PROJECT SUMMARY

Ref No.: MRIC/RIB-2401	**Title:** Manufacturing low-carbon eco-mortars from locally sourced recycled materials and regional resources
Local Company: Cementis Competency Centre Ltd	
Collaborating Institution: The Hong Kong Polytechnic University	
Project Leader	
Dr Binyu Zhang	Cementis Competency Centre Ltd
Research Collaborators	
Name	**Organisation**
Prof Chi-Sun Poon	The Hong Kong Polytechnic University
Miss Dharshini Koolman	Cementis Competency Centre Ltd
Dr Dongxing Xuan	The Hong Kong Polytechnic University

TECHNICAL ABSTRACT

In the year 2020, about 509,094 tons of solid waste was generated in Mauritius, among which 15,000 tons waste glass and over 4,000 tons bottom ash. The island's only landfill site The Mare Chicose Landfill is almost saturated. Up-recycling of such waste is of great importance.

The manufacturing of Ordinary Portland Cement (OPC) is an energy intensive process that contributes to 5% to 8% of total global carbon emissions. The development of eco-cement incorporating regional Ca-Si-Al-rich materials contributes to the sustainable development.

This project aims to develop an up-recycling scheme to incorporate locally generated waste materials into eco-mortars' manufacturing, aiming for carbon emissions reduction, solid waste issue mitigation and products' durability properties enhancement.

The main objectives of this project include:

To develop a low carbon eco-cement incorporating regional waste & resources;

To investigate the feasibility of producing eco-mortars based on low-carbon cement and alternative aggregates for regional applications;

To promote local standard updating with MSB thus to facilitate the locally generated waste materials' up recycling; and

To develop a manufacturing scheme that is suitable for accommodating existing and future solid waste materials' recycling in Mauritius.

The research activities will be conducted both in laboratory scale and manufacturing scale.

Key Words: Waste Glass, Bottom Ash, Carbon Emissions Reduction, Up-recycling, Sustainable Development, Manufacturing, Sulphate Resistance, Calcium Carbonate