



Aquaquest

Water Resources Consultants



In partnership with:



WE consult



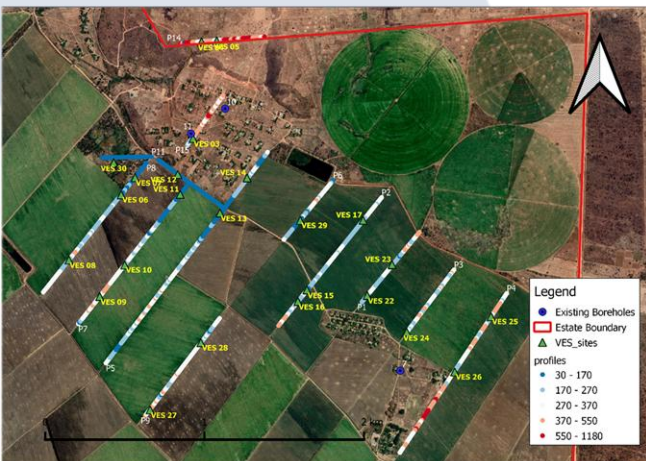
Introduction to Aquaquest



Aquaquest Ltd. is a fully registered Zambian Consultancy firm, specialized in Water Resources Investigations and Development. Through its main office in Lusaka, Aquaquest has been operating as a consulting company for water resources investigations, water supply development and related fields since 2010. Over the past 15 years, we have undertaken more than 350 projects, supporting clients in a wide range of agricultural, mining, urban and rural water development projects.



Aquaquest is specialized in hydrogeological surveys, surface water hydrology, drilling supervision and contract management, hydraulic testing, borehole assessment, water supply development, irrigation schemes, WASH, baseline surveys, environmental assessments, GIS and database development. Through our close affiliation with partners in the region we have established an extensive network of associate specialists in all major fields of water resources assessment and development.



Services

Hydrogeological Surveys



Aquaquest conducts hydrogeological studies and geophysical surveys to determine the most optimal locations for groundwater exploration. The company has modern equipment for electrical resistivity and magnetic surveys. Detailed data reviews are part of all groundwater investigations by Aquaquest. This includes the analysis of satellite imagery, GIS, aerial photography and database / statistical techniques.

Borehole Drilling Supervision

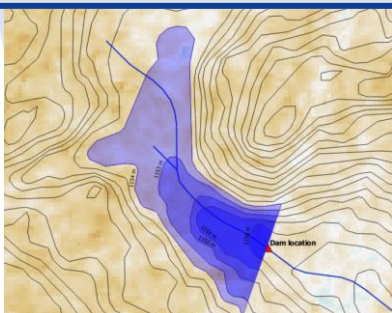
We provide professional and independent advice during the drilling, installation, and test pumping of boreholes. Our quality assurance and control protocols result in costs savings for our clients, among others, through improved pumping efficiency and extended operational lifetime of each borehole. Aquaquest works with drilling and test pumping contractors to incorporate best practices and suitable construction materials during borehole developments.



Irrigation and Piped Water Supply Design



Once the water source is developed, a storage and conveyance system is usually required to distribute the water to the community or to the farmland under irrigation. Designing a system that brings both the water availability, and the water demand together is key in obtaining a sustainable water supply. Aquaquest can design these water supply systems and assist with the procurement of contractors to construct and commission them.



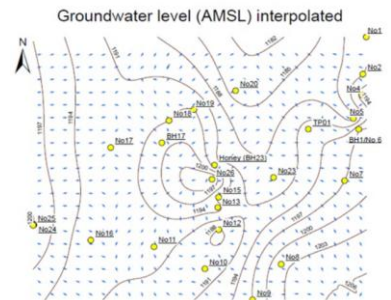
Water Resources / Hydrological Assessments

Aquaquest undertakes a broad scale of water resources and hydrological assessments, from the collection of baseline data to the development of comprehensive, long-term water resources management programmes. Assessments provide the foundation to make informed decisions in water resources development, ranging from large scale water supply for human settlements, irrigation for commercial farming, industrial use, to dewatering operations.

