health regulations. The study was based on a population of 2168 registered workplaces in Nairobi, of which a sample of 112 was taken. The sample size was determined according to Bartlett et al (2001), table for determining sample size for a given population. The study was a survey design and primary data was collected using questionnaires. The data was analyzed using descriptive, factor and regression analysis. The elements used to determine the extent of compliance with occupational safety and health regulations at workplaces were categorized into five factors (independent variables) namely; safety, hygiene, emergency fire protection and health regulations. All the independent variables were linearly related with the dependent variable using a model of five predictor variables to rate the compliance with occupational safety and health regulations at workplace.

The study found that 90 percent of the respondents were generally aware of the existence of the Occupational Safety and Health Act, 2007. Over 80 percent of the respondents were of the view that administration and enforcement of the Occupational Safety and Health Act, 2007, was good and the Act gives adequate provisions for the safety and health of employees at workplace. However, inspection and examination of workplaces by occupational safety and health officers is at the level of 52.2 percent, which is low and could be perhaps one of the factors responsible for lack of full compliance. Overall, the

extent of compliance with Occupational Safety and Health regulations at workplaces stands at 64.49 percent. Organizations still have an outstanding 35.51 percent level of non-compliance which they need to work on in order to minimize the consequences of non-compliance.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Occupational safety and health is a cross disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. As a secondary effect, it may also protect co-workers, family members, employers, customers, suppliers, nearby communities and other members of the public who are impacted by the workplace environment. According to Armstrong (2006), achievement of the highest standards of safety and health at a workplace is important because the elimination or at least minimization of safety and health hazards and risks is the moral, economic as well as the legal responsibility of employers. From a moral perspective, managers undertake accident prevention measures on purely humanitarian grounds, that is, to minimize the pain and suffering of the injured worker and his family members are often exposed to as a result of the accident. Secondly, they do so for legal reasons owing to the existence of laws covering occupational safety and health. Finally, there are economic reasons for being safety conscious since the costs to the organization however minor the accident may be are very high.

Occupational Safety and Health (OSH) has become a global concern for employers, workers and national governments. Despite global efforts to address OSH concerns, an estimated 2 million work related fatalities still occur every year (ILO, 2009). In addition, there are more than 330 million occupational accidents and 160 million work related

diseases, which affect workers every year (Markkanen, 2004). The ILO estimates that more than \$ 1.25 trillion, which is equivalent to 4 percent of the world's Gross Domestic Product (GDP), is lost each year due to occupational accidents and diseases.

In Kenya, prior to enactment of the Occupational Safety and Health Act (2007), matters of OSH were covered under the Factories and Other Places of Work Act (1972), Chapter 514 of the Laws of Kenya. Cap. 514 made provisions for health, safety and welfare of persons employed in factories and other places, and for matters incidental thereto and connected therewith. Among the important safety and health provisions under Cap. 514 are: cleanliness, overcrowding, ventilation, lighting, drainage of floors, sanitary convenience, transmission machinery and other equipment, training and supervision of inexperienced workers, precautions in places where dangerous fumes and explosions are likely, prevention of fire, supply of drinking water, washing facilities, first aid and protective clothing (The Factories Act, 1972).

Cap. 514 has since June 2008 been repealed by the Occupational Safety and Health Act (2007) hereinafter abbreviated as OSH Act. The OSH Act is an Act of Parliament that provides for the safety, health and welfare of workers and all persons lawfully present at workplaces. The OSH Act applies to all workplaces and it is therefore to secure the safety, health and welfare of persons at work, protect persons other than persons at work against risks to safety and activities of persons at work (The OSH Act, 2007).

The mandate to enforce compliance of the provisions of OSH Act at workplaces is vested upon the Director of Occupational Safety and Health Services. The Act at section 26 provides for appointment of occupational safety and health officers to assist the Director in enforcing compliance with occupational safety and health regulations. For this purpose section 32(1) of the Act empowers an occupational safety and health officer to enter, inspect and examine, by day or by night, a workplace and every part thereof, which he has reasonable cause to believe that explosive, highly inflammable or any other hazardous materials are stored or used. In the course of execution of their mandate under the OSH Act, Occupational Safety and health Officers in Nairobi have found various employers in breach of some occupational safety and health regulations at their workplaces. Some of the offenders have been prosecuted under section 33(1) of the OSH Act in the Magistrate's Court at Makadara.

The City Council of Nairobi is also conferred powers by the Local Government Act Cap. 265, to make By-Laws for purposes of ensuring that residents of the City of Nairobi are safe and aided in events of fire. Under these By-Laws, a Fire Brigade is established with primary duties and responsibilities of prevention of fire and fire fighting. The Fire Brigade therefore has a fire alarm system to which owners or occupiers can connect their fire prevention and detection systems. For purposes of fire fighting, the Fire Brigade has liberty to free access of water supply and power to fix fire hydrants. The Chief Fire Officer of the Fire Brigade has powers to inspect premises to determine their compliance with prevention of fire requirements and make such orders as he may deem fit (The City of Nairobi, By-Laws, 2007).

The humanitarian implications of accidents at the work provide an irrefutable argument for attention to safety and health in the workplace (Hackett, 1996). Today in the world market, consumer/buyer organizations like Fair Trade, Ethical Trading Partnership and Rain Forest Alliance among others have listed occupational safety and health as one of the labour standard requirements that must be complied with by producer/seller organizations in order for their products to be accepted. ISO-9000 certification whose quality standard requirements lay a lot of emphasis on compliance with occupational safety and health regulations has become prerequisite for acceptance of products in most markets. Occupational safety and health issues are an important part of the ILO's agenda. Therefore, the need for organizations to ensure compliance to occupational safety and health at their workplaces as a basic human right and a strategic HR management issue cannot be overemphasized.

1.2: Registered Workplaces in Nairobi

Workplace is defined by the National Joint Council as the location at or from which an employee ordinarily performs the duties of his or her position and, in the case of an employee whose duties are of itinerant nature, the actual building to which the employee returns to prepare and/or submit reports, and where other administrative matters pertaining to the employee's employment are conducted (<http://www.njc.gc.ca>). The Advanced Learners Dictionary defines workplace as the office, factory e.t.c. where people work. The Occupational Safety and Health Act(2007) at section 2 defines workplace as including any land, premises, location, vessel or thing, at, in, upon, or near which, a worker is, in the course of employment.

Section 44(1) of the Occupational Safety and Health Act (2007) provides that before any person occupies or uses any premises as a workplace, he shall apply for the registration of the premises by sending to the Director a written notice containing the particulars set out in the Fourth Schedule. The particulars set out in the Fourth Schedule include: name of the workplace, address and location of the workplace, name of the occupier or intending occupier of the workplace, name and address of the owner of the premises or building. In the case of a vessel; country and year of manufacture, date of the last thorough examination and name of the person by whom the examination was made, maximum permissible working pressure in pounds per square inch. Total number of persons employed, or intended to be employed, in the workplace and where persons are employed, or intended to be employed, in shifts, the maximum number employed, or intended to be employed, at any one time should also be indicated.

Upon receipt of the notice referred in subsection (1) of the Act, the Director shall take such steps as may be necessary to satisfy himself that the premises are suitable for use as workplace of the nature stated in the notice, and upon being so satisfied shall cause the premises to be registered and shall issue to the applicant upon payment of prescribed fee, a certificate of registration in the form set out in the Fifth Schedule. Any person who, without having been issued with a certificate of registration under subsection (2), occupies or uses any premises as a workplace commits an offence and shall, on conviction be liable to a fine not exceeding one hundred thousand shillings or to imprisonment for a term not exceeding three months or to both. Section 43 provides that the Director shall keep a register of workplaces in which he shall cause to be entered such

particulars in relation to every workplace required to be registered under the Act as he may consider necessary (OSH Act, 2007). This study will focus on the registered workplaces in Nairobi.

1.3 Statement of the problem

Occupational Safety and Health issues have not only become a global concern for employers, workers and national governments, but of major concern to managers of organizations. Managers are generally accountable for any shortcomings at the workplace and they therefore recognize that it is in their economic interest to create safe working practices (Bell, 1981) and comply with occupational safety and health regulations. It is estimated that the worker spends about one third of his/her time at the workplace (Sakari, 1991). During this time, he/she is exposed to various hazards including accidents, noise, dust, vibrations, heat and harsh chemicals among others (Kenei, 1995). The Occupational Safety and Health Act (2007) has various provisions for the safety, health and welfare of workers and all persons lawfully present at workplaces in Kenya. The Act has provision for creation of the Directorate of Occupational Health and Safety Services (DOHSS) with the principal objective of promotion and enforcement of occupational safety and healthy regulations at workplaces.

Despite the fact that the government of Kenya has put in place legislations to safeguard the safety and health of workers, the number of accidents at workplaces has continued to increase (Mutemi, 2005). According to the Directorate of Occupational Health and Safety Services (DOHSS) annual report (2008), the cumulative number of accidents reported for

years 2001- 2007 for Nairobi province alone was 1,035. These accidents accounted for 12,941 man days lost. This high number of accidents and the attendant losses can be attributed to failure by management of workplaces to comply with the legal and regulatory framework regarding occupational safety and health.

