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# Briquetting by Manual Compression and Time Study of the Briquette Industry

Shubham Bisen<sup>1</sup>, Siddhant Bhagat<sup>2</sup>, Himanshu Wazade<sup>3</sup>, Sahil Katole<sup>4</sup>, Akshay Panchbudhe<sup>5</sup>, Aditya Gadpayle<sup>6</sup>,  
Shubham Jaiswal<sup>7</sup>, Madhuri Bhagat<sup>8</sup>

<sup>1, 2, 3, 4, 5, 6, 7</sup>Engineering Student, Department of Civil Engineering, Dr. Babasaheb Ambedkar College of Engineering and Research, Nagpur, India

<sup>8</sup>Head of department of civil engineering, dr. Babasaheb Ambedkar college of Engineering and Research, Nagpur, Maharashtra, India.

**Abstract:** Conventional fuels, such as wood, coal, charcoal and Liquefied Petroleum Gas LPG, etc. are important for development of a substitute fuel. Biomass briquettes can be made by using some agricultural wastes such as straw, sugarcane bagasse, maize stalk, coconut husks and leaves, groundnut shells and rice husk, sawdust and the waste papers from various municipal wastes, which mainly act as a binding agent. They are used as a substitute fuel for cooking purposes and other heating processes. The experimental work focuses on developing a method to manufacture briquettes of same quality by using a wet technique. The impact of the process components like shape, density, moisture content and calorific value on briquettes with different combinations were studied. Using briquettes will surely prevent deforestation and reduce green house effect. In this situation, briquettes could possibly offer a means of waste management while providing a new fuel business opportunity for the local economy.

**Keywords:** Energy and Environment, Biomass fuels, Briquettes, Time study.

## I. INTRODUCTION

The world is developing in various sectors like industrial manufacturing, technology etc, but this development is also creating a lot of waste and pollution. In India coal is used as primary source of fuel to produce energy. But continuous use of coal can make the resources go fully extinct one day and it is also harming the environment. The briquettes are made up of agro waste materials. Any organic waste which degrades slowly and have combustion properties can be used as raw material in manufacturing of briquette. Briquettes are environment friendly products which do not emit harmful gases such as sulphuric gases or carbon dioxide. Excessive amount of carbon in air causes air pollution which leads to global warming. Briquettes can balance the use of conventional energy sources since it shows same burning capacity like coal without any harmful effect. In this process, briquettes will be produced from organic waste which degrade slowly and its calorific value will be determined. The calorific value of the briquettes will be compared with conventional energy sources.

Time study is a work analysis method for analyse the time and rates of working of a specified job carried out under particular conditions. Time study gives productivity improvement of any manufacturing industry. Productivity has been generally defined as the ratio of an extent of output to the unit of all of the resources used to produce this output. The term "productivity" can be used to evaluate or measure the extent to which a certain output can be extracted from a given input.

Time study aims at considering an activity is being carried out, modifying the method of operation to reduce unnecessary work, or the wasteful use of resources and setting up a time standard for performing that activity. If work study results in loss in time of performing a certain activity by 20 to 30%, merely as a result of rearranging the sequence or simplifying the method of operation and without additional expenditure, then productivity will go up by a corresponding value, that is by 20%.

## II. LITERATURE REVIEW

- A. Dr Sonja Boehmer-Christiansen (May 19, 2012) concerned that energy use and supply is of fundamental importance to society and, with the possible exception of agriculture and forestry.
- B. U.S. Energy Information Administration (June 21, 2018) stated that Biomass is organic material that comes from plants and animals, and it is a renewable source of energy.
- C. Darby, Thomas (12 June 2014) stated that Biomass renewable energy starts its beginnings through the marriage of the sun and photosynthesis plant process.

- D. Centre for Ecological Sciences INDIAN INSTITUTE OF SCIENCE BANGALORE (04 Dec. 2010) investigated thatat present two main high pressure technologies: ram or piston press and screw extrusion machines, are used for briquetting.
- E. Khardiwar M. S. Et.AL. (2013) observed that agricultural production in the country is increasing day by day with the agricultural mechanization, providing tremendous volume of agricultural residue every year.
- F. Salvendy 2001, [Section IV.C, Chapter 54] stated that the Time study is a direct and continuous observation of a task, using a timekeeping device.
- G. Kanawaty, (1992) stated the term "productivity" can be used to assess or measure the extent to which a certain output can be extracted from a given input

### III. CONCLUSION

Experiments and observations shows that rice husk briquette is a very effective biofuel that has fuel qualities and burns with good efficiency. Its cheap rate, highavailability and admirable fuel characteristics gained it high acceptance in a short time. Another reason for its rapid growth is the profit gain from its production thus more people are attracted to the business and raises briquettes availability. It reduces emission and also reduces deforestation by serving as an other cooking fuel in rural areas. Still there is scope for development in this area by researching for more effective ways to use biofuel and make it more environment friendly.

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