GREATER Project and the UTAB Living Lab

GLOBAL WEEK AT GS Byumb@UTAB Living Lab

Topic:

Empowering Young People and Communities through Living Labs for Sustainable Development

Byumba, 01 Sept 2026

Co-funded by the European Union

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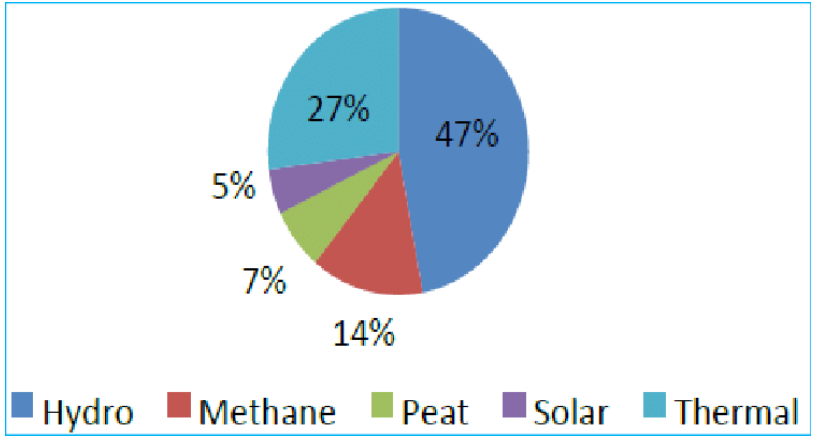
Erasmus+
Co-funded by the European Union

WHY DOES THIS MATTER FOR RWANDA?

Rwanda's Energy Transition: From Access to Impact



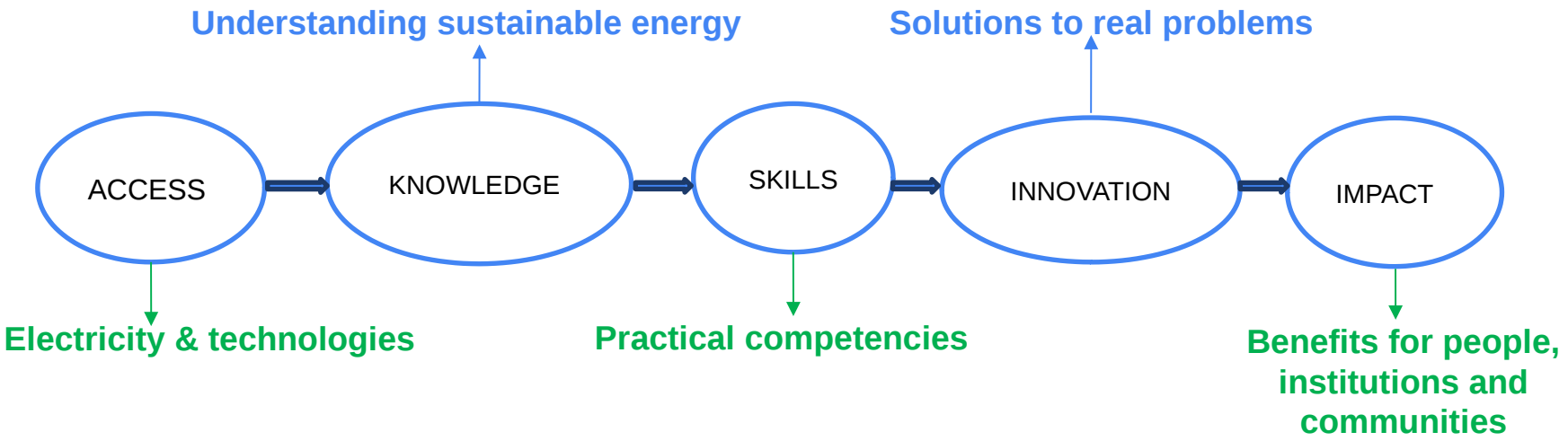
Rwanda is making significant progress in electricity access and renewable energy.

- **Living Lab:** A real-world space for innovation, research, and community engagement.
- **Electricity access**: **83%**
- **Renewable share of installed generation capacity: 57.2%**
- **Schools with on-grid electricity: 87.9%**

The energy transition also requires knowledge, practical skills, innovation and the capacity to turn technology into sustainable solutions.

