

APPLICATION OF GPS, GIS AND RS IN PLANTATION SECTOR

M.A.A.S. Madawala Arachchi

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka.

In Sri Lankan economy plantation sector represents significant portion from early colonial time to day. The main crops are Tea, Rubber, Coconut and Cinnamon, Pepper, Cocoa, Cardamom are planting as export agricultural crops in Sri Lanka. The crop selection is varied mainly on climatic and topological factors. Mainly tea plantations are spread in Nuwara Eliya, Kandy, Badulla, Kalutara and Ratnapura districts in Sri Lanka.

Sri Lanka is one of the oldest tea producing countries in the world and commercial scale tea planting in Sri Lanka commenced in 1867 by British government and gradually increased up to 238,770 ha in 1965. The tea produced in Sri Lanka is popularly is known as "Ceylon Tea" ranks among the best available in the world tea market. The humidity, cool temperatures, and rainfall in the country's central highlands provide a climate that favors the production of high quality tea.

This project is mainly based on tea producing Estate known as "Court Lodge" Estate which is situated in Kandapola area in Nuwara Eliya District. The majority of land use of this Estate is covered by tea plantations and balance areas are covered by vegetable, residential, forest and water bodies. The average made tea production of Court Lodge Estate is 400,000 kgs per year.

This area is very popular for vegetable cultivations and creates an additional income for residents who living in this Estate. However vegetable plantations are not maintained by the Estate and all existing vegetable lands within the Estate belong to villagers and Estate workers. Hence this problem has created a critical issue in this area and considerable tea planted areas are undertaken to vegetable cultivations which are known as illegal encroachments.

But Court Lodge Estate does not possess well updated Estate map which can be used for making critical managerial decisions. The land uses are shown in the old Estate map are highly varied than current land uses and updating available old Estate maps are highly expensive and time consuming. However map preparation and updating with latest technologies such as Global Positioning System, Remote Sensing and Geographical Information System methods are less time consuming and low costing compare with other mapping techniques.

Therefore this project is mainly oriented to prepare well updated Estate map by integrating downloaded GeoEye high resolution satellite images, sub meter accuracy GPS equipment and available old Estate map. The output will be well updated Estate map representing current land use pattern and generating data base which can be used for making managerial decisions very efficiently and effectively through analyzing spatial data in various aspects.