

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF ENVIRONMENTAL SCIENCE

***AN ASSESSMENT OF KNOWLEDGE, ATTITUDES AND PRACTICES OF ARTISINAL
AND SMALL SCALE GOLD MINERS IN KITSIYATOTA TOWARDS OCCUPATIONAL
HEALTH AND SAFETY ISSUES***

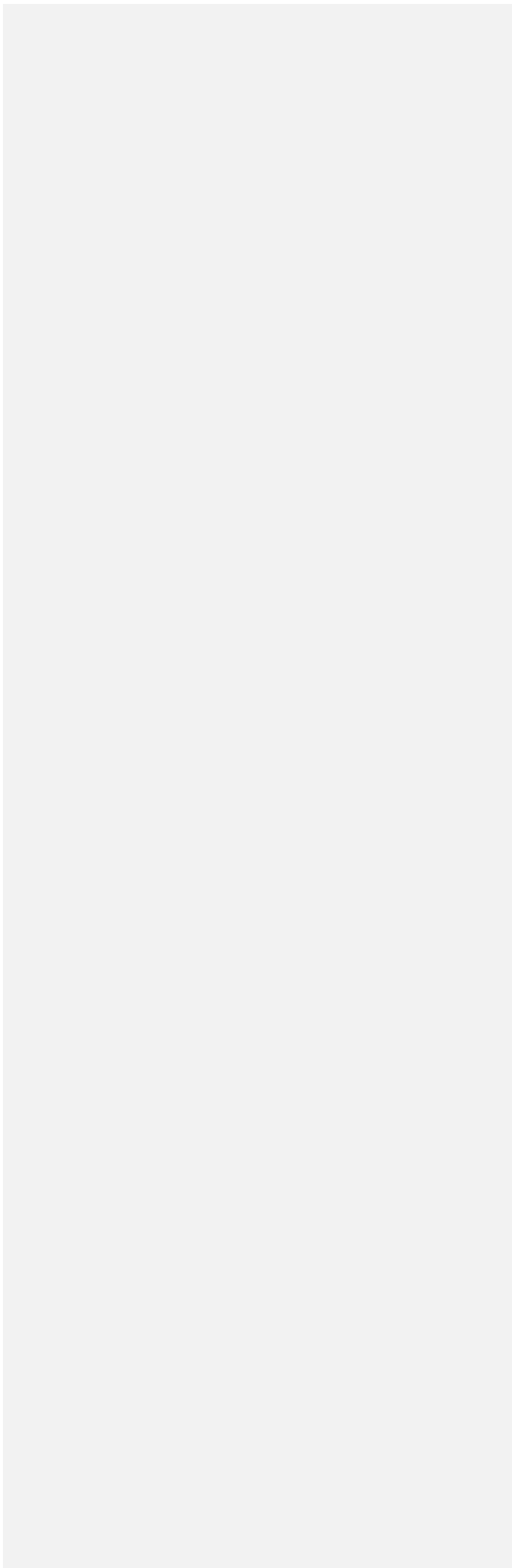


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DEDICATION



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ABSTRACT

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LIST OF ACRONYMS AND ABBREVIATIONS

ASGM	Artisanal and Small scale Gold mining
SHE	Safety health and environment
OHS	Occupational Health and Safety
PPE	Personal protective Equipment/clothing
SADC	

CHAPTER ONE

1.1 Background to the study

Artisinal and small-scale gold mining (ASGM) is defined as an informal and unregulated system of mining involving a wide variety of labour intensive activities without proper mining tools (Weng *et al.*, 2015; Matsa *et al*, 2020). Man power in artisanal and small scale mining makes up world's largest mining workforce. Twenty years ago the International Labour organization estimated the number to be 13 million, however the number has tripled to date (World Bank,2020) . ASGM has become the primary source of employment for at least 44.75 million people across 80 countries world wide an increasingly widespread economic activity undertaken by socially differentiated groups with a wide range of education levels and economic backgrounds (Mpofu & Mpofu, 2017, World Bank,2020). This type of mining is more noticeable in the developing countries and was viewed as a way to make extra income. According to the World Bank (2020) report Artisanal small scale mining donates to the accomplishment of sustainable development Goal 8(SDG8) Decent work and Economic growth.

The focus key areas of Sustainable development goal 8 are improvement of occupational health and safety, stimulation of economic growth, sustainable production, gender equality, eradication of child labor and promotion of youth employment (World Bank, 2020). However, due to economic constrains it has become a permanent feature, serving as an employment avenue to cater for the high rates of unemployment and the failure of the formal sector to create enough employment (Moyo, 2011).ASGM is known of its diversity in population with both men, women and children make the workforce. Various estimations also show that about 25 % of small-scale miners in the SADC region are women with Zimbabwe making more than 50% of women's population in the region living on artisinal mining. Children are vulnerable population within the ASGM sector. It is estimated that about 1 million children work in mining globally (<http://www.ilo.org>). They are oftenly used in mining operations to transport, sort, wash and at times due to their small bodies they are made to work in narrow underground tunnels (Elenge et al., 2013).

