



## **DETERMINANTS OF HEALTH AND SAFETY REGULATIONS IMPLEMENTATION IN SUGAR MANUFACTURING INDUSTRY IN KENYA**

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### **ABSTRACT**

Occupational safety and health (OSH) is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of occupational safety and health programs is to foster a safe and healthy work environment. The study explored determinants of health and safety regulations implementation in sugar manufacturing industry in Kenya. The study adopted a descriptive survey, which entails survey and facts finding enquiries of affairs as they exist at present. Stratified random sampling was applied in carrying out the study as per the departments. A sample of 10% of the total population was used therefore 217 respondents constituted the sample population for the study. Data was collected using structured questionnaires. Data was collected, tabulated and analyzed for purpose of clarity, using SPSS version 19 software. The study found that maintaining safety practices in an organization had a positive influence on health regulations implementation in sugar manufacturing industry in Kenya. The study also established that safety training had a positive influence on health and safety regulations implementation in sugar manufacturing industry. The study established that risk management practices had a positive influence on the implementation of health and safety regulations in sugar manufacturing industry. The study established that of physical working environment had a positive influence on health and safety regulations implementation in sugar manufacturing industry.

**Keywords:** Occupational safety and health, occupational accidents, safety policy, safety practices

### **INTRODUCTION**

This study explores determinants of health and safety regulations implementation in sugar manufacturing industry in Kenya. Organizations have both legal and moral obligations to provide health and safe working environments as well as ensuring the total well-being of their employees. Organizations should be concerned with the employees general health (both physical and mental) for both economic and humanitarian reasons as employees are the most important resources any organization can have thus, their well-being is not only important to themselves but equally to the employer (Nzuve, 2007). According to Alli, (2008) the human, social and economic costs of occupational accidents, injuries and diseases and major industrial disasters have long been cause for concern at all levels from the individual workplace to the national and international. Measures and strategies designed to prevent, control, reduce or eliminate occupational hazards and risks have been developed and applied continuously over the years to keep pace with technological and economic changes. Yet, despite continuous if slow improvements, occupational accidents and diseases are still too frequent and their cost in terms of human suffering and economic burden continues to be significant. This study therefore aims at establishing determinants of health and safety regulations implementation in sugar manufacturing sector in Kenya.

According to the KSISP, (2010), the Kenyan sugarcane industry is a major employer and contributor to the national economy. It is one of the most important crops alongside tea, coffee, horticulture and maize. Currently, the industry directly supports approximately 250,000 small-scale farmers who supply over 92 percent of the cane milled by the sugar companies. An estimated six million Kenyans derive their livelihoods directly or indirectly from the industry. In 2008, the industry employed about 500,000 people directly or indirectly in the sugarcane business chain from production to consumption. In addition, the industry saves Kenya in excess of USD 250 million (about KSh. 19.3 billion) in foreign exchange annually and contributes tax revenues to the exchequer (VAT, Corporate Tax, personal income taxes).

Mumias Sugar Company Limited (MSC) is the largest employer in the sugar industry in Kenya. It is located in Bungoma County and accounts for 50% of the total sugar produced in the country. The Company was privatized in 2001 and is publicly listed in NSE. The government has a shareholding of 18% while the public investors own 82%, (SEA, 2012). In the sugar-belt zones, the company contributes to infrastructure development through road manufacturing and maintenance; manufacturing of bridges; and to social amenities such as education, health, sports and recreation facilities (KSBSP, 2008). The sugarcane industry provides raw materials for other industries such as bagasse for power cogeneration and molasses for a wide range of industrial products including ethanol. Molasses is also a key ingredient in the manufacturing of various industrial products such as beverages, confectionery and pharmaceuticals.

By far, the largest contribution of the industry is its silent contributions to the fabric of communities and rural economies in the sugarcane belt. Farm households and rural businesses depend on the injection of cash derived from sugarcane. The survival of small towns and market places is also dependent on the incomes from the same. The industry is intricately weaved into the rural economies of most areas in Western Kenya. Sugar is an essential raw material in the processing of food and beverages, and in the manufacture of soft drinks and pharmaceutical products. The production and export of these products saves and also earns the country the much-needed foreign exchange (KESREF strategic plan, 2010). Nzuve, (2007) defines safety as the protection of employees from injuries due to work related accidents and he defines health as an employee's freedom from physical or mental illness. Occupational safety and health (OSH) is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment (Sneddon, 2004). Occupational safety and health can be important for moral, legal, and financial reasons. All organizations have a duty to ensure that employees and any other person who may be affected by the companies undertaking remain safe at all times. Moral obligations would involve the protection of employee's lives and health. Legal reasons for OSH practices relate to the preventative, punitive and compensatory effects of laws that protect worker's safety and health. OSH can also reduce employee injury and illness related costs, including medical care, sick leave and disability benefit costs.

In Kenya, the Occupational Safety and Health Act 2007 and the Factories Act prohibit overcrowding at the work place. The employer should also ensure cleanliness, enough air, lighting and drainage of factory floors. It is a requirement that the employer protects employees against dangerous machines and equipment or parts and from dangerous substances like fumes, gases, explosives or fire. The law requires that all the employees be trained on the job before they are allowed to handle such material or equipment. The employer should also provide an environment which is conducive for proper working, e.g. provision of adequate clean drinking water and washing, changing, sitting and first aid facilities (Aluchio 1998).

