WP11 GEOTHERMAL VILLAGE

Partners involved: UL, AAU, UoN, SSSA, UNiTO, Fraunhofer IEG, Géo2D, ODDEG, UBO, NORCE, EDCL, SEPCO

LEAP-RE

Long-Term Joint EU-AU Research and Innovation Partnership on Renewable Energy

The LEAP-RE project has received funding from the European Union's Horizon 2020 Research and Innovation Program under Grant Agreement 963530.

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Consortium:

Composed of 7 EU & 5 AU organizations

Orga. involved: UL, UBO, SSSA, UNiTO, Fraunhofer IEG, Géo2D, NORCE, EDCL, SEPCO, AAU, ODDEG, UoN

The **objective** is to introduce geothermal-based stand-alone electric and thermal energy systems to off-grid African communities

- *Providing **template case-studies** on adapting GV concept to different socio-eco contexts*
- *Proposing **implementation strategies***
- *Demonstrating **feasibility** to public and private investment organizations*

GV project meets the **CCSE roadmaps n°4** (smart-grid for off-grid applications) and **n°3** (smart stand alone systems)

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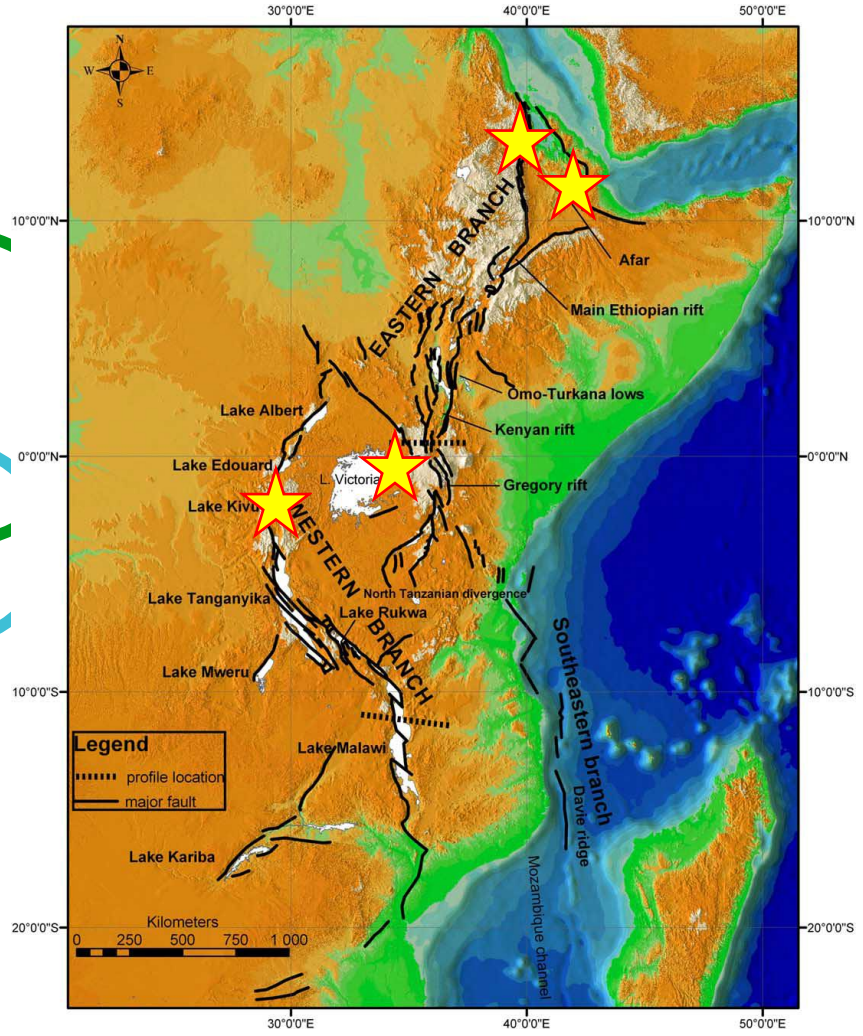
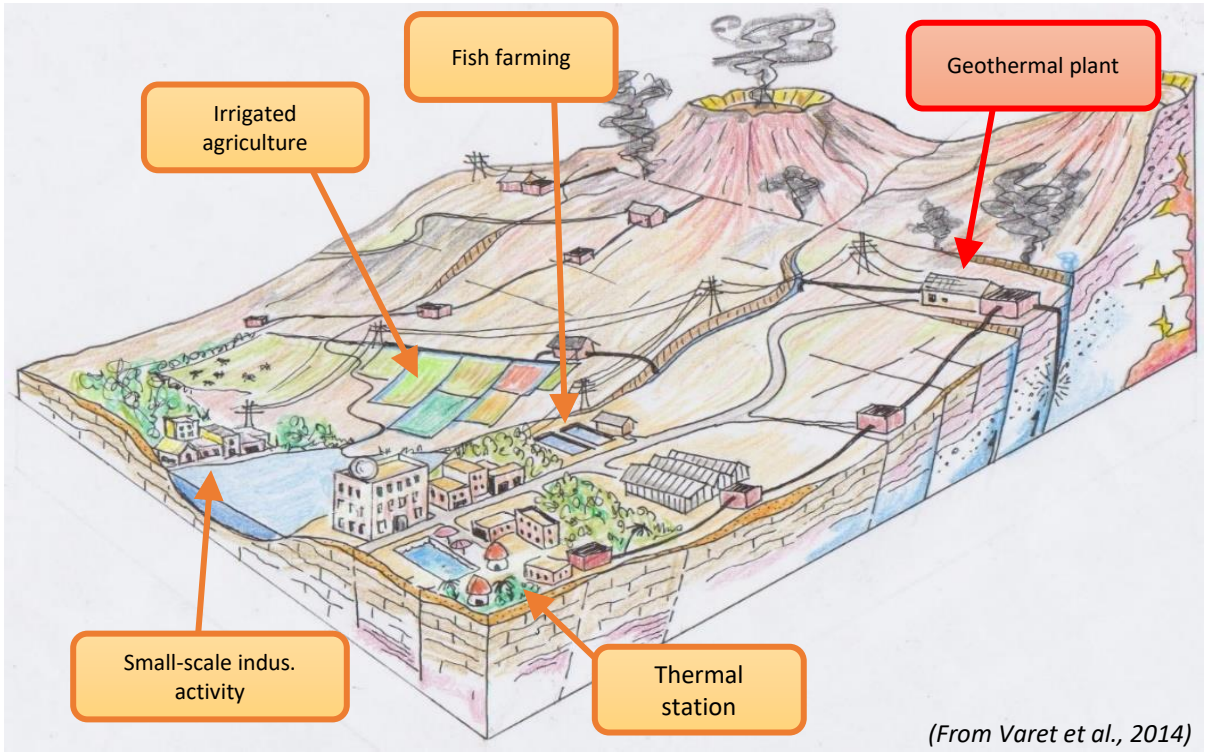
→ **4 targeted sites with different characteristics** (geology, socio-eco.)



(From Chorowicz, 2005)

Multidisciplinary R&D on local conditions :

Geosciences, Socio-economics, Engineering



(From Varet et al., 2014)

Outcome :

- **New data, adapted solutions**
- **Feasibility studies, Implementation strategies**

Most significant project results

- Strengthening of links and partnerships between EU-AU organizations through Geosciences and Social Sciences fieldwork preparation and implementation ; Knowledge exchange during fieldwork

- Local stakeholders' and communities meetings held in Djibouti, Ethiopia and Kenya to disseminate information on the GV project and start building the capacities of local populations to take part to the geothermal initiatives

SEPCO, Geo2D and UL teams with HHCBO representatives at Homa Hills, Kenya, March 2022

