

# **PERFORMANCE ASSESSMENT OF USING RECYCLED WASTE CONCRETE IN SRI LANKAN CONSTRUCTION PROJECTS – A CASE STUDY APPROACH**

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## **ABSTRACT**

Construction & Demolition waste has become a major problem in present for the sustainable parameters of the Sri Lankan Construction Industry. A very less amount of C&D waste has been recycled in order to reuse while most of it has been ended up as a landfill. Even though most of the countries in the Asian region has already applying these practices, in Sri Lanka the application has been limited due to the uncertainty of the final outcome. For assess the project performance impact by using recycled material comprehensively the individual performance of the overall quality of the project, Environmental impact and the cost impact has been analyzed. For the quality assessment, tests have been carried out for a selected case study and according to the final outcome it has been identified that the impact of using recycled concrete materials is positive when comparing to the use of virgin materials. Moreover, when considering the environmental impact, the main sustainability requirements have been identified and according to the final outcome of the assessment the environmental impact have been reduced by using recycled concrete materials. For analyze the cost impact comprehensively a WLC assessment and a Benefit-cost assessment of a selected product has been conducted and according to the result of the assessment it has been identified that, there is a positive impact regarding the cost. The purpose of this assessment is to identify the long-term benefits and indirect benefits of the application. Throughout the study it was identified that lack of knowledge and the availability of resources is the main reason for the limited application and the resources should be improved for increase the applicability of the recycled concrete materials in the projects. For increase the practical application, the government and other relevant authorities should encourage the professionals who are initiating these technologies through regulations. As further assessments, comprehensive study can be conducted regarding the structural based applications of recycled materials of C&D waste and other materials (Fly ash etc.) performance should be assessed with the overall project performance.

*Keywords: Recycled Concrete Waste, Cost, Quality, Sustainability, Performance*