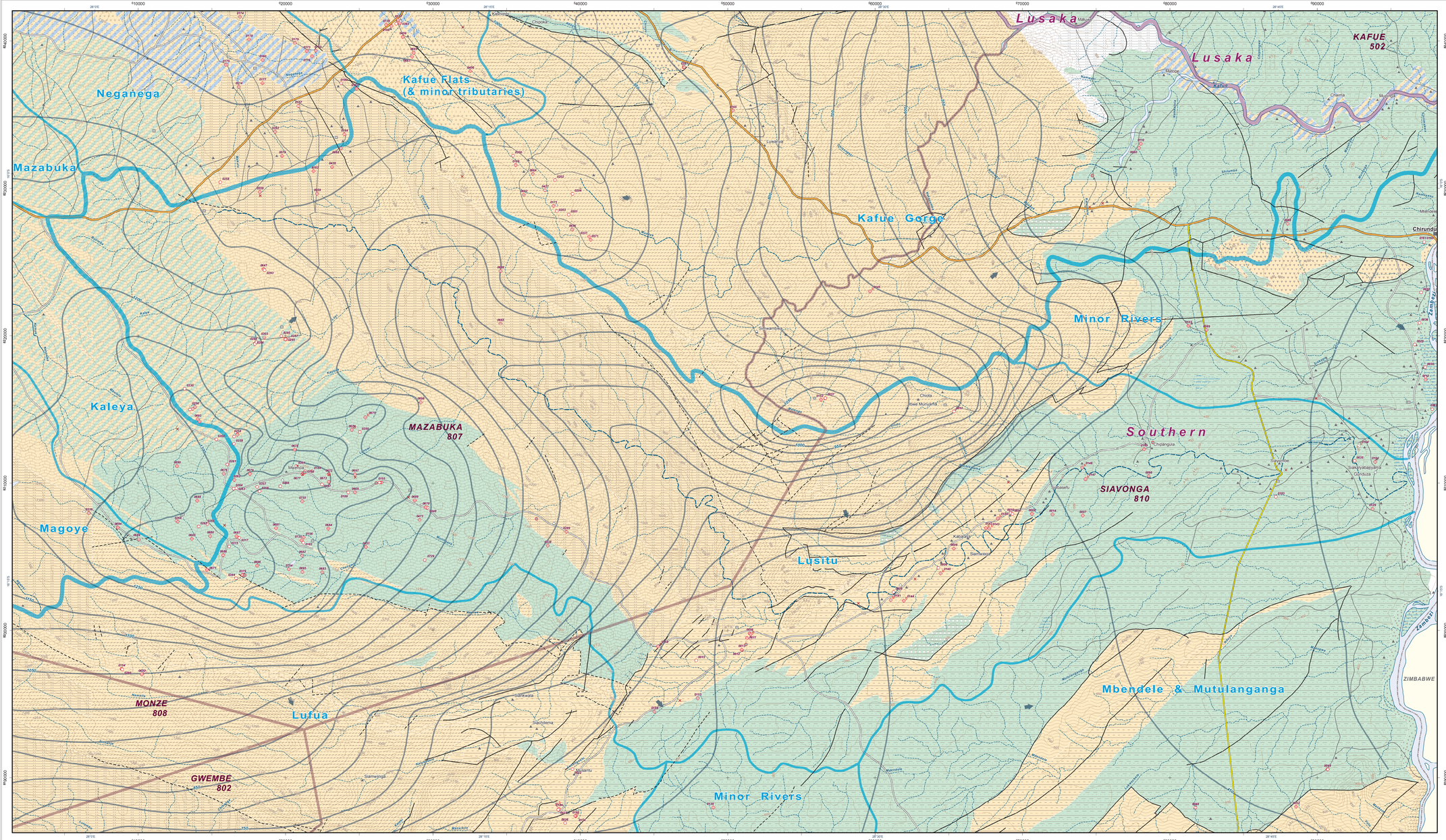

Hydrogeological Map of Zambia
Southern Province
First Edition 2007

Republic of Zambia
Ministry of Energy
and Water Development

COOPERATION
OF FINANCIAL
AND
TECHNICAL
REPUBLIC OF GERMANY

BGR
Federal Institute
for Geosciences
and Natural Resources

Lusitu Catchment

1 : 100,000

Authors: R. Bäumle; J. Nkhoma; O. Silembo; with contributions by Ch. Neukum

Cartography / GIS: R. Bäumle; R. Mweene; C. Koch

Prepared as a technical co-operation project between the Governments of Zambia and the Federal Republic of Germany

Data Source:

TOPOGRAPHY:
-Topographic Map 1 : 250,000 (generalized); Surveyor-General, Lusaka; sheet numbers and publication date:
SD-35-15 (1986), SD-35-16 (1991), SE-35-3 (1973), SE-35-4 (1974)

-elevation contours derived from DEM, based on Shuttle Radar Topography Mission (SRTM) data;

-DEM grid resolution is approximately 90m by 90m (3 arcsec)

LITHOLOGY:
-Geological Maps 1 : 100,000, sheet numbers: 1527D, 1528C/D, 1627B, 1628A/B;
1 : 250,000, sheet numbers:SD-35-3, SD-35-3, SD-35-4, SD-35-15, SD-35-45;
1 : 1,000,000; Geological Survey Department, Lusaka

BOREHOLE INFORMATION:
-Department of Water Affairs: Groundwater Database;
Groundwater Resources for Southern Province Project (GReSP), September 2007

Geometry:
-Transverse Mercator Projection
-Spheroid: Modified Clarke 1880
Central Meridian: 27°E
Latitude of Origin: 0°
False Easting: 500,000.00 / False Northing: 10,000,000.00
Scale Factor: 0.999600

Compiled / Printed by the Department of Water Affairs;

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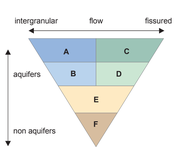
Lusaka 2007

1 : 100,000

0 2 4 6 8 10 km

1 centimeter equals 1 km

AQUIFER CATEGORY



Aquifer classification system (after Struckmeyer & Margat, 1995)

For further explanations:
Nkhoma, J. & Bäumle, R. (2007): Groundwater Resources for Southern Province – A Manual with Explanations for the Use of the Hydrogeological Maps; 18 p.- DWA & BGR; Lusaka, Hannover.

Aquifer in which flow is mainly intergranular

- extensive and highly productive aquifer
- local or discontinuous productive aquifer or extensive but only moderately productive aquifer

Fissured aquifer, including karst aquifer

- extensive and highly productive aquifer
- local or discontinuous productive aquifer or extensive but only moderately productive aquifer

Stratum forming insignificant aquifer

- minor aquifer with local and limited groundwater resource
- stratum with essentially no groundwater resource
- stratum with intermediate characteristics
- unclassified stratum

HYDROLOGY

- lake, reservoir, main river, dam
- pan
- swamp or marsh
- dambo (type of shallow wetland)
- large river with perennial / seasonal or intermittent runoff
- river or large stream with perennial / seasonal or intermittent runoff
- stream with perennial / seasonal or intermittent runoff
- catchment boundary of surface water
- Lufua — sub-catchment boundary of surface water with name

TECTONIC LINEAMENT

- fault
- fault, inferred

GROUNDWATER FEATURES

- borehole with hand pump
- borehole with submersible pump
- hand dug-well with bucket and windlass
- hand dug-well with hand pump
- wind pump
- other types of water points
- 0672 — short number of water points*
  * for complete numbering: add district code to number shown in labels, e.g. *807 (MAZABUKA) = 8070678*
- dry borehole
- water point with higher mineralised or brackish water (electrical conductivity > 100 mS/m)
- Gwisha — thermal spring
- regional groundwater flow direction
- 500 — piezometric surface, contour line in meters [a.s.l.], contour interval 50m

Reliability: This map provides an overview of the hydrogeological setting at the respective scale. Siting of successful boreholes requires more detailed investigations by a professional hydrogeologist.

LITHOLOGY

Sedimentary Rock

- unconsolidated or semi-consolidated gravel, sand, silt and clay
- limestone / dolomite
- sandstone and conglomerate – example: aquifer category D –
- undifferentiated sandstone, siltstone and mudstone
- mudstone, siltstone and shale
- sedimentary (clastic)

Igneous Rock

- basic extrusive (basalt)
- extrusive, undifferentiated – example: aquifer category D –
- basic to ultra-basic intrusive
- acid to intermediate intrusive

Metamorphic Rock

- marble, meta-carbonate and calc-silicate rock
- gneiss and granite-gneiss
- schist, slate, phyllite and quartzite
- metamorphic rock, undifferentiated
- iron ore
- no lithological information available

TOPOGRAPHY

- Monze — district center or other large settlement
- Chiangula — hut, village
- school
- health facility
- trunk road
- main road
- district road
- track
- railway
- 750 — contour line in meter [a.s.l.], contour interval 50 m
- MONZE 808 — district boundary with name and district code
- Central — provincial boundary with name
- international boundary

Authorities: This map is not an authority on the delimitation of cadastral boundaries.