

Presentation at the
2ND ACP BIOFUEL
WORKSHOP

**On the production of non-food, bio-oil
supply chains for renewable energy
in Ghana; needs, challenges and
opportunities**

At Yilo Lodge, University of Ghana campus, Legon

On 2ND-4TH April 2013

PRESENTATION BY:

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UNIDO International Expert: Biogas Technologies In Africa,

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(ARSCP) Executive Member and Team Leader On Biofuels For Africa.

**GHANA'S EXPERIENCE
IN BIOGAS
PRODUCTION;
NEEDS, CHALLENGES
AND CAPACITY**

NEEDS

- **POLICY**

Law Recognizing Renewable Energies

- **FINANCIAL**

Bank and/or Government subsidies

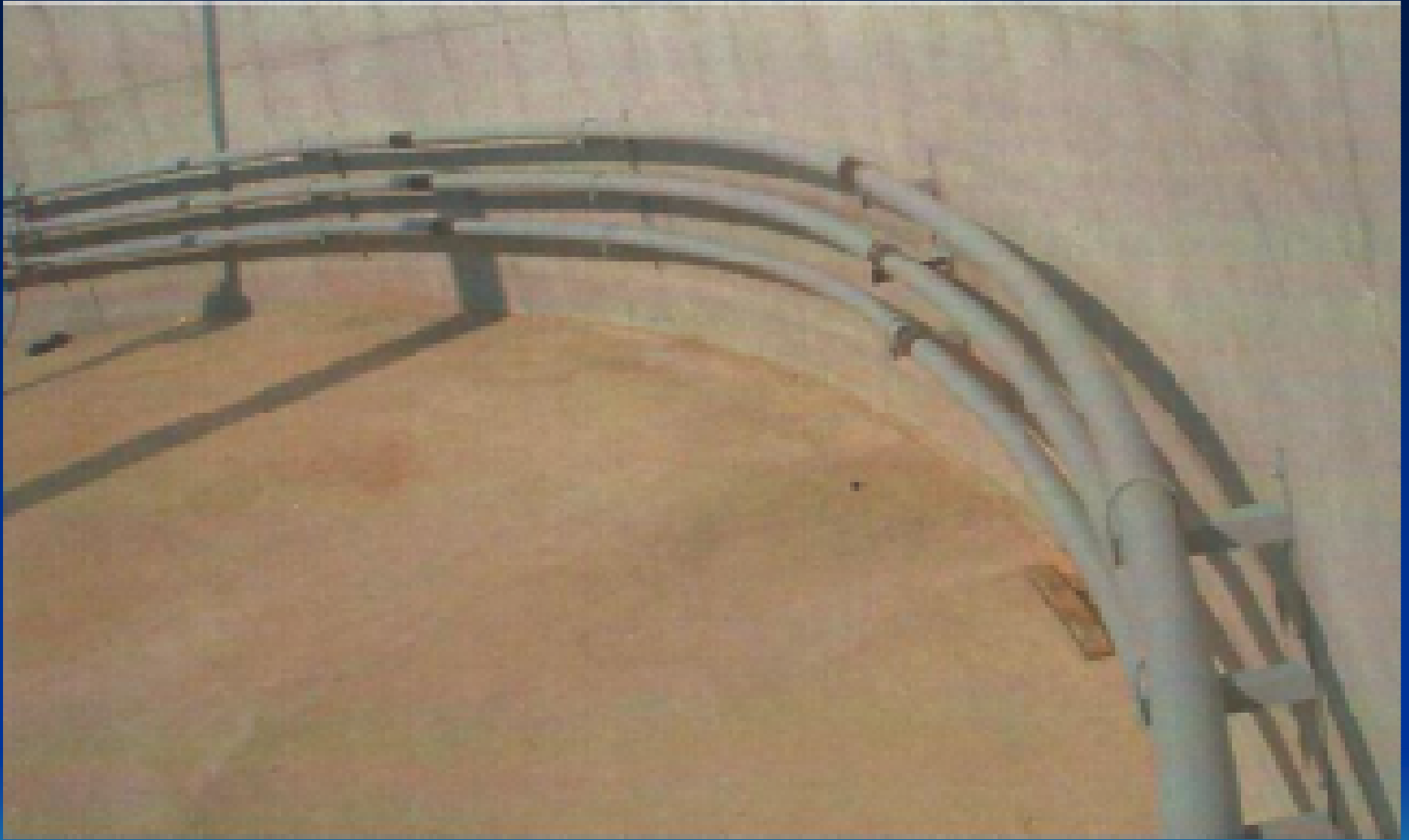
- **ADVOCACY**

Through the media

- **RESEARCH AND
TECHNOLOGY ADAPTATION**



**Picture of Centralized co-digestion Plant in Denmark
(LEMVIG BIOGAS)**



Heating Pipes, Installed inside the Digester (AGRINZ 2008)

