

Technology Fact Sheet

Geothermal Hot Waterⁱ

- 1) **Sector:** Energy
- 2) **Subsector:** Renewable Energy
- 3) **Technology Name:** Geothermal hot water
- 4) **Scale:** Medium scale (applicable only in areas where geothermal hot water is available)
- 5) **Availability:** Short term
- 6) **Technology to be included in prioritization (mandatory inf.):** No
- 7) **Background/notes (short description of the technology option)**

Georgia has a rich geothermal potential. Total achievable potential is estimated at 100MW of thermal capacity. The current mode of use without reinjection of thermal water leads to depletion of thermal wells and reduction of their useful output.

Geothermal water in Tbilisi supplies the Balneological Health Resort and the hygienic bath houses as well as the population in Saburtalo & Lisi regions mainly for hot water use. In Tbilisi geothermal hot water is currently supplied only Saburtalo district where 75 buildings with 3850 customers use it. However, due to low level of commercialization the market is undeveloped.

8) **Implementation assumptions (how the technology will be implemented and diffused across the sub-sector)**

1. **Residential Hot Water:** In order to utilize the geothermal hot water more effectively the following measures are to be undertaken: a. commercialization of geothermal water distribution system through installation of metering & disconnection outside apartments and introduction of sound commercial procedures and policies, b. proper marketing, promotion and pricing strategies, license conditions requiring development of new resources; c. installation of Geothermal Circulation Systems (GCS) in the Lisi area to assure sustainable operation of geothermal wells. Usage of heat exchangers in low elevation high pressure wells to get rid of hydrogen sulfide.
2. **Development of Agribusiness complex in Tsaishi:** Well rehabilitation and construction of business complex based on geothermal water use including, driers, fisheries, greenhouses, poultry farms etc.

9) **Reduction in GHG emissions over 10 years:** 70 thousand tons of CO₂ – Project 1. 426thd tons of CO₂ – Project 2.

10) **Impact statements**

- **Country social development priorities:** Development of this sector requires training of personnel and increased skill level. It also contributes to job creation reducing

unemployment. Possibility of usage of geothermal water in agriculture contributes to regional development through assistance of rural development.

Number of accidents related to gas water heaters will be reduced.

- **Country economic development priorities:** Use of geothermal hot waters will reduce dependence on imported natural gas. Expansion of customer base will increase economic activity. By utilizing domestic resource instead of imported gas more funds will be available for domestic economic development. The project directly benefits individual households through the installation of geothermal hot water supply which will result in reduced consumption of natural gas and lower expenditures.

Use of geothermal heat can directly support development of agribusiness and food industry.

- **Country environmental development priorities:** This technology helps to reduce natural gas consumption and therefore, reduces CO₂ emissions. It also contributes to better local air quality by eliminating the need for gas burning in poorly vented apartments.
- **Other consideration and priorities such as market potential:** Vital condition for market development is commercialization. It will increase efficiency and service quality which in its turn will have positive effect on demand and amount of people using geothermal hot water.

It was estimated that the potential market size is about 9000(27000 residents) households, which is 2.5 times bigger than existing market.

Potential agribusiness complex can utilize up to 185GWh of geothermal energy.

11) Costs (US\$)

- **Capital costs over 10 years:** Project 1 -\$6 mln, Project 2 – 10mln
- **Operational costs over 10 years:** Project 1-\$4.5 mln, Project 2 – N/A
- **Other costs over 10 years:** N/A

ⁱ This fact sheet has been extracted from TNA Report - Mitigation for Georgia. You can access the complete report from the TNA project website <http://tech-action.org/>