

Presentation on GreenTech's briquettes as a renewable energy technology



presented on the 11.08.2014 by
Anthony Tabbal
at the WACCA Workshop, The Gambia

Background



- GreenTech's initiative originated in the Green Mamba Garden Restaurant (Kololi), looking for a more economic and environmental friendly solution for the outdoor event cooking.
- Today the restaurant is a training and demo site

What is a groundnut shell briquette?

- Pure groundnut shells (bio waste!), compressed through heat and pressure, activating the natural binder lignin
- Alternative to firewood and charcoal
- Usable for household cooking, restaurants, canteens, industries with boilers and heaters, bakeries, smokeries, kilns, etc.

Production Process

Raw material collection



- Standard procedure:
- Collect and transport shells from the dumping site to the production plant,
- feed in the top of the machine: automated heating & pressing
- Pack at the end of the cooling line,
- Technical details on our webpage video

Pressing



Transport



Packing



Development of fuel efficient stoves for household and restaurant use

- Also usable for small scale tie&dye, soap making, etc
- Diverse models and versions, constantly reviewed and amended according to client needs
- Smart ventilation and insulation contribute to efficiency



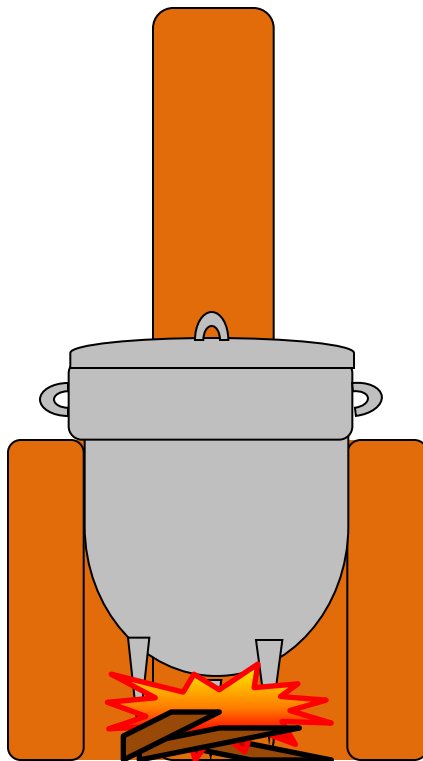
Improvement of institutional stove

- With the financial support of the SEED Award Grant and further with UNDPs GEF SGP 2013/2014
- For Canteens as in Restaurants, Schools, Hospitals, Prisons, Military Camps, etc.

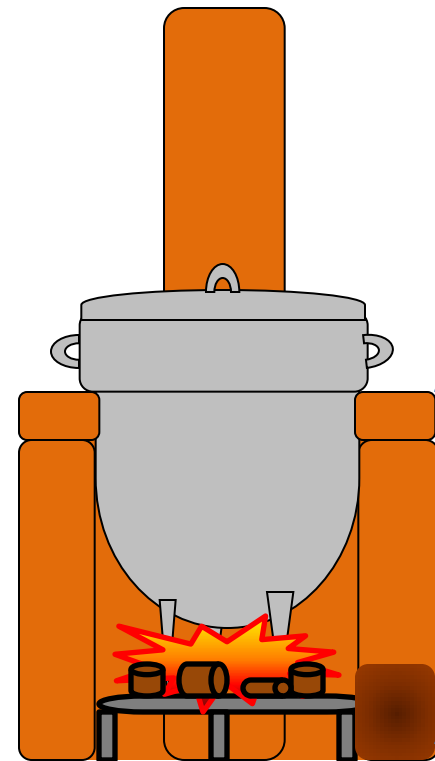


Possible Adjustments for institutional stoves

Cut through, view from front



Use of firewood



Add blocks to improve insulation

Adjust ventilation through holes at side or widening front

Use of briquettes

Sketch only, not to scale!

Solutions for fish smokeries

- Developed with the financial support of UNDP's GEF-SGP in Tanji, Sanyang and Gunjur
- Generally briquettes also work without the devices, but use of briquettes becomes more efficient and comfortable with the inserts and amendments.

Twin Stove in Tanji



Tamba Kunda Oven in Sanyang



Solutions for bakeries



- Our policy is to find well affordable solutions, which can be used additionally to provide the option for choice of fuel, but not to change the traditional production concept entirely at once.