CHALLENGES

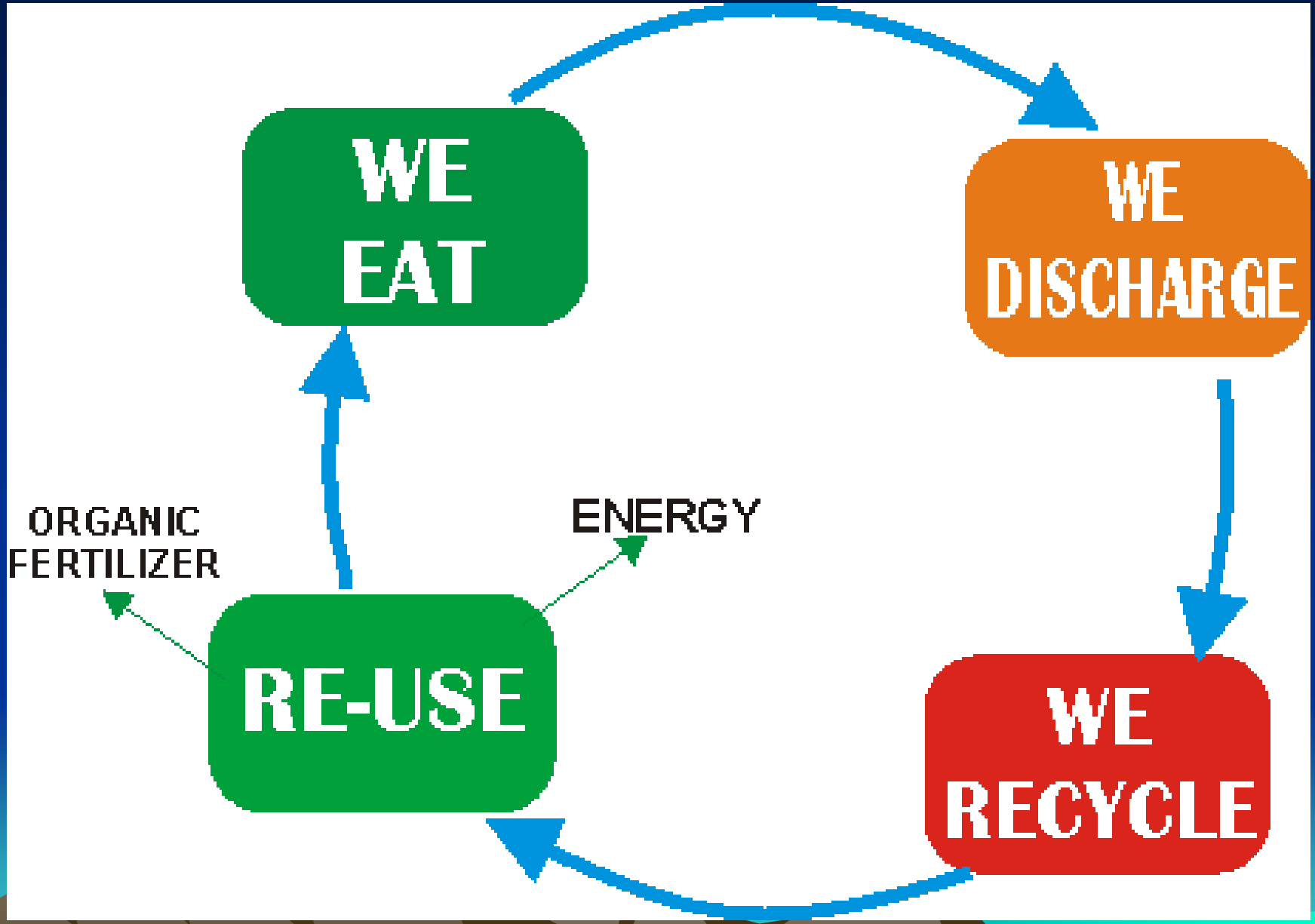
- **FINANCIAL OUTLAY**
- **ADVOCACY**

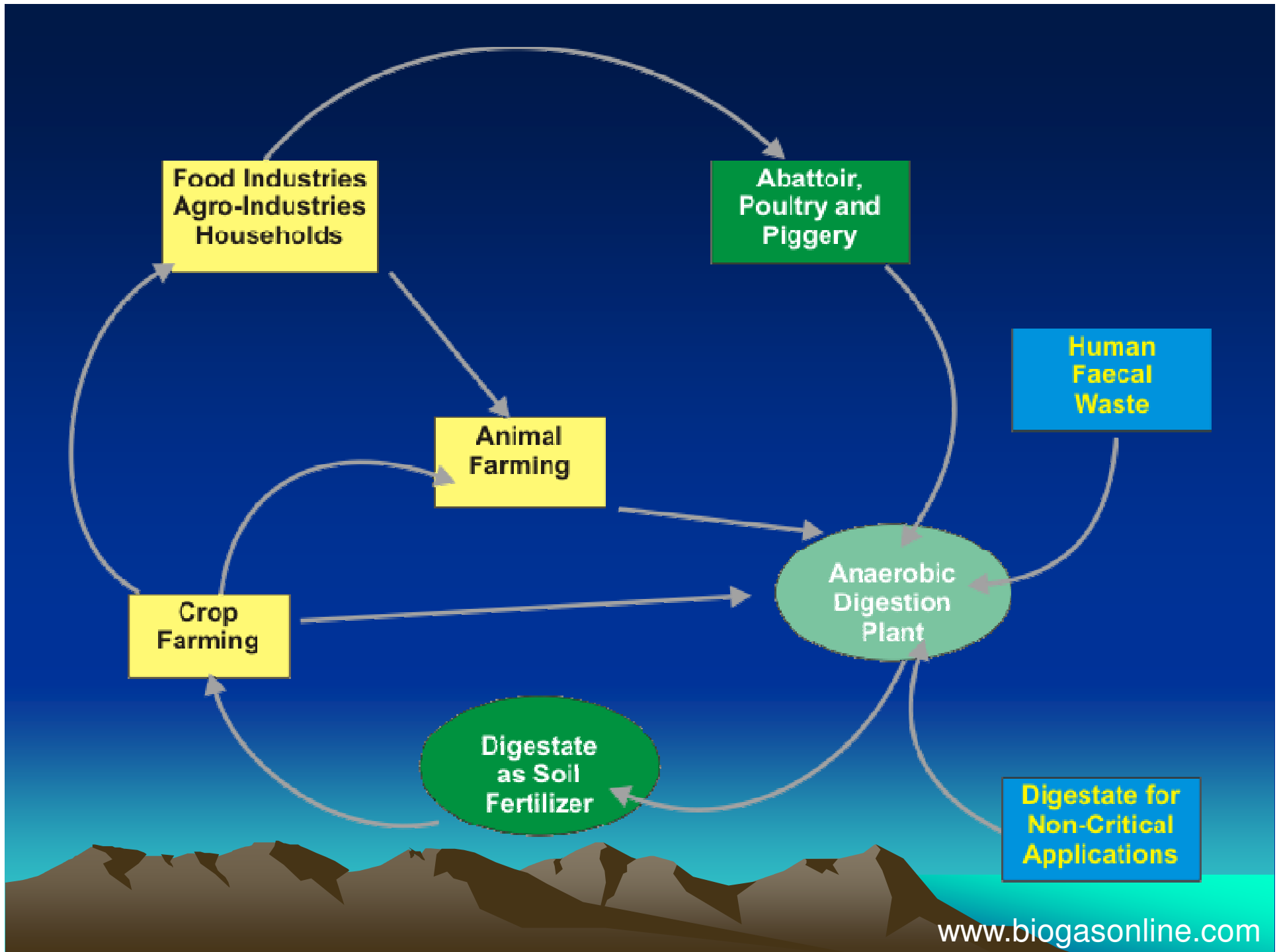
CAPACITY

- **GHANA HAS SOME CAPACITY IN THE PRIVATE SECTOR**
- **CAPACITY NEEDED IN POLYTECHNICS AND SCIENCE-BASED TERTIARY INSTITUTIONS**
- **ARTISANSHIP CAPACITY BUILDING**

