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APPLICATION OF ARTIFICIAL NEURAL NETWORKS TO PREDICT SALT FIELDS PRODUCTIVITY IN THE REGENCY OF SUMENEP MADURA

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ABSTRACT

Indonesia's lack of salt productivity and competitiveness has shifted Indonesia's trade position from a prominent salt exporter to a salt importing country. The problem is that the amount of salt production in Indonesia is generally erratic on a monthly basis which may be affected by various factors, such as climate change, field availability, and other activities related to salt production process. The uncertainty of certain conditions that leads to a particular production yield is a kind of problem in the area of supply chain management, particularly in forecasting method. This paper proposes a model to predict salt field productivity using Artificial Neural Network (ANN) method. The model is developed from ANN method that acts as a data processing system which mimics the human nervous system. The ANN method is chosen because it has advantages in the aspects of adaptive learning system and has a low risk of fault to solve forecasting problem. A pilot study took place in Kalianget, Sumenep Madura where it demonstrates how ANN method can be employed to improve the accuracy of salt field productivity prediction. The proposed model's forecasting result has MSE of 0.063, which is less than 1 and considerably able to predict the salt field productivity in any given period.

Keywords : Artificial Neural Network, Forecasting, Predictive Modeling, Salt fields, Supply Chain Management