Working Paper

Regulatory compliance, motivations and capacities in charcoal production in Baringo and Kitui counties, Kenya

Phosiso Sola, Jared Gambo, Ruth Muthui, Ivy Amugune, Erick Otieno Wanjira, Anthony Kitema

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Abstract

- Illegality in the forest sector is a major threat to forest and tree resources. Governments have responded by imposing more regulations and restrictions, with little consideration given to motivations for noncompliance. In Kenya, the Forest (Charcoal) Rules 2009 – while considered significant progress toward regulating the industry – have failed to elicit sufficient compliance to formalize the value chain and stem illegality.
- This study aimed to investigate the mandates, capacities, motivations and drivers for compliance by members of charcoal producer associations (CPAs), while examining the incentive mechanisms required to increase compliance in the charcoal value chains in Baringo and Kitui counties in Kenya. The study found that CPA members were engaged in the charcoal business mainly due to a lack of alternative livelihoods.
- Most producers indicated they had little or no knowledge of the charcoal rules, but they complied due to fear of arrest or fines, and due to their own personal values. Poverty, livelihood systems, the capacity of regulatory authorities, and corruption were the key external factors influencing the decision not to comply. Capacity building and the strengthening of CPAs were seen as incentives for compliance.
- The Forest Charcoal Rules are an innovative legislative framework for regulating and formalizing charcoal production and trade in Kenya. However, there is an urgent need for new mechanisms that will empower CPAs. Further analysis of motivations of charcoal value-chain actors would generate invaluable evidence to inform policy and practice in the subsector.

Key words

Charcoal production, regulatory compliance, motivations, producer association, Kenya

Executive summary

Illegality in the forest sector is a major challenge and threat to forest and tree resources. Governments have responded by imposing more regulations and restrictions, but little intentional consideration has been given to understanding the motivations for noncompliance and the drivers of illegality. To increase compliance and to devise the appropriate regulatory and policy instruments that can influence behavior, policymakers need a clear understanding of the economic and social circumstances as well as the incentives desired by the target populations. In Kenya, the Forest (Charcoal) Rules, 2009, were gazetted to guide sustainable charcoal production, transportation and marketing. While charcoal rules were considered a significant step toward regulating the industry, they failed to illicit sufficient compliance in order to formalize the value chain and stem illegality. This study aimed to investigate: (i) the mandates, capacities, motivations and drivers for compliance by charcoal producer associations, and (ii) the incentive mechanisms required to increase regulatory compliance in the charcoal value chains in Kenya.

The study was conducted in Baringo and Kitui counties, which were once charcoal hot spots. The methodologies included: (i) a literature review to document specific legislative provisions on mandates, role, responsibilities and rights of charcoal producer associations (CPAs) with regard to ensuring sustainable and legal charcoal production and trade in Kenya; (ii) a telephone survey with systematically sampled members of CPAs in Baringo and Kitui; and (iii) a self-assessment of capacity as well as organizational and operational performance by six CPAs in Baringo.

The study found that CPA members engaged in the charcoal business due to a lack of alternative livelihoods, and not necessarily because it is a lucrative business (66%). Most producers sourced wood from their own land (42%), but many have occasionally cut trees from gazetted areas. Improved kilns were not common as 89% of the respondents indicated they had never used them. In addition to the low uptake of improved wood sourcing and carbonization, there were great challenges in marketing and distribution due to the logging moratorium and ban on charcoal movement. With regard to governance, most members of charcoal producer associations in Baringo and Kitui acknowledged that CPAs played a major role in enhancing environmental management, increasing access to information and training, as well as boosting sales, incomes and market access. However, there were also a significant number of members (55%) who indicated that CPA leaders benefited more than the wider membership. In addition, most CPAs were weak, lacked a long-term strategic vision and were in need of accountable and transparent leadership.

Nearly half of the respondents reported that they had knowledge of the charcoal rules (49%), while almost a fifth (19%) had no knowledge of any rules. Only one percent of the respondents indicated that they had not broken any rules in the past three years. However, a large proportion (83%) had done so, albeit only rarely. Most CPA members complied with charcoal rules because they were afraid of arrest or fines, and also because they had personal values, norms and a sense of what is right. Poverty, livelihood systems, the capacity of regulatory authorities, and corruption were the key external factors/drivers influencing the decision not to comply with the charcoal rules. Nonetheless, regulations and institutional mechanisms were perceived as legitimate and just, with some public

participation in policy processes for charcoal production and trade. However, less than 25% were satisfied with the level of participation, transparency and accountability in the regulatory mechanisms. Capacity building and the strengthening of CPAs were the most desired benefits seen as incentives to enhance compliance with charcoal rules by both male and female producers.

We conclude that the Forest Charcoal Rules are an innovative legislative framework for regulating and formalizing charcoal production and trade in Kenya. However, CPA membership is low and has been unable to promote or facilitate the uptake of improved technologies and practices. In addition, very little evidence exists about the implementation of environmental management plans aimed at improved tree planting and management, thus preventing the delivery of sustainable and legal charcoal to the market. The 2018 logging moratorium and ban on charcoal movement have become the main disincentives to engage in sustainable charcoal as they have effectively made the activity unviable for producers. CPAs still exist and remain a legitimate vehicle to formalize the production of legal and sustainable charcoal. However, there is a need to engage with them as Forest Charcoal Rules are being reviewed to take into account motivations of various individuals and incentivize compliance. Therefore, there is an urgent need to institute new mechanisms that will empower CPAs to facilitate sustainable charcoal production and trade. Further analysis of motivations of charcoal value-chain actors would generate invaluable evidence to inform policy and capacity development programs.

1 Introduction and background

Illegality in the forest sector has been highlighted as one of the major challenges and threats to forest and tree resources (Ramcilovic-Suominen and Epstein 2012; FAO 2005). Most often, governments respond to illegality by imposing more regulations and restrictions. Unfortunately, the command-and-control approach has not solved the problem entirely and is usually too costly to execute effectively (Kuperan and Sutinen 1998). There has to be another way. In most cases, little or no consideration is given to the motivations for noncompliance and/or drivers of illegality (Ramcilovic-Suominen and Epstein 2012). Generally, the underlying causes of noncompliance are varied, contextual and personal, including poor regulatory frameworks and perceptions of their legitimacy; limited enforcement capacity and corruption; lack of transparency and accountability by authorities; lack of markets that value legal products; poverty; and lack of alternative livelihoods (Ramcilovic-Suominen and Epstein 2012; FAO and ITTO 2005).

To promote compliance, policymakers therefore need a clear understanding of economic and social circumstances as well as incentives for target populations, in order to choose appropriate regulatory and policy instruments to influence the behavior of the target groups. Ramcilovic-Suominen (2012) argues that traditional approaches (e.g. coercive measures and sanctions) should be adopted where compliance is influenced by self-interest, while alternative or flexible approaches (e.g. education, cooperation, market incentives, forest governance reforms and capacity building) should be adopted where compliance is based on a sense of duty to comply.

