The SESA InfoSpots
local information for community empowerment

Basic Internet Foundation

Philip Rudningen, Josef Noll, Wisam A. Mansour, Catherine Kimambo, Albert Misilimbo, Jonathan Muringani

Connect the Future
and empower the society

Catherine R Kimambo connecting her first village
https://vimeo.com/368147538 - 2020

The first search was:
Mount Kenya - our cultural heritage
Usingo Secondary School, KE

"My mobile is more important than a weapon"

Head of Mbaash, TZ

The SESA Energy Information Spot (InfoSpot)

Basic Internet FOUNDATION *Connect The Future*

- Economic empowerment
  - off-the-shelf equipment
  - CAPEX ~420 USD
  - OPEX ~20 USD/month
- Installed locally
  - contextualised local information
  - free access for everyone

Internet link

3G/4G (UMTS/LTE)

Society Server

Raspberry Pi 3+

LNCC network controller

WiFi

hAP ac²

SESA
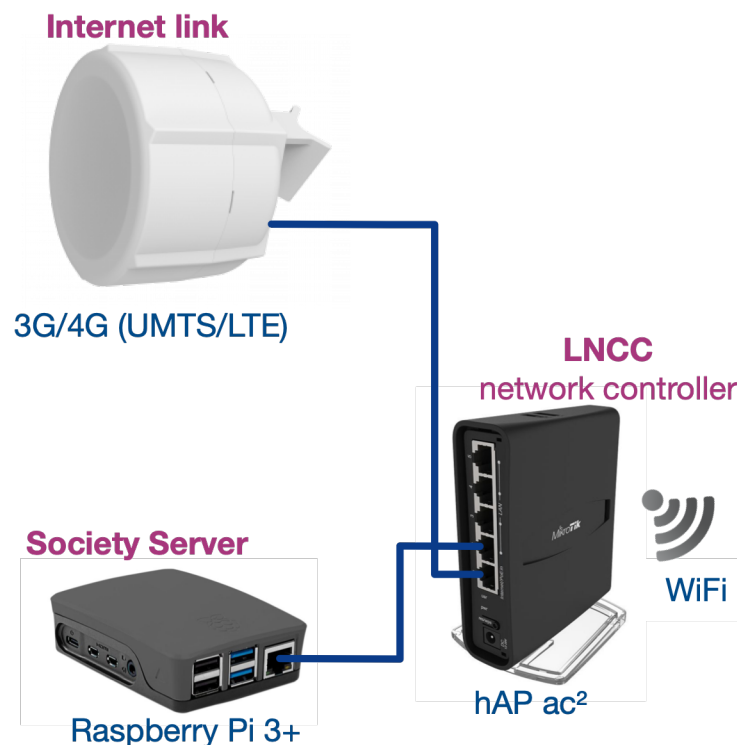
InfoSpot Welcome page

- Information & courses
- Energy
- Health
- Digital Literacy
  - Web pages
  - Sharing (community content)

Welcome to our community, available on this school/community server.

The server is available in English, Kiswahili and Swahili

We'll put together a set of information, which you can use for free. Ask your teacher/manager to update with more information

- Energy information provided through the SESA project
- Health Information (as an example showing health videos)
- Our Nextcloud for sharing content with others
  - see the example courses on what is a Raspberry Pi (login with: guest, BasicInternet), how to edit a WordPress page and how to share content using Nextcloud

Note: The server is build using WordPress, this page is edited using Elementor. Read more on how to edit

SESA – Smart Energy Solutions for Africa is a collaborative project between the European Union and nine African countries (Ghana, Kenya, Malawi, Morocco, Namibia, Nigeria, Rwanda, South Africa and Tanzania) 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.

SESA's objective is to mitigate climate change and avoid lock-in situations while improving access to sustainable energy under affordable and reliable conditions. Our aim is to achieve a high level of replicability of actions. The project will co-develop innovations with local partners and cooperate closely with sister projects to exploit synergies.