Services

Groundwater and Surface Water Monitoring and Modelling

Long term monitoring of groundwater and surface water is of utmost importance if large amounts of water are pumped from boreholes, dams, or rivers. Aquaquest is equipped to develop modern water and climate monitoring stations and automated networks that provide an early warning against possible negative impacts on established water supply systems. Climatic changes or excessive pumping can lower water levels, which may result in decreased yields or even depleted boreholes. An early adjustment of the pumping regime can reduce the long-term impact and save the local aquifer or surface water body (and with that, your business) from irreparable deterioration.



Integrated Water Resources Management

Managing water resources in a sustainable manner requires an integrated approach to water management. This approach takes all relevant stakeholders into account and will optimise the use of water, including environmental use, to ensure the availability of water for future generations. Aquaquest can assist with the development of water resources management strategies and plans for integrated water management at the catchment level.



Topographic and Bathymetric Surveys

Topographic surveys involve the collection of coordinates and elevation data in the field. The information gained from a topographical survey is critical in the design of dams and reservoirs, piped water systems, and a wide range of civil works. Aquaquest uses modern technology, including a differential GPS, to collect topographic and bathymetric data with a high accuracy for the derived elevation contour maps and bathymetric maps.



Services

Water Supply Sanitation and Hygiene (WASH)

Baseline, mid-term and endline evaluations for WASH projects and other socio-economic studies are part of the services provided by Aquaquest. Household surveys, field observations, key informant interviews, sample selection statistics, and mapping activities play an important role in these studies. Collection and analysis of available data, interviews and questionnaires, and stakeholder analysis are key elements for socio-economic studies.



Installation of Hydrometric and Meteorological Instruments

Aquaquest has extensive experience with the installation of various hydrometric and meteorological instruments. Projects include the installation of automated water level, water quality and climate monitoring systems for the mining, meteorological, agricultural and water management sectors.

Aquaquest is also the main supplier of Van Essen equipment in Zambia.

Water Quality Sampling and Analysis

Aquaquest can assist with the sampling, delivery and analysis of water samples. Samples are tested by licensed, professional laboratories within Zambia. With a strong background in geo- and hydro-chemistry, Aquaquest is well suited to analyse results and provide appropriate recommendations for treatment options.



Key Staff



Frank Meins is a Zambian resident and has over 10 years of professional experience in various aspects of water management and engineering, gained in the Netherlands and South-Eastern Africa. Currently he is a Water Development Consultant at Aquaquest. He is responsible for backstopping and technical support on various projects which include hydro(geo)logical investigations, installation of hydrological equipment and the practical application of geographic information systems (GIS) in water resources mapping and assessments. Frank Meins holds an M.Sc. in Civil Engineering and Management with a specialization in Water Engineering from the University of Twente, The Netherlands.

Ron Sloots has over 30 years of professional experience in the water sector. He specializes in water resources management, water information systems and database development, hydrogeology, water well drilling, small-town water supplies, rural water supply and financial management. Ron has been involved in contract supervision, database management and design, GIS design and analysis, procurement, project management, financial management and administration. He has worked in the Netherlands, Uganda, Mozambique, Zambia, DRC, Tanzania, Rwanda, South Sudan, Somalia, Botswana, Malawi, Kenya, CAR, Jordan, Israel and the West Bank. Ron Sloots holds an M.Sc. in Hydrogeology from the Free University of Amsterdam, The Netherlands.



Marco van der Plas has over 30 years of professional experience in various fields of hydro(geo-)logy, environmental assessment, rural and urban water supply development, project supervision and general programme management. He has carried out assignments for over 200 Clients in the private sector, UN organizations, Government agencies, NGOs, and medium to large-scale donor-funded water development projects, mainly in Kenya, Tanzania, Zanzibar & Pemba islands, Uganda, Rwanda, Southern Sudan, Somalia, UAE, Zambia, Malawi and Mozambique. Marco provides technical support, backstopping and general management advice to Aquaquest. His tasks include editing, final review and quality control of hydrogeological studies, surface water assessments, test pumping reports; acquisition and marketing and inputs to proposal development. Marco van der Plas holds an M.Sc. in Hydrogeology from the Free University of Amsterdam, The Netherlands.



Key Staff



Antonio Mwanza holds a Bachelor of Engineering in Hydraulic and Water Resources from the China Three Gorges University and has 4 years of professional work experience. He works at Aquaquest as a Junior Hydrogeologist and his work includes GIS & Remote sensing, exploration & geological mapping, geophysical surveys, drilling and test pumping supervision, borehole camera surveys, project management and client engagement.

