

**Feasibility and Impact Assessment of a proposed
project to Briquette Municipal Solid waste for
use as a cooking fuel in Rwanda**

Picture Gallery



ENEDOM has used a 750kg/hr Dev-Tech Piston Press to produce over 850 Tonnes of Briquettes mostly from Coffee Husks and Sawdust. Trials have also been carried out on Papyrus and MSW.



Rwanda currently produces 26,000tonnes of coffee per year generating over 6,000 tonnes of husks.

Sawdust is readily available for Briquetting. It is estimated that 12,000tonnes is produced each year from sawmills. One location in Kigali is home to 150 to 200 carpentry businesses and produce large quantities of sawdust.





8 large Vegetable Markets in Kigali generate vast quantities of organic daily. ISUKU and FCD are negotiating with the Mayors office for the rights to process it in to dry waste for Briquetting.

Market Waste is very high in organic matter and could provide daily 16 tonnes of dry waste suitable for Briquetting.



It is estimated that 60% of all MSW is delivered to the Landfill Site at Nyanza. The other 40% is probably left to accumulate on the streets, later to be washed into rivers and streams by heavy rains. Up to 200 waste pickers survive on incomes scavenged from the waste.



Waste delivered to the land fill site is mostly organic matter. It also comprises a lot of plastic bags, paper, tins cans and plastic bottles. Many of the items can be recycled.

The equipment used to cover the fresh waste has broken down and the waste is now left to decay in the open. Paper and plastic blows away in the wind.

Each day 228 tonnes is delivered daily to the Landfill site which has existed there for 70 years. The accumulating waste towers over the surround land, providing spectacular views for the waste pickers taking a long hard rest.



Leachate is a major problem from the current landfill site. With a rain fall of 1m per year it is estimated that nearly 17,000m³ of leachate runs off the landfill each year and drains into the local water table effect a vast number of Households down stream of the site.



A Intermediate sorting centre for household MSW.

ISUKU and FCD two local NGOs have set up 3 recycling centres providing waste collection service to 18,000 households for a fee of Frw300 per HH per month. Small businesses pay 1000Frw. MSW is collected ever two days. Sorted and carried to the recycling centre

Each recycling centre is managed by An association run by local women from the community. The 3 centres working currently employs 324 workers earning Frw600 per day plus bonuses. 4 more centres are planned for next year providing a coverage of 52,000 households. Other centres will follow during the year after.



Centres started by composting the organic waste but at Frw2 per kg their was no market. Now they sell the dry waste to ENEDOM for Frw8/kg .

FCD uses elevated benches to dry the waste similar to drying coffee



ISUKU lays the waste out on the ground to dry. Plastic sheet is used to protect the waste from rain.

Recycled Materials have a good value

Material	Frw	Unit
Plastic Bags (used for sheeting)	50	kg
Tomato Paste cans	1000	kg
Tins	10	each
Plastic / Bottles	?	each
Compost	2	kg
MSW Briquetting	8	kg



Even plastic bags are sorted washed and sold to plastic bag manufactures to recycle into more bags. Tomato Paste tins are particularly value.

Large tins are crushed and exported to Uganda



Near Kigali Trees are cut for fuel wood and sold directly to Brick kilns, Schools and prisons. Brick makers use the wood wet and whole costing Frw5-6/kg. Schools and Restaurants use the wood split and dried costing Frw29/kg.



Kigali consumes 140,000 tonnes of charcoal per year. Briquettes are one third the price of charcoal, but charcoal will never be replaced by a fuel that has the burning characteristic of wood.

There are hundreds of Restaurants in Kigali that use wood on open fires and it is estimated that they consume 1,700tonnes per year. If they can be persuaded to adapt cooking stove this would create a huge potential market for briquettes.





The best Market for briquettes is the direct replacement of wood used in Institutional Kitchens such as Schools, Prisons and Feeding centres. KIST has installed over the past 10years 4000 stoves throughout the Country which are consuming 7,000tonnes per month of wood. Briquettes work particularly well in stoves and are clean and easy to use and can save up to 15% on wood

Wood is used in many other industries such as brick kilns, bakeries, Tea and sugar factories. However, these industries purchase wood fuel in bulk at very low cost. Briquettes have a much higher fuel content than fresh cut wood but they are still twice as expensive.

