

Impact of COVID-19 on woodfuel value chains in the DRC

Addressing risks and vulnerabilities of operators and end-users

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Introduction

The COVID-19 pandemic, including the health impacts of the virus itself and measures to contain and mitigate them, has far-reaching impacts on economies, value chains and livelihoods. The pandemic has revealed the extent of vulnerability in our societies to risks and shocks. Indeed, most of these vulnerabilities were triggered or amplified by the crisis or its responses.

CIFOR-ICRAF has organized a Rapid Research Response to identify the impacts of the pandemic on woodfuel value chains in the Democratic Republic of Congo (DRC). This serves to better identify and address risks and vulnerabilities in agriculture and forestry. This, in turn, helps strengthen resilience in landscapes, value chains and the livelihoods of people who depend on them, all to “build back better.”

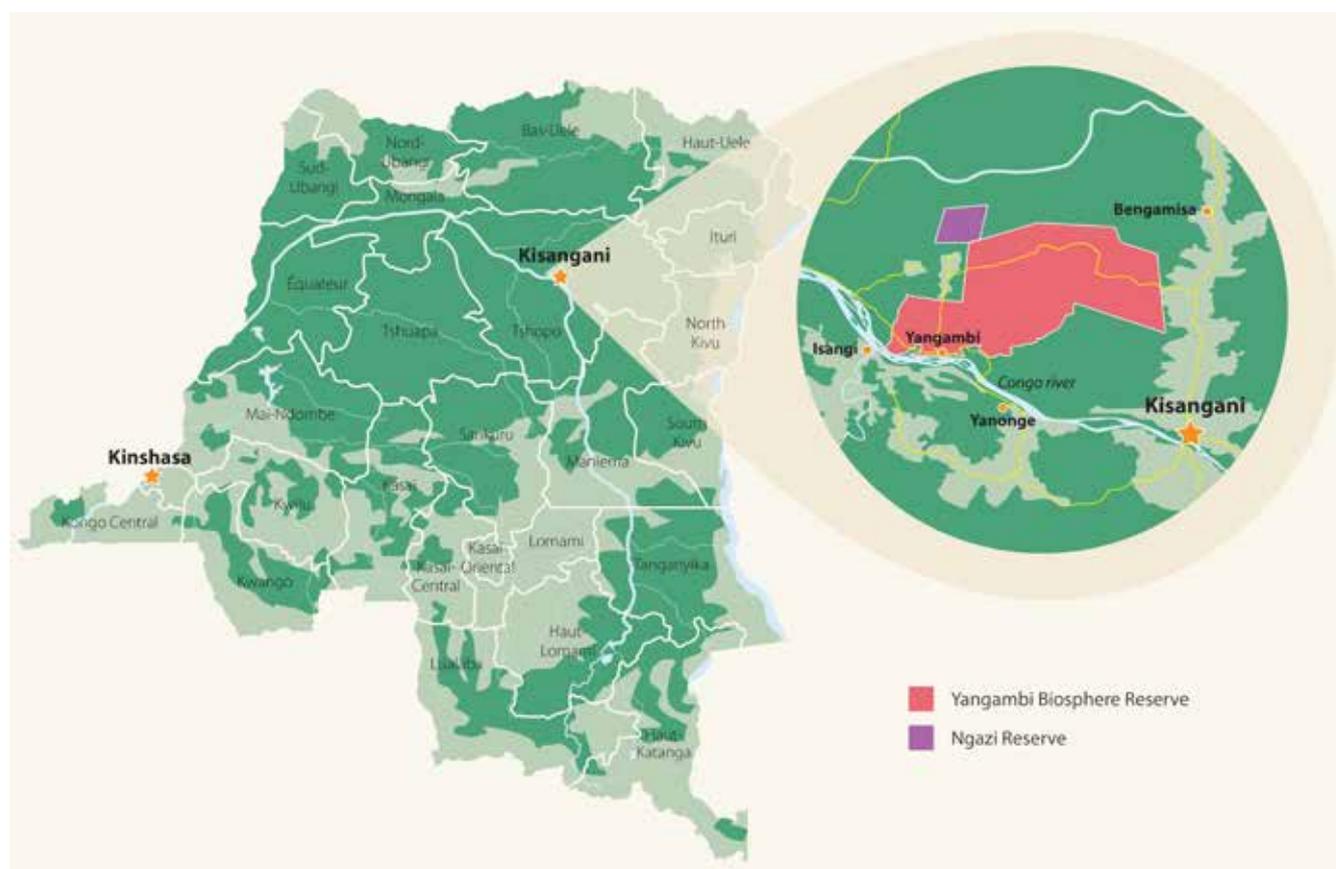


Figure 1. The Yangambi Engagement Landscape and its adjacent areas

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This brief presents key findings from a field study in DRC that

- identified the short-term and potential longer-term impacts of the COVID-19 pandemic on the operators and end-users of woodfuel value chains in the supply zone near the Yangambi Biosphere Reserve and in Kisangani city;
- identified potential actions to address these impacts, i.e. that can be taken up and implemented through CIFOR-ICRAF's actions in the Yangambi Engagement Landscape (YEL) (Figure 1).

The next sections present a brief background to the area concerned by this assessment. They identify COVID-related measures adopted so far by national authorities; methodology used for data collection and analysis; impacts of the COVID-19 pandemic on woodfuel value chains, its operators and end-users; and potential mitigation measures.

Background

Woodfuel value chains in the Yangambi Engagement Landscape (YEL): upstream and downstream (Kisangani)

Kisangani is located in the tropical moist forest zone of DRC's Tshopo Province. Charcoal and firewood are supplied to Kisangani from six main different directions via waterways and roads. Woodfuel (including charcoal and firewood) is harvested from, and processed in, the surrounding forest areas, often as a by-product from land cleared for shifting cultivation.

Woodfuel is the main energy source for around 1.8 million inhabitants of Kisangani, who depend on it for their daily cooking. In all, 81% of households use charcoal regularly, while 31% use firewood. Few households (<1%) regularly access any electricity or gas for cooking. The use of woodfuel translates into an estimated 2.0 million tons or 2.7 million cubic metres (m³) Roundwood Equivalent used annually by the inhabitants of Kisangani (Imani and Moore-Delate 2021).

YEL is essentially divided into producer (upstream) and consumer (downstream) sides.

On the upstream part of the value chain, one of the main supply zones of Kisangani is the landscape extending west from the city. This embraces both the left and right banks of the Congo River. The landscape also hosts the Yangambi Biosphere Reserve.

Thousands of households in this landscape are involved in charcoal making. Generally, this work supplements their farming or other activities sustaining their livelihoods.

Charcoal trade is one of the few options available for earning 'quick' cash income to pay for basic household needs (food, school fees, health care). CIFOR's long-term involvement in the YEL includes the support and development of sustainable charcoal value chains.

To that end, it involves producers upstream in integrating tree-planting into their agricultural production cycle. Charcoal producers organize themselves in associations and take part in training on more efficient carbonization.

Downstream, on the consumer side, the development of locally produced improved cookstoves, together with marketing and business development of cook stove enterprises, is being targeted to mitigate the increasing charcoal demand.

COVID-19 global pandemic and sequence of events in DRC

The DRC reported its first case of coronavirus in March 2020. On 24 March, the head of government S.E.M Félix-Antoine Tshisekedi Tshilombo issued a national order in response to this health emergency. The order included a ban on all travel from the capital to the provinces, as well as on gatherings, meetings and celebrations of more than 20 people on roads and other public places. Borders were closed, with suspension of all flights from countries at risk. Health measures included quarantine for a maximum of 14 days of people with symptoms of COVID-19 and sensitization on hygiene practices. At the same time, the DRC took measures to guarantee continuous supply of food and basic necessities to cities.

