

Citizen's willingness to pay for private forest certification in Kenya

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Keywords: Awareness; deforestation; responsible forest management; standards; sustainability.

Abstract. *The desire for responsibly managed private forests through certification is steadily growing around the globe. However, there is limited information on citizens' willingness to accept or pay for private forest management certification in the process of sustainable development. This study used literature review and online survey questionnaires administered in a workshop set up targeting those with and without private forests to address this question. Results from Kenya substantiate that private forestry can contribute to sustainable socio-economic development and as such the sector is steadily growing. To augment this growth, the country has developed supportive policies and legislation for forest certification which provide opportunities for the participation of a wide range of stakeholders. Already, some Private Sector Enterprises have received Forest Stewardship Council (FSC) Chain of Custody (CoC) certification mostly in the packaging industry. In addition, an interim FSC standard was launched by the government of Kenya in the year 2022. Various state agencies are already conducting piloting and field testing of certification. Kenya Forest Service (KFS) is conducting field testing of the FSC Interim Standard within public forests. Kenya Plant Health Inspectorate Service (KEPHIS) has certified over 250 nurseries across the country. Kenya Forestry Research Institute has developed the Tree Nursery Certification Protocol, 2021 as a practical guide for tree nursery certifiers. This unwavering government support for forest certification may have contributed to the high level of willingness to pay or accept private forest certification among the study respondents who were already consuming certified products. However, certification faces a number of challenges, including; lack of regulations for operationalizing the private forest development incentives outlined in the Forest Conservation and Management Act, 2016 and lack of county forestry programmes. Thus, this study recommends the need for increased education and awareness on private forest management certification and conducting more*

studies on the type and market share of certified products from private forest that are consumed in the country and the speedy formulation of regulations for operationalizing incentives for private forestry development.

1. Introduction

The proper management of environmental resources is important for maintaining a balance between the ecological, social and economic aspects of sustainable development. Environmental resources such as forests and allied natural resources provide many benefits which are important for promoting sustainable socio-economic development and human well-being (Sun et al. 2022). One of the most important assessments that illustrate the contribution of forested ecosystems to societal well-being is highlighted by the framework of ecosystem services as documented in the Millennium Ecosystem Assessment Report of 2005, which provides a detailed account on the benefits provided to the society by environmental resources such as forests. Ecosystem services provided by forests are diverse and may include tangible products or goods such as timber, spices and fruits, also called provisioning services, and intangible products categorized as regulating services, for instance, soil and water conservation or carbon sequestration. Forest ecosystem services are also classified as supporting services and cultural services in view of their educational use or during tourism. Even though the ecosystem services approach is widely used to inform natural resource management policy and to link ecosystem functions and human well-being, the concept has also been criticized for being overly simplistic, inaccurate and negating the human contribution to enhancements of ecosystems (Comberti et al. 2015). In this paper we assert that these classifications help the society to identify, describe and evaluate these benefits for the purpose of sound policy and management actions (MEA, 2005; de Groot et al. 2002).

However, agricultural intensification, urbanization and illegal logging are hastening forest loss and degradation at an alarming rate that threatens the sustainability of ecosystem services (FAO 2020). Hence, there has been a rising need for responsible forest management which balances the social, economic and environmental aspects of the forest sector. Sustainable forest management integrates these aspects and provides a widely accepted policy option for enhancing research on the sustainable furnishing of ecosystem services. Studies conducted within this framework indicate that most ecosystem services research appears

more focussed on the ecological and economic aspects. However, socio-cultural evaluations of ecosystem services are also becoming more important as a strategy for promoting sustainable development and promoting effective forest conservation (Chan et al. 2012). As a result of such research, many forest management approaches and policies have been implemented to slow down deforestation and degradation. At national level in most countries, forest laws have been enacted and their increased enforcement strengthened on illegally imported timber, protected areas have been created, and programmes for payment of ecosystem services have been introduced. At the global level, commitments have been ratified to slow deforestation, including payment of carbon credits under the United Nations Framework Convention on Climate Change (UNFCCC) with private supply chain actors introducing eco-labelling and certification as a part of their wider corporate social responsibility strategy aimed at promoting responsible forest management.

Despite the growing research interest in forest certification, longitudinal studies in private forest governance and certification are still comparatively few on a national level (Johansson, 2012). This paper addresses this question by attempting to provide a new understanding on citizens' willingness to pay for private forest certification for the purpose of shaping discourses on sustainable management of private forests. Using literature review and data collection from 20 workshop participants with and without private forests from Kenya, this study asked if private forest certification can be an important tool for promoting the sustainable management of private forests in Kenya. In order to comprehensively address this research question the study will first review the link between private forest governance and certification, explore the impacts and challenges of private forest certification, and the willingness to pay for forest certification. The environment for the development of private forests and certification in Kenya will be reviewed in order to provide context to the study. Furthermore, the results from 20 online survey questionnaire administered to workshop participants will be explored in order to draw key conclusions from the study.

1.1. Private forest governance and certification

A private forest is defined as a forest owned by individuals, families, communities, private co-operatives, corporations and other business entities, religious and private educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions (FAO 2020). Private forest governance and management activities include tree nursery establishment, tree planting, tending and maintenance, harvesting and replanting as the cycle

continues. In recent times, following the adoption of sustainable forest management, private forest management plans are drawn up and highlight all the management activities to be undertaken in a given private forest. Forest certification is emerging as one of the approaches for promoting sustainable private forest governance and refers to a voluntary, market-based approach for enhancing forest management, assuring society that the provision of private forest ecosystem goods and services will be maintained and enhanced in the course of responsible forest management (Perera et. al. 2022). Certification or voluntary sustainability standards refers to an independent, third-party evaluation of forest management against an agreed standard. Forest certification is innovative and ensures that the social, economic and environmental aspects of responsible forest management do not create problems for local communities or reduce the value of the forest estate (George et. al 2022; Cashore et al. 2004; Rubino et. al. 2022).