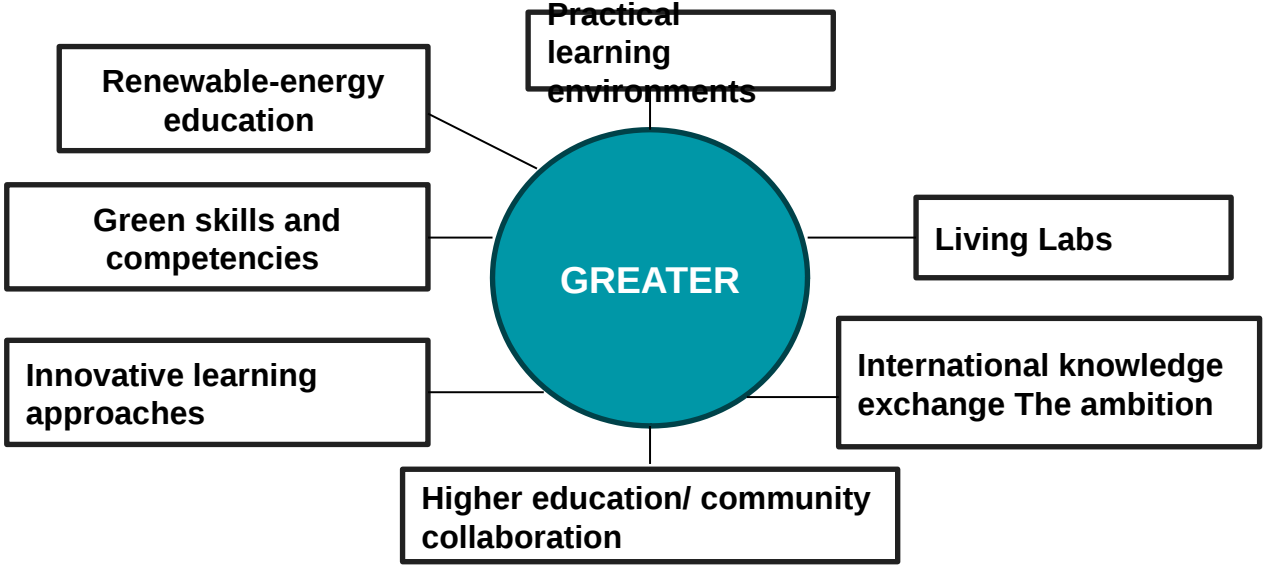
The Next Challenge: Building Capacity

Energy transition requires:



Where can HLIs contribute?

GREATER: Growing Rwanda Energy Awareness Through Higher Education

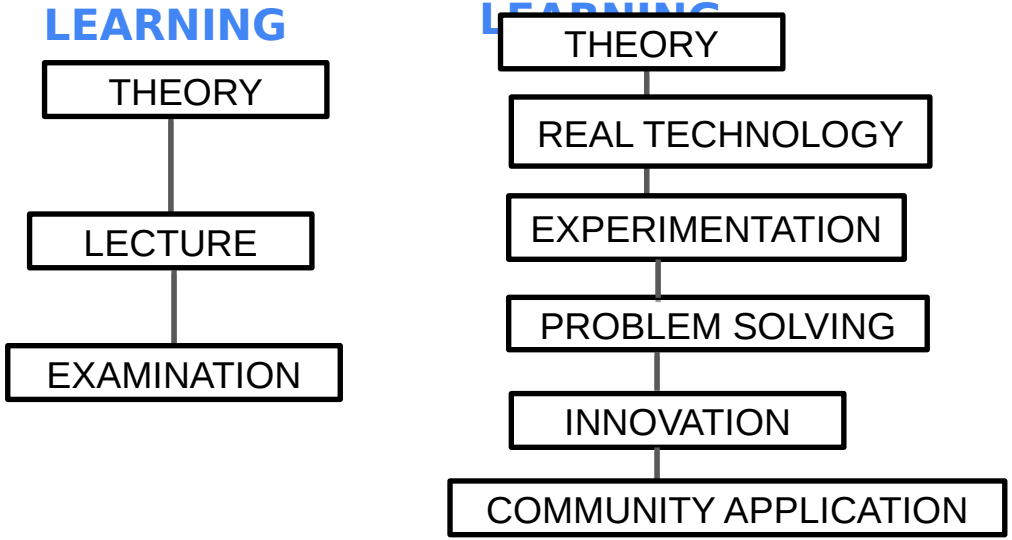


GREATER: A platform for moving from knowledge transfer to practical learning, innovation and action.

