

# THE EFFECT OF MANAGEMENT PRACTICES ON OCCUPATIONAL HEALTH AND SAFETY IN TANZANIAN'S SMALL SCALE MINING FIRMS: DOES LOCATION MATTER?

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## Abstract

*This paper aimed at analysing management practices on occupational health and safety in Tanzania's small-scale mining firms whether location matters. Health and safety forms one of the human rights and it promotes hardworking and comforts employees after being secured, which in return has a positive impact on the national development. This study examined the influence of location in the implementation of occupational health and safety at the workplace in the Lake and Northern zones. Multiple grouping analysis has been used to analyse data collected by questionnaire methods from 189 and 108 small scale mining firms in the Lake zone and Northern zone. All formulated hypotheses were tested and the results demonstrate that location has no influence on the implementation of Organisation Safety Support (OSS) and Proactive Hazard Control (PHC) programmes in the workplace. These results imply that safety training and employees' communication are implemented the same way despite the difference in location on effective implementation of health and safety in the workplace. Therefore health and safety should be maintained and enhanced to ensure safety of all employees in the workplace.*

**Keywords:** Management Practices, Occupational Health and Safety, Mining Firms, Location

## INTRODUCTION

The wellbeing of employees in the workplace is vital for organisations to realize their objectives. As Zamri (2013) and Hilgert (2015) suggest, the implementation of Occupational Health and Safety (OHS) also stimulates hardworking which boosts the political, economic and social development. However, its execution is still doubtful to many working organisations especially the third-world countries due to unsatisfactory Management Practices (MP).

ILO (2014) estimates more than 2.3 million people die every year globally due to poor implementation of OHS which, in return, causes a loss of about 6300 employees in a day. Katsuro *et al.* (2010) state that health and safety are important however, some organisations tend to ignore them resulting to lowering the organisations' productivity due to absenteeism and loss of goodwill from the entire community. It generally affects the initiatives of organisations in enhancing sustainable development.

Nikulin *et al.* (2019) mining industry seems to be one of the most affected businesses by poor implementation of OHS, following several cases being reported daily from one location to another. Miners are constantly at risk due to occupational hazards present in mining sites such as dust, extreme sound, heat, pitfalls, insufficient oxygen, poor lighting and being knocked by machines /tools.

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(Elgstrand & Vingard, 2013). For instance, the gas explosion in a coal mine in Northern China in February 2009 left at least 74 miners dead and 114 hospitalised. Michelo(2009) states that at least 165 injuries and 20 fatalities were reported at Zambia copper mining in 2009. Small-scale mining employees are at more risk, especially in developing countries including Tanzania. Related matters and deaths are reported and they are caused by carelessness of the organisation management (Khdair & Wameedh, 2011). Small scale mining is reported to be among the most risky and dangerous occupations in Tanzania due to many limitations, including involvement in severe accidents that count the lives of individuals (Abdulla *et al.*, 2009).

The implementation of OHS in the organisation depends on the MP and location (Botha, 2017). Therefore, poor health and safety in the workplace is a result of poor consideration by the management (Kaynak *et al.*, 2016). The role of the management is to plan and set the priorities of the organisation that can help to realize the organisational objectives. According to Ajmal, Isha, & Nordin (2021), poor health and safety seems to be a result of from lack of priorities by the management which results in poor management practices of employees' safety in the organisation.

Poor management practices, lack of technology caused by insufficient capital to the miners and lack of training on how to minimize hazard depending on the location tend to affect workers in their workplaces (Kainat & Shahzadi, 2021). The way workers are protected and compensated from injuries and other ailments associated with exposing the workforce to hazardous substances raises concern that needs a collective responsibility for the stakeholders to take acceptable measures and feel responsible to their workers. For example, 48 miners suffocated to death when a compressor used to pump in clean air failed to work at Mererani in 2002, (Maginga & Purefoy, 2013). In 2006, a miner was killed by falling onto loose rocks and in March 2007, the death of three miners in Same district was attributed to collapsed pits (Tubias *et al.*, 2020). Furthermore, at least 65 miners drowned to death after floods swept through underground pits and tunnels at Mererani in 2008 (Maginga *et al.*, 2013).