The Safety and Health regulations in Kenya are governed by two pieces of legislation: the Occupational Safety and Health Act, 2007 (OSHA, 2007) and the Work Injury Benefits Act, 2007 (WIBA, 2007). The purpose of OSHA, (2007) is to secure the safety, health and welfare of people at work, and to protect those not at work from risks to their safety and health arising from, or in connection with, the activities of people at work. The purpose of WIBA, (2007), is to provide compensation to employees for work-related injuries and diseases contracted in the course of their employment, and for connected purposes. The functions of DOSHS include, inspecting workplaces to ensure compliance with (OSHA, 2007), investigating occupational accidents and diseases, with a view to preventing their recurrence, measuring workplace pollutants for the purposes of instituting control measures; carrying out medical examinations and surveillance of workers' health, providing training on OSH, disseminating information on OSH to

employers, employees and other interested persons, approving architectural plans of buildings intended for use as workplaces, ensuring that employees who are injured in the course of their employment are compensated in accordance with the provisions of WIBA (2007) and instituting and conducting legal proceedings against those responsible for non-compliance with the provisions of (OSHA, 2007). The total number of workplaces that are liable for inspection by the DOSH is estimated at about 140,000. About 7,500 workplaces are registered under OSHA 2007, but only about 4,000 workplaces are inspected annually (NPOSH, 2013).

Kenya has a population of 40 million people; of these, 2 million are employed in the formal sector and 8.8 million are employed or self-employed in the informal sector across the country (KNBS, 2009). The Directorate of Occupational Safety and Health Services (DOSHS), a department within the Ministry of Labor, is responsible for OSH services in the country. It has the mandate to ensure compliance with the provisions of (OSHA, 2007), which promotes the safety and health of workers, and of (WIBA, 2007), through the prompt compensation of employees for work related injuries, (NPOSH, 2013). The DOSHS with 71 professional OSH officers however is not capable of inspecting the estimated 140,000 workplaces effectively, and this leaves most workers exposed to OSH hazards without intervention (NACOSH, 2012). DOSHS representation in 29 counties leaves the remaining 18 counties with no officers. Illiteracy levels are high in the rural areas, which are insufficiently covered by DOSHS officers, and thus illiterate workers in these areas are exposed to OSH hazards. The statistics for annual occupational accidents for the financial year 2010–2011 in agriculture and related activities recorded a total 1364 accidents of which 14 were fatal and 1350 non-fatal (NPOHS, 2013). The sugar industry is a major contributor to the agricultural sector which is the mainstay of the economy and supports livelihoods of at least 25% of the Kenyan population. The subsector accounts for about 15% of the agricultural GDP, is the dominant employer and source of livelihoods for most households in Western Kenya comprising Nyanza, Rift Valley and Western Provinces (KSISP, 2010). According to KUSPW, (2012), however, compared to other countries in the region, safety standards in the cane and sugar sector of Kenya are poor. A new Occupational Safety and Health Act (OSHA, 2007) was passed in December 2007, but labor practices, specifically outsourcing and casualization, have become a major drive for the deterioration of safety standards in the country's sugar sector. KSBSP (2012) highlight that despite the government intervention of passing the OSHA (2007), the industry still faces poor labor practices which have impeded the implementation of the Occupational Safety and Health Act (OSHA 2007). This sought to explore the determinants of health and safety regulations implementation in sugar manufacturing industry in Kenya. The general objective of the study was to establish the determinants of health and safety regulations implementation in sugar manufacturing industry in Kenya.

- i. To establish the influence of safety practices on safety and health regulations implementation in sugar manufacturing industry in Kenya.
- ii. To establish the influence of training on health and safety regulations implementation in sugar manufacturing industry
- iii. To determine the effects of risk management practices on implementation of health and safety regulations in sugar manufacturing industry.
- iv. To establish the influence of physical working environment on health and safety regulations implementation in sugar manufacturing industry.

## **Theoretical Review**

### ***Utility theory***

The study is based on the *Utility theory*. This is a theory where emphasis is on the attempt to make preferences from a set of choices for one's own satisfaction (Bell et. al, 1998). Utility theory can be used in both decision making under risk (where the probabilities are explicitly given) and in decision making under uncertainty (where the probabilities are not explicitly given) (Keeney & Raiffa, 1993). According to Bell et al. (1998), there are three traditions in utility theory. One attempts to describe people's utility

functions and is called the descriptive approach. The second attempts to use utility in the manufacturing of a rational model of decision making and is called the normative approach. The third attempts to bridge the descriptive and normative approaches by considering the limitations people have with the normative goal they would like to reach; this is called the prescriptive approach

***Safety Policy: Abraham Maslow's theory***

Human resources managers formulate workforce strategy and determine the functional processes necessary to meet organizational goals. Safety specialists argue that the safety policy and practices should reflect the employer's commitment to develop safe systems of work, and to pursue a healthy work environment (Rosenzweig & Nohria, 2004). A proactive approach would involve HRM professionals regularly checking to ensure that safety policy; management procedures and arrangements work, and are changed to suit new developments or work structures in the workplace (Schein, 2008). Abraham Harold Maslow proposed a theory that outlined five hierarchical needs which could also be applied to an organization and its employees' performance (Gordon, 1965) as cited in Nyameh, (2013). According to Maslow's theory, as cited in Nyameh, (2013) one does not feel the second need until the demands of the first have been satisfied or the third until the second has been satisfied. When all physiological needs are met and are no longer controlling thoughts and behaviors, the needs for security can become active (Maslow, 1954). A safe working environment should be provided, for example, in dangerous industries like manufacturing industry, company should provide helmets to protect employees from potential dangers, warning boards should be conspicuous at extremely dangerous sites (Nyameh, 2013). As financial security is also a kind of safety needs, organizations should pay employees fairly and ensure them stable career and job security.

