

ABSTRACT

This research evaluates the potential of greenhouse gas emissions reduction from municipal solid waste (MSW) by a waste management company in a developing country, Malaysia. The evaluation was based on a methodology under the United Nations Framework Convention on Climate Change (UNFCCC), which is AMS III.F: Avoidance of methane emissions through controlled biological treatment of biomass (Version 08, Scope 13). The first part of the research compares greenhouse gases (GHGs) emissions from two scenarios for a duration of ten years (2010-2019). The first scenario is the Bukit Tagar Sanitary Landfill (called the baseline) where the MSW is currently disposed at. The second scenario is a proposed MSW composting plant at Rawang (called as the project activity). Emissions from baseline were 8,059 tCO₂e while project emissions were only 132 tCO₂e. By avoiding 42,769 tonnes of MSW sent to landfill 13,276 tonnes of compost will be produced and this gives emissions reduction of 7,927 tCO₂e.

Though the results showed that MSW composting was undeniably able to reduce GHGs, however, financial assessment gave a negative impression. Two scenarios were compared, regulatory market and voluntary market. Regulatory market aims to reduce GHGs through Clean Development Mechanism (CDM) projects which take place in developing countries and invested by industrialized countries. This mechanism at the same time helps industrialized countries to achieve their emissions reduction obligations. While voluntary market does not carry any reduction obligation. Business, governments, NGOs and individuals voluntarily offset their carbon footprint. The results showed that regulatory market will generate a profit of US\$2,028 (RM6,186) while voluntary market will face a

loss of US\$5,533 (RM16,878). Thus waste diversion impacts vary depending on the focus of the study whether environmental or economics.