

Project Name: Construction of a Water Supply System in Bona, Sidama Region, and Southern Ethiopia



Geophysical investigation for borehole siting, drilling of wells and supervision of drilling, design of a pumping house, pipes, reservoirs and distribution systems, construction, including pressure tests of a water supply system in Bona Zone, Sidama Region, flushing, start-up and modification of the whole system, training of operators and preparation of maintenance manuals, training and test protocols, including payment to EEPSCO – start of the works and monitoring of the procurement progress.

This project demonstrates our experience in:

- a) Performing complex water management projects starting from investigation to construction of water scheme,
- b) Training capacity and capability,
- c) Capacity and capability of participation in international projects.

Client: Czech Development Agency

Beneficiary: Sidama Water, Mine & Energy Department

Duration/ Date Completed: 15 months/2016 to 2017

Value of Work in US \$: 1,103,142 USD/446,000 USD (AquaCon part)

Role on the Assignment: Consultant – national work coordinator, consortium member with Ircon s.r.o. and AQUATEST a.s.

Project name: Capacity Building in Engineering Geology and Hydrogeology in Ethiopia



Compilation of hydrogeological and hydrochemical maps of Dilla, Dolo, Jimma, Hagere Mariam, Hosaina and Addis Ababa map sheets at a scale of 1 : 250 000 and Hawassa, Shashemene and Angecha map sheets at a scale of 1 : 50 000. Transfer of know-how and experience with the compilation of maps in the framework of the editing and compilation of maps from the central part of the Ethiopian Rift Valley, covering approximately 60 000 km². Compilation of maps using GIS ArcGIS version 10.1. Compilation and publication of map sheets.

This project demonstrates our experience in:

- a) Performing large mapping projects in the Ethiopian territory, including Addis Ababa map sheet at a scale of 1 :250 000,
- b) Using remote sensing for hydrogeological mapping,
- c) Managing large amounts of data and processing of GIS data,
- d) Training capacity and capability.

Client: Czech Development Agency

Beneficiary: Geological Survey of Ethiopia

Duration/ Date Completed: 60 months/ 2011 to 2015

Value of Work in US \$: 338,000 USD/ 11,000 USD (AquaCon part)

Role on the Assignment: Consultant – sub-contractor, AQUATEST a.s. project leader

Project Name: Finishing Hydrogeological and Hydrochemical Maps covering whole Territory of Ethiopia at scale 1 : 250 000



The project comprises the compilation of hydrogeological and hydrochemical maps (starting in 2001) at a scale of 1 : 250 000. The maps include explanatory notes to all map sheets, publication of all hydrogeological outputs on Internet and their dissemination to the individual regions in the country and their potential users. The project also aims at building the capacities of experts in the fields of research and assessment of groundwater resources, as well as preparation of hydrological and hydrochemical maps of various scales and their practical interpretation. Collection of hydrogeological and hydrochemical data and maps prepared by field groups of the Geological Survey of Ethiopia, unification of legends and connecting various maps in GIS environment. Finally, all 60 map sheets of hydrogeological and hydrochemical maps with explanatory notes covering the Ethiopian territory of 1,104 ,300 km² are published and hard copies are available through library of the Ministry of Water and Energy.

This project demonstrates our experience in:

- a) Performing the largest mapping project, covering whole Ethiopian territory 1,104 ,300 km² at a scale of 1 : 250 000,
- b) Using remote sensing for hydrogeological mapping,
- c) Elaborating a groundwater balance using data from river gauging stations,
- d) Assessing sustainable groundwater development for principal aquifers,
- e) Managing large amounts of data and processing GIS data,
- f) Preparing proposals for further drilling sites in principal aquifers,
- g) Training capacity,
- h) Posting project outputs on the Internet.