WHY LIVING LABS?

From Classroom to Real-World Learning

CONVENTIONAL LEARNING vs **LIVING LAB LEARNING**

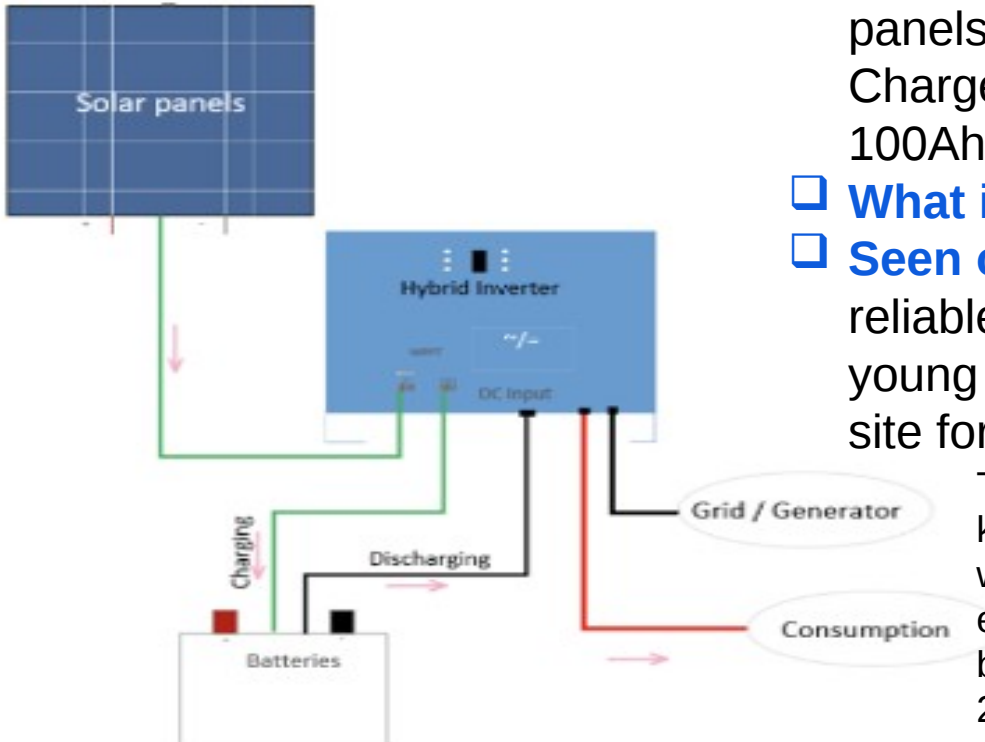


The Living Lab brings university knowledge closer to real-world needs.

UTAB Living Lab at GS Byumba is a space where university knowledge and community needs interact through practical learning, experimentation, innovation and engagement.

