



**the Learning Network on  
Sustainable energy systems**



The Learning Network on  
Sustainable energy systems  
is funded by the European-  
ACP-EU Edulink II



Implemented by the ACP  
Group of States Secretariat



Funded by  
the EU



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# *System design for sustainable energy for all*

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Mugendi, Venny, Lilac, Fiametta*

# *System Design for Sustainable Energy for All*

- **Design for Sustainability (DfS) focussed on**
  - **Sustainable Products Service Systems (S.PSS)**
  - **Applied to Distributed Renewable Energy (DRE)**
  - **Leading to System Design for Sustainable Energy for All (SD4SEA)**
- 
- **Knowledge Base**
  - **Know How**
- 
- **We just have seen how to do it (know-how tools)**
  - **But how did we get there?**

**WP7**  
EXTERNAL  
EVALUATION

R16 External independent evaluation of the whole project

WP leader: TUD  
Start - End: 6 - 36 months

**WP1** PROJECT SET UP

R1 Analysis of the current state-of-the-art in the field of Sustainable Energy System Design and Engineering (SES.DE) in African HEIs, and identification of priorities and needs (in education, research, and practice)

WP leader: CPUT assistant WP leader: Polimi  
Start - End: 1 - 5 months

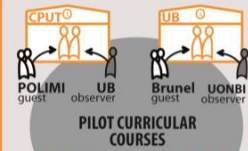
**WP2** DESIGN OF DIDACTIC CURRICULAR PILOT COURSES AND SUPPORTING LEARNING RESOURCES

R2 Joint development of didactic courses on SES.DE and related learning resources (specifically conceived to meet needs and priorities of African partner HEIs)

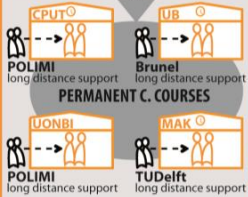
WP leader: CPUT assistant WP leader: Brunel  
Start - End: 6 - 33 months

**WP3** IMPLEMENTATION OF DIDACTIC CURRICULAR COURSES

R3 Implementation of 4 didactic pilot courses on SES.DE at African HEIs institutions



R4 Implementation of 4 permanent didactic courses on SES.DE at African HEIs institutions



WP leader: UONBI assistant WP leader: Brunel  
Start - End: 10 - 30 months

**WP6** OPEN LEARNING E-PLATFORM (OLEP)

R7 Development and management of OLEP, the open web platform for the decentralised production and fruition of learning resources and knowledge



WP leader: POLIMI  
Start - End: 6 - 36 months

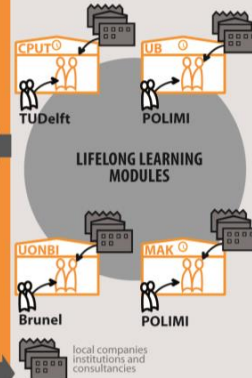
**WP4** DESIGN OF LIFELONG LEARNING MODULES AND SUPPORTING LEARNING RESOURCES

R5 Joint development of lifelong learning modules on SES.DE and related learning resources (specifically conceived to meet needs and priorities of the local production sector)

WP leader: UB assistant WP leader: TUD  
Start - End: 13 - 33 months

**WP5** IMPLEMENTATION OF LIFELONG LEARNING MODULES

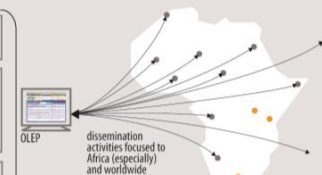
R6 Joint development of 4 pilot lifelong learning modules on SES.DE to be held at African partner institutions and targeted to local practitioners from companies, consultancies, organisations etc.



