

Responding to local demand: A community-led bamboo charcoal enterprise development initiative in Kenya

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ARTICLE INFO

Keywords

Africa, Charcoal production, Community Enterprise Clusters, Energy, INBAR, Quality Planting Material

Citation:

Reza, S. and Oduor, N., 2022. Responding to local demand: A community-led bamboo charcoal enterprise development initiative in Kenya. *Journal of Non-Timber Forest Products*, 29(1), pp.8-11. <https://doi.org/10.54207/bsmps2000-2022-XUJ4W9>

ABSTRACT

Bamboo is a perennial resource, and charcoal produced from it can be used as an alternative to wood charcoal for household clean energy under the Non-timber forest produce category (NTFP). Present study attempts to capture the processing of bamboo charcoal using the Public Private and People Partnership (P4) approach known as the NCPP (Non-profit+Community+Public Partnership) model enterprise in Busia, Kenya, with community participation. It exemplifies the business practices adopted by the locals in order to safeguard natural resources and boost people's standard of living. The method has the potential to be implemented widely across African nations.

INTRODUCTION

The production of charcoal from wood is a common practice in African countries because of the large felling of trees in primary and secondary forests. The degree of deforestation and soil runoff rates have tremendously increased in this region. Due to the dry forest ecosystem and low increment rates, charcoal production destroys this valuable ecosystem. Alternative wood charcoal is a better option to protect the ecosystem and ensure the livelihood of millions of rural households. According to the Dutch-Sino-II baseline survey findings in Kenya, 56 percent of families use wood charcoal as their primary source of cooking and heating (INBAR, 2020). In comparison, 27 percent and 15 percent use kerosene and liquefied petroleum gas (LPG). The scarcity of modern fuel-based energy has forced ordinary people to rely on charcoal for cooking and other essential purposes.

Busia is a county in Kenya's old Western province that is well-known as a gateway to East and Central Africa. The county has vital business ties with central African countries to optimize the opportunity for the water transport facility of Lake Victoria. The county has 893,000 residents and a land area of about 1,700

square kilometers. The Luhya tribe of Kenya dominates the county, with lesser communities belonging to the Teso and Luo tribes. Wood-based charcoal is a popular home energy source in Kenya and throughout Africa.

To preserve the environment from unlawful tree felling, the Kenya government imposed a series of trade bans on timber-based charcoal business activity. Consequently, an eco-friendly charcoal business development programme emerged as an alternative initiative to address the issue and provide clean household energy solutions.

Towering Resource

Kenya has a bamboo growing area of 133,273 hectares, concentrated in national government-managed mountain ranges and forest areas. The bamboo resource is mainly found in the Aberdares Range, Mau Forest, Mount Kenya, Mount Elgon and Cherangany Hills, each of which contains 50,038 hectares, 30,196 hectares, 35,966 hectares, 14,341 hectares and 8,180 hectares respectively. Bamboo might be used as an alternative raw material for environmental management and turned into charcoal year-round through sustainable harvesting and management procedures. Recognizing bamboo's enormous potential, the Kenyan government categorized it as a crop and chose to encourage the commercialization of the bamboo plant as part of the administration's greening effort. Through agroforestry, it hopes to expand tree cover besides creating many jobs.

As a fast-growing species with yearly harvesting potential, the resource has the potential to offer several commercial and

Received: 22-06-2022; Revised: 27-07-2022; Accepted: 29-07-2022

Published: 30-07-2022

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DOI: <https://doi.org/10.54207/bsmps2000-2022-XUJ4W9>



Figure 1. Map of Kenya and location of Busia (Source: https://www.nationsonline.org/oneworld/map/kenya_map.htm)

livelihood options for Kenyan women and youth. Bamboo biomass energy is a viable and prospective product line for meeting local demand, lowering emissions and launching SMART climate agriculture practices by localizing the UN Sustainable Development Goals, i.e., SDG-1, SDG-7, SDG-11, SDG-12, SDG-13 and SDG-15. Bamboo is an alternative raw material and has wood value biomass for making charcoal. It helps to protect the environment and its canopy protects the soil and increases moisture and runoff rates. It can grow per agro-climatic conditions based on the species, is environment friendly, renewable resource, pro-poor, has multi-dimensional uses and charcoal is one of the products.