These considerations are critical in Kenya as policymakers plan the way forward more than 10 years after the Forest Charcoal Rules were introduced in 2009 to guide sustainable charcoal production, transportation and marketing (KFS 2009). This was the first time a legal framework had been developed to organize and regulate the informal charcoal sector in the country. In addition to the 2009 regulations, the Environmental Management and Coordination Act (EMCA) (No. 8 of 1999), the Forest Conservation and Management Act (FCMA) (No. 34 of 2016) and the Wildlife Conservation and Management Act (No. 47 of 2013) provide guidelines on implementing sustainable management and conservation of forests. However, the charcoal value chain is still inadequately guided, controlled and supported (Sola et al. 2020). Hence the repeated bans imposed on the sector. Thus, while charcoal rules were considered a significant step toward regulating the industry, they failed to illicit sufficient compliance. This has been attributed to – among other things – high levels of poverty and food insecurity among charcoal producers; weak enforcement capacity; unclear and inconsistent laws and policies; deep-rooted corruption along the charcoal value chain; and high demand for charcoal in urban areas (KFS 2013; MEF 2018).

In 2014, the County Assembly of Kitui enacted the Kitui County Charcoal Management Act to regulate and manage the production, use and trade of charcoal in the county. For some time, the law appeared to be working well, as shown by the increased number of registered charcoal producers and transporters. By 2017, the county had 23 registered charcoal producer associations (CPAs) and four registered charcoal transporter associations (Muthui 2018). However, a year later the governor of

Kitui banned the sale and transportation of charcoal out of the county in January 2018 due to the widespread destruction of forest resources by unlicensed charcoal producers (Sola et al. 2020). The legal framework in place presupposes that people will join/form CPAs with the mandate and capacity to engage in charcoal production and trade as per the provisions of the Forest Charcoal Rules of 2009. This would then result in the trade and consumption of legally and sustainably produced charcoal as well as better managed landscapes (Figure 1). This study aimed to investigate: (i) the mandates, capacities and levels of compliance by charcoal producer associations in sustainable charcoal production, and (ii) the motivations and incentive mechanisms for increased regulatory compliance in the woodfuel value chains in Kenya. Evidence generated will contribute to the development of the road map/strategy for guiding, controlling and supporting competitive and sustainable woodfuel value chains in Baringo and Kitui, and in Kenya generally.

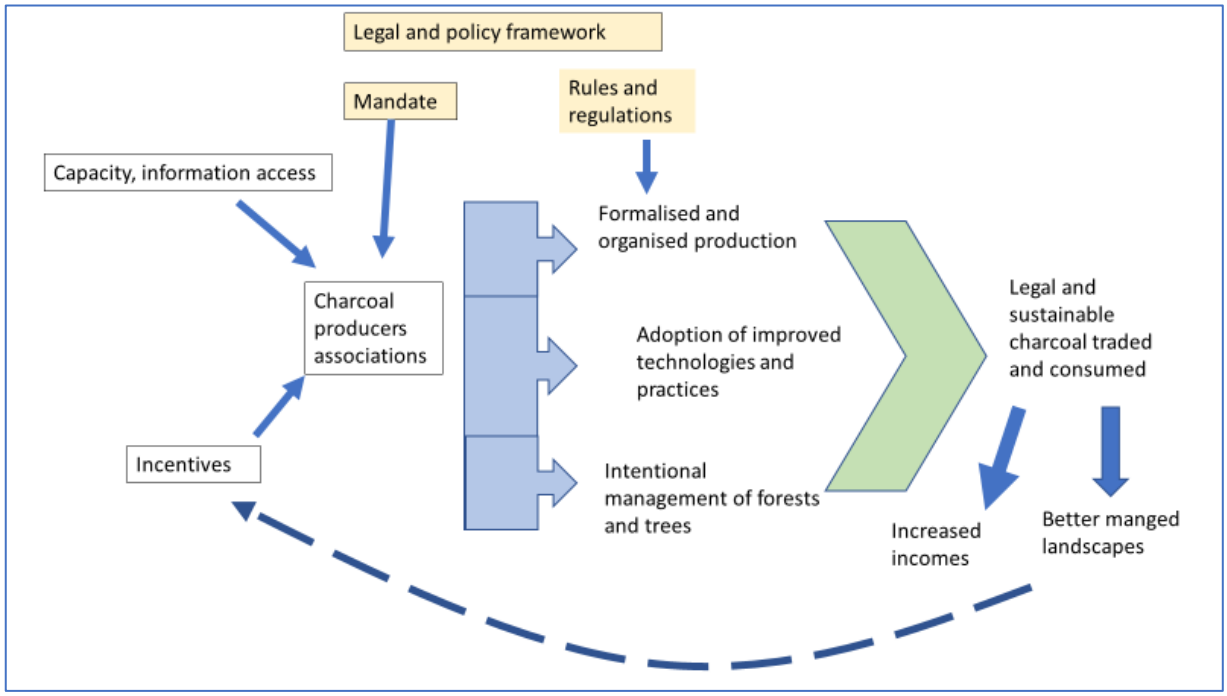

Figure 1. Study conceptual framework

2 Methodology

2.1 Analytic framework

Several studies have been undertaken to create more understanding of regulation compliance (Ramcilovic-Suominen and Epstein 2012). There are a wide variety of motivations for compliance that vary between persons and contexts. It is believed that people are motivated to obey laws based on three decisions, though most often in some combination. First, the decision can be based on economic motivations (benefits and costs) where an actor is committed to maximizing his or her own self-interest. This economic or material utility is referred to as the instrumental model (Becker 1968; Ehrlich 1972; Stigler 1970; Ramcilovic-Suominen and Epstein 2012; FAO and ITTO 2005). Second, decisions can be informed by social motivations, which assume that an actor is committed to earning the approval and respect of others (Cialdini and Trost 1998). Third, an actor can be committed to obeying the law (in general) and the relevant regulatory regime (in particular) because it seems fair, legitimate and meaningful (Kuperan & Sutinen 1998; FAO and ITTO 2005). Furthermore, compliance decisions can be influenced by context-specific cultural and institutional mechanisms as well as the political environment. In addition, awareness of rules and capacity also fosters compliance with laws (Figure 2; Ramcilovic-Suominen and Epstein 2012; FAO and ITTO 2005).

