

Project Resource

Project resources are materials which were originally produced during support from the Business Innovation Facility team to a specific inclusive business project. They include inputs provided as part of technical assistance and summaries of findings and outputs. They are adapted for wider use so that other practitioners can also make use of the material.



Can commercial solutions make charcoal in Africa sustainable?

Value chain analysis to inform eco-charcoal programme design and prevent forest degradation in Zambia

What is this resource?

This document is a summary of the charcoal supply chain analysis produced by Imani Consultants in June 2012 for the social enterprise, BioCarbon Partners. BioCarbon Partners wish to design an eco-charcoal intervention ("charcoal that is produced in a sustainable and efficient manner with minimum environmental impact") that promotes deforestation mitigation efforts in and near to its REDD+ (Reducing Emissions from Deforestation and forest Degradation) projects.

Why is it interesting?

Understanding the current dynamics of the charcoal value chain helps the design of eco-charcoal interventions that will be attractive to current players and can act as a competitive alternative business for them. The Business Innovation Facility was engaged to produce a value chain analysis report that gives a situational analysis of the current mechanisms by which charcoal reaches its market - tracking the associated costs and profits along the chain and per actor. The analysis focuses on the charcoal supply chain from Chongwe District through to Lusaka City in Zambia.

Who is it for?

This document will be useful for practitioners who are undertaking work in the forestry and agro-forestry sector in Zambia or similar countries, such as Malawi. It is also an interesting case study for other companies who are working with the REDD programme.



Charcoal in Zambia

Charcoal is an extremely important commodity in Zambia. Not only is it an essential, affordable fuel source for millions of urban and peri-urban residents, it is also a critical livelihood support for many rural households. According to the results of the Living Conditions Monitoring Survey in 2004, 83.4 per cent of households in Zambia depend on wood resources for their cooking energy, with only 16.2 per cent having access to electricity for cooking. The focus of BioCarbon Partners is Chongwe District in the East of Lusaka Province. According to estimated statistics, in terms of total charcoal supply to Lusaka, 52 per cent (24,000 tons) of supply moves through Chongwe and Rufunsa Districts.



90kg bags of charcoal at Highland production site, Chongwe District

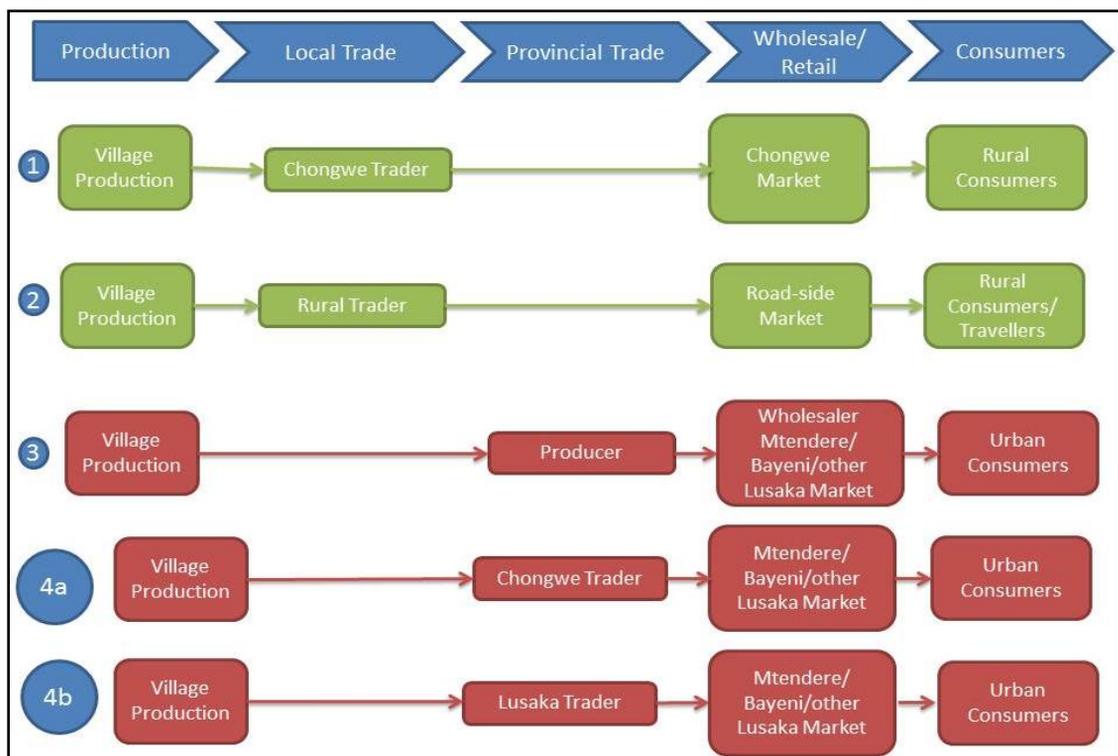
The Chongwe - Lusaka supply chain

BioCarbon Partners must look carefully at each of the supply chains in order to assess the most appropriate modality for the eco-charcoal intervention. Understanding each supply chain informs which key players should be engaged and for what roles, as well as giving quantitative profit margins which must be met by any substituting programme.

