Master's Thesis Abstract

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Title of Thesis	:	**"Assessment of Vulnerability Index and Adaptation strategies in Rice production due to the climate change under Krishna River basin of Andhra Pradesh"**
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The present study was conducted in Guntur district under Nagarjuna Sagar project area of Krishna river basin of Andhra Pradesh with the major objectives to assess the vulnerability index of districts under Krishna river basin of Andhra Pradesh, to assess the impact of climate change on socio economic conditions of farmers, to analyze the adaptation strategies taken due to climate change and to examine the efficient Rice production systems in the study area. A total of sample 240 paddy growing farmers were selected randomly, 40 from each village. The important analytical tools employed in the study were the Principle Component Analysis, Ricardian Regression Model, Logistic Regression Model, Simple Tabular Analysis etc.

The study revealed that among the nine districts under Krishna river basin, Anantapur was highly vulnerable whereas Krishna district was least vulnerable.

The impact of climate change on area of crops showed that the climate variables such as long term daily minimum temperature average (LLT) and long term daily maximum temperature average (HLT) were important determinants of paddy and maize where as proportion of irrigated area to total cropped area (PROIA) and long term daily maximum temperature average (HLT) were important variables influencing Groundnut.

In case of productivity the variables proportion of surface irrigated area from tanks and canals (PROSUR) and long term daily minimum temperature average (LLT) in paddy, long term daily minimum temperature average (LLT) and long term daily maximum temperature average (HLT) in maize and long term daily minimum temperature average (LLT) and long term rainfall average (RLT) in Groundnut were important variables influencing productivity of crops.

The socio economic study revealed that an average age of the farmers was 36 years and the education level was up to high school level. Most of the farmers invest their income on health ranging from Rs.10000-20000 per year. Most of the farmers lend their credit from banks and cooperative societies. The study also revealed that 59.17 % of farmers reported adapted and 40.83% of farmers reported not adapted to climate change. The major constraints for not adapting were lack of information, lack of money, shortage of labour, shortage of land and poor potential for irrigation.

Logit model results indicate the variables that influence adaptation capacity of farmers significantly were farm size, farming experience, access to credit and access to extension services.

Among the different Rice production technologies in the study area, the total cost of cultivation was high in SRI followed by machine transplanting, farmers practice and in direct sowing. The net returns and B-C ratio were highest in direct sowing followed by SRI, machine transplanting and farmers practice. Cost of production was highest in farmers practice followed by machine transplanting, SRI and direct sowing. The WUE was highest in SRI followed by direct sowing.