Spatial and Temporal Variability in Salinisation of Soil and Ground Water of Operational Drainage Pilot area, Kalipatnam, West Godavari district of Andhra Pradesh

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ABSTRACT

Changes in the salinity of soil and ground water were monitored in 18 ha study area of Kalipatnam drainage pilot area. Soil salinity is monitored at 24 grid points (100m x 100m) after each crop season. Ground water satinity is monitored from 12 grid points (150m x150m) at fortnight intervals from May, 2005 to May, 2006. Water salinity of adjoining Upputeru (salt stream) is also monitored during the period. Surface soils are having relatively lower EC values than subsurface indicate that ground water is contributing to the development of salinity. *Summer* soils are having higher salinity than post *Kharif* soils, indicate capillary rise of poor quality ground water during fallow period is the main source of salinity which inturn influenced by sea. Ground water salinity is following the pattern of salt stream and strong positive correlation (r=0.89**) was recorded between the ground water salinity and salt stream salinity. Temporal variability of ground water indicate during the monsoon months ground water salinity maintained at lower level and during the fallow period coinciding with no (very low) rainfall receipt resulting in the higher soil salinity. Negative correlation was observed between ground water salinity and pH (r=-0.615*). Spatial distribution of soil salinity indicates wide variability.

Key words : Drainage pilot area, Ground water, Spatial, Soil, Temporal variability.