



THE PROOF IS IN THE COOKING

**THE INNOVATIVE
BUSINESS MODEL
OF INYENYERI**

**A SOLID BIOMASS
PROJECT
RWA11065**



EEP

ENERGY AND ENVIRONMENT
PARTNERSHIP / SOUTHERN AND EAST AFRICA





Inyenyeri is a for-profit renewable energy company, whose mission is to break the cycle of energy poverty, through the provision of a fuel and Fan Gasifying Cook Stove solution, which can be sustainably scaled to serve more than 2 million Rwandan households

Inyenyeri offers a holistic cooking system and uses an “energy utility” business model. Cookstoves are infrastructure—they require fuel for functionality. Fuel pellets are energy—they are purchased repeatedly and used every day; one is useless without the other. By creating a system that incorporates both the fuel and the stove, Inyenyeri creates demand for their revenue-generating product while maximizing the health, environmental, and social impacts of clean cooking.





Inyenyeri uses the MimiMoto Fan-Gasifying Stove which is one of the world's cleanest solid biomass cookstove. A Tier 4 Performance Cookstove on Efficiency/Fuel Use, Emissions and Indoor Emissions.

The Mimi Moto can manage many cooking practices, through the use of two burning chambers. The large chamber produces a high power flame for cooking with large pots while the small chamber is specially designed for low flame simmering. The burning chambers are interchangeable, allowing for continuous cooking, as the chambers can be swapped following gasification of the pellets.

The integrated fan can be powered by a built-in battery pack and/or a separate solar panel for operation in off-grid areas.

Inyenyeri engages rural and urban markets in tandem to drive profitability and extend services to all Rwandans. Urban communities drive pellet purchases and rural communities trade collected biomass for pellets, which Inyenyeri uses as the feedstock.

The business model developed by Inyenyeri is novel and innovative. In addition to the sale of Fuel Pellets, Inyenyeri is the first company in the world to prevent "stacking" of cook stoves. The concept of "Stove Stacking" is the use of more than one cookstove technology per household. Inyenyeri prevents stove stacking by completely replacing all traditional stoves in a household with the world's cleanest cookstoves. In order to meet the cooking demands of typical households making use of biomass cook stoves, more than one flame is required. If homes are only able to access a single fan-gasifying stove, these homes would



Rural Customer with Inyenyeri clean stoves.



continue to use stoves that emit deadly gases and particulate matter, in order to meet their demands.

The business model is based on similar models as developed by the telecom providers who offer deluxe phones to customers that sign contracts; the Inyenyeri model offers high-tech fan gasifying stoves free of charge to customers that agree to buy biomass fuel for use in the stoves. Customers receive as many stoves as needed to replace all the old fashioned “deadly” stoves in their homes.

In order to ensure revenue collection and purchase of the biomass fuel, customers purchase one of the Monthly Membership Packages offered by Inyenyeri. These contracts include Fuel Pellets, Stoves, and Unlimited Support

PELLET REVENUES PER HOUSEHOLD:

Urban households: are expected to need an average 2 stoves and purchase an average of 45kg pellets per month for a monthly cost of approx. \$14.

Rural households: are expected to need an average of 1.35 stoves and 'purchase' [via biomass exchange] an average of 28kg pellets per month at an average exchange ratio of 5.5kg biomass per kg pellets.

Urban and rural households generate 5.4 and 2.6 carbon credits/year which are currently under negotiation for a long term fixed-price contract.

The cost of goods sold (COGS) with 25,000 households, with over 19,000 being urban, is estimated to be approximately \$9 per household.

"Within the Inyenyeri business model, instead of customers collecting and burning wood in traditional stoves, the rural Rwandans are able to "exchange" the wood collected for fuel pellets."

for the entire month. A single payment is provided to Inyenyeri monthly. At the end of any month a customer can suspend or terminate their contract with no penalty. The Ultra Efficient Fuel Pellets are supplied in weights of 30kg, 45kg or 60kg per month depending on the size of the family and the cooking requirements.

Based on comparisons of costs of other stoves and fuels (excluding the health benefits), households are able to save 25% per month on their fuel costs as compared to cooking with Charcoal.

All the biomass required for the development of the fuel pellets is harvested locally in Rwanda. Rural Rwandans gather wood daily to support the current cooking requirements; within the Inyenyeri business model, instead of customers collecting and burning wood in traditional stoves, the rural Rwandans are able to "exchange" the wood collected for fuel pellets. The wood is used as feedstock for Fuel Pellets. The crowdsourcing of raw biomass provides a low-cost feedstock while engaging the poorest households as the foundation of Inyenyeri business.

In order to ensure that neither trees nor soil fertility are negatively affected to make pellets, no split wood or agricultural



Customer Trading Biomass.



The biomass pellets are a long lasting and efficient fuel source, requiring about 90% less wood for production as compare to charcoal. No smoke is generated through the cooking process and the GHG and toxic emissions are reduced by 98%.

residues are accepted in the exchange process. Reasonable exchange rates for biomass-to-pellets make it easy to meet all cooking needs, and stock piling for the rainy season or emergencies.

Inyenyeri has achieved outstanding customer retention, currently retaining 97% of the customers to which stoves have been supplied. This demonstrates the reliability and effectiveness of the Inyenyeri business model.

The Innovative Business Model by Inyenyeri is closely followed by other pellet producers in Southern and East Africa. As many pellet producers are struggling with the demand side of the business the Inyenyeri Business Model could be the solution that creates the demand. If Inyenyeri succeeds in growing their business according to their plans to provide for over 25,000 households by early 2018 and returning strong profits, this could turn out to be an ground-breaking model for the pellet market.

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Rwandan family
with Inyenyeri
clean stoves.

Published by EEP S&EA

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This material has been funded by the Governments of Finland, the UK, and Austria. The views expressed do not necessarily reflect the donor governments' official policies.

The EEP S&EA programme is funded by:



EEP S&EA service provider:

