



**African Union Commission
Department of Infrastructure and Energy**

**Regional Workshop on Geothermal Financing and Risk Mitigation in Africa
Geothermal Risk Mitigation Facility (GRMF)**

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REGIONAL GEOTHERMAL PROGRAMME

- A mandate given the AUC by the Ministers of Energy from the 11 countries of the EARS to establish Regional Geothermal Programme - Addis Ababa Declaration on Geothermal Energy (June 2009);
 - *Geothermal Stakeholders' Workshop (Nairobi, March 2010)*
 - *Regional Geothermal Training Workshop on Policy Development and Harmonization (Kigali, December 2010)*
 - *Regional Working Group meeting (Kampala, 2011)*
 - *Regional Working Group meeting (Addis Ababa on 2012)*

REGIONAL GEOTHERMAL PROGRAMME

□ Regional Geothermal Workshops Recommendation to AUC:

- Create awareness to promote adequate commitment;
- Take roles in minimizing the up front cost risk ;
- Take initiative to improve technical information required ;
- Participate in capacity building targeting both public and private sector (Regional Training Institution & Centers of Excellency);
- Coordinate the supporting programmes;
- Assist government by proposing guideline , technical assistance, facilitate collaboration and experience exchange

Geothermal Risk Mitigation Facility (GRMF)

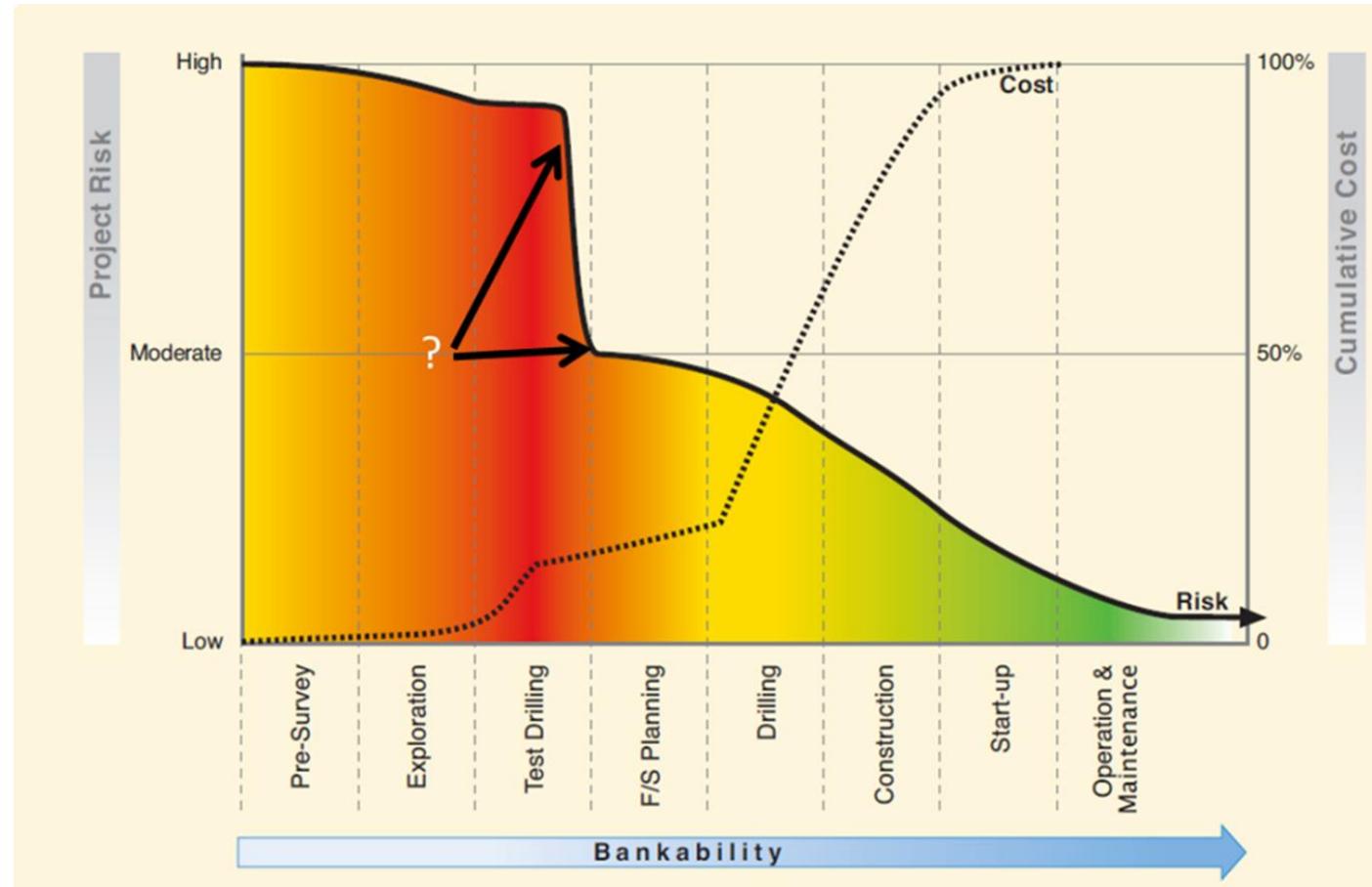
Significant upfront costs at high risk – before the success of the project has been secured !



