LEAP-RE

European Commission

Green Deal Projects Support Office

Supporting the positive long-term impact of the Horizon 2020 Green Deal Projects

Peer-2-Peer session for the Green Energy Transition in Africa

A meeting hosted by the

The Green Deal Projects Support Office &

LEAP-RE (Long Term EU-Africa Partnership for Research and Innovation actions in the area of renewable energy)

7 May 2024

Research and Innovation

Agenda

Moderator: Dr. Isabella Nardini, Fraunhofer IEG (LEAP-RE)

11:00 - 11:10 **Welcome and introduction from the Green Deal Project Support Office (Yael Meroz, ECORYS) and from LEAP RE Coordinator (Léonard LÉVÊQUE, LGI)**

11:10 – 11:50 **Experiences and Insights from projects (I)**:

1. **REFFECT AFRICA**, Prof. David Vera Candeas (Universidad de Jaén)
2. **SESA**, Magdalena Sikorowska and Claudia Schroeder (ICLEI)
3. **PURAMS**, Dr. Teresa Simões Esteves (LNEG)

11:50 – 12:05 **Q&A and discussion**

12:05 – 12:45 **Experiences and Insights from projects (II)**:

1. **GV** - **Geothermal Village**, Susan Onyango (GEO2D)
2. **Energy Village**, Dr. Nebiyu Girgibo (University of Vaasa)
3. **GAA-Geothermal Atlas for Africa**, Prof. Dr. Nicholas Marita (DeKUT, Dedan Kimathi University of Technology)
4. **SophiA**, Dr. Mihaela Dudita (SPF Institut für Solartechnik Projektleiterin) and Prof. Dr. Michael Kauffeld (Hochschule Karlsruhe University of Applied Sciences)

12:45 – 13:00 **Discussion and wrap-up**

Housekeeping rules

Please note that this event will be **recorded.** Therefore, please keep your **microphone muted** during the meeting unless you are given permission.

Please use the chat to react, comment and ask questions related to the content of the presentations and use your microphone when given the floor.

If you have any **technical issues**, please send us a message in the chat or contact us at gkaruiru@africaenergyservicesgroup.com.

Green Deal Projects Support Office (GD-SO)

GD-SO was established in 2022 by DG RTD of the European Commission and run by Ecorys and Ricardo to support the coordination and development of cooperation activities between the 73 projects funded under Horizon 2020 Green Deal Call and create synergies to maximise their impacts in contributing to the delivery of the objectives of the European Green Deal.

- GD-SO website: **here**
- Contact: **support@greendealprojects.eu** Helpdesk and contact point for GD Projects **support@greendealprojects.eu**

Among our tasks:

- Organisation and facilitation of working group meetings and development/implementation of Action Plans
- Networking opportunities, thematic webinars, Peer2Peer exchanges
- Communication activities and training (Audio-visuals, articles, website)

REFFECT AFRICA

Renewable energies for Africa: effective valorization of agri-food wastes

David Vera

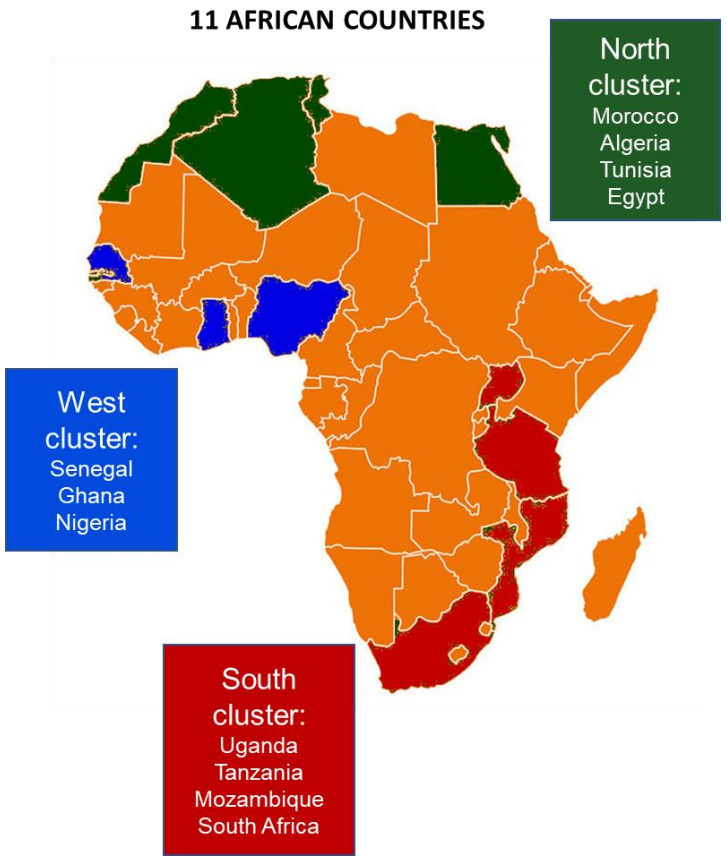
Universidad de Jaén (Spain)

European Commission

The project in brief

CONSORTIUM

- **Coordinator**: University of Jaén (UJA), Spain
- **Total partners**: 29
  - R&D → 14
  - Companies (SMEs) → 12
  - Other public bodies → 3
    - 2 NGOs (Ghana)
    - Municipality: ETHEKWINI (South Africa)
- **African countries**: 11
  - 3 clusters: North, West and South
- **European countries**: 5
- **5 years (November 2021 – October 2026)**
- **Budget = € 8 100 151,25**



Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036900

REFFECT AFRICA
RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

The project's challenges - 1

1. **Installation and validation** of three full-scale **demonstrators** in Morocco, Ghana and South Africa
2. **To perform a Life Cycle Assessment** of each value chain **before and after the solution** proposed
3. To stablish **three Living labs** → for future research and networking

Douar El Hachia

An on-grid application at a food industry in Morocco (at the premises of the olive oil mill Dar Azzaytoune in Douar El Hachia).

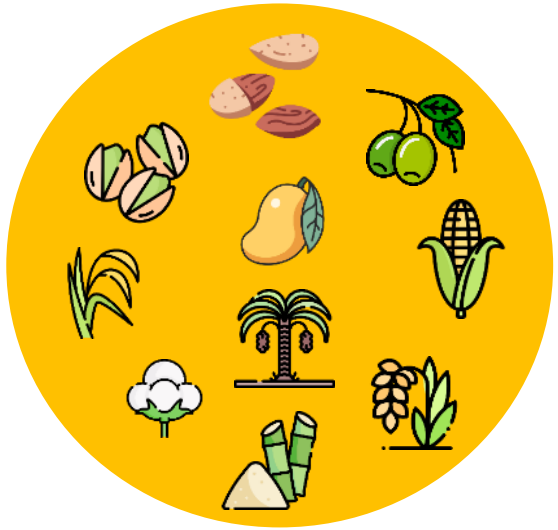
Sawla-Tuna-Kalba

A rural off-grid application in Ghana (in the Sawla-Tuna-Kalba District Assembly, at a school compound, which includes a small medical clinic).