Some of the scholarly work suggests that safety training, employees' involvement and employees' communication are important and they need to be put in place to prevent accidents and injuries in the organisations as one of the management practices (Vredenburg, 2002; Ali *et al.*, 2009). The implementation of management practices on OHS is vital and unavoidable as a priority to the organisation. However, safety is the most significant aspect to all human beings. Laursen and Foss (2013), Tan and Nasurdin (2011), Khdair and Wameedh (2013) and Demo *et al.* (2012) variously conducted studies on OHS and they came with the conclusion that stresses the importance of safety in workplaces. They identified leadership style, locations, employees' attitude, and hiring practices as important elements of management practices for safety culture. In the same vein, other researchers like Desa *et al.* (2013) listed rewards, employees' involvement, safety training, employees' communication and management commitment as MPs, which play an important role toward improving the working condition of employees.

However, basing on the discussion of various studies on OHS, researchers have different views and understanding on the factors influencing health and safety in organisations. Therefore, this study used employee involvement, safety training and employee communication as factors that influence OHS to the employees. This argument is supported by Khdair & Wameedh (2013); Nursyazwani & Zamri (2013); and Gupta & Upadhyay (2012).

Tanzanians started observing occupational health standards before and after independence under the Factories Ordinance Cap 297 of 1950. However, its implementation was not a solution to the problems associated with workplace risks because no proper and strategic programmes were made to deal with OHS in workplaces. The Nationalisation and privatisation processes in 1967 and 1990's respectively, added other OHS challenges to employees because managers of industries ignored the health and safety issues to employees (OHS Policy, 2009).

Following all these shortcomings, the government of Tanzania established the Occupational Safety and Health Authority (OSHA) in 1997, Occupation Health and Safety Policy in 2009 and Compensation Act No 20 of 2008 to protect its employees. The government also endorsed the Occupational Health and Safety (OHS) Act No. 5 of 2003 and ratified the ILO Convention No. 170 of 1993 in 2014 to enhance the best practices of health and safety. These initiatives were aimed at solving the occupational hazards. Despite all the measures taken, the mining industry in Tanzania is still associated with fatal injuries, accidents and deaths at workplace. For example, in 2017, about 14 miners were trapped for four days (URT, 2017), while in 2015 at least 20 miners died and the other six were trapped underground for 41 days before being rescued at Bulyanhulu Gold mines (URT, 2017; Reuters, 2015).

However, the managers in charge of health and safety activities have not been able to reduce occurrences of accidents, especially in small-scale mining firms allocated in various zones in Tanzania (Surienty, 2012; Mills & Lin, 2001). This is due to the persistence of occupational injuries, deaths, illnesses and accidents (Samage, 2014). Therefore, seriousness and accountability of the management commitment toward solving safety issues are questionable. There is lack of understanding on MP as an internal factor and effective OHS in Tanzania. Therefore, there is a need to consider the significance of implementing the OHS in small-scale mining firms in the lake and northern zones of Tanzania.

### **Significance of the Study**

This study is significant, as it contributes to the body of knowledge on location and the implementation occupational health and safety in the workplace, which have received less attention in scholarship cycles. The study also informs the Government and other stakeholders on the way implementation of management practices influences the effective implementation of occupational health and safety in workplaces. The study hypothesized that location influences the implementation of occupational health and safety in the workplace. This means that MP influences the implementation of OSS and PHC in the organisation.