Client: Czech Development Agency

Beneficiary: Geological Survey of Ethiopia

Duration/ Date Completed: 42 months/ 2016 to 2019

Value of Work in US \$: 833,347 USD / 210,000 USD (AquaCon part)

Role on the Assignment: Consultant – sub/contractor, AQUATEST a.s.and Geotest a.s project leaders

Project Name: Pilot Project in Mapping of Shallow Groundwater in the Southern Ethiopia



Identification of shallow groundwater in regolith and alluvial sediment, including groundwater resources assessment and recommendation for resources development by hand digging/drilling. A map of shallow groundwater resources at a scale of 1 : 50 000, covering 20,118 km² was constructed using satellite structural and geophysical analysis. Sustainable shallow groundwater resources can cover irrigation for approximately 85,689 households (428,445 beneficiaries, considering a use of 1 l/s per household).

This project demonstrates our experience in:

- a) Performing the large mapping project in the Ethiopian territory at a scale of 1 : 50 000,
- b) Using remote sensing satellite geophysics for geological and hydrogeological mapping,
- c) Elaborating a groundwater balance using data from river gauging stations and water balance models,
- d) Assessing sustainable groundwater development for aquifers in the project area,
- e) Managing large amounts of data and processing of GIS data.

Client: Czech Development Agency

Beneficiary: Agricultural Development Agency of Ethiopia

Duration/ Date Completed: 4 month / 2015

Value of Work in US \$: 50,000 USD/ 8,000 USD (AquaCon part)

Role on the Assignment: Consultant – sub/contractor, AQUATEST a.s. project leader

Project Name: Shallow Groundwater Mapping for Household Irrigation Project at Tarmaber-Maychew and Tana-Belese Project Areas



Mapping and assessing the shallow groundwater resource potential (less than 30 m depth) of Tarmaber – Maychew & Tana – Belese project areas at a working scale of 1:50,000 covering 45,364 km². The mapping was conducted based on both technological (high resolution satellite image analysis) and field hydrogeological, geological (both bed rock geology and superficial/surface geology), water quality and geophysical data collection and analysis. The output of the project was a high-level report and resource maps with clear practical development and management recommendations. Sustainable shallow groundwater resources can cover irrigation for approximately 148,998 households (4,744,941 beneficiaries considering a use of 1l/s per household).

This project demonstrates our experience in:

- a) Performing the largest mapping project in Ethiopia at a scale of 1 : 50 000,
- b) Using remote sensing and satellite geophysics for geological and hydrogeological mapping,
- c) Elaborating a groundwater balance using data from river gauging stations and several water balance models,
- d) Assessing sustainable groundwater development for aquifers in the project area,
- e) Recommending drilling and water lifting.
- f) Managing large amounts of data and processing of GIS data,
- g) Working on large international projects and leading groups.

Client: Agricultural Development Agency of Ethiopia

Duration/ Date Completed: 6 month / 2017

Value of Work in US \$: 380.000 USD / 156,000 USD (AquaCon part)

Role on the Assignment: Consultant – main sub/contractor, AQUATEST a.s., project leader Associates: UHL & Associates, Inc., Addis Ababa University

Project Name: Shallow Groundwater Mapping in Fincha-Gimbi, Tepi-Gibe and Adiremets-Aksum Sub-Basins



Mapping and assessing the shallow groundwater resource potential (less than 30 m depth) of the project areas at a working scale of 1:50,000, 69,678 km². The mapping was conducted based on high resolution satellite image analysis (geological, geophysical and structural) and field hydrogeological, geological (bed rock and superficial / surface geology), water quality and surface geophysical data collection and analysis. The output of the project was a high-level report and resource maps with clear practical development and management recommendations. Sustainable shallow groundwater resources can cover irrigation for approximately 1,243,000 households (6,215,000 beneficiaries considering a use of 0.5l/s per household).

