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POLICY BRIEFS • ACCESS AND EXCLUSION ALONG THE CHARCOAL COMMODITY CHAIN IN GHANA

NO. 05 • NOVEMBER 2021



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Policy Frameworks for Plantation Models of Charcoal Production in Ghana: Evidence-based approaches and equity

Introduction

In the last few years, Ghanaian state agencies have begun to articulate a policy for charcoal production and to address the regulation of the sector. This builds upon the existing framework of regulation within the timber industry, based on legislation, surveillance, and certification, and on the REDD+ policy in Ghana. As with the previous natural resource policies these initiatives claim to be committed to promoting sustainable development, community participation, and inclusive and equitable development

that addresses the eradication of poverty. However, the framework proposes a drastic transformation of charcoal production, which is to be sourced from plantations rather than from woodlands, farms and fallows.

A system of tracing and tracking charcoal production, through a certification process that defines illegal, sustainable and non-sustainable timber, has been proposed to ensure this transition takes place. This also advocates that trading in charcoal be controlled and limited through permits and licenses to enable state agencies to control and gain increased revenues from the charcoal trade.

Policy implications and recommendations

Existing frameworks for policy reform within the charcoal sector promote drastic reforms for the sector, which will not only transform the nature of charcoal production and trade, but also agricultural production, since charcoal is integral to many farming systems within the transition zone.

These frameworks are, however, informed by extremely scant knowledge of charcoal production in the transition zone, and the impact of charcoal production on the vegetation.

There is very little information on the viability of producing charcoal as a farm crop, the area of land required to gain a sustainable income from charcoal, the potential clientele of woodfuel farmers and charcoal producers, and the attraction of charcoal plantations in competition with other crops.

An alternative strategy would be to start from existing yam production systems and attempt to strengthen the potential of incorporating trees for expanded charcoal production while promoting biodiversity. There are also dangers that the expansion of plantations will lead to a decline in the existing biodiversity. Before drastic policy decisions are taken it is imperative that policy is informed by more comprehensive data on the following:

- The main species that are exploited for charcoal and the current distribution of these species, including their distribution on farms and farm fallow land
- The extent of charcoal that is produced from farmland and fallow that is periodically cultivated rather than from uncultivated woodlands
- The potential investments needed to engage in plantation cultivation, the minimum land requirements for a sustainable annual income with an annual off-cut, and identification of the potential clients for uptake
- Comparative data on the returns to charcoal plantation as compared to the income gained from charcoal and yam, and as compared to other farm and orchard crops
- An assessment of the potential availability of land for charcoal production and its impact on the availability of land for food crops, for women, the rural poor, and other vulnerable groups.

This policy brief critically engages with the evolving policy framework for the administration of charcoal production. It examines the extent to which policy narratives on the impact of charcoal production on deforestation are evidence-based; and the extent to which the proposed changes for the administration of charcoal are based on realistic economic, social and ecological models that are likely to promote sustainable and inclusive development.

While a significant charcoal plantation sector does not as yet exist, since the 1990s there have been significant developments of plantations in the transition zone and state support for this sector. This includes teak plantations and woodlots, but also orchard crops

such as cashew and mango. These developments provide some basis for examining the likely impact of charcoal plantation development on communities, women and the rural poor.

Charcoal production in Ghana

Charcoal production in Ghana is currently focused on the transition zone and guinea savannah woodlands of Bono, Bono East Ahafo, northern Ashanti, and parts of the Savannah and Oti regions. During the colonial period a sector of specialised charcoal producers developed with the expansion of urban areas, most notably Accra.

In Accra this sector was dominated by Sissala

migrants, who source charcoal largely from woodlands in the immediate hinterland of Accra. With the expansion of residential areas in Accra and the increasing demand for charcoal among the growing urban population, Sissala charcoal producers began to source charcoal from the then Brong Ahafo region, gaining rights from chiefs to exploit trees for charcoal. This source of charcoal included natural woodlands and the fallow lands of farmers within the area, who conserved large numbers of small trees for staking yams, the dominant crop they produced under a bush fallowing system.

By the 1980s many of the farming youth in these areas had learned the craft of burning charcoal from these professional migrant charcoal producers, and conflicts developed between the migrant professional charcoal burners and farmers over rights to the resources in fallow lands.

Presently farming communities are deeply involved in the production of charcoal and much of the charcoal resources derives from farm and fallow land, rather than uncultivated forests. However, many professional charcoal burners now source charcoal in uncultivated areas away from the main farming areas to avoid conflicts with farmers. In most of these farming communities charcoal is integrated with yam farming, a by-product of farming that arises from clearing new farms for the cultivation of crops.

The natural landscape of the transition zone consists of a mosaic of high forest species occurring in valley bottoms and grassland and woodlands on slopes. The woodland species exploited for charcoal are typical of guinea savannah woodlands. Most of these trees are relatively small hardwood species, which have some resistance to fire, and regenerate rapidly from coppice regrowth. Unlike high forest trees these species are robust, resilient and adapted to a forest ecotone that is constantly disrupted by wild fires.

This robustness results in species that are ideally adapted to bush fallowing and respond to cutting by putting out many coppices. As long as the soil root mat continues to exist, they continue to regenerate through coppices. Coppice provides much faster regeneration than seeds. The prime charcoal species are common trees in bush fallows. This includes species such as *Anogeissus leiocarpus*, *Terminalia macroptera*, *Pterocarpus erinaceus*, *Burkea africana*, *Erythrophleum africanum*, *Detarium microcarpum*, *Isoberlinia doka*, *Crossopteryx febrifuga*, *Afzelia africana*, *Daniellia oliveri*, and *Prosopis africana*.

The environmental threat of charcoal burning: Policy narratives and evidence

In contrast with the situation within fallows and farming land, most policy documents on charcoal in Ghana present an alarming scenario of deforestation



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and degradation, which requires drastic policy interventions.

This assumes that the main species produced for charcoal are under threat and increasingly scarce. The main policy interventions involve the transformation of production to plantations and woodlots to alleviate the pressure on natural forests.

According to the Energy Commission (2012) 90% of woodfuels originate from natural forests and 10% from wood waste. This leaves no room for any charcoal production from farm clearing or from the fallow lands managed by farmers, which are most likely being classified as natural forests, although farmers subject them to alternating cycles of cut and regeneration. The FAO (2017:65) study on charcoal acknowledges that:

Farmer-managed natural regeneration promotes the systematic regrowth of existing trees or naturally occurring tree seeds in agricultural, forested and pasture lands.

The Energy Commission suggests that the preferred woodfuel species are gradually disappearing and that producers have to travel longer distance in search of wood. But the report does not identify any of the important species used within charcoal production, or the specific species that are becoming scarce. Instead, as evidence of deforestation it refers to FAO statistics the rate of deforestation in Ghana lies at 3 percent.

However, as Fairhead and Leach (1998) have clearly shown, these FAO statistics are purely guesswork, based on assumptions and projections (guesstimates) rather than empirical data; they are not based on any clearly documented evidence of changes in composition of species within forests, samples of species densities, nor fluctuations in biomass which include both decline and regeneration.

This rate of deforestation also lumps the high forest together with guinea savannah woodlands, although the characteristics of these vegetation types are quite different. While charcoal species are considered to be under threat, very few official reports list the main species that are exploited for charcoal or those that are under threat.

The National REDD+ Strategy of the Forestry Commission (2015) only lists one charcoal species, Shea, a species which makes up a small proportion of the actual composition of charcoal, but which is used in

populist media narratives to malign charcoal burners and show how they destroy valuable species.

The UNDP (2015) Nationally Appropriate Mitigation Actions (NAMA) study on charcoal production in Ghana presents a scenario of rapid deforestation in which Ghana's total forest cover will be lost in the next 40 years, with an annual deforestation rate of 135,000 ha. The deforestation rate is not broken down by forest types, but combines the very different conditions under high forest and Guinea savanna woodland. However, the UNDP (2015:39) study candidly admits:

the government has considerable understanding of the challenges of deforestation and the economic consequences of depleting forest reserves can be observed by the various programmes driven by the Forest Commission (FC), such as the Community Forestry Management Project, the Forest Preservation Programme, and the recent Forest Investment Programme. However, the country lacks up-to-date data on forest cover and annual deforestation rates, types of wood species and related matters.

In terms of the existing data on the impact of charcoal production on the environment, very few official reports contain basic data on the main species cut for making charcoal, and the impact of cutting for charcoal on their current distribution. They offer no data on the extent to which charcoal is sourced from farms, fallow land, which is actively farmed, or from uncultivated forests.

Most evidence of deforestation is drawn from questionable global guesstimates based on projected rates of deforestation rather than actual patterns. As the FAO (2017: 31) states:

It is difficult to quantify the area deforested or degraded solely due to charcoal production because deforestation is rarely caused by charcoal production alone and few data exist on the specific causes of forest degradation.

Various studies have attempted to estimate the impact of charcoal demand on tree cover by comparing national data on annual charcoal demand and forest cover.

Chidumayo and Gumbo (2013), for example, estimated that charcoal production was responsible for 540 hectares of deforestation in Oceania in 2009, 39 000 hectares in Central America, 240 000 hectares in South America, 510 000 hectares in Asia and 2 976 000 hectares in Africa; based on these estimates, Africa accounts for nearly 80 percent of the charcoal-based deforestation in the world's tropical regions.

However, the logic of these projections is highly questionable since it suggests that while very little detailed empirical data exists on which to base the actual rates of deforestation caused by charcoal production, deforestation can be deduced from figures established for whole continents!

This clearly shows that the discourses on deforestation caused by charcoal are not based on an analysis of empirical data or detailed studies of charcoal production, nor an analysis of the relationship between charcoal production and regeneration within bush fallowing agricultural systems. On the contrary global statistics based on guesstimates and projections are conjured up with minimum reference to empirical data to reify and justify the need for drastic policy interventions and regulation that will control and transform charcoal production. If there is no reliable local data, then global estimates are likely to also be unreliable.

Policies for sustainable charcoal production

The main policy recommendations that have been formulated for the sustainable production of charcoal involve the transformation of production to plantations and woodlots, mainly concerned with promoting fast growing species. Some of these species include Teak, acacias, bamboos and eucalypts (UNDP 2015). To further control production and facilitate monitoring charcoal burners will be encouraged to form cooperatives.

Plantation production will form the basis for the creation of a new state controlled value chain that is focused on defining legal charcoal and criminalising the trade of charcoal outside of the parameters of this value chain. This will control the transportation and trade in charcoal through a system of permits and licenses as occurs within the timber sector. This will introduce a system of certification in which plantation-produced charcoal will be certified as sustainable and timber produced from woodlands, farms and fallows as not sustainable and subject to higher rates of taxation than plantation charcoal. This in effect brands charcoal that is a by-product of farming as unsustainable, irrespective of the degree of regeneration on farms and preservation of trees by farmers on that farm.

Perversely, a large commercial farmer who clears a wooded environment with mechanical equipment and plants a monoculture Eucalyptus plantation will be certified as producing a sustainable product, while a yam farmer who preserves many trees on the farm

through management of coppices will be branded as producing unsustainable wood. Monocultural charcoal plantations may have adverse effects on preserving biodiversity (FAO 2017:33).

The new proposed charcoal value chain does not identify the potential clientele for farmed charcoal. Since charcoal production is identified as a product of natural forests and not farms, this presupposes a significant shift in charcoal production from woodcutters to farmers, or the conversion of woodcutters into farmers. Where woodcutters will acquire land and skills in plantation cultivation is not addressed. Similarly, this does not address why farmers would be interested in converting production from crops to charcoal, or where they will acquire the necessary skills in burning charcoal.

None of the reports advocating for charcoal plantations examine the economics of charcoal burning: the area that needs to be allocated to a rotational system of cultivating and harvesting charcoal to ensure a constant income; and the potential profits from charcoal as compared to other crops; the extent to which charcoal will comprise a major income for plantation owners or a minor income from small areas of woodlots appended to farms. However, the Forestry Commission's *Readiness Proposal Project* (2010:48) has been more hesitant in recommending a movement to plantation charcoal:

Charcoal production is widely viewed as damaging to the environment but the evidence base for this assertion will need to be carefully assessed. A number of different charcoal production systems exist in Ghana with variable carbon footprints. Community woodlot schemes may provide a more sustainable alternative than the existing and individualised production methods, though such schemes have a questionable record elsewhere, and the proposition would need further substantiation.

But this does not address the main existing farming system that contributes to charcoal production in Ghana, the yam farming system, which involves a system of rotational bush fallow in which large numbers of trees are preserved for the staking of yams, and then felled for charcoal to regenerate from coppice in a period of four to six years for a further period of farming and cutting.

This provides farmers an income from charcoal alongside food crops, unlike within a system of establishing charcoal plantations.



Photo: Lawrence K. Brobbey

The impact of plantations on farming communities

At present the charcoal plantation sector in Ghana is insignificant, so it is impossible to evaluate the impact of charcoal plantations on rural communities. But there have been significant developments of other plantation sectors in the transition zone since the 1970s and 1980s when tobacco cultivation was widely promoted and planters developed woodlots for curing of tobacco.

