Chemususu Dam, completed in 2014, is now the third largest dam in Kenya. It is located on the Chemususu River, a tributary of the Tigiri River, some 80kms North-West of Nakuru Town and approximately 15kms West of Eldama-Ravine Town. This a high altitude site where the crest elevation is 2340m above sea level.

The dam will improve water storage by storing approximately 10.94million m$^3$ and provides an uninterrupted water supply of about 35,000 M$^3$/day to Nakuru Town, parts of Baringo and Koibatek Districts, including Eldama-Ravine Town.

The project included a Rockfill dam approximately 40m high with a crest length of approximately 350m. It has a narrow inclined clay core only, measuring only 20m at its base.

In addition there is a large concrete spillway and an intake/culvert for both water supply and river flow maintenance.

Monitoring of the dam construction integrity and long term safety was carried out by recording measurements in the following key areas:

**Main dam foundation**
- Pore water pressures upstream of the grout curtain.
- Pore water pressures downstream of the grout curtain.

**Dam core**
- Contact zone pore water pressures close to the culvert and the core foundation.
- Contact zone soil pressures between core and the culvert.
- Pore water pressures within the dam core.
- Horizontal & vertical loading within the core.
- Vertical settlement of the core.
- Horizontal movement of the core.

**Dam abutments**
- Groundwater levels

**Spillway Wing Walls**
- Earth and pore water pressures in the core / wing wall contact zone

**Surface Movements**
- Settlement and displacement of the crest and rockfill

**Reservoir Level**
- Water level and loading

**Products used**

- VW piezometers
  Measurement of pore water pressure.
- V-notch weirs
  Measurement of seepage flows.
- VW weir monitor
  Used with V-notch weirs.
- GXM300i
  Magnetic settlement & inclinometer casing system for measuring ground settlement and lateral displacement.
- Reed switch probe
  For use with GXM system.
- Inclinometer casing
  For use with portable inclinometers.
- Portable MEMS inclinometer
  For measuring lateral displacement.
- VW rigid-back total pressure cells
  For measuring total earth pressures.
- Data loggers
  Multi-channel remote reading & logging.
- GeoViewer
  Data visualisation software which retrieves data from the data logger in near real time.
- Reflective targets
  Survey targets for use with total station survey equipment to detect surface movements.