

## **Awareness of Tea Small Holders on Climate Change: A Case of Tea Small Holders in Badulla District**

D.M.W.P. Rathnayaka *and* R.P.D. Gunathilaka  
*Uva Wellassa University, Badulla, Sri Lanka*

### **Introduction**

Climate change has emerged as one of the most devastating environmental threats. Impacts of climate change on human and natural systems are predicted to be severe. According to the Sri Lanka Country Report on Climate Change (Year), increase of temperature by 2070 will be 0.4 to 3 °C. Rainfall increase, as precipitation, is expected by 10% in the wet zone for both dry and wet seasons. The possibility of 10% increase in length of the dry and wet spells in main plantation areas has also been indicated (Wijeratne, 1996). Since tea is primarily a rain-fed crop tea production will be particularly affected unless early efforts are made to help farmers adapt. There is an urgent need to sensitize the farmers regarding climate change and its effects and causes. They need to be supported to increase their resilience to the changing conditions (Pandve, 2007). Adaptation is largely dependent on the availability of information relevant to climate change (Semenza, Ploubidis & George, 2011). Awareness of climate change help tea smallholders plan their production activities and reduce risks and uncertainties associated with farming (Banmeke & Ayanda, 2011). Therefore, this research aimed to investigate the awareness and perception of tea smallholders on climate change.

### **Methodology**

Hundred and fifty tea small holders were selected from Badulla district by using simple random sampling technique. A structured questionnaire and direct interview method were used to collect data. The questionnaire was pretested using 10 small holders. Identified social factors were age, gender, marital status, religion, farming experience, and education level.

Awareness of climate change was achieved through main three criteria namely, awareness that climate change is happening, awareness of the causes of climate change, and awareness of the effects of climate change. These three kinds of awareness were ascertained by using a four point scales, unaware, slightly aware, moderately aware, and full aware. Perception on respondent's awareness on climate change issues, adaptation methods and sources of information was identified. Data were analyzed descriptively and inferential statistically by using statistical package for the social science (SPSS). General characteristics of the sample were analyzed using descriptive statistics. Chi square test was used to examine the association between socio economic variables and awareness on climate change (happening), awareness of the causes of climate change, and awareness of the effects of climate change.

### **Results and Discussion**

The mean value of the age category of tea small holders was 49.29 and the mean farming experience was 11.60. Highest proportion of the sample (31.33%) represented by the farmers between 51-60 years age category. According to the land extent mean extent was 1.22 acre while the smallest and the largest tea small holding were 0.25 and 8 acre, respectively. The majority of tea smallholders (70.7%) had 0.1-1 acre land extent. Among the tea smallholders, there were 57.33% males. Minimum farming experience was one year and maximum was 35 years. Higher percentage of tea smallholders (56%) had experience between 0-10 years. Out of the sample population, 45.33% of tea small holders had attained secondary education and 94.667% of the respondents have some form of formal education. 98% of smallholders in the sample were aware that they get long term changes in temperature in their areas; 85.3% of smallholders have claimed that there is a trend in temperature increase. 98% of smallholders

responded that they have noticed long term changes in rainfall in the areas, 71.3% of smallholders have claimed that rainfall trend has been increasing. 98% of respondents claimed that the problem of climate change affects them as smallholders, while 70.7% of the respondents said the problem of climate change cannot be solved at all. 76% of the respondents claimed they have no adequate information on how to adapt to climate change.

Out of the sample, 46.10% of farmers cited the radio and television as their sources of information. 43.33% of the respondents were moderately aware about climate change happening, and 42.0% have thought they are slightly aware about causes of climate change. 46.0% have perceived that they are moderately aware about effects of climate change. Of the respondents interviewed, 37.44% have thought climate change results from deforestation and most of them (20.29%) were aware that crop failure is one of the effects of climate change being experienced. Many of the respondents (27.47%) plant shade trees as adaptation measures against climate change. Majority (44%) has indicated education and conducting awareness campaign as type of assistance expected from the government, and most of the respondents (42.70%) claimed lack of information was the main factor hindering adaptation to climate change.

Table 1 shows that there is a statistically significant relationship between respondents' education and awareness that the climate change is happening. There is a statistically significant relationship between respondents' education and awareness of the causes of climate change. Also, there is a statistically significant relationship between respondents' awareness of the effects of climate change and each of; respondents' (1) education (2) farming experience.

Table 1. Summary of the chi-square analysis at 0.05 level of probability.

Personal characteristics	$\chi^2$	Degree of freedom	P value	Decision
<b>1. Awareness that the climate change is happening</b>				
Gender	5.091	3	0.165	Not significant
Age	14.219	15	0.509	Not significant
Marital status	0.722	3	0.868	Not significant
Religion	6.849	6	0.333	Not significant
Farming experience	8.322	9	0.502	Not significant
Education	81.143	9	0.000	Significant
<b>2. Awareness of the causes of climate change</b>				
Gender	3.905	3	0.272	Not significant
Age	14.160	15	0.513	Not significant
Marital status	3.013	3	0.390	Not significant
Religion	11.956	6	0.63	Not significant
Farming experience	14.148	9	0.117	Not significant
Education	54.485	9	0.000	Significant
<b>3. Awareness of the effects of climate change</b>				
Gender	0.572	3	0.903	Not significant
Age	13.883	15	0.534	Not significant
Marital status	7.143	3	0.067	Not significant
Religion	6.200	6	0.401	Not significant
Farming experience	28.946	9	0.001	Significant
Education	75.757	9	0.001	Significant

## Conclusions

This study revealed that the most of tea smallholders in Badulla district were aware about the climate change happening, and causes & effects of climate change. Most of smallholders in the sample have noticed long term changes in temperature and rainfall in their areas. Education level has a significant effect on awareness of tea small holders on the climate change happening, and causes & effects of climate change. Also, farming experience has a significant effect on awareness of tea small holders on causes of climate change.

### **References**

- Banmeke, T. O.A., Fakoya E.O., Ayanda, I.F., 2011. Agricultural researchers' awareness of the causes and effects of climate change in Edo State, Nigeria, Department of Agricultural Extension and Rural Development University of Agriculture, P.M.B. 2240, Abeokuta, Nigeria.
- Pandve, H., 2007. Global warming: Need to sensitize general population. *Indian J Occup Environ Med*.
- Semenza J.C., Ploubidis G.B., George L.A.. Climate change and climate variability: Personal motivation for adaptation and mitigation.
- Wijeratne, M.A., 1996. Vulnerability of Sri Lanka tea production to global climate change. *Journal of Water, Air and Soil Pollution*. 92, 87-94.