System Dynamic Simulation to Analyze Profits in Novita Tofu Factory

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Abstract

Background - The price of soybeans, the primary raw material for tofu production, tends to fluctuate and remain unstable. This instability impacts production costs and the profitability of the tofu factory industry, as tofu prices are sensitive and cannot quickly adjust to changes in soybean prices. To tackle this issue, policy scenarios must be developed to identify appropriate solutions.

Purpose - The purpose of this study is to create scenarios in dynamic situations to achieve the best profit for Novita Tofu Factory.

methodology - This study uses the system dynamics method to simulate scenarios using Vensim software. After constructing the model, the researchers developed three policy scenarios, specifically Scenarios 1 and 2, which were designed by varying tofu prices and the number of workers.

Findings - Based on the comparison between the initial data conditions and the scenario models, it was found that Scenario 1 could serve as an alternative to maximize profits, with an average profit of IDR 242,105,200, the highest profit reaching IDR 256,973,000, and the lowest profit being IDR 231,448,000.

Originality - The originality of this study lies in its focus on the dynamic pricing of soybeans and the condition of tofu demand in the Toba area.

Keywords: System Dynamics, Modeling, Profit, Scenario