

# The BGR GEOTHERM Programme: Recent developments and perspectives

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Bundesministerium für  
wirtschaftliche Zusammenarbeit  
und Entwicklung

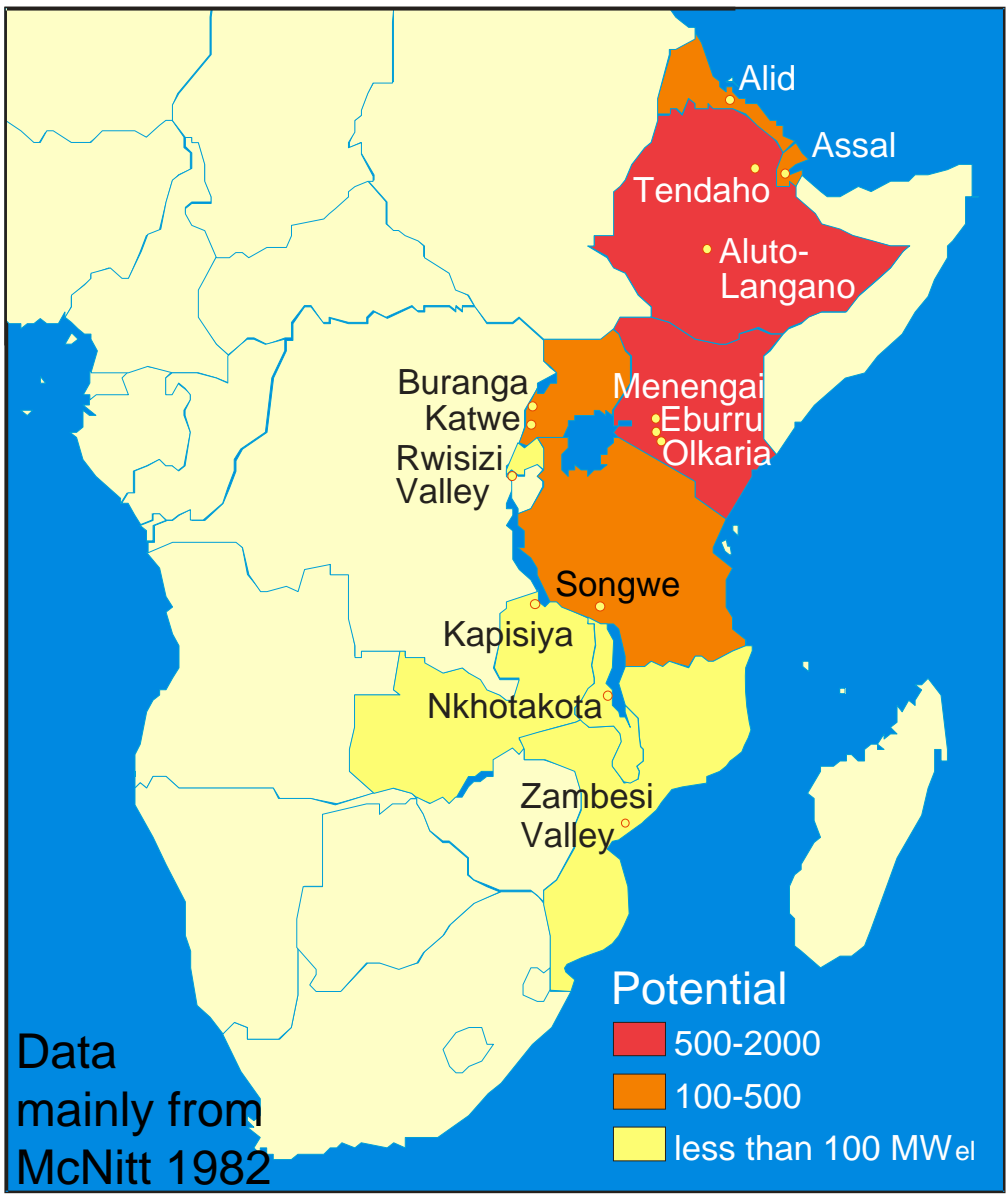


[www.bgr.de/geotherm](http://www.bgr.de/geotherm)