Tom Barendse holds a B.Sc. in International Land and Water Management and an M.Sc. in Earth and Environment with a specialisation in Hydrology and Water Management from the University of Wageningen in the Netherlands. He works for Aquaquest as a Project Manager and Hydrogeologist and has completed the Young Expert Professional program, supported by the Dutch Government. His work at Aquaquest includes company and project management, team coordination, reporting, GIS & remote sensing work, geophysical surveys, water quality analyses, water resource assessments, drilling and test pumping supervision and client engagement.

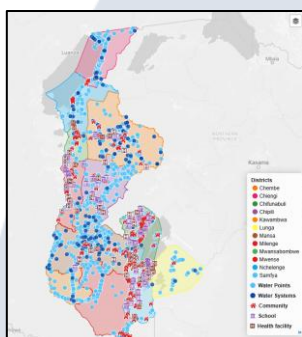


Warren Kunda holds a Bachelor's degree in Environmental Education from the University of Zambia and has 5 years of professional work experience. He works at Aquaquest as a Hydrogeologist and Supervisor of Works and his works include project management, drilling and test pumping supervision, supervision of pump installations, water quality sampling, borehole camera assessments, geophysical surveys, GIS & remote sensing, groundwater and surface water monitoring and data analysis.

Project Experience

Zambia 2025-2026: Development of asset registers in 8 districts for enhancing access to WASH services in Luapula Province

UNICEF engaged Aquaquest to develop new asset registers for handpumps, motorized public water supply boreholes, and small-scale piped water schemes in 8 target districts in Luapula Province. Once completed, these registers will be managed and updated by LpWSC and the Local Authorities in the target districts and shared with NWASCO.



The Consultant collaborated closely with the key stakeholders to develop a new Asset Register in mWater. During the roll-out of the new system in 2026, the Consultant will build the capacities of LpWSC and the Local Authorities in data collection, uploading of data into the asset register, and management & maintenance of the new system.

Zambia 2025-2026: Baseline Study for All Rural Schools and Healthcare Facilities in Central Province, Zambia

As part of the SafeManzi programme, Uptime Global, in partnership with the Government of Zambia, is planning to scale-up the delivery of professional water services to schools and healthcare facilities in 10 districts in Central Province.

Aquaquest Limited was contracted to carry out the baseline field surveys and data collection, using mWater tools. All public schools and HCFs with no public water system access were visited and on-site water-point surveys were conducted at all identified institutions, in adherence to ethical standards and training protocols. Datasets were reviewed, cleaned and validated by Aquaquest and submitted to the Client.



Kenya 2025-2026: Sabaki Water Resources Study – Baricho Aquifer, Kenya

Sabaki Water Company intends to expand the existing production capacity of 112,000m³/day from the Baricho Wellfield with an additional abstraction of at least 80,000m³/day. A combined groundwater abstraction of about 200,000 m³/day is envisaged from 12 existing and 12 new boreholes. The main objective of the assignment is to assess the feasibility of this additional abstraction, in terms of water resources availability and sustainability.

Aquaquest is responsible for the overall coordination of the services, and all water resources-related outputs, including Hydrogeological, Geophysical, Water Quality and Hydrological assessments, as well as the development of a new groundwater model.



Project Experience

Zambia 2025: Water Resources/Hydrological Assessment and Geophysical Survey Chikuni Mission



Aquaquest Limited was engaged by the Jesuit Province of Southern Africa to undertake a preliminary water resources assessment and geophysical survey at St Charles Lwanga College of Education, Chikuni Mission.

The objective of the assignment was to study both the available water resources and the existing water supply system at the mission. This includes an assessment of Chikuni Dam, as well as the identification of possible locations for borehole development. Aquaquest staff conducted a field visit and performed a subsequent geophysical survey.

Zambia 2025: Installation of Weather Stations and Data Loggers/Divers at FQM Mine, Kalumbila

Aquaquest was retained by FQM Trident Limited to supply, configure and install three automated weather stations at two schools and at the Kalumbila Airport near the Kalumbila Mine. The equipment will be used to monitor a wide range of weather parameters and for educational purposes.



