



MINISTRY OF ENERGY AND MINERALS

BRIEFLY INTRODUCTION OF GEOTHERMAL ENERGY IN SOMALILAND

Geothermal Energy is one of the key sources of renewable energy. The heat that is generated within the earth is extracted and converted to electricity. The technology for electricity generation from hydrothermal reservoirs is mature and reliable, and has been operating for more than 100 years (UN source). The renewable energy derived from natural sources that are replenished at a higher rate than they are consumed.

How is Geothermal Energy Used?

Geothermal energy can be used for a variety of purposes, including:

Electricity Generation: Geothermal power plants use steam or hot water from underground to power turbines and generate electricity. This process is highly efficient and produces zero emissions.

Heating and Cooling: Geothermal heat pumps use the stable temperature of the ground to provide heating and cooling for homes and buildings. This reduces energy consumption and can save homeowners money on their energy bills.

Industrial Applications: Geothermal energy can be used for industrial applications such as food processing, mining, and greenhouse farming. This reduces the reliance on fossil fuels and promotes sustainable practices.

Benefits of Geothermal Energy

Geothermal energy offers a range of benefits, including:

Renewable and Sustainable: Geothermal energy is a renewable and sustainable source of power that doesn't deplete natural resources or emit harmful pollutants.

Cost-Effective: Geothermal energy can provide significant cost savings over time by reducing energy consumption and eliminating the need for fossil fuels.

Low Maintenance: Geothermal systems have a long lifespan and require minimal maintenance, making them a reliable and low-cost option for heating and cooling.

Reduced Carbon Footprint: Geothermal energy produces zero emissions, helping to reduce the carbon footprint and combat climate change.

Challenges of Geothermal Energy

While geothermal energy has many benefits, there are also challenges associated with its use. These include:

High Initial Costs: Installing a geothermal system can be expensive, requiring a significant upfront investment.

Limited Availability: Geothermal energy is only available in certain areas, such as regions with high geothermal activity or hotspots.

Environmental Impact: Geothermal energy can have a minor impact on the environment, such as the potential for subsidence or land-use changes. The costs, making it an attractive option for reducing the reliance on fossil fuels and promoting sustainable practices.

Geothermal Energy and East Africa

At present, East African economies are using available geothermal resources to generate an estimated 630 MW of power annually. Kenya is the African leader for operational geothermal power plants, with its geothermal power production totaling more than 40% of the country's total electricity production. Kenya has launched an investigation into geothermal energy during the late 1970s

Geothermal Energy and Somaliland

Geologically, Somaliland has experienced major tectonic activities of rifting and uplifting. Formation of Gulf of Aden, oceanic spreading of

Red Sea and the Continental East of Africa Rifting resulted development three trends of simple normal faulting. In 2021, the Department of Energy of the Ministry of Energy and Minerals has started the initiative of exploring the potentiality of geothermal energy in the country. The Energy department has identified four sites of existing hot springs with the assist of in-house geologist and War-San Energy and Mining Services geologists.

S/N	Name	Region	Hot-Spring Temperature
1	Biyo-Kulule	Sahil	Over 55°C
2	Gaha	Sahil	Over 55°C
3	Osoli	Awdal	Over 50°C

Surveyed sits at Awdal and Sahil regions, 2021 & 2023

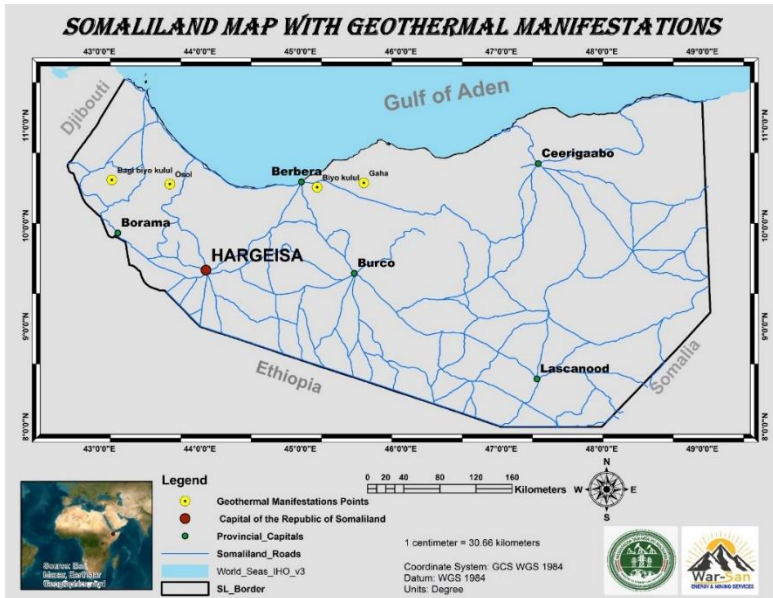
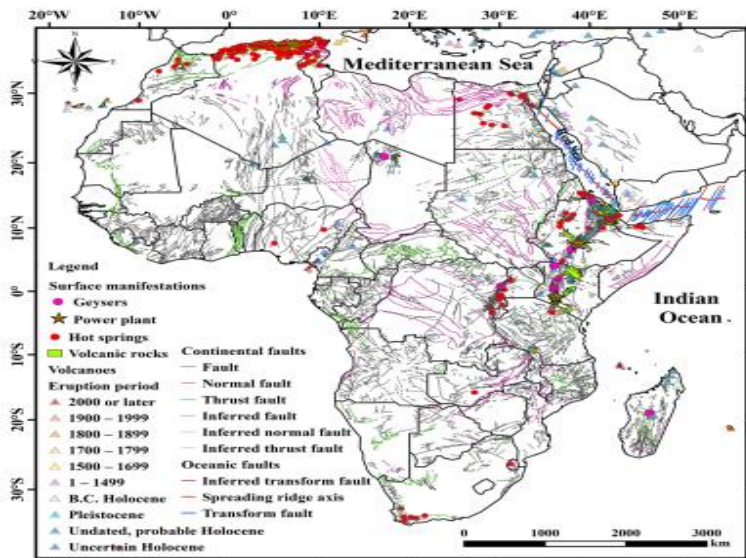


Figure 1: Somaliland map with geothermal manifestation, 2021 & 2023



Our Partner in Geothermal Exploration

War-San Energy and Mining Services firm provides consultancy services in geology, geophysics, geothermal exploration, GIS and remote sensing. The firm has technical expertise and equipment to conduct cost-effective geothermal exploration.