This project demonstrates our experience in:

- a) Mapping of large project areas in Ethiopia at a scale of 1 : 50 000,
- b) Using remote sensing and satellite geophysics for geological and hydrogeological mapping,
- c) Elaborating a groundwater balance using data from river gauging stations and several water balance models,
- d) Assessing sustainable groundwater development for aquifers in the project area,
- e) Recommending drilling and water lifting.
- f) Managing large amounts of data and processing of GIS data,
- g) Working on large international projects and leading groups.

Client: Agricultural Development Agency of Ethiopia

Duration/ Date Completed: 6 month / 2018

Value of Work in US \$: 649,000 USD/ 265,000 USD (AquaCon part)

Role on the Assignment: Consultant – main sub-contractor, AQUATEST a.s., project leader, Associates: UHL & Associates, Inc., Addis Ababa University

Project Name: Hydrogeological Mapping in Adigrat Abergele, Chanco-Mehal Meda, Kofele-Goba and Harari Identified Areas



Mapping and assessing the shallow groundwater resource potential (less than 30 m depth) of the project areas at a working scale of 1:50,000, 66,583 km². The mapping was conducted based on high resolution satellite image analysis (geological, geophysical and structural) and field hydrogeological, geological (bed rock and superficial / surface geology), water quality and surface geophysical data collection and analysis. The output of the project was a high-level report and resource maps with clear practical development and management recommendations. Sustainable shallow groundwater resources can cover irrigation for approximately 1,089,982 households (5,449,914 beneficiaries considering a use of 0.5l/s per household).

This project demonstrates our experience in:

- a) Mapping of large project areas in Ethiopia at a scale of 1 : 50 000,
- b) Using remote sensing and satellite geophysics for geological and hydrogeological mapping,
- c) Elaborating a groundwater balance using data from river gauging stations and several water balance models,
- d) Assessing sustainable groundwater development for aquifers in the project area,
- e) Recommending drilling and water lifting.
- f) Managing large amounts of data and processing of GIS data,
- g) Working on large international projects and leading groups,
- h) Preparation of guidelines for protection of sustainable groundwater resources using 3R principles,

Client: Agricultural Development Agency of Ethiopia

Duration/ Date Completed: 9 month / 2019

Value of Work in US \$: 615,800 USD/316,790 USD (AquaCon part)

Role on the Assignment: Consultant – main sub/contractor, AQUATEST a.s., project leader, Associates: UHL & Associates Inc., Acacia Water, Addis Ababa University

Project Name: Evaluation of Environmental and Social Risks Related to Increased Groundwater Use Expansion of the Habesha Breweries Facility



Habesha Breweries was established in North Shewa Zone south of Debre Birhan City with an initial capacity of 0.4 million hectoliters per year (MHL/year) and has been in operation since July 2015. Habesha Breweries is planning to implement an expansion program with a proposed increase in production capacity from its current 1.0 MHL/year to 4.5 MHL/year. The corresponding anticipated water use will be 2 million cubic meters per year, or 5,500 m³/day. Thirty (30) boreholes were inventoried within a 10 km radius of the facility which range in depth from 60 to 320 meters below ground level with static water levels from 2.3 to 153 meters below ground level, and estimated well yields from 2 to as high as 70 l/s together with eight shallow hand-dug wells and 25 springs. Risks, local impacts and a mitigation plan were defined setting thresholds and action levels for impacts on the borehole water levels and stream flows such as: (1) reducing pumping rates or re-adjusting pumping rates per borehole, and/or (2) providing water supply to the affected communities.

This project demonstrates our experience in:

- a) Performing complex water management studies including evaluation of environmental and social risks related to increased groundwater use,
- b) Training capacity and capability,
- c) Capacity and capability of participation in international projects

Client: Habesha Breweries, Debre Birhan, Ethiopia

Duration/ Date Completed: 11 months/2019

Value of Work in US \$: 40,000 USD/20,500 USD (AquaCon part)

Role on the Assignment: Consultant – sub-contractor, UHL & Associates, Inc. project leader

Project Name: Loka Abaya Water Supply Construction



Construction of a pumping house, pipes, reservoirs and distribution systems, including pressure tests of a water supply system in Hantate village, Loka Abaya, Sidama Zone, flushing, start-up and modification of the whole system, training of operators and preparation of maintenance manuals, training and test protocols.