***Safety Training: Bowen and Ostroff theory***

According to Bowen and Ostroff (2004) theory on strength of the HR system, consistency in HR practices creates a stronger or clearer image of the HR system, and perhaps the organization, than the sum of each individual practices. A synergistic effect is created by making sure all the HR systems are consistent. In external alignment the HR systems are aligned with the organizational goals and the underlying theory is to create a synergistic effect by having them both work together in the same direction (Anakwe, 2002). Training is the process of teaching new and present employees skills they need to perform their jobs. It is formal and systematic modification of behaviour through learning, which occurs as a result of education, instruction development and planned experience (Armstrong, 2006). The fundamental aim of training is to help the organisation achieve its purpose by adding value to its key resource, the people it employs. It is investing in people to enable them perform better and empower them to make the best of their natural abilities.(Snell, 2006). Employees need to be helped to do their present job correctly and effectively . Poor performance results from too few staff, or from staff not providing care according to standards and not being responsive to the needs of the community and patients. Most performance problems can be attributed to unclear expectations, skills deficit, resource or equipment shortages or a lack of motivation (Hughes et al., 2002). These causes are rooted in poor training, low salaries, difficult working and living conditions. OSHA, (2007) requires every employer to provide information, instruction, training and supervision as is necessary to ensure the safety and health at work of every person employed. Employees are required to comply with the safety and health procedures, requirements and instructions given by a person having authority over his for his own or any other person's safety.

***Risk Management Practices: Barney's Resource Based View Theory (RBV)***

Zimolong and Elke, (2010) define risk as the probability that harm will occur within a certain period while management is the reduction and control of the adverse effects of the risks to which an organization is exposed. The essence of risk management is to prepare, protect, and preserve the resources of the enterprise. This approach demands analyzing the current and past operating hazard, risk, and loss producing patterns and forecasting expected hazard, risk, and loss-operating patterns, (Hutchinson & Hutchinson, 1997). According to Barney's theory of the firm or RBV, he focuses on creating competitive advantage through the internal resources of firms, including human resources in recent literature. This theory focuses on the strengths and weaknesses side of a SWOT analysis which again shows that there is a sort of synergistic effect in RBV created through systems and practices that add value, are rare, difficult

to imitate and work within an organizational system. According to Bamber (2003), risk control strategies may be classified into four main areas: risk avoidance, risk retention, risk transfer and risk reduction. Risk avoidance means the deliberate decision on the part of the organization to avoid a particular risk. Risk retention relates to the decision of the organization to meet any resulting loss from within the organization's financial resources. Managers are being encouraged to implement human factor's risk management strategies that support the organization's business objectives and increase accountability and transparency around human factor management and reporting (Pwc, 2008).

