Quaternary Coastal Aquifers in Eastern India - Hydrogeological Framework and Development Prospects

CHADHA Dr. D. K. & SINHARAY Dr. S. P. Central Ground Water Board. Ministry of Water Resources, Government of India. Jamnagar House, Mansingh Road,
New Delhi-110 011 (India)

Coastal areas represent the zone where land and sea meet and comprise a variety of complex environments including bays, estuaries, deltas, marshes, dunes and beaches.. As surface water in this part is generally saline and under tidal influence owing to close proximity to sea, ground water resources from the coastal aquifers play significant role in meeting major bulk of drinking water, agricultural and industrial requirements.

Hydrogeological framework of Alluvium aquifers has been studied based on the lithological logs and pumping test data down to 600m depth. In Orissa, the coastal belt is generally about 10 Kilometer wide, runs parallel to the sea-coast,attaining maximum width of around 60 km in the region of Brahmani - Mahanadi delta. Hydro-chemistry of the aquifers at various depth span has also been discussed and fresh water aquifer has been delineated within 130-300 metre depth. Ground water flow model in Haldia region developed under Kasai - Subarnarekha Project studies indicate that the present level of ground water development is almost optimal.

The shallow coastal aquifers have their boundaries in contact with saline water bodies are thus prone to saline water intrusion and there being scope for large scale ground water development of these aquifers, effective management techniques are being used for optimum utilisation of the ground water resources in a sustainable manner. The paper discusses the deposition of aquifer system, hydro-chemistry and also development and management strategies being adopted for protection of these quaternary coastal aquifers.