

Identification of Underground Salinity Front of Bangladesh

Bangladesh Agricultural Development Corporation (BADC) has successfully identified the present state of underground salinity front for the first time in the country using latest technology. During 2009-2011, BADC has measured the latitude, longitude, reduced level (RL) and groundwater level of 3166 observation wells all over the country by using RKT GPS; constructed 168 salinity observation wells in the coastal belt and finally updated the zoning map and simulated it with RL. From the updated zoning map, it is revealed that in many areas of the country, groundwater levels have gone down below the mean sea level ranging from 0 to 52 meters. Some of these areas are connected among themselves and to the Bay of Bengal causing favorable conditions for saline water intrusion shown in figure-1.

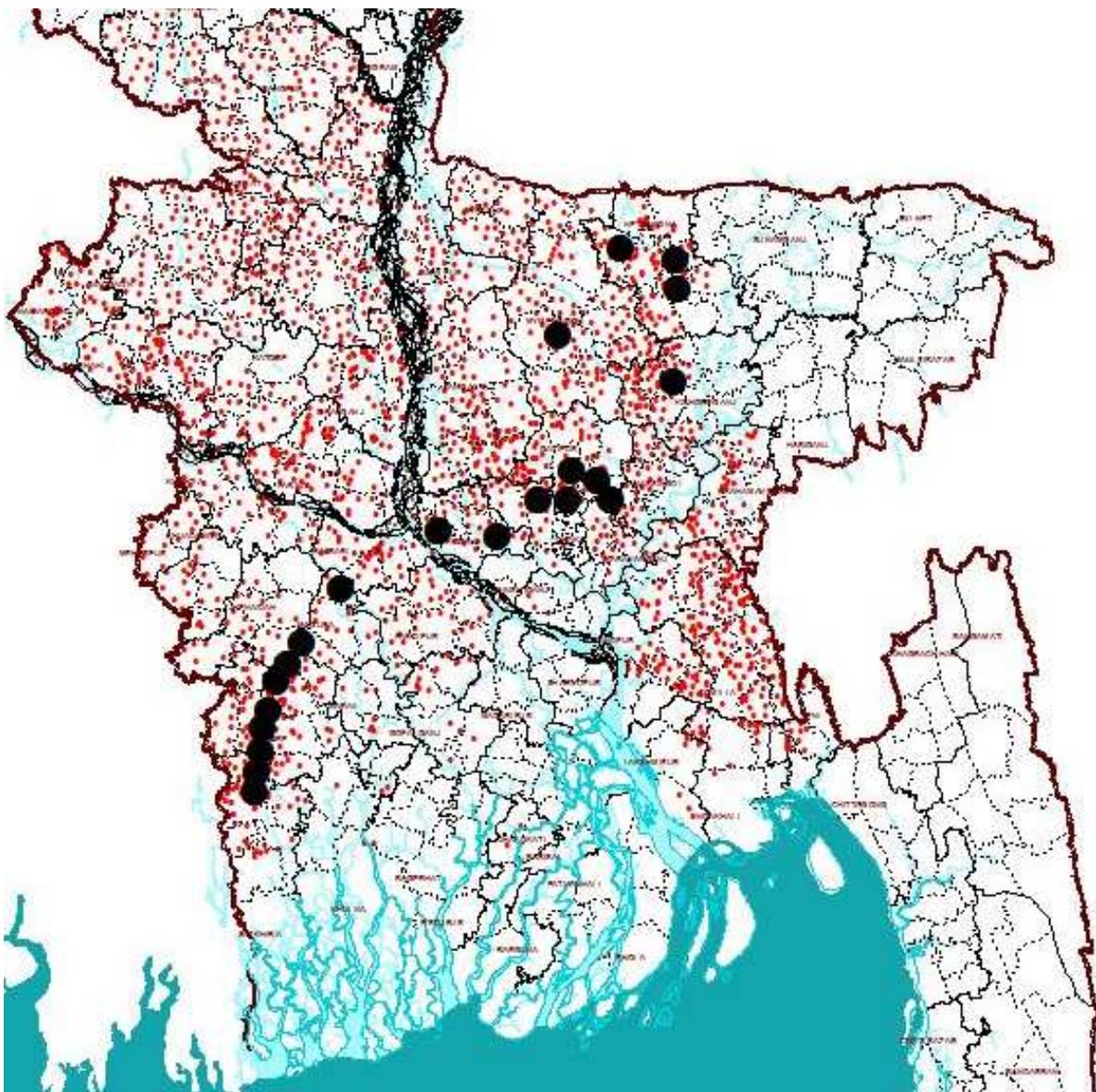


Fig 1: Locations where groundwater levels have gone down below mean sea level.

