ABSTRACT

Benowo landfill which has 34.7 ha area is the only place to final processing Municipal Solid Waste (MSW) of Surabaya. The current capacity of the existing landfill can only hold a maximum of 1,200 tons of MSW / day. The results obtained projection that by 2022 the amount of MSW entering the landfill Surabaya population of 1,385 tons / day. This condition may reduce the operational lifespan of the landfill compared to lifespan planning. One of the alternative solution to anticipate limited land and landfill capacity is to use the Material Recovery Facilities (MRF). Floating MRF is a MRF concept applied to a floating mode such as ship that operate at sea in allowable radius based on MARPOL 73/78 Annex V. To determine the impact of the operation of the Floating MRF used in this study of Cost - Benefit Analysis. Where each component is calculated costs and benefits both internal and external.

From the calculation of the amount of waste obtained Surabaya population in 2022 is projected to reach 1,385 tons / day. The total cost of waste management on land (existing) is Rp 939,859,849,840. The total cost required for the processing of waste at sea (Floating MRF) is Rp 542,161,450,229. While the total cost required in processing waste on land (MRF at land) is Rp 468,701,895,418. The benefits of the concept of waste at sea is Rp Rp54,705,983,542. Value Cost Benefit Ratio produced by Floating MRF is 0.10 which means that this concept is not eligible to run. However, based on the results of the sensitivity analysis of the price of land to waste management costs when land prices reached 13,890 million dollars per m² in 2021, the alternative waste treatment by using the Floating MRF will viable compared with waste management on land.

Keyword: Municipal Solid Waste, Landfill Capacity, Floating MRF, Cost – Benefit Analysis