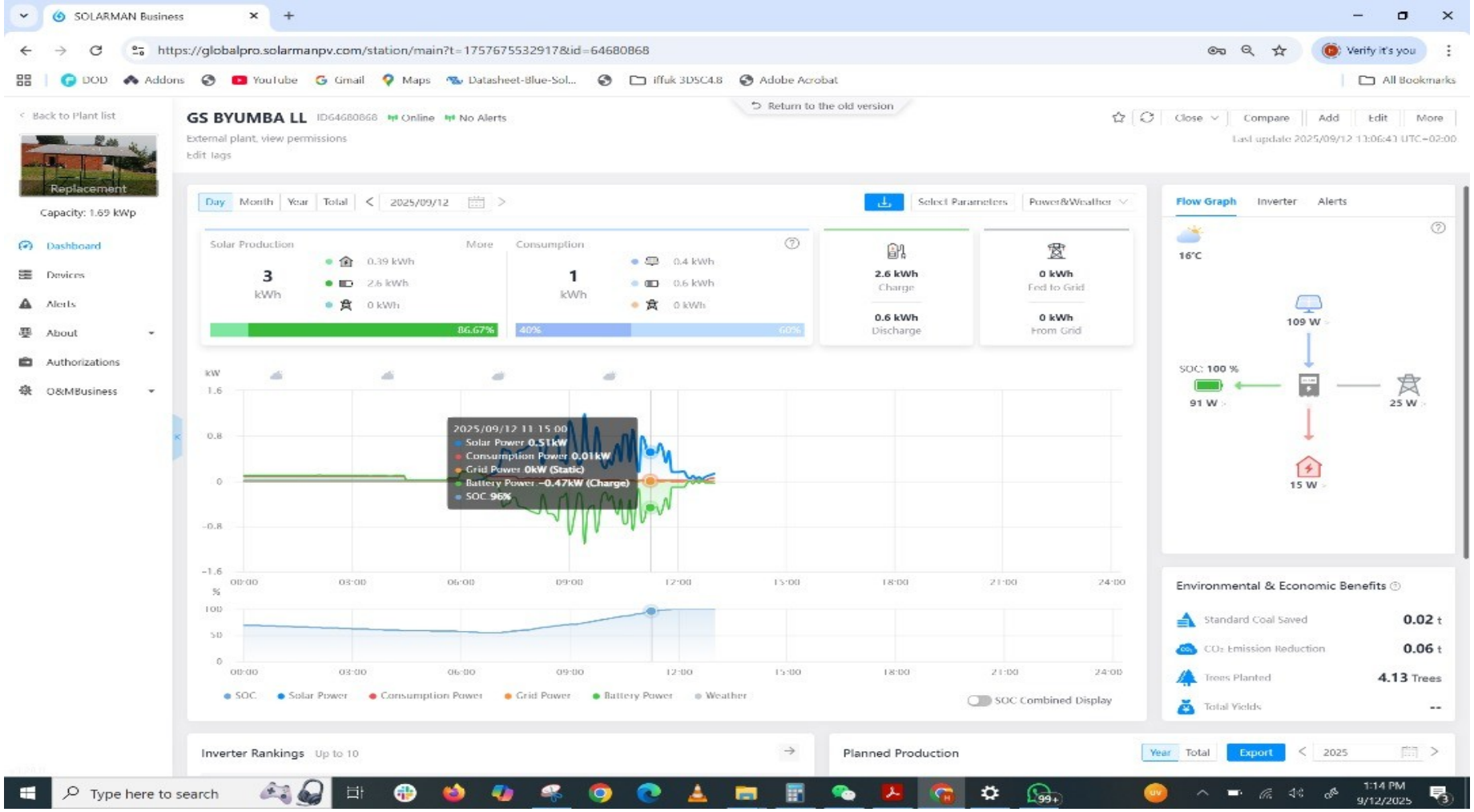
EDUCATION + RESEARCH + INNOVATION + COMMUNITY

The Solar Living Lab at GS Byumba Catholique



- **Description**: size: 1.65 kW, components (3 panels with 565W each; 1 Hybrid Inverter Charger of 3.6kW; One Lithium battery of 100Ah)
- **What it powers:** 4 classrooms
- **Seen or Expected Benefits:** reduced bills, reliable power, learning tool; Inspiration for young generation (students) & demonstration site for sustainability

The facility had a total consumption of around 57.2 kWh, In which solar production was 71.7 kWh, which is 125% of the consumption.- By using solar energy, the system generated savings on electricity bills of around15,343.8RWF (Using tariff of 214rwf/Kwh).