### **LITERATURE REVIEW**

This article used ERG theory proposed by Alderfer (1969) who expands the Maslow's basic needs. Alderfer condensed Maslow's five stages into three which are existence needs, relatedness needs and growth needs. These three stages are popular and predominant in explaining different concepts on organisational management and its practices with new methods of considering human behaviour and attitude (Yang & Chen, 2011). Generally, ERG explains or predicts workplace issues, relationship and personal development. It explains safety as one of the basic needs of a human being and it considers the prevention of fear, anxiety, threat, danger and tension in the work environment by ensuring that the work environment is free from threats or harm to all employees in the organisation. With all these facts, ERG can play an important role theoretically in explaining the influence of management practices on the implementation of occupational health and safety in the workplace. Employees' involvement and communication have direct relationship with what an individual does at work. Therefore, training influences the way employees perform their duties in the organisation, which is also reflected in human attitude as well as management

practices. This theory has been used to explain and predict workplace issues and it contributes to the human behaviour is directly connected to health and safety in the workplace. Therefore, this theory is significant because it explains safety issues in the organisation. Basically, the theory does not assume that the satisfaction of the lower-order needs is required before pursuing the higher-order needs (Caulton, 2012). It advocates that satisfaction can happen in any stage of needs and that it is not necessary to follow the hierarchy.

Employees' involvement influences the implementation of occupational health and safety in the workplace. The study by Kaynak *et al.* (2016) states that the OHS practices safety procedures and risk management as well as safety and health rules. These practices need participation of employees since individual behaviour tends to influence the implementation of safety in the workplace. However, some management personnel tend to ignore the involvement of employees in their various decisions made in the organisation. Employees' involvement creates a safety culture that stimulates organisation commitment to health and safety matters through provision of first aid support and training about safety issues. According to Yorio and Wachter (2014), employees tend to be incapable and cannot utilize well their knowledge and skills if the organisation does not involve them. Yorio and Wachter (2014) also point out that employees cannot deploy their competencies unless the organisation involves them. Therefore, the management should be careful and selective when involving employees because not everything needs involvement. The benefits of employees' involvement practices, especially on safety matters, can increase attitudinal and behavioural adoption of various practices and greater satisfaction with decisions made. This can also result in ownership and identification with the outcomes of relevant practices and decisions (Oakman & Bartram, 2017). Therefore, the difference in culture, which may affect employees' safety, is the result of location differences in the society (Latief, *et al.*, 2017).

Safety training has an influence on the implementation of Occupational Health and Safety in the workplace. The reviewed literature on the topic revealed a significant influence of safety training on the proper implementation of health and safety programme in the workplace. Yorio and Wachter (2014) state that safety, knowledge, skills and abilities are the functions of education and training and are vital for the organisation to realize efficiency. Though safety training seems to be vital, it should be well prepared and designed to meet the targeted purposes. In this regard, safety training cannot save the objectives of the organisation without training needs assessment. Kaynak *et al.* (2016) noted that after organisational entry, training is designed to enhance both the technical and interpersonal skills of employees that lead to more competent and reliable behaviour and eventually affect positively the health and safety of employees in the organisation. Despite the significance of training on health issues to employees, some management personnel tend to escape due to cost of conducting this training. Mashia *et al.* (2016) point out that the employee's behaviour becomes more reliable and trustworthy in the collective workforce. It can lead to increased cooperation and information sharing. Safety training directly increases the safety-related knowledge corresponding to the occupational risks posed to workers in job tasks. Workers display the knowledge they have through their behaviours, which are influenced by location and culture. It can create a working atmosphere characterised by trust and awareness of how individuals' safe behaviour can be impacted collectively, only if training is well conducted. Employees' communication influences the implementation of Occupational Health and Safety in the workplace. The study by Sembe and Ayuo (2017) states that communication or information sharing is a safety management practice that uses mechanisms to emphasize how to apply safety knowledge, increase awareness, and promote the importance of individual and interdependent safe work. According to Latief, *et al.* (2017), the way individuals communicate with others can be influenced by the culture of individuals. However, not all communications can be helpful to the organisation. Thus, selection of what to communicate is also vital. Well- designed and effective employees'

communication, especially open communication on safety performance, tends to stimulate the organisation's performance. Yorio & Wachter (2014) suggest that organisations might use print media (e.g., posters, journals and newspapers) to increase cognitive awareness of safe work and emphasize its importance or hold formal meetings designed to verbally convey information and exchange ideas in the workforce. Therefore management should be careful on what, how and the purpose of communication to employees. The focus here is communication about health matters. According to Mashia *et al.* (2016) communication and information-sharing practices have been formally linked to safety performance and have been hypothesized to enhance both vertical and horizontal ties. Information sharing is characterized by mutual trust between parties, where ideas surrounding the organisational safety programme can be freely exchanged. Hence, the following two hypotheses were developed as follows.