WP leader: MAK assistant WP leader: TUD  
Start - End: 19 - 30 months

**WP8** DISSEMINATION OF PROJECT RESULTS

R8 Make target groups and final beneficiaries aware of the action



WP leader: Brunel  
Start - End: 1 - 36 months

**WP9**  
MANAGEMENT  
project management

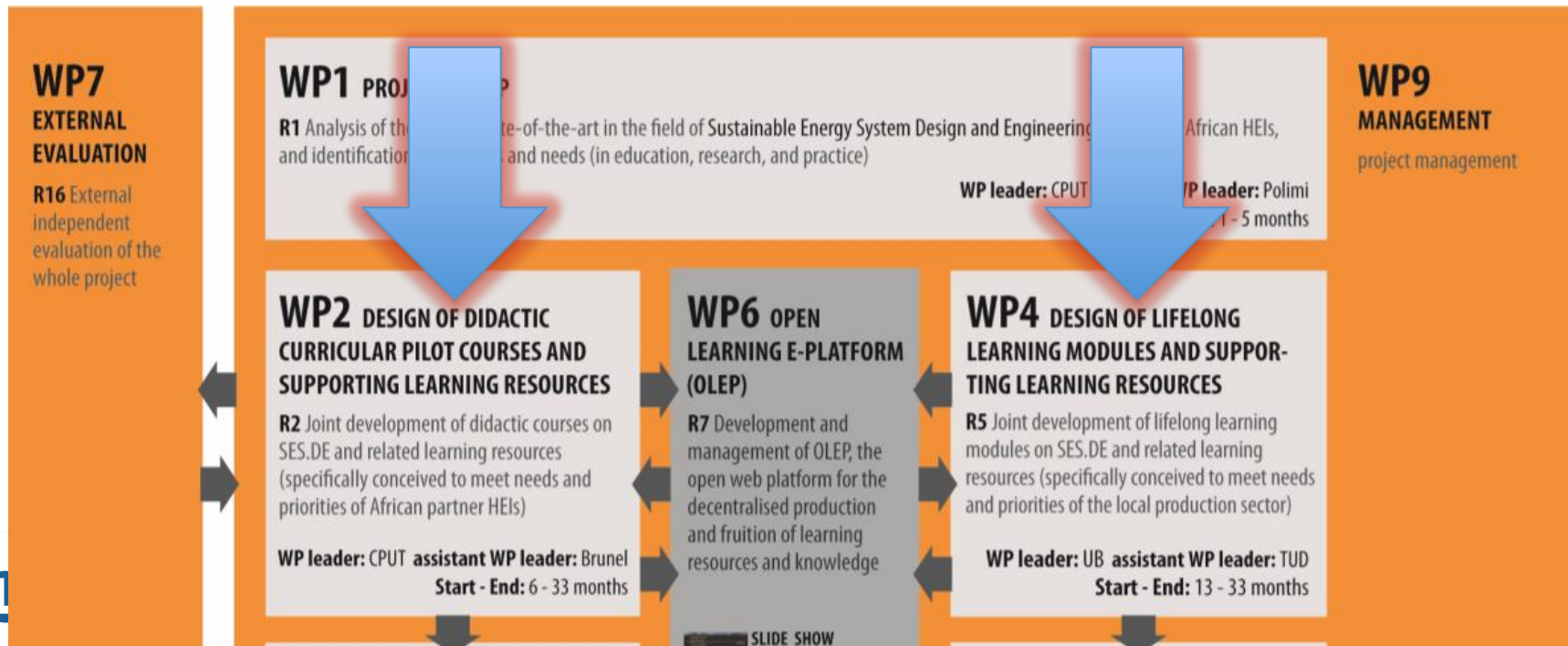
WP leader: POLIMI  
Start - End: 1 - 36 months