Essential information on energy, see the http://toolbox.SESAeu-africa.eu for more information

Some of our SESA Courses

1. **Basic of Solar Systems and Photovoltaics**
2. **Clean cooking and Biogass**
3. **SESA Information Spots (InfoSpots)**

For more information, visit Nextcloud on Energy (this server) or see the http://toolbox.SESAeu-africa.eu (external server)

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Electricity Basics

- **Electric charge:** the build up of electrical energy measured in coulombs (ampere-hours). Naturally it occurs as static electricity. Batteries store electric charge.
- **Electric current:** the rate of flow of electric charge measured in amperes
- **Electric potential:** the potential difference in electrical energy between two points e.g. between the positive and negative terminals of a battery. It is measured in volts.
- **Electromagnetism:** the relationship between electricity and magnetism, which enables electrical energy to be generated from mechanical energy (as in a generator) and vice versa (as in a motor).
- **Electrical quantities**
  - Primary: Voltage (Volts), Current (Amperes), Resistance (Ohms)
  - Secondary: Power (Watts), Energy (Watt-hours), Time (hours)

1:15 / 12:18

01-Basics of Solar Systems

To kick off this course, we start from the very basics. This video will provide you with a better understanding of how electricity is measured, an overview of the solar energy technologies existing, what to consider about sun power, the key component of a PV system (including batteries) to finally touch upon the pros and cons of solar PV technology.

See the slides (.pdf)

02-Sizing Solar PV Systems

How much power would you need for your site and what size of equipment (batteries, module/panel, charger controller, inverter) would you need for that? The answer is in the video.

0:02 / 9:45

03-Installation and operation of solar PV

Learn the steps to proceed toward a PV installation. It is extremely important to properly conduct an evaluation of the site where the installation is planned as well as to have the right tools to do it properly and safely!

04-Solar Maintenance and Safety

Whenever some equipment is manipulated, safety rules must be kept in mind. The lesson points out the rules that have to be followed in order not to harm oneself. At the same time, it is important to take good care of the PV system too and to detect any problem timely to avoid it reduces consistently the performance of the installation or, worst case scenario, it compromises

05-Solar Energy Applications

Solar energy is not just about providing electricity to your house or the local school, it can really support boosting activities (and the local economy) by supporting the roll out of productive processes, this is what this lesson is about. You will learn more about the
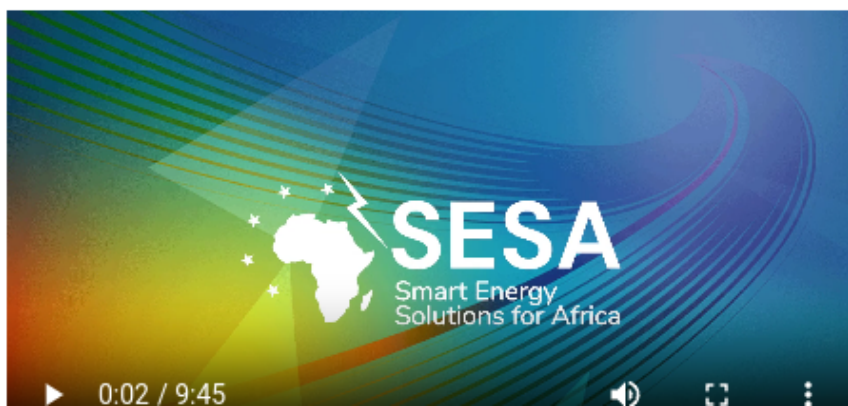
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This course will delve into **clean cooking,** unpacking its basic concepts and different treatments of organic waste. Over the course, different technologies and key elements to consider when planning and setting up a waste to energy facility or using improved cookstoves will be analyzed.

