

GRMF HEAT

1ST APPLICATION ROUND
KICK-OFF WORKSHOP

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GEOHERMAL RISK MITIGATION FACILITY (GRMF)

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1 GRMF POWER



The Geothermal Risk Mitigation Facility (GRMF) is managed by the Regional Geothermal Coordination Unit (RGCU) within the Department of Infrastructure and Energy of the African Union Commission (AUC-DIE).

East Africa has an estimated geothermal resource potential of over 15,000 MW. Development of this resource has potential to:

| | | |
|---------------------------------------|---|--|
| Improve the regional power generation | Constitute further advantages of geothermal energy projects like direct-use | Improve security of energy supply |
| Reduce CO2 emissions | Reduce the frequency and severity of energy price fluctuations and black outs | Adding low-cost power generating capacity in East Africa |

Implementing Agencies & Donors:



1 GRMF POWER

- In order to mitigate the high risk of exploration and reservoir confirmation drilling, the **Geothermal Risk Mitigation Facility (GRMF)** for **East Africa** was established in 2012.
- Mandate was given to the AUC by the Ministers of Energy from 11 countries of the EARS to establish the Regional Geothermal Programme.
- In 2020 Somalia was added to the list of eligible countries.



1 GRMF POWER



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- Implementing Agencies & Donors:



Objectives:

Fund, facilitate, and accelerate geothermal development in Eastern Africa.

Encourage public and private sector investment into geothermal power generation.

Act as a catalyst in establishing geothermal energy as a strategic option for power generation capacity expansion in eleven partner countries in the Eastern African Rift region

GRMF offers:

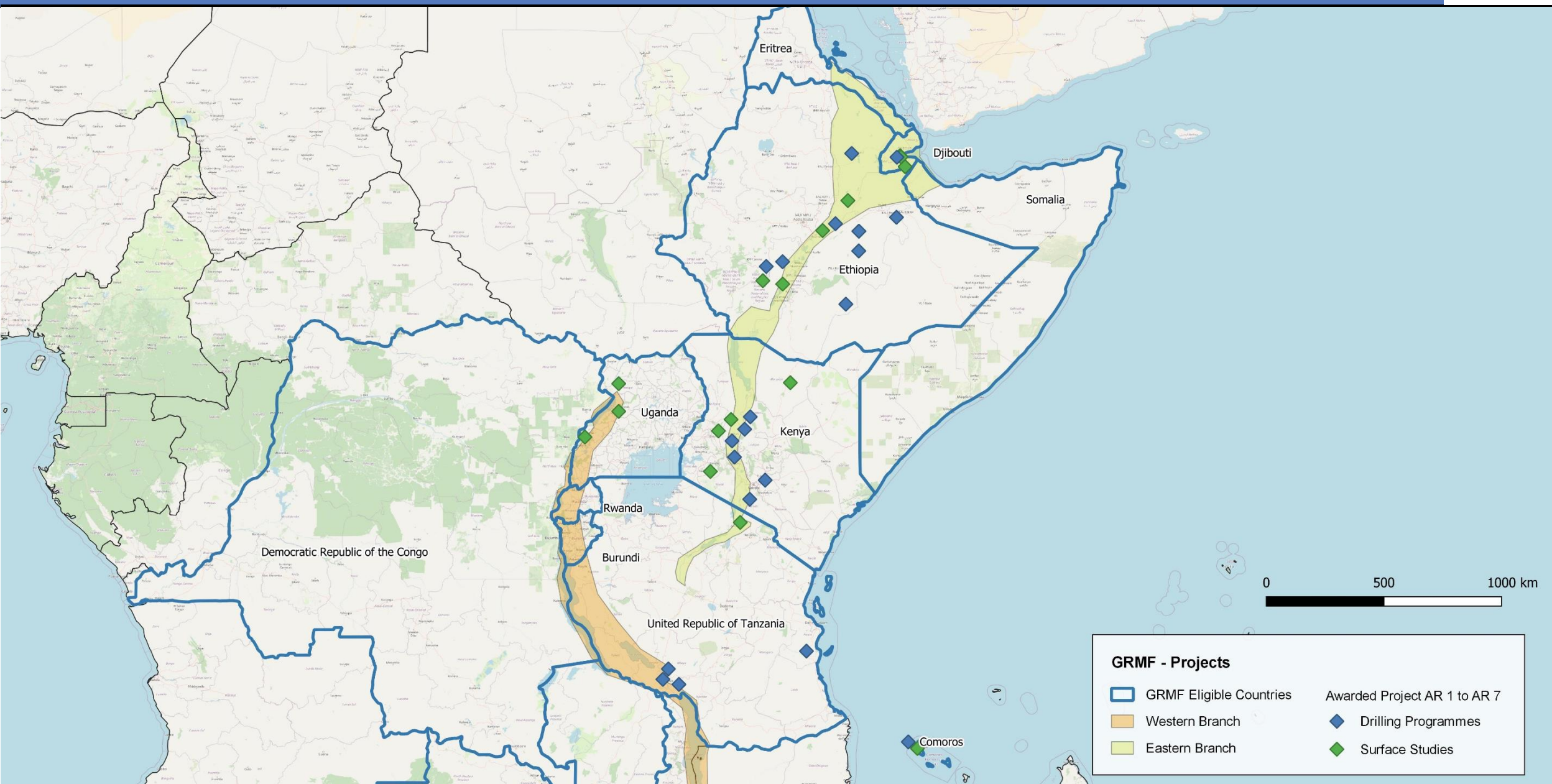
Information (pre-bidding workshops, geothermal database)