Literature in various parts of the world has identified numerous causes of accidents at different sectors of the economy but no attention has been directed particularly in Kenya, to compliance with the laid down occupational safety and health regulations at workplaces across the board. This study therefore seeks to establish how managers in organizations across the sectors are dealing with issues of occupational safety and health at their workplaces. The question is: “What measures have organizations put in place at their workplaces to comply with the occupational safety and health regulations?”

1.4 Objective of the study

To determine the extent to which employers have implemented Occupational Safety and Health regulations at their workplaces.

1.5 Importance of the study

The study will help firms in various sectors of the economy in Nairobi and other parts of the country to know aspects of non-compliance with the occupational safety and health regulations at their workplaces and prompt them to take necessary measures to comply. Once they comply, it will be easy for them to qualify for quality standards certification and gain competitive advantage at the market place.

It will guide employers to comply with the occupational safety and health regulations and make their workplaces safe for their employees to work. Safe and conducive work environment may motivate the employees and minimize costs associated with non-compliance. Employees will have a clear understanding of their rights and obligations under the occupational safety and health regulations at the workplaces and therefore be well endowed in enhancement of their safety and health.

The Directorate of Occupation Health and Safety Services will be in a better position to identify the risk areas and industries. It will be easier to formulate more effective strategies for enforcement of occupational safety and health regulations at the workplaces. The study will also serve as a reference point for academicians who may wish to undertake further research in the topic of occupational safety and health at workplaces.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview of Occupational Safety and Health

The International Occupational Hygiene Association (IOHA) at www.ioha.net defines occupational safety and health as the science of anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and wellbeing of workers taking into account the possible impact on the surrounding communities and the environment. The International Labour Organization (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health, which was adopted by the Joint ILO/WHO committee on occupational health at its first session in 1950 and revised at its twelfth session in 1995. They define occupational health as that which should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the protection of workers in their employment risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and to summarize, the adaptation of work to man and each man to his job (www.ilo.org/safework). The realization of this aim requires a risk assessment and an OSH management system which is absolutely fundamental to a strategy of prevention.

Employee safety and health problems at work have been attracting the attention of psychologists, sociologists and industrial engineers since the beginning of the last century. Psychologists are concerned with the theoretical considerations of accident causation and the research into accident control through proper selection, training and education of employees, social and psychological factors that influence the individual's behavior in general. Engineers and safety officers usually render necessary practical advice on certain aspects of safety in industry. They look upon the prevention of accidents as an engineering problem to be tackled through proper designing of mechanical safety devices (Mamoria, 2001).

The subject area of safety and health has gained greater importance in organizational policies and procedures. Several different but related developments help to account for this growing interest and concern by managers and policy makers. Matters concerning health, safety and working conditions involve owners and employees at all organizational levels. The rather rapid change in characteristics of the force represents still another development reinforcing organizational interest in safety and health matters.

Organizations should put in place occupational safety and health measures aimed at promoting and maintaining the highest level of physical, mental and social wellbeing of all employees and persons legally present at all workplaces (Kenei, 1995).

2.2 The Concept of Compliance

Compliance means conformity to or acting according to certain accepted standards. The framing of the safety and health regulations under regulatory package does not stem from

theory, but from technological, social and cultural level of the country (Castella, 2002). This is to make compliance with any regulation achievable in any enterprise to which it applies.

Safety and health concerns everyone in an establishment, although the main responsibility lies with management in general and individual managers in particular (Armstrong, 2009). People in an organization are supposed to perform specific roles regarding occupational safety and health, and these are summarized as follows: Management develops and implements health and safety policies. The policy statement should underline the ultimate responsibility of top management for health and safety performance of the organization. The policy must among other things demonstrate the top management's commitment to protection of the organization's employees from hazards at the workplace and indicate how this protection will be provided. Telling supervisors to "watch for spills" and employees to "work safely" is futile if everyone thinks management is not serious about safety (Dessler, 2008).

Procedures for carrying out risk assessments, safety audits and inspections should be developed and implemented. Management also has the duty of monitoring and evaluating health and safety performance and taking corrective action as necessary. As an accident prevention mechanism, safety engineers should design jobs so as to remove or reduce physical hazards, while managers and supervisors should ensure that employees wear personal protective equipment (PPE). Managers are also directly responsible for ensuring that employees are conscious of health and safety hazards and do not take risks. It is

necessary to deliver the message that safety and health is important, as long as this supplements, rather than replaces other initiatives (Armstrong, 2009). Management should ensure that employees have elementary skills in emergency procedures, first aid and fire fighting (Castella, 2002).

It is also important for management to ensure that occupational health programmes are designed to minimize the impact of work related illnesses arising from work. Good housekeeping practices to keep premises and machinery clean, control of noise, fatigue and stress, pre-employment medical examinations and surveillance of workers' health to ensure that potential health risks are identified in good time are some of the health programmes that should be implemented by management to ensure compliance. HIV/AIDS workplace policy should also be formulated and implemented (Armstrong, 2009).

Employees should be aware of what constitutes safe working practices as they affect them and their fellow workers. While management has the duty to communicate and train individuals, employees have a duty to take account of what they have heard and learnt in the ways they carry out their work. Health and safety representatives deal with health and safety issues in their areas and are members of safety and health committees. Safety committees advise on health and safety policies and procedures, help in conducting risk assessments and safety audits and make suggestions on improving health and safety performance (Armstrong, 2009).

It should be borne in mind that it is employers that set down working conditions: they choose the premises, equipment and substances with which work is to be performed and thus they are the parties responsible for avoiding any danger to the safety and health of their workers. While setting down the working conditions, an employer should comply with specific obligations provided in legislations (Castella, 2002). This study will be carried out to assess the degree of compliance with certain legal requirements concerning occupational safety and health at workplaces.

2.3 Studies in Occupational Health and Safety

Studies have been undertaken on various aspects of the subject of occupational safety and health at the workplaces in Kenya and different parts of the world and have come up with various conclusions, some of which will be highlighted in this study. A study by Kenei (1995), found out that neglect and/or refusal by employees to use the protective devices was a major factor contributing to industrial accidents in manufacturing firms in Kenya. It was also found out that most firms do not have specific time schedules for training activities and hence improper use and handling of hazardous substances and machinery and equipment. In comparing the findings in Kenya with those in other countries, similarities were found to exist in employee attitudes and beliefs towards the use of safety devices and training of employees on occupational safety and health. However, the study was limited to manufacturing firms only and did not address the aspect of health which is very important especially in this era of HIV/AIDS.

Another study revealed that about half of the workers at Kenya Railways Corporation knew most of the hazards (Waweru, 1995). It was also found out that most employees did not use personal protective equipments (PPE) even in high risk departments like the locomotive repairs and the welding units. This is despite the availability of the PPE. The study did not cover the role of management in the subject of OSH at the workplace.

According to Blake (1995), 200,000 people were employed in the national industries in Kenya; including the agricultural, chemical and manufacturing sectors and over an eight year period prior to the study 14,593 accidents including fatalities were recorded. The inadequacy of data on occupational health and safety make it necessary to create an information system on this subject with the Directorate of Occupational Health and Safety Services (DOHSS). Such a system would improve the recording, monitoring and management of data on occupational health and safety throughout the country and facilitate delivery and access to the much needed information. The project was to compile data referring to the basic properties of hazardous substances; create a data register of all factories under the definition of the Factories and Other Places of Work Act; generate a data register on all physical plants under the said Act and create a data register on accidents.

It was established by Mutemi (2005), that safety and health hazards are considered as very crucial by most chemical manufacturing firms in Nairobi. Some of the factors considered to be high safety and health hazards were fire, explosions, smoking, inflammables and chemical exposure. Other factors such as exposed wires, dust,

computers and working hours were also considered to be hazardous, but to a less extent. The firms also indicated that they took a lot of precautions to safeguard safety and health of the employees when dealing with factors such as machines and equipment, fire, smoking, explosions and chemical exposures.

The level of workers awareness in occupational safety and health in Indonesia was found to be low (Markkanen, 2004). The most frequent heard narrative is that workers do not use respirators or masks. Sadly, these workers-don't-use-masks attitude indicate how poorly hazard prevention principles have been instilled in Indonesian workplaces. The other finding was that the existing OSH law in Indonesia was not sufficient and it therefore needed to be upgraded to reflect the provisions of the ILO Convention on Occupational Safety and Health. The study recommended that there must be a transformation of the workers' thoughts and behavior from workers-don't-use-masks attitude to hazardous-exposures-shouldn't-exist-here approach. It was further recommended that a safety and health information database for Indonesia be set up. The study focused on the employee awareness leaving out the other critical variables like management responsibility.

