

## **Coping and Adaptation to Climate Vulnerabilities: Implications for Agricultural Livelihoods in Semi-Arid Ghana**

**Osman, Balikisu**

Student, University of Waterloo, Canada, osmanyb6@gmail.com

Coping and adaptation strategies represent an important mechanism to surviving vulnerabilities associated with changing climatic conditions in semi-arid regions. The research adopted sustainable livelihood framework to identify specific coping and adaptation strategies adopted by farming households, analyze the outcomes and ascertain the implications on the vulnerability context within which farming livelihoods are pursued in a semi-arid region of Ghana. The study area was Kassena Nankana Municipal - the communities of Doba Sirigu, Doba Gayingo, and Gingabnia. Data was collected through participatory learning and discussion in focus groups, household surveys, and interviews, with a follow-up transect walk to validate responses. The participants were mainly farmers and a few officials from development organizations and local government department of agriculture and environment. Responses were analyzed qualitatively with inferences to the quotes from respondents. Frequency tables were also generated from the survey responses on perceive changes in temperature and rainfall. The results show that farmers' are becoming increasingly exposed to erratic rainfall, rising temperatures and frequent storms in the study area. On the other hand, they have developed diverse livelihood strategies to cope with and adapt to risks and vulnerabilities of the perceived changes in rainfall and temperature. However, the effectiveness of the strategies in reducing vulnerability cannot be said with certainty. While some of the strategies have helped to reduce livelihood risks and enhance security in the short-term, others have led to socio-economic and environmental consequences on agricultural livelihoods, thus exacerbating the vulnerabilities and poverty situations of some households. The research notes that sustainable coping and adaptation strategies in semi-arid areas depend on farmers' ability to access on-farm support services from relevant organizations, secure finance, and have knowledge of the realistic changes in climatic conditions. This recommends that government and development partners should design holistic education programs on livelihoods, health, environment, and climate. It also calls for more agri-business investment training, community-wide support on climate adaptation and access to sustainable financial services to farmers in semi-arid Ghana.