

MEASURES OF SALINITY REMEDIATION

Gopal Krishan

Scientist C

Groundwater Hydrology Division

National Institute of Hydrology, Roorkee

Email: drgopal.krishan@gmail.com

Introduction

Groundwater salinity is increasing day by day, so there is an urgent requirement of water resource management in salinity affected areas. For management, following information is required:

- (i) **Aquifer geometry** of the area to prepare inventory of occurrence of saline water depths, size etc.
- (ii) **Monitoring of groundwater** is an important step to find the water level fluctuations e.g decline in water table in fresh groundwater aquifers and water level rise in saline water affected areas. For this cluster of monitoring wells/piezometers may be installed.
- (iii) **To map saline area** to get information on its spatial distribution
- (iv) **To collect information** on agricultural practices and irrigation
- (v) **Hydro-geochemical characterization** of groundwater
- (vi) **Isotope** can be used as tool for source identification
- (vii) After assessment of salinity, **some management and remedial measures** can be suggested like **Managed Aquifer Recharge (MAR)** or **aquifer storage and recovery (ASR)**,
 - Groundwater abstraction optimization,
 - growing salt tolerant species,
 - diversion of saline water to evaporation basins,
 - developing habitats for halophiles,
 - use for health and wellness purposes (thermo mineralized groundwater),
 - salt productions etc.
- (viii) Some **engineered techniques/practices** are
 - construction of barriers/impermeable screens by blocking the salt movement,
 - to reduce water logging induced salinization by increasing groundwater level depth/increasing discharge or
 - reducing the evaporation rates,
 - drainage- (subsoil drains, ditches, lowering of water levels in surface water bodies) or

- biological drainage by planting high water consumptive vegetation like eucalyptus and acacia.
- (ix) Some other techniques may be used are desalination of saline water by phase-change of membrane processes
- (x) Conjunctive use of surface and groundwater is also one of the important option