



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

**FACULTY OF ENGINEERING
DEPARTMENT OF MINING AND WATER RESOURCES ENGINEERING
MINING ENGINEERING PROGRAMME**

FINAL YEAR PROJECT PROPOSAL

**ASSESSING THE ENVIRONMENTAL IMPACTS OF STONE
QUARRYING ACTIVITIES**

CASE STUDY: MUKONO DISTRICT- BUNTABA SUB COUNTY

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BU/UP/2014/339

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A final year project Report submitted to the Department of Mining and Water Resources Engineering as a partial fulfillment of the requirements for the award of a Bachelor of Science degree in Mining Engineering.

ABSTRACT

Stone as one of the valuable mineral extract has always been used since the beginning of civilization to make early tools and weapons (Hartmann, 1992). Stone quarrying is a form of land use method concerned with the extraction of non-fuel and non-metal minerals from rocks. It is usually done by open-cast method using rock drills, explosion of dynamite and use of other methods. Nevertheless, this sector of the economy surrounded by much enthusiasm has a lot of problems, which has plagued it; poor health and safety, wasted mineral resources, and environmental degradation (Noronha, 1998).

Mukono district is among the areas in Uganda where such quarries exist because of the abundance of granite deposits in that area as well as the rise in urban construction which makes use of stones, and they pose a blatant disregard for the environment.

The purpose of the study was to assess the environmental impacts of stone quarrying activities taking a case study of Mukono District- Buntaba Sub County.

The data was collected mainly using questionnaire and interview guide. Data was collected from 30 respondents. Data was then analyzed mainly using excel and tables with the help of percentages, relevant interpretations were made.

The study found the highest noise level was from stone quarry which is inclusive of the drilling area and the crushing unit where the extracted rock were transferred to primary crusher and screening facilities, resulting in the desired product sizes. The lowest level of noise was recorded at main office and the waiting area. It was also found out that the concentration of dust varied at the three working areas. The concentration ranged from 60.0mg/m³ at the quarry pit, 70.0mg/m³ at the crushing plant, 95.0mg/m³ at drilling and 83.0mg/m³ in the residential areas. An action plan for the management of the quarrying activities at Seyani International Company was designed containing all the possible mitigation measures that can be undertaken so as to minimize the environmental impacts as well as the responsible personnel and the scheduled time for the activity.

To a large extent, the impacts of stone quarrying activities were immense and there was minimal community participation in the environmental matters on quarrying activities. The findings were in accordance with the objectives of the study. Poverty, low income earning were the major factors which necessitate stone quarrying in the area. Most of the activities were not consistent with the

DECLARATION

I AINEBYONA BRONAH, Registration number BU/UP/2014/339, a student pursuing a Bachelor's of Science in Mining Engineering at BUSITEMA UNIVERSITY declare that this report is my original piece of work and has never been published by any other student/individual in any institution either in full or part.

SIGNATURE: *Adellew*

DATE: *12th June 2018*



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First of all, I thank the Almighty God for his protection, blessings, grace and mercy throughout my research project and academic journey.

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DEDICATION

I dedicate this report to my parents Mr. Twimukye Micheal and Mrs. Maureen Natukunda for the financial support they gave me am truly grateful, my siblings, my supervisors and management of Seyani International Company Limited for the knowledge they provided tirelessly.

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APPROVAL

This final year project Report has been submitted for examination with the approval of my supervisors.

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CHAPTER ONE

1.1 INTRODUCTION

Stone quarrying is a form of land use method concerned with the extraction of non-fuel and non-metal minerals from rocks. It is usually done by open-cast method using rock drills, explosion of dynamite and use of other methods. Quarrying has environmental and health effects. For instance reports that mining has a number of common stages or activities, each of which has potentially-adverse impacts on the natural environment, society and cultural heritage, the health and safety of mine workers, and communities based in close proximity to operations. (Mohamed1, 5th April 2016).

Stone quarrying is the multistage process by which rock is extracted from the ground and crushed to produce aggregate, which is then screened into sizes required for immediate use, or for further processing.

The process begins with a detailed three-dimensional survey of the quarry face. This allows the explosives engineer to design the blast and to plot where the shot holes should be drilled so that the blast can be carried out safely and efficiently.

Further the operations in stone quarrying, whether small or large-scale, are inherently disruptive to the environment, producing enormous quantities of waste that can have deleterious impacts for decades and that the environmental deterioration caused by stone quarrying occurs mainly as a result of inappropriate and wasteful working practices and rehabilitation measures.

All over the world there is a realization that quarrying activities have evolved overtime to mining industry that has the potential to provide hither to unparalleled services to management in their efforts to reduce effects of quarrying risks to the human being and the surroundings.

Concerning the environmental impact, quarries and stone cutting industries cause ecological disturbance, destruction of natural flora, pollution of air, land and water, instability of soil and rock masses, landscape degradation (Aigbedion, (2007)). On the other side and regarding their health impact, dust and emissions resulted from these industries can lead to chronic health effects; for instance decreased lung capacity and lung cancer resulting from long-term exposure to toxic air pollutants (Sunyer, 2001). Furthermore, a very high degree of respiratory morbidity

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