Breaking Market

Bamboo bio-energy products, such as bio-briquettes and charcoal, have a large market in Kenya, particularly in metropolitan areas. In 2000, Kenya was reported to use 34.3 million tonnes of biomass for fuel, of which 15.1 million tonnes was in form of fuelwood, while 16.5 million tonnes was wood for charcoal production (Mugo & Gathui, 2010). Over 1.8 million tonnes of biomass are consumed annually by cottage industries such as restaurants, brickmaking, tobacco, milk processing, fishing and fish smoking, jaggery and bakeries (Gauli, Durai & Oduor, 2018). Given bamboo’s proven energy attributes, calorific value, yearly harvesting capability, suitability of its applications at the household and industrial scale, ready market and present state of bamboo resources, production of bamboo bioenergy could be the entry point.

Bamboo bio-energy or agri-waste charcoal has enormous potential to infiltrate the energy market while creating numerous job possibilities for SMEs and industry value chain actors while protecting the environment. It may also provide chances to upgrade value chains actors such as bamboo farmers, primary processors, businesses and industrial processors. Furthermore, through the large-scale plantation on degraded sites, bamboo contributes to environmental management and biodiversity protection.

Building Platform

The INBAR-led Dutch-Sino East Africa Bamboo Development Programme-I has produced impressive results in developing bamboo-based enterprises in Kenya. It has contributed the value chain research and market assessment, information transfer, capacity building and partner building. Furthermore, from 2020, the Dutch-Sino programme-II has been boosting community-led bamboo charcoal activities in the country, capitalizing more on the results of phase-I. The initiative has been striving to construct Community Enterprise Clusters (CEC) for the growth of the bamboo sector. As a result, the industry has identified six possible bamboo economic clusters in Kenya to help boost bamboo company prospects. Busia Narok, Homabay, Migori, Nyeri, Muranga and Killifish are the bamboo economic clusters.

The program which ignited a community-led bamboo enterprise, mobilized bamboo smallholder farmers, women

and youth to benefit from the effort. The bamboo cluster-based economic and livelihood enterprise development program aligns with the Kenya Youth Employment and Opportunities Project’s fundamental aim (KYEOP). It is a transformational project aimed at empowering and improving the well-being of youth through increased work possibilities and revenue generation as entrepreneurs (mfanyabiashara in Swahili).

Grounding NCPP/P4 Industry

The Dutch-Sino-II Bamboo Development Programme, a community-led bamboo charcoal enterprise has been formed in the Batula sub-county of Busia. As an implementation method, the initiative enlisted the help of a local partner, Eco-Green, to mobilize farmers, small producers and the local administration to create collaboration, promote sustainable resource use and instil a feeling of ownership among stakeholders. The business model is a non-profit community public partnership (NCPP) or a public-private partnership (PPP). The selected partners play a critical role in common interest under this business method. The core principles behind the NCPP or P4 functional approach are mentioned as follows:

- It is a novel approach to producing value for money in public delivery systems.