Historically, forest certification started in the 1990s, following the failure of the Earth Summit to produce a legally binding agreement on forest management, but then opted for Agenda 21 and the non-legally binding Forest Principles (Tikina et. al. 2008). As a result, many non-governmental organizations coalesced and agreed on the establishment of a non-governmental, independent and international forest certification scheme as a means to prevent deforestation and degradation in the tropics, by assuring buyers of products that the wood used had been sourced from a sustainably managed forest. The initial efforts and consultations led to establishment of the Forest Stewardship Council (FSC) in 1993 (Barklund and Teketay, 2004). Over time, it was realized that other important players such as private forest owners were not involved in establishing FSC. In addition, despite the existence of national certification schemes, certification still faced the problem of broader acceptance in export markets (Nussbaum and Simula, 2013). This led to the proliferation of other certification schemes in different regions of the world.

The Programme for Endorsement of Forest Certification (PEFC) emerged in Europe by 1997 as a scheme for mutual recognition of national certification schemes. Other regional certification schemes have subsequently been developed, including the North American Sustainable Forestry Initiative (SFI) and the African Ecolabelling Mechanism (AEM) (Teketay, 2016). National certification schemes in existence include the National Certification Scheme in Chile, the Canadian Standards Association, Lembaga Ekolabel Indonesia, Malaysian Timber Certification Council, the Gabon and Cameroonian Associations of Pan African Forestry scheme (Teketay et al. 2016). However, existing literature suggests that the Forest Stewardship Council (FSC) seems to have won the “war of

certificates”, to emerge as a leader in sustainable forest management in tropical countries (Humphreys 2006). In addition, the Programme for the Endorsement of Forest Certification (PEFC), Forest Stewardship Council (FSC) and Sustainable Forestry Initiative (SFI) affect the majority of forest land globally. To date, forest certification has been implemented in virtually all wood producing regions of the world. It is estimated that 11% or approximately 1 billion acres of the world’s forests are certified (Alvarez 2017).

Existing literature also indicates that the infusion of voluntary sustainability standards into public policy has been the key driver in promoting their adoption, with the FSC emerging as the leading voluntary sustainability standard with greater institutionalization. Certification and other voluntary sustainability schemes are increasingly being recognized by many governments as transnational governance tools (Depoorter and Marx 2021). However, other studies indicate that the adoption of certification which characterizes public-private interactions may be antagonistic where public and private practice conflict, substitutive where public policy adopts voluntary sustainability standards from the private sector, or complementary interaction where voluntary sustainability standards fill public policy gaps or reinforce public policy (Marques and Eberlein 2020; Marx, 2018). There are many examples on how institutionalization of voluntary standards is fast emerging (UNFSS, 2020). In the Republic of Korea, the Sustainable Use of Timbers Act of 2017 explicitly recognizes voluntary sustainability certificates as an approach for controlling illegal timber imports. Certificates act as credible proof of compliance with requirements such as risk assessment procedures or due diligence and legality requirements. The Government of Gabon has pegged the issuing of all forestry concession permits on FSC certification by the year 2022 in order to promote its timber exports (FSC, 2020a). Governments are also adopting certification and voluntary sustainability standards in state-owned operations. For example, in Croatia, a considerable area of state-owned forests is certified by the FSC (FAO and UNECE, 2020). Exploring the Kenyan context for private forest management certification can offer insights into the role of the government in forest certification and be of interest to the global community.

1.2. Private forest governance and certification

Forest certification is based on standards, accreditation authorities and independent certification bodies (Cashore et. al., 2006; Gallison 2003; van der Ven and Cashore 2018; Schulze et al. 2008). Certification has many influences on the state of forestland ownership, forest protection and marketing of forest products. In general, certification has been associated with improved forest health, improved

price premiums for buyers, reduced waste production, and enhanced and better environmental management practices (Lemes et. al. 2022; Mexia et al. 2022; Gutierrez Garzon et. al. 2022; Panico et. al. 2022).

The current forest certification process involves attaching an emblem onto a wood product which is meant to alert the buyer that the wood used to assemble the product is from a certified forest. There are four types of certification: forest management certification which evaluates the management of a particular tract of forestland against some agreed management standards; chain of custody certification which tracks wood from the forest to the finished wood product; group certification which has been designed to reduce the certification costs on individual land owners; and fiber sourcing standard which caters for wood companies that do not produce or manage forest lands themselves (Gullison 2003; Newsom et. al. 2006; Schlyter et. al. 2009).

1.3. Challenges of forest certification

Certification of forests is also increasingly being discredited as a result of certain controversies over the criteria employed: possible conflicts concerning definition of the stakeholders; problems regarding the 'neutrality' of the institutions involved; problems concerning how to effect controls and combat illegality. Certification has been accused of being costly and having direct and indirect costs for landowners, including small scale private forest owners across the globe. Certification assessment as a direct cost varies depending on the scheme of certification, the size of the forest land being certified, and other factors. In addition, a willing landowner may be required to join the certification scheme upon payment of some fees. There may also be changes in record management practices and the procedures for forest monitoring and evaluation. As such, the antagonists of certification claim that certification is costly and time consuming and there is limited knowledge of perceived benefits. Certification is also regarded as an abstract idea with too much science involving cumbersome paperwork.

In addition, certification systems, even the most widespread and complete ones such as the FSC, always deal with forest management starting from productivistic assumptions, assuming that all forests are able to or "must" produce goods. Further, there is still no certification system that assesses the compatibility of forest conservation with its utilization, while this topic is of great importance in fragile countries and ecosystems such as those of equatorial Africa. Therefore, in order to fully understand the best way of delivering certification systems, including a country like Kenya which is part of equatorial Africa, there is a need to understand the willingness to pay for private forest certification as a way of

acknowledging, balancing and distinguishing the market demands for various products, the environmental sustainability of forestry businesses, and the rights of local communities.

1.4. Willingness to pay for private forest management certification

Nevertheless, protagonists and antagonists both agree that perceptions of the cost of private forests certification are driven by limited resources, low-capacity building and lack of clear stringent policies. Moreover, the supporters of certification have called for the generation of more data on certified forest products in the market by type and market share, improved collaboration between the major certification schemes in order to avoid cases of double certification, and reduction of the costs for small forest holders (Wobowo 2002; Taylor 2005). As such, researchers are increasingly leveraging on qualitative and quantitative perception studies that use socio-economic attributes of the individual landowners to understand the willingness to pay for certification costs and the policy and management options for forest certification.

Through these studies, links have been established between the increased desire to pay for certification and certain socio-economic attributes of the landowners and stakeholders (Tian 2022). Socio-cultural and socio-economic data is important for revealing the differences in perceptions amongst stakeholders because the willingness to accept certain certification costs may be at the expense of others. Hence, divergent stakeholder opinions may be used to devise robust certification strategies since stakeholders' values are different due to differences in social background and personal characteristics such as income, age, gender, education, and location of residence (Scholte et al. 2015; Tian 2022). For individuals, families, communities, private co-operatives, corporations and other business entities, religious and private educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions, there are both external and internal motivations that drive the need for certification.

Studies show that access to market motivation is the main external driver identified in most literature since certification is a tool for providing competitive advantage to most businesses. In addition, the quest for trust and legitimacy from promoters of sustainability motivates actors towards certification alongside legal motivations where regulation by governments help to prevent illegal logging by imposing strict controls (Faggie et al. 2014; Zubizarreta et al. 2021). Internal motivations include personal moral motivations based on individual ethical values and learning motivations where a company could transfer knowledge and skills

through adoption of certification (Zubizarreta et al. 2021). In China, a study conducted on marketing of certified wood floorings of perceived benefits to manufacturers and developers established that for manufacturers the important benefits for certification were to meet the purchasing requirements of foreign consumers, to support sustainable forestry and environmental protection and to meet corporate social responsibility goals, while for housing developers the benefits included product differentiation, the need to acquire 'green consumers' and branding with high end image (Wang et al. 2011).

Studies also show that many landowners are unfamiliar with certification and that younger and well-educated land owners with relatively high incomes and having a high desire for conservation of nature are highly likely to pay for private forest certification upon receipt of professional advice on forest management (Tian 2022). In the United States a study conducted to determine the willingness of consumers to buy environmentally certified forest products established that there was a strong relationship between willingness to pay and income (Aguilar & Vlosky 2007). Based on these relationships, studies recommend that in order to promote responsible forest management through certification, there is need to address policy, market and institutional failures, inadequate tenure, rising populations and their demands, fragmentation of the forest estate as well as inappropriate infrastructure, technology and skills (Upton and Bass, 1995). In this paper, we observe that in order to address such challenges, there is the need for policy decisions to be made at national, regional and international levels, based on data on the willingness to pay for private forest certification. At the international level, global agreements such as the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the United Nations Convention to Combat Desertification (UNCCD) provide the overall policy framework for private forest certification. However, existing literature has identified that, in general, many policies on forest management were meant to have a narrow scope, are static with limited goals and are largely government controlled instead of being more dynamic and focused on groups such as the private sector and communities.

In Kenya, there are limited national level studies on the willingness to pay for certification by private forest owners and how this affects the sustainability of private forest management. This study uses literature review and semi-structured online questionnaire survey to establish the willingness to pay for private forest certification for the first time. The key question that guided the study was: what is the citizens' willingness to pay for forest management certification as an approach for promoting sustainable private forestry development in Kenya? Kenya

has been chosen for this study because the country recently launched an interim FSC standard, thus it is interesting to evaluate the willingness to accept certification costs by private forest owners. This information is critical for foresters, environmentalists and policy makers in order to make informed policy decisions in a manner that stimulates a sustainable private forest sector in the country.

1.5. *The environment for private forest management certification in Kenya*

Kenya has a forest coverage of 7.2% of the land surface, representing 4.18 million hectares which can be classified into four (4) major forest types and eight (8) sub-types. Table 1 depicts information on the forest types, sub-types, and the approximate area for each category as of 2010. Dryland forests represent the majority of the state's forest cover (45.4%) out of the total forest area, followed by montane forests at 32.9%. Public and private forest plantations comprise a mere 5% of the total forest area in Kenya.