Aquaquest was further engaged by FQM Trident Limited to supply, configure and install five data loggers with Titanium pressure transducers at streams within the Kalumbila mining area. The equipment will be used to monitor water levels at various surface discharge points.

Zambia 2024-2025: Hydrological Study, Geophysical Survey, Drilling and Test Pumping Supervision at Velos Mine near Chongwe



Aquaquest was retained to undertake a water resources assessment and hydrological study for a new mining development near Chongwe town. As a follow-up, Aquaquest performed an extensive geophysical survey, resulting in the selection of the most suitable sites for borehole drilling.

Aquaquest supervised the drilling and test pumping of 4 successful boreholes, which will be used to supply the various mining operations on site.

Project Experience

Zambia 2024-2025: Installation of Automatic Weather Stations at 15 locations in Zambia



Aquaquest was subcontracted by Central Technical Supplies (CTS) from Namibia to install 15 automatic weather stations in Western, Southern, Eastern, Central and North-eastern provinces of Zambia.

The stations are part of the Southern Africa Science Service for Climate Change and Adaptive Land Management (SASSCAL) WeatherNet and will support the collection of climate data in Zambia. The intervention will assist SASSCAL and the Zambia Meteorological Department to monitor changing weather patterns, and to develop short- and long-term climate models. Climate resilient strategies and response measures can be developed, based on enhanced knowledge on the effects of climate change throughout the country.

Zambia 2024-2025: Validation of proposed measures for building climate resilient water utilities in Zambia

Under a Water Operator Partnership (WOPs) between the Dutch Water Operators Association VEI and 4 Water Utilities in the Kafue Catchment, Aquaquest and the World Wildlife Fund (WWF) have been engaged to validate various proposed measures for climate resilience.

VEI focuses on sharing knowledge and skills between water utilities to improve their capacity and resilience. Four Commercial Utilities (Nkana, Mulonga, Lukanga and Southern Water and Sanitation) applied for funding from the African Development Bank to implement climate resilient catchment protection measures and water development activities. During the project, the feasibility and effectiveness of these measures are validated by WWF and Aquaquest.



Zambia 2024: Down-hole Camera Investigations, Borehole Drilling, Cleaning, Development and Installation at Enviro-Flor Farm



Aquaquest carried out borehole camera inspections and provided independent supervision and technical advice for borehole flushing, reaming, drilling, and installation activities at the Enviro-Flor Farm in Chongwe District.

Two existing boreholes were investigated with a borehole camera, then developed by means of air-lifting. An existing pilot hole was reamed and installed as a production well. Finally, a new domestic borehole was drilled and installed. The 4 boreholes will supplement the farm's existing supply from a combination of surface water dams and previous boreholes developed under Aquaquest's supervision.

Project Experience

Zambia 2024: Geophysical Survey and Drilling Supervision at Kaleya Farm



Aquaquest was retained by Kaleya Smallholders Company Limited (KASCOL) to conduct an additional geophysical survey in the southern part of the 2,500-ha sugarcane farm in Mazabuka, Southern Province, Zambia. A successful 1st survey and drilling programme was conducted in 2022, as part of a feasibility study for the expansion of drip-irrigation.

Following the survey, Aquaquest provided independent supervision of borehole drilling and pump testing activities. In total, 5 new boreholes were drilled, installed and test pumped, while 4 existing pilot holes were developed and test pumped. Yields ranged between 6 to 42 m³/hr. The additional groundwater supply sources will enable the sustainable expansion of irrigation facilities on the sugarcane farm.

Zambia 2024: Electrical Resistivity Tomography (ERT) survey at two project locations in Luchenene and Mutinondo

Aquaquest was contracted by Ranking Engineering Consultants to conduct an ERT survey at two locations considered for the development of a hydropower station.

The work consisted of two short ERT profiles at each location to determine the expected lithology and specifically, to identify the depth to firm and solid bedrock for the construction of the power stations and inlet works. The work was concluded with the analysis of the data using RES2DINV software and presented in a detailed report.



Zambia 2024: Geophysical surveys for the Kasomeno-Mwenda Toll Road



Aquaquest was contracted by Ranking Engineering Consultants to conduct hydrogeological assessments and geophysical surveys at 6 proposed sites for border infrastructure under the Kasomeno-Mwenda Toll Road (KMTR) project.



