Abstract

The mining company conducting mining activities in Indonesia are mostly using physical processes rather than chemical processes to minimize the impact on the environment. However, physics processes that have been used still produce waste. Based on the data from the Department of Environment Mining Company, the election of waste that will be managed have 4 criterias, they are: dangerous levels of waste, commercial value, internal or external management, and also density level of waste. Because of the process used to have some criteria, then the problem can be solved using Multi-Criteria Decision Making (MCDM) to define the best alternative set from some criteria based on the number of alternatives.

The method that used to solve the problems is Fuzzy Analytical Hierarchy Process (F-AHP). Combining Methods F-AHP can handle weakness of AHP that is subjective, with Fuzzy, it provides value using scale which is not a single value or have interval for tolerance on subjective criteria and also input logical personal consideration depend on experience and knowledge of decision makers. It provides more value to the system because it enable of giving closer value to the actual conditions. After testing by matching the results of the ranking of the system with a ranking of mining company, obtained that using the F-AHP resulting degree of accuracy by 80%. This proves that the ranking is generated by using the F-AHP method already represents the needs of mining company in managing waste.

Keywords: Multi-Criteria Decision Making (MCDM), Fuzzy, AHP, Fuzzy Analytical Hierarchy Process (F-AHP), Mine Waste