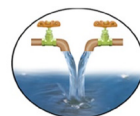

UNDERSTANDING THE HARGEISA URBAN WATER SUPPLY UPGRADING PROJECT (HUWSUP)



Co-funded by
the European Union

UN HABITAT
FOR A BETTER URBAN FUTURE



HARGEISA WATER AGENCY



Project aim:

To upgrade Hargeisa's outdated water production and transmission system with new augmented infrastructure and provide the foundation for improved water access for the entire population of Hargeisa city.

Donors

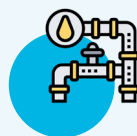
HUWSUP is a project funded jointly by

European Union	EUR 15.8M
Somaliand Development Fund	USD 8.6M
Somaliland Government	USD 1.0M
UN-Habitat	USD 1.7M

Implementing Partners

- UN-Habitat
- Hargeisa Water Agency
- Somaliland Ministry of Water Resources

Main features of the HUWSUP Project



23 Km Main Pipeline



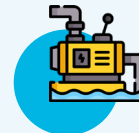
7 KM wellfield* collector Pipeline between new boreholes at Hora Haadley and existing Ged Deeble wellfield



Water Reservoir at Ged Deeble



4 new boreholes drilled, of which 3 are fully equipped and connected to the system supply of DI Pipes for Wellfield collector No.1



New Pumping Station, installed with modern pumping equipment and power generators

**Wellfield means an area of land containing a group of wells that provide drinking water to a public water supply system.*

Understanding each component

1. 23 Km Pipeline

A new 23-kilometer-long 600mm main transmission line has been built to replace the over 40-year old 300mm diameter line, which was far too small to serve the growing population and experienced frequent pipe breaks. The new pipeline connects the Ged Deeble and Hora Haadley wellfields to the main Hargeisa water reservoirs and has a much larger supply capacity than the old system.

Flood and erosion protection measures (such as the installation of gabions, weirs, and floor retaining walls) at 5 seasonal river crossings and other vulnerable sections along both the new and existing water pipelines were also undertaken in close collaboration with Hargeisa Water Agency.

2. 4 boreholes in new wellfield areas

3 boreholes were drilled and equipped at Hora Haadley and connected to the Ged Deeble system with a new 6.7km collector pipeline. Another 1 borehole was also drilled at Laas Duur and is expected to be equipped and connected in 2023.



A section of the 23KM pipeline

3. 6.7 Km Pipeline

This 6.7km long collector pipeline, as indicated above, was installed to connect the Geed Deeble wellfield system with the three new boreholes at Hora Haadley.

4. New Modern Pumping Station

A new modern pumping station was constructed at Geed Deeble with a;

- **Pump house** - fitted with 3 high capacity main booster pumps. One pump has the capacity of pumping 500 Cubic Metres of water per hour.
- **Generator House** - Generator house and transformer designed to host up to 6 generators. It is currently fitted with 4 generators, 2 transformers, control panels and a SCADA system.
- **Fuels tanks** - Two bulk storage fuel tanks with a capacity of 30,000 liters each are sunk behind the generator house and complemented with two dat storage other fuel tanks of 1,500 litres each within the generator house



Pump house



Generator house

- **Control & operating system** - there are three control rooms comprised of electro-mechanical equipment and electrical wiring which form the interphase between the generator and the pumps.
- **Water reservoir** - A double chamber water reservoir with a capacity of 800 Cubic Meters (m³). This reservoir collects water until it is enough to be pumped out.
- **Surge Vessels** - The booster station is fitted with two surge vessels to buffer against surge effects and to prevent the pumps from being destroyed by pressure from the returning water.
- **Site office** - an office structure was coconstructed to provide room for administration.
- **Water Collection chambers** - there are two collection chambers; the well-field collection chamber or inlet chamber that receives water from all boreholes and wells into the pumping station and another Outlet chamber that collects and measures the volume of all the water leaving the station after being pumped.



Connection of different wellfield collector pipes to the connection chamber at the new pumping station



Control panel



Surge vessels

5. Small-scale water supply system

A connection chamber, connection pipework, water kiosk, and elevated tank with fittings has been constructed at Darasalaam village-which is bordering the new Hora Haadley wellfield.

Water is pumped from the new boreholes into the overhead tank, then released by gravity to the water kiosk / tapstand, directly supplying water to the villagers.

6. Old Hargeisa water reservoir (also known as "Chinese Reservoir").

This is the end point of the new main pipeline that supplies water from the Ged Deeble and Hora Haadley wellfields. This reservoir has been installed with measuring equipment to measure and monitor the water flows and water levels which provide automated data to a modern SCADA system.*

* **Supervisory control and data acquisition (SCADA)** is a control system architecture comprising computers, networked data communications and graphical user interfaces for high-level supervision of machines and processes.

It also covers sensors and other devices, such as programmable logic controllers, which interface with process plant and machinery. This includes water level sensors installed in all existing boreholes, electro-magnetic flow meters at all boreholes, pressure and flow meters on all pipework at the pumping station, electro-magnetic flow meters at the pumping station and Chinese Reservoir, and water level sensors installed in the new Ged Deeble reservoir and the old Chinese Reservoir. Data is delivered to interfaces at the pumping station and the new Hargeisa Centre for Surface and Groundwater Monitoring, both managed by HWA.



Chinese Reservoir



SCADA

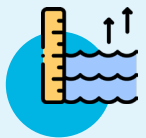
How the intervention will work

Ground water from the 13 existing Ged Deeble wells and the 3 new boreholes at Hora Haadley is pumped into the new water reservoir at Geed Deeble, which feeds into the new modern pumping station at Geed Deeble, from where it is pumped and transmitted through the new 23km pipeline, which delivers water

into the main Chinese water reservoir in Hargeisa. In the process, an elevation difference of 270 meters has been bridged.