The geophysical surveys were conducted at 6 locations along the Zambia-DRC border. In each country, suitable locations for borehole development were identified for the proposed water supply to borders posts, toll gate plazas, and staff housing compounds. It is expected that the boreholes will be drilled in 2025.

Project Experience

Zambia 2020-2024: SUN TA Borehole Development



Aquaquest was retained by DAI Global, through Rankin Engineering, as project Consultant to conduct hydrogeological assessments, geophysical surveys, supervision of drilling contractors and supervision of the civil works for over 300 new hand pump boreholes, in 13 districts in 4 provinces of Zambia. The project is part of the Scaling Up Nutrition – Technical Assistance (SUN TA), which aims at providing technical support to improve malnutrition under young children. Improving the water supply is an important part of this project. Through Aquaquest’s supervision the quality of the works of the contractor is improved ensure development of a cost effective, sustainable water supply. Furthermore, for all 4 provinces and 13 districts detailed hydrogeological studies were conducted to improve knowledge on the underground aquifers.

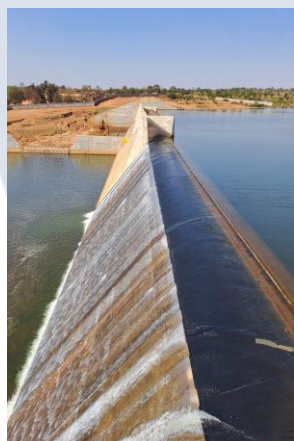
Zambia 2023-2024: Installation of 58 Weather Stations in Southern, Western, Northern and Luapula Provinces

Aquaquest was retained by the Meteorological Department of Zambia and Campbell Scientific SA to install 58 weather stations in Southern, Western, Northern and Luapula Provinces. This project aimed at the installation of automated weather stations (AWS) across Zambia to support the collection of climate data, and to monitor and predict changing weather patterns within the country. The stations are key in predicting and monitoring climate change within Zambia.

Many of the weather stations were installed at schools, acting as a learning tool for the students.



Malawi 2023: Independent Review / Assessment of the Impact of Graphite Mining of Lilongwe Water Board’s Raw Water Source at Malingunde



Aquaquest, together with SEUS Consult Malawi, were retained by the Lilongwe Water Board (LWB) to conduct an independent review of an Assessment of the Impact of Graphite Mining on Lilongwe Water Boards Raw Water Source. The ESIA, submitted by Sovereign Services Limited (SSL), was critically reviewed, reports were assessed to investigate whether comprehensive mitigation measures for the protection of the raw water quality had been provided, and recommendations were proposed to LWB on the proximity of the mining site and processing plant to the raw water source. Appropriate conclusions were developed to assist LWB to make informed decisions to ensure the safety and quality of the raw water supply for Lilongwe.

Project Experience

Zambia 2021-2022: RDA Gender Assessment



Aquaquest was retained by the Road Development Agency (RDA) in Zambia to conduct a gender assessment, develop a gender mainstreaming strategy and plan, and develop a gender and citizen engagement toolkit. The project is part of the Integrated Rural Connectivity Project (IRCP) funded by the World Bank to upgrade roads in the most rural areas of Zambia. Two teams of gender experts conducted the gender survey in 44 districts in all 10 provinces of Zambia, after which the data was processed and summarized in a gender assessment report and strategy. Stakeholder meetings, focus group discussions and key informant interviews with the communities were conducted to acquire the necessary information. The information was then analysed to develop a gender and citizen engagement toolkit.

Zambia 2021-2022: Feasibility study for proposed expansion of sub-surface drip irrigation at Kaleya Farm

Kaleya Smallholders company Limited (KASCOL) is a 2,500 ha sugarcane farm that irrigates their sugarcane using furrow irrigation. This method of irrigation is very inefficient, and consumes a relatively large amount of water, which is pumped from the already stressed Kafue river. The Dutch fund for climate development has therefore provided a grant to conduct a study to convert the furrow irrigation to more efficient drip-irrigation. Aquaquest was engaged to conduct the technical study, which also included a return-on-investment analysis to determine the financial viability. The study included a detailed assessment of the surface and groundwater potential, and a geophysical survey followed by an exploratory borehole drilling programme.