ODDEG, UL, UBO and Geo2D teams at Lac Abhé, Djibouti, November 2021

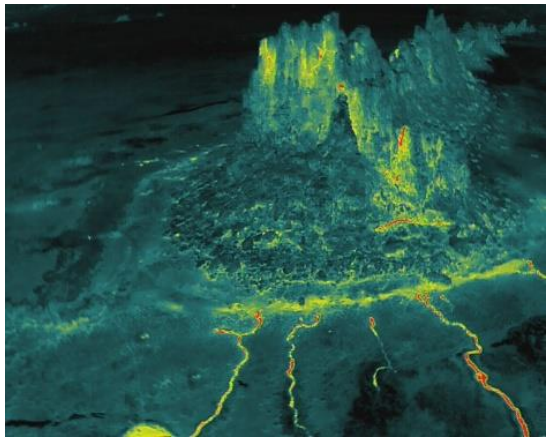
UBO and GDC teams at Homa Hills, Kenya, April 2022

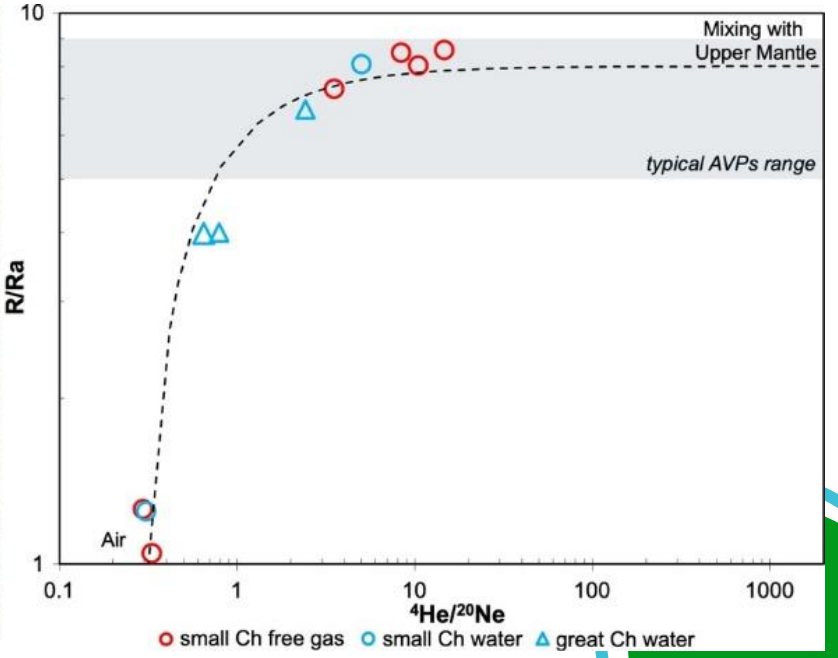
Most significant project results

Successful geosciences fieldwork in Dj, Kn

→ **Characterization of the geothermal field and identification for potential drilling site**

- Geological survey
- Sampling and analyses of hydrothermal fluids
- Deployment of multi-methods geophysics surveys





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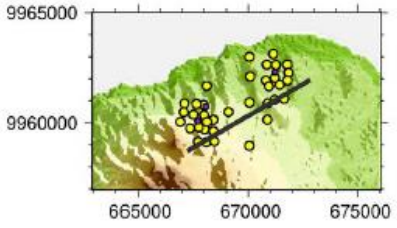

