



**BUSITEMA
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**FACULTY OF ENGINEERING
DEPARTMENT OF WATER RESOURCES AND MINING ENGINEERING.
FINAL YEAR PROJECT REPORT.**

**A MACHINE WHICH MAKES BRICKS FROM PLASTIC WASTES AND SAND
AS A REINFORCEMENT.**

**BY
NATUKUNDA LOYCE
BU/UP/2017/1527
+256787494184/0701563082
natukundaloyce099@gmail.com**

**SUPERVISOR:
MR. MASERUKA BENDICTO**

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ABSTRACT

Plastic is one of the daily increasing useful as well as a hazardous material. At the time of need plastic is found to be very useful, but after its use, its simply thrown away, creating all kinds of hazards. Plastic is not bio degradable, so it will continue to be hazardous for more than centuries. The idea of this project is to find a use for this waste plastic scrap into something beautiful. The mixing of plastic with sand to create a new type of brick was put into thought. Since it is uneconomical to approach a local brick manufacturer for lending the machine, I designed and fabricated a brick manufacturing machine. The machine was designed so as to fulfil the need for manufacturing brick in small quantity. The plastic scrap used was leftover pieces of bottles, cans etc. So, the shredded plastic was heated in a metallic pan and heat was supplied from the charcoal stove. Into the molten plastic paste, sieved sand was added in suitable proportions. The paste contained noting more than sand and plastic. After thorough mixing, the paste was tilted into a rectangular mould with standard brick dimensions of 196mm*100mm*90mm and compressed to remove the internal pores. The paste took only 10 minutes to settle and harden. The brick was then ejected from the mould box after which it started cooling. It had a dark grey texture and increased weight by the initial analysis. The brick was subjected to compressive test and water absorption test. The results showed promise, that the Plastic Composite Brick was efficient than the third-class clay burnt brick and cement brick. The constructed brick making machine can produce on average a total of 75 bricks per day (8 hours). The cost of production of the machine was 1.17 million UGX only. Whereas, the most common industrial extruder and hydraulic press with an average capacity of about 1,500 bricks per day (Nivedita,2021) cost more than \$100,000 (370,000,000). (*Okwoko, 2020*). Thus, this machine is relatively cheaper for small scale enterprises.

DECLARATION

I **NATUKUNDA LOYCE**, hereby declare to the best of my knowledge, that this project report is an outcome of my original work and it has not been presented to any institution of learning for an academic award of a bachelor of Science in Water Resources Engineering.

Student name:

Registration number:

Signature:

Date:

APPROVAL

This final report has been submitted to the Faculty of Engineering for examination with approval of my supervisor.

SUPERVISOR:

Name:

Signature:

Date:

DEDICATION

This report is dedicated to all lecturers of Busitema university, to my beloved mother and father Mrs. Twebaze Mary and the Late Mr. Arineitwe Deus respectively and Mr. Kasirye Brian in appreciation for the selfless care and tireless support provided to me, and for the spirit of hard work, courage and determination instilled into me, which attributes I have cherished with firmness and which have indeed made me what I am today.

And my other sponsors, HESFB that is responsible for my tuition and provides other financial support towards my study.

I also convey my heartfelt appreciation to my supervisors, Mr. Maseruka Bendicto for the advice as well their guidance during the preparation of this paper.

Not forgetting the water resources engineering class of 2017 for the guidance and assistance towards achieving this work.

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