Durban

An urban application at Clairewood Bulk Market, a large-supply market connected on-grid in the eThekwini Municipality, in the city of Durban (South Africa).

Agri-food biomass sources



Biomass Gasification (DEMONSTRATOR)

Electricity

Heat

Charcoal/Biochar

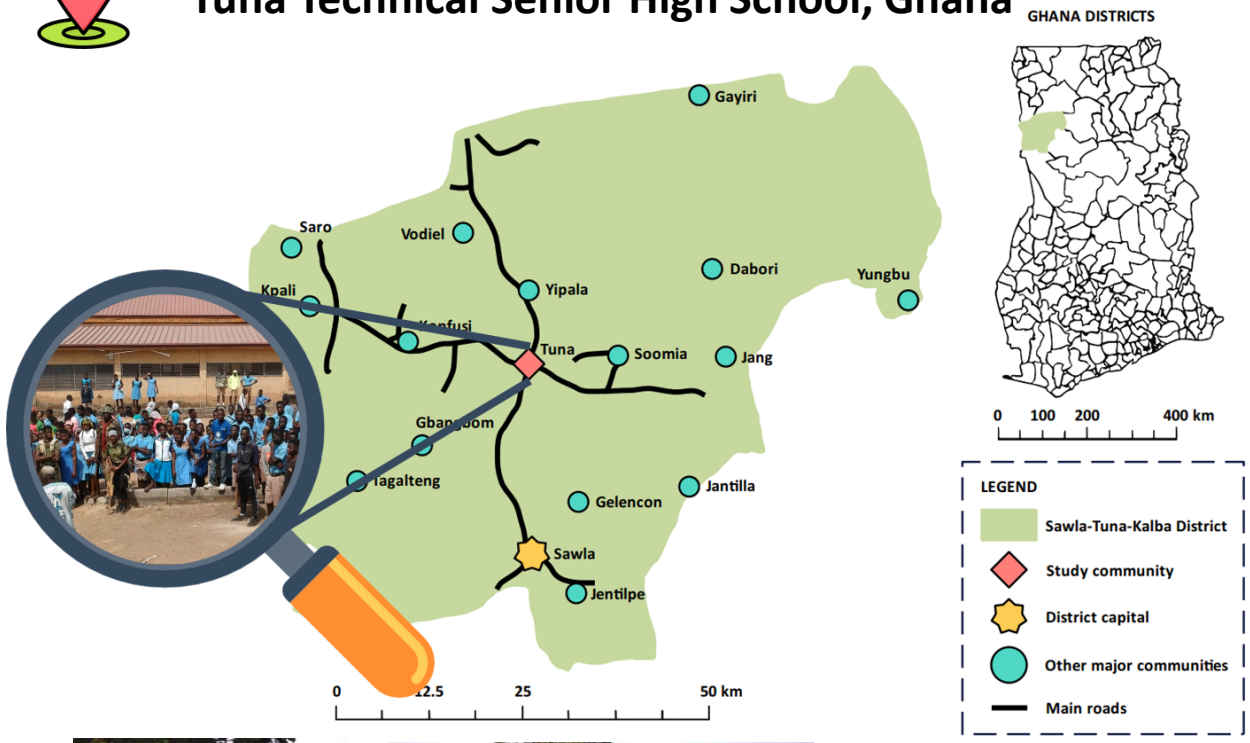
Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036900

REFFECT AFRICA
RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

The project's challenges - 2

Tuna Technical Senior High School, Ghana



NASCO FEEDING MINDS

LOCAL COMMUNITY SITUATION

- Lack of electricity supply
- No access to drinking water (source: underground water)
- High unemployment rate
- Large amount of agricultural wastes
- Networking roads in very bad conditions


Biomass: cashew/peanuts shells

REFFECT AFRICA

Agriculture

Water

Energy

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036900

REFFECT AFRICA
RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

The project's solutions - 1

Cold room for food storage

24 kWp PV Plant

Control room

Peanuts shells

20kW$_e$ Gasification Plant

Important drawbacks during the installation and commissioning:

- The capacity building is very limited.
- Lack of technical expertise in the site: welders, electricians, crane, etc.
- Bad conditions of the roads and communications. Time Gaps
- Lack of communication with local people (English language)

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036900

REFFECT AFRICA
RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

The project's solutions

Civil works

- 3 houses/rooms
- Concrete platform
- Covering
- PV structure

Installation of the gasification plant, PV panels and battery system

Commissioning of the plant was carried out during 15 days in the Tuna facilities

February 2024

Trainning: now we are developing training courses for PhD students and local operators

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036900

REFFECT AFRICA
RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

The project's solutions - 3

Bonus question: How training and capacity building actions can favor/amplify social-economic benefits for local community?

LOCAL COMMUNITY BENEFITS

- Renewable energy generation
- Use of local biomass (peanuts and cashew shells)
- Job creation (technical operators, welders, logistic)
- Clean water production

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT N° 101036900

REFFECT AFRICA
RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

REFFECT AFRICA

RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

THANK YOU!

This project has received funding from the European Union's Horizon 2020 research and Innovation programme under grant agreement Nº 101036900

REFFECT-AFRICA.EU/

Follow us!

SESA project

Claudia Schröder (ICLEI Africa)

European Commission

About SESA

Duration: October 2021 - September 2025

SESA is a collaborative project between the **European Union and nine African countries** (Kenya, Ghana, South Africa, Malawi, Morocco, Namibia, Tanzania, Rwanda and Nigeria) that aims at **providing energy access technologies and business models** that are easily replicable and generate local opportunities for economic development and social cohesion in Africa.

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101037141

SESA

The project's challenges - 1

Format and language **of training and capacity building**

- Virtual engagements attendance is often low
- There are a wide array of languages spoken (and literacy levels) in the various project countries (emerged through a capacity building needs assessment)

The project's challenges - 2

Active participation and representation in decision-making processes

- Contacting key in-country stakeholders can be challenging from abroad
- Low response rate from stakeholders contacted

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101037141

The project's solutions - 1

Format and language of training and capacity building solutions

1. Increasing dissemination of webinar information via communication channels to reach target audience group.
2. Having in-person capacity building sessions, that were tailored to local needs of specific audiences.
3. SESA consortium partners supported with translation into other languages
4. How did we encourage the active participation and representation of local communities?
    - The SESA consortiums includes local in-country partners
    - SMEs located in the SESA project countries.