Forest type	Forest sub-types	Approximate area (Ha)	% of total forest area
Western rainforest	Natural forest (mixed indigenous) [<i>Kakamega, Nandi forests</i>]	144,615	3.5
Montane forests	Natural forest (mixed indigenous) which include Mt. Kenya, Aberdares, Mau, Cherangany, Mt. Elgon, Matthews Ranges and Chyulu Hills	1,359,860	32.9
	Bamboo	85,693	2.1
Coastal forest	Natural forest (mixed indigenous trees) [<i>Arabuko sokoke, Dakatcha, Boni, Shimba Hills, Kayas</i>]	295,871	7.2
	Mangroves	48,522	1.2
Dryland forests	Natural forest (mixed indigenous trees) [<i>Hilltops in Eastern and Northern Kenya and Lake Victoria regions</i>]	1,875,316	45.4
	Riverine forest	135,231	3.3
Forest plantations	<i>Public and private forests</i>	186,716	4.5

Table 1: Forest Types in Kenya (Source: National Strategy for Achieving and Maintaining 10% Tree Cover, 2019).

Forests rank highly as one of the most important national assets, providing environmental, ecological, economic, social and cultural benefits (Kagombe et al. 2020). While the intangible benefits have not been adequately quantified, the sector contributes more than Kshs 20 billion shillings worth of goods to the economy annually and employs over 50 thousand people directly and another 300 thousand indirectly (Odworì et al. 2013). In addition, over one million households living within a radius of five kilometres from the forest reserves depend on forests for cultivation, grazing, fishing, food, fuel wood, honey, herbal medicine, water and other benefits (Odworì et al. 2013).

The private forest sector is dominated by tea estates owned by multinationals and local companies that planted mostly eucalyptus tree species for tea curing as a substitute for expensive furnace oil. The growth of private forests can be attributed to many factors. However, the inability of the public forest plantations to meet the local timber demand has attracted several investors, including wood-based companies, syndicated private investors and large-scale farmers that are motivated by commercial interests. In addition, the expanded electricity power distribution in the country has created high demand for transmission poles, mostly sourced from *Eucalyptus grandis* trees, making it one of the leading short rotation crops grown by private forest investors. Most private forest investors deploy integrated wood utilization processing and value addition to minimize wastage and improve their operating profit margins. The business model is largely a diversification strategy from a predominantly core agricultural based business into a profitable forest business that takes both vertical and horizontal integration dimensions depending on the core business of the investor (Cheboiwo et al. 2018).

Even though existing literature shows that the private plantations expanded marginally by 1.1% from 68,000 to 90,000 hectares in the period 1990-2010 and lately have been dominated by large companies that purchase huge tracts of land for tree growing, the sector has limited room for expansion due to shortage of land and competition from agricultural enterprises and settlements (Cheboiwo et al. 2018). However, there are indications that private forests are likely to expand as they leverage on efficiency in land use, efficient technologies and high demand for forest products to compete in local and regional timber markets.

Private forestry actors are involved in both primary and secondary value chain production activities. However, studies show that the key activities include sawmilling, wood-based manufacturing complexes, furniture making and collection, processing and value addition of non-timber products (Cheboiwo 2014; Kagombe et al. 2020; Choge, 2002). The diverse private forestry activities create

employment opportunities for many people, generating taxes for governments, interest for financial institutions, and significant profits for forestry investors.

Recent national-level legal and policy reforms, coupled with deliberate government efforts to increase tree cover, are providing impetus for the development of the private forest sector. For instance, the constitution of 2010 is very explicit on Kenya's intentions towards increasing tree cover. It calls for the need to achieve and maintain 10% tree cover in the country on public, community and private lands. Other policy documents such as the blueprint Vision 2030, the Draft Forest Policy of 2020, Forest Conservation and Management Act of 2016, the Agriculture (Farm Forestry) Rules of 2009, are in keeping with the constitution 2010 and promote tree growing activities by private forest owners. Part IV, section 30 (i) (a-d) and Article 72 (1) of the Forest Conservation and Management Act, 2016 are clear concerning the need to develop a robust private forest sector in the country. However, the Ministry of Environment and Forestry has yet to develop regulations for operationalizing private forest development incentives. In addition, the Forest Conservation and Management Act, 2016 lacks provisions for forest certification.

The County Government Act of 2013 provides for the establishment of institutions within devolved units for implementing many development functions, including tree planting on community and private lands for sustainable development. In order to fully implement development initiatives, including development of tree resources, counties have developed many tools such as the County Integrated Development Plans (CIDPs). However, most counties are still at nascent stages in the process of establishing forestry programmes. Interestingly, even with these forestry challenges, in general, a review of the performance of devolved units show that devolution has enhanced equitable resource distribution, improved economic and social development, increasing citizen inclusion and participation in decision making, and promoted accountability, transparency, and national unity (KIPPRA 2016, UNDP 2017, Ngigi and Busolo 2019). With improving democratization and good governance, it is hoped that private forests and tree resources in counties will become critical county infrastructure supporting socio-economic growth.

In attempts to overcome the policy and regulatory gaps for private forest development, in 2021 Kenya launched the FSC Interim National Forest Management Certification Standard, whose main objective is to promote conservation of forests for ecosystem services. Through engagement with the Kenya Forest Service (KFS), the state corporation responsible for forest management in the country, the Forest Stewardship Council (FSC) has identified pilot sites for field testing

the FSC certification. KFS has identified Eburru Forest and other forest blocks in the Aberdares range as pilot sites for field testing of the FSC Interim Standard. Currently, a team from KFS is working closely with FSC to describe the chosen sites in biophysical and social dimensions, which will be followed by gap analysis to identify and describe areas or issues for improvement. This will be a major first application of the newly approved Interim National Standard in Kenya. Hence, it is critical to examine the citizen's perception towards implementation of the FSC standard and draw lessons for Kenya and beyond.

