

# Geothermal Risk Mitigation Facility GRMF

A Catalyst for  
Geothermal Development



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- ✚ Regional Geothermal Program
- ✚ Geothermal Risk Mitigation Facility
- ✚ GRMF First Application Round
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- ✚ GRMF Challenges





# Regional Geothermal Programme (RGP)

## AUC Strategy and Mandate

- Its mandate given by Ministers for Energy from the 11 countries of the EARS on the Addis Ababa Declaration on Geothermal Energy (June 2009); and;
- The outcome of the AUC regional Geothermal Stakeholders' Workshop i.e. recommendation on the “Way forward” and “ (March 2010):
  - Regional Road Map;
  - Policy Guidelines, Institutional and Regulatory Framework;
  - Take leading in minimizing the exploration risk associated with geothermal resources by funding the up-front costs.



**Geothermal Risk Mitigation  
Facility for Eastern Africa**



## **Actions taken by the AUC in the Regional Geothermal Programme( RGP)**

- ❑ Started implementing key issues of the “Action plan”;
- ❑ Organized Regional Geothermal Training Workshop on Policy Development and Harmonization in Kigali, Rwanda in December 2010;
- ❑ Organized the Regional Working Group meetings :
  - in Kampala, 2011 (Guidelines for Instituting Harmonized Policy, Legislative, Regulatory and Institutional Mechanisms elaborated as recommended);
  - in Addis Ababa on 27-30 March 2012 ( adopt Recommendations proposed by the Kampala meeting).



## **Actions taken by the AUC in the Regional Geothermal Programme( RGP)**

- ❑ Assessed needs and expectations of EARS countries to develop their geothermal resources in the next 5 years;
- ❑ Assessment of needs and expectations
  - i. Needs to train about 250 geoscientists, 190 Drillers, 50 drilling, 50 reservoir, 70 power engineers and 70 technicians;
  - ii. acquisition of field and laboratory equipment for carrying out geothermal exploration, development and utilization of the resource
  - iii. technical and financial assistance and private sector participation to explore and develop 1000 MWe power from geothermal energy resource in the coming 5 years;
  - iv. policy advice to attract investment in development of the resource in the region



# **Geothermal Risk Mitigation Facility GRMF**

**[www.grmf-eastafrika.org](http://www.grmf-eastafrika.org)**



***Geothermal Risk Mitigation  
Facility for Eastern Africa***



# Geothermal Energy Development - Risks

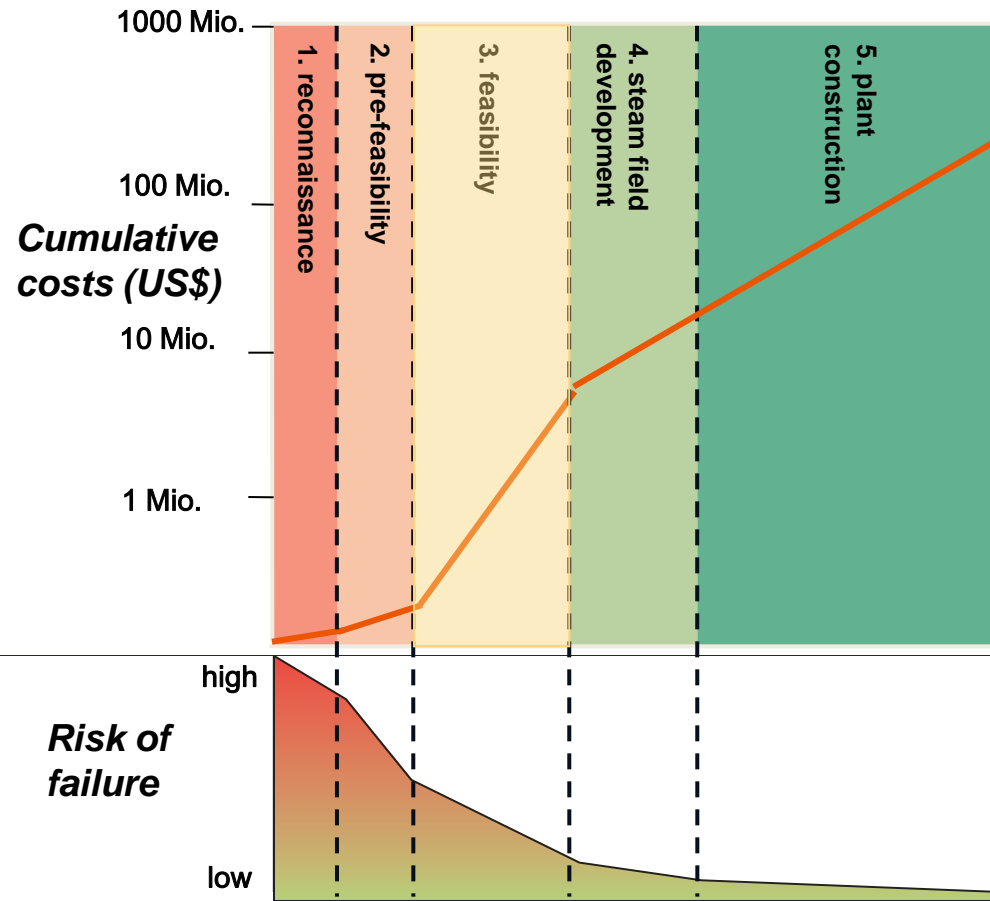
**Significant upfront costs at high risk – before the success of the project has been secured !**