***Physical working environment : Mendeloff theory***

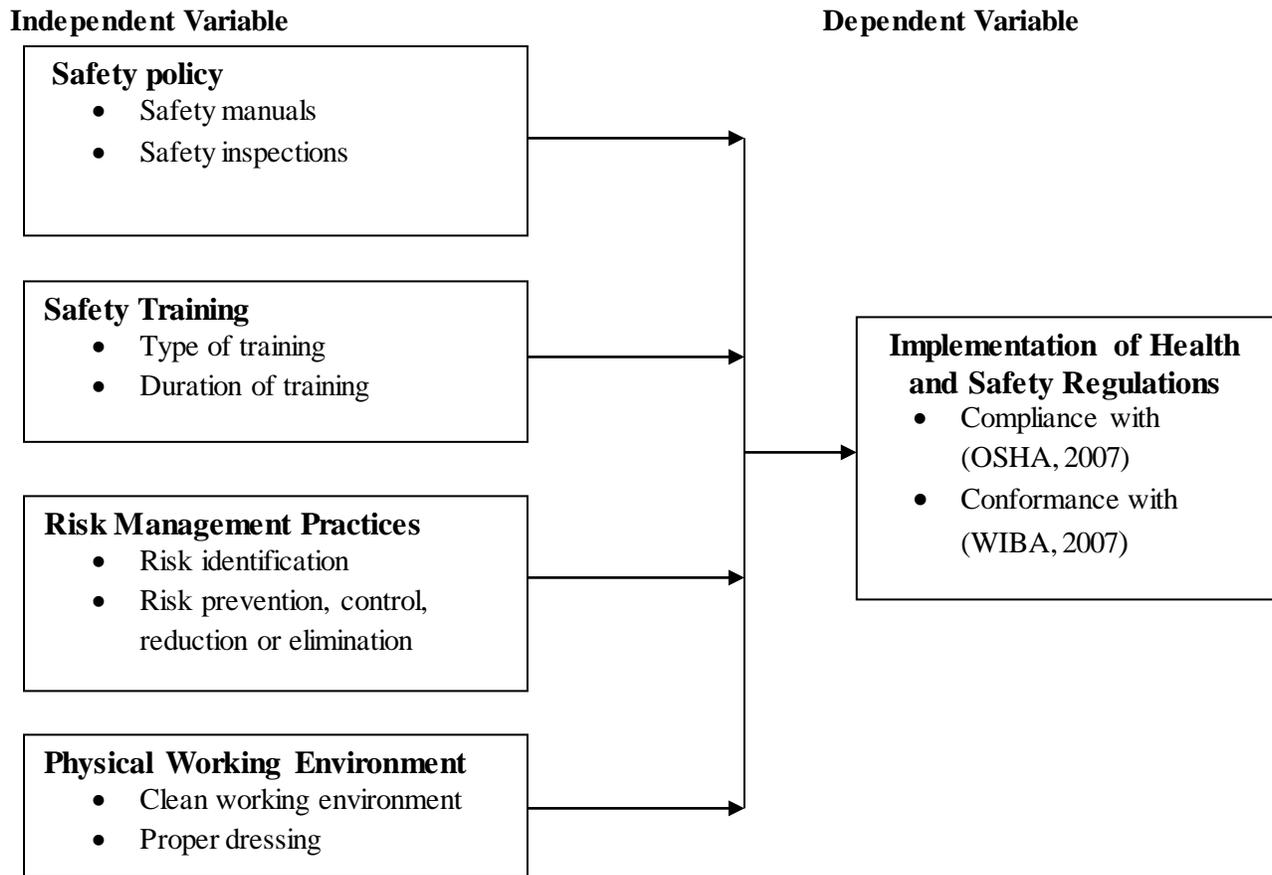
Mendeloff (1988) offers a theory or the lack of effective regulation of health risk. The 'inefficacy' theory posits that administrative regulation does not increase workplace safety because there is a tenuous link between regulation and the causes of accidents. Administrative regulation focuses on making workplace equipment safer to use. Analysts argue, however, that the cause of most accidents is a complex interaction of labor, equipment and workplace environment. The provision and maintenance of a working environment for every person employed that is, safe, without risks to health, and adequate as regards facilities and arrangements for the employees welfare at work.

***Implementation of health and safety regulations : Behavior based theory***

The behavior-based theory stems from Skinnerian applied behavior analysis and behavior modification and is based on the idea that behavior management techniques can be used to change behavior, leading to changes in individual attitudes (Tharaldsen & Haukelid, 2009). Of particular importance in the behavior-based perspective is Skinner's (1971) argument that the consequences of behavior influences future behavior. Behavior management techniques such as incentives, rewards, feedback, goal-setting, coaching and training are applied within the context of occupational safety with the aim that they will influence and if necessary change future behaviors (Tharaldsen and Haukelid, 2009). Williams and Geller (2000) have argued that there are two types of feedback used to improve safety performance. Specific (specific safe behaviors) and global (cumulative score of safe behaviors). They also proposed that social comparison feedback or comparing the extent to which safe behaviors are used between work groups will also improve safety performance. The results of their research were that feedback substantially increased safe work practices. They also found that specific feedback, i.e. providing feedback percentage for each time a specific safe behavior was observed, was superior to global feedback that provided only an overall score. The presence of comparisons between work groups, or the social comparison feedback also increased the extent to which the employees behaved safely.

**Conceptual Framework**

A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Reichel & Ramey, 1985). According to Bogdan and Biklen, (2003) a conceptual framework is a basic structure that consists of interrelated independent and dependent variables. It consists of abstract blocks which represent the observational, experiential and analytical aspects of a process or system being conceived. (Mugenda & Mugenda, 2003). The interconnection of these blocks completes the framework for certain expected outcomes. The individual variables in this study are safety practices, safety training, risk management practices and physical working environment while the dependent variable is implementation of health and safety regulations.



**Figure 1: Conceptual Framework**

**RESEARCH METHODOLOGY**

A descriptive research determines and reports the way things are and attempts to describe such things as possible behavior, attitudes, values and characteristics, Mugenda & Mugenda, (2003). The study considers case study design suitable since data was gathered from a single source; employees of sugar manufacturing industry and evaluates determinants of health and safety regulations implementation in sugar manufacturing industry. The population for this study was all employees working in MSC from which a sample was drawn. This study targets the overall number of permanent employees is 1697, contract employees being 126, employees in casuals are 349 all totaling to 2172 employees.

**Table 1: Target Population**

Category	Frequency	Percent
Permanent	1697	78.1
Contract Employees	126	5.8
Casual	349	16.1
Total	2172	100

Cooper & Schindler (2006) argue that if well chosen, samples of about 10% of a population can often give good reliability. Stratified random sampling technique will be used since population of interest is not homogeneous and could be subdivided into groups or strata to obtain a representative sample. This

generates a sample of 217 respondents which the study seeks information from. This made it easier to get adequate and accurate information necessary for the research. The selection was as shown in Table 2.

