

**AN EVALUATION OF THE  
EFFECTIVENESS OF SAFETY  
TRAINING ON THE  
FREQUENCY OF ACCIDENTS  
IN MANUFACTURING FIRMS  
IN KENYA: A CASE OF  
NAKURU MUNICIPALITY.**

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**BY**

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# INTRODUCTION

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 Employee safety programs and its impact on the overall health and vitality of an organization is something most employers must take into consideration. Having a seasoned and well trained workforce can deliver a competitive advantage that is difficult to replicate. Training also plays a major role in employee safety.

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☞ An employee of Webuye based Pan African Paper Mills was killed in September 2007. This employee was crushed in the mill as he removed paper from a roller.

☞ Similar events were reported at the Unga limited in Nakuru where several people lost their arms as they placed feeds in the machine.



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The 'Bhopal disaster' was an industrial disaster that occurred in Bhopal, India, resulting in the deaths of more than 15,000 people, according to the Indian Supreme Court.



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The incident took place in the early hours of the morning of December 3, 1984, in the heart of the city of Bhopal in Indian state of Madhya Pradesh.

A union carbide subsidiary pesticide plant released 40 tones of methyl isocyanate (MIC) gas.




# GENERAL OBJECTIVE

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 The general objective of this research is to assess the impact of safety training on the frequency of accidents in the manufacturing firms in Kenya.

# HYPOTHESIS

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 Safety training has no impact on the frequency of accidents.


# TARGET POPULATION

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📄 The target population of this research were the employees in the manufacturing firms within Nakuru. Twenty manufacturing firms in Nakuru were conveniently sampled. A sample size of 100 respondents was drawn from a population of 300 employees. A random sampling system was adopted and applied in every firm.

# DATA COLLECTION

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 A survey was carried out through the administration of open-ended questions, structured questionnaires and discussions with key informants, focus groups and individuals.

A spiral-bound notebook with a brown cover and a cream-colored page. The spiral binding is on the left side. A horizontal line is drawn across the page, and a small brown dot is located above it on the left side.

# THE FINDINGS

**Table 1:** Comparing the Frequency of accidents before and after training at work place.

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 <b>No.</b>	<b>Before</b>	<b>After</b>
 1-5 times	9	72
 5-10 times	26	13
 Over 10 times	50	0
 Total	85	84

# COMPUTATION

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☰ The probability of number of accidents before and after training on safety at work place is given by:  $P_1 = p_2 = 0.5$

☰ Expected frequency is given by:  $E_1 = E_2 =$  sample size  $\times$  probability

# The Computed chi and The critical chi

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☰  $E = 85 * 0.5 = 42.5$


☰  $X^2 = \sum(O-E)^2/E$

☰ The computed  $X^2 = 117.6$

☰ The degree of freedom number comparable values;  $k - 1 = 2 - 1 = 1$

☰ The tabulated  $X^2 = 3.8$






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Since the computed chi value 117.6 is far much greater than the critical chi 3.8, there is evidence to reject hypothesis of the study that Safety training in the manufacturing firms has no impact on the frequency of accidents.


# CONCLUSION

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 The study concluded that safety training reduced the rate of accidents in manufacturing firms in Kenya. The study showed that the number of people involved in safety related accidents reduced drastically after they had been offered safety training.

# RECOMMENATION:

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 The manufacturing firms should plan to train more employees by creating safety awareness and also make sure that such training and seminars are conducted more frequently as a requirement of continuous safety training which will reduce safety related accidents in the manufacturing industries in Kenya.

# Proposed safety training programs


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## **General safety**

During orientation, the employee receives an introduction to the Company's safety program. Topics include fire extinguisher use, emergency preparedness procedures, hazard communication, injury/illness prevention program components, and personal safety at work.

# Aerial lift operators

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 This class be designed for employees who operate hydraulic lifts.


# Asbestos Awareness:

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Asbestos containing materials can be found in nearly all organization facilities. It is important that all employees follow proper work practices to minimize the potential for disturbing asbestos containing materials (ACM). This training is for employees who may be exposed to ACM in the course of their jobs


# Back safety:

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 This course be designed for employees who are required to lift as part of their job description; however, all employees need to attend this course. Lifting techniques and basic biomechanics need to be discussed and demonstrated.

# Blood borne pathogens


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 Blood borne pathogen training covers all employees who have the potential for occupational exposures with blood or potentially infectious materials during the course of their job duties. Blood borne pathogens include Hepatitis A, B, and C and HIV



# Confined space

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 Confined spaces are areas that have openings large enough and so configured that an employee can boldly enter and perform assigned work; has limited or restricted means for entry or exit; and is not designed for continuous employee occupancy.

# Confined spaces cont'd

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☰ Training is required for all employees who may work in a confined space. The training includes recognition of potentially harmful atmospheres and physical hazards associated with spaces


# First aid

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 Every employeee must have these skills.


# Defensive Driver

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 This helps drivers to maintain an accident free good driving record.


# Emergency preparedness

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 This safety training program is designed to help employees understand the information and preparation techniques that will help them cope in the event of an emergency or disaster.

# Fall protection

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 Safety training is provided for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.


# Fire extinguisher

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📄 This safety training program is designed to familiarize employees with the types, use and limitations of operating a fire extinguisher. Almost all the twenty companies visited had fire extinguishers. But about 90% of the fire extinguishers were dry. Not useful. Yet again very few employees could operate the gadget.

# Food safety


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 This safety training program provides basic food sanitation theories and some practical knowledge for food handling and protection for food establishment workers. **Food protection techniques such as temperature limits, hand washing, cross contamination, cleaning and sanitizing.**




# Forklift training

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 A certification for these employees is required probably every 3 years. They often need refresher courses.

# Hazard communication

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 Employers have a right to access important health and safety information regarding hazardous substances at the place of work.


# Hearing conversation

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Every work place needs an effective control over the harmful effects of excessive noise on employees. This safety training program includes medical monitoring and **training in the use of personal protective equipment designed to limit the excessive noise that may create harmful injury to employees.**


# Laboratory safety

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 This course is appropriate to all workers.  
Chemical handling and disposal is taught.

# Ladder safety

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 Presents information on selecting, storing, inspecting, and using ladders.

# Lockout/Tag out

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☰ This safety training course provides for procedures for employees who maintain any electrical, mechanical, pneumatic, hydraulic, and other energy systems, which could unexpectedly start up and cause injury. **Authorized employees will isolate and lock and tag the equipment to warn others that maintenance is occurring and equipment cannot be operated**

# OTHER TRAINING PROGRAMS

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- 📄 **Trenching and shoring**
- 📄 **Small cart training**
- 📄 **Respirator Protection**
- 📄 **Radiation Safety**
- 📄 **Personal protective Equipment (PPE)**
- 📄 **Office Ergonomics**

A spiral-bound notebook with a brown cover and a light brown, textured paper insert. The notebook is shown from a slightly angled perspective, with the spiral binding on the left side. The text "THE END" and "THANK YOU." is printed in a dark brown, serif font on the paper insert.

**THE END**

**THANK YOU.**