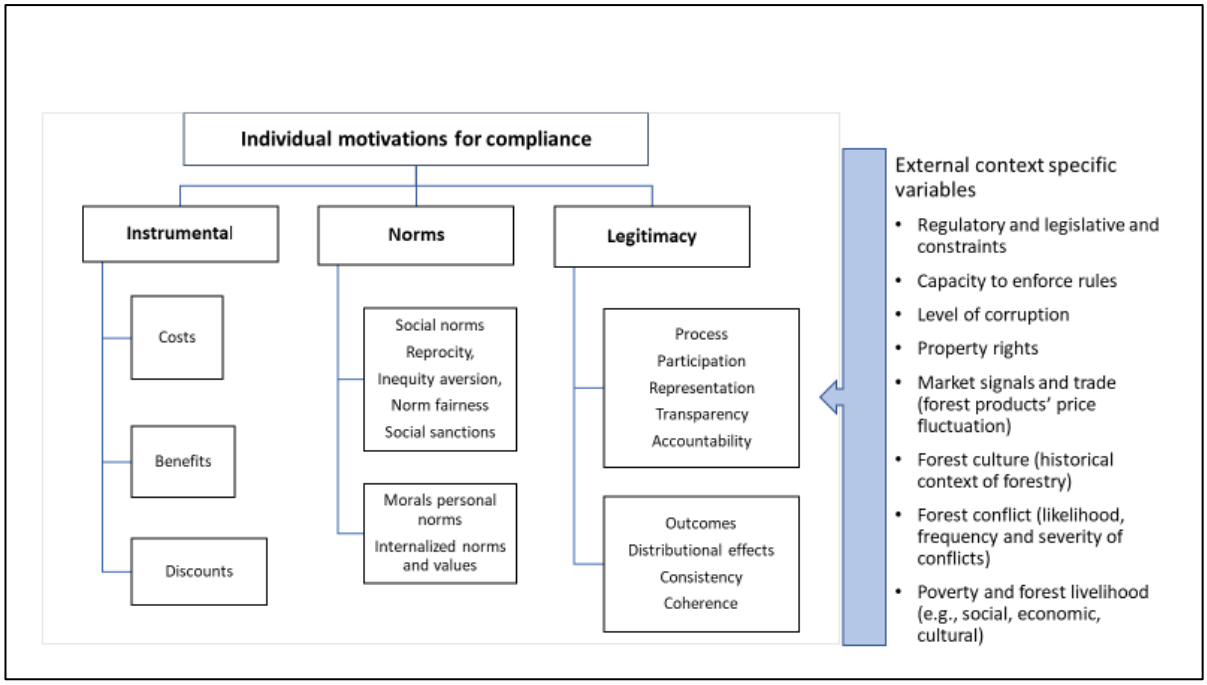

Figure 2. Analytical framework for forest law compliance. Source: Ramcilovic-Suominen and Epstein, 2012

2.2 Study site

The study was conducted in two counties located in semi-arid regions of Kenya. The two counties, Kitui and Baringo, have been major charcoal supply basins over the years and boast extensive natural woodlands and invasive *Prosopis juliflora*, respectively (Figure 3). Kitui County occupies 30,570 km^2 (Kitui County Government 2017). Currently, there are nine registered and approved CPAs, comprising of 81 charcoal producer groups (CPGs) with a total of 1799 members. There are five registered and approved charcoal transporter associations (CTAs), with 265 members in total. Baringo County has eight registered CPAs with a combined membership of 362 from a total of more than 5000 charcoal producers, most of whom reside in Marigat sub-county, which is extensively invaded by *Prosopis juliflora*. Four CPAs from Baringo and eight Kitui CPAs were involved in the study. Kitui County, at its peak, met as much as 40% (KFS 2013) of Nairobi city's charcoal demand. Baringo lies in the Rift Valley and does not have a long tradition of charcoal production by the majorly pastoral communities. However, this changed in the 1980s with the introduction of *Prosopis juliflora*, which became invasive and led to the promotion of management by utilization (Choge et al., 2011). Charcoal production has become a lucrative business in these areas.

2.3 Literature review

A literature review was conducted to examine existing laws, regulations and legal provisions for sustainable charcoal value chains in Kenya. The review covered specific legislation on the mandates, roles, responsibilities and rights of CPAs with regard to ensuring sustainable and legal charcoal production and trade in Kenya. Reviewed documents included published reports from the Kenya Forest Service (KFS), the Ministry of Environment and Forestry and other scholars articles since the legalization on Forest Charcoal Rules in 2009.

2.4 Questionnaire survey

Charcoal producers from the identified production hot spots were engaged in a telephone survey to investigate their perceptions and views on barriers, capacities, motivations and required incentives in relation to regulatory compliance in the charcoal value chain. The survey took place from 25 February to 15 March 2021. Two membership lists were drawn up, consisting of 398 and 129 registered charcoal producers in Baringo and Kitui counties, respectively, bringing the combined total to 527. Ninety-three survey respondents were systematically sampled from Baringo (50) and Kitui (43). However, only 89 were interviewed as the remainder were difficult to contact. Due to the Covid-19 pandemic, focus group discussions and face-to-face interviews were not feasible, so data collection relied entirely on the telephone surveys.

The first part of the questionnaire (Annex 1) aimed to characterize the socio-economic backgrounds of the respondents, while the second section assessed their knowledge of rules and regulations as well as the capacity of CPAs to self-regulate, as mandated by the Forest Charcoal Rules of 2009. The third and fourth sections were dedicated to soliciting information on the motivations for compliance. Respondents were also asked about their perceptions of regulation in terms of adequacy, legitimacy

and fairness. The last section aimed to investigate CPA members' perceptions of existing/potential benefits and incentives for compliance. Across all sections, the Likert scale was applied, with respondents being asked to specify their level of agreement or disagreement to specific questions. Field data were cleaned for consistency, and open-ended questions were codified. Analysis was then undertaken through the use of Microsoft Excel formulas and pivot tables. Further descriptive analysis of chi-square values was performed to explore associations among different variables, using SPSS software – originally known as Statistical Package for the Social Sciences – and Stata. The analyzed data were visualized in tables and graphs.

2.5 CPA performance self-assessment

The CPA capacity assessment was conducted during a two-day workshop on 3–4 August 2021 at the Kenya Forestry Research Institute, Baringo research sub-center. This involved six CPAs within the *Prosopis juliflor*a-invaded landscape of Marigat sub-county, Baringo County. These CPAs were Salabani, Ngambo, Ilchamus, Kiserian, Ilngarua and Lokasacha. Due to Covid-19 restrictions, each CPA was represented by three members (chair, secretary and a committee member), bringing the total to 18 members. The trio from each CPA used a tool assessing their business organization and performance, with 63 indicators organized around five descriptors: (i) CPA organization and governance, (ii) wood sourcing and charcoal production, (iii) marketing and distribution, (iv) finance access and management, and (v) legislative compliance. Each question was explained in the group's local language, and each trio responded on a flip chart as a CPA. Each response was then scored based on predetermined rating criteria: 1=low, 2=medium and 3=high performance (Annex 2). The results were then summarized in a SWOT analysis (strengths, weaknesses, opportunities and threats) before the group drafted improvement strategies against each of the six descriptors.

3 Results and discussion

3.1 Who are the charcoal producers and why?

From the final sample of 89 CPA members, 52% were women and 48% were men. The respondents' ages fell into three categories: 35–50 (51%), <35 years (31%) and >50 years (18%). A sizeable proportion of respondents (42%) had completed secondary school, while the two other groups that attended lower primary school or upper primary school accounted for 15% and 38%, respectively. The biggest group of respondents in Baringo (26%) achieved an upper primary school education, while the largest group in Kitui County (29%) had completed a secondary school education. Only 5% of respondents had a tertiary education: 4% in Baringo County and 1% in Kitui County.

Charcoal producers indicated that they were in the charcoal business due to a lack of alternative livelihoods (66%) and that this is their main source of income, while 10% said it was an alternative income source and livelihood. This speaks to the kind of actors in this business, so the question is: Can they be incentivized and have the capacity to comply with the elaborate – and sometimes quite technical – rules, regulations and procedures for charcoal production? However, about 8% of the participating CPA members were environmentally conscious, particularly those engaged in the control of invasive *Prosopis juliflora*. A sizeable proportion of respondents had 11–20 years' experience in charcoal production (40%). In Baringo County, the some respondents had experience of 4–10 years (22%). Kitui County had more respondents with 11–20 years' experience (22%) in the charcoal business.

3.2 Is there sustainable/legal wood sourcing and carbonization?

Legislation requires CPAs to obtain consent from local environment committees for charcoal production. Therefore, charcoal producers or farmers who wish to cut down trees on their farms are required to fill in a Certificate of Origin form and consult local chiefs as well as sub-county administrators, as stated in the Forest Charcoal Rules of 2009. It is an offence under Section 102 (c) of the Wildlife Conservation and Management Act (2013) to carry out logging in a national park or reserve. In this study, respondents indicated that they accessed wood for charcoal from various sources. Their own land was the most common source, but there were individuals who obtained wood from government forests in some instances. About 42% had harvested trees from gazetted areas at some point, including some women from Kitui County (Figure 3.). In a previous study, Muthui (2018) also found that about 9% of producers in Mutomo and Mutha sub-counties in Kitui sourced wood illegally from protected areas. However, most respondents reported that they had never used government forests for charcoal production.