**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**



Amended based on Sinclair, Knight & Merz



# Project Design



Federal Ministry  
for Economic Cooperation  
and Development

20 Mio. € ↓



30 Mio. € ↑



EU-ITF



Geothermal Risk  
Mitigation  
Facility  
"GRMF"



Drilling



Surface studies



Database



Private/  
Public  
Investor



## AUC Regional Geothermal Coordination Unit (RGCU)

- Information & Coordination of Countries, Developers, Donors etc.
- Evaluation of Geothermal Projects for GRMF





# GRMF Objective

## Objective:

To encourage **public & private investors** to mobilise financing for development of geothermal power plants in East Africa

**Initial Countries: Ethiopia, Kenya, Rwanda, Tanzania, Uganda**

**New Countries (since 2013): Burundi, Comoros Islands, Djibouti, D.R. Congo, Eritrea, Zambia**

### Instruments

#### Drilling Project Support

- **40% of Exploration Drilling Costs**
- **20% of Infrastructure Costs** in connection with a drilling project
- **“Continuation Premium”:** **30% of Exploration Drilling Costs** as “Continuation Premium” if the Developer undertakes subsequent development steps

**Exploration Drilling** at geothermal prospects once the optimal locations for the drilling and testing of reservoir confirmation wells have been determined.

#### Surface Studies Support

- **80% of Surface studies Costs**
- **20% of Infrastructure Costs** in connection with a surface study

**Surface Studies** to determine the optimal location for reservoir confirmation wells at geothermal prospects that have previously been extensively studied are eligible for funding.

#### Regional geothermal database



## Key Features of GRMF

1. Strong African ownership
  - a) AUC leadership
  - b) Country representation
  
2. Transparent and quick application and assessment procedures
  - a) Management of GRMF through Oversight Committee and the AUC Regional Geothermal Coordination Unit
  - b) Transparent procurement and application guidelines
  
3. High quality project pipeline
  - a) Competitive selection criteria
  - b) Thorough selection through geothermal experts
  - c) Success premium to incentivise bringing into operation of projects



## **GRMF First Application Round**

### **Successful First Application Round showing high interest from developers in GRMF:**

- **The First Application Round was launched on October 2012 for (Kenya, Ethiopia, Uganda, Tanzania, Rwanda);**
- **Organized information workshop for Expression of Interest on October 2012;**
- **11 (EoI) Projects has been submitted for evaluation on November 2012 (5 surface studies, 7 drilling, 6 for associated infrastructure) ;**
- **8 (EoI) Projects have been Pre-qualified to submit full (Request for Application );**
- **Organized Mandatory Information Workshop & RELCOST Training for Pre-Qualified Bidders between 26 -28 February 2013;**
- **Tender opening on April 25 2013**
- **Sign Grant agreement with recipient developers the end of September 2013**



