DESIGN OF THE QUALITY RISK ASSESSMENT IN CRUDE PALM OIL SUPPLY CHAIN WITH DYNAMIC SYSTEM APPROACH

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ABSTRACT

Indonesian palm oil industry has grown significantly in recent years and since 2006 has surpassed Malaysia to become the world’s largest Crude Palm Oil (CPO) producer. With the ever increasing of potential market and market demands for its palm oil products, Indonesia will need to ensure the highest level of palm oil products quality. The main objectives of this research are first, to identify the factors to measure the success of Palm Oil Mills (POM) Adolina’s management. Secondly to design a system dynamic model as a tool to determine the quality risk assessment pattern of POM Adolina. The results from simulation of this model will be referenced when formulating managerial policies. The dynamic model comprises three sub-models, namely production sub-model, transportation sub-model and inventory sub-model respectively. In conclusion, this research produced the formulation of the most important factors to measure management success, namely the level of CPO production and the level of free fatty acid (FFA), and also generated simulation of managerial policies. To obtain them three scenarios were considered, the basic, the dynamic behavior and the risk assessment scenarios. Probabilistic and uncertainty parameters were considered in the third scenario.

Keywords: palm oil industry, supply chain, quality risk assessment, probabilistic, uncertainty, dynamic model