***H1: Location has a positive influence on the implementation of organisation safety support programmes in the workplace.***

***H2: Location has a positive influence on the implementation of proactive hazard control programmes in the workplace.***

### **Measurement of the Implementation of Occupational Health and safety**

The established instruments to measure the implementation of Occupational Health and Safety (OHS), in the current study, were the Organisation Safety Support (OSS) and Proactive Hazard Control (PHC). Safety rules and procedures as well as the use of First-Aid support are used in the measurement of OSS and PHC (Kaynak *et al.*, 2016). Various scholarly work used the same measurement to measure the accuracy of implementation of health and safety at workplace. The provision of OSS and PHC is the indicator for health and safety implementation in the organisation (Villanueva & Nunez, 2010). Management Practices (MP) was also measured by the implementation of Employee's Involvement (EI), Safety Training (ST) and Employee's Communication (EC). Desa *et al.* (2013) suggested employees' participation in identifying safety problem with a balanced H&S committees, safety training programmes and adhering to instruction of management about health and safety at workplace. The verification of safety work practices controlling the work related injuries, availability of hazard warning signal and provision of feedback to employees about unsafe behaviour are very important aspects to the management practices (Khdair & Subramaniam, 2011).

### **RESEARCH METHODS**

This study applied a pragmatic paradigm design using deductive and inductive approaches, whereby information from respondents was collected using quantitative method. Quantitative data provided the statistical generalisation of findings. The generalisation of findings attracted the qualitative approach to get in-depth information of the study (Mashia *et al.*, 2016). This research design was selected because it enables the researcher to have a greater control over the findings' accuracy. Data was collected from two zones namely Lake Zone comprising Shinyanga and Geita and Northern zone comprising Arusha region. These zones were selected because they are both dominant regions dealing with mining activities in Tanzania. The zones also have been reported to experience high rate of accidents associated with mining (Samage, 2014). Generally, 189 and 108 questionnaires were administered in the Lake and Northern zones respectively. The independent t-test was adopted for the multiple grouping analysis used to analyse the quantitative data.

## RESULTS OF THE STUDY

### Organisation Characteristics

The study was conducted in the Lake and Northern zones by involving 297 (94%) small-scale firms. The main activities in the small-scale mining to firms include involve extracting and selling minerals. However, the small-scale miners seem not to benefit much from the mining industry. The activities of these firms are operated in risky and dangerous environments. The motive behind these small-scale miners operating in risky and dangerous environments is driven by poverty and social problems

### Demographic Characteristics of the Respondents

Demographic characteristics of respondents in this study imply sex (male and female), age, marital status, and education level. Table 1 shows the demographic characteristics of respondents.