According to Heinrich (1969), industrial accident prevention is a vital factor in every industrial enterprise, one which if ignored or practiced unskillfully, leads to uncalled for human suffering and business bankruptcy. In the 1920s, a series of theorems were developed which show that industrial injuries result only from accidents. Accidents are caused directly only by exposure to unsafe mechanical conditions; unsafe actions and

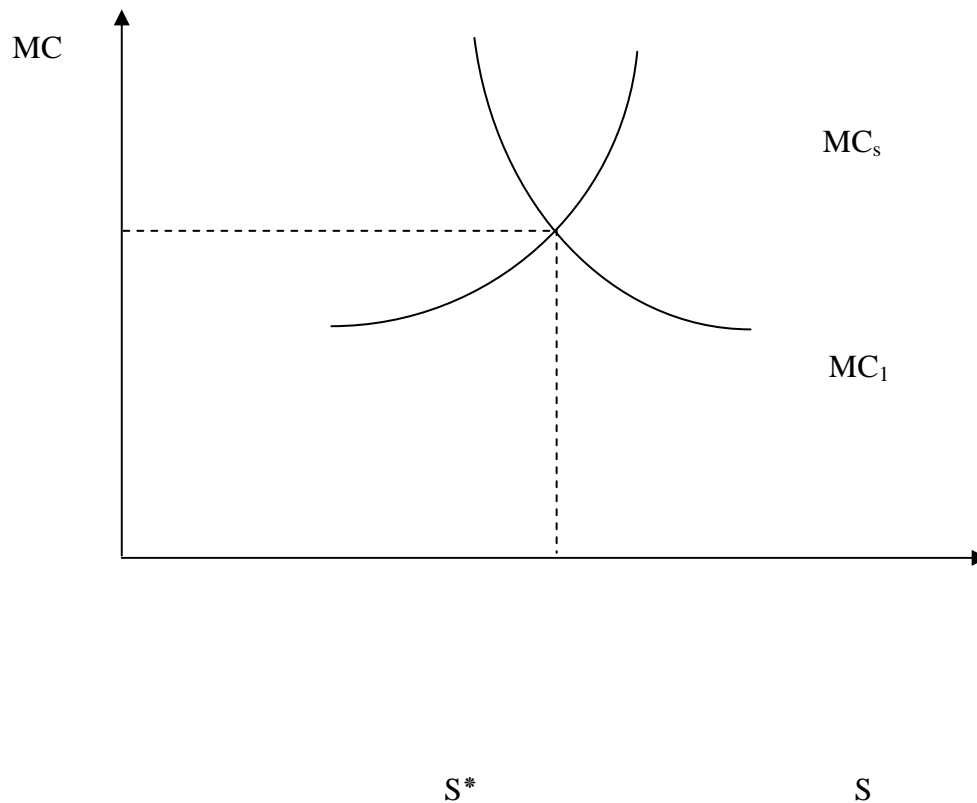
conditions only by faults of persons, and faults of persons are created by environment or acquired inheritance. The accident prevention task industry requires both the immediate approach; that is direct control of personal performance and environment and the longer range approach of instruction, training and education. Whenever there is opportunity to make a dangerous condition fool proof mechanically this should be done whether or not personal unsafe action exists. Whenever an unsafe personal action causes or may cause an accident and there is practical remedy of a mechanical nature, action should at once be taken to prevent its repetition.

The extent of disability was coded by Leign (1995) in terms of permanent total disability (PT), permanent partial disability (PP) and Temporary (Total of partial) disability (TTP) from an analysis of 300 industries in the USA and aggregated the data within various combined categories that is; number of deaths, PTs, PPs and TTPs. One of the findings was that within construction industries labourers have the plurality of jobs and are involved in the majority of injuries and illness. The other finding was that public knowledge about hazards is often inaccurate. The conclusions were: first, the common public is frequently misinformed about job hazards. Most of the high average cost industries such as leather tanning, photo equipment, dairy products, luggage, watches and bakery may not generally be regarded as dangerous by the public. Secondly, industries that are high on both the total and average cost lists include trucking heavy construction, motor vehicle manufacturing, meat products, millwork, sawmills, blast furnaces, carpeting, iron foundries, metal forgings, household furniture and beverages. Industries

that are high on both lists should be candidates for greater attention from Occupational Safety and Health Regulations and researchers.

An idealized a model of optimal workplace safety was developed by Dorman (1998) as demonstrated in the figure below.

Figure I: An idealized model of optimal workplace safety



(Source: Dorman, 1998)

Economics in its simplest incarnation that is the one that exerts the most influence over policy offers an analysis of OSH incentives in which cost internalization plays the central role. The marginal costs of injuries and illness, as well as the costs of controlling them are plotted against safety conditions as depicted in the figure above. As safety measures increase, it is assumed that the increments benefit to another unit of safety that is the marginal costs of injuries and illness that could be avoided declines due to the principle of diminishing returns. The marginal cost of providing safety, MCs, is presumed to rise as the workplace becomes safer, while the marginal cost of injuries and illness, MC1, is presumed to fall. The firm maximizes profits by providing S*, which is also the socially optimal level of safety. At the optimal level of workplace safety S*, the cost of averting an additional occupational safety and health event equals the cost of that event. At any point to the left of S* profits could be improved by investing more resources in workplace safety, and at any point to the right profits could be improved by withdrawing resources.

Failure to comply with the Occupational Safety and health requirements was found to be the main cause of death of the 23 workers in the explosion at a petrochemical plant in Pasadena, Texas (Foley, 1999). In a further study of this incident it was found out that the company had relied on improperly trained subcontracted employees and that such contract workers experienced more injuries than did permanently employed workers at the plant (Kochan, 1991). The study attempted to establish the differences between temporary and permanent workers' occupational health and safety experience. It did so while controlling for the largest source of variation across workers in the risk of injury in

their occupation. Workers' compensation data from the state of Washington were used to examine the pattern of injury rates across a range of different industries. In so far as actual worker injury rates were concerned, the result showed that temporary workers do indeed experience a higher rate of injury than their permanently employed co-workers. The gap appears whether one is looking at claims frequently, claims cost per worker, lost workdays per worker or the workers' compensation insurance premium paid to cover these workers. Furthermore, the gap widens as one moves from lower hazard to higher hazard industries.

2.4 The Workplace Safety and Health Requirements

The preamble of the ILO Constitution specifically provides that the protection of workers against sickness, disease and injury arising out of employment is a fundamental element of social justice. The right to decent, safe and healthy working conditions and environment was reaffirmed in the 1944 Declaration of Philadelphia and adopted by the International Labour Conference at its 98th session (ILO 2009). ILO has developed a significant body of international instruments in the area of OSH over the past 90 years and close to 80 percent of all ILO standards and instruments are either wholly or partly concerned with issues related to OSH. A large number of ILO activities such as child labour, the informal economy, gender mainstreaming, labour inspection, specific sectors of economic activity, HIV/AIDS and migration, include an OSH or OSH-related component. This underlines the continued importance for the specific constituents of this very complex area (Alli, 2008).

Article 4 of the ILO (1981) Convention in consideration of different branches of economic activity and different types of work and taking into account the principle of giving priority to eliminating hazards at their source recommends, measures which should be taken in various fields including design of structural features and installation of access to and egress from the workplace, lighting, use of electricity, radiation protection and prevention of harmful physical or mental stress due to conditions of work. The other OSH measures recommended by the Convention include prevention, control and protection of occupational hazards due to noise and vibration, prevention of fires and explosions, maintenance and use of personal protective equipment, sanitary installations, washing facilities and supply of drinking water, first aid treatment, establishment of emergency plans and supervision of the health of workers.

In many European countries OSH has benefited as the result of these countries joining the European Union (EU). That was only due to application of European Directives related to the social area aimed at harmonization in the framework of progress of occupational safety and health conditions but also due to efforts made to achieve a single market (Castella, 2002). To guarantee the free flow of products and to avoid having to invoke safety reasons that could impede free circulation, measures were taken so that only “safe products” could be traded. Member states have enforcing authorities to ensure that the basic legal requirements relating to OSH are met. They have all transposed into their national legislation a series of directives that establish minimum standards on OSH.

The Health and Safety at Work etc Act (1974) is the source of most OSH law in the UK, under which more detailed sets of regulations are periodically issued (Torrington, 2005). Its main purposes are to secure the health, safety and welfare of people at work; protect the public from risks arising from workplace activities, control the use and storage of dangerous substance and control potentially dangerous environmental emissions. The Act places all employers under a general duty to ensure, as far as is reasonably practicable, the health, safety and welfare at work of all workers.

The USA OSH Act (1970), created the Occupational Safety and Health Administration (OSHA). OSHA, in the US Department of Labour is responsible for developing and enforcing workplace safety and health regulations (Dessler, 2008). Two organizations that support the role of OSHA are the National Institute for Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Review Commission (OSHRC). Most organizations are required to keep safety and health records so that OSHA can compile accurate statistics on work injuries and illness. An employee's right to know about workplace hazards is guaranteed by the Federal Hazards, which takes a sweeping approach to ensuring that employees know about hazards of the workplace. The OSHA standards can be summarized as: prepare an inventory of chemicals used in the facility, identify drums and containers of chemicals with signs and levels, make material safety data sheets available for each chemical, provide hazard communication training to employees, prepare written hazard communication program, devise a spill or emergency plan and develop ways to inform outside contractors of the chemical hazards to which they will be exposed in the facility.

