



# **BIOGAS TECHNOLOGY ASSESSMENT IN ZAMBIA**

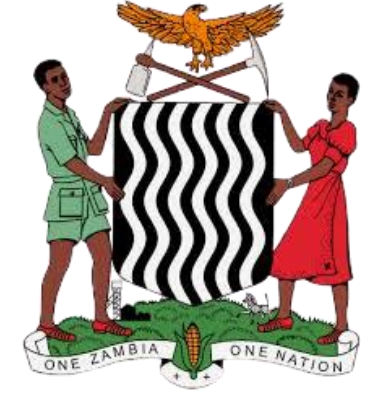
## **IMPLEMENTATION STATUS**

**Presented by:**

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MINISTRY OF ENERGY, ZAMBIA**

**23<sup>rd</sup> October, 2024**

# OUTLINE

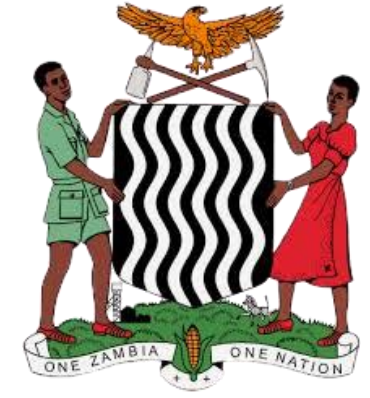


- ENERGY SCENARIO
- BIOGAS RESOURCES
- IMPLEMENTATION OF TA RECOMMENDATIONS
- OPPORTUNITIES FOR FURTHER DEVELOPMENT
- CALL TO ACTION



# ENERGY SCENARIO

- **Primary Energy Sources:** Biomass, Hydro, Coal, Solar, Wind, Geothermal and Petroleum
- **BIOMASS** (woodfuel – charcoal and firewood) contributes over 80% to the energy mix
- **LCMS 2022** – 0.1% using crop / livestock residues for cooking



# ENERGY SCENARIO



## Electricity Subsector

**3,811.3MW**  
Total installed capacity  
**83%**  
Hydro electricity

Percentage Mix		
Hydro	3164.14 MW	83%
Thermal	300 MW	8.7
Heavy Fuel Oil	110 MW	2.9%
Solar	122.38 MW	3.2%
Diesel	84.80 MW	2.2%