SOLARMAN Business
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Verify it's you
DOD
Addons
YouTube
Gmail
Maps
Datasheet-Blue-Sol...
iffuk 3D5C4.8
Adobe Acrobat
All Bookmarks
Back to Plant list
Replacement
Capacity: 1.69 kWp
Dashboard
Devices
Alerts
About
Authorizations
O&MBusiness
GS BYUMBA LL
ID64680868
Online
No Alerts
External plant, view permissions
Edit tags
Return to the old version
Close
Compare
Add
Edit
More
Last update 2025/09/12 13:06:41 UTC+02:00
Day
Month
Year
Total
2025/09/12
Select Parameters
Power&Weather
Solar Production
3
kWh
0.39 kWh
2.6 kWh
0 kWh
86.67%
More
Consumption
1
kWh
0.4 kWh
0.6 kWh
0 kWh
40%
60%
2.6 kWh
Charge
0.6 kWh
Discharge
0 kWh
Fed to Grid
0 kWh
From Grid
kW
1.6
0.8
0
-0.8
-1.6
2025/09/12 11:15:00
Solar Power 0.51kW
Consumption Power 0.01kW
Grid Power 0kW (Static)
Battery Power -0.47kW (Charge)
SOC 96%
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
24:00
%
100
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SOC
Solar Power
Consumption Power
Grid Power
Battery Power
Weather
SOC Combined Display
Flow Graph
Inverter
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16°C
109 W
SOC 100 %
91 W
25 W
15 W
Environmental & Economic Benefits
Standard Coal Saved
0.02 t
CO2 Emission Reduction
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Trees Planted
4.13 Trees
Total Yields
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Up to 10
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Year
Total
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2025
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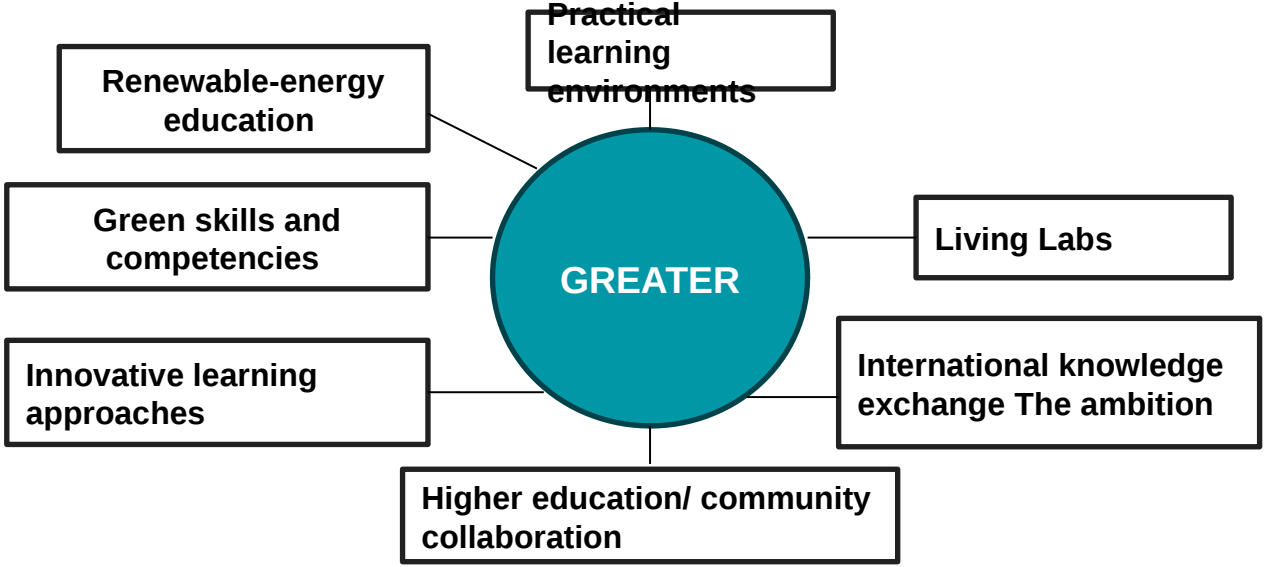
The Solar Living Lab at GS Byumba Catholique



GREATER: Growing Rwanda Energy Awareness Through Higher Education



GREATER: A platform for moving from knowledge transfer to practical learning, innovation and action.

IMPACT AT UTAB

From Practical Learning to Student Research

- ***Teaching:*** A teaching and demonstration tool, providing students with an opportunity to interact with real renewable-energy technologies.
- ***Practical exposure***
  - → **Experimentation: DIY Labs Kits**
  - → **Learning**
  - → **Innovation**
- ***Student Research:*** Overall observation is that the strong concentration of recent student research in solar-energy systems demonstrates growing engagement with renewable-energy technologies.