0 – Overview Clean Cooking (slides)

1. Treatment of organic waste. Anaerobic digestion
(slides)

In this video you will learn:

· SESA Project
· Brief presentation of the course. Lessons
  · Basic clean cooking concepts: Anaerobic Digestion

0:29 / 5:10

Clean Cooking and waste to energy

Treatment of organic waste: anaerobic digestion

Natalia Rey Martínez, Researcher, Leitat

0:06 / 5:53

Clean Cooking
lectures 2-8

2. Sourcing and production of waste into energy systems
(slides)

Sourcing and production of waste into energy systems
SOURCING AND PRODUCTION OF WASTE INTO ENERGY SYSTEMS
Ms Jasmine Karlsson, IT Manager, Make it Green
0:06 / 9:01

3. Technology Options for Clean Cooking Solutions
(slides)

Clean Cooking Energy
Technology Options for Clean Cooking Solutions
Emmanuel Michael Biririza, Energy Specialist, UN-HABITAT
0:06 / 9:14

4. Installations, Operations, maintenance for Biogas systems
(slides)

Process Diagram
WASTE → DIGESTER Anaerobic digestion → GAS STORAGE → COOK STOVE
DIGESTER Anaerobic digestion → FERTILIZER STORAGE → SOIL APPLICATION
0:43 / 8:42

5. Installation, operation and maintenance for cook stoves
(slides)

Clean Cooking and waste to energy
INSTALLATION AND OPERATION GUIDELINES FOR CLEAN COOKING SOLUTIONS
Ms Jasmine Karlsson, IT Manager, Make it Green
0:06 / 6:11

...TENANCE AND SAFETY ...SIDERATIONS WHEN ...NG CLEAN ENERGY ... SOLUTIONS
...arlsson, IT Manager, Make it Green
...06 / 6:20

...ss models and delivery models for clean cooking

Clean Cooking and waste to energy
Lesson 7. Suitable Conditions for waste to energy installations
Francisco Cuadros, CEO, Metanogenia
0:05 / 9:15

6. Safety conditions for clean cooking solutions
(slides)

7. Suitable conditions for waste-to-energy installations
(slides)

Business models for cleaner cooking solutions in Africa
James Haselip, UNEP Copenhagen Climate Centre
Elisabeth Riber, Siemens Stiftung
0:13 / 14:43

See more SESA Courses

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Course **Rural Access to Information**
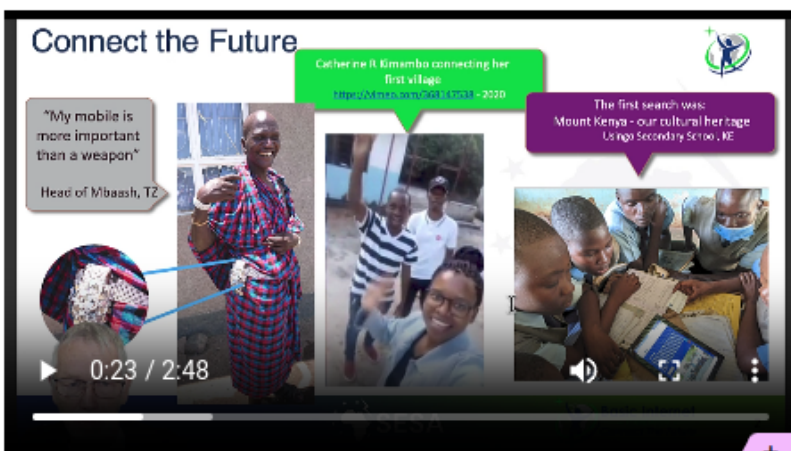
0. Introduction

The Introduction to the Rural Access gives you a short introduction about the overall topic. After experiences from communities that we connected, we provide a short overview over the lectures one to four.
Download the lecture slides here.

1. Regional Competence Centre (RCC) for connectivity and local inclusion

The first lecture on creating a SESA InfoSpot provides the best praxis we have developed. It starts with the role of the Universities and Technology Centres in driving the digital transformation. These Regional Competence Centres (RCCs) are centres of excellence, where students gain relevant theoretical and practical knowledge on connectivity and the role of information.
Students configure the devices, then travel out and connect the schools and communities. Through meeting community members,

- L0: Intro
- L1: Regional Competence Centre (RCC) for connectivity and regional inclusion
- L2: Regional SESA InfoSpots for energy empowerment
- L3: Digital inclusion and sustainable development in rural regions
- L4: Providing Information on Energy

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Lesson 2 – Setting Up Competence Centre for Connectivity & Regional Inclusion

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Wisam A. Mansour, Catherine Kimambo,
Albert Misilimbo and Josef Noll

0:07 / 3:55

2. Regional SESA InfoSpots for energy empowerment

Lecture two has the focus on the configuration of the InfoSpot and the explanation of the devices. The InfoSpot has three components, being
– the antenna allowing to get mobile Internet from as far as 20 away (or even further),
– the Local Network Control Centre (LNCC) ensuring that everyone comes first to the Community Server, ensuring that as much as possible traffic is kept locally, and
– the local Community Server ensuring that all content can be provided free of charge, adapted to the needs of the community, new content can be added, and content can be contextualised for the community.
Download the lecture slides here.

