

## AN ENVIRONMENTAL, GEOLOGICAL (GEOTECHNICAL) HYDROGEOLOGICAL & GIS CAPABILITY STATEMENT 2019



**Lusaka Office (Zambia):**

14 Nsumbu Road, Woodlands,  
P.O. BOX 39541, Lusaka, Zambia

Tel: +260 211 257063/4

Fax: +260 211 257065

Cell: +260 976 056 452

E-Mail : Senior Environmental Consultant

Dr. Ulf Pettersson

[upettersson@geoquest.co.zm](mailto:upettersson@geoquest.co.zm)

**Lubumbashi Office (DRC):**

C/O No.1, Avenue de la Roi  
Commune du Golf, Lubumbashi,  
Katanga Province, Democratic Republic of Congo

Tel/Fax: +243 234 8295 / +243 817 372 552

E-Mail : [geoquest@mwangaza-rdc.net](mailto:geoquest@mwangaza-rdc.net) /

[tp\\_fazies@yahoo.fr](mailto:tp_fazies@yahoo.fr)

<b>1</b>	<b>COMPANY OVERVIEW</b> .....	<b>2</b>
<b>2</b>	<b>OUR ENVIRONMENTAL CAPABILITIES</b> .....	<b>3</b>
<b>3</b>	<b>OUR GEOLOGICAL (GEOTECHNICAL) HYDROGEOLOGICAL &amp; GIS CAPABILITIES</b> .....	<b>3</b>
3.1	Geological (Geotechnical) & Hydrogeological Services.....	3
3.2	GIS Services .....	4
<b>4</b>	<b>HISTORICAL TRACK RECORD</b> .....	<b>4</b>
4.1.1	Key Geological (Geotechnical) Assessments: .....	4
4.1.2	Key Environmental Impact Assessments and Monitoring Exercises: .....	4
4.1.3	An Example of Some of the Environmental Project Briefs GeoQuest has Conducted: .....	5
4.1.4	An Example of Some of the Environmental Audits GeoQuest has Conducted: .....	6
<b>5</b>	<b>OUR CLIENTS</b> .....	<b>7</b>

## **1 COMPANY OVERVIEW**

GeoQuest is a fully independent Consultancy Group based in Zambia and the Democratic Republic of Congo providing high quality, efficient, cost effective and innovative Environmental, Sociological, Geological, Geotechnical, Hydrogeological and GIS services.

The company provides expertise to the Mining / Exploration, Environmental, Water Development, Construction and Agricultural Sectors in Zambia and Central / Southern Africa.

GeoQuest is made up of a dedicated core team of Zambian and DRC based professionals (including Zambian and DRC nationals as well as expatriates). The group provides multi-disciplinary teams and / or individuals (e.g. Geoscientists, Environmental and Sociological Scientists, Hydrologists and Technicians) with hands on experience tailored to meet the particular requirements and needs of each client. GeoQuest is committed to providing high quality and cost effective technical as well as full or partial project management services.

Since its formation, GeoQuest has provided a very wide variety of both field and office based Geological, Environmental, Sociological and Hydrogeological Consultancy Assignments.

**GeoQuest is fully registered with The Zambia Environmental Management Agency ('ZEMA') to provide Professional Environmental Services in Zambia.**

**GeoQuest is also fully licensed by the Engineer's Registration Board ('ERB') to practice Engineering (Professional Geology, Hydrogeology and Environmental Services) in accordance with Cap 432 of The Laws of Zambia.**

**In addition, GeoQuest is registered as a corporate member of the Geological Society of Zambia ('GSZ'), and all geoscientists working for GeoQuest are registered members of the Geological Society of Zambia.**

Further information about any of the above can be provided upon request by contacting:

Senior Environmental Consultant  
Ulf Pettersson  
e-mail: [upettersson@geoquest.co.zm](mailto:upettersson@geoquest.co.zm)

## **2 OUR ENVIRONMENTAL CAPABILITIES**

GeoQuest's Environmental Department specialises in a range of environmental services aimed at assisting in the planning and design of new development projects and the management and monitoring of existing operations.

Our areas of expertise include:

- Environmental Monitoring Programmes / Single Surveys:
  - Surface & Groundwater
  - Sediment, soil & Bedrock
  - Acid Rock Drainage
  - Radionuclides / Radiation Exposure
  - Radon Gas
  - Aquatic & Terrestrial Flora / Fauna
  - Air Quality, Dust, Noise
- Environmental Project Briefs (EPB) – Projects with a low environmental impact
- Environmental Impact Statements (EIS) – Projects with a high environmental impact
- Sociological Impact Studies and Public Consultations
- Resettlement Action Plans (RAP)
- Environmental and Waste Management Plans
- Emergency Response Plans and Staff Training
- Environmental and Compliance Auditing (according to IFC and EP standards)
- Approvals and Licensing
- Project Management

## **3 OUR GEOLOGICAL (GEOTECHNICAL) HYDROGEOLOGICAL & GIS CAPABILITIES**

GeoQuest (singularly and with key associates) also provides a wide range of Geological (geotechnical), Hydrogeological and GIS services.