However, existing literature also shows that forest certification is not new in Kenya. Some years ago, wood carvers from coastal forestry initiatives were certified with support of the WWF Office. Already, 11 Private Sector Enterprises have received FSC Chain of Custody (CoC) certification, mostly in the packaging industry. Private sector uptake in CoC certification is crucial in that it provides an internal market for certified goods and services and reduces or mitigates illegality in the timber trade in the country. Besides this progress, Kenya Plant Health Inspectorate Service (KEPHIS) has introduced a plant nursery certification scheme where all kinds of plants that are grown are inspected and audited at the production premises to ensure they are free from pests and are of high quality. A certificate is issued as evidence of compliance with the set laws and regulations. Plant nurseries are classified as either fruit tree nursery, vegetable nurseries, flower nursery, forest tree nurseries, or miscellaneous nurseries where seedlings with greater economic value are propagated (KEPHIS Newsletter 2021).

Kenya Forestry Research Institute (KEFRI) has also developed the 'Tree Nursery Certification Protocol, 2021' for voluntary tree nursery certification process. The protocol is based on the fact that forests and trees on farms play a critical role in the provision of goods and services and are a major source of livelihoods for many communities. Successful forest conservation and regeneration efforts require the use of reproductive materials that meet appropriate genetic, morphological and physiological quality standards. However, research and field experiences invariably show that most of the seedlings planted out are of low quality leading high mortality rates when out planted. Hence, certification of tree nurseries will address problems of low quality, low vigor and poor health that is associated with high field mortality at out-planting.

The main purpose of tree nursery certification is to ensure production of quality and healthy planting materials for quality products and maintain environmental health. The accreditation process recognizes two types of tree nurseries: (i) commercial tree nurseries whose sole purpose is to produce certified tree seedlings of any of the commercial tree species and (ii) general purpose tree nursery which

may combine production of commercial tree species and other species for conservation purposes. Applications for certification are invited from tree nurseries owned and managed by Government Ministries, Departments and Agencies/Institutions; learning institutions, both public and private; Non-Governmental Organizations (NGOs), Private Companies; Faith Based Organizations (FBOs) and Community Based Organizations (CBOs); Community Forest Associations (CFAs); Timber Manufacturers Associations (TMAs) and Tree Growers Associations (TGAs); groups (youth, men/women groups); individuals; any other organized groups. A nursery seeking certification under the 2021 protocol must be in the KFS register of tree nurseries.

2. Materials and Methods

This study seeks to provide information on the willingness to pay for forest management certification by private forest owners in Kenya. As such, both primary and secondary qualitative data were collected from 20 participants using an online survey questionnaire during the proceedings of a workshop which aimed at sensitizing various stakeholders, including five government officials, three private sector development actors, five community groups and seven individual private forest owners on the importance of tree growing. The 20 participants originated from all seven agro-climatic regions of the country and were all adults of sound mind. Kenya had seven agro-climatic zones, namely, Zone I-VII (Somroek et al 1982). There were three participants from agro-climatic zone I-VI and two participants from zone VII. Thus, although their number was relatively low, the participants constituted a fairly representative sample that could be evaluated to provide evidence for the study.

2.1 Primary data collection

The survey questionnaire generated both qualitative and quantitative. The qualitative aspects evaluated included the demographic attributes of respondents, their perception towards private forest certification which was interpreted as the willingness to pay or accept private forest certification, and the ways of improving private forest certification as shown in annex 1 of this study. Examples of key questions asked on willingness to pay for certification in the questionnaire were: Are you interested in knowing the origin of wood products and how they have been produced? How many certification schemes do you know? Which certification scheme do you prefer? Which examples of forest products (e.g., indoor furniture, food, clothes etc.) would you wish to have a wider choice of certification? Do you wish to see an increase of certified private forest area in the

country? Whom do you think is most responsible for ensuring the certification of private forests in the country? In which actor do you have the highest trust that they will ensure private forest certification in the country? Which wood-based products do you often/frequently buy? What do you think are positive impacts of private forest certification in Kenya?

In order to enhance comprehensibility of the study variables, the definition of key terms was provided in the questionnaire. A key term such as 'forest' was defined as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. A private forest was defined in accordance with the provisions of the Forest Conservation and Management Act, 2016, part IV section 30 (4) which states that private forests include (a) forests on registered land held by any person under any freehold tenure; (b) forests on land held by any person under leasehold tenure; (c) any forest owned privately by an individual, institution or corporate body for commercial or non-commercial purposes; and (d) forests on any other land declared private land under an Act of Parliament. P.20.

Where clarification was required, the principal investigator was present to interpret various research aspects. No major problems were reported during data collection. Two hours were required to gather the required primary data.

2.2 Secondary data collection

Secondary qualitative data collection involved an in-depth document review targeting the country's key development policies and documents as summarized in Table 2. The review was designed to determine whether these policy documents were providing adequate anchorage for private forest development and certification in Kenya.

No.	Document	Information sought	Source
1.	Blueprint Vision 2030 for Kenya	Whether forests, including private forests are important for Kenya's socio-economic development	Vision 2030 Website. Accessed at https://vision2030.go.ke/
2.	The Constitution of 2010	Land tenure system and how it affects private forest management certification	Kenya Law Reporting portal accessed at http://kenyalaw.org/kl/index.php?id=400
3.	The Draft Forest Policy of 2020	The policy statements on development of sustainable private forestry in Kenya	Kenya Law Reporting portal accessed at http://kenyalaw.org/kl/index.php?id=400
4.	Forest Conservation and Management Act of 2016	The institutions established to promote private forestry development and the legal provisions that support certification such as chain of custody	Kenya Law Reporting portal accessed at http://kenyalaw.org/kl/index.php?id=400
5.	FSC Interim National Standard for Kenya 2021	If the standard complements, substitutes, or contradicts the existing framework for private forest management certification in Kenya	Forest Stewardship Council website. Accessed at https://fsc.org/en/document-centre/documents/resource/472

Table 2: Key Documents Consulted

The workshop research methodology was used in this study because it aims to fulfil participants' expectations to achieve something related to their own interests (Ørngreen and Levinsen, 2017). This was part of the intentions of this study with regard to willingness to pay for private forest certification. Moreover, workshops generate reliable and valid data about the domain in question (Ørngreen and Levinsen, 2017). Workshops are carried out by people with practical

experience within the given field, and they encourage honest involvement. The participant groups are kept small to allow maximum personal attention and to enhance the chance for everyone to be heard. Moreover, the key members of the workshop are expected to actively participate and influence the direction of decisions taken. Additionally, workshop participants and organizers expect an outcome. These characteristics informed the choice of the workshop approach adopted in this study.

2.3 Data analysis

The quantitative results obtained from the primary data sources were later exported to an excel spreadsheet and classified in two broad groups: those with a private forest and those without a private forest. Based on these groupings, quantitative data was analyzed using Microsoft Excel software to generate the descriptive statistics and visualizations used in this study. Later, the results were evaluated by comparison with secondary data and findings from reviewed literature in order to draw the policy implications that emerge from this study.

3. Results

In total, 20 survey questionnaires were distributed to participants and a 100% response was obtained. 30% of all respondents were female. 60% of respondents belonged to the 36-45 Years age bracket while the remaining 40% belonged to the 18-35 years age bracket. Up to 95% of the respondents had a tertiary level of education, indicating a relatively high level of literacy. With regard to income distribution, 55% of the respondents had a weekly income of Kshs. 7,500 and above, while 45% earned an income of Kshs. 1-7,500 per week.

The overall household size of respondents ranged from one to more than four people. 60% of respondents indicated that their households comprised four or more people, 25% of respondents indicated they had a household size of two people, while 15% reported that they had three people in a household (Figure 1).

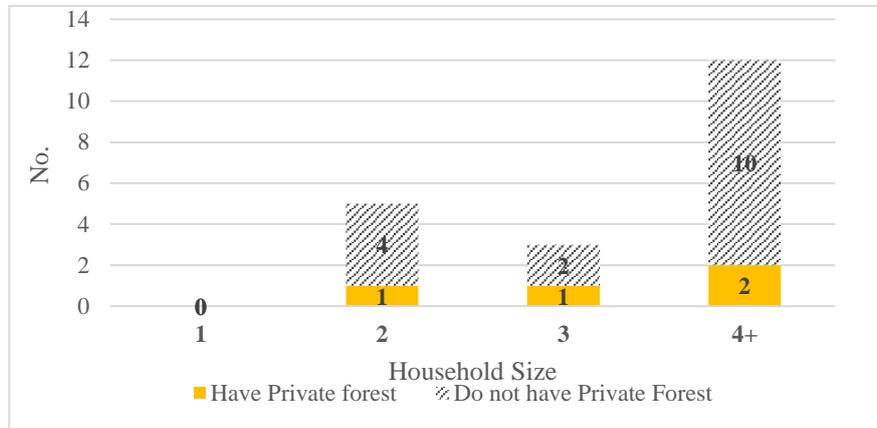


Figure 1: Household size and private forest ownership

Up to 60% of the respondents were government employees, 20% belonged to the private sector, 15% were not employed, and 5% were self-employed (Figure 2).

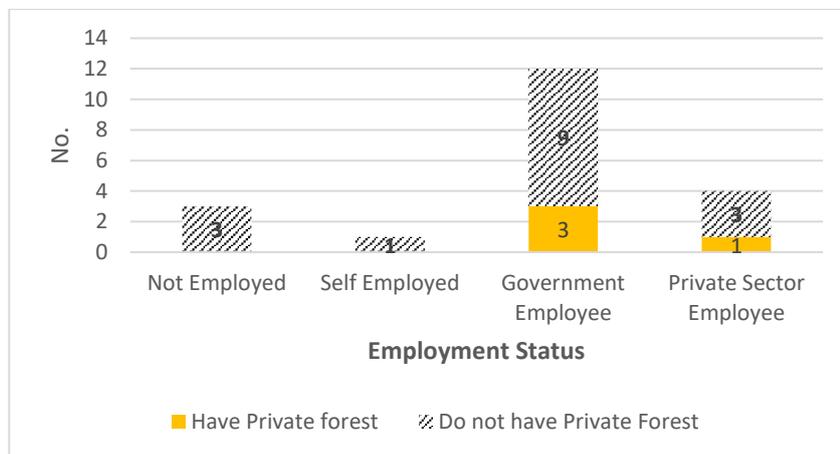


Figure2: Employment Status and private forest ownership

Overall, the results show that 80% of the consulted respondents do not own a private forest, while only 20% own a private forest. Among those who own a private forest, 15.8% own a private forest less than 1 ha in size, while another 15.8% own between 1-10 ha of private forests.

3.1 Perception of willingness to pay for private forest certification

The perception of stakeholders towards private forest certification is critical for understanding how the sector can be stimulated toward responsible forest management. Overall, the study results show that private forest certification appears to have a positive perception among the surveyed respondents who frequently consume wood-based paper products. Paper is a frequently purchased wood-based product, as shown in Figure 3.

2.15. Which certified wood-based products do you often/frequently buy?

19 responses

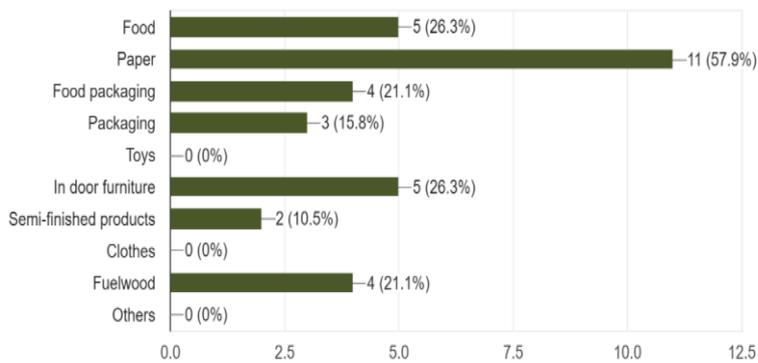


Figure 3: Certified wood products mostly bought

In addition, all respondents appeared to be interested in knowing the origin of the wood products they consumed and how they were produced, as well as having the desire to receive more information on the origin of wood products.

Up to 45% of all respondents indicated that they did not know of the existence of private forest certification schemes. While 30% knew about the existence of one scheme, 25% knew about the existence of more than one. Overall, 47% of all respondents knew about the existence of SFI, followed by FSC (36%) and others (31%). When asked about the certification scheme, respondents preferred certification of Kenya's private forests, 42% preferred SFI, 36% preferred FSC, and 10% preferred PEFC. Regarding the willingness to buy certified products from Kenya's private forests, 85% indicated a willingness to buy, 10% were unwilling, and 5% were unsure. 68% of respondents wished to have a wider choice of certification schemes for indoor furniture, paper (42%), food packaging (31%), and food, fuelwood, and general packaging (21%).

Up to 80% of respondents believed that timber production or forest management is the greatest cause of illegal logging, which also extends to private forests. 50% believe that agriculture is the main cause of illegal logging in the country. 25% of respondents had heard about deforestation last year, 25% last week, 20% did not know, and 20% had heard about deforestation last month. 100% of the respondents wished to see an increase in certified private forest areas in the country.

3.2 Perception on improving private forest certification

The study showed that 80% of the respondents believed that timber production and forest management contributed the most to deforestation and illegal logging (Figure 4). Overall, 85% of respondents believed that forest certification was the best tool to enhance sustainable forest management in the country. 70% of respondents believed private forest certification would better manage private forests. However, 40% of the respondents think private forest certification is costly, bureaucratic, complex, and time-consuming. 45% of respondents attributed a negative perception of certification to limited knowledge of perceived benefits. Hence, 80% of respondents indicate the importance of raising education and awareness to improve private forest certification in the country.

2.10. What do you think is the key cause of deforestation and illegal logging in Kenya?

20 responses

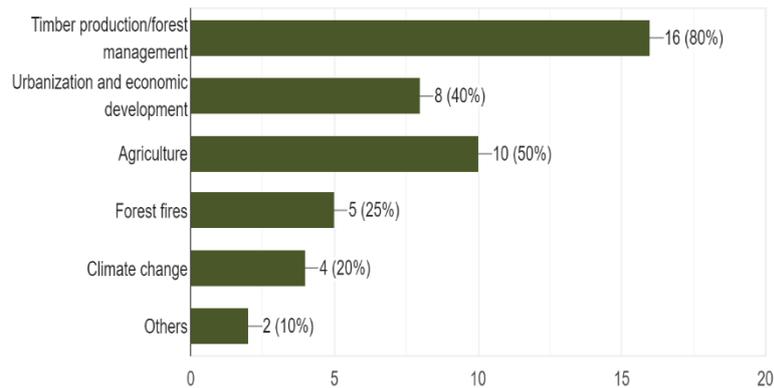


Figure 4: Causes of illegal logging in private forests

In addition, there is a strong indication of the desire to hasten and improve private forest management certification in the country. Respondents believed that existing institutions are adequately resourced to promote certification. The results show that all respondents had an equal proportion of trust in the government and certification schemes for properly implementing private forest certification in the country (Figure 5).

Moreover, respondents appeared to be apportioning different levels of responsibility for institutions and organizations involved in private forest management certification. Up to 55% of the respondents believed that the government was the most responsible actor or agent for ensuring the proper implementation of private forest management certification in Kenya (Figure 6).

2.12. Which actor do you have the highest trust that they will ensure proper private forest certification in the country?