The Occupational Safety and Health Act (2007), has various provisions to ensure occupational safety and health of the workplaces in Kenya and these include : cleanliness of the workplace, overcrowding, ventilation, lighting, drainage of the floors, sanitary conveniences, machinery and prime movers safety, ergonomics and warning signs. The other regulations are concerned with fire prevention and safety, evacuation procedures, supply of drinking water, washing facilities and accommodation for clothing in factories, first aid, training, training and supervisions of inexperienced workers, personal protective equipment, occupational safety and health committees, medical surveillance and inspections among others.

The OSH Act has prescribed specific duties for occupiers, self employed persons and employees at workplaces regarding the above listed occupational safety and health provisions. Some of the occupiers' duties are to ensure: the safety, health and welfare at work of all persons working in his workplace; the provision of information, instructions, training and supervision as is necessary to ensure the safety and health at work of every person employed. At sections 6-9 the Act provides for maintenance of a working environment for every person employed, carrying out appropriate risk assessments in relation to the safety and health of persons employed, adopt preventive and protective measures to ensure safety in use of all chemicals, machinery, equipment and tools. Furthermore, an employer is required to prepare and regularly revise a written statement of his general policy with respect to the safety and health at work of his employees, and

establish a safety and health committee at the workplace in accordance with regulations prescribed by the minister (OSH Act, 2007).

Employees have duty to ensure their own safety and health and that of other persons who may be affected by their acts or omissions at the workplace. It is provided at section 10 of the Act that employees should wear or use protective equipment or clothing provided by the employer for the purpose of preventing their safety and health at all times. They should comply with the safety and health procedures, requirements and instructions given by a person having authority over them for their own or any other person's safety and report to their supervisor any accident or injury that arises in the course of or in connection with their work (OSH Act, 2007).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

This was a survey kind of study of workplaces in Nairobi to determine the extent of their compliance with the Occupational Safety and Health regulations. This kind of study was preferred because as it made it easy to know measures organizations have put in place at their workplaces in order to comply with the occupational safety and health regulations. Further, workplaces in Nairobi are located closely to one another and hence convenience in studying them.

3.2 The Population

The Population of study consisted of all the 2168 workplaces in Nairobi and in the current register of workplaces at the Directorate of Occupational Safety and Health Services. Nairobi was chosen because it had a large number of workplaces which are close to one another. Most of the workplace tragedies had also taken place in Nairobi.

3.3 The Sample

A Sample of 112 (**Appendix I**) workplaces was taken. The Sample size was determined according to Bartlett et al. (2001), table for determining sample size for a given population. As this was a survey kind of study of all organizations in Nairobi, simple random sampling technique was used. Simple random sampling was preferred because

each organization had an equal chance of selection to participate in the study. All workplaces were listed from number 1 to 2168 out of which 112 were randomly selected.

3.4 Data Collection

The study used primary data, which was obtained by use of a structured questionnaire (see **Appendix II**). The questionnaire was divided into two sections, A and B. Section A contained questions that were used to measure the level of awareness and enforcement of the regulations. Section B contains a 5 point likert type scale ranging from strongly agree to strongly disagree, were used to measure the extent of compliance with the requirements/regulations of the Occupational Safety and Health Act. The target respondents were managers and/or supervisors at the selected workplaces.

3.5 Data Analysis

Quantitative analysis was used in the study. Before analyzing the responses, the completed questionnaires were edited for completeness and consistency. To allow for quantitative analysis, data was first converted into numerical codes representing measurements of variables. Descriptive statistics such as mode, means, standard deviations and percentages were used to analyze the data. Tables were used to summarize the outcome of the research. Other techniques used in data analysis were; factor regression and correlation analysis. Factor analysis assisted in decomposing information into a set of variables for meaningful factors that were underlying latent dimensions of the problem. The factors summarize the larger set of original variables /question variables

into a smaller set of meaningful factors. The factors were used as independent variables in the regression model.

Regression analysis was used to come up with the model expressing the relationship between the extent of compliance with the occupational safety and health regulations and the identified regulations. A multiple regression model was developed to describe the relationship between the dependent and independent variables. The regression equation assumed the following form:

$$Y = \beta_0 + \beta_i X_i + e$$

Where Y = extent of compliance with the occupational safety and health regulations

X_i = Regulations

β_0, β_i = regression coefficients

e = error term

Correlation analysis was also used to check on the overall strength of the established regression model and also the individual significance of the predictor variables.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 General Information

A total of 112 questionnaires were distributed to randomly selected workplaces from a population of 2,168 registered workplaces in Nairobi. Out of the 112, only 90 completed and useable questionnaires were obtained from the members of the survey. The general information considered in the study was; number of years the firm has been in operation, number of employees and ownership of the firm.

4.1.1: Length of operations by the firms

The respondents were asked to state the length of operations by their respective firms.

The results are given in table 4.1

Table 4.1: Number of years the firm has been in operation

	Frequency	Percent	Cumulative Percent
Less than 10 years	23	25.6	25.6
11-20 years	20	22.2	47.8
Over 20 years	47	52.2	100.0
Total	90	100.0	

As shown in table 4.1, most of the respondent's firms (52.2%) had been in operation for over 20 years, 25.6% had been operating for less than 10 years while the rest 22.2% had been in operation for 11 to 20 years. All firms which were expected to comply fully irrespective of their years in operation. The length of period in business should not be used as an excuse for non-compliance because accidents respect no age.

4.1.2: Number of employees

The respondents were asked to state number of employees in their respective firms. The results are given in table 4.2

Table 4.2: How many employees work at your workplace in Nairobi

Number of employees	Frequency	Percent	Cumulative Percent
20-49	20	22.2	22.2
50-99	11	12.2	34.4
100-199	16	17.8	52.2
200-499	17	18.9	71.1
over 500	26	28.9	100.0
Total	90	100.0	

The findings presented in table 4.2 show that, 28.9% of the respondent's firms employed over 500 employees, 22.2% have 20-49 employees, 18.9% had 200 to 499 employees while 17.8% had 100-199 employees. Generally majority of the firms had more than 100 employees. A large percentage of the firms employ more than 500 employees at their workplaces in Nairobi. This implies that they are at more risk to non-compliance consequences than those that have fewer employees. Moreover those with many employees are faced with more compliance challenges like budgetary constraints.

4.1.3: Ownership

The respondents were asked to ownership type of their respective firms. The results are given in table 4.3

Table 4.3: Indicate the ownership of your firm

	Frequency	Percent	Cumulative Percent
Private	53	58.9	58.9
Public	37	41.1	100.0
Total	90	100.0	

The results presented in table 4.3 shows that 58.9% of the firms were privately owned while 41.1% were public firms. The participation in the study by both public and private firms was almost equal. This demonstrates that the research was not biased towards either public or private organizations.

4.2 Awareness of the existence of the Occupational Safety and Health Act, 2007 and the effectiveness of its administration and enforcement

This part was for additional information purposes. The researcher was finding out whether managers/supervisors of workplaces were aware of the existence of the Occupational Safety and Health Act, 2007 and the provisions thereof. Further, the researcher was also out to establish the effectiveness in the administration and enforcement of the Act.

4.2.1: Aware of the existence of the Occupational Safety and Health Act, 2007

The respondents were asked to state whether they were aware of the existence of the Occupational Safety and Health Act, 2007. The results are given in table 4.4

Table 4.4: Awareness of the existence of the Occupational Safety and Health Act, 2007

	Frequency	Percent	Cumulative Percent
Yes	81	90.0	90.0

No	9	10.0	100.0
total	90	100.0	

The findings in table 4.4 show that 90% of the firms were aware of the existence of the Occupational Safety and Health Act, 2007 while only 10% were not aware. Beside the fact that ignorance of the law is no defense, it is necessary to create awareness amongst all firms. Given the high level of awareness of the existence of the OSH Act, commensurate level of compliance is expected from the workplaces.

4.2.2: Existence of a copy of the Occupational Safety and Health Act, 2007 at workplace

The respondents were asked to state whether there exist of a copy of the Occupational Safety and Health Act, 2007 at workplace. The results are given in table 4.5

Table 4.5: Existence of a copy of the Occupational Safety and Health Act, 2007 at workplace

	Frequency	Percent	Cumulative Percent
Yes	73	81.1	81.1
No	17	18.9	100.0
total	90	100.0	

As shown in table 4.5, 81.1% of the respondents had a copy of the OSH Act at their workplaces. While 18.9% did not have a copy of the Act at their work places. The availability of the Act at the workplace implies that managers/supervisors at the workplaces were not only aware of the regulations that are contained therein, but they also have a basis for putting measures in place to facilitate compliance.