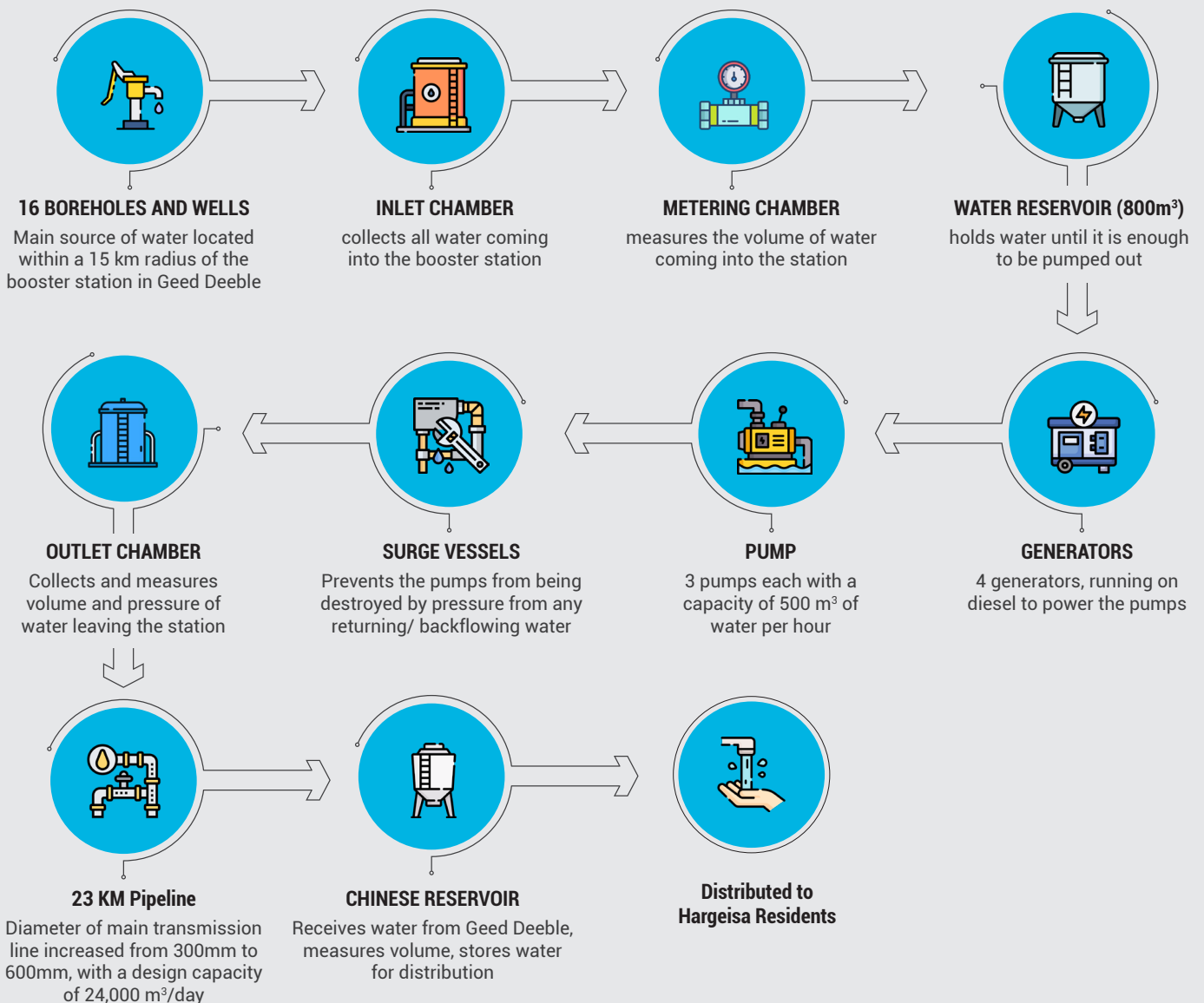
With increased water getting to the town, HWA through other projects will supply a significantly enhanced volume of piped water to households and water kiosks, reaching previously unserved areas.

The project will be handed over to Hargeisa Water Agency. Throughout the entire project cycle, there has been capacity building of the Hargeisa Water Agency staff through on the job training "learning-by-doing", concentrating on planning, management and delivery of capital works projects.



The volume of water reaching Hargeisa city will increase from 9,000 m³/day to 24,000 m³/day

The HUWSUP Water Supply Chain



Control & operating system- there are three control rooms at the booster station as well as one in Hargeisa comprised of electro-mechanical equipment and electrical wiring, fitted with the SCADA system supply data monitoring and recording for high-level supervision of machines and processes- The boreholes, pumps and generators are all operated and monitored here.

Main changes and impact of the intervention

- Transmission and pumping capacity increased from **9,000 m³/day to 24,000 m³/day (on completion)** as the diameter of main transmission line was increased from 2x300mm to 600mm.
- Increased lifespan of pipeline system and pumping facilities from a lifespan of 5 years of old infrastructure to the new lifespan on **40 years**
- **More than 80 percent** reduction of water losses along pipeline route
- More than **14,500 households** that were previously not served by the piped system will have gained access to an improved water source operated by Hargeisa Water Agency.
- UN-Habitat has linked the Hargeisa water agency with The Global Water Operators' Partnerships Alliance (GWOPA) with the **objective of strengthening their capacity, enhancing their performance and enabling them to provide a better service to more people.**



Water reservoir



HUWSUP site office

A better quality of life for
all in an urbanizing world.

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P.O. Box 30030, Nairobi 00100, Kenya

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