

CLIMATE CHANGE ADAPTATION PRACTICES IN CROP CULTIVATION: CASE STUDY IN ANURADHAPURA DISTRICT

R.M.C.K. Ranasingha^{*} and A. Nanthakumaran

*Department of Bio Science, Faculty of Applied Science,
Vavuniya Campus of the University of Jaffna, Sri Lanka
^{*}chathuckr@gmail.com*

Climate change, mainly the variation in rainfall in the recent past years, causes frequent floods and drought in many districts in the country. The variation in rainfall and frequent floods and droughts affect the crop cultivation, and thereby challenging the food security of the country. Further, it affects the livelihood of the farming community in the tank based agriculture systems which includes the major and the minor irrigation tanks. Many minor irrigation tanks receive water from rainfall, store and supply for agriculture during non-rainy season. Very often the water stored in the minor irrigation tanks is not sufficient to fulfill the water requirement for agricultural purpose, because of the limited tank storage. The objective of this study was to identify the adaptation measures practiced by the farmers to overcome the effects of climate change due to rainfall variation under minor irrigation tanks.

Since Anuradhapura district lies in the dry zone of Sri Lanka and many small and marginal farmers involved in crop cultivation, it was selected for this study. Stratified random sampling was done to select 150 farm households from 15 minor irrigation tanks in Anuradhapura district. Primary data from the farm households using structured questionnaire and the rainfall data for the past 31 years from the year 1984 as secondary data from the Meteorology Department were collected for analysis. Percentage analysis and the graphical representation were carried out using MS Excel. During 1984 to 2014 the average annual rainfall was 1293 mm with a coefficient of variation of 22 percent.

The rainfall was above normal in 13 years with a deficit in 13 years, and very scarce in five years. The survey revealed that the crop insurance, cultivation of short duration crops, cultivation of drought tolerant rice varieties, inter cropping, changing the planting and harvesting date and agro forestry were some of the adaptation strategies practiced by farmers in the study area. The percentage analysis revealed that 94% of the farmers had crop insurance, 90 % of the farmers cultivated short duration crops, 72% of the farmers switched to cultivation of drought tolerant varieties, 46% of the farmers practiced intercropping, 30% of the farmers changed the planting and harvesting date, and 28% of farmers practiced agro forestry strategy as adaptation measures for climate change. Though the farmers in the study area practiced these climate change adaptation strategies to some extent, dissemination of knowledge about appropriate adaptation strategies towards farming community is essential to protect the livelihood of the farm households, while ensuring the food security of the country. Thus, the farmers may be given proper support by supplying short duration and drought tolerant rice varieties and selected seedlings for agro forestry.