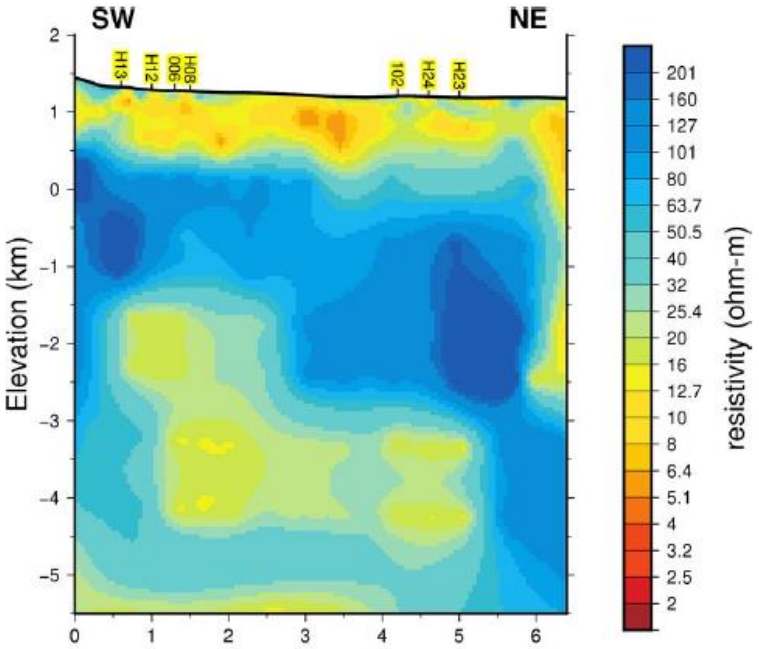

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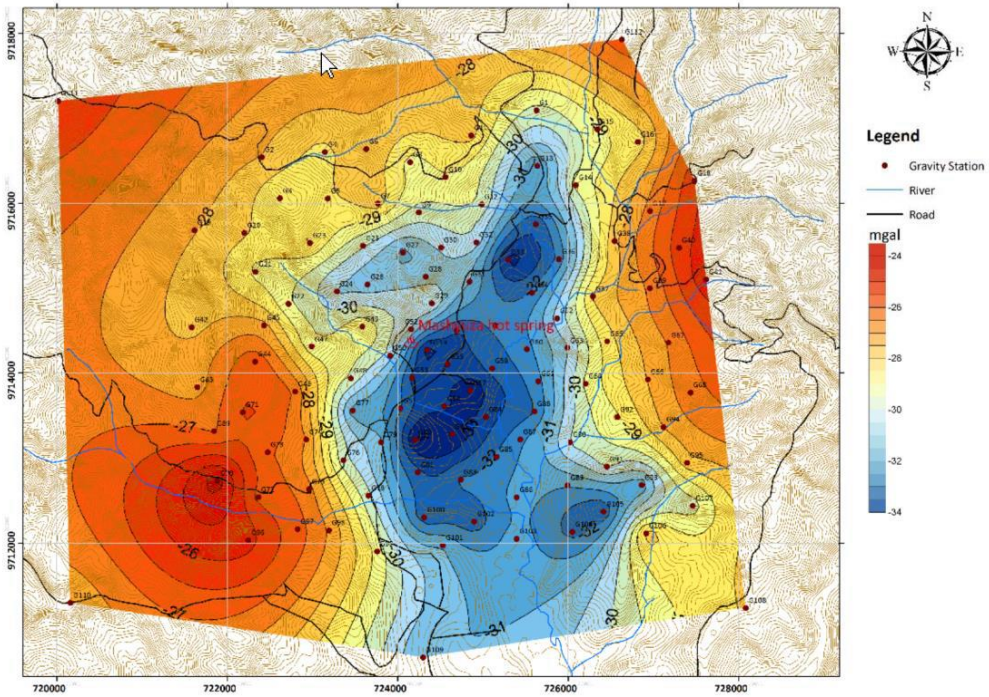
Successful preliminary field visit in Rw in May 2022 to engage cooperation and prepare geosciences fieldwork (Dec22, Jan23)



