

GIS application in mapping groundwater availability and adequacy in the Lower Zambezi River basin

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Groundwater plays an important role as a source of water for various socio-economic activities and environmental preservation in the lower Zambezi basin in Mozambique. It is within this context that a groundwater Availability map and a map of the Adequacy of groundwater use have been derived. We applied the DRASTIC methodology in a GIS environment to determine how different parameters, such as precipitation, topography, soil drainage, land use and vegetation cover, aquifer characteristics and groundwater quality affect i) groundwater recharge on a long-term sustainable basis, ii) the short-term abstraction potential and iii) the long-term adequacy of groundwater utilization for domestic use. These maps show that groundwater availability in the Zambezi basin varies mostly from medium to low, with highest potential along the perennial rivers and the delta. The southern margin of the Zambezi River shows low groundwater availability and also presents low adequacy for domestic use due to poor groundwater quality. The results from this study will inform strategic development plans of the Mozambican government for the lower Zambezi basin.