



RESEARCH IN PROGRESS

The Impact of Climate Change on Rice Supply Chains in Thailand

Description: The Impact of Climate Change on Rice Supply Chains in Thailand (2010-2011) CSU Internal Funding

Investigators/researchers Prof Kevin Parton (ILWS) Phattcharee Thongrattana (U Wollongong), Ferry Jie (RMIT),

Objectives

The aim of the research was to investigate the effects of uncertain rice supply caused by drought on inventory levels and unfilled customer demand along the rice supply chain in northeast Thailand.

Methodology

A stochastic simulation model was developed to represent various scenarios under climate change. Using historical data from normal and drought years, three different scenarios with respect to rough rice production were analysed.

Key Findings

The results indicate that droughts periodically cause large rice production losses that flow-on to significant supply chain problems. However under current climate the supply chain system accommodates these effects. In contrast, with climate change there are significant stock-outs and unfilled customer demand.

Outputs

Thongrattana, P.T., Jie, F. and Parton, K.A. (2011), "The Impact of Uncertain Rice Supply in Northeast Thailand on Inventories and Unfilled Customer Demand", *International Journal of Operational and Quantitative Management* 17 (3), 101-113.

Outcomes

The analysis shows clearly that the performance of the supply chain for Thai rice is affected by the type of climate variability that would be induced by climate change. Higher climate variability with more droughts leads to more fluctuating inventory levels, stock-outs and unfilled customer demand