The project's solutions – 2

Active participation and representation in decision-making processes solutions

Ways we encourage active participation and representation of local communities:

- The SESA consortiums includes local in-country partners and organisations.
- SESA selected SMEs located in the SESA project countries
- Selected community members attending in-person engagements and events.
- Dissemination of event information via various communication channels.

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101037141

Stay tuned!

sesa-euafrica.eu

facebook.com/sesaproject

twitter.com/sesa_project

linkedin.com/company/sesa-project

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101037141

PURAMS -Productive Use in Rural African Markets using Standalone Solar

Teresa Simões

Sandra Banda

LEAP-RE

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

European Commission

The project in brief

PURAMS – Productive Use in Rural African Markets using Standalone Solar

Objective

Aims to develop a standalone solar cooking appliance to address the problems caused by traditional cooking methods used in African communities. **Target Countries:** Kenya, Rwanda and Mozambique

- Includes **surveys** for the identification of cooking habits, experimental campaigns using **EPC**s, **prototype development and tests (EPC+Solar PV+Storage)** and Business Model.
- Surveys were dedicated to the **end users and to the Policy makers**.
- **Training on the use of EPCs** was also conducted and together with another project, training materials on data collection for renewables' resource assessment are being prepared.

Product: EPC+Solar PV+Storage

Duration

Pilar 2 project, with 30 months duration and extension for 10 months until the 31st August 2024

Strathmore University

Kenya

RERec Rural Electrification & Renewable Energy Corporation

Rwanda

AESG Africa Energy Services Group

Mozambique

Universidade Eduardo Mondlane

Spain

Universidad de Córdoba

Portugal

LNEG

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

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

The project's challenges - 1

The main challenge was to **build an efficient standalone cooking appliance, based on solar energy, and make a change in the people's cooking habits.**

- Stop using traditional cooking methods (firewood, charcoal and other smoke emission fuels) and use more sustainable and healthy methods.

There was **not much data on cooking habits, energy demands, fuel use, cooking time,** etc, that could help to **effectively dimension a standalone sustainable cooking appliance**. **Performed Surveys**.

No significant differences in the three countries for cooking habits, **the response from market sellers was extremely low** and not representative.

Responses from the participants in the surveys enabled to understand the socio-economic context of the participants and the respondents were very cooperative being happy to participate, and open to continue using the EPC (System = EPC+PV+Storage)

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

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

The project's challenges - 2

Conduct Experimental campaigns with the use of EPCs needed electricity to understand the energy needs of the potential users to cook and it **narrowed the choices for the participants**.

In the experimental campaign around 150 households used the EPC for some months (100 in Kenya and 50 in Rwanda and demand profiles were drawn from the results, for the development of the prototypes (EPC (DC) + PV + Storage).
Training in the use the EPC + distribution of cooking diary to register the meals and correspondent duration.

A survey was conducted to **the stakeholders and policy makers** to understand their thoughts on the use of this type of solution, raise awareness and how to advance with the electrical cooking devices in the market.

Most users highlighted the training on the use of EPCs and would recommend its use.
There were several users that made a very low use of the EPC.
Responses from the stakeholders and Policy makers was sufficient to perform an analysis.

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

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

The project’s solutions - 1

- The solution proposed in this project addresses the need for healthier cooking methods.
- An EPC was given (AC for grid connected), and a prototype was developed using DC for standalone use, after understanding the energy needs.
- Need to have a **fast, practical and more efficient cooker that could serve both households and markets** lead us to electrical **PV powered solution + storage**.
- **The project was dependent since the beginning of the acceptance of the potential users in participating in the overall project.**
- Experience from previous projects/documents was taken into account.

It was important to:

- Understand the challenges faced by the communities (months prior to the surveys), **face-to-face.**
- Explain the motive to conduct this experiment and the benefits for the users from using this type of solution, especially for health (their own and the remaining household’s inhabitants).
- Focused on women, since they are the ones that usually cook.
- Training on the use of the e-cookers (EPC) was given by the Teams conducting the surveys.

The project's solutions - 2

Contact with Stakeholders and Policy makers

- REREC is involved and is mandated to develop rural electrification in Kenya, so the involvement of Policy Making entities is present since the beginning of the Project.
- The project had a dedicated work package for this purpose – includes a survey

Main objectives :

- Identify the **main barriers** to the development of the clean cooking technologies, **raise awareness** and **identify funding schemes** or similar procedures to support the dissemination of these solutions.

Data collection:

- Survey distributed electronically, e-mail and phone calls' reminders
- Consultative meetings with policy makers, researchers and different experts in clean cooking including solar to get insights on how clean cooking policies are developed and executed (this action is on the final stage: Data on product value chain and capacity building in Kenya will be analysed by REREC and SU and the same will happen for Mozambique and Rwanda)

Training on the use of EPCs and the responses of the participants about the benefits are showing that they are aware of the need to adopt healthier solutions and shows a will to change.

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

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

GV – GEOTHERMAL VILLAGE

Speaker: Susan Onyango, GEO2D

Contributors:

Yves Géraud, University of Lorraine

Jacques Varet, GEO2D

Fabio Iannone, SSSA

Dr. Isabella Nardini, Fraunhofer IEG

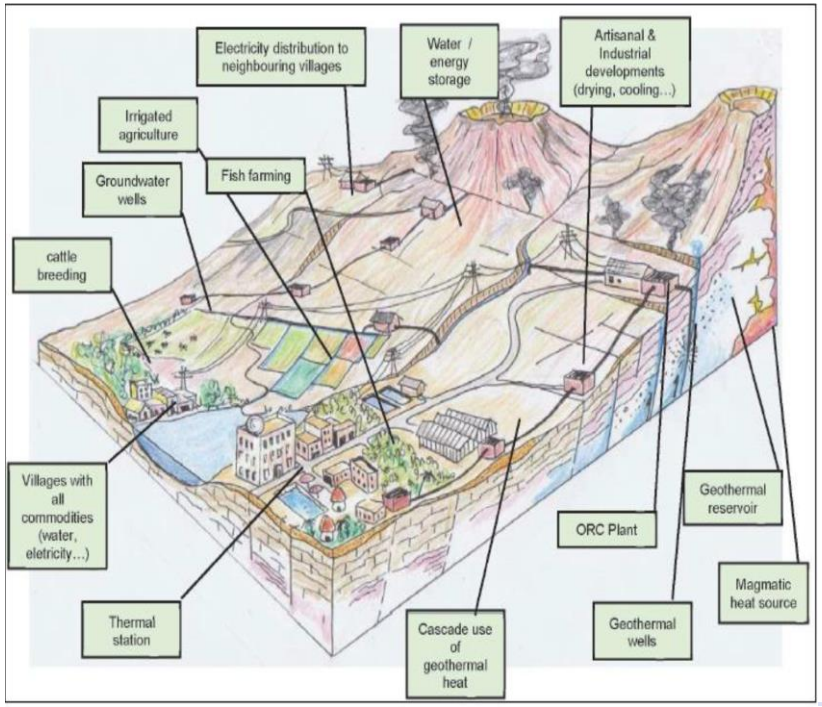
LEAP-RE

European Commission

The project in brief

1- bring together skills across the entire geothermal value chain: resource exploration, resource exploitation, societal acceptance, local economic development.

2- build geothermal-based stand-alone electric and thermal energy systems to off-grid African communities.



8 countries : 4 African partners and 4 Europeans partners

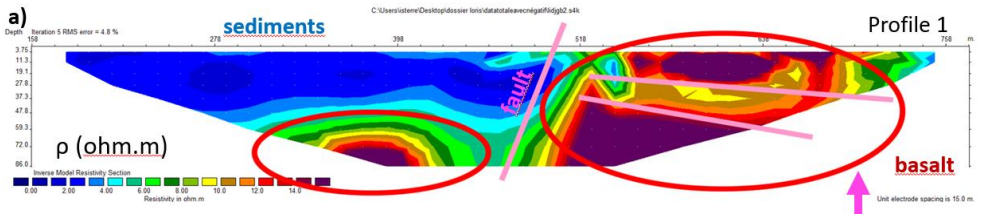
6 academic partners, 5 public and industrials partners

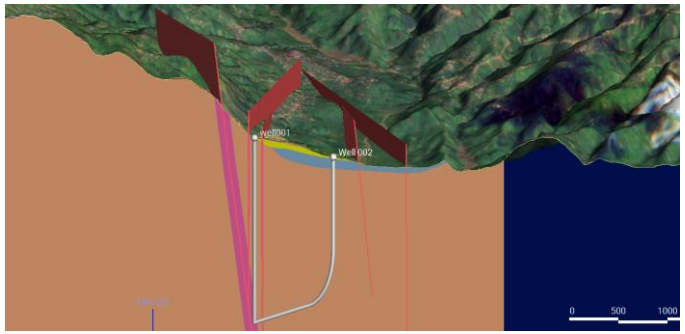
Co-funded by the Horizon 2020 programme of the European Union

LEAP-RE

The project's challenges : 3 pillars

P1 : geological and resources characterization and evaluation :
formation for 3G tools and resource understanding





P3 : Technical solutions suited to the local demand
formation for technical support

P2: Local appropriation and need's evaluation
Formation of the local, regional and national people levels

Co-funded by the Horizon 2020 programme of the European Union

LEAP-RE

The project's challenges

AFRICAN PARTNERSHIPS ENGAGED IN THE GV (LEAP-RE-WP11) PROJECT

COUNTRY	DJIBOUTI	ETHIOPIA	KENYA	RWANDA
SITE	ABHE	ERABORU	HOMA HILLS	MASHYUZA
LOCAL PARTNERS LEAP ENGAGED	ODDEG	AAU AGAP	HHCBO SEPCO	EDCL
PUBLIC ENTITY IN CHARGE OF GTH	+	-	-	+
LOCAL SPECIFIC ENTITY (CBO)	-	+	+	-
ACADEMIC PARTNER INVOLVED	-	+	-	-
CAPACITY BUILDING ENGAGED	+	+	+	-
GEOTHERMAL LEASE ON SITE	-	-	+	-

Different entities:
academic, administrative, private, associative

Different levels of:
- development for 3G characterization,
- appropriation by the population,
- technical maintenance capacity

LEAP -RE

The project's solutions

RESEARCH/STUDIES COMPLETED UNDER LEAP-RE-WP11

COUNTRY	DJIBOUTI	ETHIOPIA	KENYA	RWANDA
SITE	ABHE	ERABORU	HOMA HILLS	MASHYUZA
GEOTHERMAL PLAY TYPE	ACTIVE GRABEN	ACTIVE VOLCANIC	MIOCENE VOLCANIC	FAULT CONTROLLED
GEOSCIENCE STUDY COMPLETED	+++	+	+++	+++
- Geology	+	+	+	+
- Fluid geochemistry	+	-	+	+
- IR drone survey	+	+	-	-
- Geophysics	+	-	+	+
LOW TEMPERATURE RESOURCE	+	+	+	+++
POSSIBLE ELECTRICITY PROD.	++	+++	++	-
WATER PRODUCTION ISSUE	+++	+++	++	-
SOCIAL SCIENCE STUDIES COMPL.	+	+	+	+

Analyse of different geological contexts

Development of a workflow including 3G analysis, appropriation, need analysis, and solution development

LEAP -RE

The project's solutions – 2

GV SOCIAL DEVELOPMENT APPLICATIONS CONSIDERED

COUNTRY	DJIBOUTI	ETHIOPIA	KENYA	RWANDA
SITE	ABHE	ERABORU	HOMA HILLS	MASHYUZA
APPLICATIONS CONSIDERED:				
Electricity production (off-grid)	+	+	-	-
Drinkable water production	+	+	+	-
Powering lake water pumping	-	-	+	-
Agri-systems (planted perimetres)	+	+	-	-
Fish farming / drying	+	-	+	+
Agro processing (drying)	+	+	+	+
Industrial processes	-	-	-	+
Bathing, SPA, Steam bath	+	+	+	+
Ecotourism	+	+	+	+

Analyse of different geological contexts

Development of a workflow including 3G analysis, **appropriation, need analysis, and solution development**

LEAP -RE

The project's challenges - 1

Project's main challenges and needs you have been facing in terms of local communities' engagement (considering the strong heterogeneity at regional and country levels)

1. **Training and capacity building:** some communities are more used to traditional way of teaching and also have more hidden skills within them, such as Homa Hills (Kenya) and, slightly less, Bugarama Valley (Rwanda). Some others, have a strong local leadership leading the possible advancement of the project (Era Boru, APDA), including the training. Djiboutian communities have definitely less skills, less habit to training and also weak local leadership.
2. **Active participation and representation in decision-making processes and in monitoring and evaluation systems:** some communities (i.e., Homa Hills) have been "tested" in a 4days and full-day training, others didn't have this opportunity. Homa Hills has responded positively to the intensive training.
3. **Support to policy makers to increase awareness and involve local communities in decision-making processes.** In all the sites, local policy authorities have been met, with the dual purpose of increasing the awareness and also to involve local communities. Homa Hills and Era Boru already have a Community Based Organization and this is surely an asset to be used and with synergies for the training and decision making processes.