# WP 1 Project Set Up

## Analysis of the State of The Art

What do we have

What do we need



# Design and implementation of pilot courses

•In each African country a pilot course

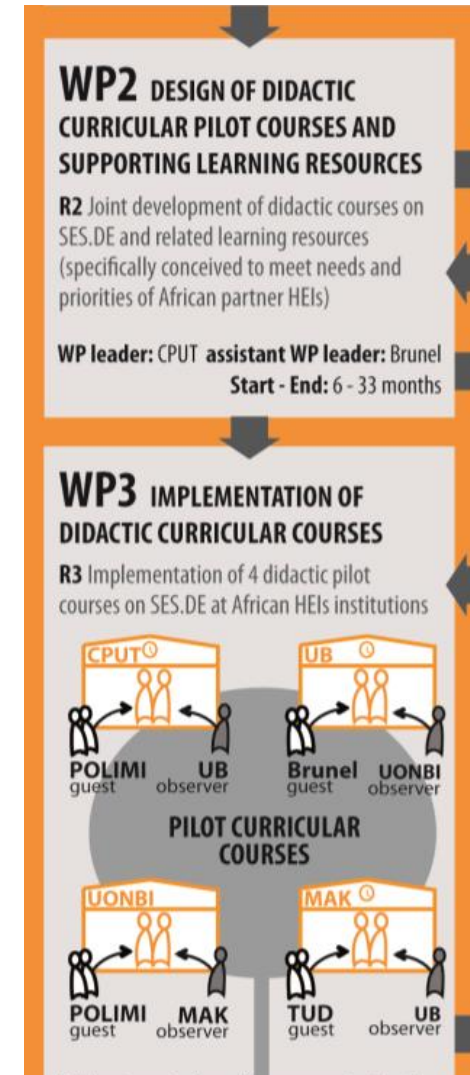
- A host
- A guest
- An observer
- Students

Uganda:

MAK CEDAT & CREEC

TU Delft JC & Jairo

CPUT Corbin





# *Real Problem Settings*



Health center III



# Students

- **Engineering students Energy**
- **They know what is DRE, but not yet what is SPSS**
  