**Table 2: Sample Population**

Category	Frequency	Percent	Sample
Permanent	1697	10.0	170
Contract Employees	126	10.0	13
Casual	349	10.0	35
Total	2172	10.0	217

Data was collected using structured questioners. Structured questions are easier to analyze since they are in the immediate usable form, (Orotho & Kombo, 2002). Likert type of scale was used for example beside each statements presented below, please indicate whether you are extremely satisfied, satisfied, dissatisfied or extremely dissatisfied. Secondary data was collected through reviews of both empirical and theoretical data from books, journals, magazine and the internet.

Data was collected, tabulated and analyzed for purpose for clarity, using SPSS version 19 software. The multivariate analysis involved simultaneous analysis of more than two variables in a multi-way classification, for instance regression (Kothari, 2004). Multiple regression analysis was done as there are more than two variables in the study and the relationship between the dependent and independent variables need to be analyzed. SPSS was used as an analysis tool for this study since it is accessible and easy to use. The regression equation is:  $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Y= Occupational Health and Safety

$\beta$ = Coefficient of the Independent Variables

X<sub>1</sub>= Safety practices

X<sub>2</sub>= Safety Training

X<sub>3</sub>= Risk Management

X<sub>4</sub>= Physical working environment

e= Standard Error

The study targeted a sample size 217of respondents from which 196 filled in and returned the questionnaires making a response rate of 90.3%. This response rate was satisfactory to make conclusions for the study. The response rate was representative. According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Based on the assertion, the response rate was considered to excellent.

### **Reliability Analysis**

The questionnaire was pilot tested. . A pilot study is a small scale preliminary study conducted before the main research in order to measure the validity and reliability of data collection instruments, (Kothari, 2006). A pilot study was carried out to determine reliability of the questionnaires. The pilot study involved the sample respondents from sugar manufacturing industry analysis was subsequently done using Cronbach's Alpha which measures the internal consistency by establishing if certain item within a scale measures the same construct.

Reliability of the questionnaire was evaluated through Cronbach's Alpha which measures the internal consistency. Cronbach's alpha was calculated by application of SPSS for reliability analysis. The value of the alpha coefficient ranges from 0-1 and may be used to describe the reliability of factors extracted from dichotomous and or multi-point formatted questionnaires or scales. A higher value shows a more reliable generated scale. Cooper & Schindler (2008) has indicated 0.7 to be an acceptable reliability coefficient. Table 3 shows that risk management practices had the highest reliability ( $\alpha=0.848$ ) followed by safety practices ( $\alpha=0.721$ ), then physical working environment ( $\alpha = 0.713$ ) and safety training ( $\alpha=0.707$ ). This illustrates that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.7.

**Table 3: Reliability Coefficients**

Scale	Cronbach's Alpha	Number of Items
Safety practices	0.721	8
Safety training	0.707	10
Risk Management Practices	0.748	6
Physical Working Environment	0.713	6

## RESULTS AND DISCUSSION

### Safety practices and policies

The study sought to establish the parties involved in formulating safety policies in the human resources department. From the findings the study found that employee representative, organization management, representative from ministry of health and labour and human resource manager were involved in the designing of the safety policies (Table 4).

**Table 4: Extent to which HR develop safety policies of work and pursue a healthy work environment**

Extent	Frequency	Percentage
Very great extent	59	30.2
Great extent	104	53.1
Moderate extent	33	16.7
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the Extent to which HR has developed safety policies of work, and pursued healthy work environment in the company. From the findings 53.1% of the respondents indicated to a great extent, 30.2% of the respondents indicated to a very great extent whereas 16.7% of the respondents indicated to a moderate extent. This implies that HRs' commitment to developing safety policies of work, and healthy work environment in most of the organizations was to a great extent (Table 5).

**Table 5: Extent to which safety policy outlines safety responsibilities of all levels of management**

Extent	Frequency	Percentage
Very great extent	67	34.4
Great extent	74	37.5
Moderate extent	55	28.1
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which safety policy outlined safety responsibilities of all levels of management within the management hierarchy in the company. From the findings as shown in Table 5 37.5% of the respondents indicated to a great extent, 34.4% of the respondents indicated to a very great extent whereas 28.1% of the respondents indicated to a moderate extent. This implies that to which safety policy outlined safety responsibilities of all levels of management within the management hierarchy in the company to a great extent.

**Table 6: level of agreement on statement concerning the safety policy**

Statement	Mean	Std deviation
Human resource management changes safety policy to suit new developments or work structures in the company workplace	4.29	0.22
The human resource in the company promotes the well-being of employees.	4.44	0.25
Human resources ensure safety management standards, systems, and manuals in the company	4.13	0.21

The study sought to determine the level at which respondents agreed with the above statements relating to safety policies. The study revealed that majority of the respondents agreed that: the human resource in the company promotes the well-being of employees as shown by a mean of 4.44, Human resource management changes safety policy to suit new developments or work structures in the company workplace as shown by mean 4.29, Human resources ensure safety management standards, systems, and manuals in the company as shown by mean of 4.13 (Table 6).

**Table 7: HR team involved in deciding security activities in the organization**

Opinion	Frequency	Percentage
Yes	141	71.9
No	55	28.1
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to determine whether respondents HR team was involved in deciding what security activities the organization that will undertake in a given period. From the findings (Table 7) majority of the respondents agreed that their teams were involved in deciding security activities as shown by 71.9 % whereas 28.% disagreed that the HR team was involved in deciding what security activities the organization will undertake in a given period, this implies that most of the employees were consulted in planning of security activities in the organization.