Zambia 2021-2025: Installation of Environmental Monitoring Systems Kalumbila Mine

Aquaquest was retained by Kalumbila Mineral Limited, one of the largest copper mines in Zambia, to supply and assist with the installation of surface water monitoring equipment and rain gauges. The equipment is used to monitor surface water flows and rainfall for the environmental department of the mine, to ensure the flows are within the limits of the environmental monitoring plan. Aquaquest supplied the equipment and trained the staff from the mine on usage of the equipment to ensure correct monitoring of the environmental flows.



Project Experience

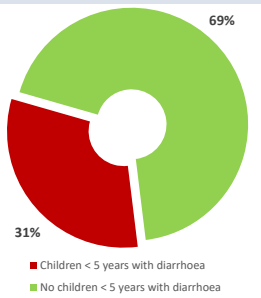
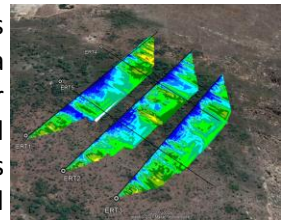


Zambia 2021: Installation of 20 Automated Weather Stations

The 'Strengthening Climate Resilience of Smallholder Farmers in Agro-Ecological Regions I and II in Zambia' project supports the Government of Zambia to strengthen the capacity of farmers to plan for climate risks that threaten to derail development gains, promote climate resilient agricultural production and diversification practices to improve food security and income generation, improve access to markets, and foster the commercialization climate-resilient agricultural commodities. Part of the project is to improve climate forecasting which required the installation of 20 automated weather stations (AWS). Aquaquest, as sub-contractor of Campbell Scientific (South Africa), assisted with the installation and configuration of 20 AWS and actively liaised with the meteorological department and international suppliers to ensure the project was implemented to a good quality standard and in a timely manner.

Zambia 2021: Lusaka-West aquifer mapping using ERT geophysics

A 2D ERT geophysical survey was conducted to map part of the Lusaka-West Aquifer, to determine its extent and depth, and select suitable sites for drilling, with the aim of developing a new, designated wellfield area in Lusaka-West. The purpose of the survey was to gain a better understanding of the structural geology and identify deeply weathered zones and cavities within the Lusaka dolomite formation. The work was executed for the Federal Institute for Geosciences and Natural Resources (BGR) in support of Lusaka Water and Sewerage Company. The area is intended for future wellfield development to supply water to the Industrial Area of Lusaka City, Zambia.



Zambia 2020-2021: WASH Baseline Survey Luapula

Aquaquest conducted a baseline survey in Luapula province for UNICEF, for the "Enhancing Access to Water, Sanitation and Hygiene Services in Luapula Province of Zambia" project. The work consisted of a household survey, water point inventory, and various stakeholder interviews and focus group discussions. 180 hand pump water points and sanitation facilities were assessed during the project. In total over 2,800 households were interviewed in 47 villages by three teams of enumerators in 2 months.

Project Experience

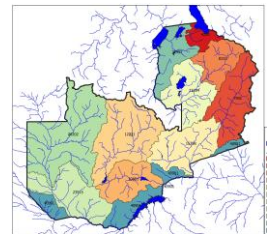


Zambia 2020: Bathymetric survey of the Kafue flats

Aquaquest was retained by Southern Waters Ecological Research and Consultancy of South Africa to conduct a bathymetric survey of a stretch of the Kafue river and adjacent lagoons in the Kafue Flats. The project involved travel by boat across a 200 km stretch of river to conduct a bathymetric survey, using a sonar and DGPS, and determine the depth of the river, its tributaries and lagoons. The information collected was part of a hydrological modelling study to gain insight in the hydrology of the Kafue Flats, a protected wetland area.

Zambia 2019-2021: Water Resources Management Strategy and Plan

Aquaquest, as sub-contractor for Pegasys Consult (South Africa) assisted with the development of the water resources strategy for Zambia. The inputs included collecting all data on water resources in Zambia from the relevant authorities (WARMA, DWRD, ZMD) as well as assisting with drafting the table of contents and structure for the water resources management strategy.



Zambia 2019-2020: Hydrogeological Survey and aquifer mapping of the Zambezi floodplain, Kazungula



Aquaquest has conducted a hydrogeological assessment for development of a wellfield in a paleo channel of the Zambezi river. The wellfield was scheduled to supply the Kazangula Water Supply system. Following a desk study, a geophysical survey using Electrical Resistivity Tomography (ERT) was conducted at selected locations crossing the paleo channel. The purpose of the survey was to determine depth to bedrock, identify the boundaries between fresh and saline groundwater zones, as well as areas with coarse freshwater lenses of adequate thickness for groundwater supply development.