4.2.3: Workplace registered in accordance with the provisions of the Occupational Safety and Health Act, 2007

The respondents were asked to state whether their workplace was registered in accordance with the provisions of the Occupational Safety and Health Act, 2007. The findings are given in table 4.6.

Table 4.6: Workplace registered in accordance with the provisions of the Occupational safety and Health Act, 2007.

	Frequency	Percent	Cumulative Percent
Yes	90	100.0	100.0
No	0	0.0	100.0
total	90	100.0	

The analysis in table 4.6 shows that 100% of the respondents had their workplace registered in accordance with the provisions of the Occupational Safety and Health Act, 2007. This was meant to verify whether workplaces in the register of the Directorate of Occupational Health and Safety Services were indeed registered, as this is the basic requisite of the OSH Act.

4.2.4: The Act gives adequate provisions regarding the safety and health of employees at the workplace

The respondents were asked to state whether the Act gives adequate provisions regarding the safety and health of employees at the workplace. The findings are given in table 4.7.

Table 4.7: the Act gives adequate provisions regarding the safety and health of employees at the workplace?

	Frequency	Percent	Cumulative Percent
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Yes	83	92.2	92.2
No	7	7.8	100.0
total	90	100.0	

The findings show that 92.2% of the respondents were of the opinion that the Act gives adequate provisions regarding the safety and health of employees at the workplace. This shows that most of the organizations were satisfied with the provisions of the Act with respect to guarding safety and health of employees at workplaces.

4.2.5: Active interest in safety and health matters by defining a policy for your business and communicating it to all employees

The respondents were asked to state whether they demonstrated their active interest in safety and health matters by defining a policy for their business and communicating it to all employees. The findings are given in table 4.8.

Table 4.8: Active interest in safety and health matters by defining a policy for your business and communicating it to all employees

	Frequency	Percent	Cumulative Percent
Yes	76	84.4	84.4
No	14	15.6	100.0
total	90	100.0	

As shown in table 4.8 above, 84.4% of the respondents felt that their firms had demonstrated active interest in safety and health matters by defining a policy for their business and communicating it to all employees. The OSH policy provides a roadmap on how organizations should implant requirements of the Act. From the findings most organizations have been in the process of implementing the regulations and this is an indication of compliance.

4.2.6: Aware of the requirement to notify the area occupational safety and health officer of any accident at the workplace.

The respondents were asked to state whether they were aware of the requirement to notify the area occupational safety and health officer of any accident, dangerous occurrence or occupational illness which has occurred at the workplace. The findings are given in table 4.9. below.

Table 4.9: Aware of the requirement to notify the area occupational safety and health officer of any accident at the workplace

	Frequency	Percent	Cumulative Percent
Yes	70	77.8	77.8
No	20	22.2	100.0
total	90	100.0	

As shown in table 4.9 above, 77.8% of the respondents were aware of the requirement to notify the area occupational safety and health officer of any accident, dangerous occurrence or occupational poisoning which has occurred at the workplace. This implies that compensation process for the injured is fast tracked, investigations of the causes of accidents are instituted and corrective measures are put in place. This may also serve as a reference for Directorate of Occupational Health and Safety Services to institute remedial measures for non – compliance.

4.2.7: Existence of a procedure for handling employee complaints regarding safety and health.

The respondents were asked to state whether they had a procedure for handling employee complaints regarding safety and health. The findings are given in table 4.10.

Table 4.10: Existence of a procedure for handling employee complaints regarding safety and health

	Frequency	Percent	Cumulative Percent
Yes	73	81.1	81.1
No	17	18.9	100.0
total	90	100.0	

As shown in table 4.10 above, 81.1% of the respondent firms had a procedure for handling employee complaints regarding safety and health. This serves as confirmation that employees' rights to occupational safety and health at workplaces as provided by the Act are guaranteed.

4.2.8: Aware of a Director of Occupational Safety and Health Services in the Ministry of Labour who is responsible the administration of the Act.

The respondents were asked to state whether they were aware of a Director of Occupational Safety and Health Services in the Ministry of Labour who is responsible the administration of the Act. The findings are given in table 4.11.

Table 4.11: Aware that there is a Director of Occupational Safety and Health Services in the Ministry of Labour who is responsible the administration of the Act

	Frequency	Percent	83.3
Yes	75	83.3	81.1
No	15	16.7	100.0
total	90	100.0	

As shown in table 4.11 above, 83.3% of the respondents were aware of a Director of Occupational Safety and Health Services in the Ministry of Labour who is responsible the

administration of the Act. This demonstrates that most workplaces were aware of the structures the Government has put in place for facilitating compliance with OSH.

4.2.9: Has any occupational safety and health officer at any time entered your workplace and inspected or examined it

The respondents were asked to state whether any occupational safety and health officer at any time entered their workplace and inspected or examined it. The findings are given in table 4.12.

Table 4.12: Has any occupational safety and health officer at any time entered your workplace and inspected or examined it

	Frequency	Percent	83.3
Yes	47	52.2	52.2
No	43	47.8	100.0
Total	90	100.0	

It was apparent that only 52.2% of the respondent firms have had occupational safety and health officer inspected or examined their workplaces. Significant proportion of the respondent firms had not been inspected or examined by occupational safety and health officer. The number of workplaces that have never been inspected by occupational safety and health officer was high despite most of them having been in operation for more than ten years.

4.2.10: Employees obstruction of any occupational safety and health officer who wanted to enter workplace for purposes of inspection

The respondents were asked to state whether employees in their firms had obstructed any occupational safety and health officer who wanted to enter workplace for purposes of inspection. The findings are given in table 4.13.

Table 4.13: Has any employees obstructed any occupational safety and health officer who wanted to enter workplace for purposes of inspection

	Frequency	Percent	83.3
Yes	14	15.6	15.6
No	76	84.4	100.0
total	90	100.0	

The findings in table 4.13 indicated that 84.4% of the respondents had not obstructed any occupational safety and health officer who wanted to enter the workplace for purposes of inspection. This is an indication of the importance employers attach to inspection teams. The level of obstruction is low and therefore the level of inspection should have been higher than what is indicated above (table 4.11). At the same time when asked to state whether employees had been summoned by an occupational safety and health officer to answer or clarify any issues concerning their workplace, 71.1% of the respondents indicated that they had not been summoned before while 28.9% said that they had been summoned by an occupational safety and health officer to answer or clarify any issues concerning their occupational safety and health workplace. The findings further demonstrate that fewer workplaces have been inspected by officers.

4.2.11: Has your firm ever been charged in any court of law for failure to comply with the provisions of the Occupational Safety and Health Act 2007

The respondents were asked to state whether their firm had ever been charged in any court of law for failure to comply with the provisions of the Occupational Safety and Health Act, 2007. The findings are given in table 4.12.

Table 4.14: Has your firm ever been charged in any court of law for failure to comply with the provisions of the Occupational Safety and Health Act, 2007

	Frequency	Percent	Cumulative frequency
Yes	9	10.0	10.0
No	81	90.0	100.0
Total	90	100.0	

In line with the insignificant proportion of firms which have ever been charged in any court of law for failure to comply with the provisions of the Occupational Safety and Health Act, 2007, only 10% of the respondent firms have been charged in court for failure to comply with the provisions of the Act while 90% have not been charged. There were few workplaces that were adamant to comply with the provisions of the Act and were thus prosecuted in court.

4.2.12: In your view do you think that enforcement of the Act is adequate

The respondents were asked to state if the enforcement of the Act was adequate. The findings are given in table 4.14.

Table 4.15: In your view do you think that enforcement of the Act is adequate

	Frequency	Percent	Cumulative frequency
Yes	9	10.0	10.0
No	81	90.0	100.0
total	90	100.0	

It was apparent that majority of the respondents (90%) felt that the enforcement of the Act was inadequate. On the other hand 10% of the respondents were of the opinion that enforcement of the act was not adequate. This indicates that the Government has to step up effort to ensure mechanisms are put in place to ensure full compliance with OSH regulations at workplaces.

4.3: Compliance with occupational safety and health regulations at workplaces

The respondents were asked to identify by rating predetermined variables on Compliance with occupational safety and health regulations at workplaces. Results of factor analysis are shown in table 4.15 through table 16 below.

Table 4.16: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.807	36.022	36.022	10.807	36.022	36.022
2	2.589	8.631	44.654	2.589	8.631	44.654
3	1.940	6.465	51.119	1.940	6.465	51.119
4	1.404	4.679	55.798	1.404	4.679	55.798
5	1.333	4.442	60.239	1.333	4.442	60.239
6	1.231	4.103	64.342			
7	1.149	3.830	68.172			
8	1.063	3.544	71.716			
9	.897	2.989	74.706			
10	.883	2.943	77.648			
11	.799	2.665	80.313			
12	.675	2.248	82.562			
13	.606	2.021	84.583			
14	.585	1.950	86.533			

15	.514	1.713	88.245			
16	.451	1.504	89.750			
17	.396	1.322	91.071			
18	.350	1.167	92.238			
19	.319	1.062	93.301			
20	.306	1.020	94.320			
21	.297	.992	95.312			
22	.237	.791	96.103			
23	.231	.769	96.871			
24	.211	.704	97.576			
25	.164	.547	98.122			
26	.155	.518	98.640			
27	.147	.490	99.130			
28	.122	.408	99.538			
29	.080	.266	99.805			
30	.059	.195	100.000			

Extraction Method: Principal Component Analysis.

