



FROM RESEARCH TO MARKET

Scaling Innovative Solutions for Clean Energy Transition

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01

THE PROBLEM

High population growth rate (2.4%),
Fragile Economy and Fuel Shortage.



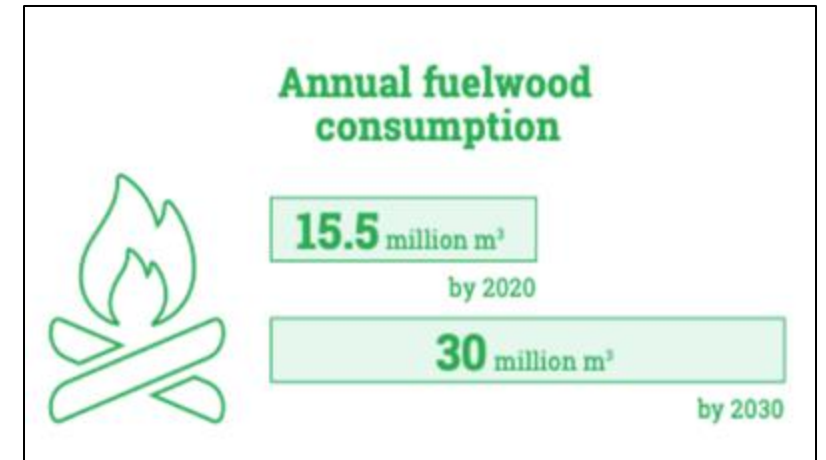
OUR RESEARCH JOURNEY – DEFINING THE ENERGY PROBLEM

Our initial research focused on understanding energy access challenges.

Biomass fuels, mainly wood and charcoal, still represent up to **62%** of Sudan's energy balance.

95% of the rural areas depend on wood/charcoal for cooking

*Sudan lost more than **70%** of their forest cover after the secession of the South.*



CENTRAL ISSUES - SUDAN



01

- Energy demand is rising,
- Import volume of fossil fuels is rising,
- Cost of imported fuels is rising



02

Women and girls venture out to collect firewood in unsafe areas, making them vulnerable to attack and violence.



03

Inefficient cooking environment in rural areas.



04

- Desert areas are spreading,
- People are moving to the cities

OUR RESEARCH JOURNEY – DEFINING THE ENERGY PROBLEM

THE SILENT KILLER



OUR RESEARCH JOURNEY – DEFINING THE ENERGY PROBLEM

We identified barriers to sustainable energy solutions for households and small farmers.

- 01** | **Insufficient integration with the local context - Lack of affordable and scalable technologies that match local needs.**
- 02** | **Limited public awareness and lack of capacity-building efforts.**
- 03** | **Lack of strong government policies and subsidies limits the scale and sustainability of clean cooking initiatives.**
- 04** | **Projects led by international organizations often lack sustainability, as they fail to build local ownership and long-term support mechanisms.**

OUR RESEARCH JOURNEY – DEFINING THE ENERGY PROBLEM

Successful Implementation

- 01** | Projects with strong community involvement and training, particularly those empowering women, have demonstrated greater success.
- 02** | Successful projects often involve private-sector leadership, combining innovation with market-based approaches and establishing clear pathways for scaling up to achieve broader regional impact.



Development
AID money?



02

OUR APPROACH

Building Local Solutions for Lasting Impact



INNOVATION AS A SOLUTION

We moved beyond problem identification to designing innovative, need-based solutions.

- Focused on customizing technologies to fit local cultural, economic, and environmental realities.
- Leveraged local resources to ensure affordability & scalability.
- Integrated our solutions with other SDGs, ensuring impact on:
 - ✓ Clean water access
 - ✓ Food security
 - ✓ Economic empowerment

WORKING WITH PARTNERS



SMALL SCALE BIOGAS

Turning waste into clean energy and investment opportunities



A German technology tailored to suit the African cooking culture and environment.