In the Chongwe – Lusaka supply chains there are a few constant players involved; namely producers, traders and consumers, but the mechanisms for flow of charcoal between players and locations can vary greatly, as is shown in the diagram below.

Supply Chains 1 and 2 are prominent in the Chongwe area, but are limited in significance due to the size of the Chongwe market. Supply Chain 3 is desired by many producers but they are limited in their capacity to obtain capital for transport and thus cannot sell in Lusaka. The most common supply chain is Number 4. Here, a trader buys directly from a series of producers and then transports the charcoal back to Lusaka for sale.

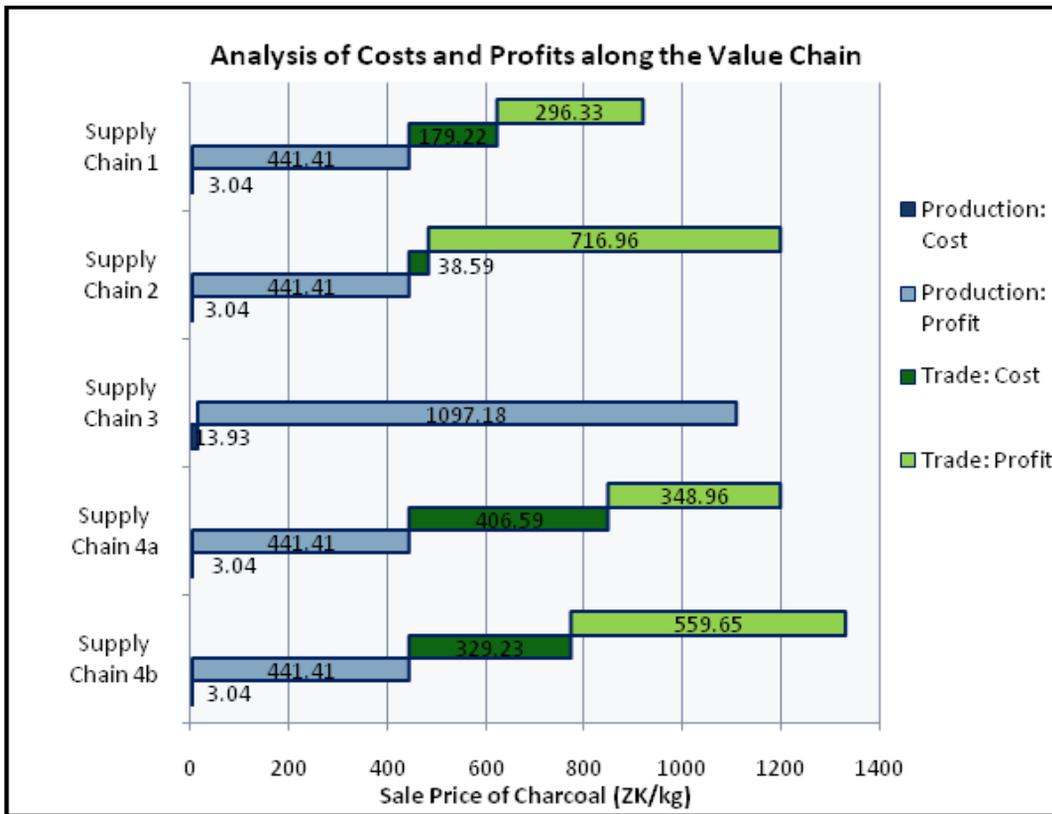
Supply chain map



What is REDD and how does it relate to eco-charcoal?

The UN-REDD Programme is the United Nations collaborative initiative on Reducing Emissions from Deforestation and forest Degradation in developing countries. It was launched in 2008 and subsequently a more robust REDD+ framework has also been introduced. REDD is based on the use of market and financial incentives to reduce/mitigate CO₂ emissions. One element of REDD is the introduction of activities to avoid emissions caused by deforestation, whereby projects gain carbon credits for these reductions. BioCarbon Partners aim to gain carbon credits through protecting core areas of forest in Zambia and to use the credits as their financial support mechanism. REDD projects are governed by a series of protocols that require them to combine their emissions reductions efforts with social-economic mitigating actions that involve local communities. BioCarbon Partners' eco-charcoal intervention is an important component of its community engagement strategy in line with these expectations.