Regardless of the weighty influences to major global mineral supply chains, artisanal and small scale miners are the most sidelined workers and their contribution to global economy gathers little

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consideration. Informality of the sector has caused in workforce's exposure to dangerous working conditions (World Bank, 2020; Matsa et al, 2020). These dangerous working conditions include poor working conditions that contributes to accidents, and disease that reduce worker productivity and income for artisanal miners and their communities (Maier *et al.*, 2014; Matsa *et al*, 2020). Mercury contamination is a common environmental impact in ASGM .It is said to be the largest human source of mercury emissions, contributing around 35% of total anthropogenic emissions globally (UNEP, 2013). These risks could be due to level of knowledge, attitudes and practices of artisanal gold miners towards SHE issues as these communities have not been fully addressed in the research literature or by regulatory institutions in countries where ASGM prevails. There is a need of a sound OHS system in artisanal gold mining environment so that risks can be reduced despite being an informal economic sector.

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1.2 Statement of the problem

Small scale gold mining in Bindura has experienced a series of occupational health and safety incidents ranging from minor injuries, major injuries or even deaths of miners. According to the Mashonaland Central Zimbabwe Republic police officials most of these incidents are not even reported. The reasons of these occurrences could be due to a variety of factors that includes knowledge, attitudes and practices of artisanal small scale gold miners in Safety, health and environmental management issues.

1.3 Significance of the study

This research is of importance to ASGMs in Kitsiyatota areas and any other individual who are working in similar environments. It could raise awareness to artisanal miners on the possible risks and hazards they are facing, helping them to come up with proper SHE practices as well as safe work procedures. It may also help them change their attitudes towards OHS issues enhancing safety awareness in workplaces. It could also help in designing and constructing safe working environments, developing safe standard operating procedures and help them understand the importance of Personal Protective Equipment (PPEs).

Furthermore, this study shall provide essential information to the local authorities including Ministry of Mines and Minerals development in Zimbabwe in order to improve on policy formulation and implementation. To the policy makers the result, of the study will function as a decision support tool to find out the gap that exists between the regulations and what is on the ground, so that the researcher will be able to fill in the gap by proving alternative measures that can be taken by responsible officials towards safeguarding the safety of artisanal and small scale gold producers in Bindura.

1.4 Aim of the study

To assess knowledge, attitudes and practices of artisinal and small scale gold miners towards Occupational Health and Safety in Kitsiyatota, Bindura.

1.5 Objectives

1. To determine the extent of knowledge of artisinal and small scale gold miners with regards to Occupational Health and Safety issues.
2. To evaluate the attitudes of artisinal and small scale gold miners towards Occupational Health and Safety issues.
3. To determine practices of artisinal and small scale gold miners with regards to Occupational Health and Safety issues.

1.6 Research Questions

1. What knowledge do artisinal and small scale gold miners have with regards to OHS?
2. What is the general attitude artisinal and small scale gold miners towards OHS?
3. What do the artisinal and small scale gold miners' practices reflects with regards to OHS?

1.7 Limitations of the study

In carrying out the study the researcher will encounter some challenges and difficulties in the acquisition data. The researcher will be constrained in terms of time and finance; to print questionnaires for all the study subjects. Some of the miners will probably request for a 'tip' (money) in order to cooperate with the study or else they would ruin the process. The artisanal

miners in Bindura can be very hostile, they might suspect the researcher will be investigating them. The miners might refuse to be taken pictures or videos since they fear that the information may be later used as evidence against them since their activities are illegal. The researcher also needs to engage a team to help him in data collection in order to cover the study area.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Occupational Health and Safety (OHS) is a fundamental in workplaces to ensure continuity of production while safeguarding the well-being of workers, dependents, community and the environment. Thus a safe workplace must be a priority in all forms of economy be it informal or formal and this can only be achieved through development and implementation of legislation and sound OHS systems in all workplaces.

Mining is regarded as a dangerous occupation and where reliable national statistics exist, mining generally ranks in the top three occupations for related diseases and fatal accidents (Vingård and Elgstrand, 2013). However in most developing countries occupational health and safety remains neglected in formal and informal mining industries under the pressure of overwhelming social, economic, and political challenges (Chepkener, 2013).

Artisinal and Small scale gold mining is perceived in many developing countries as one of the few coping strategies employed by people to master, tolerate or minimize the adverse effects of economic hardships (Taylor, 1998) .

CHAPTER 3: METHODOLOGY

3.1 DESCRIPTION OF STUDY AREA

3.2 RESEARCH DESIGN

Descriptive qualitative cross-sectional study was carried out to assess the knowledge, attitudes and practices towards occupational health and safety issues among artisanal small scale gold miners operating in Kitsiyatota.

3.3 STUDY POPULATION

3.4 DATA COLLECTION TOOLS

3.4.1 QUESTIONNAIRES

Data was collected through semi-structured questionnaires that were used by way of interviewing. The questionnaire was divided into 4 sections that is; Socio-demographic details, OHS knowledge, practices and attitudes.

The demographic section comprised of questions on sex, age and working experience. The OHS knowledge, attitude and practice sections included questions mainly focused on hazard identification, preparedness, hazard control as well as PPE use in the workplace.