Health measures were largely lifted after July 2020 with commercial activities resuming, followed by opening of churches and schools. Confronted with the second wave of COVID-19 infections in December 2020, the government imposed a national curfew from 9 p.m. to 5 a.m. Since the beginning of the pandemic, the DRC has reported over 30 000 cases of corona virus, with 772 official deaths (<https://covid19.who.int/region/afro/country/cd>, accessed 10 May 2021). Tshopo Province, one of 26 provinces, had reported 141 official COVID-19 cases by 21 April 2021 (<https://reliefweb.int/report/democratic-republic-congo/covid-19-rdc-12-avril-2021>). Meanwhile, only 6,372 people in the entire country had been vaccinated by 8 May 2021 (<https://reliefweb.int/report/democratic-republic-congo/covid-19-rdc-8-mai-2021>, accessed 8 May 2021).

All countries are facing similar challenges regarding the global pandemic. However, they also experience specific impacts on their economies, depending on supply chains of different products (Han et al. 2021). Given its rank as 175th of 189 countries on the World Development Index, the DRC is particularly vulnerable. At the best of times,

many citizens depend entirely on the informal economy for their survival. Hence, they have no access to any public social security. Additional stressors, such as COVID-19, add to the daily duress. This is particularly true in the case of basic activities and value chains. Charcoal production and trade are omnipresent, supplying a basic need in the form of cooking fuel to urban populations.

This brief summarizes findings on the impacts at the levels of production, trade and end-use, including potential counter measures.

Methodology

The authors collected data for this study from November 2020 to February 2021, through:

1. Surveys undertaken with a total of 384 operators (producers and salespersons) and 1,203 consumers of woodfuel (charcoal) value chains in the YEL and Kisangani. Survey tools were adapted from a quickscan conducted by ICRAF on charcoal supply chains in selected counties in Kenya (Siko et al., unpublished). The sample strategy, number of respondents and time period are presented in Table 1. Data was directly entered in electronic collection forms and analysed in MS Excel.
2. Semi-structured interviews with 14 key informants, including environmental agents in the market, market managers, police and a representative of the national electricity company (*Société Nationale d'Électricité*, SNEI). These interviews served to cross-verify information from respondents and to get insights on implementation of rules and access to electricity in the same period.

3. Collection of secondary data and relevant documents on specific restrictions due to COVID to that date for cross-checking of findings and description of timeline of events.

Impacts of the COVID-19 pandemic on woodfuel value chains, its operators and end-users

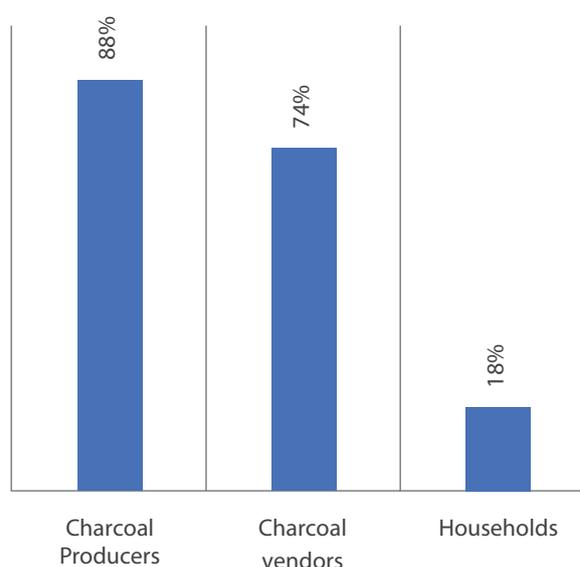


Figure 2. Responses to the question: “Did the COVID-19 pandemic change charcoal supply?”

Table 1. Respondents and sampling strategy

Respondent	Sample	Representation	Time period
Producers in YEL, who are often also transporters.	267 persons in Yangambi landscape, of which 66 women and 201 men.	Almost all participants of project interventions in 11 main production villages, representing >10% of total population of charcoal producers in the landscape (1,800).	Nov-Dec 2020
Vendors in the main charcoal markets in Kisangani: Jaloux Jaloux, Libanga, Aspiro, Tebee, Kikongo, Djubu Djubu, Litoyi, Motumbe, Makolo Ngulu, Cimestan and Central Market, plus two charcoal warehouses in Makiso community.	117 vendors in Kisangani markets. Strategy for small sampling (qualitative character): <ul style="list-style-type: none"> • IF N=<10 salespersons in the market: Sample = N. • IF N=10-39 salespersons in the market: Sample = 10. • IF N=>40, Sample =25%*N. 	Qualitative character, representing perceptions by vendors, not representative for entire population.	Jan-Feb 2021
Consumers in Kisangani.	A total 1,203 households, divided over the 10 strata of the city.	Representative for the 178,000 households, 1.8 million population of Kisangani (+-3, 95%).	Jan-Feb 2021

Upstream: Charcoal production and COVID-19

Most charcoal producers in the Yangambi landscape (88%) experienced changes to their charcoal production or sales activities during the COVID-19 pandemic and the related measures that followed. Most producers reported these changes began as early as the first in-country responses to COVID-19 pandemic (March and April 2020). The closing of churches followed by schools were the most notable events that announced the start of this period of prevention measures. Charcoal production decreased due to the lockdown and related restrictions to transportation by waterway, which are critical for the transport of charcoal from production areas to Kisangani markets. Producers also stopped or scaled down their activities due to fear of infection. The much demanding physical work of charcoal making is typically done in self-organised groups, involving exchange of labour in rotational shifts. In an often-reported consequence of the lockdown, producers could no longer work in these teams or no longer found local workers available. They were thus forced to do the heavy work by themselves or in smaller groups.

The types of intermediaries and consumers also changed for producers in YEL, weakening pre-existing horizontal integration in the value chain of more stable relations between producers and traders. Wholesalers from Kisangani and Kinshasa no longer stocked their boats in bulk near the production areas. Consequently, producers sold their charcoal at local markets (Yanonge and

Yangambi, 60 and 90 km, respectively, from Kisangani) or to (local) households and retailers.

This weakened value chain led to lower sale prices and less revenue for producer households. At the same time, prices for food increased manyfold due to lack of supplies via the river. This lack of supply ranged from as far as Kinshasa and via the National Route 4 (RN4) that connects Kisangani to the eastern border of DRC, Uganda and the port of Mombasa in Kenya.

The arrival of any product from Kenya, Uganda and the eastern border was initially slowed down by the COVID-19 lockdown measures. Trucks and their drivers would spend weeks waiting for approval to pass the various country borders. Later (from November 2020 up to February 2021), heavy rains prevented trucks from driving on RN4. Because of the heavy reliance on imports, producers encountered difficulties even finding the equipment to make charcoal (machettes, axes, buckets) on the Kisangani market.

Perceptions about COVID-19 and its related impacts vary greatly among producers. Some believe the pandemic does not exist in their region. Others fear the disease and try to respect precautionary measures. But among all producers, there is a consensus. Despite their own beliefs and COVID-19-related measures taken or imposed, they also believe they must make charcoal to earn much-needed cash income to support their families.

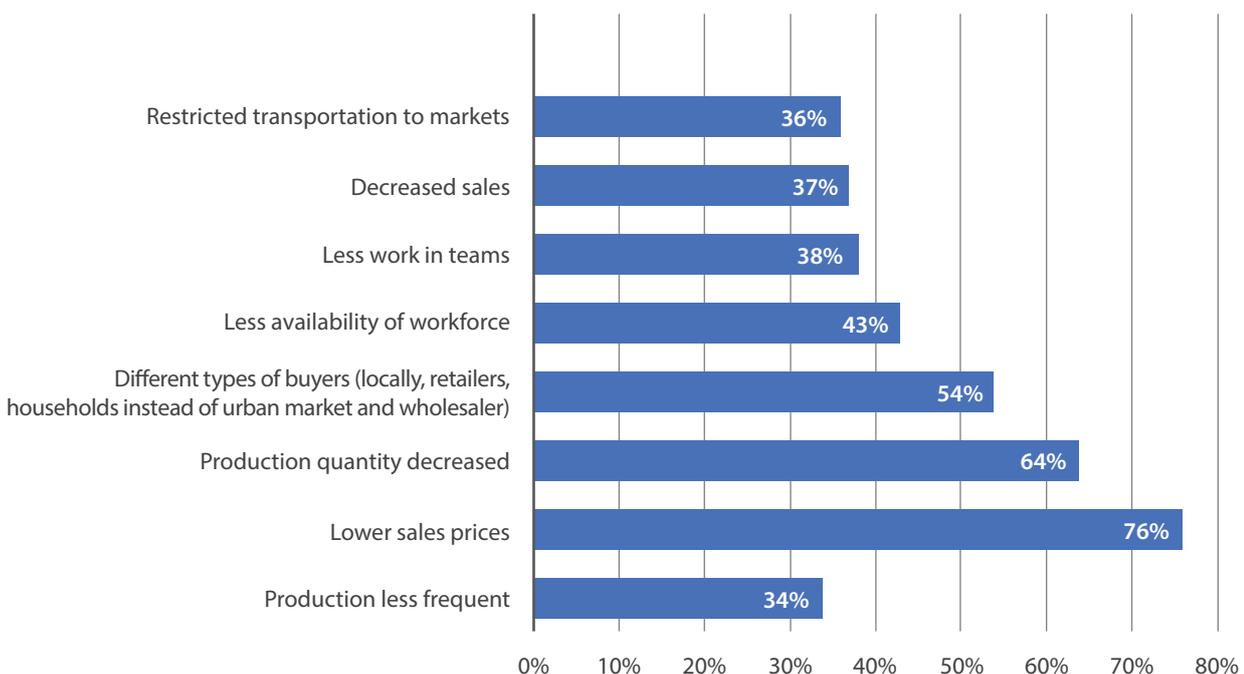


Figure 3. Charcoal producers and main changes to their activities reported due to COVID-19

Downstream: Charcoal markets and COVID-19

Like producers, most charcoal sellers (74%) in Kisangani market reported changes due to COVID-19 in their activities. Reported changes concern levels of supply, market dynamics and the clientele (Figure 4).

Directly related to the upstream impacts described above, sellers generally noted it was more difficult to source charcoal with fewer suppliers and less charcoal available. This was due to restrictions on transportation and movement of persons, and fear of the disease.

However, vendors also reported that despite these difficulties, supply did continue. Different supply areas emerged following new availability of labour and means of transportation. For example, as reported above by producers in YEL, production decreased because of restrictions to group work and transportation to markets.

In other supply areas of Kisangani, other sources filled the gap. These included people in sudden need of cash income, or school children and students at home who got involved in charcoal production. In addition, restrictions to group transportation led to less transportation of charcoal in pirogues (which often transport charcoal and passengers simultaneously) via the Congo River.

In contrast, transportation by individuals by bike, such as by those using passable routes and roads, could continue or increase without difficulties. More charcoal arrived from nearby villages via tributary rivers (such as the Tshopo), where there was little control by state agents, who largely focused their efforts on the Congo River.

Sellers reported that prices increased following more charcoal demand and less supply. This price increase in the beginning of the pandemic was confirmed by the Provincial Institute for Statistics. It noted increasing prices from April 2020 (CDF 389 (USD 0.19/kg) to June 2020 (CDF 438 (USD 0.22/kg) (Direction Provinciale de l'INS 2021). At the markets, the typical units, such as CDF 500 CDF (USD 0.25) or CDF 1,000 (USD 0.50) bags, contained less charcoal.

Due to decreasing import of goods from other provinces and abroad, prices of other consumer goods increased as well during this period. Some vendors started to stock charcoal as soon as the crisis emerged in anticipation for later shortages. Vendors report that for a long time there were fewer clients in the market due to restrictions and fear for the disease. Yet clients did generally buy larger quantities to stock up on charcoal at their homes. Others noted that increase of sales was typical during the first part of COVID-19 response measures, followed by decreasing sales when fewer people were going to the market and restaurants closed.



Figure 4. Types of changes due to COVID-19 according to charcoal vendors

The wearing of masks, social distancing and hygiene measures – though not strictly enforced – affected daily operations of market vendors. There was no official provincial rule that determined fines for not wearing a mask. However, vendors reported increasing cases of bribery by controlling agencies who imposed “unofficial fines” of CDF 5,000 (USD 2.5). Field observations confirmed the population has generally not respected the need to wear masks. In contrast, most of the population generally did adhere to the curfew, which was imposed later.

The population of vendors changed during this period. Those who could not continue under new – more challenging – circumstances left the business. Others – in urgent need to earn a living – stepped in to fill this gap.

Downstream: Charcoal consumption and COVID-19

Surveys among the population of Kisangani confirmed that 18% of households experienced negative effects on their supply of woodfuels during the COVID-19 pandemic. Thus, most households (82%) did not note any change due to COVID-19 and continued supplying themselves with charcoal or firewood as usual. Following the evidence collected upstream, most consumers have been able to continue accessing a supply of woodfuel for several reasons. First, new alternative supply areas are producing charcoal. Second, additional labour is available to make charcoal among those who lost their jobs or other income-generating opportunities, and from students and school children who could no longer go to school. Third, traders circumvented restrictions on movement and precaution measures.

For purchasing of cooking equipment, only 3% of households report a change due to COVID-19. In these cases, they noted less availability and higher prices.

Around 324,000 inhabitants of Kisangani (18% of households) noted negative changes in their charcoal supply. They reported serious implications on their household budgets and energy access. These included increasing price of the product and diminishing availability of preferred charcoal with the usual sellers and markets. Charcoal price fluctuations differed per market but have generally been increasing over the past decades. Between March – December 2020, the average price increased by 4% compared to the same period in the previous year (Direction Provinciale de INS 2021). A small group (around 3% of households, or some 54,000 people), mentioned that lack of available and affordable cooking fuel led to behavioural changes. These included changing types of meals cooked and reducing number of meals cooked, quantity of charcoal used and cooking time. These limitations on cooking meals harm the food security of these households, with potential implications for health and welfare of vulnerable groups.

Discussion and conclusion: COVID-19 impact on charcoal value chains and possible mitigation measures

This brief shows two sides of the impact of COVID-19 on the charcoal value chain. On the one hand, the sector has shown resilience in continuing to supply the basic need of cooking fuel to Kisangani's urban population. On the other, the pre-existing operators in production and trade, those with experience and those more inclined towards sustainable practices, were shown to be vulnerable.

Only 18% of households noted changes in their supply. Therefore, supply continued to fulfil market demand. A new and alternative labour force became available to make charcoal; traders circumvented restrictions on movement and precaution measures; and supply shifted to alternative areas.

However, among the households that noted change, the increasing prices of charcoal and other goods put pressure on their budgets. This had severe impacts on cooking time (reduced) and meals (changing diets), affecting food security of these households. They are already considered "fuel poor" because of their general lack of access to alternative energy sources and the average 14% of their household budgets spent on cooking fuel (Imani and Moore-Delate 2021). Any disturbance on supply of charcoal affecting prices increases pressure on them.