Zambia 2019: GART Farm Hydrogeological Survey and Drilling Supervision

Aquaquest, was retained by GART to conduct a hydrogeological survey and follow up pilot hole drilling at their Chalosi Farm in Chisamba District. Following the hydrogeological survey works, 16 potential sites were recommended for pilot hole drilling while 8 pilot holes were drilled during the drilling phase. 2 pilot holes were recommended for further development and installation works.



Project Experience

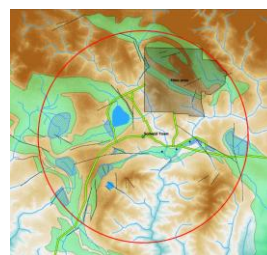
Zambia 2018: Groundwater Monitoring at a Bottling Plant in Lusaka

Aquaquest assisted Coca-Cola to identify the source of challenges with their existing boreholes and to set-up a monitoring network for their boreholes that supply their factory in Lusaka-West. Subsequently a groundwater development program was executed to drill and develop more boreholes. Part of the studies involved analysis of the local aquifer system and identify sources of pollution at the factory. Recommendations were made with regards to the sustainable abstraction rates of their boreholes and with improved wastewater management as the current practises resulted in severe pollution of the groundwater. Aquaquest supported CCBA for 1 year with the monitoring of their groundwater using automated pressure sensors, to identify if water was recharged sufficiently after the rain seasons.



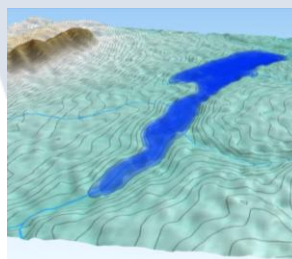
Zambia 2018-2019: Groundwater Assessment for future expansion of Solwezi Urban Water Supply System

Royal HaskoningDHV (RHDHV) was contracted by North-Western Water Supply and Sewerage Company (NWWSSC) to carry out a feasibility study for water supply solutions for Solwezi town, Northwestern Province, Zambia. Aquaquest Ltd. was subcontracted by RHDHV for the collecting and analyzing data on groundwater resources and conduct a hydrological study to show the possibilities and limitations of developing groundwater as a source of raw water for the drinking water supply system. Following the hydrogeological study an exploratory drilling programme, including a geophysical survey, drilling supervision and test pumping is carried out, whereby Aquaquest was responsible for the contracting and management and supervision of the drilling contractor, the geophysical survey and the interpretation of the test pumping results, to identify the capacity of the aquifer.



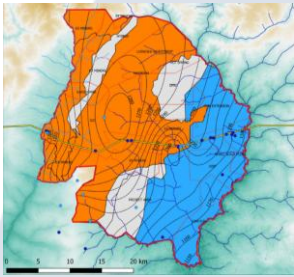
Zambia 2018 – 2019: Mushingashi Hydrological Assessment

Aquaquest is carrying out a hydrological assessment for the Mushingashi Farm Development in Lufwanyama. The hydrological investigations will assist in investigating the feasibility of a proposed, relatively large earth-dam. Specifically, the study will determine its suitability to supply sufficient water for future irrigation requirements and related water needs within the study area. The results of the hydrological survey will assist in the review of the available alternatives for surface water storage, and selection between the different options.



Project Experience

Zambia 2017-2018: Luswishi Farm Block Development



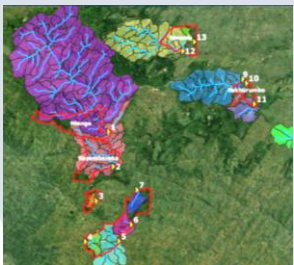
Aquaquest assisted as local partner firm in JV with BRLi and Rankin Engineering in the Luswishi Farm Block Development Project for the Ministry of Agriculture, funded by the African Development Bank. The project comprises a (pre-) feasibility study, cadastral survey and ESIA/RAP. Aquaquest was responsible for water resources assessment to determine water availability required for the irrigation systems and water supply to the various other activities. A water balance was developed taking into account the various water uses foreseen and their location in the area to ensure downstream users would still have sufficient water, taking into account environmental flow requirements as well. Aquaquest also supplied local agricultural engineers and agronomists and hosted the project team in their offices in Lusaka, Zambia.