Public and private investors to invest in Geothermal Energy



Filling the gap: Public support mechanisms are crucial to remove entry hurdles into geothermal power development





ELIGIBLE ENTITIES:

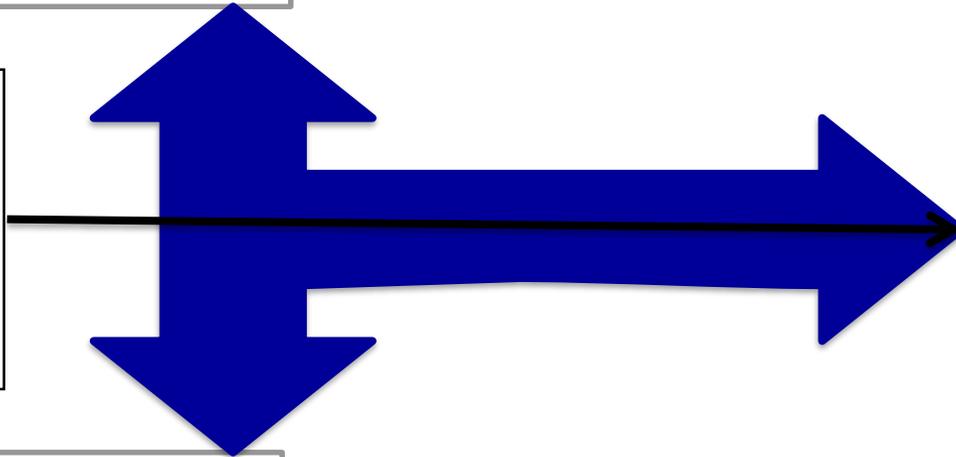
- Public Companies
- Private Companies
- Public Private Partnerships (PPP)

Donors:

- **BMZ**
- **EU**
- **DFID**
- **All fund channel through KfW**

ELIGIBLE COUNTRIES:

- Ethiopia, Kenya
- Rwanda, Tanzania,
- Uganda, Burundi,
- Comoros, Djibouti,
- DRC, Eritrea
- Zambia.