# GRMF First Application Round

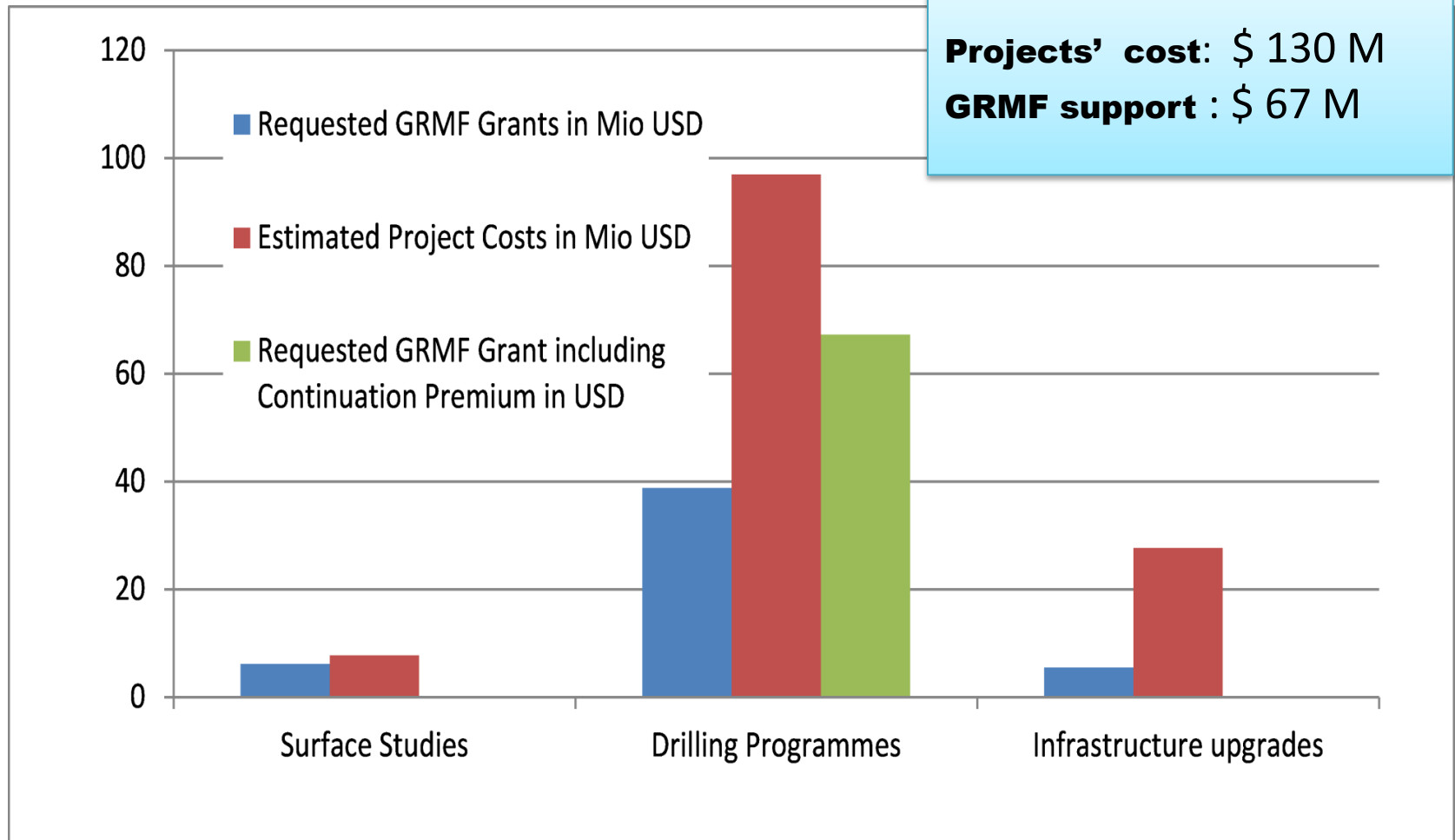
## Eight Pre-Qualified Projects from three countries

Country	Entity	Project	Type of project	Type of entity
Ethiopia	Geological Survey of Ethiopia	Dofan	Surface study	Public Ethiopia
		Tendaho	Drilling Project	
	Reykjavik Geothermal	Corbetti	Drilling Project	Private Iceland
Kenya	GEOHERMAL DEVELOPMENT COMPANY LTD (GDC)	BOGORIA-SILALI	Drilling Project	Public Kenya
	Africa Geothermal International, Ltd - Agil	Longonot	Drilling Project	Private Kenya
	WalAm Energy Inc	Suswa	Drilling Project	Private Canada
Rwanda	Energy, Water and Sanitation Authority (EWSA)	Kinigi	Drilling Project	Public Rwanda
		Gisenyi	Drilling Project	



# GRMF First Application Round

## Total project costs and GRMF support





# GRMF First Application Round

Six Projects submitted complete Application

25 April 2013

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## **African Countries Invited for the Second Application Round – October 2013**



- **Djibouti**
- **Eritrea**
- **Ethiopia\***
- **Kenya\***
- **Tanzania**
- **Uganda**
- **Zambia \***
- **Rwanda**
- **Burundi**
- **D. R. Congo**
- **Comoros Islands**

**\*Plant installed**



## Next application rounds

- ❑ The extension of the GRMF to include 11 countries and the high interest from developers require additional funds for the coming Application Rounds.
- ❑ The following table summarizes the number of potential projects and funds required in the 11 countries that will be eligible in the 2nd and 3rd AR.

<b>Project</b>	<b>Number of projects</b>	<b>GRMF potential grants in M USD</b>
Surface Study	25	20
Drilling Programme	18	126
<b>Total ( Continuation Premium is not considered )</b>		<b>146</b>





## GRMF Challenges

- ❑ Mobilize funds for the 2nd , 3rd and 4th GRMF application round;
- ❑ Availability of the skilled human resources  
(Needs to train about 250 geoscientists, 190 Drillers, 50 drilling, 50 reservoir, 70 power engineers and 70 technicians, may be more)
- ❑ Availability of geothermal data base
- ❑ Improving policy, institution, regulatory and legal framework in the region



**Thank you for your Attention**

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