

Secondary salinity and waterlogging in the IGNP command area: A threat to agricultural sustainability

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Development of salinity and waterlogging in Indira Gandhi Nahar Pariyojana (IGNP) command area is a serious problem. High temperature, presence of excessive water soluble salts in soils and high rate of evapotranspiration have caused the twin problem i.e. secondary salinization and accumulation of salts on top soils or in sub-soil horizons. The presence of impervious layers accompanied by absence of surface drainage outlet is a major factor in rise of the water table and subsequent waterlogging. Sustainability of irrigated agriculture in the IGNP command area is potentially threatened by progressively increasing soil salinity. In eventual course, the affected land has become absolutely unfit for agriculture. Cost-effective long-term mitigation measures and strategies are urgently encouraged to sustain a reasonable soil productivity and quality in irrigated arid region.

Key words: Arid ecosystem, Indira Gandhi Nahar Pariyojana, Irrigation, Soil salinization

SOIL degradation resulting from salinity and sodicity is a major environmental constraint with severe adverse impacts on soil productivity, agricultural sustainability, and food security; particularly in arid regions of the world.

In India, 8.4 Mha (million ha) is affected by soil salinity and alkalinity,

of which about 5.5 Mha are waterlogged. Problems of waterlogging and soil salinization are known to have developed in irrigated agriculture since the first human civilization in Mesopotamia. The fall of this ancient civilization is attributed to both waterlogging and soil salinity. The salinity hazard posed

by irrigation development in the arid zone is not limited to the well-known land degradation due to secondary salinization (generally referred to as waterlogging and salinity). Irrigation-induced salinization and mobilization of primary salts are at least of equal concern in the Indira Gandhi canal command area.



Development of waterlogging and secondary soil salinity in the irrigated area of IGNP command area