Bundesanstalt für  
Geowissenschaften  
und Rohstoffe

# Geothermal potential & selected prospects

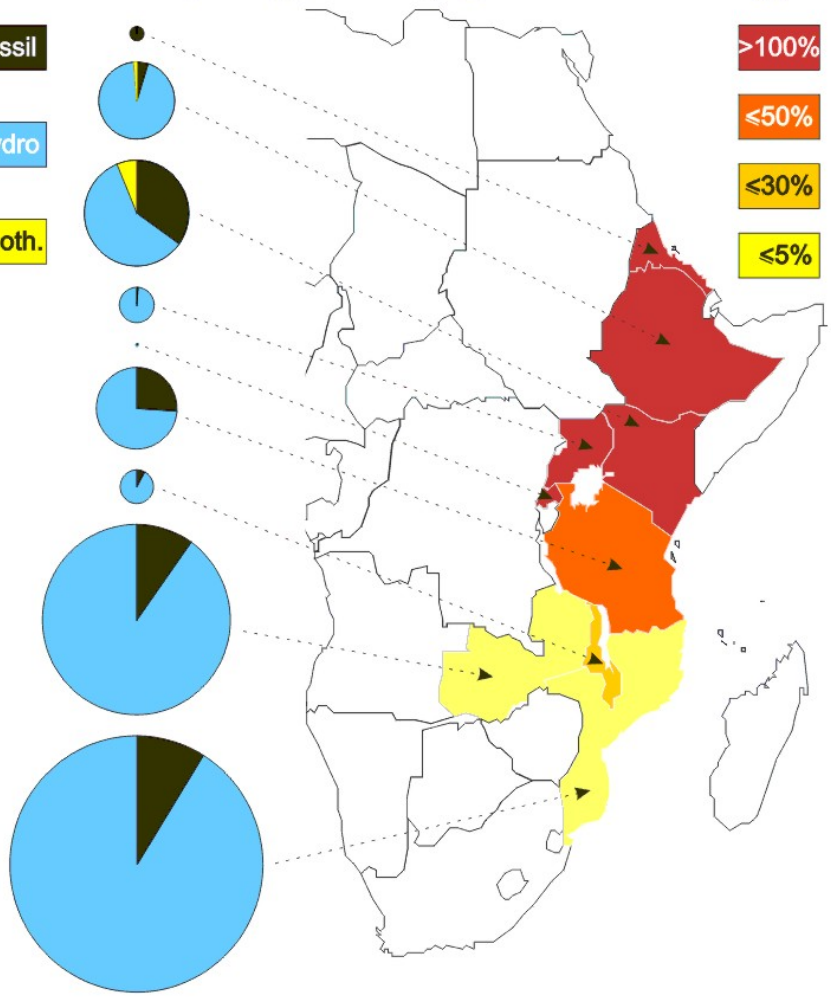


Electricity production (installed capacity)

