SALINITY DEVELOPMENT AND HEAVY METAL ACCUMULATION ALONG THE CATENA IN OLD AND NEW SETTLEMENTS IN *DIMBULAGALA* DIVISION

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Rice is the staple food crop in Sri Lanka. Considerable gap has been observed recently between the potential yield and actual yield of rice at the field condition and the salinity development has been identified as a major reason. Heavy metal accumulation in soil has been observed as a serious problem causing several health hazards to humans and animals. An experiment was conducted in *Dimbulagala* Divisional Secretariat in 2011 to evaluate the variation of salinity development and heavy metal accumulation along the soil catena in 4 old and 9 recent settlements. Sampling points were identified using the abundance of renal failure in the area. Hundred and seventeen soil samples were collected from thirteen sampling points from upper, middle and lower position of the catena representing three replicates (0-15cm depth). Samples were analyzed for pH, EC, OM content, texture, ESP, CEC, SAR, and heavy metals.

Results revealed that higher accumulation of heavy metals: Zn, Cu, Mn, Fe and salinity development in the lower positions of the catena compared to the upper positions, possibly due to the soil erosion and depositions. Soil pH, EC and OM did not significantly vary along the catena presumably due to heavy rains in *maha* season. Heavy metals accumulation and salinity development was significantly higher in the old settlements compared to the recent settlements. Accumulated OM was significantly higher in new settlements. Soil texture was fine in lower positions of the catena compared to the upper positions irrespective of the settlement. There was a significant correlation between number of cases of renal failure and heavy metal content of soils in some *Grama Sevaka* divisions. Further studies needed to confirm these findings.

Key words: Heavy metals, Rice, Soil catena, Soil salinity