

**DEVELOPMENT OF SOIL FERTILITY MAP FOR
PADDY CULTIVATING AREAS OF MAHAWELI
SYSTEM B IN POLONNARUWA DISTRICT**

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ABSTRACT

Paddy is major cultivation crop in Polonnaruwa District. In recent times a considerable gap has appeared between the potential yield and the real yield. Though several factors contribute to this effect, imbalanced soil fertility is one of major factor. Therefore survey of soil fertility was carried out in the area of Mahaweli system B in Polonnaruwa district to identify the status and spatial variability of plant nutrients in paddy cultivating areas to recommend management practices to enhance productivity. Sampling points were identified using 1:50000 topographic maps of Polonnaruwa, Wakaneri, Elahera and Aralaganwila. GPS coordinates were used to record the geographic position. Sampling area was divided into 2.5 km × 2.5 km grid sizes and two samples were taken from each grid and 110 samples were covering for the total land area. In Each sampling point, soils were augured up to 15cm and composite soil samples were collected. Soil samples were air dried and analyzed for pH, Electrical conductivity (EC), Available P and Zn, Exchangeable K and Na. The pH value varied from place to place but most of the area covering the irrigation scheme had pH below 5.5. All most all the area having low EC value (<0.125 dS/m) it indicates the low level of salinity. Soil available P content was considerably lower (<10 ppm) than the recommended value in almost all the area. Available Zn concentration having between 1-5 ppm all most all the area and soil exchangeable Na value having above the recommended value (>100 ppm) in most of the area. There is lower concentration of exchangeable K value (<78 ppm) in most of the area. It can be concluded from this results Inverse distant weighted (IDW) is that most suitable interpolation technique for mapping soil pH, EC, Available P, Zn and Exchangeable Na and K. The soil fertility characteristics of the Mahaweli system B in Polonnaruwa district are not at optimal level to achieve maximum potential of rice yields. Therefore development and adoption of suitable management practices are necessary to enhance and sustain the rice production in this area.

Keywords: Soil Suitability, GIS, Mahaweli system B, Interpolation, IDW