

Integrated Clean Development Mechanism and Risk Management Approach for Infrastructure Transportation Project

Authors : Debasis Sarkar

Abstract : Clean development mechanism (CDM) can act as an effective instrument for mitigating climate change. This mechanism can effectively reduce the emission of CO₂ and other green house gases (GHG). Construction of a mega infrastructure project like underground corridor construction for metro rail operation involves in consumption of substantial quantity of concrete which consumes huge quantity of energy consuming materials like cement and steel. This paper is an attempt to develop an integrated clean development mechanism and risk management approach for sustainable development for an underground corridor metro rail project in India during its construction phase. It was observed that about 35% reduction in CO₂ emission can be obtained by adding fly ash as a part replacement of cement. The reduced emission quantity of CO₂ which is of the quantum of about 21,646.36 MT would result in cost savings of approximately INR 8.5 million (USD 1,29,878). But construction and operation of such infrastructure projects of the present era are subject to huge risks and uncertainties throughout all the phases of the project, thus reducing the probability of successful completion of the project within stipulated time and cost frame. Thus, an integrated approach of combining CDM with risk management would enable the metro rail authorities to develop a sustainable risk mitigation measure framework to ensure more cost and energy savings and lesser time and cost over-run.

Keywords : clean development mechanism (CDM), infrastructure transportation, project risk management, underground metro rail

Conference Title : ICECE 2015 : International Conference on Environmental and Civil Engineering

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : August 24-25, 2015