Table 4.15 shows that of the 30 elements examined, only 5 had Eigen values greater than 1. Five factors explain 60.239% (Cumulative percentage) of the total variation, the remaining 24 factors together account for 29.761% of the variance. The explained variation 60.239% is greater than 50% and therefore, Factor Analysis can be used for further analysis.

Table 4.17: Rotated Component Matrix

	Component				
	1	2	3	4	5
The required OSH Act workplace	.605	.058	.113	.340	.114
All exits are visible and unobstructed	.214	.287	.611	.198	-.003
There are sufficient exits to ensure	-.033	.147	.760	.235	.091
All areas with limited occupancy and their Access / egress is controlled by persons	.229	.016	.721	.159	.109
Portable fire extinguishers are provided in adequate number and type	.232	.215	.012	.691	.452
Fire extinguishers are inspected monthly and	.330	-.059	.228	.581	.227

their operationability noted on the inspection tag					
Fire extinguishers are mounted in readily accessible locations	.040	.268	.430	.650	.230
We have a fire alarm system which is tested at least once annually	.077	.058	.228	.343	.771
Employees are periodically instructed in the use of extinguishers and fire protection procedures	.313	-.077	.119	.050	.595
NO SMOKING signs are posted where needed	.162	.255	.311	.089	.648
Stand mats platforms	.510	.214	.130	.438	.078
Waste receptacles are provided and are emptied regularly	-.031	.599	.111	.362	.238
Toilet facilities meet the requirements of applicable sanitary codes	.242	.644	.166	.179	.280
Washing facilities are provided	.139	.650	.141	-.036	-.075
All areas of our business are illuminated	-.043	.674	.134	.481	.004
Wholesome drinking water is provided at all areas of our business	.308	.693	.114	.186	-.165
We have a number of our employees trained	.676	.233	.415	.051	.079
Our first aid supplies are adequate for the type of potential injuries in our workplace	.498	.194	.537	.129	.041
Personal protective equipments (PPE) e.g. goggles, gloves, aprons, shields, Respirators e.t.c are all provided and worn all the time at work	.700	.272	.199	.108	-.163
We have an occupational safety and health committee that allow participation of employees in safety and health activities	.780	.201	.053	.181	.162
The safety and health committee meet at least quarterly and report in writing its activities	.832	.151	.013	.074	.105
We provide safety and health training for all employees requiring such training and	.703	.252	.100	.279	.305
All our employees know what to do in case of emergencies	.332	.374	.539	.253	.154
Workplace injury and illness records are being kept as required by Occupational Safety and Health Act, 2007	.514	.476	.055	.281	.317
Our workplace is kept in a clean state all the time	.161	.703	.141	-.146	.195
We have mechanism for prevention of mental stress due to work	.136	-.141	.158	.124	.530

We have a HIV/AIDS workplace policy which all employees are made aware of	.032	.260	.194	.001	.588
Medical surveillance is regularly carried out at our workplace by a person registered by the Director	.261	-.168	-.127	.333	.632
We have sufficient annual budget to	.195	.505	-.062	.038	.593
We regularly measure the safety and health performance of our workplace	.685	.233	.192	.262	.218

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 8 iterations.

From the table, it is shown that factor one which represented safety regulations was made up of the following variables; The required OSH Act workplace (0.605), Stand mats platforms (0.510), We have a number of our employees trained (0.676), Personal protective equipments (PPE) e.g. goggles, gloves, aprons, shields, Respirators e.t.c are all provided and worn all the time at work (0.700), We have an occupational safety and health committee that allow participation of employees in safety and health activities (0.780), The safety and health committee meet at least quarterly and report in writing its activities (0.832), We provide safety and health training for all employees requiring such training and (0.703), Workplace injury and illness records are being kept as required by Occupational Safety and Health Act, 2007 (0.514) and The safety and health performance of workplaces were regularly measured (0.685).

Factor two which is hygiene regulations is made up of the following variables; Waste receptacles are provided and are emptied regularly (0.599), Our toilet facilities meet the requirements of applicable sanitary codes (0.644), Washing facilities are provided (0.650), All areas of our business are illuminated (0.674), Wholesome drinking water is

provided at all areas of our business (0.693), Our workplace is kept in a clean state all the time (0.703). This factor represents hygiene regulations

Factor three represented emergency regulations and comprise the following variables; All exits are visible and unobstructed (0.611), There are sufficient exits to ensure (0.760), All areas with limited occupancy and their Access / egress is controlled by persons (0.721) All our employees know what to do in case of emergencies (0.539), All our employees know what to do in case of emergencies (0.539).

Factor four represented fire protection regulations and was made up of: Portable fire extinguishers are provided in adequate number and type (0.691), Fire extinguishers are inspected monthly and their operationability noted on the inspection tag (0.581), Fire extinguishers are mounted in readily accessible locations (0.650).

Factor five represented health regulations and composed of: Fire alarm system which is tested at least once annually (0.771), employees are periodically instructed in the use of extinguishers and fire protection procedures (0.595), NO SMOKING signs are posted where needed (0.648), We have mechanism for prevention of mental stress due to work (0.530), We have a HIV/AIDS workplace policy which all employees are made aware of (0.588), Medical surveillance is regularly carried out at our workplace by a person registered by the Director (0.632) and there is sufficient annual budget (0.593).

4.3.1: Regression and correlation analysis

4.3.1.1: Coefficient of determination

The coefficient of determination (R^2) equals 0.838. This shows that safety, hygiene, emergency, fire protection, health regulations explain 83.8 percent of the variations in compliance with the occupational safety and health regulations leaving only 16.2 percent unexplained. The P- value of 0.000 implies that the model of compliance with the occupational safety and health regulations is significant at the 5 percent significance.

Table 4.18: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.838(a)	.703	.684	.80274	.703	37.878	5	80	.000

Predictors: (Constant), safety, hygiene, emergency, fire protection, health

4.3.1.2: ANOVA

The probability value (p-value) of a statistical hypothesis test is the probability of getting a value of the test statistic as extreme as or more extreme than that observed by chance alone, if the null hypothesis H_0 is true. The p-value is compared with the actual significance level of the test and, if it is smaller, the result is significant. The smaller it is, the more convincing is the rejection of the null hypothesis. ANOVA findings in table 4.18 shows that there was correlation between the predictors variables (safety, hygiene, emergency, fire protection, health) regulations and response variable (compliance with the occupational safety and health regulations) since P- value of 0.00 is less than 0.05.

Table 4.19: Model Summary

	Sum of Squares	df	Mean Square	F	Sig.
Regression	122.041	5	24.408	37.878	.000(a)
Residual	51.552	80	.644		
Total	173.593	85			

Predictors: (Constant), safety, hygiene, emergency, fire protection, health

Dependent Variable: compliance with the occupational safety and health regulations

4.3.1.3: Regression equation

The established multiple linear regression equation becomes:

$$Y = 1.310 - 1.290X_1 - 1.710X_2 + 1.583X_3 + 2.339X_4 - 0.255 X_5$$

Where

Constant = 1.310, shows that if safety, hygiene, emergency, fire protection, health regulations were all rated as zero, compliance with the occupational safety and health regulations rating would be 0.260

$X_1 = -1.290$, shows that one unit change in safety regulations results in 1.290 units decrease in compliance with the occupational safety and health regulations

$X_2 = -1.710$, shows that one unit change in hygiene regulations results in 1.710 units decrease in compliance with the occupational safety and health regulations

$X_3 = 1.583$, shows that one unit change in emergency regulations results in 1.583 units increase in compliance with the occupational safety and health regulations

$X_4 = 2.339$, shows that one unit change in fire protection regulations results in 2.339 units increase in compliance with the occupational safety and health regulations

$X_5 = -0.255$, shows that one unit change in health regulations results in 0.255 units increase in compliance with the occupational safety and health regulations

Table 4.20: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.310	.261		5.011	.000
Safety	-1.290	.151	-1.197	-8.559	.000
Hygiene	-1.710	.347	-1.571	-4.934	.000
Emergency	1.583	.244	1.541	6.474	.000
Fire protection	2.339	.277	2.031	8.457	.000
Health	-.255	.118	-.253	-2.158	.034

Dependent Variable: compliance with the occupational safety and health regulations

Since all the t values for the individual predictor variables are more than 2.015 (at 0.05 significance level degree of freedom 5) there is enough that all the predictor variables are linearly related with response variable (a significant relationship between the response and all predictor variables).

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1: Summary

The objective of the study was to determine the extent to which employers have implemented Occupational Safety and Health regulations at their workplaces.

