VISVESVARAYA TECHNOLOGICAL UNIVERSITY

'Jnana Sangama' Belagavi - 590 014

PROJECT REPORT

On

"AN EXPERIMENTAL STUDY ON UTILIZATION OF IRON ORE TAILINGS (IOT) AND WASTE GLASS POWDER IN CONCRETE"

Submitted in partial fulfillment of the requirement for the award of

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In

CIVIL ENGINEERING

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ABSTRACT

Cement manufacturing industry is one of the carbon dioxide emitting sources besides deforestation burning of fossil fuels. The global warming is caused by the emission of green house gases, such as CO_2, to the atmosphere. Among the greenhouse gases, CO_2 contributes about 65% of global warming. The global cement industry contributes about 7% of green house gas emission to the earth's atmosphere. In order to address environmental effects associated with cement manufacturing, there is a need to develop alternative binders to make concrete. Consequently extensive research is on going into the use of cement replacements, using many waste materials industrial by products. Efforts have been made in the concrete industry to use waste glass as partial replacement of cement and also in recent years almost every mineral producing country is facing the problem of better utilization of mine waste because of its accumulation lack of suitable storage space.

In this study, finely powdered waste glass from industries and Iron Ore Tailings (IOT) produced from mining areas are used as a partial replacement of cement and fine aggregates in concrete respectively. This work examines the possibility of using Glass powder and iron ore tailing as a partial replacement of cement and fine aggregate in concrete. In the present study both Glass powder and Iron Ore Tailing (IOT) are partially replaced by 10%, 20%, 30% and 40% tested for its compressive, flexural strength for 7, 28 and 56 days of curing and were compared with those of conventional concrete.

KEY WORDS:

CC - Conventional concrete

GP - Glass powder

IOT - Iron Ore Tailings