% of electricity production which could be covered by geothermal energy

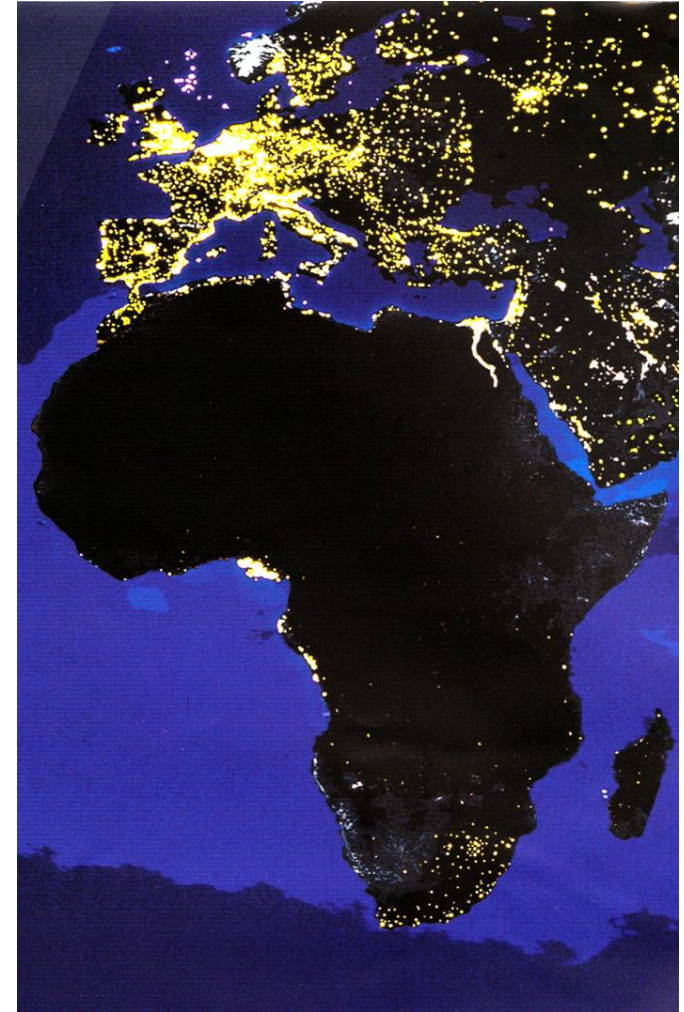
- fossil
- hydro
- geoth.

- >100%
- ≤50%
- ≤30%
- ≤5%



# Why do not all countries along the African Rift Valley use geothermal?

- High capital costs
- Lack of awareness/ understanding of decision-makers on geothermal resources
- Inadequate political, institutional and economic framework conditions
- Isolated location of geothermal reservoirs and/ or limited market opportunities and/ or lack or connection to the National grid
- No risk mitigation fund/ geothermal insurance





# Objectives of the GEOTHERM Programme

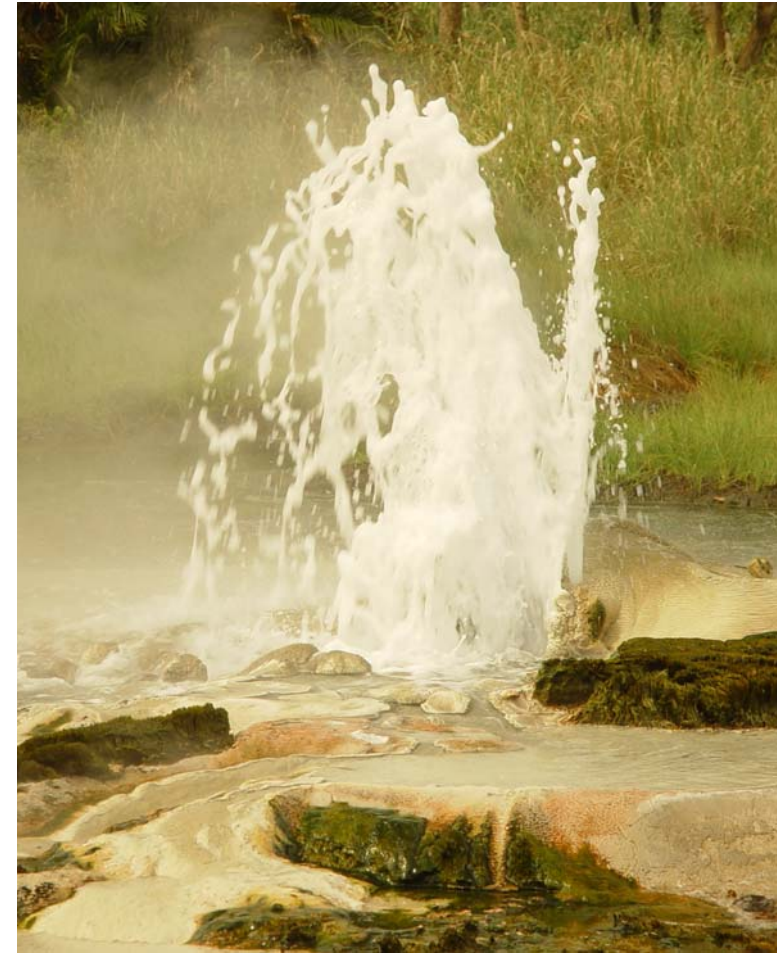
Partner countries promote the development of their geothermal potentials.

