ECOWAS/GBEP WORKSHOP ON THE PILOTING OF GBEP SUSTAINABILITY INDICATORS
PRAIA (CAPE VERDE), 7-8 NOVEMBER 2013

INTRODUCTION TO THE PILOT STUDY IN GHANA

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PRESENTATION OUTLINE

- Overview of Ghana
- The Pilot Study Project
- Processes and methodologies in the pilot Study
- General outcome of the Study

OVERVIEW OF GHANA

-Land Area: **238,500 km2**

- Population: **24,658,823** (2010 Census)

-Electricity Access: **74%** (2012)

-Rural Access: **47%** (2012)

-Consumption/Capita: **443.3kWh** (2012)

- Av. GDP Growth Rate: **9.2%** (2012)

Major Export: **Cocoa, Gold, Timber, Bauxite, Oil, Electricity** (Togo, Benin & Burkina Faso)

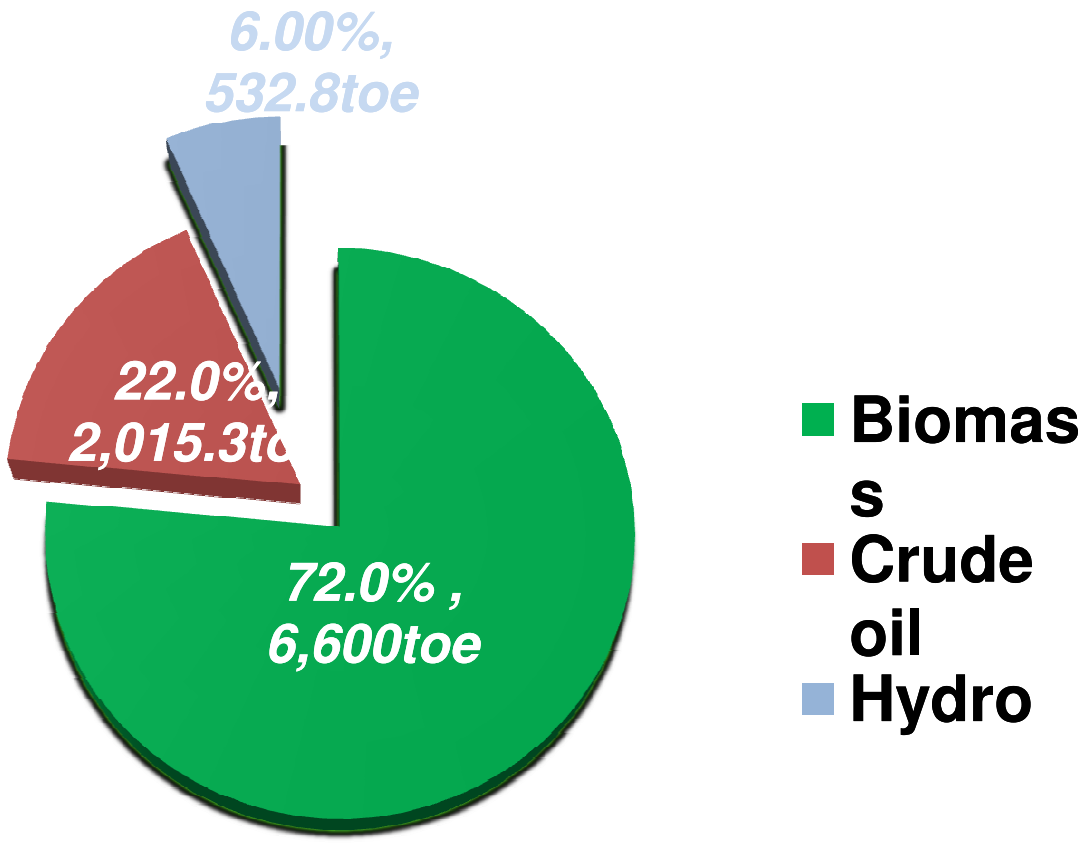
GHANA'S ENERGY SITUATION

- **Electricity Installed capacity (2012) 2,280MW**
- **Electricity generation (2012) 12,024GWh**
- **Crude oil production (2012) 100,000 - 110,000b/day**
- **Electricity generation (2012)**
  - **Hydro component - 8071 GWh (67.1%)**
  - **Thermal component - 3,953GWh (32.9%)**

RENEWABLE ENERGY RESOURCES

- Solar energy 4.5-6.0kWh/m^2/day
- Wind energy (along coast) over 5.6 m/s at 60metres height
- Hydro (≤ 100MW) 900MW
- Biomass:
  - Total Wood supply for fuel 30.7 million tonnes/annum
  - Woodfuel supply 8 million tonnes /annum
  - Municipal waste 2 million tonnes/annum;
  - Wood residue 2 million

PRIMARY ENERGY SUPPLY IN GHANA



- **Bioenergy policy**
  - **Woodfuel. Biofuel and Biomass wastes**

- **Why GBEP Sustainability Indicators are important for Bioenergy policy development**
  - **Sound policy**

The Pilot Study Project

INTRODUCTION

- **Biomass accounts for more 60% of Ghana total annual energy consumption.**
- **The resource is harvested and utilized unsustainably.**
- **The Global Bioenergy Partnership has developed a set of 24 sustainability indicators for the bioenergy sector use by national governments.**
- **The government of Ghana decided to conduct a pilot project with the GBEP sustainability indicators, in close cooperation with the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) in 2010.**
- **The Dutch government provided financial support for the study.**
- **Partners for Innovation, a Dutch biomass and bioenergy sustainability expert provided technical assistance for the pilot.**
- **The study was undertaken from October 2011 to November 2012.**

