Bioenergy Group

REMP Review

Observations and Recommendations

17 participants.

9th March 2017

Additions, Recommendations

3.6. Targets and Action Plan for Solid Biomass

3.6.2 Opportunities

- Increase generation capacity using less variable biomass conversion technologies;
- captive power for industrial use;
- reduce deforestation using dedicated woodlots;
- diversify cooking fuel mix;
- create jobs; and
- build capacity in solid biomass technologies.
- **Develop knowledge through research and development of biomass technologies**
- **Empower women businesses / entrepreneurs.**

3.6.3 - Description of Interventions

- This plan focuses on solid biomass technologies for heat and power generation and production of solid fuels such as **SUSTAINABLE CHARCOAL**, pellets and briquettes. Proposed interventions will also cover promotion of energy efficient **CONVERSION** (improved kilns, briquetting equipment) and end-**use devices** (improved stoves etc.....

Table 7: Targets for Improved Institutional/comercial cookstoves low 3,500 units

Questions posed:

1. What assumptions were made for setting targets?

2. Is it based on market potential or business as usual?

SNV research on market potential for fish smoking stoves counted 160,000 traditional fish smoking stoves in the coastal areas

Another research study in the three northern regions - 32,000 traditional stoves in only 15 districts for shea butter, rice parboiling andpito brewing.

- **Institutional cookstoves should target at least 18000 by close of 2030**

Reference data - for utility scale biomass power generation

Two studies on biomass resource potential for Ghana

- Dr. Kemausuor et al 2014 - Assessment of biomass residue availability and bioenergy yields in Ghana

- Dr. Duku, Dr. Hagan, Dr Gu -

A Comprehensive review of biomass resources and biofuels potential in Ghana

- Published by Elsevier and available on Netherlands Embassy website

3.6.5 Actions: Utility scale power generation

Challenges

- High Capital Cost
- Long lead time for feedstock cultivation
- Difficulty in land aquisition
- **Price and availability risk of feedstock**
- **Inadequate research available**

3.6.5. Utility scale power generation - strategies

Strategies to promote utility scale biomass electricity projects

- Collaborate with relevant stakeholders to secure land for woodlot plantations; and
- Develop technology in modular units to address capital cost challenges.
- **Strengthen the state research and development institutions**

Page 32 - 35: Arrangement of presentation in report - Deal with fuels first before dealing with cookstoves.

After charcoal production

We recommend woodfuels and briquettes to be moved up before domestic and institutional cookstoves.

Page 31: Domestic Cookstoves

Challenges:

- Low awareness of improved cookstoves;
- Lack of standards and labelling for the local industry; and
- Local manufacture relies more on manual techniques, with some semi-automation.
- **High Cost of improved cookstoves**

Page 32: Domestic Cookstoves - strategies

- There is
- **Create** awareness among households

Recommended

- **Raise awareness among households**

Reason: There are already some initiatives to create awareness, so we need to increase it.

Page 32: Strategies to promote domestic cookstoves

Add:

- **Tax incentives**
- **Innovative Financing schemes**

Page 32: Institutional Cookstoves

<u>Strategies</u>

- **Introduce innovative financing schemes through collaboration with financial institutions**
- **Explore ptential technology for biogas use for institutional cooking.**

Page 32: Challenges in woodlot cultivation

Add

- **Long lead time for feedstock cultivation**

Page 32: Woodlots strategies

- Facilitate the creation of guaranteed offtake markets
- Collaborate with relevant institutions to allocate dedicated lands for woodlots

Page 33: Briquetting and Pelleting

Addition

- High Capital cost for initial set up and MAINTENANCE.

Table 9: Targets for waste to energy

- Municipal Waste **(solid and liquid waste)**

Challenges of Biogas

- **Inadequate data on quantities of biogas units in Ghana (biogas units + feedstock quantification)**

Page 37: Challengess of Biofuels

Challenges

- Logistics for feedstock sourcing unavailable
- Availability and pricing of feedstock

Strategy

- Address access to transportation from feedstock centers
- Siting of the production units close to feedstock centers

Table 10: Targets for biofuels development

Year	Reference Targets (tonnes)	Recommended
Reference (2015)	0	
2020	2,000	1,000
2025	10,000	5,000
2030	50,000	20,000

Table 11; Page 40 Investment Cost and Job Prospects for targeted technologies in the REMP

Biomass utility Scale Power plant investment cost - Unit cost (USD) 6,200,000 / MW is deemed too high

We recommend that it comes to **USD 3,500,000 /MW - as per international benchmarking.**

Woodlot Cultivation = $4,780,000,000 means $11,000 per hectar is on the high side

Recommended cost per hectare should be **$2000 - $3000** per hectare