**Table 1: Demographic Characteristics of Respondents**

Details	Category	Frequency		Details	Category	Frequency
<b>Zone</b>	Lake zone	189		<b>Zone</b>	Northern zone	108
	Total	189			Total	108
<b>Gender</b>	Male	128 (68%)		<b>Gender</b>	Male	86(80%)
	Female	61(32%)			Female	22(20%)
	<b>Total</b>	<b>189(100%)</b>			<b>Total</b>	<b>108(100%)</b>
<b>Age</b>	18-35	42(22%)		<b>Age</b>	18-35	62(57%)
	36-45	116(61%)			36-45	21(19%)
	46-55	21(11%)			46-55	20(19%)
	56-65	10(06%)			56-65	05(05%)
	<b>Total</b>	<b>189(100%)</b>			<b>Total</b>	<b>100(100%)</b>
<b>Marital status</b>	Widow	16(08%)		<b>Marital status</b>	Widow	15(14%)
	Divorced	38(20%)			Divorced	05(05%)
	Single	49(26%)			Single	39(36%)
	Married	86(46%)			Married	49(100%)
	<b>Total</b>	<b>189(100%)</b>			<b>Total</b>	
<b>Educational level</b>	Postgraduate	04(02%)		<b>Educational level</b>	Postgraduate	02(02%)
	Bachelor degree	05(03%)			Bachelor degree	10(09%)
	Diploma level	12(06%)			Diploma level	10(10%)
	Advanced level	11(06%)			Advanced level	16(15%)
	Vocational training	28(15%)			Vocational training	10(09%)
	Secondary	42(22%)			Secondary	11(10%)
	Primary education	63(33%)			Primary education	17(16%)
	No formal education	34(19%)			No formal education	23(21%)
	<b>Total</b>	<b>189(100%)</b>			<b>Total</b>	<b>109(100%)</b>

Source: Field Data (2022)

Table 2 shows the mean of the two related groups which determine the statistical significant difference between means in the study.

**Table: 2 Dependent Samples Test**

		Levene's Test for Equality of Variances							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower
Organisation Safety Support	Equal variances assumed	.472	.492	.244	295	.807	.02759	.11286	-.19453
	Equal variances not assumed			.242	215.675	.809	.02759	.11408	-.19726
Proactive Hazard Control	Equal variances assumed	.007	.934	.887	295	.376	.09722	.10957	-.11842
	Equal variances not assumed			.888	223.110	.376	.09722	.10952	-.11861

**Source: Field Data (2022)**

Table 3 shows the statistical means comparison of two independent groups in the study.

**Table : 3 Independent Samples Test**

		Levene's Test for Equality of Variances							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower
Employee's Involvement	Equal variances assumed	.059	.808	1.965	295	.050	.20200	.10280	-.00031
	Equal variances not assumed			1.991	231.809	.048	.20200	.10145	.00212
Safety Training	Equal variances assumed	.191	.663	1.317	295	.189	.13643	.10358	-.06741
	Equal variances not assumed			1.309	218.535	.192	.13643	.10424	-.06902
Employee's Communication	Equal variances assumed	1.667	.198	1.186	295	.236	.11688	.09853	-.07703
	Equal variances not assumed			1.159	207.342	.24	.11688	.10088	-.08201

**Source: Field Data (2022)**

Two hypotheses (H1 and H2) were formulated in this section. The first hypothesis states that location positively influences the implementation of Organisation Safety Support Programmes in the workplace. The second hypothesis, H2, states that location positively influences the implementation of Proactive Hazard Control Programmes in the workplace.

The results showed that location has an insignificant influence at ( $\beta = 0.807$ ) on the implementation of OSS programmes between the Lake and Northern zones in the workplace ( $P > 0.05$ ). Therefore, the null hypothesis was rejected. This implies that there is no difference between the implementation of safety training and employees communication in the Lake and Northern zones. The implementation of OSS programmes in Lake and Northern zones can be shown in terms of mean. The Lake Zone has a mean of 2.6735, whereas the Northern zone has a mean of 2.5370 in terms of the implementing of Safety Training (ST) programmes in the organisation. Moreover, results show that there is 2.6825 mean in Lake Zone and 2.5657 mean in Northern zone in terms of the implementation of Employees Communication (EC) in the organisation. This implies that there is no significant difference in the way occupational health and safety is being implemented in the Lake and Northern Zones. This significant similarity may be caused by the importance of health and safety to all employees working in mining industries.