**Table 8: Extent to which human resource department performed various roles towards developing**

Statement of strategic role of the human resource department in company	Mean	Std deviation
Making decision concerning safety issues	4.18	0.21
Identifying , planning and setting security and safety issues	4.07	0.20
Developing safety plans in the company	4.14	0.20
Developing safety policies in the company	4.33	0.22
Refocusing for the future and reviewing its safety policies and safety manuals with global changes	4.21	0.21

The study sought to determine extent to which human resource department performed the above roles. The results established that the following roles were performed to a to a great extent by human resource department developing safety policies in the company as shown by mean of 4.33, refocusing for the

future and reviewing its safety policies and safety manuals with global changes as shown by mean of 4.21, making decision concerning safety issues as shown by mean of 4.18, developing safety plans in the company as shown by mean of 4.07 (Table 8).

**Safety Training**

**Table 9: Training approach adopted in training staff on safety issue**

	<b>Percentage</b>
On the job training	81.3
Supervisory assistance and mentoring	72.9
Training courses and seminars	71.9
Job instruction	70.8

The study sought to establish the type of training approaches adopted in training staff on safety issue. From the findings the study established that among the adopted techniques include on job training as shown by 81.3%, supervisory assistance and mentoring as indicated by 72.9%, training courses and seminars as shown by 71.9% Job instruction as shown by 70.8% the study also established that most of the firms also used team building to enhance staff skills in safety issues (Table 9).

**Table 10: Extent to which MSC has trained employees on safety issues**

<b>Extent</b>	<b>Frequency</b>	<b>Percentage</b>
Very great extent	49	25.0
Great extent	121	61.5
Moderate extent	26	13.5
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which MSC has trained employees on safety issues. From the findings as shown in Table 10, 61.5% of the respondents indicated to a great extent, 25% of the respondents indicated to a very great extent whereas 13.5% of the respondents indicated to a moderate extent. This implies that which MSC has trained its employees on safety issues to a great extent.

**Table 11: Often at which safety trainings are conducted at MSC**

	<b>Frequency</b>	<b>Percentage</b>
Weekly	8	4.2
Monthly	12	6.3
Quarterly	90	45.8
Semi-annually	59	30.2
Annually	26	13.5
<b>Total</b>	<b>196</b>	<b>100</b>

The study requested respondents to indicate how often safety trainings programs were conducted at MSC, from the study findings, 45.8% of the respondents indicated on quarterly basis,30.2% of the respondents indicated semi-annually,13.5 % of the respondents indicated once per year 6% of the respondents indicated on monthly basis whereas 4.2% of the respondents indicated on weekly basis. This implies that the management mostly conducted safety training programs on quarterly basis (Table 11).

**Table 12: Statement concerning strategic role of human resources in training employees on safety measures**

	Mean	Std deviation
The human resource management in the company trains employees on how to use manufacturing equipment.	4.17	0.21
The employees in the company are trained to identify and recognize risk occurrence	4.25	0.22
The employees are trained on how to act in case an accident occurs	4.33	0.23
The human resource department creates safety awareness among the employees	4.10	0.21
The human resource department has formulated safety guidance to be followed in training employees	4.28	0.23
The department of human resource department educates employees on measures of risk prevention	4.27	0.23
Providing safety gadget such fire equipment and train staff on how to use them in case of firebreak up	4.09	0.21
The employees are supplied with helmet and protective clothes and trained on how to use them effectively	3.98	0.19
In safety training, the company human resource unit focuses on attitudes and beliefs that lead to safe behavior.	4.22	0.22
Safety inspections are regularly conducted	4.11	0.20

The study sought to determine the level at which respondents agreed or disagreed with the above statements relating to employee training on safety measures. From the study findings (Table 12) it was revealed that; the employees were trained on how to act in case an accident occur as shown by mean of 4.33, the human resource department has formulated safety guidance to be followed in training employees as shown by mean of 4.28, the department of human resource educates employees on measures of risk prevention as shown by mean of 4.27, employees in the company are trained to identify and recognize risk occurrence as shown by mean of 4.25, in safety training, the human resource unit focuses on attitudes and beliefs that lead to safe behavior as shown by mean of 4.22, the human resource management in the company trains employees on how to use manufacturing equipment as shown by mean of 4.17, safety inspections are regularly conducted as shown by mean of 4.11, the human resource department creates safety awareness among the employees as shown by mean of 4.10, providing safety gadget such fire equipment and train staff on how to use them in case of firebreak up as shown by mean of 4.09 and the employees are supplied with helmet and protective clothes and trained on how to use them effectively as shown by mean of 3.98

**Table 13: Extent to which human resource management department has undertaken training of employees on**

	Frequency	Percentage
Very great extent	47	24.0
Great extent	110	56.3
Moderate extent	39	19.8
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which human resource management department had undertaken safety training to employees on how to respond to occurring of an accident. From the findings 56.3 % of the respondents indicated to a great extent, 24% of the respondents indicated to a very

great extent whereas 19.8% of the respondents indicated to a moderate extent. This implies which human resource management department has undertaken training of employees on how to respond to occurring of an accident to a great extent (Table 13).