- well founded **decisions on further development** of geothermal sites are made
- partner countries are **informed** on their possibilities to use geothermal energy
- partner countries are **qualified** for geothermal resource assessment
- a **regional platform for exchange of know-how** is established in cooperation with ARGeo

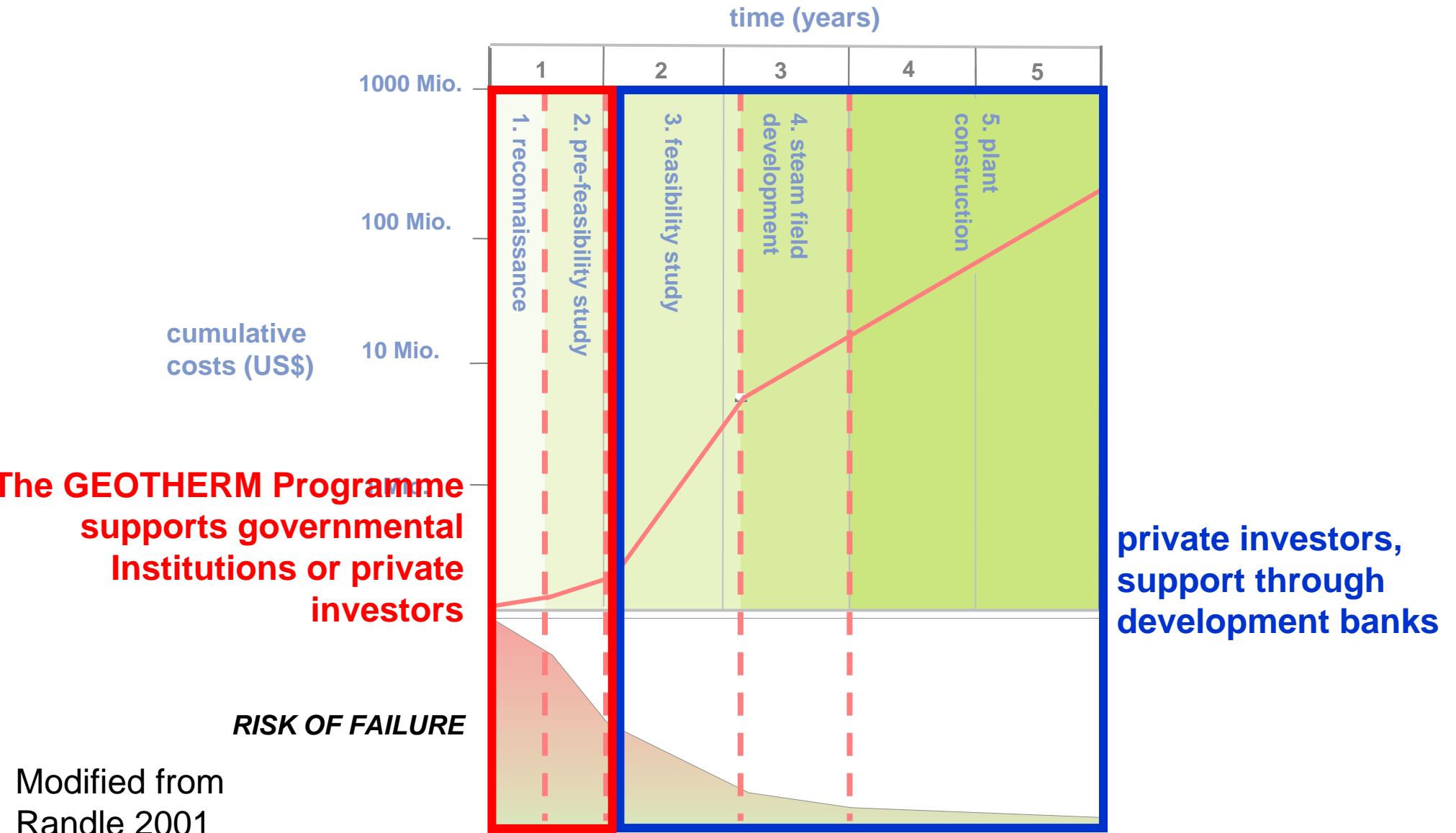


# Activities of the GEOTHERM Programme

1. Support of pre-feasibility studies (surface exploration of geothermal resources with geoscientific methods)
2. Assistance in ranking of prospects
3. Training in geothermal surveys („on the job“ in the field; short courses; advice on technical realisation of geophysical measurements; UNU GTP)
4. Ecological evaluation (environmental impact assessment)
5. Energy-related analyses
6. Support in geo-data management
7. Advice on financing options



# Investment and associated risk (for a 100 MW plant)



The GEOTHERM Programme supports governmental Institutions or private investors

private investors, support through development banks

RISK OF FAILURE

Modified from Randle 2001

# Parametres of the GEOTHERM Programme

- Funded by:** **BMZ** (Federal Ministry for Economic Cooperation and Development)
- Executed by:** **BGR** (Federal Institute for Geosciences and Natural Resources)
- Partners:** Ministries of Energy, Geological Surveys, private or governmental energy suppliers ...
- Cooperation with:** **UNEP** (United Nations Environment Programme);  
**KfW** (German Development Bank);  
**GEF** (Global Environment Facility);  
**UNU-GTP** (United Nations University Geothermal Training Programme, Iceland);  
**GTZ** (German Technical Cooperation); **Companies**;  
**GtV** (German Geothermal Union)
- Duration:** 2003 – 2008 (1st Phase); 2009 – 2012 (2nd Phase)