From the findings, majority of the firms had more than 100 employees, that is, 28.9% of the respondent's firms employed over 500 employees, 18.9% had 200 to 499 employees while 17.8% had 100-199 employees. It was also noted that 58.9% of the firms were privately owned while 41.1% were public firms.

The study found that 90% the respondents were aware of the existence of the Occupational safety and Health Act 2007 while only 10% were not aware. There is still need to create awareness amongst the significant proportion of the respondents who were not aware of existence of the Occupational safety and Health Act 2007. Of the organizations whose employees were aware of the existence of occupational safety and health ACT 2007, they also had a copy of the Occupational Safety and Health Act 2007 at their workplace.

The respondents unanimously agreed that the Act gives adequate provisions regarding the safety and health of employees at the workplace and also that their firm's had

demonstrated active interest in safety and health matters by defining a policy for business and communicating it to all employees.

It was apparent that the respondents were aware of a Director of Occupational Safety and Health Services in the Ministry of Labour who are responsible the administration of the Act.

The study used factor analysis to analyze organizational compliance with occupational safety and health regulations at workplaces. It was noted that 30 elements examined were reduced to only 5 factors (Eigen values greater than 1) which explained 60.239% (Cumulative percentage) of the total variation. The five factors were safety, hygiene, emergency, fire protection, health regulations

The study used regression analysis to find the association between safety, hygiene, emergency, fire protection, health regulations and occupational safety and health regulations at workplaces. Forecasting model was developed and tested for accuracy in obtaining predictions. The finding of the study indicated that the model was significant. This is demonstrated in the part of the analysis where R^2 for the association was 83.8 percent.

All the independent variables were also linearly related with the dependent variable thus a model of five predictor variables could be used to rate occupational safety and health regulations at workplace.

5.2 Conclusions

From the analysis, safety regulations factor components had an average of 66.7% compliance level with a non compliance level of 33.3 percent. This implies that most of the workplaces are fairly safe in line with the provisions of the Occupational Safety and Health Act, 2007. The 33.3 per cent non-compliance level, which is still outstanding need to be worked on.

Compliance on hygiene regulations was at 66.05% with a non-compliance level of 33.95%. Hygiene matters a very basic requisite for any work environment. The prevailing 66.05 percent compliance is not good enough as these leave workers highly vulnerable to occupational diseases.

Emergency regulations component was found to be complied with up to 63.4 percent, leaving a non-compliance level of 36.6 percent. This demonstrated the fact that organizations are very well equipped in dealing with emergency situations at their workplaces. It is expected that organization should be well prepared on how to deal with emergencies in order to mitigate injuries, loss of life and property.

With regard to Fire protection regulations component there was 64.1 percent compliance with 35.9 percent non-compliance. Damage usually caused by fires is enormous to the workers, businesses and the government. The 35.9 percent non-compliance level depicts that most workplaces are still exposed to the severe consequences in case of fire outbreaks.

Health regulations component factors were complied with up to 62.2 percent leaving out a non-compliance of 37.8 percent. Non- compliance with health regulations has a direct

bearing on the productivity of workers. It also portrays poor image of the respective organizations.

Overall, the extent of compliance with Occupational Safety and Health regulations at workplaces stands at 64.49 percent. Organizations still have an outstanding 35.51 percent level of no-compliance which they need to work on in order to minimize the consequences of no-compliance.

5.3 Recommendations

5.3.1: Recommendations with policy implications

Occupational Health and health regulations workplaces should be published extensively to make managers/supervisors and workers in organizations increase their awareness level to about one hundred percent. Mechanisms should also be put in place to make members of the general public aware of occupational safety and health.

The quality of the working environment through compliance with safety and health standards has to be ensured by the surveillance at the workplaces. The surveillance should be based on special checklists and guidelines that should be made available to all. The scope of the surveillance of the working environment should be identification and evaluation of the environmental factors which may affect the workers' health, assessment of conditions of occupational hygiene, assessment of personal protective equipment, and assessment of exposure of workers to hazardous agents and control systems designed to eliminate or reduce exposure.

The Directorate of Occupational Health and Safety Services (DOHSS) should be encouraged to collect, analyze and provide data on work-related accidents to the

employers and the general public. This will sensitize all and sundry; and enhance instituting of corrective and protective measures.

DOHSS should fully be facilitated in whatever aspect they are facing, in order to improve on their current surveillance inspection and examination of the workplaces. If this is achieved, then the extent of compliance with occupational safety and health regulations at workplaces will improve.

Now that there is a comprehensive law on the management of occupational safety and health, the government needs to come up with a policy on OSH management system (OSH-MS) at large or high-risk enterprises. The regulations should stipulate that any organization employing 100 employees or more, or containing harmful potential issued due to process characteristic or production material which may cause occupational accident such as disease is obligated to implement an OSH_MS. A systematic audits endorsed by the government, is necessary to measure the OSH-MS practice. A company shall be awarded an OSH-MS certificate if it complies with at least 75 percent of the main elements.

5.3.2: Recommendation for Further Research

It is recommended that a similar research be carried out in other parts of the country. This will enable establish the extent of compliance with occupational safety and health regulations in the country at large. The outcome thereof will help the government to formulate a policy on Occupational Safety and Health Management System.

5.4 Limitations of the Study

Only 90 out of the 112 targeted respondents returned completed questionnaires. This was despite the fact that the researcher spent extra money and time to remind them. Some of the managers/supervisors from the remaining 22 workplaces were reluctant to complete the questionnaires for fear of the unknown even after the purpose of this study was fully explained to them. The researcher finally decided to work with the 90 as sample of the population. This also caused delay in analysis and preparation of the final report.

APPENDIX I

LIST OF WORKPLACES WHICH PARTICIPATED IN THE STUDY

1.	POSTAL CORPORATION OF KENYA	57.	UNIVERSITY OF NAIROBI (MAIN CAMPUS)
2.	TELKOM KENYA LIMITED	58.	AGRO ENGINEERING
3.	GOVERNMENT MINISTRY	59.	UPPER HILL SPRINGS
4.	COOPERATIVE BANK	60.	KENYA COLLEGE OF INSURANCE
5.	SARA LEE (K) LIMITED	61.	WARREN CONCRETE COMPANY LIMITED
6.	KENYA TEA DEVELOPMENT AGENCY	62.	BETA ENGINEERING COMPANY LIMITED
7.	INOORERO UNIVERSITY	63.	HILTON HOTEL
8.	AMACO INSURANCE COMPANY	64.	BARCLAYS BANK (HEAD OFFICE)
9.	HASS PETROLEUM	65.	TEACHERS SERVICE COMMISSION
10.	GULF AFRICA BANK	66.	NACHU LIMITED
11.	KENYA FOREST SERVICE	67.	PLUMBWARE LIMITED
12.	KENOL KOBIL LIMITED	68.	DAYSTAR UNIVERSITY (NAIROBI)
13.	CHAI SACCO	69.	EPCO BUILDERS LIMITED
14.	IMPERIAL BANK	70.	SIX EIGHTY HOTEL
15.	CFC STANBIC BANK	71.	SHERIA SACCO
16.	SOUTH AFRICAN AIRWAYS	72.	FOAM MATTRESSES LIMITED
17.	TRINITY COLLEGE	73.	STEEL MAKERS LIMITED
18.	UNITED BIBLE SOCIETIES	74.	NAIROBI SHAFT GRINDERS LIMITED
19.	KCA UNIVERSITY	75.	NAIROBI PLASTIC LIMITED
20.	NATIONAL AUDIT CORPORATION	76.	BOC KENYA LIMITED
21.	THE PANARI HOTEL	77.	MELITA ELECTRICALS LIMITED
22.	KENYA NATIONAL FEDERATION OF AGRICULTURAL PRODUCTS	78.	KUKOPESA LIMITED (TOM MBOYA)
23.	WELLSFARGO LIMITED	79.	UKWALA SUPERMARKET (MFANGANO)
24.	GLAXOSMITHKLINE (K) LIMITED	80.	PREMIER COOKIES LIMITED
25.	IKUHENE NEGEL-LOGISTICS COMPANY	81.	CITY RADIATORS LIMITED
26.	STANDARD CHARTERED BANK	82.	SMART COATING LIMITED