All interviews were conducted face to face and at the beginning of each interview the objectives and nature of the study were explained to the respondents and informed written consent was obtained.

3.5 LIMITATIONS

The respondents may have withheld information or altered some of the facts surrounding their knowledge, attitudes and practices in the workplace. Some of the respondents were not willing to cooperate reducing the amount of data collected. The researcher however made some observations during data collection and with these observations managed to make the necessary conclusions with regards to their practices.

3.6 DELIMITATIONS

For the purpose of this study the researcher sub-divided respondents with age groups to ensure that all individuals are covered in the study.

3.7 ASSUMPTIONS

All the information provided by the respondents was accepted as true and honest.

3.8 DATA ANALYSIS

Data were analyzed using SPSS version 16 software to generate descriptive statistics and graphs.

CHAPTER 4: RESULTS

4.1 SOCIO-DEMOGRAPHIC DATA

Socio-demographic data is summarized in Table 4.1.

Socio-demographics		Frequency	Percentage
Sex	Male	34	73.9
	Female	12	26.1
Age	<16 years	6	13.6
	17 – 27 years	18	40.9
	28 – 39 years	14	31.8
	40– 49 years	4	18.4
	+50	2	4.6
Work experience	<1 year	7	15.9
	1-5 years	14	31.8

	6-10 years	12	27.3
	11-15 years	9	20.4
	16-20 years	2	4.6

Table 4.1. Socio-demographic data

The socio-demographic data show that the majority of respondents were males while only a few females of less than a third were part of the study. The highest number of respondents was between the ages of 17 to 27 years while over 50 years old made the smallest number. In terms of work experience, the majority of respondents had less than 10 years of experience.

4.4 KNOWLEDGE

Regarding the knowledge of OHS issues, the respondents were asked questions about PPE the needed for their workplace, hazards existing in their work area and hazard control measures in place.

4. Knowledge on occupational health and safety issues.

Table 4.4 below summarizes the responses of participants with respect to Knowledge on PPE needed.

OHS issue	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Respiratory PPE	12	26.1%	34	73.9%
Hazard identification	32	69.6%	14	31.4%
Emergency preparedness and response plan	2	4.6%	42	95.4%
Importance of reporting incidents	8	17.4%	36	82.6%

Equipment storage procedure	3	6.5%	41	93.5%
Need for General PPE/C	25	58.7%	19	41.3%

Table 4.4. knowledge on OHS issues.

Majority of respondents were knowledgeable on general personal protective equipment they need in the line of their work. However the researcher observed that all of ASGMs were not wearing PPE/C. A large number of respondents also managed to identify hazards associated with their working environment. Poor responses were noted on knowledge in emergency preparedness, incidents reporting procedures, need for a storage facility as well as the types of respiratory PPE.

4.General attitudes

The attitude of respondents on points related to OHS was tested using seven statements that were presented and to which they replied with strongly agree, agree, not sure, disagree and strongly disagree. The responses to these questions is summarized below:

Statement	Strongly disagree Frequency (%)	Disagree Frequency (%)	Not sure Frequency (%)	Agree Frequency (%)	Strongly agree Frequency (%)
Are safety talks important in promoting safety in the workplace?	18 39.1%	15 32.6%	3 6.9%	8 17.4%	2 4.6%
Do you agree that safety equipment are important in accident prevention?	10 21.7%	12 26.1%	10 21.7%	9 19.6%	5 10.9%
Do you think that it is better to make your own tools than to buy proper mining tools?	6 13%	8 17.4%	4 8.7%	15 32.6%	13 28.2%

Do you agree that keeping your workplace clean and in order is important to your safety?	2 4.6%	15 32.6%	3 6.9%	16 34.8%	2 4.6%
Do you agree that PPE is important in preventing work related accidents?	7 15.2%	10 21.7%	5 10.9%	13 28.2%	11 23.9%
Do you agree that existing OHS legislation are not relevant for your type of work?	1 2.2%	4 8.7%	32 69.6%	4 8.7%	5 10.9%
Do you agree that controlling hazards in the workplace can significantly reduce accident occurrence?	6 13%	8 17.4%	6 13%	14 30.4%	12 26.1%

Table 4.9. Attitude questions and responses

It was ascertained that majority of artisanal small scale gold miners has a negative attitude towards occupational health and safety issues, Less than half had a positive attitude towards OHS hazard control measures and others did not know anything about the issues addressed

PRACTICES

The respondents were asked question on how they implement OHS control measure to reduce hazards and accidents at their workplace. The statements asked included the use of PPE/C, housekeeping, pre-task assessments and safety talks. The response are summarized in the table below

Practice	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Carrying out safety talks	0	0%	46	100%
Carrying out Pre-task assessments	0	0%	46	100%

Carrying out housekeeping	7	15.2%	39	84.8%
Use of PPE while working	8	17.4%	36	82.6%
Use of a designated/proper storage space for tools	3	6.5%	41	93.5%

Practices on OHS issues

The results shows that ASGM does not carry out safety talks and pre-task assessments. Only less than 20 percent of respondents