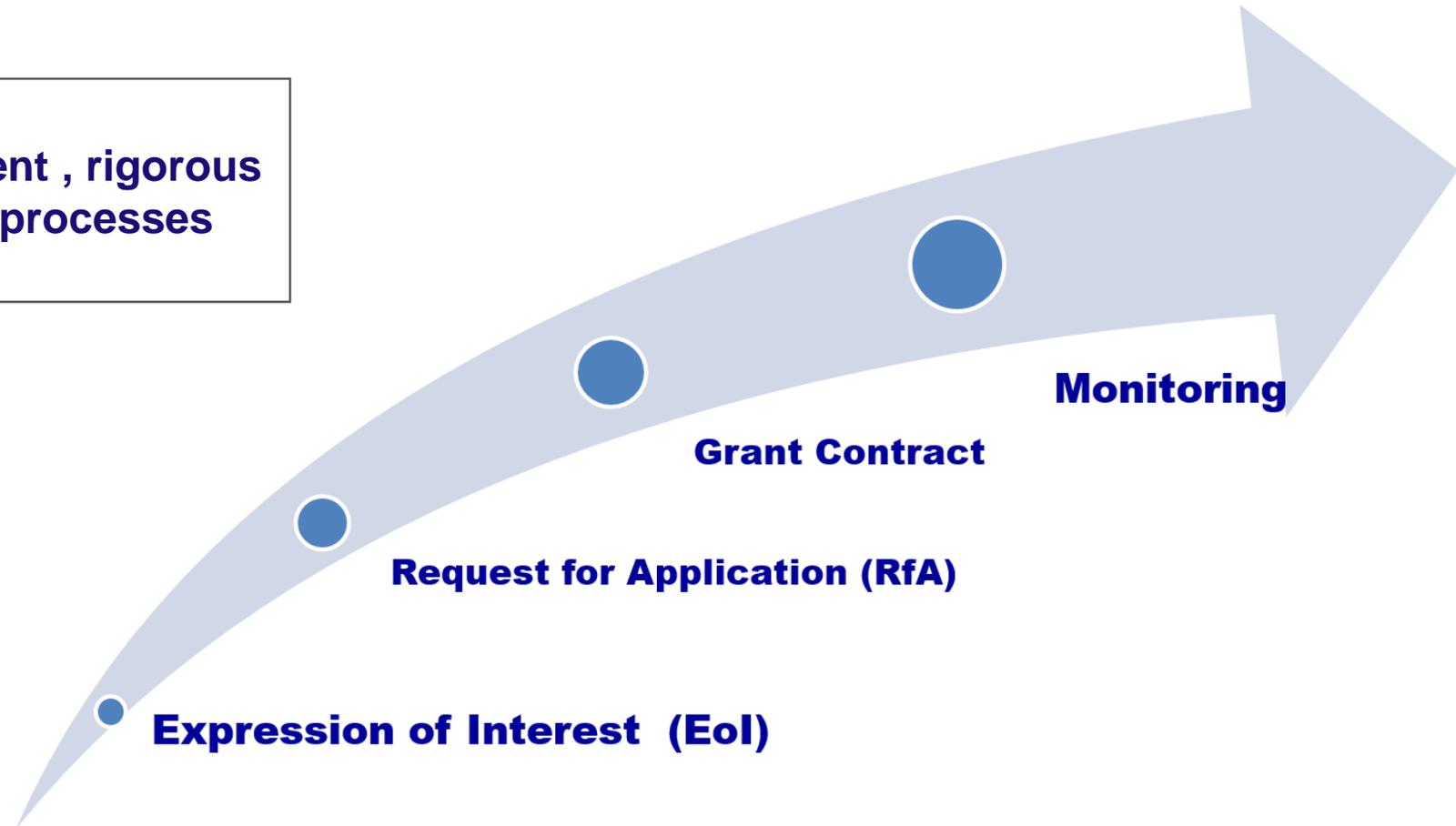


- ❑ **Infrastructure grants:** Up to 20% of the costs for infrastructure for surface studies drilling programmes (access roads, water, power)
- ❑ **Surface studies grants:** Up to 80% of the costs (excluding infrastructure costs)
- ❑ **Drilling grants:** Up to 40% of the costs for the exploration drilling and testing programme for reservoir confirmation wells (excluding infrastructure costs)
- ❑ **Continuation Premium:** Up to 30% of the developer's share for the drilling and testing programme in case developers wish to continue with project (depending on the availability of funds).