Solutions for grills



- Kala Kala Restaurant Owner from Gunjur with model stove designed by local welder
- All devices are designed in cooperation with users and craftspeople and meant to be replicated locally



What is so sustainable about using briquettes with fuel efficient devices?

Environmental Impact:

- **Save trees = Mitigation of Deforestation**
 - = Mitigation of Desertification,
 - = Mitigation of loss of Biodiversity and
 - = Mitigation of Climate Change
- **Reduce emissions in 3 ways:**
 - shells are no more burnt without use of their calorific value on dumping site,
 - Devices are efficient and provide complete combustion process,
 - Forest remains as CO2 sink
- **Support waste management, whilst converting bio-waste into valuable household fuel**
- **2 machines run in 3 shifts = 10.000 t of briquettes per year**
 - = 15.000t fuel wood saved or 53.400 t of wood, if replacing charcoal
 - = 20.700 – 73.692 tons of CO2 saved
 - = 676,07 ha of forest = size of 966 football fields
 - (according to factors by ICCP and FAO)

Social Impact



Consumers:

- Cooks (women/girls!) save effort, time and household finances (test report available!)
- household of 12 persons cooking 2x/day, switching from traditional charcoal use can save 2/3 of cooking fuel cost = 250 Euro per year = half per capita income
- Less exposure to smoke

Staff and Partners:

- Employment opportunities in production, sales and marketing: 2 machines with 3 shifts would employ close to 40 staff at plant alone
- Enhancement of staff, clients and collaborators
- New technology and standards introduced



What is so innovative, if briquettes and improved stoves have been known for decades?

- Combination of briquettes with compatible fuel efficient stoves and training free of charge
- Finding the right stove for the respective purpose
- Introduction of a high quality machine of latest technology
- Hands-on grass-root approach by private business
- Women support scheme
- Introduction to bakeries, fish smokers, schools and other bulk consumers
- Cooperate development of the stove designs



Demonstration and Sensitisation as a response to lack of awareness

- Demonstrations at the plant for the public and authorities
- Community based demonstrations (women groups, schools)
- Individual consultation for bulk consumers
- Customer Training (at the plant, restaurant and in the field)
- Exhibition and Presentation on Fairs and Seminars (12)
- Multimedia Channels



Networking and Collaboration to increase capacities through synergies

Sharing ideas with the Gambian Technical Training Institute (GTTI):
GreenTech offers prototype for replication – GTTI develops cost effective
production methods and trains students on production.



Decentralise Salespoint to improve access to products

GreenTech provides

- Project based support of communities and small scale business holders to create sales point
- Consultation on establishment and self-monitoring

Criteria for sales point:

- Convinced briquette users, who can demonstrate in kitchen, smokeries, kiln, etc.
- Strategic location to simplify supply, distribution and monitoring
- Maintain open and transparent procedures
- Environmental and social understanding



Pro-poor and gender oriented grass-root approach to improve livelihoods and access for the beneficiaries

Sample: Donation Scheme for climate change victims

Linking donors with needy families through women groups

Global Exchange: You give one stove – they plant and guard one tree



Effects:

- Awareness creation
- Establishment of convinced customer base and sales points
- Sustainable change of habits
- Improved livelihoods

Challenges and Opportunities

Challenge	Opportunity
Increasing costs for electricity	Renewable energy source
Increasing costs for transport	More efficient vehicles
Low awareness by general public	More Sensitisation
Low financial decision making mandate by women	Women (group) strengthening, gender oriented support
Low purchase capacity by target group	Micro credits and subsidies
Unauthorized fuel wood trade and sale of fuel wood below its actual value undermines market for briquettes	Stricter implementation of existing laws and regulations
Limited private investment capacity	Application for financial support

Biggest Challenge: Race against time

to halt deforestation and climate change effects

- The Gambian forest has been reducing by over 8000ha/a in average between 1998 and 2010

- Already in 2004 a yearly fuel wood deficit of 685.940t was identified (HES)

- The Gambia depends by 60-80% on fuel wood import

- The population is growing by 2.3 % per year



Opportunity:

Global support and partnerships to accelerate start-up of bio waste briquette use in fuel efficient devices.

Thanks for your kind attention and your efforts to create a green future!