# Criteria for selecting partner countries

## Prerequisites:

- demand for support (official proposal)
- partner country of German Development Cooperation

## Additional criteria:

- high geothermal potential
  - high power demand
  - need to diversify the energy mix
  - high electricity prices
  - favorable political conditions
  - interest of investors
  - possibility to cooperate with development banks and/ or financing institutions
- high probability of subsequent investment





# GEOTHERM Projects

Rwanda



Geothermal exploration,  
Training on-the-job

Eritrea



Training of geothermal  
experts in cooperation  
with UNU GTP

Yemen



Feasibility study in Al Lisi as  
part of a GEF-Project

Vietnam



Vietnam: Analysis of the  
socio-economic and  
energy-related framework  
conditions

Uganda



Geophysical analysis of  
the geothermal site of  
Buranga

Chile



Geothermal exploration for  
power production; feasibility  
study for heating of houses

Tanzania



Geothermal exploration;  
training und capacity building  
of decision-makers

Kenya



Support to a  
pre-feasibility study at  
Menengai vulkano

Ethiopia



Geophysical exploration in  
Tendaho; Support to the  
African Geothermal Conference  
(ARGeo C1) in 2006

- current projects
- finalised projects

# Perspectives of the GEOTHERM Programme

- **July 2009:** Start of Phase 2
- **January 2009:** End of negotiations with partner countries and internal planning

## Results of the Programme Evaluation in 2008:

1. Intensification of cooperation with 3-4 partner countries
2. Core fields of expertise of BGR are geology, geochemistry and geophysics
3. New fields of engagement: Policy advice, negotiations with investors, CDM, assistance in drilling proposals, project management/ commissioning, finding of strategic cooperation partners