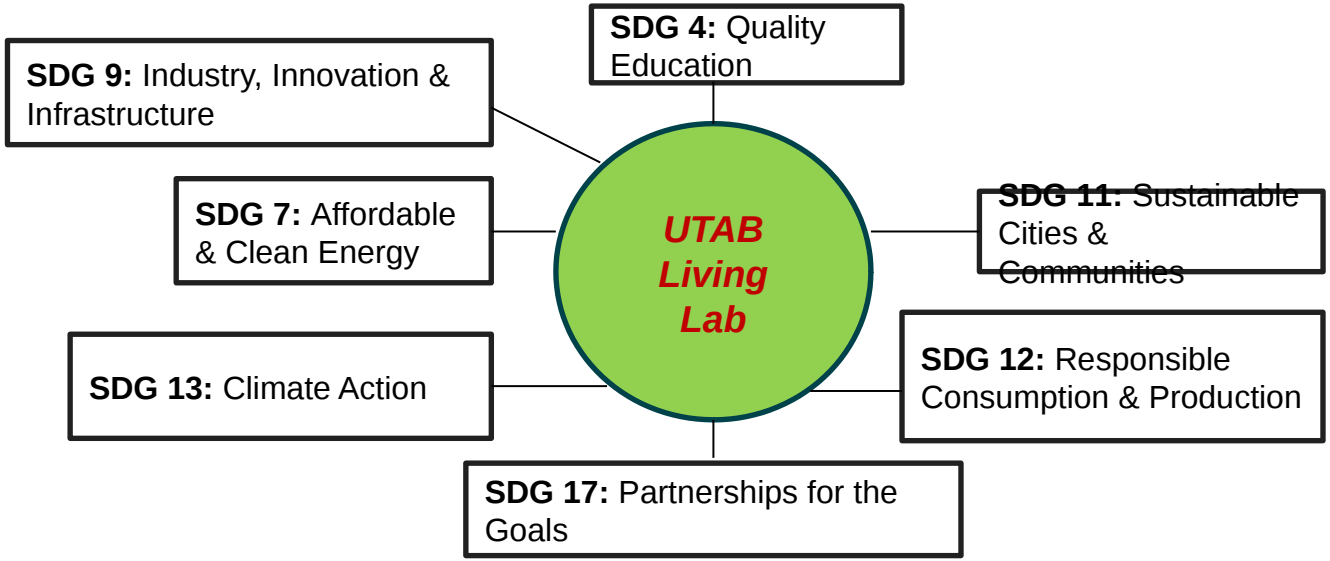
IMPACT BEYOND THE UNIVERSITY

One Living Lab — Multiple Beneficiaries

- ***STUDENTS:*** **(**Practical skills, Research & Innovation)
- ***TEACHERS*****: (**Practical teaching; Professional development; Research
- ***SCHOOLS:*** **(**Clean energy; Demonstration; Learning)
- ***COMMUNITY: (***Awareness; Knowledge; Sustainable practices)
- ***PARTNERS: (***Collaboration; Knowledge exchange; Innovation)

LIVING LAB AND THE SDGs

(Intego z'Iterambere Rirambye)



WHAT HAVE WE LEARNED?

Lessons from the GREATER & Living Lab Experience

1: Practical learning makes theory more meaningful.

2: Renewable-energy infrastructure can become **teaching infrastructure**.

3: Students can become **innovators and problem-solvers**, not only learners.

4: Universities and schools can collaborate around real challenges.

5: International partnerships can strengthen local knowledge and innovation.

6: Living Labs can provide a foundation for **long-term community engagement**.

What Have We Learned?

Lessons from the GREATER & Living Lab experience

01 Theory becomes meaningful through practice.

02 Renewable-energy infrastructure can become teaching infrastructure.

03 Students can become innovators and problem-solvers.

04 Universities and schools can learn together.

05 Partnerships strengthen local innovation.

06 Living Labs support long-term engagement.

From One Living Lab to a Replicable Model

Where do we go from here?

