

**Role of climate resilient agroforestry in changing farmers livelihoods and deforestation:
a case of four villages around Songe - Bokwa Forest in Kilindi district, Tanzania**

Hamza Omari Nkomulwa

Master of Science (Climate Change and Sustainable Development)

University of Dar es salaam College of Natural and Applied Sciences,,2019

This study aimed at understanding the role played by climate resilient agroforestry in changing farmer's livelihoods and deforestation levels in four villages around Songe - Bokwa forest in Kilindi District. Altogether 86 randomly selected respondents took part in this study. Data was collected through semi structured household questionnaires, focus group discussions, key informants, GIS tools and observation. Quantitative data was analyzed using Arc GIS 10.3 software, SPSS version 16.0 and Excel Spreadsheet while Qualitative data analyzed through content analysis techniques. Findings show that farmers perceive climate change and variability as increase in early or late onset of rainfall (29%), decrease in rainfall (26.5%), unreliable rainfall (21.8%), prolonged dry spell (14.5%) and floods (8.2%). It also shows that agroforestry practices contributed in improving farmer's livelihoods. The improved livelihoods are increased crop production (18.8%), increased tools of production (16.4%), payment for medical services (15.1%), increased number of livestock (13.1%), increased income (12.8%), payment for school fees (12.5%) and construction of modern houses (11.2%). The findings also show that agroforestry practices contributed to the reduction of deforestation levels from 64.6 ha per year during 1985 – 1995 to 11.8 ha per year during 1995 -2005 and to 8.7 hectare per year during 2005 – 2017. However, the potential of agroforestry systems in improving livelihoods and reducing deforestation is constrained by inadequate mentoring technical extension services (35%), low capacity to buy seedlings (23%), extreme climatic events (16%), prevalence of pest and diseases (14%) and lack of legal land tenure (12%). Farmers in the study area need comprehensive extension services and close mentoring on more climate resilient agroforestry systems, nutrient cycling trees, and fast growing timber species.