

An Investigation of the Carbon Emissions and Climate Change Awareness from the Artisanal and Small-Scale Gold Mining Sector in Guyana: The Case of Mahdia

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Mineral extractive industries are becoming increasingly relevant in climate change science and policy. Guyana's economic policy, the Low Carbon Development Strategy, seeks to align sectors of the economy along a low carbon emission trajectory. Although the artisanal and small-scale gold mining (ASGM) sector is economically important, it is a known emissions-intensive sector that contributes to deforestation and direct operational emissions. This study sought to increase understanding of direct operational emissions by investigating carbon emissions associated with fuel combustion in ASGM. Further, the study investigated miners' awareness of carbon emissions and willingness to reduce emissions; thus providing context for policymakers to advance measures aimed at reducing carbon emissions in the ASGM sector. The research methods used were qualitative document analysis, questionnaire-survey, and interviews. It was found that the average carbon dioxide emission per volume of earth moved from a sample of ASGM operations in Mahdia per quarter was 4.69×10^{-6} MtCO₂e/m³. Miners were generally unaware of their carbon footprint and its link to mining, climate change, and the Low Carbon Development Strategy. This knowledge gap was accompanied by negative attitudes. 79% of miners indicated there is no need to reduce their carbon footprint, and 85% of miners were unwilling to change their usual practices. Recommendations to advance and integrate the sector within the Low Carbon Development Strategy framework were explored within the themes of: regulation and management; fiscal measures; technology; and education and awareness.

Keywords: Climate change; gold mining