Economic and environmental benefit of informal waste scavenging at landfill sites: A case study at Bukit Gemuk, Tawau, Sabah, Malaysia

ABSTRACT

Recycling is an important part of the solid waste management system. However, community engagement in this activity remains relatively low. The presence of a group of individuals engaged in collecting recyclable materials at landfill sites has contributed to improving solid waste management performance. This paper aims to identify the background and activities of scavengers in collecting recyclable items at landfills, as well as the environmental impact of the scavenging activity. This study was based on questionnaires distributed to 46 scavengers in the study area. The Life Cycle Assessment (LCA) method was used to assess the environmental impact of using recyclable materials in manufacturing products. The LCA analysis could identify the contribution of recycled materials to the total savings of carbon dioxide (CO_2), methane (CH_4), and nitrogen dioxide (N_20) by using recycled materials in the production of a new product. According to the study, the majority of those involved in the scavenging activity are immigrants from Indonesia and the Philippines. Despite safety and health concerns, their efforts to earn a living through waste scavenging are extremely valuable. Furthermore, the findings show that their contribution to the collection of recyclable materials cannot be denied. It is because the presence of this group is essential in a country where recycling awareness is low. Furthermore, the indirect contribution to the environment is important, particularly in reducing the use of natural materials in producing new materials. As a result, the government must devise a more effective strategy for recycling programs by involving all stakeholders.