- **Directly calculating how much energy can be generated.....**
  
- **But...**







**MAKERERE UNIVERSITY - KAMPALA**  
"Cycle for Health"









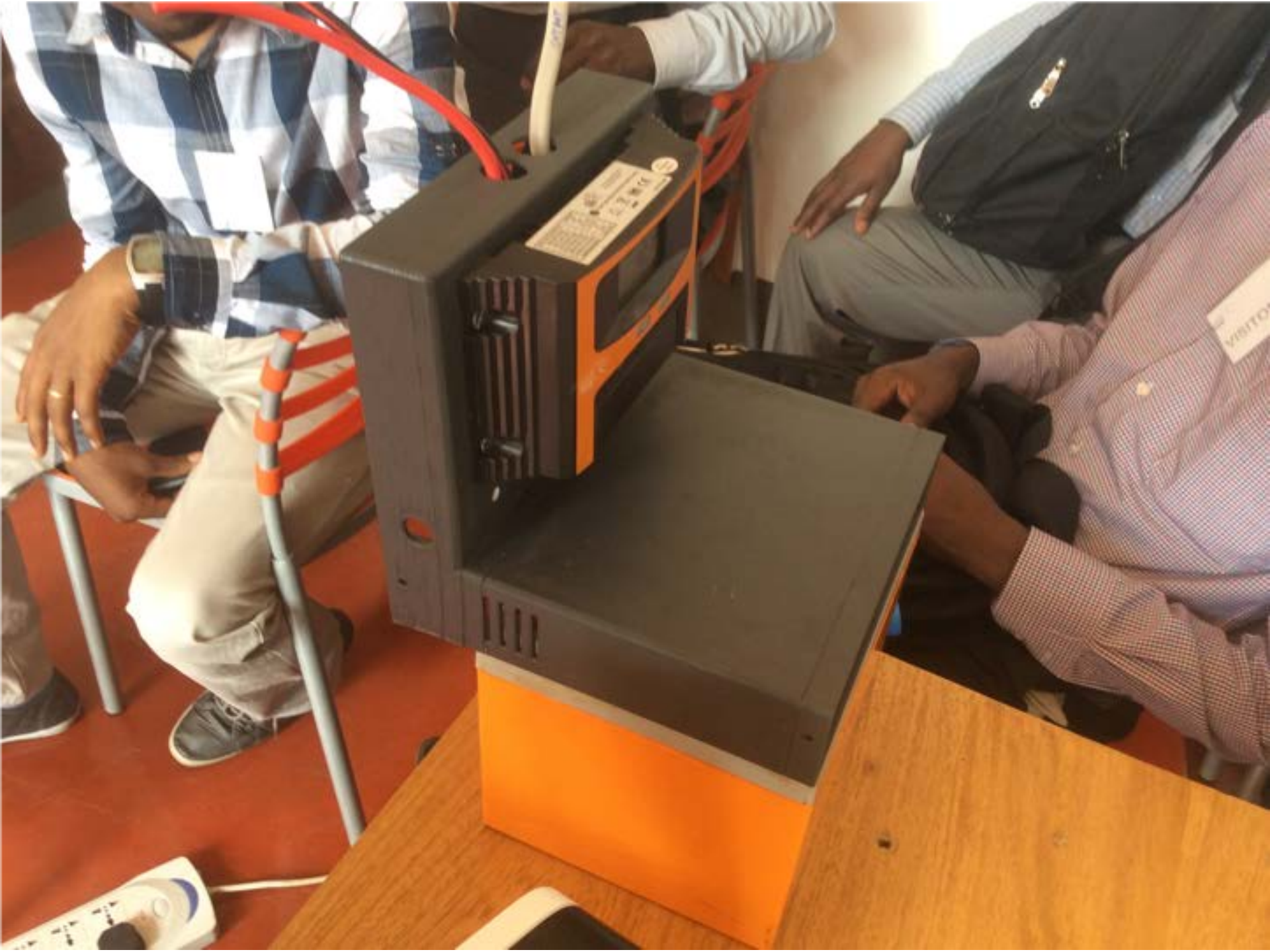






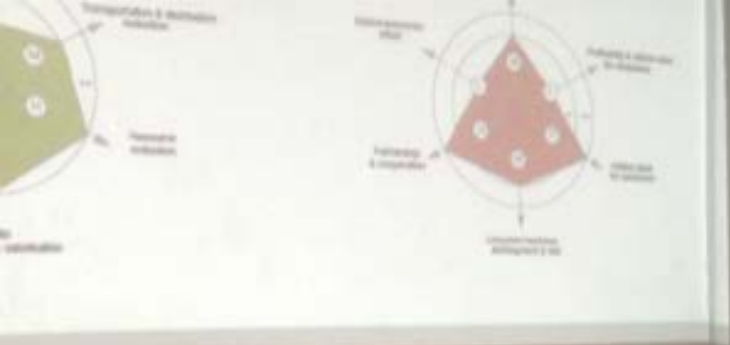












WORKING!

