GROUNDWATER IN BEDROCK/REGOLITH REGIONS OF RURAL MALAWI AND ZIMBABWE – CAN RESOURCES SATISFY DEMAND?

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Résumé/*Abstract*

A reconnaissance analysis of groundwater resources in the basement-complex aquifers of Malawi (Robins et al. 2013) has suggested that groundwater abstraction exceeds the sustainable limit in four of the more densely populated of fifteen 'water resource areas'. The analysis brings into question the long-term viability of groundwater development within the basement aquifers of the region, given the projected demands of a growing rural population, and the complexities of future climate-groundwater interactions. Low-yielding well-points, always susceptible to seasonal variation, yield decline during prolonged drought and maintenance/technological failures, may now be vulnerable to failure on account of limitation in the groundwater resource itself. We have tested the impact of resource-limitation on the sustainability of well-points in Malawi using the national inventory of >35,000 groundwater sources. The overall results compound the concern for the impact of resource-limitation in particular for the well points in the weathered basement. With the concern that the Malawi experience may be indicative for basement-complex aquifers throughout the region, we have made a preliminary analysis of groundwater resource limitation in the Masvingo province, southern Zimbabwe. Multi-annual monitoring of groundwater levels in southern Africa is sparse and barely adequate to demonstrate long-term trends. Both the Malawi and southern Zimbabwe analyses expose the widespread inadequacy of groundwater level monitoring in the region, despite the recognised strategic value of continuous, long-term, dedicated groundwater level records.