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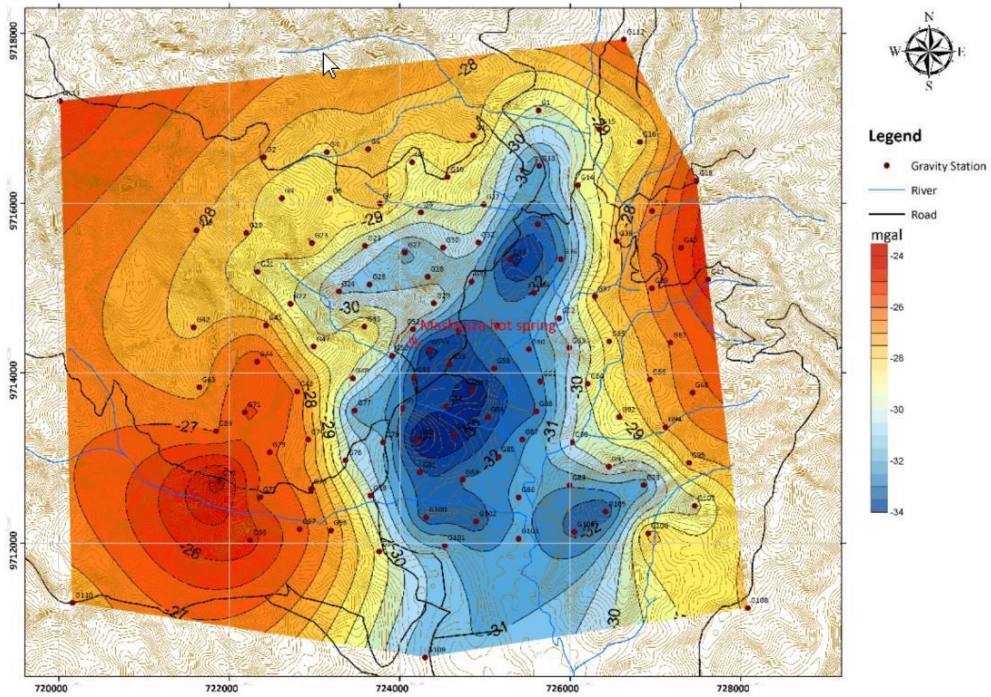

Socio-economics:

- Analyses and identification of key drivers for geothermal use and RE transition of local communities of each site (Dj, Kn, Rw, Eth)

- Meetings with various stakeholders at country and local community level in Dj and Kn to introduce the GV concept

- Social sciences fieldwork to start in Oct22

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Key challenges addressed by the project

1. *Multidisciplinary approach*
2. *Local community involvement, efficient capacity building to ensure long-term management*
3. *Identification of local key drivers for each site*
4. *Local situation in Afar/Ethiopia*

Expected results :

- *Mid-term expected results (end 2023)*
  - *Complete multidisciplinary R&D*
  - *Identification of resources available and means required for GV development at each site*
- *End of project expected results (2025)*
  - *Implementation strategies*
  - *Preparation for the implementation of the demonstration site (local acceptance, regulatory framework, fundings, etc.)*

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Expected outcomes in case of success of the project (2030)

What could be the impact of the project at 2030 on the economy and/or society in case of scaling up the results of the project ?

1. ***Local community self sufficient in terms of energy, local socio-eco. improvement***
2. ***Demonstation site reassures investors***
3. ***Replicability of the GV concept***

Which main risks of failure during project implementation ?

Describe the main risks identified for project implementation

1. ***Local community is not involved in the project***
2. ***Feasibility studies and demonstration site are unable to convince investors***

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Contribution of the project to AU – EU R&D cooperation

In term of reinforcement of scientific or innovation cooperation, capacity building…

1. ***Training & knowledge transfer during fieldwork and data processing***
2. ***Collaboration through dissemination activities (conferences/publications)***
3. ***WP11 partners active in synergy working groups on data collection, energy modelling and capacity building***

Interest of Consortium members in participating in LEAP-RE clustering activities

Which thematic (MARs technologies…) or methodology (modelling, on site experimentation…) members would be interested to share with other LEAP-RE projects ?

1. ***Community acceptance and empowerement on RE projects***
2. ***Energy modelling***
3. ***Experience sharing***

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