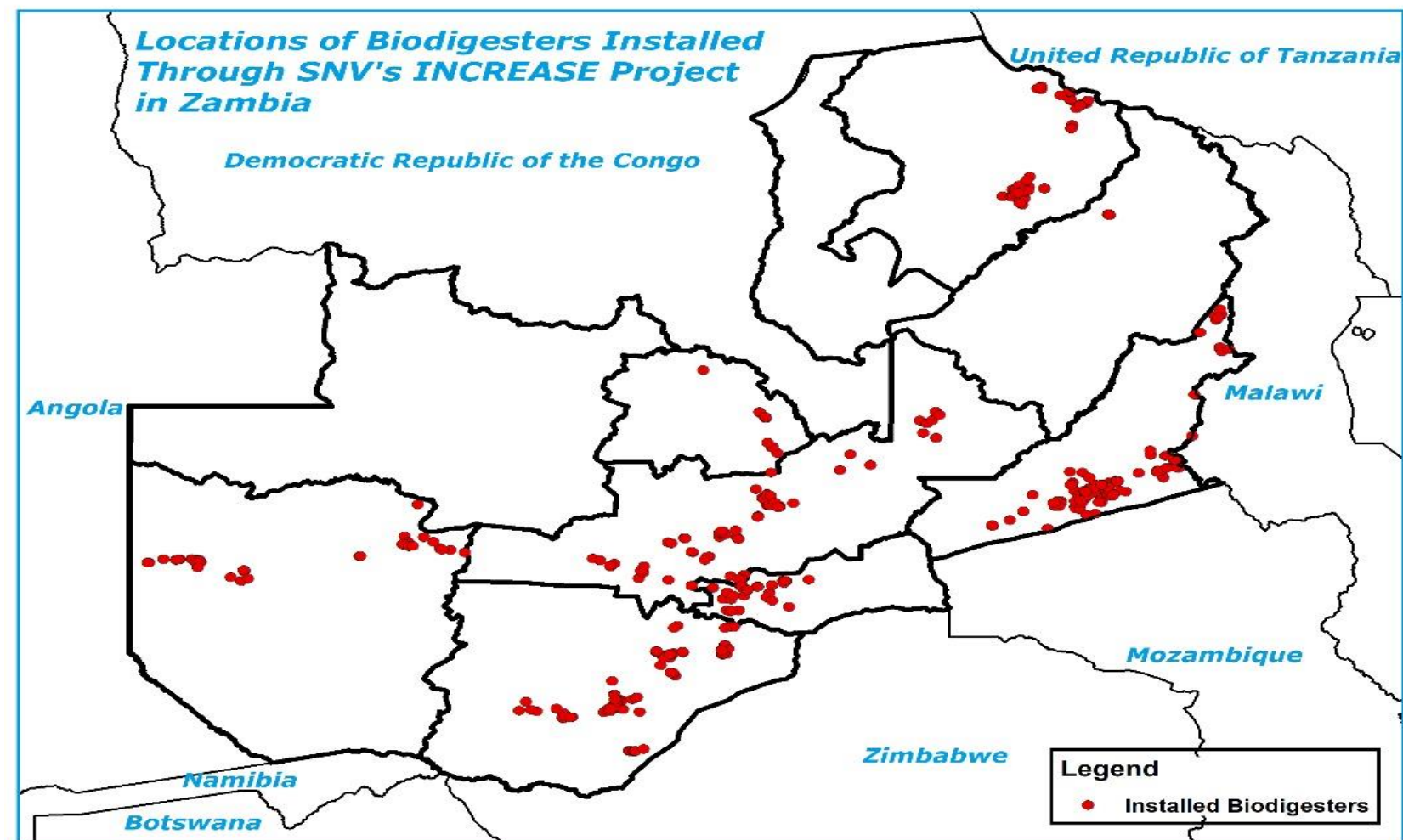
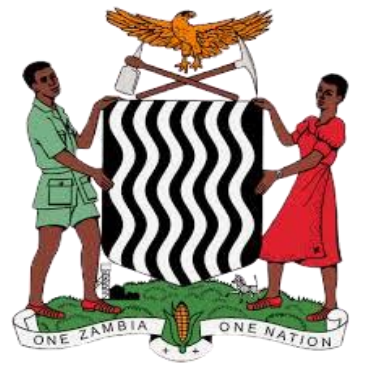
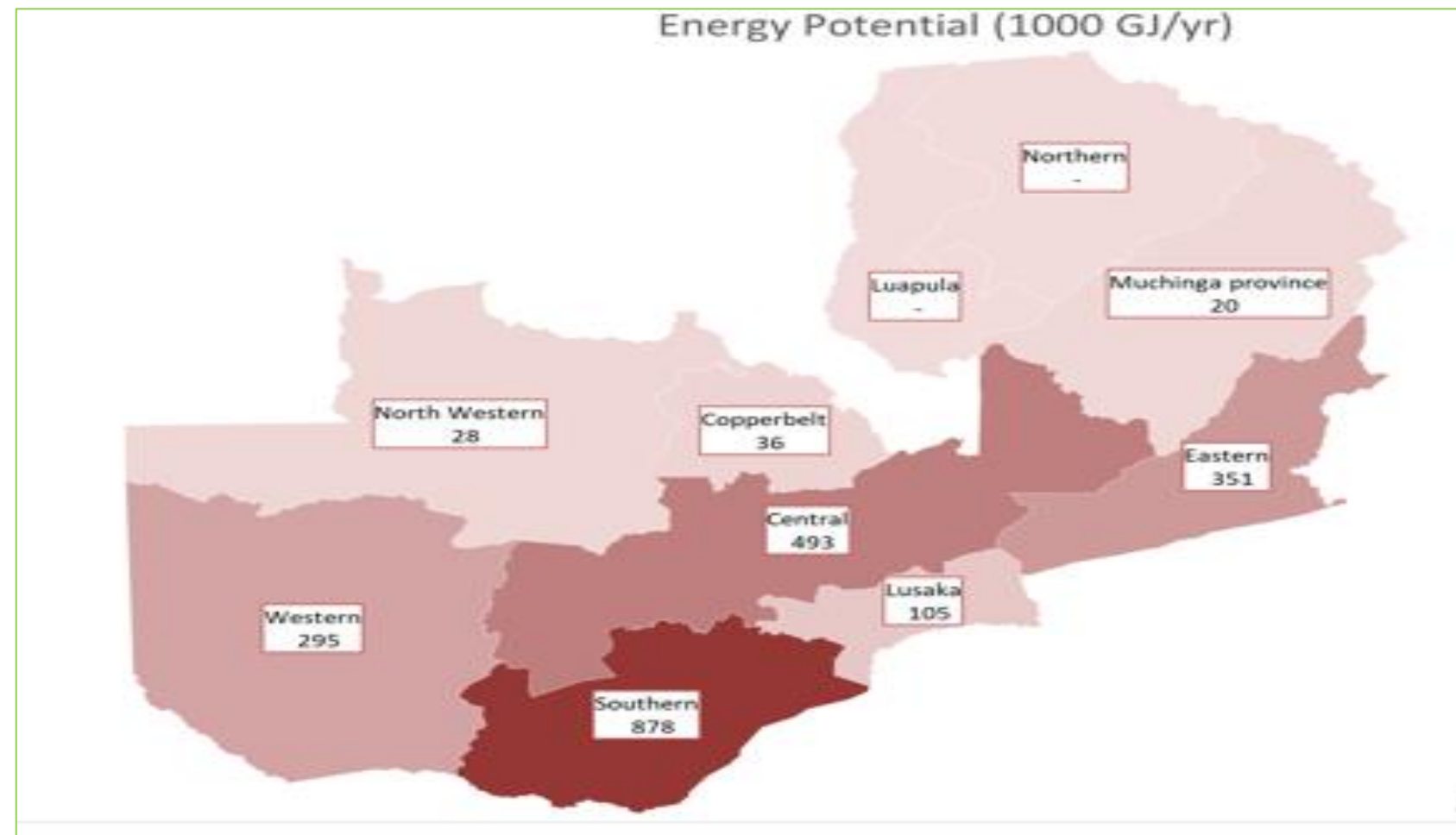


