

Water For People – Uganda

Fuel Briquettes and small town sanitation

*Achiro Brenda Muthemba
Programme Manager*

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SWWW

Lira – a typical African small town

- Population and growing through rural migration- *24% of the community resides in the Town council-*
- *Total population of 410,516.*
- Housing density increasing
- Pits filling up and being emptied manually – anywhere.
- *No fecal sludge treatment plant-*





Small towns- Water for People priority

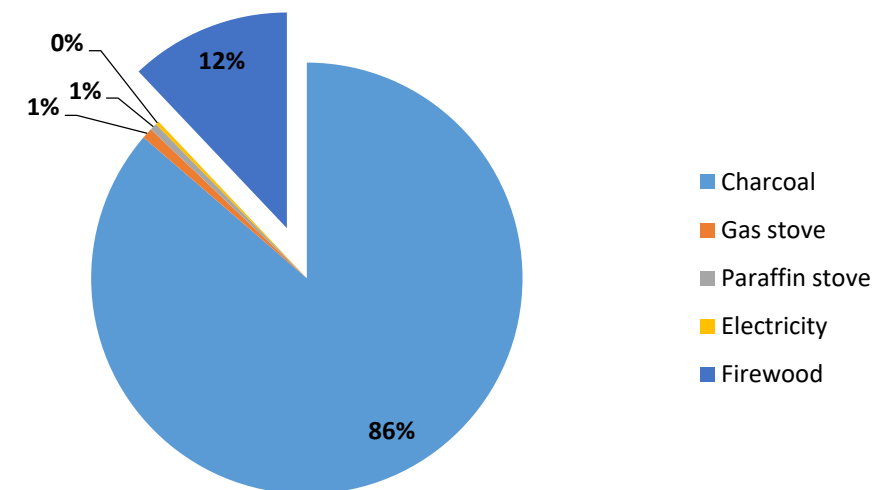
- Small Towns- (>5000<10,000) people.
- Draw experience from Kampala on pit emptying businesses supported.
- Low cost treatment plant (10,000-20,000litres/ day) is appropriate.

Environmental advantages

- 96% of Ugandan HH depend on wood for cooking.
- Total forested area of Uganda is 8.8 million acres.
- The rate of forest loss per year is about 1.81%
- Charcoal consumption is increasing at a rate of 6% per annum.
- Urban household use of firewood accounted for about 70% of that demand while commercial establishments such as hotels accounted for 25%.



Source of energy for cooking



Briquettes – a simple process

- Sludge in drying bed for three weeks – moisture content **90% to 20%**.
- Placed in furnace, burnt for **5** hours at over **600** deg C. Kills pathogens and produced carbon – charcoal.
- Ground to small particle, mixed with molasses as a binder.
- Extruded under pressure
- Dried until MC is **< 5%**



Briquettes – two forms

- Sticks for Household use.
- Honeycomb for institutions- schools.





Household Stick Briquettes- Cheaper and better

- Traditional charcoal in Lira costs **45,000 UGX (USD 12.5) for a large sack of about 50kgs**
- Sludge based charcoal in Lira **costs about 35,000UGX (USD10) for 50kgs**
- Traditional charcoal in Kampala **costs 75,000 UGX (USD 20) for 50kgs-** better margins are found here.
- Advantages – all good burning, no waste. 40% charcoal dust/ waste with bag of traditional charcoal.
- Customers feedback – aware of source, but accept better quality, value for money

Schools - Honeycomb Briquettes.

- Market exists.
- Every Primary schools provides a hot meal a day to students.
- Ideally each school needs **6 cooks**, paid about **USD 30** per term.
- With honey comb briquettes, no. of cooks is cut to 3 cooks- **50% saving on labour costs**.
- Schools spend about **UGX1.2m (USD 333)** on firewood/ charcoal per term
- Spends **UGX 750,000 (USD 208)** per term with honey comb briquettes.
- **38% Saving made.**



BRIQUETTE CASH FLOWS

Cash Inflows	Nov to Jan	Feb to April	May to July	August
Cost of Briquettes (per kg)	533	600	800 (USD 0.2)	800
Quantity	970	1,060	1,820	600
Briquettes Revenue	517,333	636,000	1,456,000	480,000
Cash Out flows				
Char dust	52,000	90,000	140,000	60,000
Binder	12,000	14,000	22,000	10,000
Transport for Char dust	45,000	60,000	30,000	15,000
Offloading of Charcoal Dust	15,000	15,000	20,000	10,000
Labour for production	108,000	108,000	108,000	36,000
Security	150,000	150,000	150,000	50,000
Fuel	45,000	45,000	45,000	15,000
Site maintenance	60,000	60,000	60,000	20,000
Briquette Expenses	487,000	542,000	575,000	216,000
Briquette Margin	30,333	94,000	881,000	264,000
Margin	6%	17%	153%	122%

CapEx, Payback Period and Break Even Point for Pit Emptying , Treatment & Briquettes equipment combined

