USE OF LANDFILLED SOLID WASTE MATERIAL IN NGIPIK DISPOSAL SITE, GRESIK REGENCY

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ABSTRACT

Limited land in Gresik needs efficient management of Ngipik landfill of which area is 4.0 ha. The landfill was planned to be operated from 2003 to 2011. However, the area is still used for final disposal of municipal solid waste until to date. Based on this need, it is necessary to increase the receiving capacity of the landfill. One of the options that could be considered is to do solid waste mining in the dumped area, in order to provide a new site and to yield material resource from the dumped solid waste. The objectives of this study are to determine the economic potential and the use of the dumped solid waste materials, and to determine the feasibility of solid waste mining for landfill development.

Data concerning solid waste management techniques, landfill service area, document regarding landfill development planning, and service life of the landfill were collected from the Livong Environmental Agency of Gresik Regency. The mining method referred to the guidelines which were issued by the Ministry of Public Works. Composition of the landfilled solid waste material was determined from twelve samples, which were collected from dumped site periods of 2007 to 2010. The minimum weight of each sample was 100 kg. Financial analysis was done according to Net Present Value (NPV), Internal Rate Return (IRR), and Benefit/Cost-Ratio. Institutional analysis was done descriptively.

The estimated volume of solid waste material in the landfill was 229,010 tonnes. Composition of the dumped solid waste material was: 25.91% compost material, 41.40% plastics, 19.37% coarse material, 5.49% textile, 5.31% wood, and 2.5% residue. With NPV value of Rp. 17,693,206,163, IRR value of 35.38%, and B/C-ratio of 1.69, the landfill mining is feasible to be implemented in the landfill.

Kata kunci : economic potential, landfill mining, solid waste landfill
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