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**EFFECT OF SOIL SALINITY IN THE PADDY CULTIVATION
IN VAVUNIYA DISTRICT**

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EFFECT OF SOIL SALINITY STATUS IN THE PADDY CULTIVATION IN VAVUNIYA DISTRICT

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Soil salinity means that the level of salt accumulation or soluble salts in soils that affects the crop production. Soil salinization problem play adverse role on the crop production (Nyle C. Brandy, 1989). Only a few systematic studies exist on the soil salinization problem in South Asia region, and there are no records of the actual extent of lands affected by salinity or data that indicate its trend. (Thiruselvam et al). Existence of inland salinity is ultimately declined yield of paddy crop. Usually, plants and soil organisms are killed or their productivity is severely limited on affected lands. Primary saline problem occurs naturally whereas secondary salinity is induced by human activities such as agriculture, agro-based industry and other human activities. Previous studies on soil salinity in Vavuniya by agricultural research division (during 2002 – 2004) confirms that most of the minor tanks cultivation (*Chekkadipulavu, Palamaikal, Komarasan kulam, Sammanan kulam and Vavuniya kulam*) are severely affected by the salinity hazard. But some other areas as well identified of this problem. The project mostly focusing on the soil inland salinity problem encountered in (*Thandikulam, Asikulam, Chekkadipulavu and Pampaimadu*) paddy growing fields and the levels of salinity co-related to yield deduction. Some other parameters like wind and weather, influencing the salinity also discussed for the suitable remedial measures proposal for soil productivity enhancement. Geographical Information System (GIS) technology was use as tool. Soil samples were collected at the depth of 30 cm by using soil auger with in the seasons which are Yala 2004, Maha 2004/05, Yala 2005 and Maha 2005/06 in 50 to 100 m grid intervals in the selected field and it has been undergone for soil salinity analysis. The classification of soil salinity was made into five categories as follows: Very Low < 2 ds/m, Low 2 – 4 ds/m, High 4 – 6 ds/m, Moderately High, 6 – 8 ds/m and Very High > 8 ds/m. 75 % of Paddy land area totally affected due to Soil inland salinity. The field officers have made proper crop cutting (1 m x 1 m spacing) obtaining the yield from Paddy.

The questionnaire approach was carried out to know how of farmers are impressed of the soil salinity problems and other relevant matters. GIS and the Statistical analysis were done in the Pampaimadu area. The average EC was 1.8 ds/m and 6.4 ds/m in yala 2004 and yala 2005 respectively. The average EC was 3.9 ds/m and 6.0 ds/m in maha 2004/05 and maha 2005/06 respectively. In Chekkadipulavu area, the average EC was 4.1 ds/m and 2.0 ds/m in yala 2004 and yala 2005 respectively. The average EC was 7.0 ds/m and 7.2 ds/m in maha 2004/05 and maha 2005/06 respectively. In Thandikulam area, the average EC was 5.0 ds/m and 2.4 ds/m in yala 2004 and yala 2005 respectively. The average EC was 5.0 ds/m and 6.0 ds/m in maha 2004/05 and maha 2005/06 respectively. In Asikulam area, the average EC was 7.3 ds/m and 5.8 ds/m and Coefficient of Variations 2.9 % and 3.8 % in yala 2004 and yala 2005 respectively. The average EC was 7.5 ds/m and 7.5 ds/m in maha 2004/05 and maha 2005/06 respectively. Farmer survey also confirms that soil salinity is the major factor on paddy yield reduction in Vavuniya district. Statistically, soil salinity clearly shows the negative impact on paddy yield in all locations. Weather parameter analysis indicates that, in yala season wind speed and relative humidity play major role, but in maha season rain fall and wind speed are the major factors that influence the salinity status. The recommendation made at the end of this study reveals that the soil reclamation practices should be properly implemented in salinity affected areas for enhancing soil productivity.