Value Added Distribution



This graph tracks the value added distribution along the different supply chains. \$1: ZK5,000

Results show that:

- Production costs are extremely minor (note the opportunity cost of labour is not included). Producers do not suffer financial production constraints, meaning there should not be financial barriers to changing production systems and habits.
- Good profits can be made if producers can afford to trade their charcoal directly with end-market – this is what the eco-charcoal intervention should try to achieve.
- The Chongwe and Lusaka market sale price of charcoal was ZK1,200 (\$0.23) and ZK1,300 (\$0.25) per kg, respectively. The highest cost of charcoal on sale in Lusaka markets was found to be ZK1,333 (\$0.26) per kg. This is half the briquette retail price of the supermarkets and demonstrates the opportunity for substitution by a competitive eco-charcoal retail product.
- In the most common supply chain (4b), where a trader comes from Lusaka to purchase charcoal, a profit of ZK560 (\$0.1) per kg is made. A producer can sometimes make greater profits per kg than a trader but their yearly profits are significantly lower due to the volume of charcoal they are able to apply this margin to. To be a realistic alternative, the eco-charcoal intervention must be competitive with current profit margins. Producers and traders play different but key roles in the value chain. It is suggested both are incorporated into the intervention to facilitate success.

Conclusions

The primary conclusion drawn is that small scale eco-charcoal projects are feasible if they undercut the retail price offered by the supermarkets. The current price of charcoal in the Lusaka market is half that of the price in the supermarkets. However, this is only a small segment of the true charcoal market and represents briquettes rather than lumpwood charcoal. To transform the majority of the industry, the average consumer will have to pay a higher price in order to ensure all the necessary levies are incorporated into the final cost. If this reform is to happen on a large scale, there will need to be a strategic plan implemented by the Forestry Department

Key Recommendations for the Design of an eco-charcoal project

1. Any intervention should consider involving both producers and traders. Producers are key to the impact of the supply chain as they choose the area utilised for production. However, traders have the capacity to manage a business and to ensure a project succeeds in an economically viable manner.

2. Partnerships must be developed both horizontally and vertically in the value chain. Horizontal linkages can be strengthened by the organisation of producers into associations. This ensures that that learning is shared, co-operation gained, bargaining power increased and costs are manageable. Vertical linkages are necessary to help track the flow of charcoal and to increase vital service provision.

3. Legislation and policy are often developed for the Forestry Sector but implementation challenges remain. Resources and management capacity at the relevant Forestry Department must be built, and buy-in secured, for a sector-wise intervention to be successful.

4. The use of mobile phones in Zambia and other areas in Africa is now common. Mobiles are the key tool for communication. Use of appropriate technologies should be encouraged and can act as a key monitoring tool. For example, smart phones could be used to track a bag of charcoal from production through to retail.

5. Attempts have been made in the past to reform the charcoal sector and have failed. Any new initiative must bear this in mind and have a long-term mind set.

6. A dual-pronged approach should be implemented. One element could look at a small scale and practical intervention in the value chain, such as creating an alternative supply chain that undercuts the supermarket charcoal products. The other element could look at sector-wide transformation and could be an action like creating a National Charcoal Dialogue Forum. Such a forum would bring together all actors and could begin to put in place the mechanisms necessary for sector development.

7. Upgrading or changing a value chain should focus on two things. Firstly, competitiveness – how can more value be gained for the chain? Secondly, participation – how can the poor receive a greater share of the value? If both these elements are targeted then the chain can be sustainably upgraded in an economically viable manner



Transportation of small quantities of charcoal from the roadside



Charcoal available for sale at Chongwe Market



Rear view of half-prepared kiln at lowland production site – with charcoal producer

Additional resources

Practitioner Hub: You will find more ideas, information and resources on inclusive business on the Practitioner Hub www.businessinnovationfacility.org

'Know how' on climate change: There is a 'know how' section on climate-smart solutions for inclusive business: <http://businessinnovationfacility.org/page/know-how-climate-smart-solutions>

Checklist: Developing a climate change strategy for business – how can I adapt my business to meet the challenges of climate change? <http://bit.ly/XMushC>

Project profiles: All of the existing projects are outlined on the Hub: <http://businessinnovationfacility.org/page/projects-landing-page-template>



BioCarbon Partners (BCP) is an African-headquartered, focused and majority African-owned social enterprise that develops and manages long-term forest carbon projects in globally significant biodiversity landscapes in Africa. They combine an entrepreneurial approach with a core philosophy of caring for people and environments to catalyse landscape-scale, community-based market driven solutions to deforestation. www.biocarbonpartners.com



For further information and to view other Project Resources, go to:
Practitioner Hub on inclusive business at: www.businessinnovationfacility.org

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