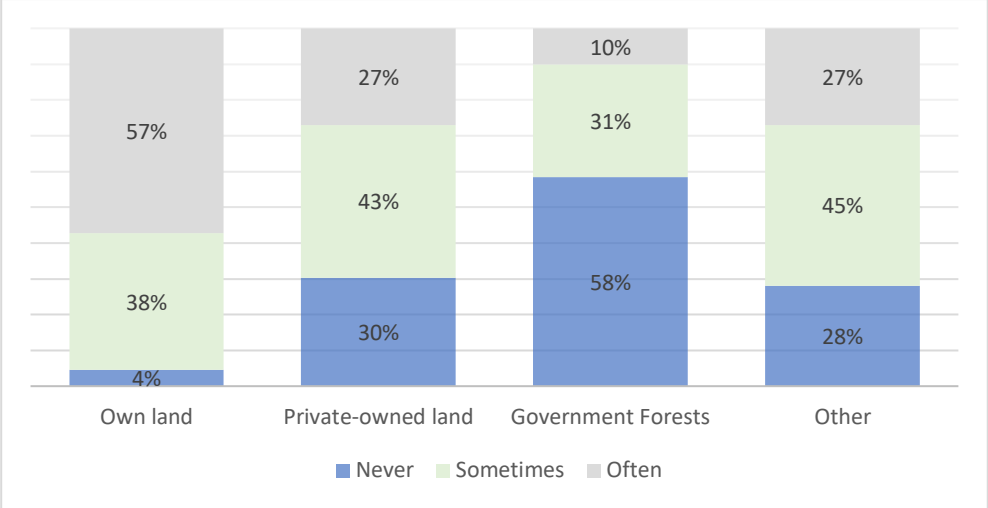

Figure 3. Sources of trees cut for use by charcoal producers

Furthermore, licensed charcoal producers are required to use efficient charcoal-production technologies. However, most of the study's respondents indicated that they mostly use traditional earth-mound kilns. Improved kilns were the least used, with 89% of respondents stating that they had no experience with them (Figure 4). Improved kilns were used more in Marigat sub-county of Baringo County than in any other sub-counties, which could be attributed to the focus of promoting *Prosopis* charcoal. The study therefore suggests that CPAs do not fully comply with regulations on wood sourcing, planting/managing trees and improving efficient charcoal carbonization, which in turn would reduce levels of tree cutting.

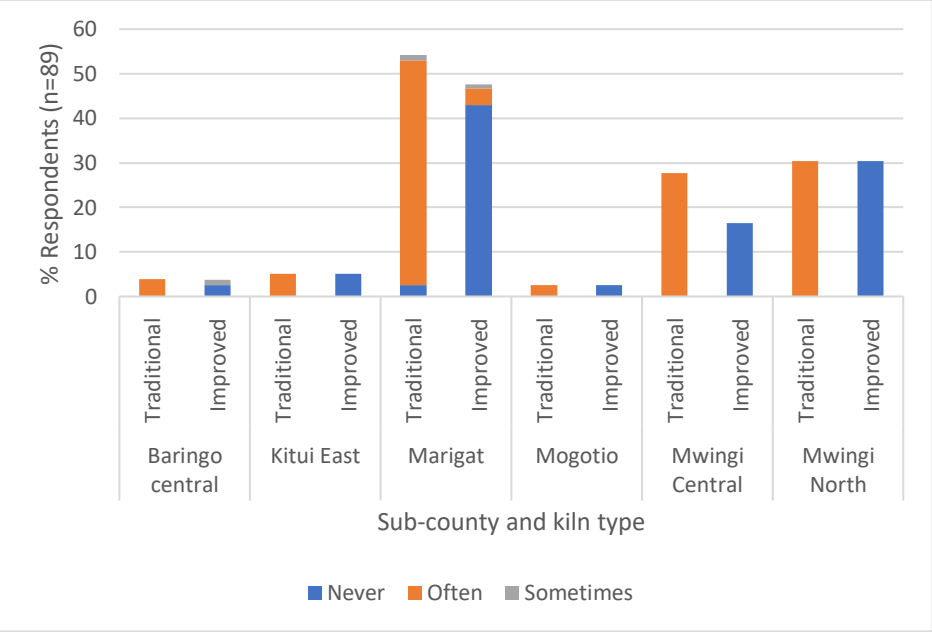

Figure 4. Proportion of responses on carbonization methods

3.3 Environmental and conservation measures for charcoal production

CPAs must develop and implement reforestation conservation plans and codes of practice, as per the Forest Charcoal Rules of 2009. In addition, Section 58 of EMCA stipulates that all landowners who wish to produce charcoal must carry out an environmental and social impact assessment in line with the second schedule of the EMCA and the Environmental (Impact Assessment and Audit) Regulations of 2003. The purpose of these rules is to identify significant impacts to the environment and to nearby communities. The requirement to develop and implement reforestation plans was known by almost a third of respondents (27%). Previous studies in these sites reported efforts by some CPAs and CPGs to implement reforestation plans for enhanced tree regeneration and growth (Muthui 2018; Kamwilu et al. 2021). However, most charcoal producers did not adhere to the plan of tree planting and benign harvesting (Muthui 2018). Some of the major constraints highlighted by charcoal producers in this study included the high cost of tree establishment and the relatively long waiting period to get returns; limited extension services; the high cost of quality inputs; the lack of information and technical skills relating to sustainable tree management practices and improved technologies; unreliable rainfall patterns; lack of investment capital/credit; poverty; and food insecurity.

3.4 Organizational and operational capacity of CPAs in Baringo

The participatory self-assessment of six CPAs in the *Prosopis*-infested landscape of Marigat sub-county, Baringo County, indicated that their level of performance was almost the same. The six CPAs had a total membership of 262 against 5,092 producers reported in the area. This represents only 5% of the total producers in Marigat sub-county, meaning that most of the charcoal is produced outside the mandated institution. Women and youth represented 40% and 29% of the total CPA membership, respectively. The average scores of the CPAs are presented in Figure 5. Out of the 59 performance indicators, four were rated as low, 25 rated as low to medium, while 30 were rated as medium to high. Performance indicators rated as low to medium were mostly related to: (i) wood sourcing and carbonization that has remained inefficient and based on unsustainable practices; (ii) marketing and distribution, which have become a great challenge due to the logging moratorium and ban on charcoal movement; and (iii) CPA organization and governance as most CPAs lack strong visionary leadership backed by a well-founded organizational strategy that can develop CPAs as transformative, self-regulating bodies in line with the Forest Charcoal Rules 2009 (Figure 5).

Nevertheless, CPAs can still deliver on their mandate, as enshrined in the Forest Charcoal Rules 2009, if: (1) targeted capacity building is undertaken for transformational leadership, organizational governance and financial management; (2) a well-thought-through organizational strategy that captures the aspirations of all charcoal producers is developed by CPA members; (3) equity and inclusiveness are enhanced in the charcoal value chain; (4) there is increased compliance coupled with better enforcement of the regulations; (5) efficient and affordable charcoal-production technologies and sustainable sourcing practices are implemented; and (6) there is increased awareness of charcoal regulation to improve compliance.

