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Groundwater resources of Burundi. New elements and decision making tools.

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Burundi, which stands just below the equator line, is a small (28 000 km²) mountainous country with contrasted elevation (between 772 m in the rift area up to 2 670 m a.m.s.l.), and rainfall ranging from 700 to 2 200 mm/y. On geological point of view, Precambrian (basement) rocks are prevailing (up to 90% of granite, schist and quartzite), covered from time to time with alluvial formations in the inland valleys and the collapse zones related to the East-African rift (Imbo area in the eastern and northern edge of the Lake Tanganyika and in the Moso area in the south-eastern part of the country, bordering Tanzania).

The way of tapping water resources is mainly through springs : 22 000 springs are tapped for water supply compared to no more than 30 boreholes in 2010. Recent studies [1],[2],[3], however, prove that groundwater resource should not be neglected. A groundwater potential map for the country (figure 1) was carried out in 2011 at the scale of a quarter million, which was validated by a series of boreholes in 2013 & 2014. Due to the tectonic activity in the region (rift), the basement is well fractured and proper siting of boreholes along fault zones result in high transmissivity (100-1000 m²/d), in addition to the high development of the weathered zone in granites & schists (up to 100m thickness) which provides high storativity. However, faulting system also results in aquifer compartmenting leading to variable sustainability. The area of Gitega is located in such a structure where water abstraction needs to be monitored carefully to avoid overexploitation.

Water obtained from boreholes is generally of good quality, except for iron and manganese in some places.


Figure 1: Map of groundwater potential of Burundi [1]

References: