Ethiopia's shallow groundwater sources: where are they and how can they be exploited?

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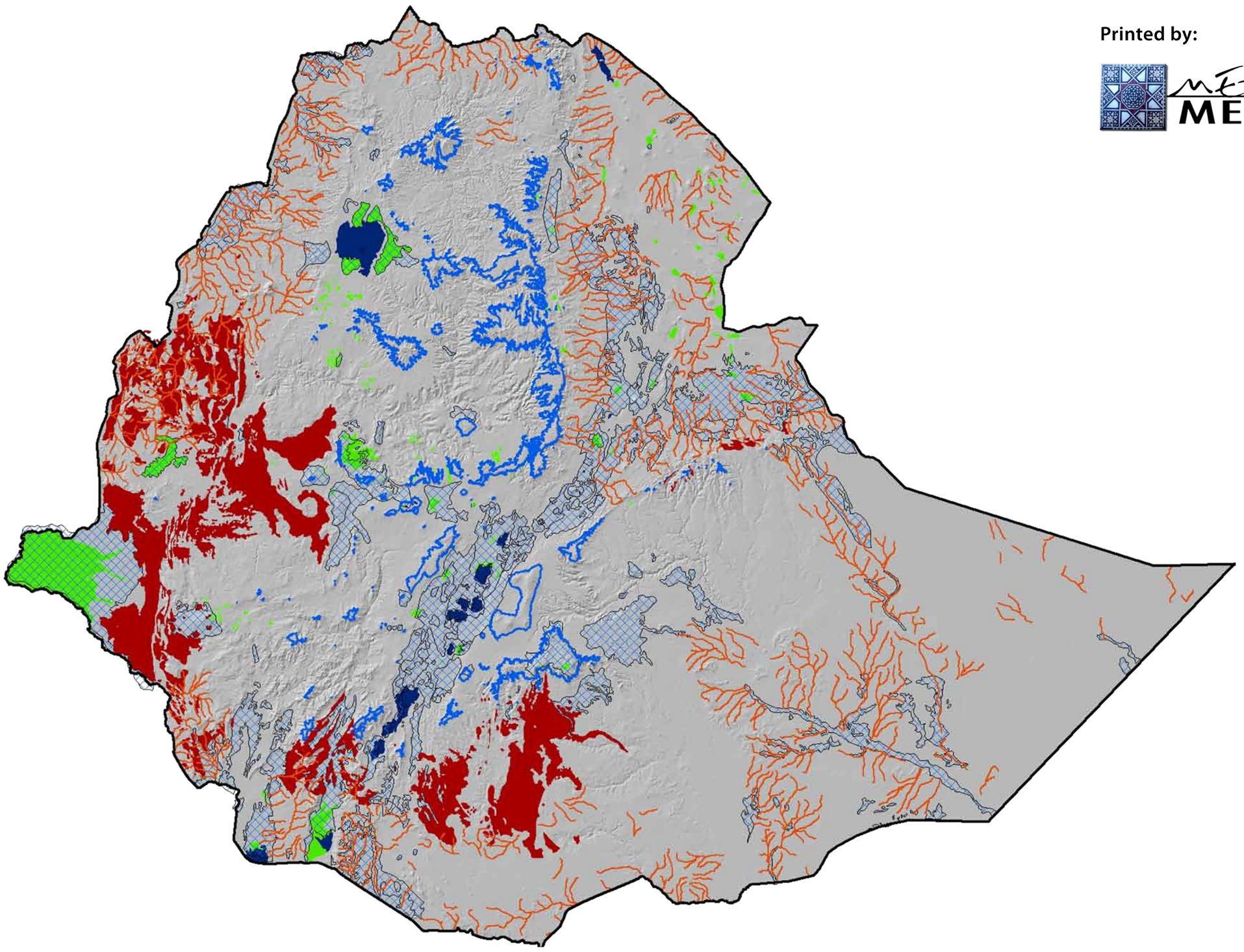

Means of access or buffering shallow groundwater

- Gravity schemes from springs
- Water buffering in catchment; sand dams, subsurface dams
- Preferably hand dug wells and/or mechanically drilled shallow tube wells
- Depending on sediment type either shallow tube wells or hand dug wells
- Preferably shallow tube wells or concrete lined dug wells

Mapping shallow groundwater for Multiple Use Systems

- Zones of frequent discharge cold springs
- Seasonal Wadis and their catchment; total length > 30,000 km; gw storage 3 billion m^3
- Extensive shallow regoliths (laterites and saprocks), covers > 150,000 km^2
- Extensive alluvial and lacustrine deposits, cover > 170,000 km^2
- Extensive riverine and lake fringe flood plains; covers at least 30,000 km^2; NB: small ubiquitos depressions not included
- Lakes

In Ethiopia there are extensive areas in which the utilisation of shallow groundwater for irrigation or multiple use can be explored. This may be through open dug wells, through manually drilled wells, or both. In some areas springs can be used by gravity. These main potential areas are shown on the map. In addition there are a number of small valleys where shallow groundwater can be used as well. Local reconnaisance is always essential.

Spring

Dug well

Sand dam

Manual drilling