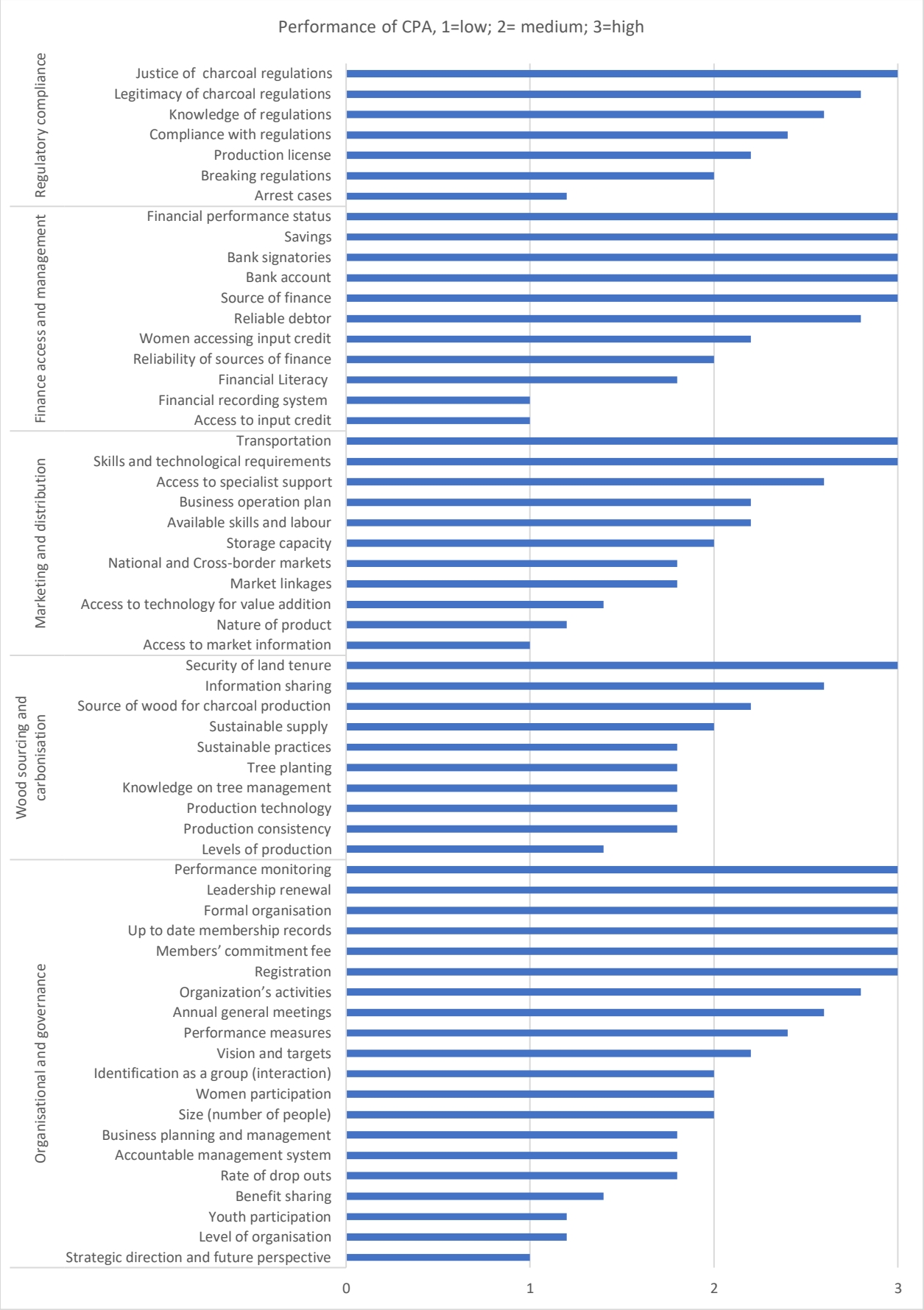

Figure 5. Marigat CPAs' organizational performance self-assessment

3.5 What factors influence compliance of CPA members?

3.5.1 Knowledge of rules and regulations

In this study, nearly half of the respondents reported that they had knowledge and understanding of the charcoal rules (49%), while 19% had no knowledge of any rules, and the rest knew and forgot them, or didn't understand them. Furthermore, when respondents were asked to enumerate the rules that they were familiar with, 30% could not specify any (Figure 6). Charcoal rules were only mentioned by 5% of producers. Marigat and Mwingi North sub-counties had relatively more producers with an understanding of the rules than the other sub-counties. In Marigat, this could be attributed to enhanced information dissemination as well as increased training on charcoal rules, sustainable production methods and the sustainable utilization of *Prosopis juliflora* (Njenga et al. 2019; Bourne et al. 2020).

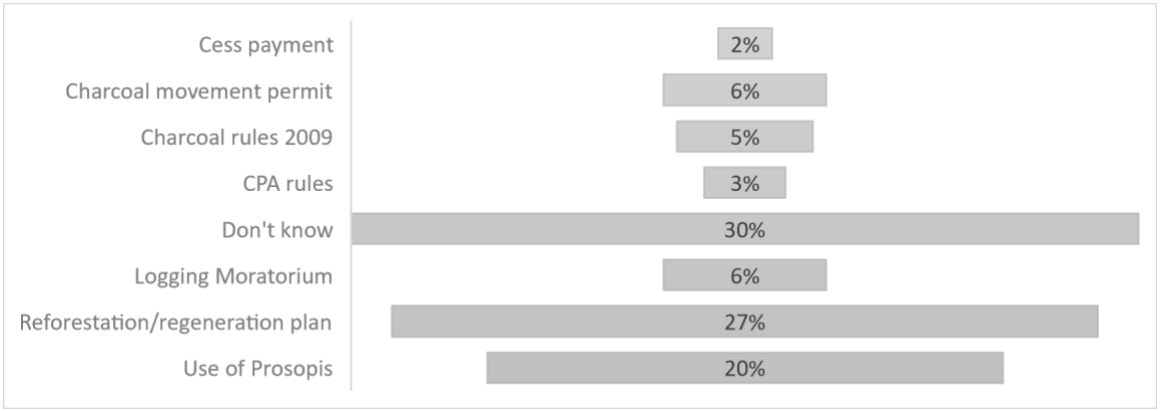

Figure 6. Knowledge and awareness of the rules and legal provisions for charcoal production and trade

3.5.2 Role of CPAs and ability to self-regulate

The responsibilities and mandate of the CPAs encompass organizing and registering producers; facilitating licensing; information dissemination; sustainably producing charcoal; and managing the environment. More than half of the respondents (52%) said they were aware of the responsibilities of CPAs in sustainable charcoal production (Figure 8). Members of charcoal producer associations in Baringo and Kitui acknowledged that CPAs played a major role. However, a significant number (56%) indicated that it was mainly CPA leaders who benefit, not the wider membership (Figure 7). More women (35%) than men (17%) agreed that being a member of a CPA increases the provision of subsidized inputs and credits (Table 1). Furthermore, almost a fifth (19%) of the respondents argued that CPAs do not facilitate access to innovation or improved technologies, nor provide incentives for sustainable production and trade. However, a majority of respondents agreed (63%) that CPAs lead to improved compliance with charcoal rules. Over half (54%) of the respondents said CPAs can incentivize their members toward sustainable production and trade (Figure 8).