This project demonstrates our experience in:

- a) Performing complex water management projects starting from investigation to construction of water scheme,
- b) Training capacity and capability,
- c) Capacity and capability of participation in international projects

Client: Czech Development Agency / People in Need

Beneficiary: Sidama Water, Mine & Energy Department

Duration/ Date Completed: 24 months/2018 to 2020

Value of Work in US \$: 620,000 USD/437,500 USD (AquaCon part)

Role on the Assignment: Consultant – national work coordinator – sub-contractor, consortium members: Ircon s.r.o., People in Need and AQUATEST a.s.

Project Name: Groundwater Mapping for Climate Resilient WASH in arid and semi-arid environments in Ethiopia (lot1)



Create detailed groundwater potential maps that will cover each of the 13 selected woredas of Afar, Tigray and Amhara regions including identification of optimal drilling sites using these maps and geophysical field investigation and recommend the type of drilling methodology to be employed. Build the capacity of WDC, BDA, Regional governments and NGOs to use overlay analysis techniques for groundwater potential mapping in Ethiopia

Coordination of the national team in field work and workshops, providing office space and service procurement.

This project demonstrates our experience in:

- a) Managing international projects at a national level,
- b) Working on large international projects and leading groups.

Client: UNICEF Ethiopia / Acacia Water

Duration/ Date Completed: 24 month / 2018 to 2020

Value of Work in US \$: 1,000,000 USD/250,000 USD (AquaCon part)

Role on the Assignment: Project organization / management – sub-contractor, Acacia Water project leader

Project name: Monitoring of sustainability of shallow ground water resources for household irrigation



Fund initiative of the Partnership for Sustainable Development Goals between the Czech Republic and the United Nations Development Program support drilling two 21m deep monitoring wells, one in southern and one in central Ethiopia. The monitoring devices from the German company Ott were selected, which measure fluctuations of groundwater level, temperature and electrical conductivity of underground water. Installation the monitoring devices was accompanied by practical training for Ethiopian colleagues on how to set up the devices, how to download data directly from the meters on the site and how to download them from the server at ATA in Addis Ababa, to which the data loggers send data using the installed modem.

This project demonstrates our experience in:

- a) Support and managing of international projects at a national level,
- b) Working on specialized international projects and leading drilling company.

Client: UNDP / Aquatest a.s.

Duration/ Date Completed: 12 month / 2020 to 2021

Value of Work in US \$: 36,000 USD/22,000 USD (AquaCon part)

Role on the Assignment: Project organization / management / transport / drilling activities – sub-contractor, Aquqtest project leader

Project Name: UNICEF /EU water well drilling project to drill 20 water wells in 5 regions of Ethiopia



Supervision of drilling of 20 water wells in five regions of Ethiopia, namely: Amhara, Afar, Somali, Oromia and Southern Region. This project has been financed by EU, UNICEF and Ethiopian Government.

The main work of Aquacon is to coordinate the national team in field work and organizing workshops.

This project demonstrates our experience in:

- a) Managing of drilling companies at framework of international projects at a national level,
- b) Working on large international projects and leading groups.

Client: UNICEF Ethiopia in association with Acacia Water

Duration/ Date Completed: 24 month / 2021 to 2022

Value of Work in US \$: 560,000 USD/420,000 USD (AquaCon part)

Role on the Assignment: Project organization / management – sub-contractor, Aquacon Engineering plc project leader

Project Name: Sustainable Drinking Water Supply in wored Bura, Dale and Bona Zuriya



Construction of a pumping house, pipes, reservoirs and distribution systems, including pressure tests of a water supply system in four construction sites (Yirga Alem, Woreta Woyo, Hamesho and Shoye, Sidama Region), flushing, start-up and modification of the whole system, training of operators and preparation of maintenance manuals, training and test protocols.