**Risk management**

**Table 14: Extent to which risk management is of importance to the company**

	<b>Frequency</b>	<b>Percentage</b>
Very great extent	57	29.2
Great extent	114	58.3
Moderate extent	25	12.5
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which risk management is of importance to the Company. From the findings (Table 14), 58.3% of the respondents indicated to a great extent, 29.2% of the respondents indicated to a very great extent whereas 12.5% of the respondents indicated to a moderate extent. This implies that which risk management is of great importance to the organization. the study also revealed that effective risk management is likely to improve performance against objectives by contributing to: fewer sudden shocks and unwelcome surprises, more efficient use of resources, reduced waste, reduced fraud, better service delivery ,reduction in management time spent fire-fighting, better management of contingent and maintenance activities, lower cost of capital and improved innovation

**Table 15: Extent to which the human resource unit has undertaken the process of assessing employees risks in the company**

	<b>Frequency</b>	<b>Percentage</b>
Very great extent	72	36.5
Great extent	84	42.7
Moderate extent	41	20.8
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which human resource unit had undertaken the process of assessing employees risks in the company. From the findings 42.7% of the respondents indicated to a great extent, 36.5% of the respondents indicated to a very great extent whereas 20.8% of the respondents indicated to a moderate extent. This implies that human resource unit has greatly undertaken the process of assessing employee’s risks in the company. The study established that the organization had hired services of employees’ safety from a consultant who work closely with internal safety department (Table 15).

**Table 16: Employee confidence in resolving risk matters**

	<b>Percentage</b>
Identify a risk at your work place	92.7
Control a risk in case it happens	81.3
Prevent a risk before it occurs	90.6
Eliminate a risk if possible	65.6

The study sought to determine employee confidence in the above aspect., From the study findings the study established that majority of the employees could Identify a risk at their work place as shown by 92.7%, Prevent a risk before it occurs as shown by 90.6% significant number of control a risk in case it happens 81.3% and also eliminate a risk if possible as shown by 65.6% (Table 16)

**Table 17: Extent to which the company has benefited due to risk management**

	Mean	Std deviation
Protecting the company from financial loss	4.29	0.22
Prevent loss of life	4.26	0.22
Controlling risks at the lowest possible cost in the company	4.22	0.22
Through Risk Management human resource management in the company identifies risk facing the employees in their duties and minimizes their occurrence	4.23	0.21
The human resource management unit in the company carry out an assessment on risks facing the company and define suitable strategies to reduce its occurrence	4.26	0.22
Resolve risks facing employees before they occur	4.03	0.20

The study sought to determine the extent to which respondents agreed with the above statements relating to benefits accruing from risk management. From the study findings majority of the respondents agreed to a greater extent that, risk management has protected the company from financial loss as shown by a mean of 4.29, the human resource management unit in the company carries out an assessment on risks facing the company and define suitable strategies to reduce its occurrence, and that risk management has prevented loss of lives as shown by a mean of 4.26 in each case. Through risk management human resource management in the company identifies risk facing the employees in their duties and minimizes their occurrence as shown by mean of 4.23, risk management has lead to controlling of risks at the lowest possible cost in the company as shown by a mean of 4.22 and that risk management resolve risks facing employees before they occur as shown by mean of 4.03. The study established that human resource management in the company practices risk management, through training of employee on risk, involving consultants to assess the level of risk in the organization and engaging all stakeholders in risk management in the organization (Table 17).

**Physical working environment**

**Table 18: Extent to which MSC has put precautions in the working place**

	Frequency	Percentage
Very great extent	59	30.2
Great extent	98	50.0
Moderate extent	39	19.8
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which MSC has put precautions in the working place. From the study findings 50% of the respondents indicated to a great extent, 30.2% of the respondents indicated to a very great extent whereas 19.8% of the respondents indicated to a moderate extent. This implies that MSC had put precautions in the working place a great extent. The study further established that the organization had started on training employees, on safety at their work environment, they had acquired the necessary equipment to enhance the safety of the working environment and they involved all the employee in ensuring safety of working environment.

**Table 19: Extent to which the human resource department has developed safety guideline**

	Frequency	Percentage
Very great extent	61	31.3
Great extent	82	41.7
Moderate extent	53	27.1
<b>Total</b>	<b>196</b>	<b>100</b>

The study sought to establish the extent to which human resource department had developed safety guideline to prevent occurrence of accident at work place. From the findings 41.7% of the indicated o a great extent, 31.3% of the respondents indicated to a very great extent whereas 27.1% of the respondents indicated to a moderate extent. This implies that human resource department has developed safety guideline to prevent occurrence of accident at work place to a great extent.(Table 20)

**Table 20: Extent to which the human resource department has undertaken human resource planning in promoting safety working environment**

	Mean	Std deviation
Human Resource officer in the company ensures safety instructions and systems of work are in place	4.06	0.20
Human resource management in the company designs, develops and installs suitable management arrangements to promote safety working environment	4.33	0.23
Human resources managers plan training and development for the employees for future positions	4.18	0.21
Ensures employees are taken for training on how to act competently in performing their duties	4.17	0.20
Human resource unit in the company employs educated and competent workforce	4.21	0.21
HRP prepares the company to be ready in case of any changes with effective labour plans	4.07	0.20

The study sought to determine the extent to which respondents agreed with the above statements. From the study findings as shown in Table 21, the study established that majority of the respondents agreed to a great extent that human resource management in the company designs, develops and installs suitable management arrangements to promote safety working environment as shown by mean of 4.33, human resource unit in the company employs educated and competent workforce as shown by mean of 4.21 , human resources managers plan training and development for the employees for future positions as shown by a mean of 4.18, ensures employees are taken for training on how to act competently in performing their duties as shown by a mean of 4.17, HRP prepares the company to be ready in case of any changes with effective labour plans as shown by a mean of 4.07, Human Resource officer in the company ensures safety instructions and systems of work are in place as shown by a mean of 4.06.