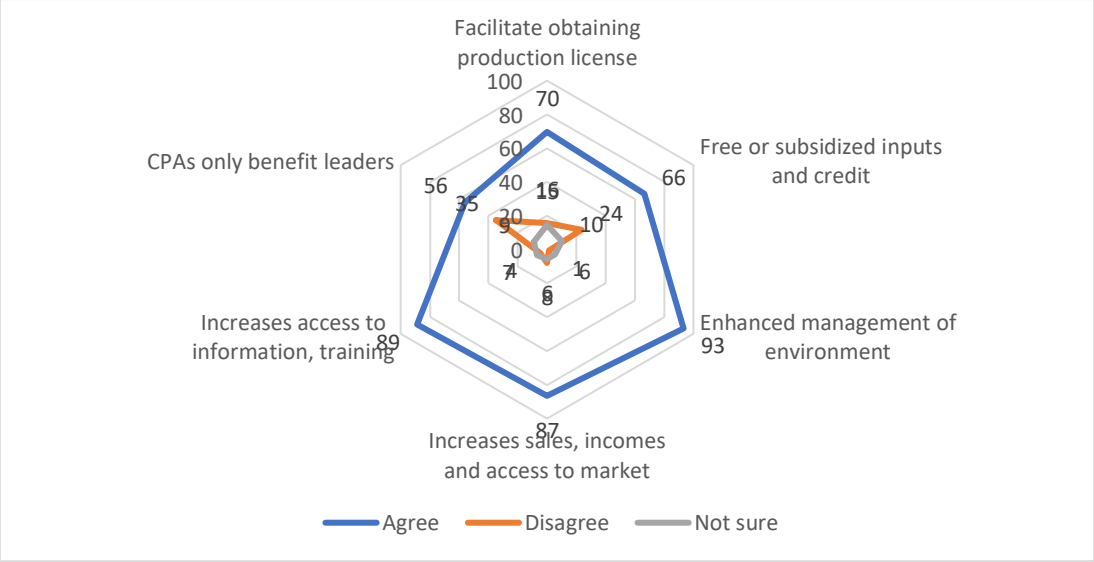

Figure 7. Proportion of benefits from CPA membership

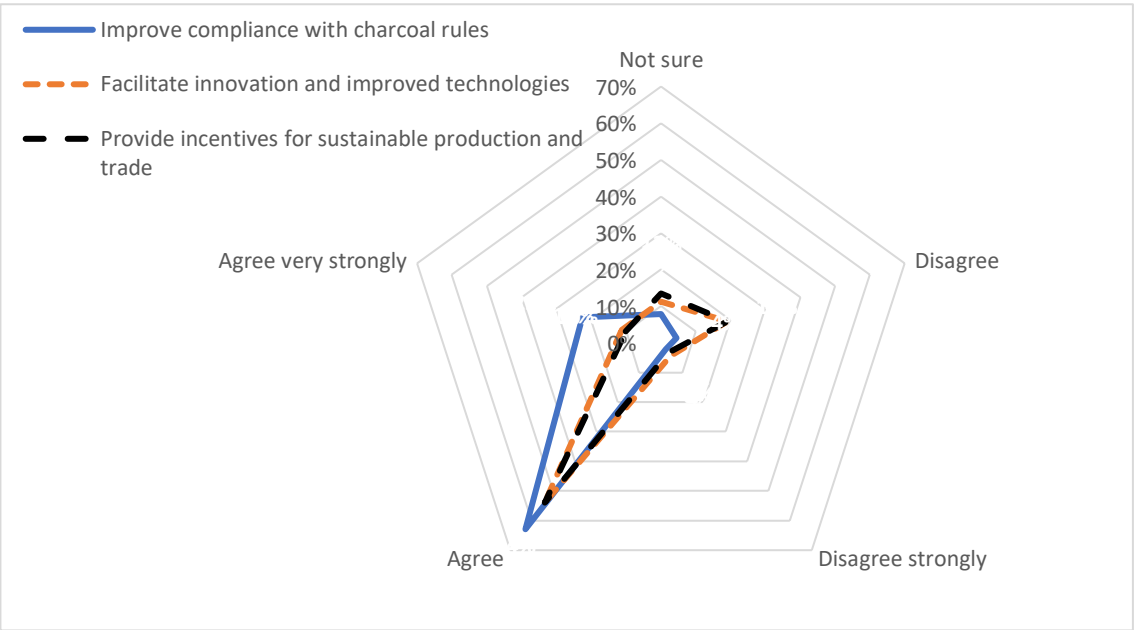

Figure 8. Proportion of benefits from CPA self-regulation

Table 1. CPAs' ability to provide subsidies, credits and inputs (by gender)

	CPA ability to provide subsidies, credits and inputs				
	Agree	**Agree strongly**	**Disagree**	**Disagree strongly**	**Not sure**
Women (%)	35	7	8		0
Men (%)	17	8	9	3	10
Total (%)	52	15	17	7	1%

3.5.3 Legitimacy of the regulatory framework

Generally, most common violations in the charcoal value chains involve the use of forged permits to transport charcoal; the use of multiple names by transporters to obtain permits for more than one lorry or vehicle ferrying charcoal; the transportation of charcoal in excess of permit limits; and the use of fake documents to obtain charcoal from unauthorized areas and production of charcoal from protected areas. In addition, offenders often pay bribes (Muthui 2018; KFS 2013). In the study, only 1 percent of respondents indicated that they had not broken any rules in the past three years. However, 83% said they rarely broke rules, while 6% frequently did. Several factors were said to influence the charcoal producers' willingness to comply with the charcoal rules. The key internal factors included: (i) most people were afraid of arrest or fines, and (ii) most were influenced by personal values and norms of what is right (Figure 9). Poverty, livelihood systems, economic incentives and corruption were key external factors influencing decisions to comply or not with the charcoal rules (Figure 10).

