Uganda Visit Brief

Visited from 19th – 24th January 2014 by Samuel Wanderi and Steve Kariithi

TEWDI

Our first site visit was to TEWDI in Soroti, Eastern Uganda. TEWDI engages in briquette production as one of her income generating projects. Besides briquttes they also design and produce enery saving cook stoves. We spent two days there with the TEWDI production team and a group of MIT students who were assisting them improve their production process and capacity. They currently make briquettes using husks from groundnuts which they mix with charcoal dust. There current production capacity is at about 500 kgs per day. They engage a production team of about 6 people. The whole production process from carbonizing to drying and packing happens on one site. There primary clients include schools and local domestic users.

Key takeaways

- They started small and grew improving their techniques and production levels through trial, learning and feedback from clients
- They started with basic manual processes (which they still apply) but have being adapting locally available machinery to improve efficiency and capacity.

Green Bio Energy

The second visit was to Green Bio Energy offices and production site both located in Kampala but about an 45 minutes apart. Green Bio makes briquettes from carbonized banana peels mixed with charcoal dust. Green Bio currently produces at about 1.2 tonnes a day as dictated by the market though they have the capacity to produce at 2 tonnes per day. Their target market consists of low-income domestic users, middle and high-income domestic users and institutions. Their briquettes are produced, packaged and priced accordingly.

Their production model consist of training and purchasing carbonized banana peels from their trainees and then mixing with charcoal dust, binding, pressing, drying and packing at their production site. Their site employs about 6 full time employees. They also make energy saving cooking stoves and have now begun to sell fabricated manual and automatic pressing machines.

Key takeways

- They insist that through their experience it is very difficult to set up a profitable briquetting business without using charcoal dust in addition to the carbonized green waste. Though they recognize this is not sustainable in the future.
- Their greatest challenge remains in getting people to adopt use of briquettes and they have thus invested a lot in marketing.

1. Material Before carbonization

2. The ground husks and saw dust poured into kiln for carbonizing

3. Lit kiln

4. Fire put out after carbonization.

5. Carbonized ground nuts sieved

6. Ground charcoal dust

7. Posho mill machine converted to grind charcoal dust

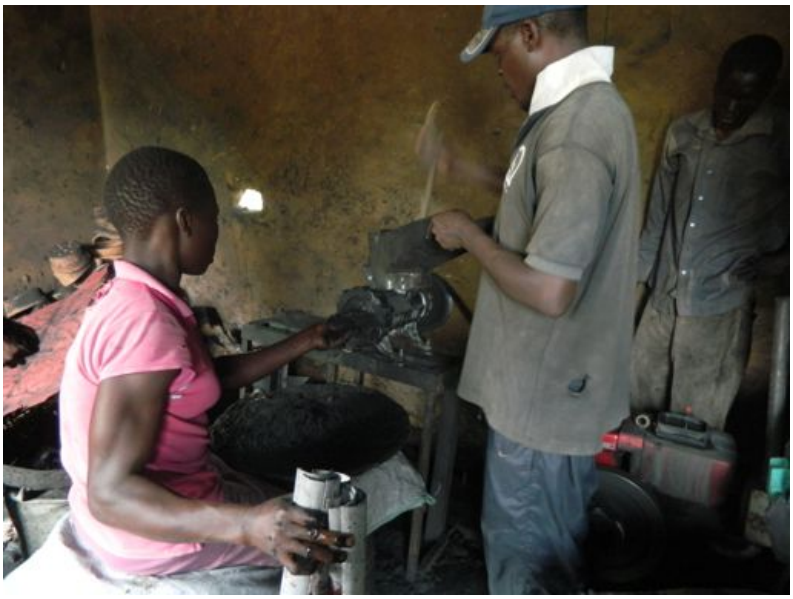
8. Ground cassava mixed with water to be used as binder

9. Ground cassava boiled in water

10. Binder poured on carbonized husks and charcoal dust

11. Binder mixed in

12. To ensure binder gets well absorbed they further mix with hands



13. Mixture with binder poured into extruder converted from a meat mincer

14. Briquettes put out to dry

15. Proposed new drying space

Summarized report details by Samuel

Soroti

The production

Using carbonized Ground nuts mixed with ground charcoal dust in the ratio of 1:1.They use Cassava as a binder which is prepared by boiling in water at ratio of 1:10 respectively. The binder is mixed with the dust at the ratio of 1kg cassava+10litres water to3 bags of dust. It is thoroughly mixed and then pressed in a fabricated machine modified from a meat mince run efficiently by diesel. They produce about 12bags of dust every day.

They are also producing energy saving stoves and they also producing mushrooms.

Their challenges

Carbonization process- their kiln takes minimum of three hours to carbonize about 10 Kgs. They have five kilns producing about 50Kg per day.

Mixing with a binder – Thee MIT is helping build a large mixer

Drying – it has been a problem but with the help from MIT they may result to using a greenhouse and drying boxes.

Lessons

- Use what you have to solve your problems
- Don't ignore the customer in the neighborhood
- Diversify the products.

Green bio Energy

They are large producers of briquettes averaging at about 1.2 T per day in production. They use carbonized banana peels (20%) mixed with ground charcoal dust. They have mastered the art of outsourcing the carbonized peel dust from farmers hence they don't do any carbonization. They have a diversified market mix which includes: Briquettes, machinery, energy saving stoves, training and consultancy.

They also have diesel powered machines which consume about 7litres daily. They have mastered the art of drying using greenhouse technology. Their marketing model, they have used retailers to retail their briquettes to households who consumes about 60% of their product. The remaining 40% is cleanly packed and sold to the high end market.

They are also hoping to go to other towns and also outside the country.

Lessons

- Diversify the products to increase the income flow
- Sensitization of product to consumers is necessary
- With the target market you must package appropriately