Capacity building (constructive feedback during the application process, structured approach for coherent planning)

Funding for Surface Studies to determine the optimal sites for exploration wells at geothermal prospects once they have been studied.

Funding for Drilling Programmes once the optimal locations for exploration wells as well as targets at depth have been determined.

1 GRMF POWER - APPLICATION ROUND 1 - 7



2 FROM POWER TO HEAT

2020

- GRMF 2.0 Survey

2021

- Direct Use Facility – Pre-Feasibility Study for Extension of GRMF

2022

- Direct Use Market Sounding Webinar
- Launch of GRMF HEAT



2 FROM POWER TO HEAT

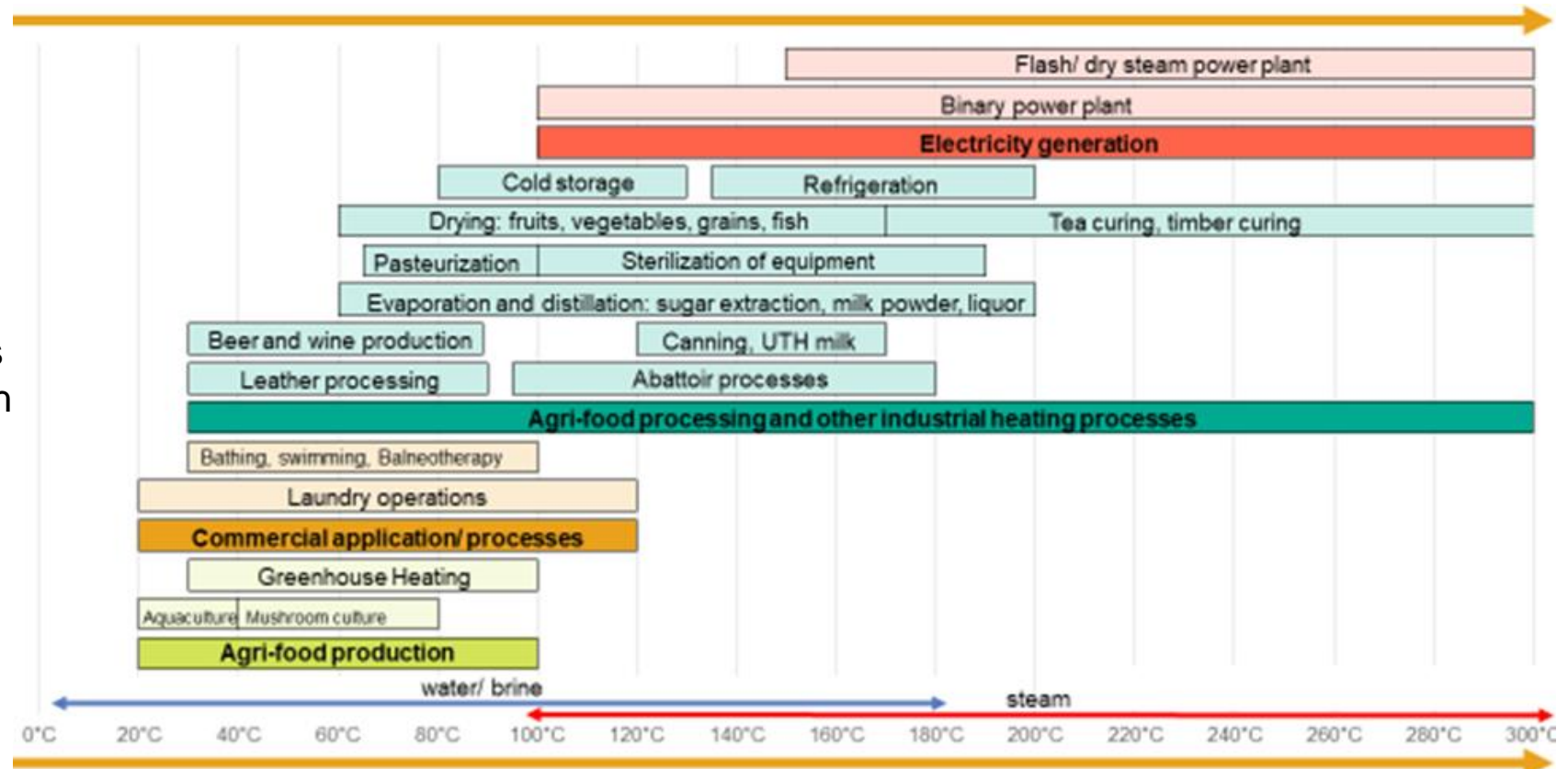
- Direct use already has a positive connotation.
- Most participants had the intention to carry out a direct use project in the future.
- Mainly agricultural applications were mentioned. (e.g., geothermally heated green houses)
- Risk mitigation would be required.
- Considered as economically viable.



2 FROM POWER TO HEAT

Direct utilization = immediate/non-electric use of geothermal energy

- Medium-low temperature systems are sometimes found in less depth
- Target temperature depends on planned application & offtake
- Seismic measurements are often useful to assess location of targeted aquifers



2 FROM POWER TO HEAT

Social & Economic Benefits

- Prevention of malnutrition & contamination
- Increase of food security
- Improved quality of life
- Improved education
- Gender empowerment
- Job creation
- Income generation
- Savings on energy spendings



Environmental Benefits

- Reduced emissions
- Reduced deforestation
- Waste management



2 FROM POWER TO HEAT

- The abundance of low to medium temperature geothermal resources creates large potential for direct use in East Africa.
- Potential uses include Greenhouses and aquaculture, crop drying, pasteurization of milk, processing of meat and fish, cooling and refrigerating.
- By providing direct use funding, several benefits can be brought to both branches of the EARS.

➡ Market Sounding Webinar



Source: <https://pbs.twimg.com/media/DPIkISRxcAAk1GP.jpg>



IRENA. (2020). Geothermal Development in Eastern Africa: Recommendations. Abu Dhabi: International Renewable Energy Agency.

