

Study on Solid Waste Treatment in Mulyoagung Bersatu Recycling Facility in Dau Sub-District, Malang District

Name : Muhammad Darmawan
Student ID : 3310.100.010
Department : Environmental Engineering
Supervisor : Prof. Dr. YulinahT., MAppSc

ABSTRACT

Mulyoagung Bersatu is a solid waste (SW) recycling facility, which is located between Malang City and Batu City. At present, this facility has conducted residential SW sorting, composting, and providing food waste scraps for animal feed, and recyclable waste components for sale. The SW residue is disposed of to landfill. This study aims to measure the quantity and composition of the incoming SW, the types of products, to conduct the financial analysis of the waste treatment, and to develop the existing services.

The required data were the amount of incoming SW, the density and composition of SW, the processing stages and the types of products, the number of processing facilities, the amount and type of residues, the number of staff, and the organization of the facility. The required supporting data were the incoming SW quantities during the last 3 years, the productivity, the service area, maps and topography of the Dau Sub-District. The incoming SW quantity data were measured in 8 consecutive days. These data were used for analyzing the technical and financial aspects in the study area.

The incoming SW quantity was up to 55 m³/day, or 11.86 tons/day. Composition of the SW was as the following: biodegradable waste material (68.24%), plastics (11.54%), paper (7.48%), diapers (7.08%), woods (0.60%), cables (0.07%), styrofoam (0.32%), hazardous waste (0.40%), textiles (1.53%), glass (1.34%), rubber (0.25%), cans (0.15%), metals (0.13%),

and leather (0.05%). The products consisted of compost (6.1 tons/day), sorted food waste (1.8 tons/day) and recyclable waste materials (2.4 tons/day). These products were sold to the local business partner. The financial analysis using NPV method showed NPV of lower than 0. This meant that the current recycling activity was not feasible to operate. This SW recycling facility showed an increasing number of capacity to be 72 m³/day in 2018.

Keywords : recycling facility, residential, solid waste