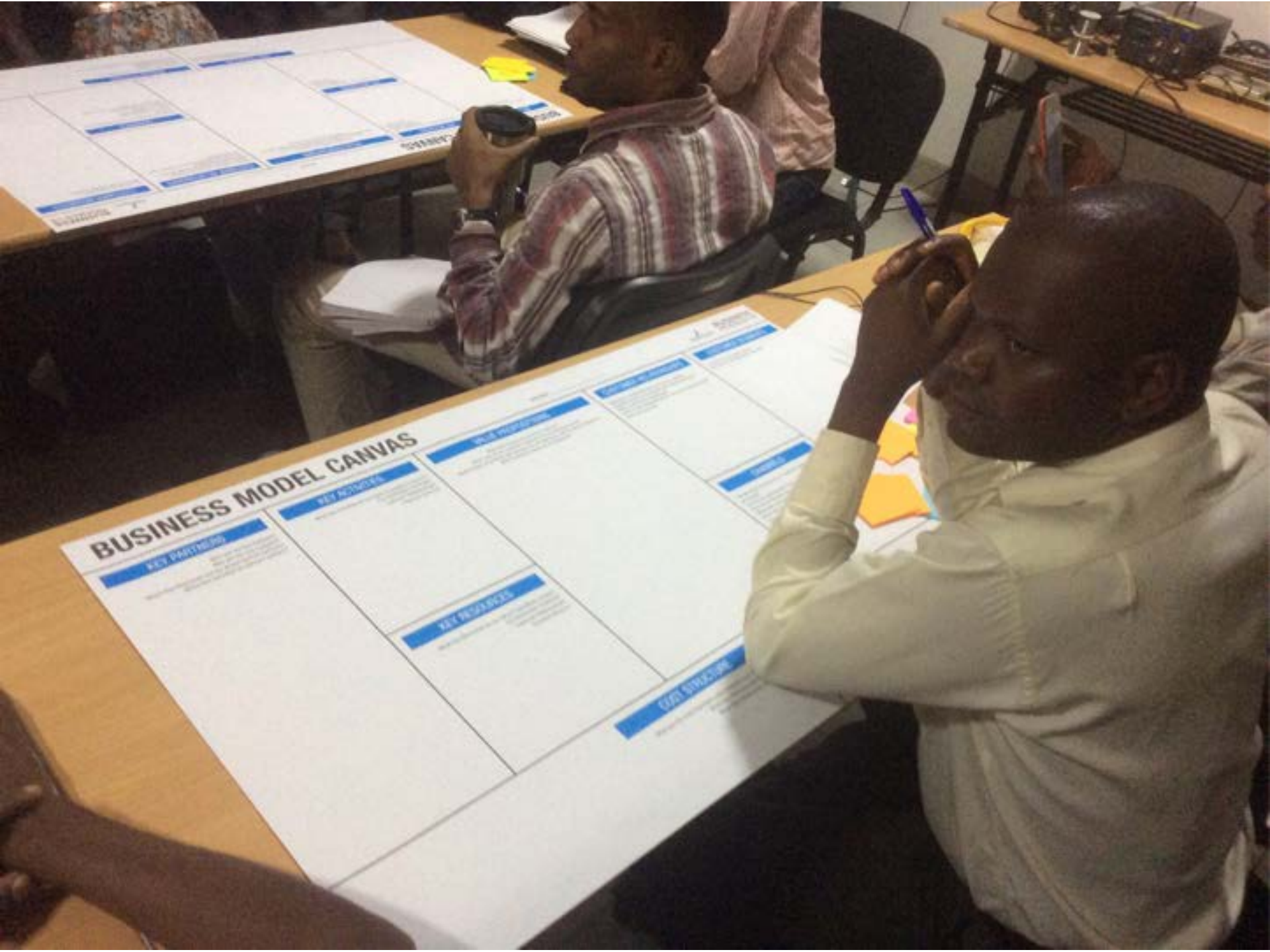
① IDEA GENERATION  
 A GROUP WHO SUBMITTING TO CREATE IDEAS  
 ↳ ISSUES / PROBLEMS / MEMBERSHIP  
 ↳ MEMBER'S IDEAS / SOLUTIONS

