An economic analysis of soil conservation in tea lands

J A A M Jayakody[1], H W Shyamalie[2] and J C Bandara[3]

[1]Head, Agricultural Economics Division, Tea Research Institute, Talawakele
[2]Experimental Officer, Agricultural Economics Division, Tea Research Institute, Talawakele
[3]Technical Assistant, Agricultural Economics Division, Tea Research Institute, Talawakele

Degradation of tea lands due to soil erosion is identified as a major problem that affects the economic viability of tea plantations in the long run. Soil conservation in tea plantations is not only a financially sensitive but also an issue with environmental concern. When the tea cultivation is blamed as one of the major contributors for soil erosion in the upper watersheds, the actual rate of adoption of the soil conservation technologies in these tea lands should be studied in detail.

The main objectives of this study were, assessment of actual level of soil conservation in tea lands and identifying appropriate mechanisms to encourage tea growers / land owners who undertake below average level of soil conservation in different management categories, to undertake adequate soil conservation measures.

There are three types of tea land management systems in the country, which were used for the study. They are;

1. Ownership and management by the private sector
2. Ownership and management by the state sector
3. State owned and managed by the private sector

Kandy, Matale, Nuwara Eliya and Badulla administrative districts were selected for this study because, due to physical nature of these lands they are more vulnerable to soil erosion and they cover a major area of the upper watersheds of major irrigation systems of the island. Total sample size was 168 units of tea lands including 38 large plantations and 130 smallholdings. However, in each sample estate more than one tea field was selected for observation and as a result filed observation was taken from 468 fields and data analysis was carried out at this level in order to make use of the existing variability. Primary data on adoption of field level soil conservation measures was assessed by making filed observations with an evaluation sheet. Tea growers view about the actual level of soil conservation was obtained by undertaking a questionnaire survey among tea growers.

To assess the actual level of soil conservation effort, Principal Component Analysis (PCA) technique of Factor Analysis method was used for the three different management classes. With the PCA technique an index of soil conservation factor was calculated for each tea field in the sample. Level of Soil conservation adopted in many fields was found to be below the expected level. Effect of level of soil conservation on tea production was found to be positive and significant. Accounting Analysis method was used to estimate the soil conservation investment at actual level and under the expected level. The difference of the benefits that can be obtained under actual and expected level of soil conservation gives necessary information that justifies the extra investment on conservation effort as well as the directive for policy formulation.