# BIOGAS RESOURCES

## BIOENERGY AND FOOD SECURITY STUDY UNDERTAKEN, 2015 :

3.124 million tonnes of cattle, pig, chicken and goat manure available to produce about 2,370 TJ of Biogas annually

The theoretical number of households with the financial and technical capacity to invest in a biodigester was around 166,748.



# BIOGAS TARGETS



## SE4ALL AA

0.5% of **Rural** households  
with biodigester units by  
2030



## EESAP

20% increase of biodigesters  
across the country by 2030

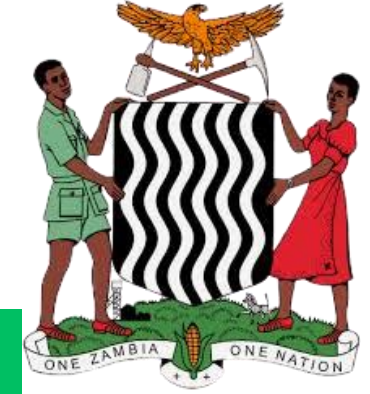
## GESAP

S.O 1: Increase access to and use  
of clean energy by women for  
domestic and productive  
purposes

## SNV 2016

**Biogas estimated to meet  
about 3% of national energy  
demand**

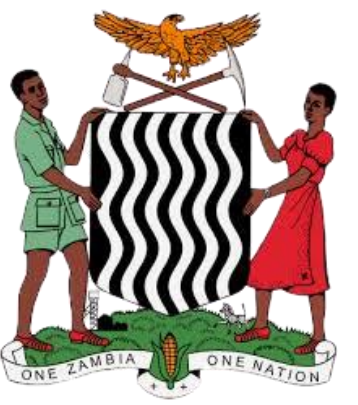
## TA RECOMMENDATIONS



1. Educational and Training Programmes
2. Research and development incentives
3. Financial support mechanisms
4. Policy framework for feedstock management
5. Grid connection policies
6. Community engagement and awareness
7. Quality standards and certification
8. Incentives for agricultural-sector integration
9. Capacity-building for government agencies
10. Inclusion of women, youth and marginalized groups



# TA IMPLEMENTATION



## Educational and Training Programs

### *What has been done?*

- **Curriculum:** Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) has a curriculum for biodigester construction.
- **Stakeholder Engagement:**
  - i. OGTF: Capacity Building SC
  - ii. ZGEN: Capacity Building SC
  - iii. ESAG: Cross-cutting SC

Zambia National Biogas Association re-established to facilitate wider stakeholder engagement

- **TOT:** Through one development partner, 450 masons trained. Some participants have gone on to start their own businesses and training programs
- **TOT Monitoring and Impact Assessment:** OGTF currently working on a database to track total number of individuals trained, geographical distribution of installed systems and functionality.
- ✓ Already have some collected data from one of the development partners.