Our areas of expertise include:

### **3.1 Geological (Geotechnical) & Hydrogeological Services**

- Geological & Geotechnical Site Assessments (Geological / Soil Mapping, Profiling, Testing and Analysis)
- Groundwater Resources Assessment and Evaluation Studies
- Borehole Siting
- Ground Geophysics (including ground Magnetics and Resistivity as well as other applications e.g. - VLF, EM & Ground Penetrating Radar)
- Hand Held GPS & DGPS Surveying
- XRF Surveying
- Drilling Contractor Procurement / Selection and Liaison
- Supervision and Management of Well Drilling, Construction and Development
- Hydraulic Test Pumping
- Well Field Design & Monitoring

### **3.2 GIS Services**

GeoQuest can provide GIS / Database solutions for the integration, management and modelling of both geological and non-geological (e.g. environmental / sociological) spatial data including airborne and ground geophysical surveys, geological, geochemical, aerial photography and satellite imagery.

Services Include:

- Data Capture, Compilation and Verification
- Data Conversion (Projection and Datum)
- Mapping and final Map Production
- Information Integration and Target Generation
- Setup, Maintenance and Management of Project and Countrywide GIS Databases
- Scanning and Digitising (up to A0) including Geo-referencing
- Specialist knowledge of ArcView and MapInfo Professional Software Ongoing Database Management

## **4 HISTORICAL TRACK RECORD**

We provide below a summary list of some of the major Geological / Geotechnical, Hydrogeological, Environmental and Social Projects which GeoQuest has completed within Zambia over the past 7 years:

### **4.1 Key Geological (Geotechnical) & Hydrogeological Assessments:**

- Mimosa Resources Limited. A Feasibility Level Groundwater Study for the Fishtie Copper Deposit, Mkushi, Zambia. 2018.
- Sterling and Wilson Pvt. Ltd., (Neoen). A Geological and Geotechnical Study at the 54 MW Solar PV Power Project Site at the Lusaka South Multi-Facility Economic Zone on Behalf of Sterling and Wilson Pvt., Ltd. 2017.
- Zambian Breweries PLC: Phase 1 - A Geological / Geophysical Investigation of Properties – Stands A24, A15, A11, A12, A13, A14 and A25 within the Lusaka South Multi Economic Zone (MFEZ) For a Proposed Malting Plant. 2014- 2015.
- Zambian Breweries PLC: Phase 2 - A Water Evaluation & Site Investigation Report of Properties – Stands A24, A15, A11, A12, A13, A14 and A25 within the Lusaka South Multi Economic Zone (MFEZ) For a Proposed Malting Plant. 2014.
- A First Pass Geological / Geotechnical Assessment of the Site for the Proposed Feed Mill and Grain Silos at Nampamba Farms, Mpongwe District, for Zambeef Products PLC. 2014.
- The Royal Norwegian Embassy: Geotechnical / Geophysical Investigation of Plot Sub Division B of Sub Division 45 of farm 377A, Woodlands, Lusaka. 2010.

### **4.2 Key Environmental / Social Impact Assessments and Monitoring Exercises:**

- Southern African Power Pool: Pre-feasibility Studies for the Environmental and Social Impact Assessment for the proposed Luapula River Hydroelectric Scheme. 2018/2019.
- Kansanshi Mining Plc.: Sampling and analysis of Radionuclides (K-40, Bi-212, Bi-214, Pb-212, Pb-214, Ra-226 and Rn-222). Second opinion for ongoing monitoring program. 2018.

- Moxico Resources Plc.: Environmental and Social Baseline Study for the proposed Mimbula Copper Project. 2018.
- Bushbuck Resources: Stakeholder Engagement Meetings during implementation of exploration program (License 19653-HQ-LPL). 2017.
- JICA-ZESCO: Environmental Impact Assessment and Resettlement Action Plan for the Southern Area Transmission System Development Project. 2015 – 2018.
- Nippon Koei: Water Quality Assessment of the Kafue River at the Iolanda Water Intake Plant. 2016.
- Intrepid Mines Limited: Environmental Monitoring. 2013 – 2016.
- Denison Mines Zambia: Implementing Denison Mines (Z) Limited's Environmental Monitoring Program for the Mutanga Project. 2012 – 2016.
- Lafarge Cement Zambia PLC: Environmental Study and Assessment of the use of Alternative Fuels in the Cement Production Process. 2014 – 2015.
- Kansanshi Mining Plc: Assessment and Recommendations for Groundwater monitoring at Kansanshi Mine. 2013.
- First Quantum: Environmental Impact Statement for the Sentinel, Intrepid and Enterprise Projects. 2012.
- Mwembeshi Resources: Environmental Impact Statement for Large Scale Mining Activities under License Number 15547-HQ-LML in Luangwa District. 2012.
- First Quantum (Kansanshi): Environmental Audit for the Environmental Protection Fund. 2011.
- AERL: Implementing African Energy Resources Limited's Environmental Monitoring Program for the Chirundu Uranium Project. 2009.
- UNICEF: National Rural Water Supply and Sanitation Programme Feasibility and Environmental Study. 2009.

