Manual Aquifer Testing Methods for Groundwater Supply Development

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Michigan Tech + Peace Corps = Peace Corps Master’s International Program

Student field site
Watershed inventories & seasonal fluctuations
Extensive pumping tests performed to establish method, gauge reproducibility, and monitor productivity changes.
Results from conventional test indicate equil. approx. overestimate Sc by 15%
Changes in well productivity over the 10 month study varied.
Manual pumping tests for exploring supply development options
Groundwater modeling facilitates exploration of resource.

**Input parameters**
- Topo & aquifer thickness
- Recharge
- Water demands
- Observed groundwater levels
- Hydraulic conductivity

**Groundwater flow model**

**Explore groundwater development options**
Pumping tests conducted in four community wells.
Hydraulic conductivity estimated by conducting multiple tests.

Hydraulic Conductivity (ft/day)

Static Water Level (ft)

Average $K_n = 3.22$
Groundwater model determined that two wells placed 0.3 mi apart can meet current demand of 560 ft$^3$/d.
Summary:
- Urgent needs to characterize developing nations’ groundwater supplies exist

- Appropriate method in this study generated well productivity data useful for resource monitoring

- Manual pumping tests coupled with sophisticated data analysis software enable characterization of the hydrogeologic setting
Questions?