

OVERCOMING THE ODDS TO CHEAP DOMESTIC BIOMASS ENERGY PRODUCTION

Author: **Phillip KIHUMURO**, Research Associate, World Agroforestry- Member of the Renewable energy CSO Network hosted by Environmental Alert.

Deep down in rural Western Uganda, access to twigs and sticks growing along a neighbour's boundary fence, is the difference between a 70-year old and her grandchildren having lunch or not. A world away, in the semi-urban suburbs of Kiti in Wakiso in Central Uganda, another family has the choice between using charcoal, liquefied petroleum gas (LPG) or an electric hotplate, but mostly uses charcoal to prepare their meals due to the convenience. In both these cases, biomass is very crucial in the provision of their domestic energy needs.



Close to 90% of Uganda's total primary **energy** consumption is generated through **biomass** (77% firewood, 5.6% charcoal and 4.7% from crop residues (MEMD, 2016). The REDD+ strategy for Uganda has identified fuelwood consumption as one of the drivers of deforestation and degradation in Uganda. The question is: how can charcoal be produced sustainably to meet this demand without destroying and degrading forests and the environment?

Charcoal is predominant due to ease of accessibility, convenience in use (quicker meals can be prepared with little quantities) and affordability. In Africa, charcoal is often regarded as a marginal business with little impact on economies. Yet the charcoal market is estimated to be worth between USD 9.2 and 24.5 billion per year (Nelleman et al 2014). This translates to a maximum of UGX 89,425,000,000.00 annually. Currently, a sack of charcoal in Kampala is as much as 150,000/= and expected to rise. The trade in charcoal in Africa is mostly or partially illegal. Prohibition, however, has not stopped it, because of the political importance. The informal sector dominates; institutions are weak; illegality attracts criminals; and corruption is rife.

In Uganda, opportunities exist to make charcoal production technically sustainable. There is a policy under which farmers can grow trees in degraded forest areas for timber and fuelwood including the production of charcoal. The Government has also attracted the private sector to invest in biomass energy. These are great opportunities to curb the degradation and sustainably produce biomass energy for 90% of the population. However, the private sector, smallholder farmers and communities need to be more involved. Policies need to be reviewed to allow for the marginalised and farmers to invest in "growing the energy needs".

Fortunately, most farming households in Uganda deliberately keep trees for various needs such as energy. However, there is need to promote multi-purpose tree growing. The current forest policy recognizes "farm forestry" as an avenue for enhancing the forestry sector but it lacks a clear strategy to achieve this. One option could be guidelines on the type of trees to grow for energy needs and where they should be grown. With this, ultimately the country will ensure that landscapes are restored/maintained with minimal degradation.

The Ministry of Energy and Minerals also plans to engage youth to set up tree nurseries to grow seedlings for fuelwood. The hope is that they could ultimately out compete the informal charcoal trade. The effort deserves support and could form the basis for a sustainable charcoal industry. However,

several issues will have to be taken into consideration. Farmers have to be encouraged to grow trees for both timber and fuelwood, in spite of charcoal being regarded as cheap at source.

Waste and prunings from timber production have capacity to produce valuable charcoal. Landholders and charcoal burners earn very little with most of the profit accruing to middlemen and the shadowy figures who facilitate crossing legal lines.

Together with this, forest concessions under National Forestry Authority (NFA) would need to be managed in a flexible manner that encourages both timber and fuelwood production. The choice of trees for fuelwood is important. Much of Uganda's charcoal is made from acacias with high wood density. They are a very popular, heavy charcoal that creates a great deal of heat for its weight. However, trees grown in forest concessions are likely to be fast-growing, less-dense species, with a less desirable charcoal.

Finally, the Government of Uganda needs to become more serious about regulation to stimulate the legal charcoal industry rather than restrain it. Fortunately, Government policy already recognises the value of biomass energy, including charcoal. The forestry (Forest Sector Support Department, National Forestry Authority and District Forest Services), energy (Ministry of Energy), agriculture (Ministry of Agriculture) have to collaborate further to enhance tree growing on the available lands.

At the household level, individuals will need to be incentivised to commit their land for growing their energy needs. These incentives could come in the form of innovative financing mechanisms, formalising markets and a higher premium for energy products that have been grown on the farm. With these initiatives perhaps the odds against growing trees for biomass energy could finally be overcome.

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