Co-funded by the Horizon 2020 programme of the European Union

Capacity-building

Capacity-building approach:
Appropriation, technical solutions & needs' evaluation => CBOs and administrative authorities
3D tools and resource understanding => public entities & universities.

Homa Hills case as an example of SHS approach engaged in capacity building:

Interdisciplinary research activity (6 GV1 project organizations + local community) => 'co-learning' workshop and reflection sessions held to generate community-based geothermal policy recommendations for a book chapter to EU.

Capacity-building approach for young researchers/students:

A survey has been carried out on existing university courses, training course for students, young researchers and operators in AU countries to identify needs and gaps.

Research mobility and Transfer knowledge actions performed for AU students/young researchers:

- RES Schools: Renewable Energy Schools (in Pretoria, in Kigali and the third one planned in Milan in October 2024)
- LEAP-RE project sponsored several AU students/young researchers to travel to geothermal conferences and to training schools.
- Webinars/short courses on-site on geothermal energy

Co-funded by the Horizon 2020 programme of the European Union

Project sites socio-econ conditions

COUNTRY	DJIBOUTI	ETHIOPIA	KENYA	RWANDA
SITE and LOCAL PARTNERS	ABHE (Trad structure)	ERABORU (AGAP)	Homa Hills (HHGCBO)	MASHYZA Potential co-op)
PRESENT ECON KEY SOCIAL ISSUE	Pastoral, Marginalistn	Pastoral, Marginalistn	Fishing/agri, Marginalistn	Agric, Ind. conflict
KEY GENDER ISSUE	Low women status	Low women status	Female-headed HHs	Female-headed HHs
POVERTY LEVELS	High	High	High	- High
EDUCTN LEVELS	High illiteracy	High illiteracy	Gd no of literate	- Gd no of literate
CLIMATE CHANGE VULNERABILITY	V. vulnerable	V. vulnerable	Vulnerable	- Vulnerbl
PRIORITY NEEDS IDENTIFIED	Water, elec productn, agri-systems	Water, fodder irrigatn, elec	Water, fish drying, agri-systems	- Food dring, ind process, spa

LEAP -RE

EV - Energy Village concept in Africa

LEAP-RE: WP -14

Nebiyu Girgibo (D.Sc.), University of Vaasa

07.05.2024

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

European Commission

WP 14 – Energy Village concept in Africa

- **Duration**: June 2021 – March 2025, 48 months
- **Budget:** 504 000 €
- **Partners involved**:
  - University of Vaasa (UVA), **Finland** (WP Leader)
  - Addis Ababa Science and Technology University (AASTU), **Ethiopia**
  - Botswana International University of Science and Technology (BIUST), **Botswana**
  - Makerere University (MAK), **Uganda**
  - Moi University (MU), **Kenya**

Main WP objective: **The goal of the project is to develop and promote sustainable energy use in the villages**.

- *To create energy-self-sufficient villages.*
- *To further develop the Energy Village concept together with our project partners.*
- *To create an African-wide network of Energy Village experts who can utilize the method in their countries.*

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

LEAP-RE

The EV project challenges

Table 1. Challenges RE development and local engagement based on the LEAP-RE: WP-14 project experiences & literatures (blue coloured: similarity and the other colours are difference between the WP-14 project and literatures findings).

Challenges based on several literatures	Challenges based on the LEAP-RE: EV project
1) The acceptance of RE by society	1) Resistance and fear to change the energy resource locals use
2) The cost of RE technologies and financial means including insurance	2) Lack of bank loans, investment and insurance
3) Lack of knowledge in RE production and management	3) Lack of knowledge, knowledge gaps in RE and its management
4) Data availability	4) Lack of long-term energy and weather data
5) Lack of RE infrastructure (e.g., connections to the grid)	5) Difficulty of establishing contact with locals
	6) Lack of willingness to engagement, give data or lack of knowledge and data of consumed energy
	7) In some Energy Villages security issues also caused difficult

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT № 963530

LEAP-RE

The EV project solutions for faced challenges

1. **How did you first assess the real needs of the local communities?**

   - First we have chosen 18 Energy Villages (we have both on-grid and off-grid) at least 4 per country based on our local partners judgment and with the possibility to compare the Energy Villages across nations.

   - It was possible to assess by contacting locals and conducting workshops in Energy Villages at least one time.

     - Some main challenges were faced/identified during the data collection stages on these workshops.
       - E.g. no willingness for an engagement and to give data because of previous project failures and/or no money compensations for their presence; lack of knowledge and knowledge gaps in RE and more makes difficulties in order to assess their real needs by data collecting.

2. **How did you carry out and plan training and capacity building sessions?**

   - The project did not have a lot of capacity buildings.
     - However, in Botswana Energy Village sites they had training for locals about **Renewable Energy (RE)** knowledge to overcome the knowledge gaps and to improve their willingness to use renewable energy technologies.

- EVAN (Energy Village African Network) is now planned to help over come some of these challenges and help the local community with continues collaborations. It will help in conducing capacity building/trainings.

3. How did you encourage the active participation and representation of local communities?

- Since only workshops were conducted - one way we are able to get data by convincing them through local leaders and NGO workers (familiar faces) used to collect data on the Bidi-bidi refuge centre in Uganda.
  - One of the recommendations during our discussions were to allocate some money for participants. It might not be possible in EU funded projects according to our discussions due to EU regulations.

4. Did you support policy-makers to involve local communities in decision-making processes?

- We have not yet had a chance to meet policy-makers directly to influence them.
  - However, we have prepared article on ''RE development and future directions in AU''. In it, there are several future policies recommendations; EVAN network start-up; and future RE development directions recommendations to overcome the identified challenges.

5. Bonus question: How training and capacity building actions can favour/amplify social-economic benefits for local community?

- Actions can favour locals' economy if they are focused the main challenges present in local areas, such as:
  - In RE knowledge/understanding – can help them accept and easily adapt RE technologies.
  - In RE technology management – can help RE will be used after project life-time is over this also helps locals' willingness to give data. Previous project failures caused locals to be unwilling to give data….. etc.