② 500  
 A FINISH SETTING UP RECOGNITION  
 ↳ COME UP WITH IDEAS FOR THE SOCIETY

③ MOTIVATION MATRIX  
 ↳ UNDERSTAND MOTIVATION MAP  
 ↳ CREATE A MOTIVATION MATRIX







# BUSINESS MODEL CANVAS

## KEY PARTNERS

## KEY ACTIVITIES

## KEY RESOURCES

## VALUE PROPOSITION

## CHANNELS

## COST STRUCTURE





























**HOME OF SUNSHINE SOLAR**

**SUNSHINE SOLAR**  
Good Quality, Good Life

**zukuTV**  
AUNTI'S BLISS

MARKET  
KADIGUDA











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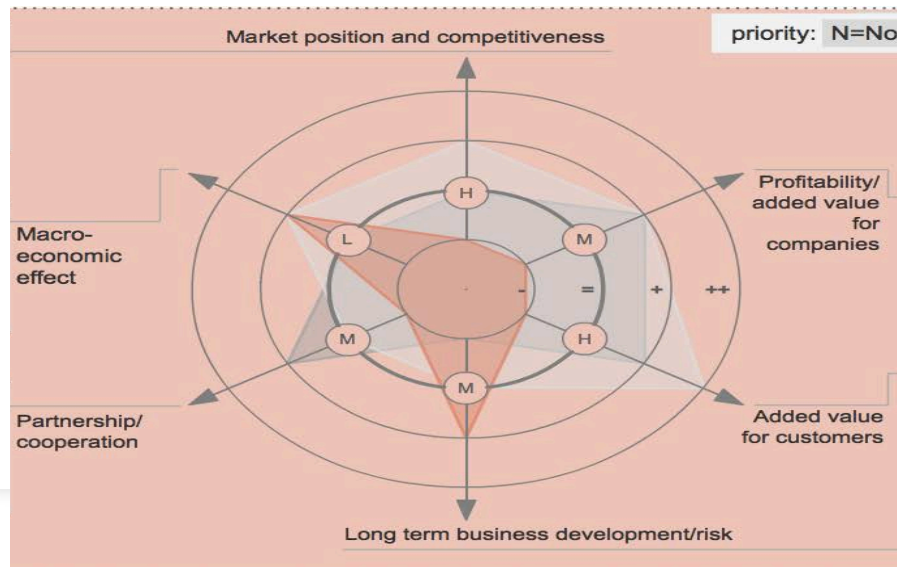
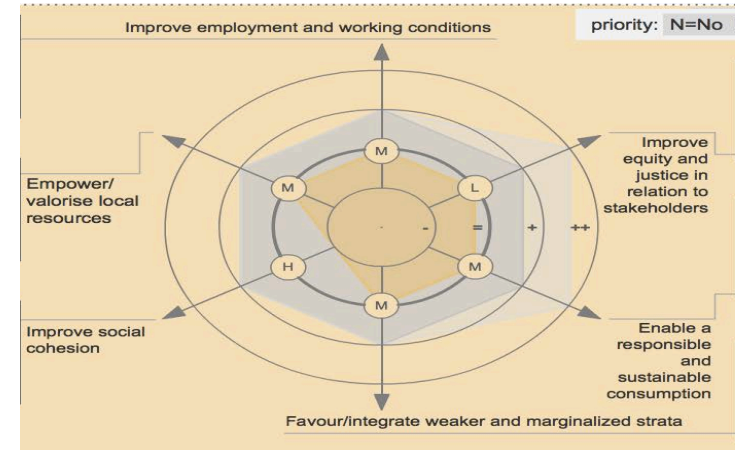
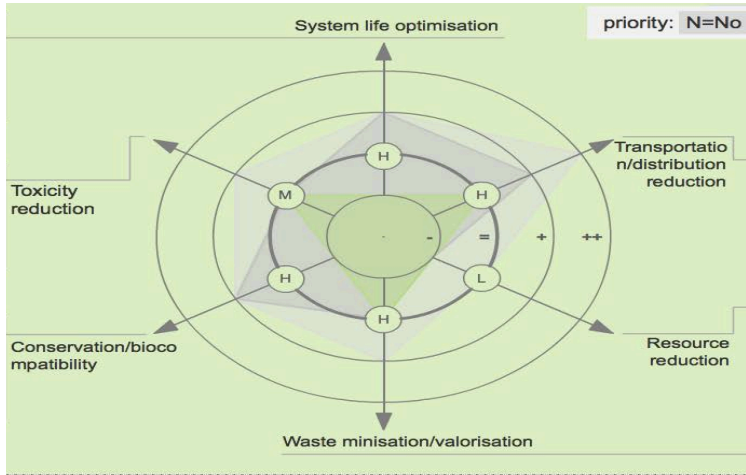
# *Supply the Health Centre*