- **Renewable energy has gained ground globally due to decline in the amount of non-renewable sources, the menace of uncontrolled pollutants generation and the quest to find a sustainable source of clean energy.**
- **Biogas remains a solution to this global problem**

- **The Anaerobic Sewage and/or Biodegradable material treatment that result in Biogas Production and Effluent Fertilizer has so far and for a long time in the foreseeable future proven to be a cross-cutting technology that really responds to a more appropriate, sustainable, environmentally Friendly and Value for Money Option**





- **This Technology is innovative and can be adopted especially in our Climatical Conditions to our advantage.**
- **The Biogas Technology allows us to apply the already existing decentralized approach by facing out The Septic Tanks and Cesspool Emptying.**

LAVENDER HILL, ACCRA SEWAGE DISCHARGE INTO THE SEA



THE SAKUMONO LIQUID WASTE TREATMENT PLANT, TEMA

A TYPICAL USING ENERGY TO DESTROY ENERGY TECHNOLOGY



RESULT OF LACK OF ENERGY



CHARACTERISTICS OF SEWAGE

- **Inherent Health Hazards**

- **BACTERIA TYPES IN SEWAGE**

- **Salmonella**
 - **Shigella**
 - **Poliviruses**
 - **Schistosoma Ova**
 - **Hookworm Ova**
 - **Ascaris Ova**
 - **Typhoid**
 - **Paratyphoid**
 - **Cholera**
 - **Dysentery Bacteria**
 - **Bilharzia**

The problem therefore relate
to the full recognition of these
Biodegradable waste as a

