

**Site Visit to the Green Belt Movement's  
Bamboo Biomass & Entrepreneurship Project  
Murang'a, County  
24<sup>th</sup> July 2014**

**Background:**

Energy access is a massive development challenge in Sub-Saharan Africa. Less than 7% of rural households in Kenya have access to electricity, and more than 90% of the rural population depends on firewood for cooking and heating. Harvesting of firewood, and production of charcoal is a huge and growing threat to Kenya's indigenous forests and biodiversity, with currently less than 2% closed canopy forest remaining.

For the foreseeable future Kenya will need access to sustainable sources of firewood, charcoal, and other forest products at a massive scale, if any natural forests are to remain. Bamboo is a cash crop with many uses and benefits: rapid growth, high income potential, source of firewood and easy to convert to charcoal. Standing forests of bamboo also capture carbon, and slow climate change.

In partnership with Waterstone (Norway), the Green Belt Movement has established a bamboo biomass and entrepreneurship project aimed at promoting the planting of indigenous bamboo for: conservation, climate mitigation benefits, fuel source (firewood and charcoal) and economic opportunities through green businesses for and by local communities. The Green Belt Movement-led project has been very well received by the community.

The opportunity for Bamboo as a source of biomass energy is immense and the biomass benefits of bamboo are impressive: from the same acreage, bamboo gives 4.5 times more biomass than eucalyptus. The rapid turnover and consequently high production of biomass makes bamboo suitable as feedstock for cooking stoves. Bamboo is renewable and can be used on degraded land. It also lends itself very well for energy plantations because the heating and burning value of bamboo is also high. It has been estimated that for the next 40 years in Africa, biomass energy will continue to be a major part of the energy equation. Success in this area, therefore, will necessarily have to include alternative biomass feedstock for firewood and charcoal production. Green biomass can indeed be viewed as a source of renewable energy.

The planning, networking and concept development of the bamboo project has been ongoing for more than two years. The first phase of the project is focused on promotion and use of bamboo charcoal as a sustainable energy option and cash crop for local communities.

The Green Belt Movement has allocated 5 acres of land for a pilot, in Murang'a, north of Nairobi for the bamboo pilot project. Initial research showed the suitability of using the solid-stemmed bamboo, *Oxytenanthera Abyssinica*. It is well-known and accepted locally for its qualities regarding construction, fencing, charcoal and nutrition. We will be visiting the site of the bamboo plantation project in Muranga.

### **Bamboo species surviving**

Plot/species	<i>Oxytenanthera abbyssinica</i>	Tulda	Giant Bamboo
Block197	410	100	64
Block168	867	-	16

### **ACHIEVEMENTS:**

#### **Post planting care**

- ❖ Replacement of dead seedling using rhizomes from fast growing seedlings
- ❖ Spraying of anti-termite agent (organic)
- ❖ Watering the planted trees during dry months
- ❖ Spot weeding and line weeding
- ❖ Mulching planted trees to control weeds and conserve water ,
- ❖ Slashing the planted area between rows.
- ❖ A tree nursery has been established and is being managed by the women

#### **Security enhancement**

- ❖ Fencing of block 1/168 and 1/197 plot.
- ❖ Construction of sanitary facility in block 1/197 plot.
- ❖ Construction of security structure in block 1/197 plot.
- ❖ The project has support from local administration

#### **Challenges**

- ❖ Erratic rainfall in the region hence watering must be done
  - Watering is labor intensive (project is located in the leeward side of the Aberdares)- women ferry water on their backs and heads especially in block 1/168.
- ❖ The bamboo seedlings are expensive.
- ❖ Bamboo seedlings are not locally available
- ❖ Lack of technical knowhow on laboratory procedures for tissue propagation.
- ❖ Poor soil- procurement of manure to address the nutrient deficiencies in the soil

### **Lessons learnt**

- ❖ Bamboo seedlings are succulent and most attractive type of grass to the rodents. Cow dung can be used successfully as rodent repellent (a discovery made by the women who are doing post planting care).
- ❖ It's easier to propagate bamboo seedling using rhizomes compared to the culms.
- ❖ Intercropping reduces exposure of the bamboo to havoc by rodents and insects by diverting their attention to the other crops.