These findings are similar to those reported in Kenya. A ban on trade and restrictions due to the COVID-19

pandemic in Kenya did not stop charcoal trade from reaching consumer markets. However, it increased prices. Some consumers in Nairobi skipped meals to reduce the amount of charcoal used for cooking. Others shifted to the cheaper, unhealthier option of using paraffin (Siko et al., unpublished).

COVID-19 measures directly and negatively affected the livelihoods of operators who depended directly on charcoal production and trade. The DRC is among countries with high risk factors (high poverty rate, weak health system and overcrowded urban areas). They also have vulnerable groups that are generally most exposed to the effects of the pandemic and its economic impacts (Kuma 2020, Sharifi and Khavarian-Garmsir 2020). These same groups, like the producers and vendors of charcoal, operate in the informal sector. They have no social security and depend on day-to-day activities for income (Kuma 2020).

In general, producers could no longer rely on their system of rotational workforce in teams during the pandemic. They were forced instead to work alone or with some family members. This was also the case for activities of Kenya Charcoal Producer Associations where collective work was restricted following COVID-19 restrictions on social gatherings (Siko et al., unpublished).

Charcoal wholesalers to Kisangani were no longer able to travel to some production sites, particularly those usually travelling by boat or canoe on the Congo River. This caused producers in YEL to sell locally at lower prices, while at the same time all prices for consumer goods went up. Other producers, in other supply areas, filled this gap in market demand, including school children and students who stayed at home and others in sudden need of cash income.

With charcoal making as one of few 'quick' income-generating activities in rural areas, it provided new charcoal producers with a 'safety net'. However, it also signifies a larger group of 'random' operators of producers. They generally do not have skills for efficient carbonization and are not likely to invest in maintaining future tree stocks.

Vendors in markets noted changes in suppliers, supply areas and supply of charcoal available due to restrictions on transportation and movement of persons. There were accompanying increases in prices for purchase and sales. Instead of support from government to adapt to COVID-19 measures, vendors were harassed and forced to pay bribes for random violations of rules. This imposed additional costs on their operations.

With most of the trade from informal value chains and no social security system in place, the COVID-19 pandemic amplified negative impacts to those who most depended on charcoal trade. For producers, the pandemic decreased

individual quantities produced, prices and sales. For consumers, it increased costs for goods.

Charcoal producers in supply areas and Kisangani vendors are part of the large 'forgotten group' of informal workers who have not received any government support during the pandemic. Established informal mechanisms used by producers, such as rotational working groups and sales to known traders, were disrupted, leaving producers in a more vulnerable situation.

There is no responsible entity in Kisangani to monitor or mitigate effects of COVID-19 at the level of production or markets in the city. This reflects a general absence of structural or sectoral policies that address organization and operation of the informal sector (Kuma 2020). In a way, this echoes the infamous "Article 15" of the Congolese Constitution initiated during the Mobutu era. Article 15 became shorthand to mean that everyone must fend for themselves to earn a living, and not expect anything from the (largely absent) State.

The socio-economic environment in YEL following COVID-19 is not conducive for sustainable charcoal production. The DRC faces increased uncertainty about availability and prices. Meanwhile, the sector faces increased turnover and replacement of people involved in charcoal production and trade.

Affected groups must be supported to sustain their activities during and after the pandemic. This is critical for the livelihoods of producers and traders and for the stable supply of cooking fuel to the urban population. But it's also needed to ensure sustainability of the entire sector.

The DRC could take several actions to support the informal sector. First, it could suspend small daily taxes paid to local entities – a measure suggested by the International Labour Organization (ILO 2020). Second, it could organize group transport to marketplaces to avoid the unnecessary movement of many small-scale transporters and the associated bribery. This support should target producer groups that intend to supply charcoal sustainably, such as the three groups currently being supported in YEL¹. It might even act as an incentive for sustainable production. These reforms would be important steps for the sustainable charcoal sector to "build back better."

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