

IMPACT ASSESSMENT ON SOIL AND WATER – 2021

The assessment was carried out by Prof. Asha Karunaratne, Prof. Sunethra Gunathilaka and Dr. Eranga Wimalasiri of Sabaragamuwa University to find out impacts on soil and water due to estate management activities.

Assessments of the cumulative impact of various management strategies that have been applied in major plantation; tea, rubber, coconut, oil palm and other export agricultural crops; cinnamon, fruits etc. on soils of the fields and water resources inside the estate is a very important measure of sustainable use of resources.

In compliance with Forest Stewardship Council™ (FSC™ -C101709) principle 6, 9 (HCV4) and 10.6 the current assessment was conducted to evaluate the impacts of current agricultural and management practices on water and soil environment in Lalan Agri Division managed plantations. It was conducted representing the all the crops as wells as age groups of each crop to evaluate the major soil physical and chemical properties along with water quality of springs and steams within the estate. Further, the criticalness of HCVs and forests were also considered in the present analysis. The soil loss from the area due to management practices and impact of weather factor was calculated using InVEST model and was presented as soil erosion map. Thereby, near term and long term impacts were analyzed. Field level monitoring indicators of soil and water and subsequent management plan was suggested for future implications.

Overall, most of the groups in Lalan Agri showed high Mg, K, Ca levels in topsoil. Major ions such as Ca and Mg also increased due to geological weathering of rock as well as application of Ca and Mg rich fertilizer such as dolomite to perennial crops. High Ca and Mg in soil increase plant growth, and other functions of crop development. pH of most of the soil samples was found within the permissible limits except few estates. Iron (Fe) amount in soil exceeded the permissible level of (50,000ppm) in different stages of rubber cultivation in Udabage, Muwankanda, Pitiyakanda and also high in different land use like HCV forest in Woodend estate, timber cultivation in Dabar estate, Pitiyakanda estates, Notinghill estate, coconut plantation in Keppetigala estate, tea plantation in Miyanavita estate as well as Turmeric cultivation in Sapugaskanda estate. Fe ions can be added to soil layer from weathering of bed rock and fertilization. All the water samples of the study area are within the desirable limit recommended by WHO drinking water quality guidelines (EC and TDS are 1500 μ S/cm and 500 ppm) in terms of EC and TDS. The results reported that there is no significant effect on the water quality due to fertilizer application since the nitrate and phosphate levels of all the samples are below the maximum permissible limits recommended by the WHO. It can be inferred that apart from pH of some collected samples, majority of the water samples satisfy the quality standards for human consumption.

Company has identified areas for “High Conservation Values” (HCVs) with suitable features and scales with adequate emphasis on ecosystem services and beneficiaries from the system aligning FSC 6 and 9 (HCV4). The current practices that involved with soil disturbances (FSC 9) and

fertilizer applications (FSC 10.6) have not contributed serious impacts on soil and water due to the adherence of guidelines for soil conservation measures. The watershed and catchment areas have identified for providing protection for natural springs and water resources of the area to provide ecosystem services and drinking water to the community.