GRMF Phases

competitive, transparent , rigorous
two-stage evaluation processes



Outcome of 1st Application Round

(Ethiopia, Kenya, Rwanda, Tanzania, Uganda)

Project	Applicant	Type of Project	Awarded Grant USA	Grant Signing
Dofan (Ethiopia)	Geological Survey of Ethiopia (GSE)	Surface Study	976,872	3 rd March 2014
Corbetti (Ethiopia)	Reykjavik Geothermal	Drilling	5,594,821	26 May 2014
Bogoria-Silali (Kenya)	Geothermal Development Company (GDC)	Drilling	4,251,652	3 rd March 2014
Longonot (Kenya)	Africa Geothermal International Ltd. (Agil)	Drilling	6,098,941	27 November 2013

Outcome of 2nd Application Round

(Burundi, Comoros Islands, Djibouti, D. R. Congo, Ethiopia, Eritrea, Kenya, Rwanda, Tanzania, Uganda, Zambia)

Project	Applicant	Type of Project	Awarded Grant USA	Grant Status
Karthala (Comoros)	Bureau géologique des Comores	Surface Study	844,680	14 May 2015
Fantale (Ethiopia)	Cluff Geothermal – Private	Surface Study	862,131	21 January 2016
Tulu Moye (Ethiopia)	Reykjavik Geothermal – Private	Surface Study	1,314,000	30 November 2015
Akiira One (Kenya)	Akiira One Ltd – Private	Drilling	1,373,877	2 March 2016
Suswa (Kenya)	Geothermal Development Company (GDC)	Drilling	6,579,017	Pending

Outcome of 3rd Application Round

(Burundi, Comoros Islands, Djibouti, D. R. Congo, Ethiopia, Eritrea, Kenya, Rwanda, Tanzania, Uganda, Zambia)

Project	Applicant	Type of Project	Awarded Grant USD	Grant Signing
Barrier (Kenya)	Olsuswa Energy Ltd private	Surface Study	980,568	10.10.2017
Butajira (Ethiopia)	Cluff Geothermal Private	Surface Study	609,200	
Arta (Djibouti)	Djibouti Office for Development of Geothermal	Surface Study	928,007	
Karthala (Comoros)	Bureau Geologique Des Comores	Drilling	8,328,856	
Fantale (Ethiopia)	Cluff Geothermal Private	Drilling	3,811,102	
Korosi (Kenya)	GDC	Drilling	4,565,259	
Paka (Kenya)	GDC	Drilling	5,162,910	
Kinigi (Kenya)	Energy Development Corporation Ltd	Drilling	4,439,444	

Outcome of 4th Application Round

(Burundi, Comoros Islands, Djibouti, D. R. Congo, Ethiopia, Eritrea, Kenya, Rwanda, Tanzania, Uganda, Zambia)

Project	Applicant	Type of Project	Awarded Grant USD	Grant Signing
Abaya (Ethiopia)	Reykjavik Geothermal ehf (RG)	Surface Study	1,376,566	Ready for Signature
Chepchuk (Kenya)	Maralal Energy Ltd.	Surface Study	586,137	
Arus (Kenya)	Arus Energy Ltd.	Surface Study	448,646	
Homa Hills (Kenya)	Capital Power Ltd.	Surface Study	559,690	
Alalobeda (Ethiopia)	Ethiopia Electric Power (EEP)	Drilling	8,294,344	
Wondo Ganet (Ethiopia)	OrPower 12 Inc.	Drilling	2,851,916	
Boku (Ethiopia)	OrPower 12 Inc.	Drilling	3,574,923	
Daguna Fango (Ethiopia)	OrPower 12 Inc.	Drilling	3,135,750	

Projects Supported

- ❑ 26 Projects Supported by GRMF.
- ❑ Most projects from Kenya and Ethiopia
- ❑ The total grants awarded is about USD 80 Million



1 st Application Round	2 nd Application Round
● Drilling Programmes	● Drilling Programmes
■ Surface Studies	■ Surface Studies
3 rd Application Round	4 th Application Round
● Drilling Programmes	● Drilling Programmes
■ Surface Studies	■ Surface Studies

Outcome of 5th Application Round

(Burundi, Comoros Islands, Djibouti, D. R. Congo, Ethiopia, Eritrea, Kenya, Rwanda, Tanzania, Uganda, Zambia)

