ABSTRACT

Development of solid waste treatment facility is one of the Tangerang regency government efforts in developing an integrated solid waste management system in Kelapa Dua district. A good solid waste management can reduce solid waste generation rate. This study aimed to determine solid waste generation, composition, and recycling potential, and to design a solid waste treatment facility, by putting into consideration technical, financial, institutional, and community participation aspects.

This study determined the solid waste generation, composition, and recycling potential according to national standard method SNI 19-3964-1995 for 8 consecutive days. Samples for measurement of solid waste generation and composition were obtained from 100 households, which were randomly determined. The financial aspect included Net Present Value (NPV), Benefit Cost (B/C) ratio, and Internal Rate of Return (IRR) calculations. Institutional and community participation data were collected by performing observation and interviews. SWOT analysis was applied for determining strategies and recommendations for the provision of the solid waste treatment facility.

The estimated residential solid waste generation in the study area was 60,079 tons/day. The solid waste was composed of the following components: biodegradable organics (67.27%), plastics (19.26%), paper (6.93%), glass (1.87%), wood (1.27%), textile (0.88%), metals (0.83%), rubber (0.28%), leather (0.18%), and residual waste (1.23%). The recyclable solid waste materials and its recycling factors were as the following: glasses (95.69%), biodegradable organics (91.58%), paper (68.52%), metals (63.26%), and plastics (58.28%). Design of the solid waste treatment facilities required an estimated area of 6,092 m². This facility required 54 workers. Financial analysis resulted in NPV value of Rp. 12,039,170,529 at an interest rate of 15%, IRR value of 33.291%, and B/C ratio of 1.36 (>1). The financial analyses concluded that the provision of solid waste treatment facility in Kelapa Dua district was feasible. Strategy for developing the solid waste treatment facility was by maximizing the internal strength for facing the incoming opportunities.

Keyword: recycling, residential solid waste, treatment facility
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