Thank you very much!

Nebiyu Girgibo

LEAP-RE: WP-14/University of Vaasa

Email: nebiyu.girgibo@uwasa.fi
Phone: +358 29 449 8720

Green Energy Transition in Africa

Peer2Peer session

7th May 2024

Geothermal Atlas for Africa GAA LEAP RE project

Presenter: Nicholas Mariita

Contributors

Prof. Daniele Fiaschi (UNIFI)

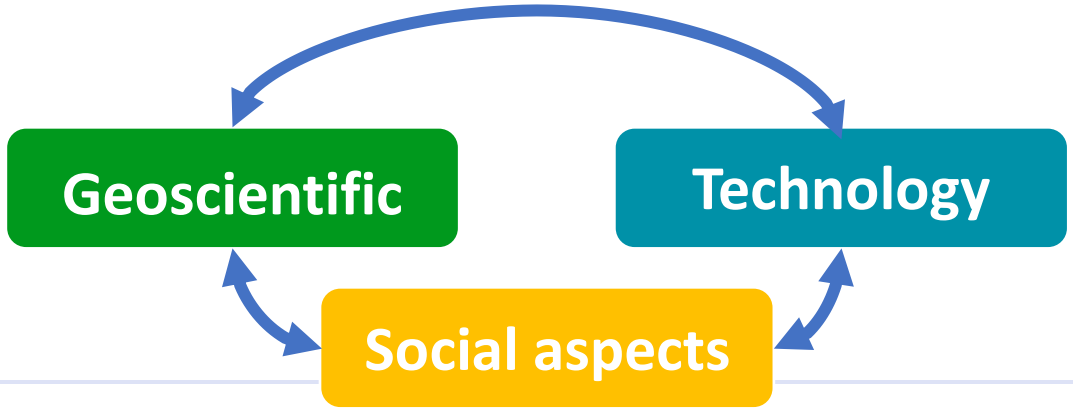
Dr Isabella Nardini (Fraunhofer IEG)

European Commission

The project in brief

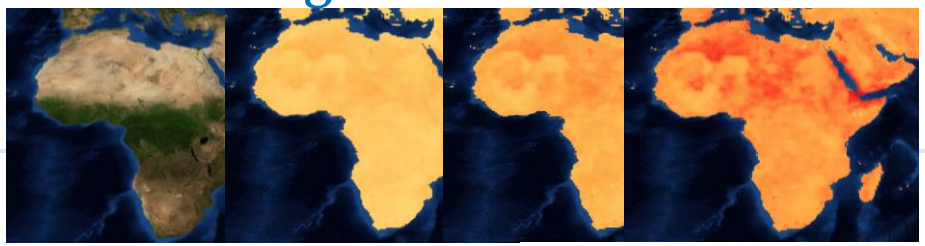
Geothermal Atlas for Africa (GAA)

- **Location** and **characterization** of **low to high enthalpy geothermal resources** for the development of African **electricity production**, plus a range of **direct heat/cold use applications**
- **Collecting and making** info available into the **Geothermal Atlas for Africa (GAA)**



Structure

- **Task 9.1**: systematic **geological** data collection, organization and management
- **Task 9.2**: **engineering** calculation models to assess solutions to use geothermal for **electricity**, **heat** and **cold**
- **Task 9.3**: **Social Science** to assess the most suitable socio-economic contexts for geothermal development and investments
- **Task 9.4**: Use of all above info to realize the **Geothermal Atlas for Africa**
- **Task 9.5**: Research mobility and **capacity building**



Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

The project's challenges – 1

Geoscientific / Technological

- How do we **integrate** geophysical, geochemical data to characterize a geothermal resource considering that the different data sets we collected separately at different times
- **What analysis** needs to be carried out to **indicate a geothermal potential**
- **Which energy systems are** compatible with the exploitation of geothermal **resources**
- **What Thermodynamic (**engineering/technological) **and Economic models need to be adopted in order to** sustainably exploit the assessed geothermal resources based on resource and environmental conditions and a cost analysis
- **Environmental impact** and sustainability assessment of the proposed technological solutions
- What Data should the **Atlas** contain

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

The project's challenges - 2

Social / Capacity Building

- **What Socio-economic context would allow integration of geothermal energy** for the African countries **involved in geothermal development**, while integrating with the geoscientific knowledge acquired
- How do we enable **policy and decision makers** to uptake decisions on the techno – economic convenience, **environmental and social sustainability** of **geothermal** resources use in the **African** Continent

- How do we provide **transfer knowledge** and **training** related to geothermal energy on the African continent aligned with the social needs
  - Create **links** between **AU-EU** research institutions/academia
  - **Acknowledge** and **training local** communities
  - **Training private** sector and **operators**
  - **Support local authorities** and policy makers to involve local communities

