INTEGRATION METHOD ANALYTIC HIERARCHY PROCESS (AHP) AND FUZZY METHOD FOR MULTI OBJECTIVE OPTIMIZATION OF MULTI SUPPLIER SUPPLIER SELECTION AND ALLOCATION OF PROCUREMENT (CASE STUDY: PERUM BULOG DIVRE SUB SURABAYA NORTH REGION I)

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ABSTRACT

Perum Bulog is a government owned commercial enterprise which is engaged in procurement of rice. Due to demand for rice is more than capacity of one supplier, they must take offer more than one supplier. This research aims to identify what criteria tangible and intangible should be consideration when perum bulog will determine a appreciate supplier and to delivery a model for selection the best supplier.

The method used in the design of supplier selection model is the by using the Analytic Hierarchy Process (AHP) to compare between the existing criteria and choose supplier in the company, and the Fuzzy Multi Objective Linear Model to determine the optimal number of orders made on each supplier.

The research calculated of total relevant cost that consist four objectives or goal, the first objective function is minimizing procurement cost total relevant cost calculation Bulog USD 3,446,844,668 / 6 months and the results of the proposed calculation model with Fuzzy Multi Objective model Rp 3,440,751,202 / 6 months. From the calculation model of the company can make savings amounting to Rp 6,093,466 / 6 months. For the second objective function of minimizing the unit discrepancy actual results showed the value of 224.620Kg / 6 months and the proposal shows better results are 134.189Kg / 6 months, for the third function of minimizing delays in the actual results showe 410,184 kg / 6 months while the result of the proposed shows the results of 369 032 kg / 6 months, and for the four functions of weighted order actual results showed 160.730 Kg proposal shows the results 490.765 Kg.

For sensitivity analysis steps, the conclusion of this research shows the results where demand and prices increase by 3% a significant impact on the total relevant cost premium rice increased by 5.48%, while demand and prices increase by 6% to bring impact significant on the total relevant cost premium rice increased by 6.81%, and for other purposes function is not so significant or not sensitive.

Keywords: Analytic Hierarchy Process (AHP), Fuzzy Multi-Objective, Criteria Tangible and Intangible, Optimization, Supplier Selection.