



NEW ZEALAND
FOREIGN AFFAIRS & TRADE

Geothermal Project Development and Technical Support

New Zealand – Africa Geothermal Facility

**Regional Workshop on
Geothermal Financing and Risk Mitigation in Africa
31 January – 2 February 2018**

Outline of Presentation

- Geothermal Development Phases
- Status in EA region
- Opportunities and challenges
- Technical Support of the NZ-AGF
- Summary

Geothermal Development Phases

1. Scientific exploration – Resource Identification
 - Geology, Geochemistry, Geophysics, etc
 - Baseline ESIA
 - Pre-feasibility

USD 1 – 2 Million
2. Exploration Drilling & resource verification
Infrastructure – roads, water supply
(USD +/- 5 Million, depends on site?)
 - Drilling, Well testing & Resource appraisal
 - ESIA & Feasibility Study

> USD 20 Million
3. Development
 - Financing (Equity vs Debt - Public/ IPP/ PPP)
 - Production Drilling & Construction of Power Plant
4. Operation and resource management
 - O&M of plant and steam-field
 - Reservoir management & reinjection



Geothermal Development

Development of geothermal energy is a difficult, risky and technically complex process, the success of which relies not simply on having sufficient geothermal resource but also on ensuring:

- availability of sufficiently **accurate geothermal resource data** and other **relevant information**;
- **effective and dedicated institutions**;
- **supportive policies and regulations**;
- **well qualified and experienced** project sponsors, and access to **suitable financing** for the project developer.



Geothermal Development in EA Region

Installed geothermal capacity in EA to reach > 3,000MW by 2030

This will require capital investment of around USD12 billion.

Kenya now has an established geothermal power sector

Most of the countries in the region are still at early stage in exploring their potential and developing their local capacity.

The complexity and high up-front costs involved in the exploration and verification of geothermal resources necessitates Governments taking a lead role in the initial development phase.

Governments also have a key role to play in creating an enabling environment for private sector investment.

High capital cost and high risk of the initial exploratory phase seems to hinder investment in geothermal sector.



Opportunities & challenges

- There is now **considerable donor investment and support in the sector**;
 - **Growing team of experienced geothermal experts within the region**;
 - and **willingness from private sector for investment in geothermal**.
-
- **Due to technical or legal/regulatory barriers, or challenges in securing adequate private sector co-investment** only a handful projects were able to progress out of the 26 that got GFMF grant support.
 - While experience and capacity for geothermal development is growing within the region **there remains significant capacity gaps**, at both the institutional and human resource level.



The NZ-AGF

Overview

- The NZ-AGF is designed to provide responsive & flexible geothermal technical assistance and capacity building for East African countries to develop their geothermal energy.
- The NZ - AGF will prioritise assistance for overcoming barriers, that are currently stalling projects, to bring them closer to generation and distribution.
- Governance of the NZ-AGF will be through a Steering Committee composed of New Zealand Ministry of Foreign Affairs & Trade (MFAT) and Africa Union Commission (AUC).
- Budget of NZ10 Million (USD 7.2 Million) over 5 years.

Technical assistance for geothermal development including:

- technical studies and reports,
- advisory services,
- peer review,
- training and capacity building
- quality assurance services



Summary

- Provision of focused high quality TS across all stages of geothermal development but specifically in exploration can minimize risks and produce tangible benefits to countries in the region
- Working with countries (and other donors) to address critical knowledge and experience gaps in the sector is vital for the advancement of geothermal energy sources in the eastern Africa region.
- NZ-AGF interventions can offer pragmatic and appropriate support



NEW ZEALAND
FOREIGN AFFAIRS & TRADE

Thank You