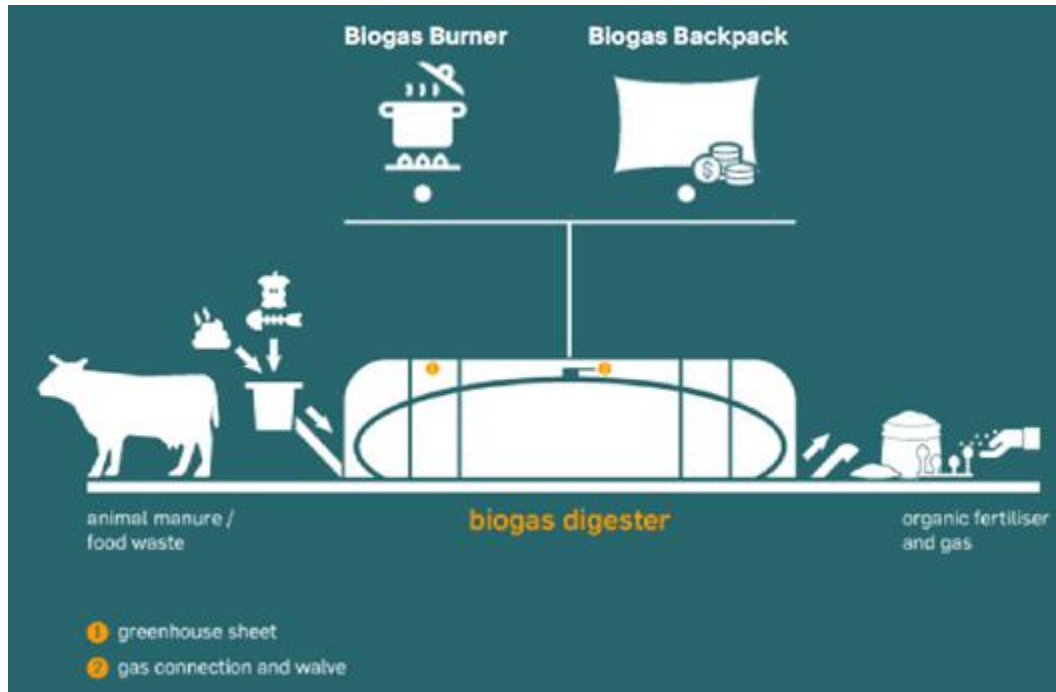


SMALL SCALE BIOGAS

Semi-mobile structure, that is easy to set up and maintain.

✓ Biogas storage, sale and transport made easy

- ✓ Cooking stoves tailored to the cooking habits of their users.
- ✓ Highly efficient 53-55%



SMALL SCALE BIOGAS

Bio slurry promotes home gardening for food security and additional income generation



Improved crop garden yields

The Gap Between Research & Market Adoption

- Research alone was not enough to drive market adoption.
- There is a need for awareness, technical support, and capacity building.
- Bridging the gap between innovation and commercialization.

To address these gaps, we

1. Promoted Science Diplomacy in Energy Sector.

2. Established a Technology Business Incubator for Clean Energy.

Funded by Ministry of Higher Education and Scientific Research

Technology Business Incubator for Clean Energy

- **Our mission:** Support youth-led startups in clean energy transition.
- **What we provide?**
 - ✓ Research facilities for prototyping and testing.
 - ✓ Technical mentorship in energy technologies.
 - ✓ Material and equipment access to develop innovations.