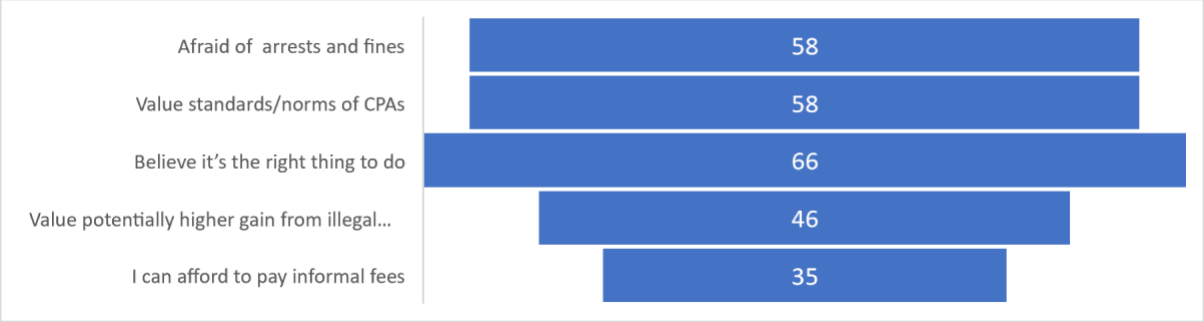

Figure 9. Personal values/norms influencing compliance with charcoal rules

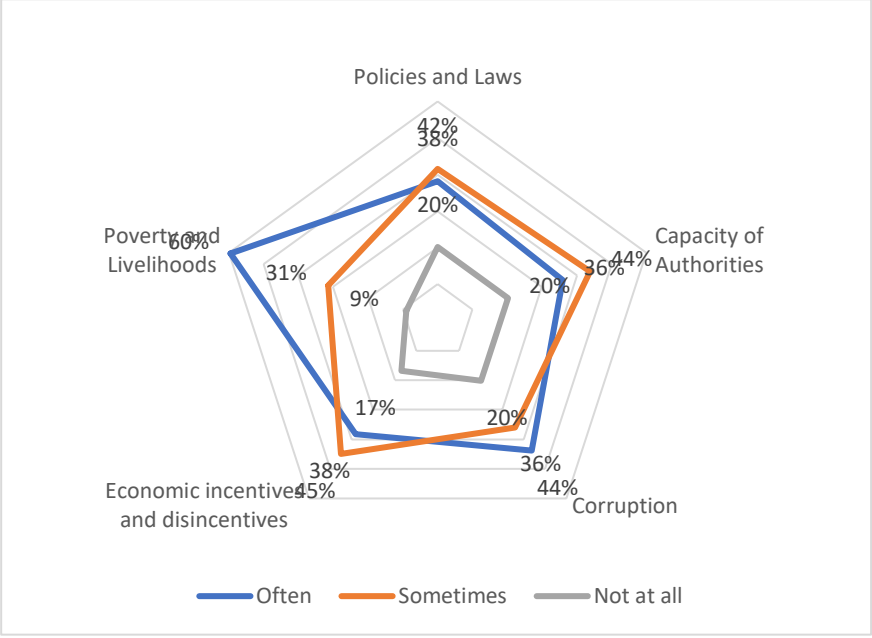

Figure 10. External factors influencing compliance by CPA members

3.5.4 Effectiveness and adequacy of the regulatory framework

Mandating institutions and instituting regulatory mechanisms do not always confer legitimacy in the eyes of the regulated. The evidence suggests that perceived legitimacy is contingent on the fairness and justice built into the policy processes and procedures (Muthui 2018). This implies that non-participatory or non-consultative processes are unlikely to lead to perceived legitimacy and mostly result in the policy implementation being unsuccessful. In the study, more than 60% of the respondents agreed that there was some participation in policy processes regarding charcoal production and trade. However, there were almost 25% who were satisfied with the participation, transparency and accountability in the regulatory mechanisms (Figure 11). Nonetheless, a majority of respondents acknowledged (over 80% agreed or agreed very strongly) that the charcoal rules were legitimate and just, and that formal fees paid to regulatory actors – the Kenya Forest Service, the county and the police – were legitimate and justifiable.

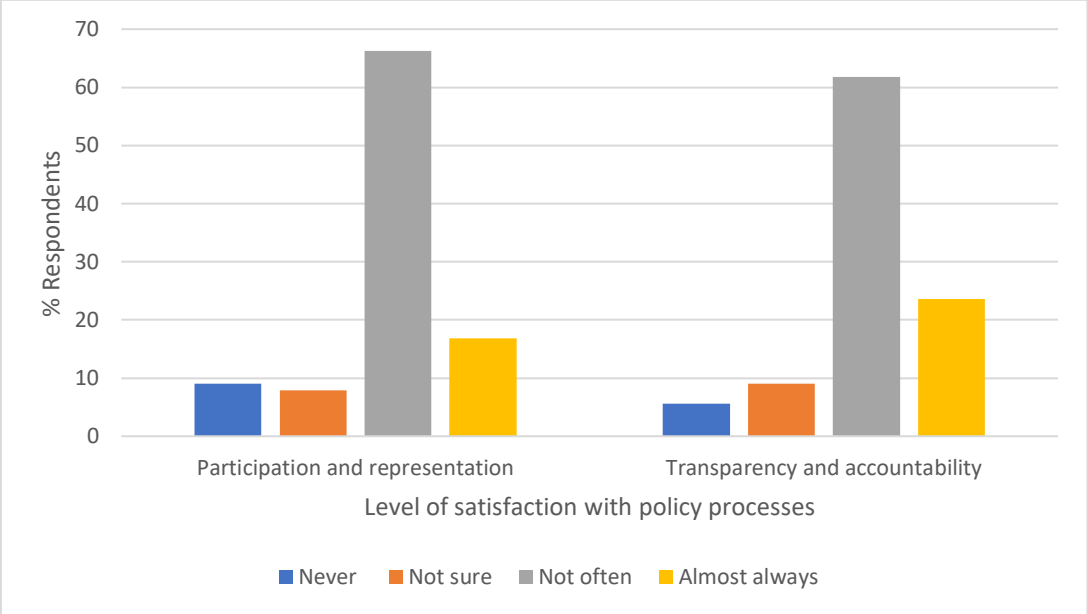

Figure 11. Level of CPA participation in the design, monitoring and implementation of the rules

3.5.5 Benefits and incentives

Muthui (2018) conducted a study on regulatory compliance in the charcoal sector and found that the majority of respondents would only manage their resources sustainably if they received greater economic benefits from conserving forests than from degrading them. Economic or investment incentives therefore play an important role in stimulating investment in sustainable woodfuel value chains. Some of the incentives provided by the national and county governments in Kenya included access to loans/credit and extension services. Various statutory funds have been established to deliver financial support for forestry and environmental programs espoused under various legal instruments including the Forest Conservation and management Act of 2016; the Environmental Management and

Conservation Act of 1999; and the Water Act of 2016. Despite these various incentives offered most are not easily available and or accessible to forest landowners and charcoal producers. Furthermore, there are several disincentives that discourage investment, including logging moratoria, charcoal bans, licensing delays, multiple taxes, weak penalties and enforcement, as well as low prices or returns from sustainably produced charcoal compared with illegally produced charcoal (Muthui 2018).

Capacity building and strengthening of CPAs were the most desired benefits for more than 40% of men and women, who saw these factors as incentives to enhance compliance with charcoal rules. However, 21% of female producers ranked access to credit and alternative livelihoods as high priorities, more than their male counterparts (9%). The lifting of logging moratoria was also a significant incentive for both gender groups (Table 2). The findings reveal that breaking charcoal rules and engaging in illegal operations were not viewed as beneficial, compared with legal operations, by more than 80% of the respondents. A large number (43%) also disagreed strongly with the proposition that women were more likely than men to be arrested for breaking charcoal rules, suggesting that there are no gender biases when making such arrests.

Table 2. Desired incentives to enhance CPA members' compliance with charcoal rules

Incentives	% Men	% Women
Access to credit and alternative livelihoods	9	21
Capacity building & strengthening CPAs	48	42
Improved market systems	9	10
Improved technologies in production	9	9
Lifting of logging moratoria	14	13
Others	11	6

4 Conclusion and recommendations

Illegal operations in the charcoal subsector have eluded law enforcement for decades. Like most countries, Kenya has responded by increasing or enhancing rules and regulatory measures, usually without intentional consideration of the motivations for compliance and non-compliance. In line with the regulatory compliance analytical framework, this study has shown that charcoal producers are motivated by personal gain (instrumental model, personal values and those of CPAs (social norms), as well as processes and outcomes of policy formulation and implementation (legitimacy), all of which are mediated by external factors.