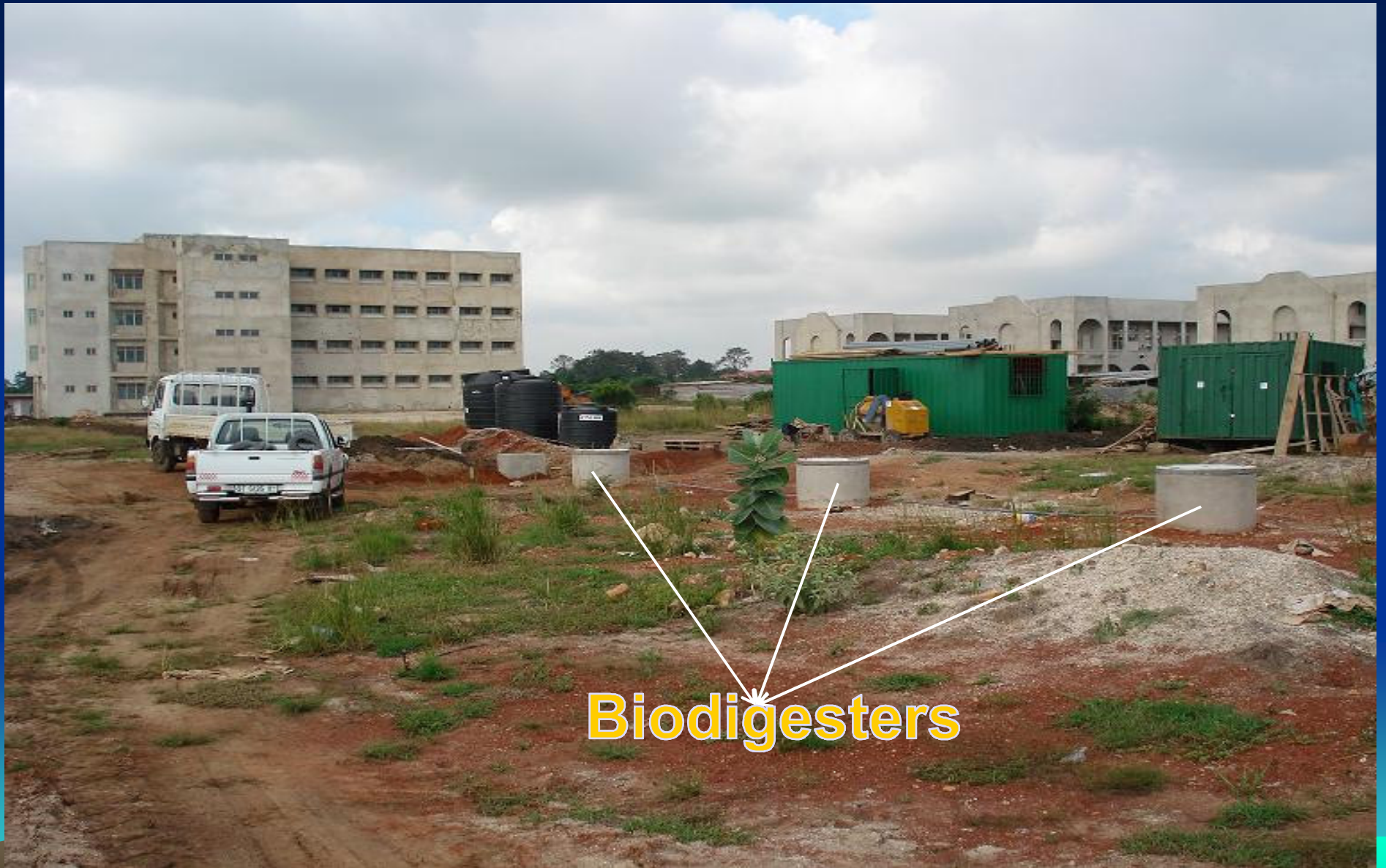
SUSTAINABLE POTENTIAL RAW MATERIAL

for the development of a Renewable
Energy Source, which could be used for
**COOKING, REFRIGERATION AND ELECTRICITY
GENERATION**

no matter how small the energy produced is.

BIOGAS PLANTS
in
Some Selected
EDUCATIONAL
FACILITIES

The Central University Biogas Plant



Biodigesters

BIOGAS STORAGE AT GHANA CHRISTIAN INTERNATIONAL HIGH SCHOOL



COOKING EQUIPMENT – Biogas Stoves 1 at the Valley View University,

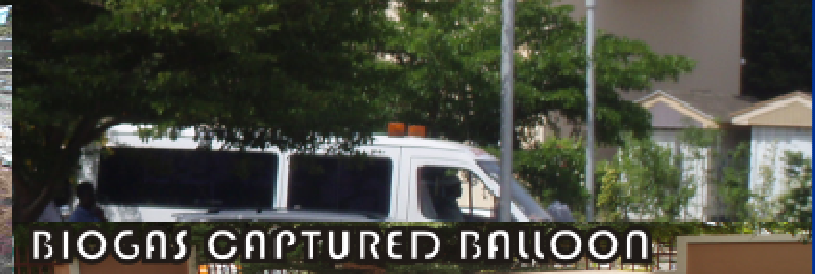


THE HOSPITALITIES APPLICATIONS

THE AFRICAN REGENT HOTEL BTWAL ADS-PLANT



ADS-PLANT UNDER CONSTRUCTION



BIOGAS CAPTURED BALLOON



THE FIESTA ROYALE BTWAL ADS-PLANT



**A CONSTRUCTED
BTWAL ADS-PLANT**

INSTITUTIONAL APPLICATIONS

A VIEW SHOWING THE DIGESTERS, THE FILTRATION BED, SLURRY SERVICE PUMP AND THE BIOGAS BALLOON STAND AT THE PRESIDENTIAL PALACE (FLAG STAFF HOUSE)



A VIEW SHOWING THE BIOGAS BALLOON STAND AT THE PRESIDENTIAL PALACE (FLAG STAFF HOUSE, GHANA)



COMMUNITY BASED APPLICATIONS (PUBLIC BIO-LATRINES)

THE PUBLIC BIO-LATRINE AT THE TAMALE WEST HOSPITAL



A NEWLY BUILT BIO-LATRINE AT AFIADENYIGBA IN THE VOLTA REGION



The Digester underneath the Super Structure

A NEWLY BUILT BIO-LATRINE AT ADIESO SDA SCHOOL IN THE EASTERN REGION



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DOMESTIC APPLICATIONS

THE BIOGAS FACILITY IN A DOMESTIC HOME (JOHN IDAN'S RESIDENCE)



