

MANAGING RISKS IN THE GHANAIAN COCOA SUPPLY CHAIN USING THE FUZZY AHP METHOD

Macwilliam K. Appianing

Nanjing University of Posts and
Telecommunication

CHINA

Kwabena.appianing@yahoo.com

Nakieta K. Msemo

Nanjing University of Posts
and Telecommunication

CHINA

Fettywilliam95@yahoo.com

ABSTRACT

Cocoa is an essential economic tool for Ghana and as such the government has made a lot of initiatives to institutionalize a body Ghana cocoa board to ensure the cocoa industry rakes maximum gains. The supply chain of cocoa in Ghana is complex as it spans domestic and international engagements. Due to this complexity, the cocoa value chain faces a lot of risk and this study purposed to evaluate the risks that the cocoa chain face at the farmer level. The study identified risks at the farmer level and used questionnaires to solicit the opinions of top managers and workers in the cocoa chain on the risk level and risk situation. Thirty-one (31), consisting of eleven (11) top managers and twenty (20) high ranking employees participated in the study. Data was analyses using Analytical hierarchical process (AHP) and fuzzy models. AHP analytical tool was used to compare the importance of opinions and calculate the weight of each risk while the fuzzy model was employed to assess the importance of each risk and to calculate the risk distribution. The study revealed there exists plethora of risks at the farmer level such as quality risk, pest infestation, risk of theft, smuggling/robbery etc. The study based on findings to recommend supply chain risk management practices; advanced training for farmers, efficient warehousing systems, improved transport systems to help improve operations at the farmer level.

Keywords: Supply Chain Risk, Supply Chain Risk Management, Ghana Cocoa, Farmer, FUZZY AHP.