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Manufacturing of Paver Blocks using Coconut Shells and Bagasse Ash.

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Abstract— *The current scenario researchers all over the world are mainly focusing on the ways of utilizing either industrial agricultural waste as a source of raw materials for the construction industry.*

Few studies have been reported on the use of coconut shells and bagasse ash as partial cement replacement material in respect of cement. In this project, the effects of bagasse ash and coconut shells as partial replacement of cement on strength and durability properties of hardened concrete paver blocks are studied. It is necessary to make research on any alternating materials which will decrease the cost and increase the strength of concrete.

Keywords— paver blocks, bagasse ash, coconut shells, low cost, replacement.

I. INTRODUCTION

Infrastructure development across the world created demand for construction materials. In the contemporary civil engineering construction, using alternative materials in place of natural aggregate in concrete production makes concrete as sustainable and environmentally friendly construction material.

Different alternative waste materials and industrial by-products such as fly ash, bottom ash, recycled aggregates, foundry sand, china clay sand, crumb rubber, glass were replaced with natural aggregate and investigated properties of the concretes. few studies identified that coconut shells, the agricultural by product can also be used as aggregate in concrete.

According to a report, coconut is grown in more than 86 countries worldwide, with a total production of 54 billion nuts per annum. The high demand for concrete in the construction using normal weight aggregates such as gravel and granite drastically reduces the natural stone deposits and this has damaged the environment thereby causing ecological imbalance

II. OBJECTIVES

To utilize waste coconut shells and bagasse ash to decrease overall wastage it will Providing alternative for concrete paver block also it is Economic as compared to cost of concrete.

III. METHODOLOGY

The light weight paver blocks are developed in preliminary study. Cast in uniform shape and partially replacement of aggregates with coconut shells and bagasse ash in proportions. Like (5%,10%,20%) in various proportions with different curing time that will be for 3 days, 10 days, 21 days. After the curing the specimen will transfer to labs for further investigations through some tests like compressive strength test for 8 specimen and then flexural test for 8 specimen and by comparing the control concrete paver blocks with partially replaced coconut shells and bagasse ash paver block the blocks is observed and result will conclude.

IV. SUMMARY

Sugarcane bagasse ash modified concrete performed better when compared to ordinary concrete up to 20% for cement replacement and 10% of sand replacement in ordinary concrete said as per references shown in case study. Increase of strength in paver blocks is mainly due to presence of high amount of silica in sugarcane bagasse ash. Also 20% replacement with coconut shell crush is also possible.

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