#### **4.3 An Example of Some of the Environmental Project Briefs GeoQuest has Conducted:**

- MMG Zambia Limited: 29 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Rio Tinto: 20 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Bushbuck Resources: 15 Environmental Project Briefs different Large Scale Prospecting Licenses.
- BHP Billiton: 12 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Anglo Exploration (Zambia Ltd.): 4 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Vale Zambia Limited: 4 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Phelps Dodge: 2 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Bollore Africa Logistics: An Environmental Project Brief for Bollore Chingola Logistics Hub.
- Blackthorn Resources: 6 Environmental Project briefs different Large Scale Prospecting Licenses.
- KPR Investments: 10 Environmental Project Briefs for different Large Scale Prospecting Licenses.

- Grassroots Resources: 7 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Rift Petroleum / Tower Resources: 2 Environmental Project Briefs for Large Scale Oil and Gas Prospecting Licenses.
- Katanga Resources: 4 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- Zambezi Resources: 2 Environmental Project Briefs for different Large Scale Prospecting Licenses.
- A variety of other Medium and Small Scale Companies: 22 Environmental Project Briefs for different Large Scale Prospecting Licenses.

#### **4.4 An Example of Some of the Environmental Audits GeoQuest has Conducted:**

- Intrepid Mines Ltd: An Independent Environmental Audit of Operations in License areas 16385-HQ-LPL, 14265-HQ-LPL, 14266-HQ-LPL and 14267-HQ-LPL. 2015.
- First Quantum (Kansanshi): An Environmental Audit of Kansanshi Mine Plc for the Environmental Protection Fund. 2011.
- Environmental Council of Zambia: Development of Environmentally Sound Solid Waste Management Practices in Zambia. 2010.
- Zambia Information and Communication Technology Authority ('ZICTA'): A National Baseline Survey to Establish the Level of Compliance with the Set National Human Exposure Safety Limit. 2010.
- Denison Mines, Zambia Ltd. Biannual audits of the Mutanga Project. 2012 – 2013.

## 5 OUR CLIENTS

In the Geological (Geotechnical), Environmental & Hydrogeological Sectors GeoQuest's clients have included:

- Agriflora Farms
- African Energy Resources Limited
- Agvan Farms
- Albidon Limited
- African Infrastructure Consultants (AICON)
- Anglo Exploration (Zambia Ltd.)
- Barrick / Lumwana
- BHP Billiton
- Blackthorn Resources Limited
- Bonanza Farms
- Bolloré Africa logistics Limited
- Bushbuck Resources Limited
- Centre for Infectious Disease Research
- Chilanga Cement (Lafarge Cement Zambia PLC)
- Christian Vision
- Cena Farms
- Chivuna Mission School and Clinic
- Civil Concepts (Pty) Limited
- Copperbelt University
- Denison Mines
- Department of Water Affairs
- Enviro-Flor Farms
- Environmental Council of Zambia
- Horizon
- Glensol
- Intrepid Mines Limited
- John Ken Estates
- Japan International Cooperation Agency (JICA)
- Kagem Mining Limited
- Khamazi Farms
- Kansanshi Mining Plc/ First Quantum Minerals PLC
- Lafarge Zambia PLC
- Lusaka Water and Sewerage Company
- Ministry of Mines and Mineral Development (Mines Safety Department)
- MMG Exploration (Zambia) Ltd
- Moxico Resources Plc.
- Mukubwa Resources Limited National Resource Development Centre
- Ndola Lime
- Neoen
- Nyati Milling
- Optiquest Corporation Limited
- Phanes
- Rift Petroleum/Tower Resources
- Rio Tinto Exploration Ltd
- Scimitar Farms
- Sterling and Wilson Pvt. Ltd.
- Southern African Power Pool
- TEPCO
- The Royal Norwegian Embassy
- UNICEF
- Wangwa Farms
- Waterbuck Resources Limited
- World Bank
- York Farms
- Zambeef Products PLC
- Zambian Leaf Tobacco Company
- Zambian Air Force
- Zambian Breweries PLC (SABMiller PLC)
- Zambian Communications Technology Authority (ZICTA)
- ZCCM-IH
- ZESCO

GeoQuest has worked closely at times or in strategic alliance with other consultancy groups including Aurecon, AICON, CSA, DMT GmbH & Co. KG, GTK (Finish Geological Survey, MDM Engineering, Norconsult, RSG Global, SMEC, Snowdens, SRK, U-Series, Venmyn-Rand, Wardell-Armstrong, WE-Consult and Worley Parson.