Supply the HC III with the power and adjacent community

Establish a distribution/sales point at HC

HC III will act as customer service point

People will Rent solar system from here





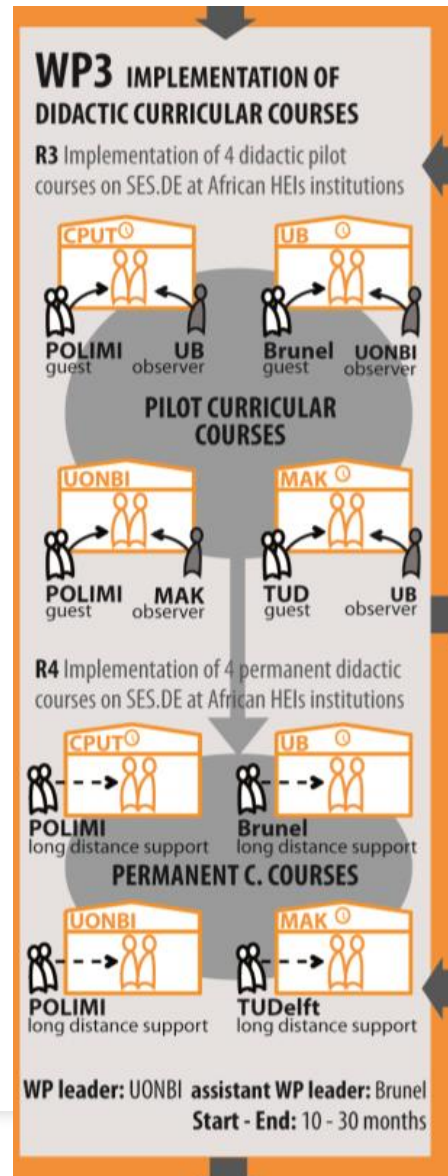
# *What are the results*

- **2 SPSS DRE for SD4EA**
- **15 trained students**
  
- **Technology is important, but the SPSS is the enabler to sustainable development, business development, added value and much more....**
  
- **1 observer back to CPUT for next course**
- **1 host with more experience for within practice CREEC**
- **1 host with more experience for own curricula**
- **1 guest with case for PhD**
- **1 guest with new demonstration projects**





# From Pilot Course to Permanent Course



# Life Long Learning Modules

- With Polimi
- Experience with most partners
- Training for professionals

ign and Engineering (SES.DE) in African HEIs,

**WP leader:** CPUT **assistant WP leader:** Polimi  
**Start - End:** 1 - 5 months

## **WP4 DESIGN OF LIFELONG LEARNING MODULES AND SUPPORTING LEARNING RESOURCES**

**R5** Joint development of lifelong learning modules on SES.DE and related learning resources (specifically conceived to meet needs and priorities of the local production sector)

**WP leader:** UB **assistant WP leader:** TUD  
**Start - End:** 13 - 33 months

## **WP5 IMPLEMENTATION OF LIFELONG LEARNING MODULES**

**R6** Joint development of 4 pilot lifelong learning modules on SES.DE to be held at African partner institutions and targeted to local practitioners from companies, consultancies, organisations etc.





UAA  
828Z

Safe Laundry





1. Status and Outlook  
for Power  
Generation in  
Uganda













AGENCIJA ZA  
POSREDOVANJE U PROMETU  
POSREDOVANJE U PROMETU  
POSREDOVANJE U PROMETU



with gas fire stove

## WP7 EXTERNAL EVALUATION

R16 External independent evaluation of the whole project

## WP1 PROJECT SET UP

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WP leader: CPUT assistant WP leader: Polimi  
Start: End: 5 months

## WP9 MANAGEMENT

project management

## WP CURR SUPP

R2 Join  
SES.DE  
(specific  
priority

WP leader

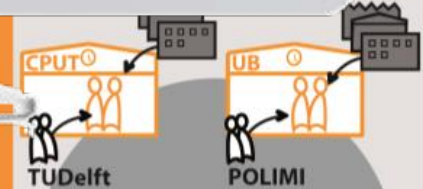
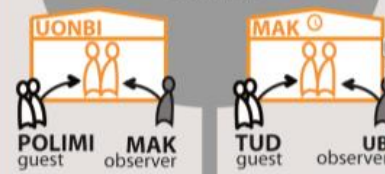
## WP DIDA

R3 Imple  
course



CP  
POL  
gues

### PILOT CURRICULAR COURSES



### LIFELONG LEARNING MODULES

R4 Implementation of 4 permanent didactic courses on SES.DE at African HEIs institutions



# The end....

- **A large set of trained students, staff, practitioners**
- **New tools & methods**
- **Cross fertilization**
- **New partnerships**
- **New actions in practice**
- **New curricula**

**And much more**