This project demonstrates our experience in:

- a) Performing complex water management projects, including coordination of construction companies to construction of water scheme,
- b) Training capacity and capability, particularly in water conservation, development and sanitation (protection)
- c) Capacity and capability of participation in international projects

Client: Czech Development Agency / People in Need/ Ircon and Geotechnika a.s./Aquatest a.s.

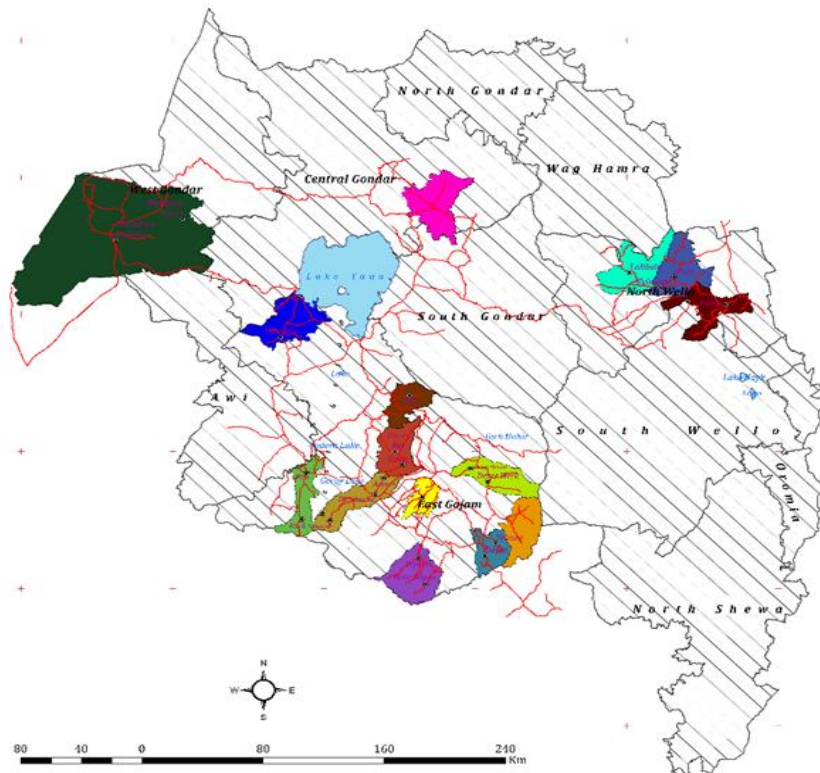
Beneficiary: Sidama Water, Mine & Energy Department

Duration/ Date Completed: 38 months/2020 to 2023

Value of Work in US \$: 2,700,000 USD/673,500 USD (AquaCon part)

Role on the Assignment: Consultant – national work coordinator – sub-contractor, consortium members: Ircon s.r.o., People in Need and Geotechnika a.s./AQUATEST a.s.

Project Name: Hydrogeological mapping of underground water using remote sensing and GIS; and geophysical survey in Ethiopia



The project area is located within the northern Amhara National Regional State (ANRS) of Ethiopia. It covers a total of 15 woredas throughout the Amhara Region. The main objective of this project is to increase access to safe and sustainable water for the drought-affected people in the target woredas. The project will locate high potential groundwater zones in drought prone areas. The produced maps should serve as a basis for national stakeholders for successful groundwater development and improved success rate of borehole drilling.

The main work of Aquacon is to coordinate the national team in field work and organizing workshops.

This project demonstrates our experience in:

- a) Managing international projects at a national level,
- b) Working on large international projects and leading groups.

Client: UNICEF Ethiopia

Duration/ Date Completed: 24 month / 2022 to 2023

Value of Work in US \$: 600,000 USD/250,000 USD (AquaCon part)

Role on the Assignment: Project organization / management – Aquacon Engineering plc project leader in JV with Acacia Water (NL)