The highest depletion took place in the capital city Dhaka which is about 60 km away from Salikha upazila of Magura District. Salikha is the far north most place where water table has gone down below the mean sea level and is connected to the Bay of Bengal through Jessore, Khulna and Bagerhat districts.

Before 2004, the underground vacuum of Dhaka city was recharged by the water flowing from the North i.e. from the aquifer of Gazipur district and its adjoining areas. But at present these areas are suffering from severe depletion of groundwater level. Hence, the only way for the Dhaka city (except in rainy season) to be recharged by the water flowing from the South saline sea, which is gaining more potential energy due to increased head difference. From 100 salinity observation wells that have been constructed to a depth of 200 ft, salinity concentration at 10 ft interval have been measured twice in a year during high and low tide. From these data, underground salinity concentration maps have been prepared. From these maps, it is revealed that salinity front is advancing towards North at a depth 110 ft and is shown in fig-2.

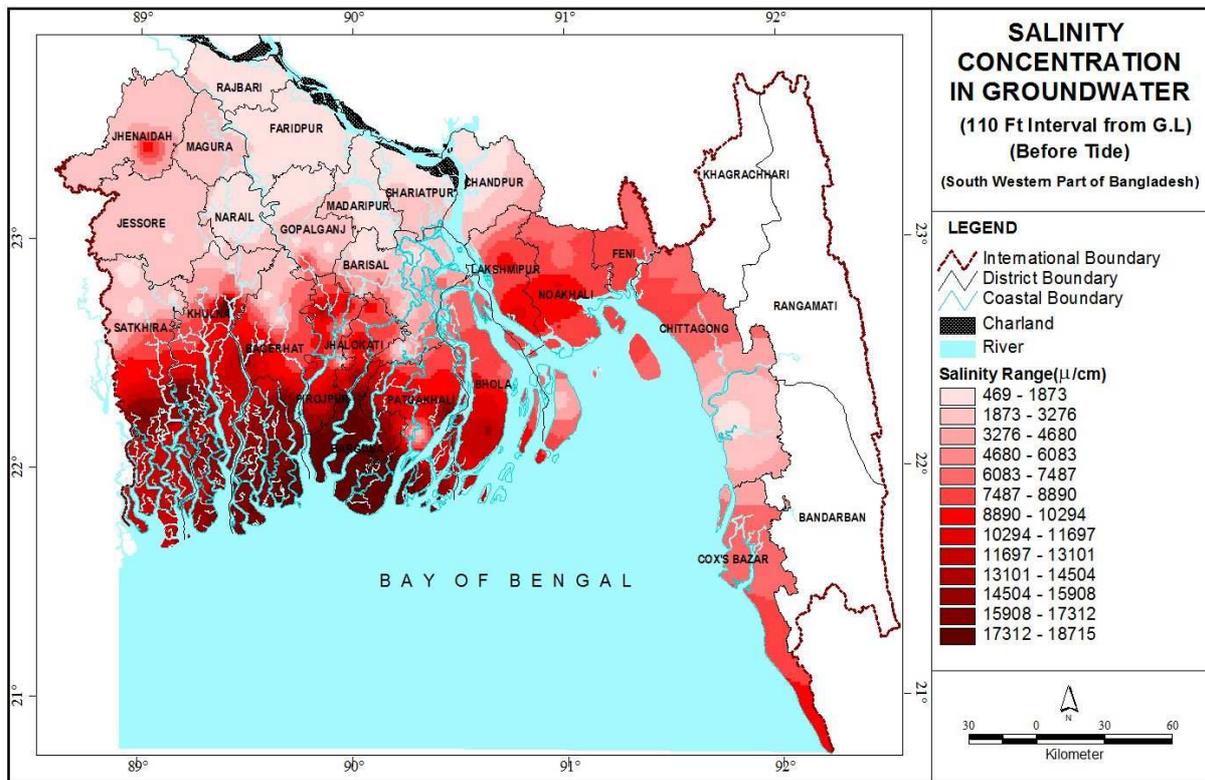


Figure 2: Underground salinity front at a depth of 33.84 m (110 ft).

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