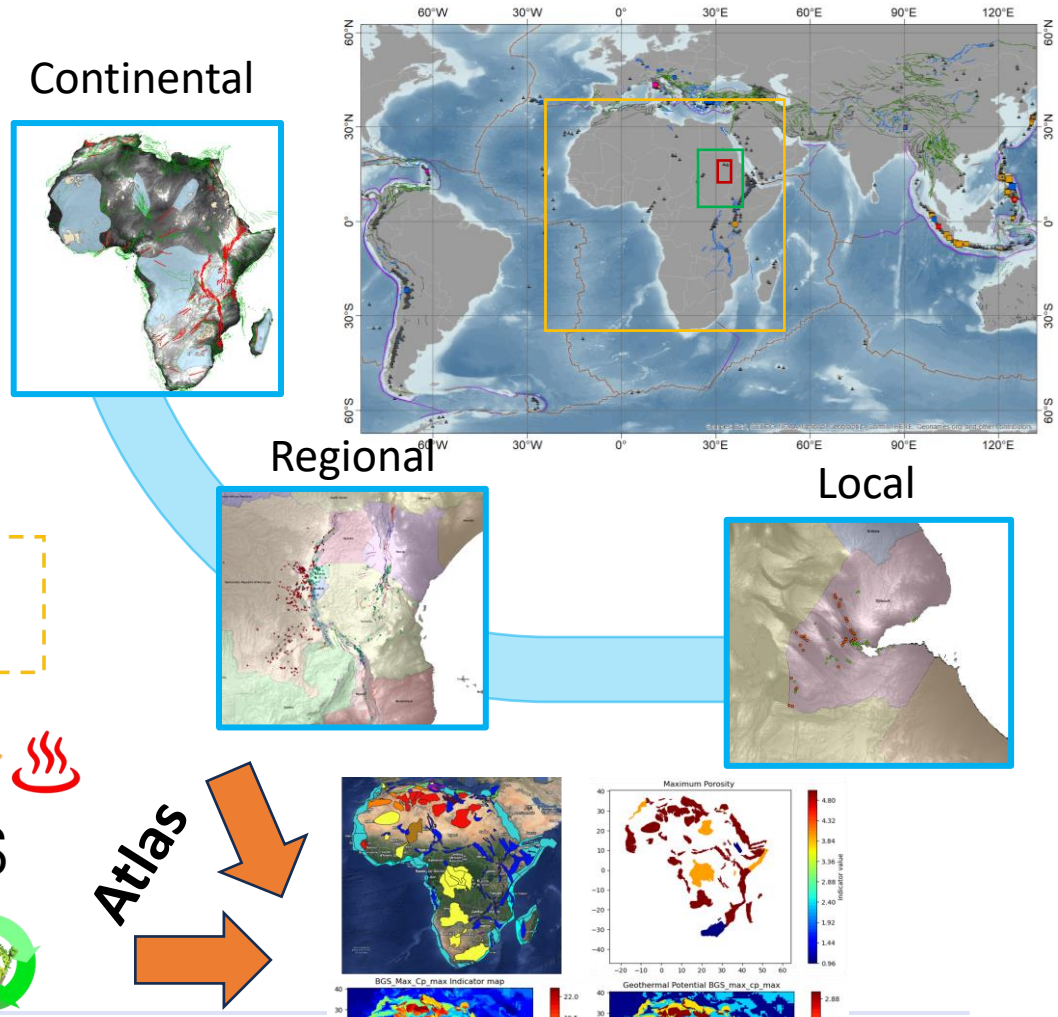
Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

The project's solutions – 1

Geoscientific / Technological

- **Different studies** carried out on **different** geographical **scales** had to be somehow integrated
- **Geoscientific data compilation** and a first-order geothermal potential indicator analysis was carried out
- **Evaluation** of **energy systems compatible** with the exploitation of geothermal **resources** (High & low temperature)



Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

The project's solutions - 2

Social / Capacity Building

Social aspects – methodology

- Using **existing documents** available at databases
- **Field visits** (socio-economic context analysis done in Kenya, Rwanda, Ethiopia) for African countries (**focus** on the ones most likely to be involved in **geothermal** development)
- A **framework** established **to gather data from various sources** at continental, regional, geothermal country, and in-country geothermal site levels
- **Data collection tools**, key informant **interviews** to gather expert opinions, guides for targeted focus **group discussions**

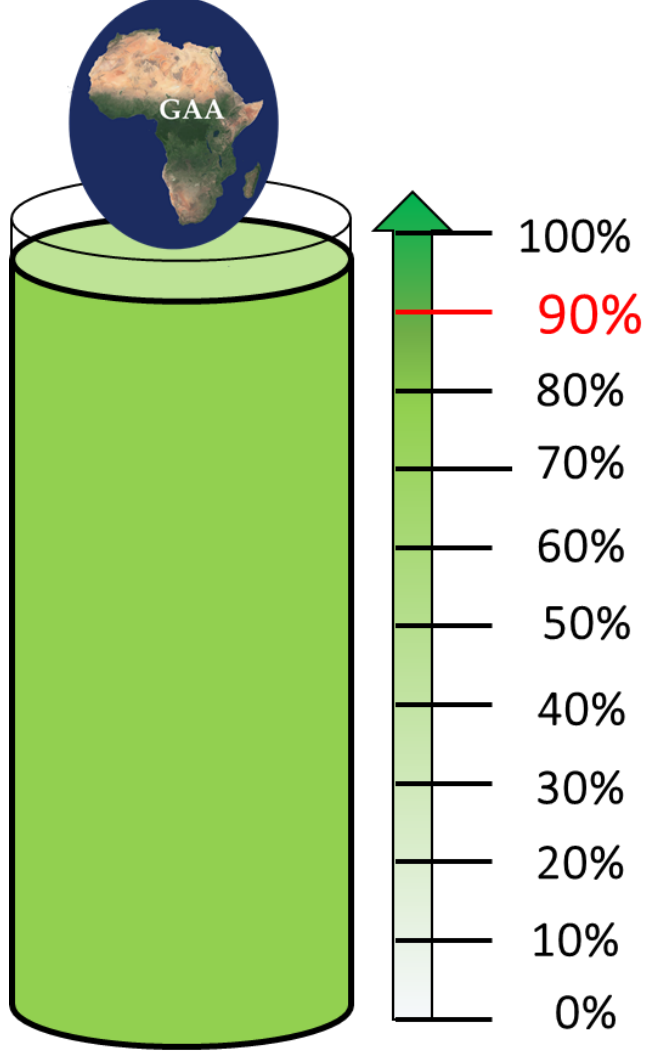
Capacity Building – methodology

- **Surveys on local communities** and on young researchers to **understand training needs**
- Capacity building **actions** performed:
  - **RES Schools**: Renewable Energy Schools (Pretoria 2022, Kigali 2023 and Milan planned in October 2024)
  - **Webinars/short courses** on-site on geothermal energy
  - LEAP-RE sponsored **several AU students/young researchers** to attend **geothermal conferences**