	(MOI AVENUE)		
27.	CO-OP TRUST	83.	UCHUMI SUPERMARKET (LANGATA)
28.	NAIROBI HOSPITAL	84.	CAR & GENERAL LIMITED
29.	KENYA COMMERCIAL BANK (MOI AVENUE)	85.	BRITISH AMERICAN INSURANCE COMPANY LIMITED
30.	CENTRAL BANK OF KENYA	86.	SAFARICOM LIMITED (HEADQUARTERS)
31.	FEDERATION OF KENYA EMPLOYERS	87.	STANTECH MOTORS
32.	CROWNE PLAZA HOTEL	88.	MWALIMU SACCO LIMITED
33.	CHANCERY WRIGHT	89.	KENYA POWER & LIGHTING COMPANY LIMITED
34.	THE MONARCH INSURANCE COMPANY LIMITED	90.	KENYA AIRWAYS
35.	MULTIMEDIA UNIVERSITY COLLEGE	91.	STIMA SACCO
36.	KENYA FORESTRY RESEARCH INSTITUTE	92.	JEENY FASHIONS LIMITED
37.	KENGEN	93.	JUST JUICE ENTERPRISES
38.	DAVIS & SHARIFF LIMITED	94.	PELICAN HAULERS LIMITED
39.	COOPERATIVE INSURANCE COMPANY	95.	WETILLEY (M) LIMITED
40.	PIONEER FOODS LIMITED	96.	DEVANI PLASTICS LIMITED
41.	NATIONAL SOCIAL SECURITY FUND	97.	ROSOTO BUILDING COMPANY LIMITED
42.	MANYARIKI & COMPANY ADVOCATES	98.	HOGGERS LIMITED
43.	MHASIBU SACCO	99.	ALLIED METAL SERVICES LIMITED
44.	BOSEK & COMPANY ADVOCATES	100.	AUTO AVALLARIES LIMITED
45.	WESSEX PHARMACEUTICALS LIMITED	101.	PRIME STILLS LIMITED
46.	NATIONAL HOSPITAL INSURANCE FUND	102.	TRANSAFRIC CORPORATION LIMITED
47.	KUSCCO LIMITED	103.	KENYA INDUSTRIAL PROPERTY INSTITUTE
48.	SUPERBROOM CLEANING SERVICES COMPANY	104.	KENYA INDUSTRIAL RESEARCH & DEVELOPMENT INSTITUTE
49.	KENYA INSTITUTE OF EDUCATION	105.	WADIA CONSTRUCTION COMPANY LIMITED
50.	SAFARICOM LIMITED (CUSTOMER CARE CENTRE MLOLONGO)	106.	VARSANI BRAKE LININGS LIMITED

51.	NAIROBI WATER COMPANY	107.	AGRO ENGINEERING LIMITED
52.	ACTIONAID INTERNATIONAL	108.	NATIONAL MUSEUMS
53.	KENYA WILDLIFE SERVICE	109.	AFYA SACCO SOCIETY
54.	KENYA REVENUE AUTHORITY	110.	STATE LAW OFFICE
55.	MINISTRY OF COOPERATIVE HEADQUARTERS	111.	KUGURU FOODS COMPLEX
56.	KENYA CIVIL AVIATION AUTHORITY	112.	SIGMA FEEDS LIMITED

APPENDIX II

LETTER OF INTRODUCTION & QUESTIONNAIRE

UNIVERSITY OF NAIROBI
P.O. Box 30197 - 00100
NAIROBI.

JULY 2010

RE: MBA RESEARCH PROJECT

I am a postgraduate student pursuing MBA (HRM) at the University of Nairobi, School of Business. As a requirement of the course, I am supposed to carry out a research study "The extent of compliance with occupational safety and health regulations at workplaces in Nairobi".

Your firm has been selected to form part of this study and therefore request for your assistance in filling the attached questionnaire. This is purely an academic exercise and your response will be held in utmost confidence and under no circumstance will your name or that of your organization be mentioned in the report.

Thank you in advance.

Ayub L. Boniface
MBA STUDENT

S. N. M. NZUVE
SUPERVISOR

**TO BE COMPLETED BY THE MANAGER/SUPERVISOR AT THE
WORKPLACE** (*Tick the appropriate response*)

SECTION A

1. Name of the Workplace/Employer (optional).....
2. Number of years the firm has been in operation
 - a) Less than 10 years ()
 - b) 11-20 years ()
 - c) Over 20 years ()
3. How many employees work at your workplace in Nairobi
 - a) 20-49 ()
 - b) 50-99 ()
 - c) 100-199 ()
 - d) 200-499 ()
 - e) Over 500 ()
4. Indicate the ownership of your firm
 - a) Private ()
 - b) Public ()
5. Are you aware of the existence of the Occupational safety and Health Act 2007
 - a) Yes ()
 - b) No ()
6. Is there a copy of the Occupational Safety and Health Act 2007 at your workplace?
 - a) Yes ()
 - b) No ()

7. Has your workplace been duly registered in accordance with the provisions of the Occupational safety and Health Act 2007?
- a) Yes
- b) No
8. In your view, does the Act give adequate provisions regarding the safety and health of employees at the workplace? Yes/No.
- If No, which sections (s) do you consider inadequate?
Please explain.
9. Have you demonstrated an active interest in safety and health matters by defining a policy for your business and communicating it to all employees?
- a) Yes
- b) No
10. Do you have one person clearly in charge of safety and health activities at the workplace?
- a) Yes
- b) No
11. Are you aware of the requirement to notify the area occupational safety and health officer of any accident, dangerous occurrence or occupational poisoning which has occurred at the workplace?
- a) Yes
- b) No
12. Do you have a procedure for handling employee complaints regarding safety and health?
- a) Yes

- b) No
13. Are you aware that there is a Director of Occupational Safety and Health Services in the Ministry of Labour who is responsible the administration of the Act?
- a) Yes
- b) No
14. Has any occupational safety and health officer at any time entered your workplace and inspected or examined it?
- a) Yes
- b) No
15. Has any occupational safety and health officer taken any measurements and /or photographs of any part or your workplace for purposes of examination or investigation?
- Yes
- No
16. Has any occupational safety and health officer made such examination and inquiry at your workplace which may be necessary to ascertain whether the provisions of the Act are complied with?
- Yes
- No
17. Have you or any of your employees obstructed any occupational safety and health officer who wanted to enter your workplace for purposes of inspection?
- Yes
- No
18. Have you or any of your employees been summoned by an occupational safety and health officer to answer or clarify any issues concerning your workplace?
- Yes

No ()

19. Has your firm ever been charged in any court of law for failure to comply with the provisions of the Occupational Safety and Health Act 2007?

Yes ()

No ()

20. In your view do you think that enforcement of the Act is adequate?

Yes / No

If no, please indicated the section (s) that is/are not adequately enforced.

Please explain:-

SECTION B

	Compliance	Strongly	Agree	Neutral	Disagree			
	Strongly							
		Agree						
	Disagree							
		(1	2	3	4	5)		
				1	2	3	4	5
1.	The required OSH Act workplace poster is displayed in your place of Business where all employees can see			[]	[]	[]	[]	[]
2.	All exits are visible and unobstructed			[]	[]	[]	[]	[]
3.	There are sufficient exits to ensure Prompt escape incase of emergency			[]	[]	[]	[]	[]
4.	All areas with limited occupancy and their Access / egress is controlled by persons specifically authorized to be in those			[]	[]	[]	[]	[]

areas.

- | | | | | | | |
|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. | Portable fire extinguishers are provided in adequate number and type | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. | Fire extinguishers are inspected monthly and their operationability noted on the inspection tag | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. | Fire extinguishers are mounted in readily accessible locations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. | We have a fire alarm system which is tested at least once annually | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. | Employees are periodically instructed in the use of extinguishers and fire protection procedures | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. | NO SMOKING signs are posted where needed | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. | Stand mats, platforms or similar protection is provided to protect employees and visitors from wet floors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. | Waste receptacles are provided and are emptied regularly | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. | Our toilet facilities meet the requirements of applicable sanitary codes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. | Washing facilities are provided | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | | | | | |
|-----|---|-----|-----|-----|-----|-----|
| 15. | All areas of our business are illuminated | [] | [] | [] | [] | [] |
| 16. | Wholesome drinking water is provided at all areas of our business | [] | [] | [] | [] | [] |
| 17. | We have a number of our employees trained in first aid | [] | [] | [] | [] | [] |
| 18. | Our first aid supplies are adequate for the type of potential injuries in our workplace | [] | [] | [] | [] | [] |
| 19. | Personal protective equipments (PPE) e.g. goggles, gloves, aprons, shields, Respirators e.t.c are all provided and worn all the time at work. | [] | [] | [] | [] | [] |
| 20. | We have an occupational safety and health committee that allow participation of employees in safety and health activities | [] | [] | [] | [] | [] |
| 21. | The safety and health committee meet at least quarterly and report in writing its activities | [] | [] | [] | [] | [] |
| 22. | We provide safety and health training for all employees requiring such training and it is documented. | [] | [] | [] | [] | [] |
| 23. | All our employees know what to do in case of emergencies | [] | [] | [] | [] | [] |

24. Workplace injury and illness records are being kept as required by Occupational Safety and Health Act 2007.
25. Our workplace is kept in a clean state all the time.
26. We have mechanism for prevention of mental stress due to work..
27. We have a HIV/AIDS workplace policy which all employees are made aware of
28. Medical surveillance is regularly carried out at our workplace by a person registered by the Director
29. We have sufficient annual budget to cover workplace safety and health issues
30. We regularly measure the safety and health performance of our workplace

1

THANK YOU FOR YOUR CO-OPERATION

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