

Quantification of GHGs Emissions from Electricity and Diesel Fuel Consumption in Basalt Mining Industry in Thailand

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Abstract : The mineral and mining industry is necessary for countries to have an adequate and reliable supply of materials to meet their socio-economic development. Despite its importance, the environmental impacts from mineral exploration are hugely significant. This study aimed to investigate and quantify the amount of GHGs emissions emitted from both electricity and diesel vehicle fuel consumption in basalt mining in Thailand. Plant A, located in the northeastern region of Thailand, was selected as a case study. Results indicated that total GHGs emissions from basalt mining and operation (Plant A) were approximately 2,501,086 kgCO₂ and 1,997,412 kgCO₂ in 2014 and 2015, respectively. The estimated carbon intensity ranged between 1.824 kgCO₂ to 2.284 kgCO₂ per ton of rock product. Scope 1 (direct emissions) was the dominant driver of its total GHGs compared to scope 2 (indirect emissions). As such, transport related combustion of diesel fuels generated the highest GHGs emission (65%) compared to emissions from purchased electricity (35%). Some of the potential implications for mining entities were also presented.

Keywords : basalt mining, diesel fuel, electricity, GHGs emissions, Thailand

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