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

Results so far



1) Geoscientific is almost completed

2) Technologies analysis is almost completed

3) Social analysis is almost completed

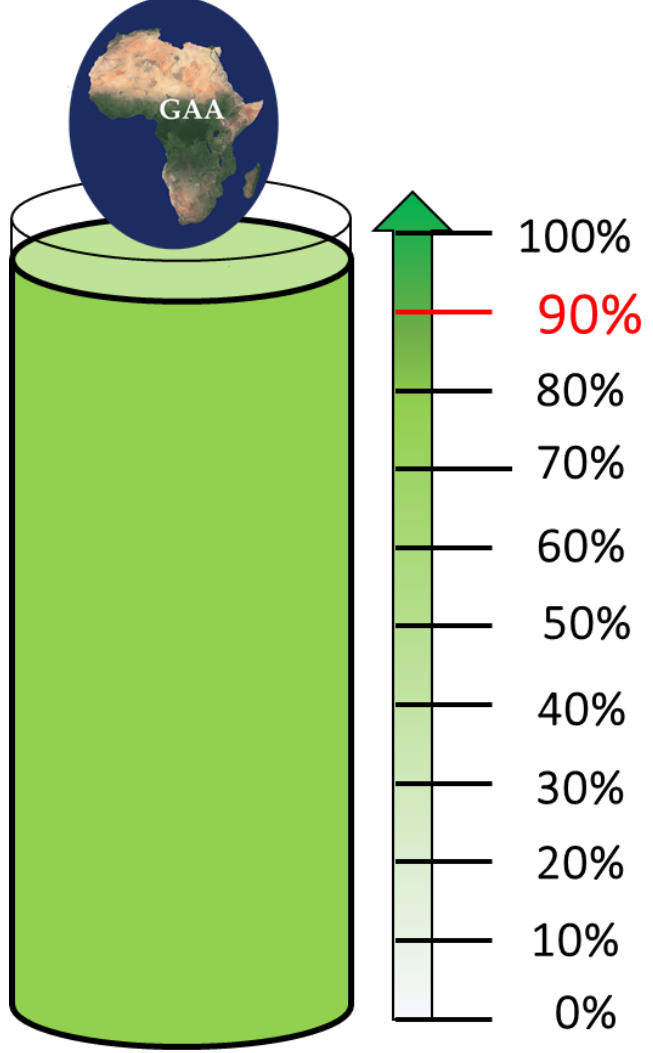
4) The implementation of the data on the online tool is in development

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

Conclusion

Overall we are achieving our set targets despite some challenges



Thanks for your attention

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 963530

SophiA

Sustainable Off-grid solutions for Pharmacies and Hospitals in Africa

Mihaela Dudita Kauffeld

Michael Kauffeld

SOPHIA

Sustainable Off-grid solutions for Pharmacies and Hospitals In Africa

European Commission

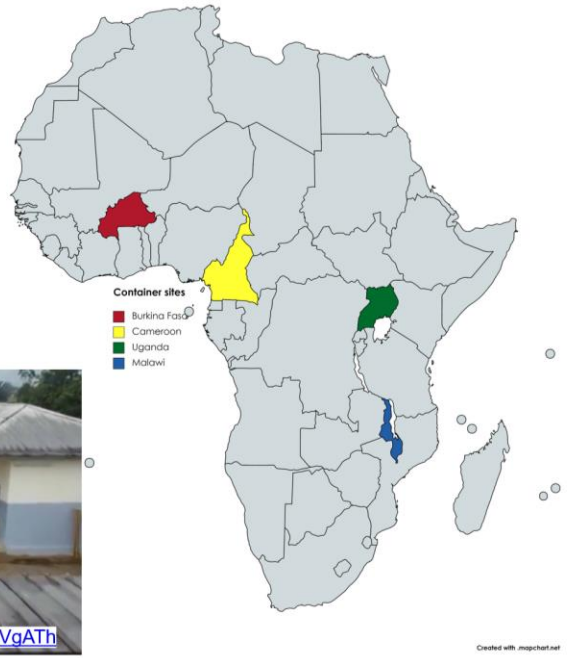
SophiA briefs

Project Coordination

Project Consortium

Dr. Sedogo Hospital Léo, Burkina Faso
Partner: Operieren in Afrika e.V.

Ad Lucem Hospital in Edea, Cameroon



Health Care Center IV, Buvuma, Uganda

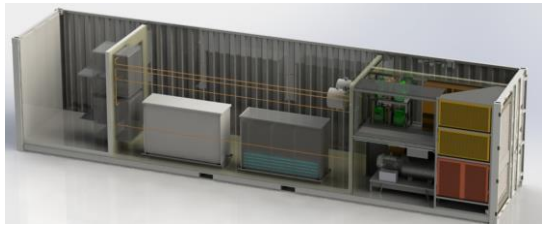
Mua Mission Hospital in Mua, Malawi

13 Project Partners
5 in Africa

8 countries
5 in Africa

4 years

8 Mio. Euro



Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036836

SOPHIA
Sustainable Off-grid solutions for Pharmacies and Hospitals in Africa

The project's challenges - 1

1. Long delivery times of components
2. Increased cost
3. Visa issues of African participants wanting to attend train the trainers sessions in Germany and Switzerland
4. Lack of physical training material / laboratory training equipment at local partners
5. Transport and customs issues with the SophiA systems
6. Different working cultures

The project's solutions

International Sustainability Summer School

July 2022: Rapperswil, Switzerland

July 2023: International Sustainability Summer School , Brasov, Romania

- SophiA refrigeration
- SophiA water
- Sophia solar

SOPHIA
Sustainable Off-grid solutions for Pharmacies and Hospitals in Africa

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036836

Sustainable heating & cooling solutions and their application in EU SophiA project

MICHAEL KAUFFELD
Karlsruhe University of Applied Sciences

25/07/2023
TUB, Brasov, Romania

Karlsruhe University of Applied Sciences proudly announces the 3rd edition of the International Sustainability Summer School – i3s, taking place in Karlsruhe, Germany from 9 to 13 September 2024. **Come to the sunniest region of Germany to learn about the following sustainability topics:**

- Sustainable societies
- Life cycle assessments
- Biodiversity
- Global warming
- Sustainable refrigeration, air conditioning and heating
- Water purification
- Water management
- Electric vehicles
- Lithium extraction from geothermal water
- Hydrogen
- Renewable energy
- Energy storage
- EU project SophiA
- EU project PrAEctiCe

At i3s we promote a culture of collaboration and open communication. Sustainable solutions require diverse viewpoints and backgrounds. This is why we encourage you – students of all various countries, gender and fields to join i3s. You will be part of a team of 40 international students that engage in rewarding debates and dialogues. HKA provides you with a safe space to voice your ideas and opinions.

i3s Together we will make our world a better place!

Register at https://www.h-ka.de/en/i3s

Only **100 Euro** for the entire week.

Initiated and organized jointly by:
Hochschule Karlsruhe University of Applied Sciences HKA · OST Ostschweizer Fachhochschule · Transilvania University of Brasov

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036836

SOPHIA
Sustainable Off-grid solutions for Pharmacies and Hospitals in Africa

The project's solutions

Train the trainers in Karlsuhe and Rapperswil

26, 27 + 28 February 2024

Focus on SAFETY
SAFETY and
SAFETY

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036836

SOPHIA
Sustainable Off-grid solutions for Pharmacies and Hospitals In Africa

The project's solutions

Training material in Africa

Almost 3 months transport + 1 month customs clearance

Co-funded by the Horizon 2020 programme of the European Union

GRANT AGREEMENT Nº 101036836

SOPHIA
Sustainable Off-grid solutions for Pharmacies and Hospitals In Africa