STRENGTHEN
More practical learning

ENGAGE
More students, pupils & communities

INNOVATE
More research & problem-solving

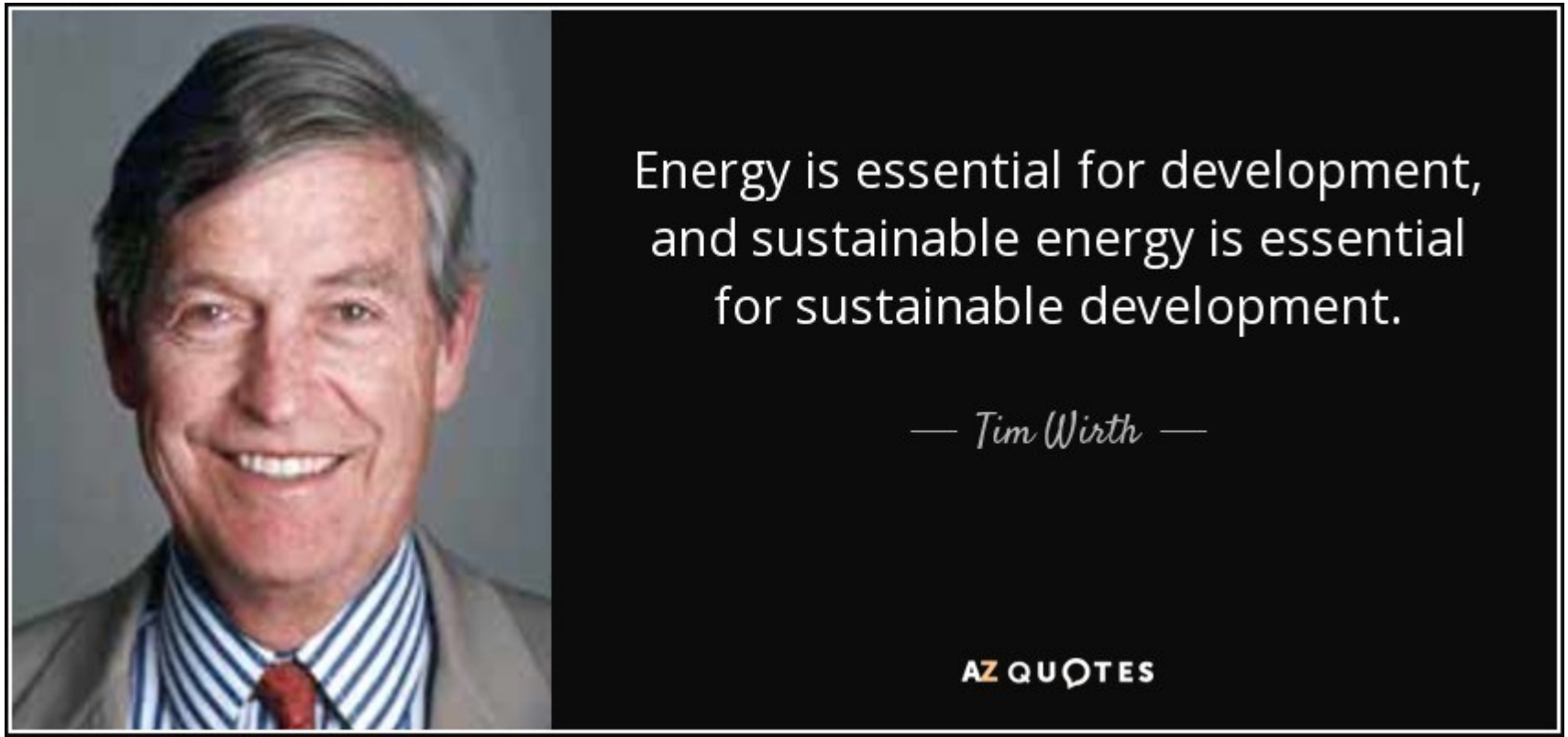
DOCUMENT
Capture lessons & good practices

REPLICATE
Extend successful approaches

Our ambition

From one Living Lab to a model for practical-oriented and community-engaged education.

Take home!!!!!!


Energy is essential for development, and sustainable energy is essential for sustainable development.
— Tim Wirth —
AZ QUOTES

FROM LEARNING TO ACTION

Do not only learn about the future. Build it.

A Living Lab is not a place where we only learn about change; it is a place where we learn to create change. Change that leads to Sustainable Development

LEARN. EXPERIMENT. INNOVATE. ENGAGE. ACT.

Thank you for your attention

Eng. NISINGIZWE Emmanuel
University of Technology and Arts of Byumba