Use of bamboo for energy production

National Dialogue on wood energy and forest Landscape Restoration in Ghana

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BAMBOO AND INBAR
Monopodial (Running) Bamboo
Sympodial (Clumping) Bamboo
Bamboo and SDGs

SDG 14 – Climate Change Action
SDG 15 – Ecosystem Management
SDG 12 – Resource efficiency
SDG 1- Poverty Reduction
SDG 11 – Sustainable construction
SDG 7- Renewable energy
RENEWABLE ENERGY
Africa Depends on Wood Energy
WOOD CHARCOAL-GHANA

Demand for charcoal is increasing as electricity, oil and LPG price increases.

Previously most wood supply for charcoal production was from off-reserve sources. Increasingly, the forest reserves are also being exploited for illegal charcoal production.
Charcoal Industry Background

- 32% household usage
- Provide nearly 440,000 full-time jobs
- Estimated market: US$70 million
- Charcoal will continue to be critical within Ghana’s energy mix
Economic importance, sources and proportion of household income

Charcoal is second and accounts for 17% of total HH income – i.e., 4.3% from charcoal businesses, 12.4% from charcoal production, and 0.3% from charcoal wages.
Current charcoal industry situation

- Major source of GHGs
- Contributes to environmental degradation
- Not organised
- Ineffective taxation system
- Associated health risks
- Dominated by informal actors
- Usually poor people (Poverty is more prevalent in charcoal producing areas)
- Source of livelihoods
- Deforestation
- Inefficient carbonization
- Poor charcoal transportation system
- Unstructured market
- Weak institutional coordination

However...

Loss of revenue to the state

Unsustainable

- Poverty is more prevalent in charcoal producing areas
Declined feedstock

Continues loss of potential revenue

Continues degradation

Affect livelihoods

Endanger health

Increase More GHG emissions

No Action
BAMBOO CHARCOAL & BRIQUETTE INTERVENTION
BAMBOO SPECIES DIVERSIFICATION

Bamboo Raw material
Bamboo as an Agro-Forestry Enterprise/Farming

30,000 Free-range chicken that produce natural fertilizer and are fat
BAMBOO AGROFORESTRY
3-12 months
BAMBOO AGROFORESTRY (Fire tolerant Bamboo)
BAMBOO AGROFORESTRY- (Bamboo after rains)
BAMBOO CHARCOAL PRODUCTION PROCESS

1. **Biomass**
2. **Cutting** (bamboo)
3. **Sizing**
4. **Drying**
5. **Charcoaling site Selection & preparation**
6. **Kiln Loading**
7. **Charring**
8. **Cooling**
9. **Separation**
10. **Charcoal**

**Steps:**
- Selection & preparation of charcoaling site
- Cutting bamboo
- Sizing
- Drying
- Charring
- Cooling
- Separation
- Production of charcoal
Training on brick kiln construction, bamboo charcoal and briquette making
Provision of facilities
BAMBOO CHARCOAL RESEARCH AND PRODUCTION
Observations

➢ Bamboo charcoal quality good as wood charcoal.........women & household users
2 – 25 tons/Ha for monopodial bamboo.
2 – 40 tons/Ha for tropical bamboo.
• Calorific value of 6500-7000 Kcal/Kg
• Smokeless
• 1-3% ash
• No sparks
• No smell
BAMBOO BRIQUETTE
ROLL PRESS BRIQUETTE MACHINE
VIDEO
BAMBOO BRIQUETTE
Using ball briquettes with improved stoves

Burning ball shape charcoal briquettes

• Briquettes burn out much longer and give off intense, steady heat.

• Charcoal briquettes are ideal for cooking, barbecues, boiling etc.

• A handful of briquettes would cost less than a big lump of charcoal since they last longer, give off intense heat.
Thank you