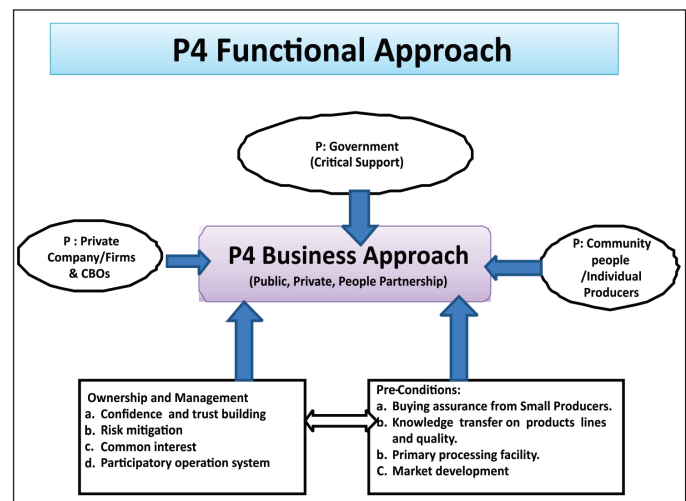


Figure 2. Public Private People Partnership Model



Figure 3. Kenya’s NCPP Bamboo Charcoal Enterprise in Busia Kenya

- Participatory bottom-up planning and decision-making;
- Enhance the development process;
- Establishing clear roles and duties among partners;
- Providing chances for public participation;
- Reducing the possibility of unexpected opposition.

It also promotes transparency in the development and provides new options for the rural poor to create bamboo-based livelihoods. The business model's operation has aligned with the Dutch-Sino-II program implementation and regular backstopping services. The mentorship has been offered to business model partners. Initially, the business model had 297 community-based small-scale producers in October 2020, but the number has increased to 689 community-led small bamboo farmers. The model has also mobilized approximately 2500 farmers to plant and grow bamboo in their homesteads and become members of the NCPP business model. In collaboration with local partners, the INBAR-led Dutch-Sino program distributed input materials to establish mother and small household nurseries, as well as organized hands-on training and capacity-building programs on bamboo nursery development and management to produce quality planting material (QPMs). The planting materials were supplied to farmers interested in planting bamboo on the marsh and degraded lands, homestead farms and river banks. Farmers are capable of managing resources sustainably. The matured clumps are well organized and there is a regular harvesting and plantation procedure to give a sustainable supply to the local market, while connecting with possible purchasers beyond the county.

Thrashing demand: The Dutch-Sino-II program in partnership with local partners, studied the local market demand for charcoal, which was discovered to be over 30,000 MT, with an estimated KSh4000 million. The NCPP/P4 business model of Batula in Busia has begun to create scientific grade and pillow shape bamboo charcoal using bamboo and waste charcoal from the community, activating the local market demand for charcoal. The initiative assisted the business model in capacity building, sub-cluster formation, the provision of locally produced bamboo charcoal briquette machinery and tools and product diversification. Regarding knowledge transfer, the program supported the business model by deploying Participatory Stewards (PS) as frontline delivery team members for the program. The local government provided land and construction for the infrastructure as part of its flagship program under the Kenya Micro and Small Enterprises Authority (MSEA).

Furthermore, the bamboo value chains and market assessment study recommended bamboo charcoal goods since they have an enormous potential for penetration into the local market and are in high demand.

CONCLUSION

In Kenya, charcoal, a bamboo product is in high demand as a consumer commodity in the local and national markets. With the help of a local partner called Eco-green and the county administration, the program launched the bamboo charcoal community-led enterprise in Busia. The community-led bamboo business has already generated additional income for 689 rural households, headed mainly by women. The average household income was KSh 2500 - 3000. (USD 40-50). The NCPP enterprise's primary market for bamboo charcoal briquettes is Busia. The company also encourages hotels, small businesses, schools, religious institutions and rural homes to use bamboo charcoal as an energy source. It attends local fairs and shows, to present and demonstrate its products and to reach a more extensive clientele. Definitely, the Busia community-led bamboo charcoal enterprise has some significant hurdles in terms of operating capital, high-end market reach and technology. If these issues are addressed promptly, the business can grow and serve as a model for a successful bamboo business in other Kenyan counties. To address these challenges, the community-led enterprise prepared a business and strategic plan for future growth and development.

ACKNOWLEDGEMENTS

The authors are thankful to the native communities for support during physical field visit and informative interaction.

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