TREATED EFFLUENT SLURRY FOR NON-CRITICAL APPLICATION

THE TREATED EFFLUENT SLURRY

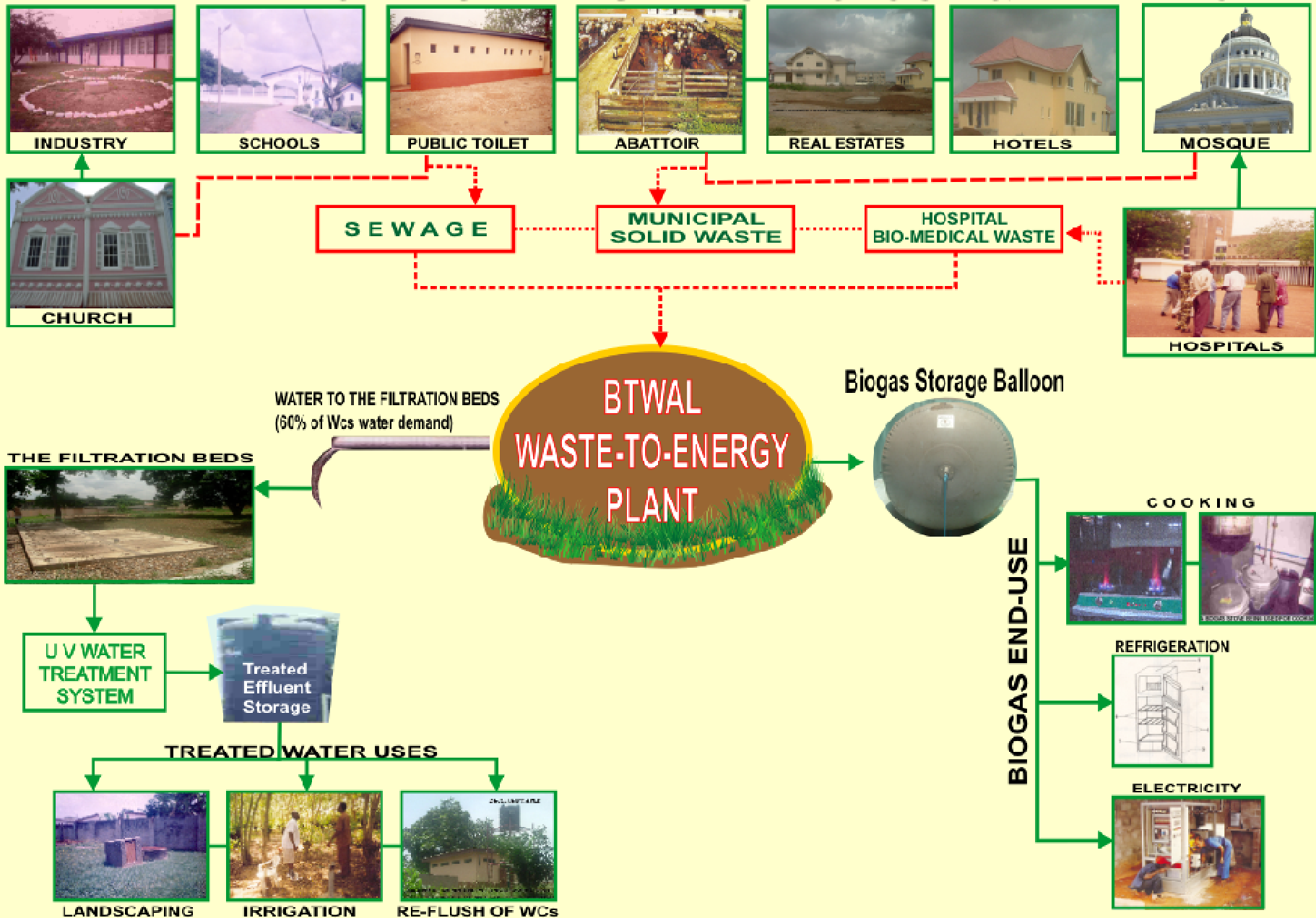
Nitrogen Rich Liquid Slurry
(Fertilizer)



Alternative uses of Treated water for Woodlot Plantation Irrigation at The Battor Catholic Hospital



BTWAL WASTE-TO-ENERGY TECHNOLOGY & BENEFITS



***Thanks for your
attention***

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