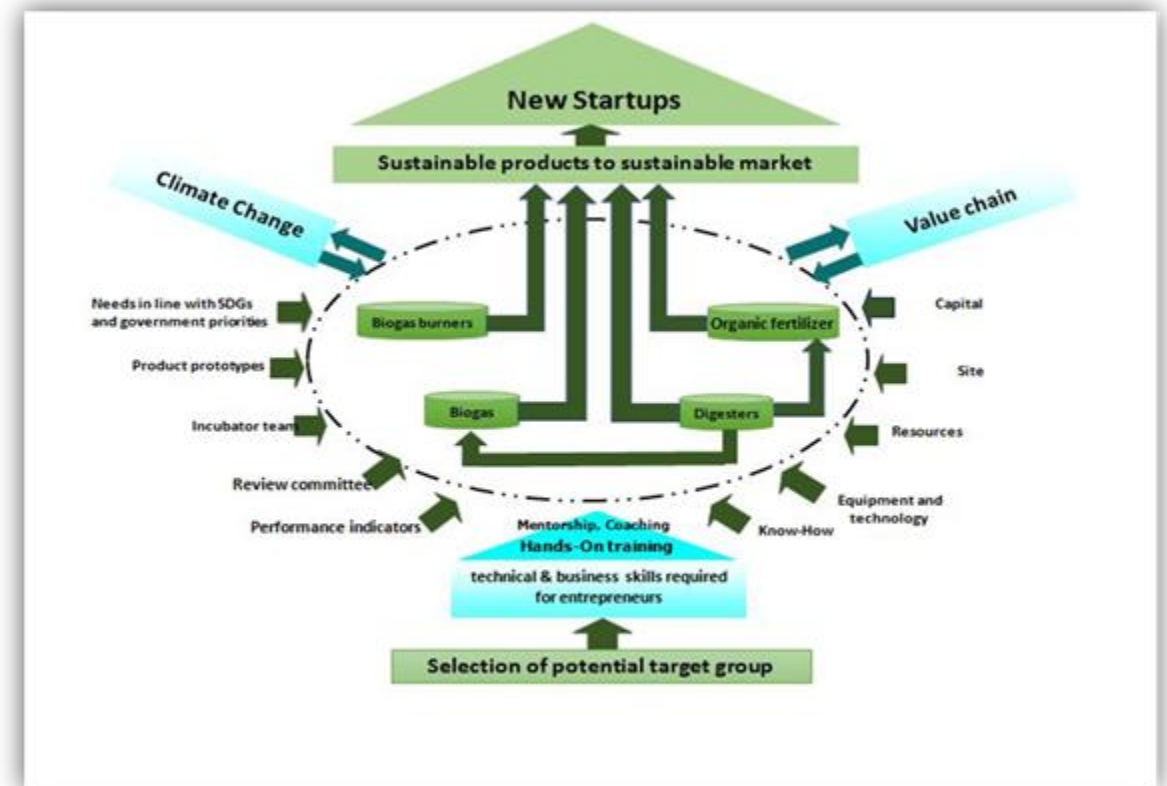


Technology Business Incubator for Clean Energy

- **What we provide?**

- ✓ Business incubation programs, including:

1. Business modeling and commercialization strategies.
2. Investment de-risking for scaling.



Technology Business Incubator for Clean Energy



Technology Business Incubator for Clean Energy





03

ACTION FOR SUSTAINABILITY

Building a Stronger Ecosystem



Challenges & Barriers for Youth Entrepreneurs

- The current education system lacks integration to build entrepreneurial mindsets.
- Insufficient specialized facilities for prototyping, testing, and scaling up technologies.
- Regulatory and policy barriers - slow down startup growth and investment.
- Early-stage startups struggle to attract investors due to high perceived risks and lack of de-risking mechanisms.
- Limited Industry-Academia Collaboration – limits commercialization opportunities.

EMPOWERING YOUTH IN ENERGY STARTUPS

1

Research & development

Innovating tailored clean energy solutions.

2

Entrepreneurship &
business development

Scaling solutions into viable startups.

3

Technology deployment &
market adaptation

Ensuring long-term impact.

Our experience shows that **mentorship, financial support, and policy backing** are crucial.

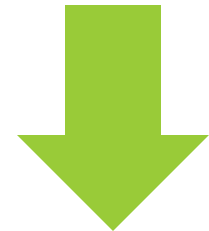
Strengthening Youth Capacity – The Role of Education

How can academia bridge the gap between research and real-world entrepreneurship?

- Embedding entrepreneurship in STEM curricula.
- Encouraging hands-on innovation & startup incubation at universities.
- Facilitating industry-academia partnerships for commercialization.

The importance of vocational training & skills-building programs.

Creating platforms for networking & knowledge sharing.



Better Youth Engagement

Implement safeguard measures to ensure fair competition and protect local private sectors from being marginalized by foreign investments or selectively subsidized government projects.



THANK YOU

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