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GLOBAL ENVIRONMENT FACILITY
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Joint Geophysical Imaging Methodology for Geothermal Reservoir Assessment

Fast Facts

Achieved: Combined different geophysical surveys to create a new geothermal reservoir-drilling method that reduces risks and lowers costs.

Where: Kenya

Cost: GEF funds: \$979,059; Co-financing: \$1,754,264

When: June 2002 to June 2008

Partners: Kenya Electricity Generating Company Limited (KenGen) and Duke University in the United States



Achievements

The Joint Geophysical Imaging (JGI) project generated methods to increase the efficiency of geophysical exploration and reduce the upfront costs of producing this renewable energy. This technology is expected to decrease the cost of geothermal electricity, increase its production, and reduce carbon dioxide emissions.

Legacy

The JGI project's long-term effects include:

- Development of practices that led to cheaper geothermal kilowatts per hour.
- Generation of equipment that is now used for exploration in countries that are part of the African Rift Geothermal Development Facility (ARGeo).
- Duplication of the project by the Geothermal Development Company that is developing new stream fields in Kenya and conducting surveys in other African Rift Valley areas.
- Capacity sharing by JGI-trained KenGen scientists and technicians who are teaching at the UN Geothermal Training Program.
- Drilling of geothermal wells in the Olkaria Dome.
- Kenyan government's increased interest in the importance of geothermal-energy development.

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What People Say:

The support of UNEP/DGEF has been of great benefit to KenGen by giving it an international legitimacy and by allowing it to make contacts with competitive teams in the USA and Iceland.

-from an independent evaluation

Publications:

The JGI research work was at the heart of the development of exploration techniques and has contributed to their acceleration. Recognition of the publications came from the Geothermal Resources Council "Best Paper Award" given in 2005 in Reno, Nevada, U.S.A.

Finances:

GEF Funding	\$979,059
Co-financing Total	\$1,754,264
KenGen Funding	\$1,460,018
Total	\$2,733,323

Outputs and Deliverables:

The project succeeded because it:

- Developed a new and efficient type of geophysical probe for evaluating a high-enthalpy geothermal reservoir including the construction of dedicated seismic probes.
- Developed a new interpretation method and associated software.
- Trained a former KenGen scientist who enrolled in doctorate studies at Duke University.
- Trained KenGen technicians to use the new instruments.
- Constructed a dedicated new instrument pool of portable devices along with laboratory support and field logistics capacity for expanded geothermal exploration.
- Adapted these new tools to sites in Kenya.
- Analysed and interpreted data collected with the new tools.
- Published results.



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Photo Credit: Power Lines by Karl Lang/UNEP; GEF press release.