Rural Access Course

Lesson 3 – Establishing village Information Spot (InfoSpot)

Basic Internet Foundation
Wisam A. Mansour, Catherine Kimambo, Albert Misilimbo

0:01 / 6:36

## 3. Digital inclusion and sustainable development in rural areas

The third lecture explains what we do in the village. It's about awareness, training and basic work prior to setting up the InfoSpot. Amongst the actions to be taken is
– the location of the mast in relation to the mobile tower,
– the measurement of the mobile network field strength,
– an understanding of where you can establish the InfoSpot, and
– examples on how installation is taking place.
Download the lecture slides here.

Rural Access Course

Lesson 4 – Providing information on energy

4. Providing Information on Energy

The fourth lecture provides energy information from the SESA project and other sources. The information is stored locally on the Community Server, and is freely available for everyone. The course

antenna

10
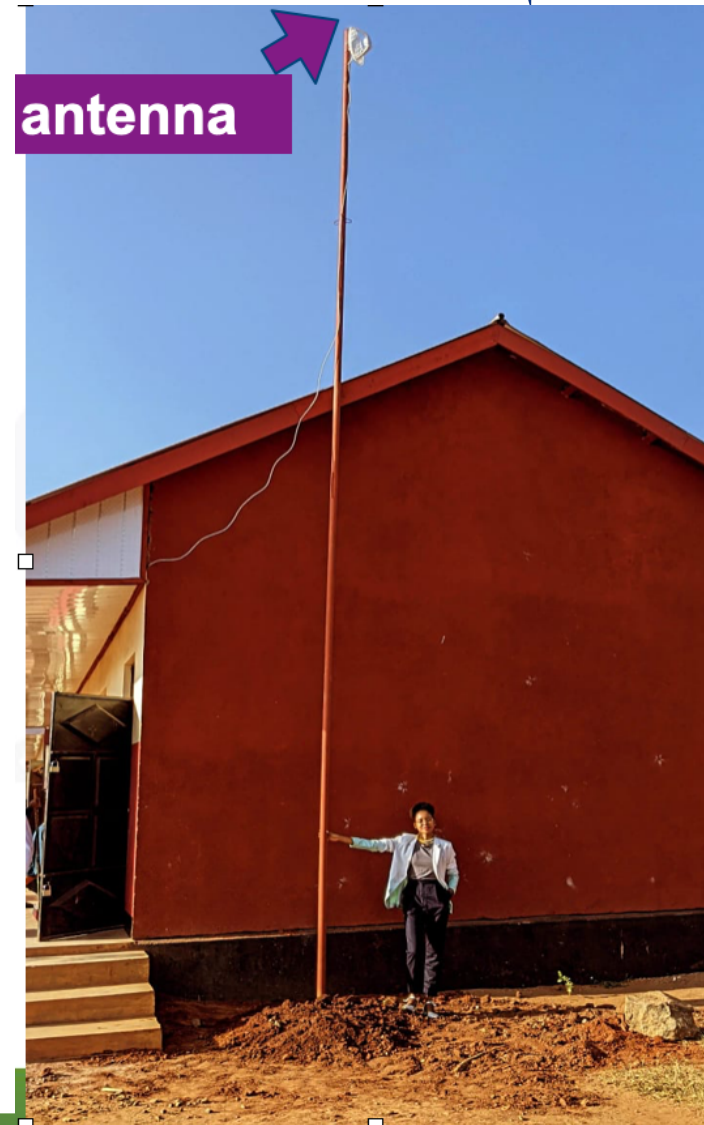
Connect to SSID: BasicInternet

SESA