EXPERIENCE OF BIOGAS **TECHNOLOGIES AS AN ALTERNATIVE SOURCE OF** ENERGY AND FERTILIZER IN A WAY TO REDUCE RURAL **ENVIRONMENTAL DEGRADATION** AND INCREASE CROPYIELD IN ZANZIBAR

### PRESENTATION OUT LINE

- Introduction
- Potential of biogas in Zanzibar
- Importance of biogas in rural area of Zanzibar
- Distribution of households by source of fuel for cooking
- **Types of biogas plants** installed in Zanzibar
- Comparison between biogas technologies in Zanzibar.
- Bioslurry as organic fertilizer
  Conclusion

### Introduction

Biogas typically refers to a mixture of different gases produced through anaerobic digestion of cow dung.

Alternatively; Biogas is produced from raw materials such as agricultural waste, municipal waste, plant material, sewage, green waste, food waste or faces from other animals.

### Potential of biogas in Zanzibar

- Zanzibar has biogas potential having 155,624 number of cattle heads.
- According to Sample Census of 2007/8 show that there were 39,420 households with cattle in Zanzibar.
- A number of 2 -3 cows is sufficiently to run a biogas plant and produce enough gas to serve
  5 to 7 people in the household.

### Importance of biogas technology in rural of Zanzibar



### Fish farming





### **Fodder Production**



# Distribution of households by source of fuel for cooking

Source of	Rural	Urban	Overall
Fuel			
Firewood	93.20%	47.10%	75 %
Charcoal	5.10%	44.50%	20 %
Kerosene	1.00%	4.50%	2.4%
Electricity	0.40%	2.70%	1.3%
Other	0.20%	1.00%	0.5%
LPG	0.10%	0.20%	0.1%
Source: CARE/HIMA Sept 2011			

# Types of biogas plants installed in Zanzibar



### Types of biogas plants....



# Comparison between CMD and DBGT

- Economic
  - CMD-cheaper (6cubic meter 1.5m, 9 cubic meter 2.0 m)
  - DBT-Expensive (over 4m)
- Durability
  - DBT-leakage, caused by internal and external factors
  - CMD-Perfect there is no problem reported since installation.
- Technical personnel
  - DBT had only one technician
  - CMD number of technicians were employed and trained.

# Bioslurry as organic fertilizer versus fresh cow dung

- The organic fertilizer is free from worms that has undergone methanogenesis
- It is richer in nitrogen and other macronutrients necessary for plants' growth and productivity.
- It helps in the algae production as fish feed in fish farming.

### Conclusion

Emphasis on further installation of biogas plants in the rural communities and there is a need for the authorities to subsidize the plants so that large number of households could afford.

## Ahsanteni sana kwa kunisikiliza