

## Development of a Soil Database for Land Management and Environmental Applications in the Dry Zone of Sri Lanka

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**Abstract:** The Dry zone of Sri Lanka is the area receiving less than a mean annual rainfall of 1750 mm which covers about 1/3rd of the land area. Agriculture is the major live hood of the people in this area. Therefore, knowledge of the soil resource plays a major part in planning and management of agriculture. Until recently the soils of these areas were studied and classified according to the Great Soil Groups. With recent developments there is a need to study the soil of the Dry zone in more detail, classify them according to international methods and use the knowledge for land use planning. Therefore, the objective of this study was to characterize the soils of the Dry zone of Sri Lanka, map them, and to develop a soil database for use of land use planning of the region. This study was conducted from 2007 to 2010 and the soil series were identified using auger holes, road cuts and previous information. A benchmark site was selected for each soil series and landscape features and soil profile was described. Soil physical and chemical parameters were characterized for each soil horizon using standard methods. The soil physical parameters include soil texture, bulk density, hydraulic conductivity, wet and dry aggregate stability and available water. The soil pH, electrical conductivity, cation exchange capacity, base saturation, organic carbon, available P and total N were the chemical parameters evaluated. These data were used to classify the soils according to Soil Taxonomy and FAO methods for agro-technology transfer. A total of 51 soil series were identified categorizing them to the soils derived from erosional surfaces or decomposing parent material, soils of coastal plains and soils of the flooded plains. The database has been developed to view the landscape characters, soil profile description, physical and chemical parameters of each soil horizon. In addition a colour plate of the landscape features and soil profile is also included for easy identification by the users. The database could be used to propose soil conservation practices, 'irrigation methods and frequencies' and fertilizer management practices to manage these soils in a sustainable manner.