No.	Application ID	Project	Applicant
1	05-SS-01-DJ	North-East Ghoubbet	ODDEG
2	05-SS-02-RW	Gisenyi	Energy Development Corporation Ltd. (EDCL)
3	05-SS-03-KE	Emuru-Angogolak	Diamond Grip Construction Company Ltd.
4	05-SS-04-UG	Buranga	GIDS Geothermal
5	05-SS-05-TZ	Natron	TGDC
6	05-SS-06-UG	Panyimur	Geothermal Resources Department (GRD)
7	05-DP-01-DJ	Dimbil-Dirdir (Goros)	ODDEG
8	05-DP-02-DJ	North West Assal	ODDEG
9	05-DP-03-ET	Fantale	Cluff Geothermal Ltd.
10	05-DP-04-ET	Dofan	OrPower 12 Inc.
11	05-DP-05-TZ	Kiejo-Mbaka	TGDC
SUM of possible total obligation [in Mio USD]			46.3





Challenges

- Delay in the projects Implementation;
- Secure Developers' Own Share;
- Regulatory and Legal framework;
- Limited/ no participation from some beneficiaries countries.



Regional Geothermal Programme Activities

□ Some of the achievements:

- Feasibility study for African Geothermal Centre of Excellence
- African Union Code of Practice for Geothermal Drilling
- New Zealand – Africa Geothermal Facility
- BGR Regional Geothermal Programme for East Africa
- Coordinating with other partners to support Geothermal Development
ICEIDA, EAGER, UNEP, Power Africa, etc



New GRMF Regulation

Project pipeline concept:

- Projects qualified for GRMF will be part of a project pipeline
- Only projects with a perspective for further proceeding shall be invited for grant contract signing;
- After fulfilment of all requirements a grant contract signing still depends on the availability of funds
- the required documents preferably to be submitted in one single set



New GRMF Regulation

funding of an additional full size well:

- Is open for projects with expired grant contracts, ready to sign grant contract and new projects application.

Option 1:

- Funding an additional full size well in initial drilling programme with funding intensity up to 40 % of eligible costs
- Limiting the eligible activities under the CP to the following :
 - Well-head unit(s) installation
 - Long term discharge testing (minimum six months)
 - Reservoir evaluation update
 - Feasibility Study

Option 2:

- No funding of an additional full size well in initial drilling programme
- All regulations regarding the CP remain unchanged; eligible activities include:
 - Additional full size well
 - Well-head unit(s) installation
 - Long term discharge testing (minimum six months).
 - Reservoir evaluation update.
 - Feasibility Study



Options Drilling Programmre

Initial drilling programmes	Possible drilling programmes acc. to new regulations
a) 2 full size wells	a) 2 full size wells
a) 3 slim holes	b) 3 slim holes
a) 2 slim holes & 1 full size well	c) 2 slim holes & 1 full size well
	d) 3 full size wells
	e) 3 slim holes & 1 full size well
	f) 2 slim holes & 2 full size wells



New GRMF Regulation

Procurement:

- ❑ Limits of procurement methods under GMRF Financing – Goods, Non-Consultancy Services and Works For drilling programmes:

No	Method of Tendering	Goods	Works
1	International Competitive Bidding (ICB)	> 700.000 USD	> 1.000.000 USD
2	National Competitive Bidding (NCB)	Up to 700.000 USD	Up to 1.000.000 USD
3	Request for Quotation (min 3 quotations)	Up to 500.000 USD	Up to 700.000 USD
4	Single Source Procurement	Up to 100.000 USD	Up to 100.000 USD



New GRMF Regulation

Procurement:

❑ Limits of procurement methods under GRMF Financing – Consultancy Services:

No	Method of Tendering	Consultancy Services
1	International Competitive Bidding (ICB)	> 300.000 USD
2	Request for Quotation (min. 3 invitation to bid to 3 potential bidders)	Up to 300.000 USD
3	Single Source Selection	Up to 100.000



New GRMF Regulation

Reporting:

☐ For drilling programmes:

- Monthly progress reports from start of activities until first well spud and from last well completion until the completion date
- Monthly reports during the drilling period consisting of:
 - Daily and weekly progress reports during the drilling period
 - Final report

☐ For surface studies:

- Monthly progress reports
- Final report consisting

A large plume of white steam or smoke rises from several dark, industrial buildings in the center of the image. The background features a clear blue sky, a power line tower on the left, and a dirt area with some pipes and a small pond in the foreground. The overall scene suggests an industrial or mining site.

Thank you for your Attention

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