Zambia 2016-2018: Domestic Water Supply Masuku Mission

Aquaquest carried out a water demand study to identify the water needs at Masuku mission. Additionally the old reticulation system was mapped. Groundwater was identified as the most suitable source of water through a hydrological assessment. Subsequently Aquaquest located areas of high groundwater potential and supervised a drilling program. Together with the local community and all the involved stakeholders a new water reticulation system was designed. The system includes three solar pumps, three water towers and 60 stand taps.

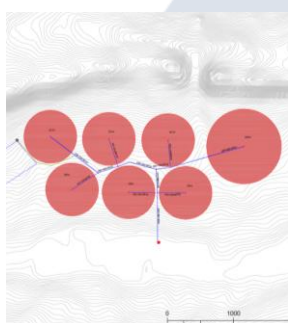


Malawi 2016: Surface and groundwater assessment for Macadamia plantations in Thyolo, Malawi



Aquaquest undertook a water resource assessment for 7 macadamia plantations in Malawi to assess the potential for dam construction and the collection of surface water in addition to the potential for groundwater development. The work included a desk-based study using readily available data, such as satellite imagery, to perform a preliminary assessment of the local potential for surface and groundwater supply.

Project Experience



Zambia 2016-2018: Upscaling Smallholder irrigation project

Aquaquest acted as the local partner in the Upscaling Smallholder irrigation Project for the Ministry of Agriculture, funded by the African Development Bank. The project was implemented in JV with BRLi. The project comprises a (pre-)feasibility study and detailed design for 25 irrigation schemes for smallholder farmers across Zambia. The concept is for small scale farmers to combine their land and form commercial companies which they own and for which they work to allow for installation of large-scale irrigation systems and increased productivity. Aquaquest supplied local engineers and experts to successfully complete the project, hosted the project team in their offices in Lusaka and organized all logistics for the project. The work consisted of the designs of the schemes including market analysis, dam and intake design, hydrological analysis, agronomy, roads and electrification of the proposed farms. A social survey was also conducted to identify the beneficiaries of the project.

Tanzania 2012: Hydrogeological Assessment and Drilling Supervision at a 1000 hectare Farm Estate

Aquaquest conducted a hydrogeological survey on a 1,000 hectare farm. Review of the available relevant data and resistivity methods were used to identify areas with high groundwater potential. In total 23 km of profiling was done. Furthermore Vertical Electrical Soundings were performed at 29 locations on the farm. This resulted in 25 potential sites recommended for drilling. Subsequently a drilling programme was supervised for 9 pilot holes of which 2 were developed into production wells.



Zambia 2010: Hydrogeological Assessment to the cause of flooding in a Limestone Quarry, Ndola

Aquaquest conducted a preliminary assessment of the conditions in the quarry through the acquisition and review of all readily accessible relevant background data. It also includes a limited field programme to collect additional data from within the quarry and the immediate surrounding area. The resulting baseline study assists in identifying key missing information required to establish an effective long-term monitoring and water management programme.

OFFICE EQUIPMENT AND ENGINEERING INSTRUMENTS AT AQUAQUEST LTD



No	Details of Machine and Equipment	Quantity	Remark (rent, own)
1	Laptops (various brands, minimum i5 processor)	10	Own
2	Smart Phones for data collection (Infinix-S5)	19	Own
3	GPS (eTrex10)	8	Own
4	ABEM Terrameter SAS300	1	Own
5	ABEM Terrameter SAS1000	1	Own
6	ABEM Terrameter SAS4000	2	Own
7	Geotron G90	1	Own
8	Double cab Toyota Hilux	2	Own
9	Single cab Toyota Hilux	1	Own
10	Nissan X-Trail	1	Own
11	Toyota Rav-4	1	Own
12	GeoVision Borehole camera 100 meter	1	Own
13	Schmidt hammer	4	Own
14	Water level meters 100m	6	Own
15	Drilling Sample boxes	6	Own
16	Turbidity Tubes	10	Own
17	Water Quality Meters (Hanna)	6	Own
18	Submersible Pump + piping and connections (Dayliff)	1	Own



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