Long-Term Joint European Union – African Union Research and Innovation Partnership on Renewable Energy (LEAP-RE)

WP-14: 'ENERGY VILLAGE CONCEPT IN AFRICA'

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

Main Tasks

1. **Task 14.1: Energy Village (EV) Concept and Methodology**

   To update the previous EV projects tools and methods for African context and validate the methods.

2. **Task 14.2: Demo Villages**

   To identify demo villages in partner nations, collect data, estimate energy consumptions and potential.

3. **Task 14.3: EV Africa Wide Network**

   To create EVAN network, publish papers, identify future funding and make sure future continuous collaboration between EU and AU.

4. **Task 14.4: Policy and Recommendations**

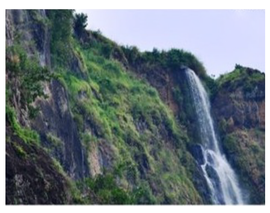
   To recommend future policy topics based local needs.

Overall objectives

- Decarbonisation of rural regions in sixteen villages: targeting long-term carbon neutrality, with a strong replication potential (measures: C-balance, CO_2 emissions).
- Large scale utilisation of Local Renewable Energy Sources (LRES) in rural regions: significant improvement of the degree of LRES based energy sufficiency (MWh/a: % increase) and creation of practical models for replication.
- Creation of regional systems covering all energy vectors (electricity, heating and transport) as well as the associated flexibility that can be gained through storage and active management of supply and demand and involving all stakeholders, including local citizens and consumers.
- Optimisation of existing energy infrastructure: coupling pilot sites with prevailing systems.
- Elaboration of innovative approaches and replicable business models, which involve local citizens and are based on local value creation, especially the investment and ownership possibilities for local actors and citizens as well as local and citizen data ownership and mining.
- Improvement of rural regional economies and employment.

Figure 1. LEAP-RE (WP-14:'Energy Village Concept') partner nations and demo Energy Villages.

DEMO VILLAGES – selection process – background infromation gathering – minimum 4 villages per country



KENYA

1. Chebaiwo in Uasin Gishu
2. Langas, Eldoret in Uasin Gishu
3. Lelan in Elgeyo Marakwet County
4. Nandi Hills in Nandi
5. Kerio Valley in Kerio

BOTSWANA

1. School-Regent Hill International School in Gaborone
2. Jamataka
3. Majwanaadipitse
4. Matsaudi Learning Centre

UGANDA

1. Bidibidi Refuge settlement
2. Kayanzi
3. Wanale
4. Maziba Murole
5. Nakasengere

ETHIOPIA

1. AASTU University Campus, Addis Ababa
2. Wonji Sugar Factory Village, Wonji
3. Langano, Ziway
4. Tulefa village in Debre-birhan

Main results so far

- 18 Energy Villages were identified in partner nations, contacted, data collected and for some energy potential and consumptions were calculated.
- The-ASPIRE renewable energy online calculator website was updated and used: *https://calculator.aspiremodel.fi*
- The possible renewable energy resources were identified for most villages, based on the local available resources and need.
- Socio-economic potential, inspiring cases, challenges, opportunities, and other local African context issues were identified.

Current conclusions

- The project has helped us to learn much about how to apply and what to expect while implementing the Energy Village Concept in Africa.
- There is a promising lead that the energy villages can be self-energy-sufficient and a replica for others.
- The inspiring case energy villages are ready for full implementation and there seem conducive environment for investments.
- The energy village concept and the proposed solution can be customized to fit the energy demand of a given village.
- What the Energy Villages in Africa have in common is that they have untapped renewable energy potential for themselves and nearby residents and consumers.
- They also have features that make us believe there are thousands of similar cases across Africa that could and should be taken along into the energy transition and raising the quality of life for the residents.

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Makerere University

Moi University Foundation of Knowledge

Vaasan yliopisto University of Vaasa

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