### *What requires action?*

**Establishing dedicated training facilities equipped with the necessary infrastructure for hands-on training.**



# TA IMPLEMENTATION



## Community Engagement and Awareness

### *What has been done?*

- Energy Week
- Biodigesters in public schools and markets to provide tangible examples of the technology
- Energy Forums, Expos and community demonstration programs facilitated by developing partners, cooperating partners and private sector players

### *What requires action?*

## Targeted Awareness Campaigns

# TA IMPLEMENTATION



## Inclusion of Women, youth and marginalized groups

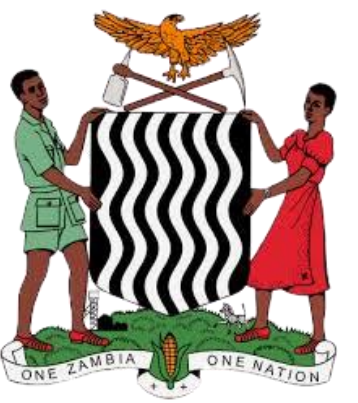
### ***What has been done?***

- Gender Equality Strategy and Action Plan for Energy Sector
- Zambia Gender and Energy Network
- Rural Electrification Authority Gender Initiative
- Energy for Agriculture project
- INCREASE project

### ***What requires action?***

**Establish Support programmes specifically for women entrepreneurs interested in entering the biogas sector.**

# TA IMPLEMENTATION



## Quality Standards and Certification

### *What has been done?*

#### **Zambia Qualifications Authority**

- National Occupational Standard for Bio-digester Plant Constructor

#### **ERB**

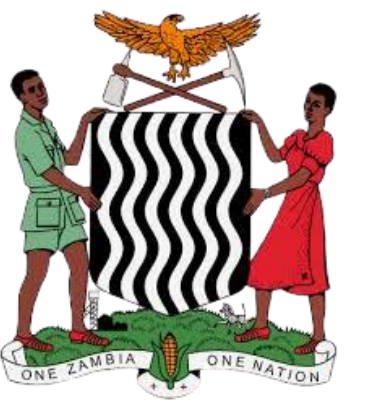
- ZS 908 Biogas Systems – Code of Practice Part 1: Design, Installation, Operation and Maintenance of Biogas Systems
- ZS 908 Biogas Systems: Biogas Grids
- DZS 1273: Biogas (Biomethane) - Specification

### *What requires action?*

**Establish testing facilities to assess performance of biogas systems and ensure adherence to biogas quality specification standards**



# TA IMPLEMENTATION



## Grid Connection policies

### *What has been done?*

- S.I. No. 52 of 2024
- Net-metering
- Electricity Open Access

### *What requires action?*

## Inclusive Grid Capacity Planning

# TA IMPLEMENTATION



## Financial Support Mechanisms

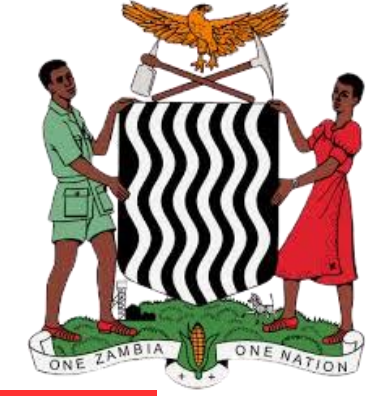
### *What has been done?*

- Application for fiscal incentives for biodigester components in 2026 National Budget under discussion
- Carbon Trading mechanisms under discussion

### *What requires action?*

**International finance targeted at biogas development**

# OPPORTUNITIES



## Biogas Development

- ✓ Policy
- ✓ Regulations
- ✓ Standards
- ✓ Biomass resources

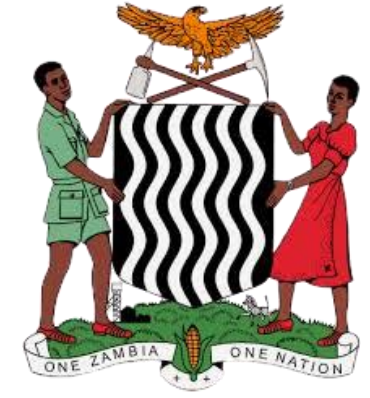
**The Government of Zambia has created an enabling environment for the development of the biodigester technology and is determined to have an effective diversified energy mix!**





# CALL TO ACTION

OPPORTUNITIES ARE OFTEN THE BEGINNING OF GREAT ACHIEVEMENTS, SO WE CALL UPON YOU ALL TO CONTINUE CONNECTING AND COLLABORATING WITH US AS WE STRIVE TO SECURE ZAMBIA'S ENERGY FUTURE!





**Thank  
You**

*Thank  
you*