

## Hydrogeological studies in Mato Grosso do Sul(MS)-Brazil

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The project, which was a pioneering venture in MS in terms of nature and scope, has furnished first-time data on groundwater resources, flow regime, utilization potential and made possible up-to-date estimations of groundwater quantities and utilization possibilities on an areal and regional level.

As in the case of the surface drainage system, the aquifer systems in MS are also divided into two principal basins that differ greatly from each other in terms of geological (structural and stratigraphic) and hydrogeological character.

All the aquifers in the western part of the Rio Paraguay basin drain towards the Pantanal Matogrossense and are in places limited and local in nature. In the east, the large synclinal Rio Parana basin is composed mainly of three large aquiferous complexes, including also local aquiferous extensions.

The groundwater watersheds do not exactly overlap the existing geological structures because of the phenomenon of aquifer capture as well as local divides.

The principal aquifers are the clastic-sandy aquifers of the Gondwanian Botucatu-Piramboia complex (Jurassic-Triassic) and Grupo Bauru (Upper Cretaceous), separated by the major basalt succession of the Serra Geral Formation (Jurassic-Lower Cretaceous).

Deeper aquiferous formations exist, although they are of local importance mainly in the western basin.

Local alluvial and fluvial aquifers exist, principally in the vicinity of the big rivers.

Owing to its hydraulic properties and low gradients, groundwater flow in the Botucatu-Piramboia aquifers is relatively small. However, the exploitation potential of the aquifer lies principally in its large storage, mainly in the phreatic zones, totalling  $100-450 \times 10^9 \text{ m}^3$  throughout MS.

Groundwater of the Grupo Bauru aquifers may provide additional  $9-13 \times 10^9 \text{ m}^3/\text{year}$  as exploitable potential.