

## Report: Stove Training Lusaka, Zambia | 18 – 26 August, 2018.



The combination of Nshima and relish seems to be the only thing that most Zambians call a real meal. This is what we call Posho (Uganda), Sakoro (Ghana) and Ugali (Kenya) along with beans and/or vegetables.

Deforestation is a huge problem in Zambia (and Africa). Zambia faces huge challenges with deforestation. One of the issues is the use of charcoal for cooking using traditional "Blazers" and selling charcoal along informal value chains. In Zambia, it requires **Six tons** of virgin forest are cut down to make **One ton** of charcoal. Using charcoal for cooking in Zambia is not only very inefficient but also challenging to make and use but also dangerous for a majority of households.



Between 18th - 26th August 2018, **Awamu Biomass Energy Ltd** (the for-profit enterprise under GHF) was in Lusaka, Zambia to replicate her innovative clean cooking stove (Awamu Stoves and her operations) in Lusaka Zambia through **Innovati Resources Limited**. Awamu Stoves makes clean cooking stoves that use the concept of gasification to cleanly burn dry biomass; they cook faster, require no tending while cooking, are 90% smokeless and make charcoal as a by-product. One Gasifier stove has the potential to annually save \$208 of household income, prevent 40 trees from being cut, save a local household (women and girls) 640 hours of collecting firewood and cooking, make 550 kg of



charcoal and will eliminate 3.5mt of CO<sub>2</sub> emissions from reaching the atmosphere. Two trainers (Nolbert Muhumuza and Esther Nattabi) trained two metal fabricators in Tinsmiths in sheet metal fabrication including cutting, bending, joining, riveting, finishing as well as using gasifier stoves.

*Innovati Resources* is a young dynamic alternative energy company that provides renewable energy solutions for cooking, lighting, refrigeration and communication. Their Vision is to be Zambia's trusted advisory enterprise in end to end alternative energy technologies and best available techniques in the industry.

Topics of training included;

- Overview of Gasification/ Gasifier Stoves parts
- Awamu Stove design concept
- Environmental benefits of Awamu Stove
- General Workshop Practices
- Approach for Raw Material & Energy Conservation
- Cutting and Assembling Stoves
- Waste Minimization i.e. Recycle and Reuse
- Sales and Market experiences discussions
- General practices for Stoves and a stoves business



The training generally focused on production with experiences and discussions about marketing, sales, team building and roles with the head of *Innovati Resources*. On the first day in Lusaka we mainly met with the new team and also purchased working tools. We moved around on a Saturday in down-town markets, including looking for tools at one of the largest hardware stores called Builders.



We also went downtown to look for a railway which was not easy because these are special government property that can only be obtained from authorized entities.

**The Training:** Training week days (Monday – Saturday); the day started at 07:00am with a 30-40 minutes’ drive to the training/ workshop venue from the hotel. The proposed workshop space has a

concrete flooring which makes it ideal for professional sheet metal workshop in future. The Management of *Innovati Resources* will need to decide if this is where they wish to continue and setup their production space or access other venues. The space needs roofing and making an enclosure (which could be a simple sheet metal protection). Two trainees (Wenzi and Alex) who are trained metal fabricators showed keen interest in sheet metal work. We had challenges with accessing specialized tools; we improvised during the training for example utilizing strong parts of a nearby excavator truck.

The training also focused on hands-on experiential learning for the Trainees, along with demonstrating to them concepts of sheet metal production. Four stoves were constructed and assembled with three others to be completely the following week. Meals were frequently prepared on the gasifier stoves which gave the Trainees experience of how to light, cook on and on the stoves they making.

**Recommendations:** From the training the following are recommendations for improving the production of the stoves;

- A roller will be required to improve the quality and speed of production (rounding) of stoves.
- Shear to help quick cutting especially of straight long lines like in the Jacket and Bucket.
- There is need to also setup a working bench to reduce the team working on the flour. Alex and Wenzi can construct this with metal fabrication experience.
- The Vice that was purchased need to be mounted on a working table for example the one that is available at the workshop.
- As proposed, production of the harder to cut parts (for the top part of the stove) could be out-sourced to AGM for quick, and smooth production.
- A Sheet metal bender could also speed up the production process and ensure smooth quality production of the stoves.



**Conclusion:** From the visits around Lusaka, where we only saw ONE improved charcoal stove that was being hawked in traffic jam; 1) There seems a need to disrupt the massive market for unimproved traditional stoves (called Blazers) in Lusaka and Zambia. 2) There is need to find a suitable supplier of biomass fuels so as to expand the revenue model on Awamu stoves. Fuels like chopped firewood, uncarbonized briquettes or high density pellets and other processed fuels. 3) The production department needs to be streamlined and strengthened before massive marketing takes place, otherwise it will be dangerous to market the stoves with limited supply. 4) Do not try to table the whole value chain as one enterprise. This will spread you thin as you are new to this sector. Find and create valuable partnerships that will strengthen your products on the market before diversifying services.