OBJECTIVES OF GHANA GBEP PILOT PROJECT

1. Enhance the capacity of Ghanaian organisations to use the GBEP indicators as a tool for:
   - assessing the sustainability of the bioenergy sector and
   - developing sustainable bioenergy policies

2. Learn lessons on how to apply the indicators

3. Enhance their practicality as a tool for policymakers

4. Spread experiences in ECOWAS region

Processes and methodologies in the pilot Study

ACTORS

Steering Group

- ❑ Office of the President of Ghana
- ❑ ECREEE
- ❑ NL Ministry of Environment
- ❑ NL Agency

Policy Stakeholder Group

- ❑ Energy Commission
- ❑ Ministry of Energy
- ❑ Ministry Food and Agriculture
- ❑ Ministry of Environment, Science and Technology
- ❑ Ministry of Lands and Natural Resources
- ❑ Council Scientific and Industrial Research
- ❑ Forestry Commission
- ❑ Environmental Protection Agency
- ❑ Northern Development Forum
- ❑ Africa Biofuel Renewable Energy Company

SELECTED RESEARCH INSTITUTES

Council for Scientific & Industrial Research – Forest Research Institute (FORIG):

Council for Scientific & Industrial Research –Institute of Industrial Research (IIR):

University of Ghana – Institute of Statistical, Social & Economic Research (ISSER):

PROCESS OF SELECTING THE GBEP SUSTAINABILITY INDICATORS FOR THE PILOT

Environmental		Social		Economic	
1. Life-cycle GHG emissions	3	9. Allocation and tenure of land for new bioenergy production	2	17. Productivity	1
2. Soil quality	4	10. Price and supply of a national food basket	1	18. Net energy balance	4
3. Harvest levels of wood resources	1	11. Change in income		19. Gross value added	
4. Emissions of non-GHG air pollutants, including air toxics	5	12. Jobs in the bioenergy sector	4	20. Change in consumption of fossil fuels and traditional use of biomass	2
5. Water use and efficiency		13. Change in unpaid time spent by women and children collecting biomass		21. Training and re-qualification of the workforce	6
6. Water quality		14. Bioenergy used to expand access to modern energy services	3	22. Energy diversity	5
7. Biological diversity in the landscape		15. Change in mortality and burden of disease attributable to indoor smoke		23. Infrastructure and logistics for distribution of bioenergy	3
8. Land use and land-use change related to bioenergy feedstock production	2	16. Incidence of occupational injury, illness and fatalities		24. Capacity and flexibility of use of bioenergy	

SELECTION OF INDICATORS

Environmental pillar	Social pillar	Economic pillar
1) Lifecycle Green House cases (GHG) emission	10) Price and supply of national food basket	17) Productivity
2) Soil quality	12) Jobs in the bioenergy Sector	18) Net energy balance
3) Harvest levels of wood resources	14) Bioenergy used to expand access to modern energy services	20) Change in consumption of fossil fuels and traditional use of biomass
8) Land use and land-use		23) Infrastructure and logistics for distribution of

SCOPE OF THE RESEARCH WORK DONE

Environmental pillar	Social pillar	Economic pillar
CSIR-FORIG	UG-ISSER	CSIR-IIR
Indicators 1, 2 and 8: • Wood resources • Jatropha, sunflower • Agricultural residues Indicator 3: • Wood resources	Indicator 10: • Maize and sorghum Indicator 12: • Wood to charcoal and jatropha to biodiesel Indicator 14: • baseline year 2010	Indicators 17, 18, 20 and 23: • Fuel wood to charcoal • Vegetable oil to biodiesel • Waste to biogas

OBJECTIVES OF RESEARCH WORK

1. **Assess the status of bioenergy data collection.**

2. **Understanding the practicalities of implementing the GBEP indicators in Ghana.**

3. **Learning lessons on ways to move forward with the GBEP indicators in**

RESEARCH ASSIGNMENT

1. **Collect the most appropriate (already available) data.**
2. **Assess the usefulness, availability and quality of data.**
3. **Provide recommendations for improved data collection and use.**
4. **Provide baseline values for the selected indicators.**

METHODOLOGY USED

1) Internet search / desk research; and

2) Interviews with relevant Ministries and Commissions, Ghana Statistical Service, other research institutes, NGOs, industry associations and individual bioenergy/ biofuel companies

General outcome of the Study

DATA AVAILABILITY AND QUALITY, AND APPLICABILITY OF THE GBEP INDICATORS

- **The pilot clarified which data is already collected in Ghana, with what frequency and by who.**

- **The pilot identified how data collection methodology and data collection infrastructure can be improved in the Ghanaian situation.**

- **The pilot concluded that making data collection methodologies and**

RELEVANCE FOR THE GBEP INDICATORS OF EXISTING DATA COLLECTION AND REPORTING STRUCTURES IN GHANA

- The pilot identified data being currently collected and reported on, how this data is collected and the organisations collecting them.

- A number of Ghanaian institutions collect relevant data in a structured manner for bioenergy related subjects.
    - Agricultural data – Ministry of Food and Agriculture, SRID
    - Energy statistics – Ministry of Energy, Energy Commission
    - Ghana Living Standards Statistics – Ghana Statistical Service

THANK YOU