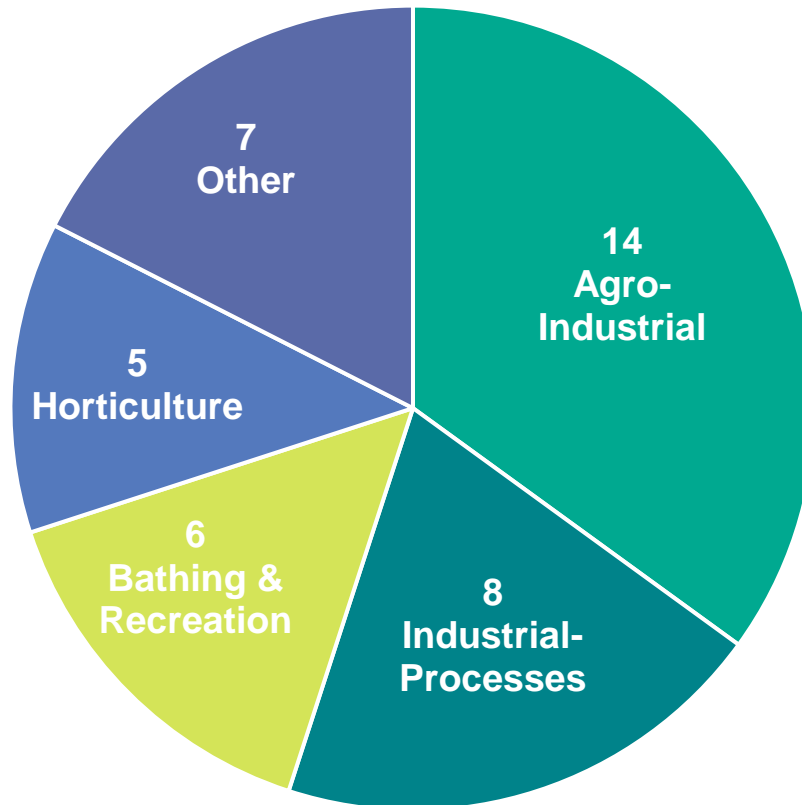


Source: <https://tradecorp.com.es/en/wp-content/uploads/2019/02/Oserian.jpg>



2 FROM POWER TO HEAT

- With 133 registered participants and 23 project pitches received, the GRMF - Direct Use Market Sounding Webinar was a great success.
- 23 project pitches were received, showing 40 different direct use applications:



3 GRMF HEAT



- RGCU decided to implement a new funding programme within the existing GRMF framework = **GRMF HEAT**
- The programme will provide grants for Surface Studies and Infrastructure upgrades aiming for direct use of geothermal resources.
- The facility might be extended to drilling pending on the outcome of the Surface Studies.
- An exception was added to the Conditions for Early Contracting: For **public entities**, the cost for preparation of EoI and full application are now eligible!



3 GRMF HEAT



Funding levels remain the same as for GRMF POWER:

- **Infrastructure upgrade grants: up to 20% of approved eligible cost** required for eligible surface studies (e.g., access roads, water supply).
- **Surface Study (feasibility study) up to 80% of approved eligible costs** (excluding infrastructure costs).



3 GRMF HEAT – FEASIBILITY STUDY



- In contradiction to GRMF POWER, the preparation of a feasibility study is an obligatory eligible activity for GRMF HEAT.
- The feasibility study will have to be provided to AUC within 15 month of signing a Grant Contract.
- A template for the feasibility study will be annexed to the Grant Contract.



3 GRMF HEAT – FEASIBILITY STUDY



Minimum requirements of a feasibility study

- Market analysis
- Concept strategy
- Design premise
- Engineering works, including surface installations
- Cost/benefit analysis
- Financial analysis
- Risk assessment
- Social & Economic Benefit
- Assessment of regulatory framework regarding implementation of proposed project (e.g. licensing, concessions)
- Project Schedule

GEOHERMAL RISK MITIGATION FACILITY (GRMF)



Thank you for your attention.



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