Here plantations refer to monocultures of trees planted for biomass (timber, wood, and fuelwood products) or fruits (such as cashew and mango). During the 1990s teak began to be cultivated on a significant scale in the transition zone, as a policy of rural electrification created large demand for teak telegraph poles. Cashew and mango plantations were also promoted as part of a policy of encouraging export.

In the early 2000s a National Forest Plantation Project was launched in the Offinso district of Ashanti, and re-launched in 2010 in the Wenchi District of Brong. As natural timber supplies declined in the high forest zone, the Forestry Commission sought to replace it with fast-growing plantation species. Aspiring commercial farmers, often from major urban centres, began to invest in developing large teak, mango and cashew plantations on a significant scale in the transition zone in the 1990s. They purchased large areas of cheap lands from the chiefs in the transition zone where population densities were

low. These initiatives were fuelled by two objectives, agrarian accumulation of capital, and accumulation and speculation in land as a marketable commodity.

Plantations formed an ideal way of acquiring rights in land, since they provided a highly visible transformation of the land, which once established is difficult for others to challenge and claim rights over. Once established plantations can be maintained with low levels of investment in labour unlike arable crops.

The large-scale commercial planters often acquire holdings of between 50-100 acres and more. Since chiefs cannot sell land to local farmers, who have customary user rights in land, they are often willing to sell large areas of land to commercial farmers. The large commercial plantation developers include traders, civil servants, and politicians (Boafo and Lyons, 2019, Yaro 2010).

While plantations are vulnerable to fire damage, particularly fruit trees, the owners still retain and gain value from the land, which increases over time. Initially, there were many conflicts in communities over the allocation of large areas of land to commercial plantation developers by chiefs.

However, this has become less over time as larger numbers of medium- scale farmers within the communities have also shown interest in plantations. These establish plantations of up to 20 acres. This is also influenced by the desire to stake out individual property claims on land, which can be transferred to their own children. Currently there is a scramble for

land in which smallholders are moving into plantations as a way of gaining more secure land rights and protecting against encroachment, as chiefs allocated fallow land within bush fallowing systems to commercial farmers.

The Forestry Service formerly registers timber plantations and woodlots. Consequently, many smallholder farmers see establishing woodlots as one possible way of securing rights to land, particularly when seedlings are freely provided as an inducement. This expansion of plantations is resulting in difficulties for the most vulnerable and poor farmers, including migrant farmers and women to access land.

In some of the settlements in the Kintampo area, migrant farmers from northern Ghana are increasingly finding it difficult to get land for farming, and gaining it on increasingly unfavourable terms. They are often offered newly established cashew plantations in which to plant their crops in return for weeding the plantation, or land in which they plant and tend plantation crops for the landowner while planting their own annual arable crops. In the past, women often farmed in the old yam farms of their male relatives and husbands. After the husbands had cultivated yams, the women planted groundnuts, vegetables, and cereals for a number of years before the land was fallowed.

With the expansion of cashew, the old yams are increasingly being converted into cashew plantations, and women are forced to plant their crops among the young cashew trees. As more of these plantations mature in the next few years and create a canopy, many women are likely to experience difficulties in finding land for food crops. This growing land shortage is not directly the result of population increase but of land pressures created by expansion of plantations and the sale of land to commercial farmers.

Beyond intensifying social inequality, these developments also disrupt the existing bush fallowing system as more land is placed under plantations. In some of the settlements most affected by commercial plantation development the conversion of fallow land to plantation has resulted in fallow intervals dropping to two

years. However, in other settlements where there has been less commercialisation of land and conversion to plantations fallow intervals of between four to six years are still common. The expansion of tree monocultures also results in a significant decline in biodiversity as compared to fallows.

Although yam farming is an indigenous system of farming based on bush fallowing, it has been able to respond to the urban demands for food and create considerable value. Yam contributes around 16 percent of agricultural GDP (the total value of agricultural crops within the economy) as compared to 13 percent for cocoa (Plan Consult 1993). It also produces a large percentage of the charcoal consumed in Ghana.

Therefore it should not be lightly dismissed as an old-fashioned farming system, and this is done at the peril of the agricultural economy of Ghana.



Photo: Lawrence K. Brobbey

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Acknowledgements

This policy brief is produced by the "Access and Exclusion along the Charcoal Commodity Chain in Ghana (AX) research project." The project was funded by the Danish Research Council for Development Research (Danida). The views and suggestions expressed in the policy brief are the sole responsibility of the authors. We thank all the households and other actors who participated in the research. The contribution of other members of the AX Project team to this policy brief is acknowledged.