The Forest Charcoal Rules 2009 are an innovative legislative framework for formalizing charcoal production and trade in Kenya. Every charcoal producer is required to be a member of a CPA. Similar to other studies on regulatory compliance among CPAs, this research has found that CPA membership in Baringo is about 5% of the charcoal producers in that county. This means the CPA model cannot succed in delivering sustainable and legal charcoal to the market, since CPAs represent a minority. Incentive mechanisms to join the CPAs were not evident and disincentives were not enough of a deterrent. However, members believe – or still hope – that CPAs can deliver sufficient benefits to their members. So far, CPAs have not delivered on the first mandate to mobilise and organize producers into formal registered groups. Secondly, CPAs were supposed to promote and facilitate access to improved technologies and practices, but barely 11% in our study have used improved earth-mound kilns. Thirdly, there is very little evidence that environmental management plans aimed at improving tree planting and management have been implemented.

Thus, even though the Forest Charcoal Rules 2009 were novel, the institutional mechanisms to implement them did not result in the desired outcomes. Under the current circumstances of the logging moratorium and ban on charcoal movement, CPAs are disempowered as some their activities are illegal. Yet large volumes of charcoal are supplied to cities under informal – and sometimes illegal – networks as consumption remains legal.

Nonetheless, CPAs still exist and remain a viable vehicle to formalize the production of legal and sustainable charcoal. There is a need to engage with them as the Forest Charcoal Rules 2009 are under review to take into account the motivations of various individuals in order to incentivize compliance. There is an urgent need, therefore, to institute new mechanisms that will empower CPAs to facilitate sustainable production and trade. Further analysis of the motivations of all charcoal value-chain actors will generate invaluable evidence to inform policy and capacity development programs supporting sustainable charcoal value chains in Kenya.

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Annex 1: Questionnaire

4.1 Assessing regulatory compliance by CPA members to charcoal rules in Baringo and Kitui

Section 1. Socio demographic and charcoal business overview

1. Questionnaire number:…… **2. County:……..**

3. Sub County:…… **4. Mobile number:……**

5. Respondent Gender F/M…….. **6. Marital status ……Married/Single/Widowed**

7. Age:

< 35	35 – 55	>55

8. CPA name:…… **9. CPG name:……**

10. Position held in CPG/CPA

Chair/Vice chair	Secretary/Treasurer	Committee member	Member

11. Level of education

Lower Primary	Upper Primary	Secondary School	Tertiary

12. Years in charcoal business…….

13. Other family members in the business

Daughter	Husband	Son	Wife	Other	None

14. What are your reasons for engaging in charcoal business?

a) ……..

b) ……..

c) ……

15. You mainly access wood for charcoal from the following areas	Never	Rarely	Sometimes	Often	Almost always
a. Own land					
b. Buy from a private owner					
c. Government forests					
d. Other……..					

16. You mostly use the following methods for carbonisation	Never	Rarely	Sometimes	Often	Almost always
a. Traditional earth mound					
b. Improved kiln (Casamance, Brick, drum or metal/steel					

17. Are you aware of any environmental problems caused by the unsustainable production of charcoal? Y/N

If Yes, specify……

Section 2: Knowledge of regulatory framework

18. Are you aware and understand the rules and regulations for controlling and guiding charcoal production and trade	Not aware	Used to but forgotten	Yes, but don't understand them	Yes and I understand them

19. What are they?

a) ……..

b) ……..

c) ……

20. Are you aware of the responsibilities of the CPAs as laid out in the Charcoal rules 2009 and Baringo/Kitui Charcoal Act	Not aware	Used to but forgotten	Yes, but don't understand them	Yes and I understand them

21. CPAs have the capacity to deliver on these responsibilities	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. **To organise as and register associations**; (constitution and rules; keep records of all members					
b. **To enforce rules for sustainable production** of charcoal by members; implement the restoration and conservation plans; Code of Practice for the purposes of self-regulation;					
c. **Apply and pay for license** to undertake or engage in commercial charcoal production and transportation					
d. **Carry out environmental impact assessment**, zoning for charcoal production; provide a list of intended technology to be used in charcoal production; quantity of charcoal					
e. **Facilitate sustainable production of** charcoal by its members promoting afforestation/ tree planting/natural regeneration					

22. Enforcement and support to implementation of charcoal regulations is effective and adequate	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. There are adequate policies and legislation for guiding charcoal production and trade					
b. KFS's role in designing and enforcing charcoal rules is effective and adequate					
c. The county government in designing and enforcing charcoal rules is effective and adequate					
d. The CPAs are effective and adequate designing and enforcing charcoal rules within their membership					

Section 3: Compliance and legitimacy

23. To what extent do these factors explain why you comply or not comply with rules and regulations?	Not at all	Rarely	Sometimes	Often	Almost always
a. Afraid of getting a fine or being arrested when you produce charcoal without a license					
b. Values /standards of the CP/G/A members					
c. It is the right thing to do					
d. Potential gain from illegal activity is higher					
e. I can afford to pay informal fees/bribes					

24. To what extent have these external factors influenced your decisions to comply or not with the rules and regulations		Not at all	Rarely	Sometimes	Often	Almost always
a. Policies and laws	Poor, inadequate, lack of policies and legislation					
b. Capacity by authorities	Weak monitoring, enforcement, coordination					
c. Corruption	By passing rules, bribes					
d. Economic incentives and disincentives	High income, Low chances of arrest and risk of sanction					
e. Poverty and livelihood needs	Lack of alternative livelihoods					

Legitimacy

25. Charcoal rules legitimacy and justice	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. Are charcoal regulations legitimate?					
b. Are charcoal regulations just?					

26. Are formal fees paid to the following legitimate and justifiable?	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. Kenya Forest Service					
b. County government					
c. Other……					

27. Are informal fees paid to the following legitimate and justifiable?	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. Kenya Forest Service					
b. County government					
c. Police					

28 Do charcoal rules lead to desired outcomes?	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
Charcoal rules result in improved rights, enhance governance meaningful in a broader context of tree and forest management					
29. Are you happy/satisfied with the way decisions are made in regard to how charcoal rules are designed, monitored and enforced (procedural legitimacy)	**Never**	**Not bad**	**Not sure**	**Sometimes**	**Almost always**
a. Is there adequate participation and representation					
b. Is there adequate transparency and accountability					

Section 4. Benefits and Incentives

30. Is the CPA self-regulation beneficial	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. CPA self-regulation improved compliance to charcoal rules					
b. CPA self-regulation facilitated innovation and adoption of improved technologies					
c. CPA regulations provides incentives for sustainable production and trade					

31. CPA membership has many benefits and incentives including	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. Facilitates getting production license					
b. Free or subsidized inputs and credit seed, tree seedlings and charcoal production technologies and tools					
c. Enhances management of the environment					
d. Increases sales and incomes, enables access to markets, better prices (elimination of middlemen)					
e. Increases access to information and training					
f. But customers don't care e whether you are a member of a CPA or not					
g. But only benefits leaders of CPAs /CPGs					

32. What are the disincentives for non-compliance	Disagree strongly	Disagree	Not sure	Agree	Agree very strongly
a. Illegal operations are not beneficial compared to legal operations					
b. There are high chances of producers being arrested for breaking charcoal rules					
c. There are high chances of women being arrested for breaking charcoal rules than man					
d. Penalties /sanctions are high enough to stop committing the same crime?					

33. Have you broken the charcoal regulations in the last three years 2018-2020	Never	Rarely	Sometimes	May times	Almost always

34. What incentives do producers need to improve compliance (stop breaking the rules) to charcoal regulations

a) For women……..

b) For men……..

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