

# Understanding Underlying Issues Across the Indonesian Chilli Value Chain Using Systems Thinking

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## ABSTRACT

As an agricultural commodity, chilli experiences a commodity cycle in the market. However, in the Indonesian market, chilli experiences the highest price fluctuation and is the highest contributor to national inflationary pressure. The price fluctuation has an economic impact on farmers and actors across the value chain. This paper attempts to understand the underlying issues driving price fluctuation across the chilli value chain using systems thinking. It is achieved by linking the problematic behaviours and the system structures of the chilli value chains. Interviews with value chain stakeholders and experts, and focus group discussions with chilli farmers, were conducted to gather data for the modelling process. Time-series data were analysed to understand the mode of behaviours that exist within the value chain. Our system dynamic model suggests that the dynamic interaction of production and market generates chilli price volatility. The feedbacks of two governance types that exist across the value chain (market and contractual arrangement) influence the dynamics of chilli stocks in the markets, thus influencing the price dynamics. Price oscillation tends to trigger farmers and traders to act opportunistically, making contractual arrangements less attractive. In addition to governance, the identified exogenous factors that disrupt production and market tend to make the oscillation irregular and thus difficult to predict. Although this study is limited to the development of a dynamic hypothesis, the basic system structure of the chilli value chain can be adopted for other similar commodities in other countries. Further studies could focus on the development of system archetypes and a simulation model to identify leverage points and assess intervention strategies.