**Regression Analysis**

**Table 22: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.916 <sup>a</sup>	.839	.795	.00037

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table below the value of adjusted R squared was 0.795 an indication that there was variation of 79.5% on the implementation of health and safety regulations due to changes in safety practices, safety training, risk management practices, physical working environment at 95% confidence interval. This shows that 79.5 % changes in implementation of health and safety regulations could be accounted to changes in safety practices, safety training, risk management practices, physical working environment. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table below there was a strong

positive relationship between the study variables as shown by 0.916.

**Table 23: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.508	4	.627	7.395	.000 <sup>b</sup>
	Residual	17.381	191	.091		
	Total	19.889	195			

From the ANOVA in Table 23, the processed data, which is the population parameters, had a significance level of 0.000 which shows that the data is ideal for making a conclusion on the population parameters as the value of significance (p-value) is less than 5%. The calculated value was greater than the critical value (7.395 > 1.9861) an indication that safety practices, safety training, risk management practices, physical working environment were significantly influencing implementation of health and safety regulations. The significance value was less than 0.05 indicating that the model was significant.

**Table 24: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.464	.173		3.470	.000
	Safety practices	.244	.084	.343	2.902	.004
	Safety training	.138	.084	.235	1.770	.019
	Risk Management Practices	.148	.072	.228	2.066	.041
	Physical Working Environment	.219	.069	.246	3.187	.002

From the data in Table 24, the established regression equation was

$$Y = 0.464 + 0.244X_1 + 0.138 X_2 + 0.148 X_3 + 0.219 X_4$$

From the above regression equation it was revealed that holding safety practices, safety training, risk management practices, physical working environment to a constant zero, implementation of health and safety regulations would be at 0.464, a unit increase in safety practices would lead to increase in the implementation of health and safety regulations by a factor of 0.244, unit increase in safety training would lead to increase in implementation of health and safety regulations by factors of 0.138, a unit increase in risk management practices would lead to increase in implementation of health and safety regulations by a factor of 0.148 and unit increase in physical work environment would lead to increase in implementation of health and safety regulations by a factor of 0.219. At 5% level of significance and 95% level of confidence, risk management practices had a 0.041 level of significance; safety training showed a 0.019 level of significance, safety practices had a 0.004 level of significance while physical working environment showed 0.002 level of significance hence the most significant factor is physical working environment. Overall physical working environment had the greatest effect on the implementation of health and safety regulations, followed by safety practices, then safety training while risk management practices had the least effect to implementation of health and safety regulations. All the variables were significant (p < 0.05).

## CONCLUSIONS

The study established that safe work practices can help employees prevent accidents and injuries when working, thus the study concludes that maintaining safety practices in an organization had a positive influence on health regulations implementation in sugar manufacturing industry in Kenya.

The study also established that Providing health & safety information and training helped to create awareness of dangers which are likely to occur in the organization to thus making employees to keep

safety practices on daily basis therefore the study concludes safety training had a positive influence on health and safety regulations implementation in sugar manufacturing industry.

The study established that risk Management has led to controlling of risks at the lowest possible cost in the company thus the study concludes that risk management practices had a positive influence on the implementation of health and safety regulations in sugar manufacturing industry.

The study established that safe work environment boosts employee morale, reduces employees stress which, in turn, increases productivity, efficiency thus the study concludes that of physical working environment had a positive influence on health and safety regulations implementation in sugar manufacturing industry.

## RECOMMENDATIONS

From the findings and conclusion the study recommends that organization should continue offering safety training courses to employees as this will help to create awareness of dangers which are likely to occur at work place and thus help employees maintain safety practices.

The tutors should be persisted to make sure every that worker understands the training importance. For instance he can insist on questions from trainees after training session to verify how effective the session was this will let the trainer know what has to be reviewed again. If there a general lack of understanding of hazards or safety rules and practices, it is important to schedule another safety meeting or plan a refresher course for a later date.

The study recommends that the organization should continue implementing effective Risk management practices. It is important that the organization adds risk management departments to their team. This team will help identify risks, and at the same come up with strategies to guard against perceived risks, again the team will help to execute proposed strategies, and to motivate all members of the company to cooperate in these strategies. This will ultimately help the organization to act more confidently on future business decisions.

The study recommends that organization must take an active approach in educating workers on the importance of practicing safe habits in order to maintain a healthy and safe working environment. The organization must keep accurate records and make reports to appropriate agencies (including OSHA). Demonstrating injury prevention to OSHA standards will protect the organization from some legal exposures. Finally, reducing workplace injuries will ultimately save the organization on costs for worker's compensation claims.

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