The analysis in the second hypothesis also showed that the location has an insignificant influence at ( $\beta = 0.376$ ) on the implementation of PHC programmes in the Lake and Northern zones in the workplace ( $P > 0.05$ ). Therefore, according to the results, the null hypothesis was rejected. This implies that there is no difference between the implementation of ST and EC programmes in mining firms allocated in Lake and Northern zones. The implementation of PHC programmes can also be shown with means on the implementation of PHC programmes in the Lake and Northern zones. The Lake Zone has a mean of 2.6735 whereas the Northern Zone has a mean of 2.5370 in terms of the implementing of ST programmes in the organisation. Moreover, results show that there is 2.6620 mean in Lake Zone and 2.5648 mean in Northern zone for the implementation of EC in the organisation. This implies that there is no difference in the way occupational health and safety is being implemented in the Lake and Northern Zones. This significant similarity may be caused by the awareness of the employees about health and safety in the workplace.

## **DISCUSSION OF FINDINGS**

The findings revealed that location cannot influence the implementation of OSS and PHC. This implies that there is no difference in the implementation of occupational health and safety in small scale mining between firms operating in Lake and Northern Zones. The way OSS and PHC are implemented is almost the same towards fulfilling the requirements of health and safety at workplaces. This indicates that all managers working in the small-scale mining firms have enough knowledge on the significance of health and safety to their employees. This finding has been supported by Mashia *et al.* (2016) who stated that management should make sure that employees are working in safe condition.

Nevertheless, the implementation of OSS in the Lake Zone seems to have a mean of 2.6735, higher than the implementation in the Northern Zone by 2.5370 mean. The same applies to the implementation of PHC in the Lake Zone, where it seems to have a mean of 2.6735 higher than the implementation in the northern zone by 2.5370 mean. Employees' communication and safety training play a significant role to reduce accidents and risk at workplace (Nordl of *et al.*, 2017).



However, the results indicate that there is a major difference in terms of mean on Employees Involvement (EI) in the implementation of health and safety in the workplace between Lake Zone with a mean of 2.5525 and Northern Zone with a mean of 2.3505. This means that there are different ways and strategies regarding the EI programmes on the implementation of health and safety in the workplace between Lake Zone and Northern Zone. The results showed that location has a significant difference of ( $\beta = 0.050$ ) on the implementation of EI at the workplace.

This study relates with ERG theory which portrays the significance of safety and security of all human beings regardless of other factors. This has been shown by all hypotheses. It is shown that there is the same implementation of OSS and PHC in all zones, considering its importance regardless of the difference in geographical location. The implementation of occupational health and safety is vital despite the challenges it might face. However, the implementation of health and safety in the workplace in the Lake and Northern Zones is still significant as advocated by the theory that security is important to all human beings.

## **CONCLUSION**

The article investigated the management practices on the implementation of health and safety in small-scale mining, basing on location between the Lake and Northern Zones. The article concludes that location is insignificant to the implementation of OSS and PHC programmes in workplaces. This indicates that there is no significant difference in strategies on the implementation of health and safety in workplaces between Lake and Northern zones but there is a difference in the implementation of EI in the workplace between Lake and Northern Zones. The significance of EI seems to be caused by wrong management practices and strategies applied in dealing with disasters and accidents in the workplace.

## **RECOMMENDATIONS**

Generally, there is no difference in the implementation of OSS and PHC between Lake and Northern Zones. The slight differences in the implementation of EI programmes on health and safety in the workplace basing on location is a result of poor implementation of health and safety strategies due to lack of good priorities and lack of health and safety skills as well as knowledge in the workplace. Therefore So, in all the workplaces, health and safety should be observed regardless of their geographical locations. Managers should make sure that safety training is provided in the workplace, especially in the mining firms, and all other requirements are fulfilled. Managers should also enhance proper employees' communication on matters related to safety. Generally, government officials should make sure that all organisations are inspected as regards health and safety compliance to maintain the organisational health and safety culture for the management and employees at large.

## **AREAS FOR FURTHER STUDY**

The article recommends further studies focusing on examining the extent to which location influences the implementation of health and safety in other working industries such as the processing industries, banking, agriculture, and education industries.

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