INNOVATIVE STOVES AND WASTE BIOMASS
Linked to prisons, tinsmiths, sawmills and town councils in Zambia

Guiding vision for the project
"First a charcoal free Kitwe, and with time, a charcoal free Zambia"
Nick O’Connor, Ensis Development

Project background
✓ Deforestation is a priority environmental challenge in Zambia. Wood harvesting for charcoal production seems to be one of the main causes for forest loss.
✓ Households accounted in 2007 for about 88% of woodfuel consumption with cooking and heating being the major household use. The household sector is the largest consumer of energy and initiatives are needed to reduce the high consumption of woodfuel. Dependence through sustainable provision of affordable, reliable and innovative energy methods to rural and urban households are needed to raising productivity and standards of living.
✓ Existing stoves and production methods for charcoal represent an inefficient use of energy. Associated negative impacts are emissions contributing to climate change (methane, CO2) and substantial releases of toxic emissions (CO, PM) in the kitchen environment.

PROJECT LOCATIONS AND TASKS
KAMFINSA:
- Pelletize sawdust
- Establish storage of dry sawdust and pellets for transport to markets in Kitwe and Lusaka

KITWE:
- Establish local dry storage of sawdust and pellets
- Distribute sawdust for use in the Saw Duster
- Sell pelletized sawdust for use in the Peko Pe stove
- Train tinsmiths and prison inmates in stove manufacture
- Promotional stove campaigns

LUSAKA:
- Establish local dry storage of pellets
- Sell pelletized sawdust for use in the Peko Pe stove
- Train tinsmiths and prison inmates in stove manufacture
- Promotional stove campaigns

OTHER TASKS:
- Preparation for carbon credit financing

PROJECT EEP FUNDING
EURO 200 000

EXPECTED NUMBER OF STOVES
5 000

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Use of waste biomass
Local stove manufacture
Use of new energy efficient stoves

Peko Pe
Saw Duster

Photo: Ensis Development Ltd
**Project profile**

- An innovative concept is to combine new stove technology with the flexibility to use any kind of waste biomass, including easily available saw dust and corncobs. Such a concept would cater to simplicity and with its low cost level address poverty alleviation.
- Easily integrated into such a concept is re-integration of prisoners and the use of prisoners as skilled stove producers.
- New innovative stoves, which are energy efficient, clean burning and biochar producing, combine effectively energy, health and agriculture. They assist in the mitigation of climate change through reductions in deforestation and through maintaining areas of carbon sink.
- Inherent to such a new innovative concept is the development of new value chains. Charcoal's dominant use is based on this fuel's attractive price performance characteristic. Replacement of charcoal is a long term effort, but will start with new value chains for waste biomass and for manufacturing and distributing clean burning and fuel efficient stoves.
- The stoves used in the project are complimentary in the market as the low cost Saw Duster being specified for easy accessible sawdust in the Copperbelt and the Peko Pe stove being flexible to other biomass fuels as well as being particularly clean burning. The Peko Pe stove produces biochar of high quality for use as a carbon sink and as a soil improver.

**Project objectives**

- The long term objective is to combat the accelerating depletion of indigenous forests driven by the charcoal industry and to reduce the demand for fuel wood by introducing a new value chain of fuel efficient and clean burning stoves along with suitable fuel. Specific objectives of the current phase of the project are to: pelletize sawdust for sale in Kitwe and Lusaka; transfer knowledge on standardized stove manufacture to tinsmiths and prison inmates in Kamfinsa and Lusaka; engage in promotional campaigns for energy efficient stoves and prepare for carbon credit financing.
- The specific objectives and the associated activities provide a framework for a later follow-up phase, covering the entire Zambia.