

Environmental variability and farmers' resilience to food insecurity in Southern Zambia

UMETSU, Chieko^{1*}, Thamana Lekprichakul¹, Takeshi Sakurai², Shuhei Shimada³, Hitoshi Shinjo³, Mitsunori Yoshimura⁴

¹Research Institute for Humanity and Nature, ²Hitotsubashi University, ³Kyoto University, ⁴PASCO

Within the Semi-Arid Tropical Sub-Saharan Africa, communities' livelihoods depend critically on fragile and poorly endowed natural resources, and poverty and environmental degradation are widespread. People in these regions depend largely on rain-fed agriculture, and their livelihoods are vulnerable to environmental variability. Environmental resources such as vegetation and soil are also vulnerable to human activities. To surmount these environmental challenges, human society and ecosystems must recover quickly from environmental shocks. In other words, resilience of social-ecological system (SES) is considered an important component for achieving sustainability.

We argued that in order to operationalize resilience, it is important to consider resilience in the context of rural households in SAT region; i.e., resilience to environmental variability, such as drought, flooding and social changes. We consider resilience of food supply and consumption, health status, agricultural production and livelihoods and resilience for protecting human security, i.e., survival, livelihoods and dignity.

We conducted an integrated study for analyzing farmers' coping strategy against climatic shocks in selected areas in Southern Province in Zambia. We collected various household level data including on-farm precipitation, agricultural production, off farm production, consumption, and anthropometric measures as a proxy for nutritional status for three cropping seasons from 2007/2008 to 2009/2010.

Purpose of the paper is to show our empirical evidence of dynamics of farmers' livelihoods in response to various shocks in Zambia. The empirical evidence suggests that farmers' food consumption is affected not only by rainfall shock but also by food price hike. Lastly, role of institutions to build adaptive capacity of the communities is discussed.

Keywords: food security, livelihoods, climatic shock, agricultural system, adaptive capacity