



**BUSITEMA  
UNIVERSITY**  
*Pursuing Excellence*

**FACULTY OF ENGINEERING**

**DEPARTMENT OF MINING AND WATER RESOURCES ENGINEERING**

**FINAL YEAR PROJECT.**

**ASSESSING THE POLLUTION IMPACT OF CEMENT PRODUCTION ON AIR, SOIL  
AND WATER QUALITY, A CASE STUDY OF TIKAF PARISH OSUKURU  
SUBCOUNTY TORORO DISTRICT.**

**BY**

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*Final year project Report submitted in partial fulfillment of the requirements for the award of  
a Bachelor of Science in water resources Engineering at Busitema University*

## **ABSTRACT.**

A research was done to focus on the level of heavy metals on the soil water and air in the four villages of Tikaf parish Osukuru sub county in Tororo District which included; UCI central, Agururu B, Boke and Amagoro A. soil and water samples were collected from the four villages while the dust sample was collected in one place. Maximum concentration was found on soil nearest to the cement industry (UCI central) while the minimum was found in the soil furthest from the cement industry.

The concentration of the metals in the cement was found to be in the order of  $Zn > Pb > Cr > As > Cd$ . Where in most soils it was found to be in the order of In the order of UCI central  $>$  Amagoro A  $>$  Boke  $>$  Agururu B. Amagoro A.  $As > Pb > Zn > Cr > Cd$ , Agururu B.  $Zn > Pb > Cr > As > Cd$ , Boke.  $As > Pb > Zn > Cr > Cd$ , UCI central.  $Zn > Pb > As > Cr > Cd$ . There was an indicative value of high concentration on soil and air while in water there was no significant impact.

An inverse relationship was found in the pollution levels with increasing distance from the pollution source.

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Above all I thank the almighty God for the wisdom knowledge understanding and protection. May his name be glorified for ever and ever. **Amen.**

**DECLARATION**

I **Odoi Joel** declare that the work presented here is out of my own research except where due references are made. It has not been partially or wholly submitted for any academic award to any institution of higher learning for any award whatsoever.

**SIGN**.....

**APPROVAL**

This is to certify that this research proposal has been carried out under my supervision and that it is ready for submission to the department.

**SUPERVISOR NAME: Mr. Bwire Denis**

**SIGN .....**

## **DEDICATION.**

This piece of work is dedicated to all those who have supported me on my journey during its compilation especially my parents who have worked sacrificially and tirelessly to ensure that I attain education. To my brothers and sisters, all my classmates and any other person who prayed for me.

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## **LIST OF ACRONYMS.**

|      |   |
|------|---|
| WHO  | World Health Organization                   |
| AF   | Alternative Fuels                           |
| EP   | Electrical                                  |
| HM   | Heavy Metals                                |
| BSEN | British standard European norm              |
| ASTM | American standard test method               |
| UCL  | Uganda cement limited                       |
| TCL  | Tororo cement limited                       |
| HFO  | Heavy furnace oil                           |
| MW   | Ministry of Water                           |
| NEMA | National Environmental Management Authority |
| NGOs | Non- government organizations               |