20 responses

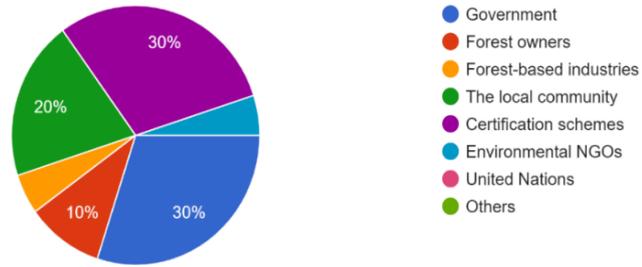


Figure 5: Trust levels amongst actors

2.11. Whom do you think is the most responsible for ensuring the proper certification of private forests in the country?

20 responses

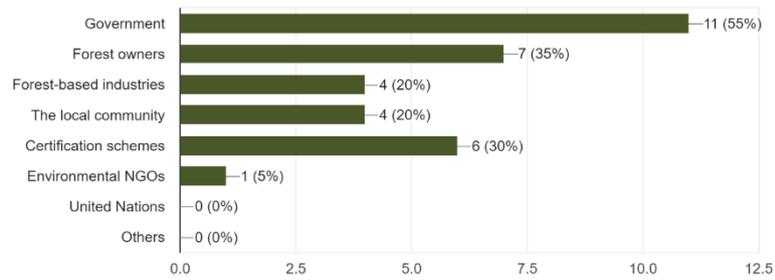


Figure 6: Responsibility for certification

4. Discussion

Private forests are important national assets for promoting socio-economic development (FAO 2020; MEA 2005; Sun et al., 2022; Perera et al., 2022; Cashore et al., 2004; Rubino et al., 2022; Cashore et al., 2006; Gallison 2003; van der Ven and Cashore, 2018; Schulze et al., 2008). In order to promote the sustainable management of these forests and to assure society that these forests are being managed for posterity in the light of the growing threats of deforestation and degradation, private forest management certification is fast emerging as a mechanism for promoting sustainability (George et al., 2022). A range of literature reports that forest certification has emerged as a multi-stakeholder process sustained by coalitions of many like-minded public and private organizations whose aim is to prevent deforestation and degradation by promoting responsible consumption and production of forest products (Barklund and Teketay, 2004; UNEP, 2008; Teketay, 2012). To date, many countries around the world are actively participating in implementation of different forest certification schemes targeting all types forests, including private forests. Studies show that over 11% of the world's forests have been certified under various schemes (Alvarez, 2018).

The literature also shows that certification schemes do not wield equal influence and that the FSC scheme appears to have won the 'war of certificates' across the globe. FSC's forest management certification system appears to be anchored to collaborative alliances aimed at delivering better forest management certification. The scheme provides a system for voluntary accreditation and independent third-party certification and allows certificate holders to market their products and services as having been produced in an environmentally appropriate, socially beneficial and economically viable manner.

The key lesson learnt from FSC certification is the value of objectivity in auditing management organizations. In this study, while we concur that FSC's forest management certification is quite robust, we do not view forest certification in the context of 'winners' and 'losers'. We see FSC's domination of certification schemes as a demonstration that the world now cares about the sustainability of forests, including private forests. Forest certification is affected by the dynamics of forest products supply chains, technological innovations, and government policies. We believe that growing interest and innovation in forest management certification also present the opportunity to revisit forest certification and recommit to identifying collaborative ways of securing the future of forests and forest products as well as improving impacts and measurable outcomes. Our study also notes that whereas competition between certification programs and programmes can

be useful, this should work towards addressing the drivers of deforestation and degradation, creating opportunities for socio-economic development.

Moreover, given the existing competition where FSC appears to be a front runner in forest certification, there is a risk of double certification and other inefficiencies. Therefore governments need to stop this trend with supply chain influencers by embracing a neutral stance to certification schemes or at least adopting a ranked choice approach that allows for alternative schemes to thrive rather than complete exclusion of some schemes.

In Kenya, private forests are critical national assets contributing to national development (Table 1; Choge, 2002; National Strategy for Achieving and Maintaining 10% Tree Cover, 2019; Odwori et al. 2013; Figure 3). As such, the area under private forests has grown by 1.1% from 68,000 to 90,000 hectares between 1990 and 2010 (Cheboiwo et al. 2018; Cheboiwo et al. 2020). Studies indicate that the current expansion of private forests could be attributed to many political, economic, social and policy or legislative reasons. However, reviewed literature shows that the private forest sector continues to grow due to supply shortfalls from public forest plantation as a result of the current moratorium on logging in community and public forests and the growing demand for key forest products such as transmission poles (Cheboiwo et al. 2018). This demand is bound to rise with the growing human population (Kagombe et al. 2020). Kenya has 47 million people, and the population is projected to reach 60 million people by 2030 (Kenya's NDC 2021).

Fortunately, Kenya is already making significant policy and legal strides aimed at promoting the sustainable management of private forests. The constitution of 2010, the blueprint Vision 2030, the Draft Forest Policy of 2020, Forest Conservation and Management Act of 2016, the Agriculture (Farm Forestry) Rules of 2009 and the FSC Interim National Standard for forest management certification recognize the importance of forests, including private forests in Kenya's development ambitions. These private forestry development tools recognize and confer private property rights to individuals willing to establish private forests in the country. For instance, the Forest Conservation and Management Act of 2016 is highly explicit in requiring registration of all private forests in the country and spelling out the incentives for such registration, including free technical advice, access to loan opportunities and exemption from payment of land rates. These policy initiatives show the importance of the government in shaping policy discourse on certification and are in agreement with findings from our survey, where respondents applauded the centrality of the government in promoting certification by expressing their trust (Figures 5 & 6).

However, the development of private forestry and certification have been slow because to date the Ministry of Environment and Forestry has yet to develop regulations to operationalize these incentives. Moreover, at the county level, most devolved units are yet to establish county forest programmes which would provide the necessary anchorage for private forest development and certification. In addition, there is the need to review the Draft Forest Policy of 2020 and the Forest Conservation and Management Act of 2016 in order to incorporate explicit provisions on forest management certification. In the meantime, the FSC interim National Standard could complement public policy by filling this clear policy gap. Reviewed literature shows that voluntary sustainability standards also fill gaps in public policy (Marques and Eberlein 2020; Marx, 2018; UNFSS, 2020; FSC, 2020a; FAO and UNECE, 2020). It is hoped that with sustained capacity building of counties by the national government agencies forestry programmes will transform counties for greater socio-economic development. Already, there are signs of positive change in counties with regards to equitable resource distribution, citizen inclusion and participation in decision making, accountability, and transparency (KIPPRA 2016, UNDP 2017, Ngigi and Busolo 2019). In this conducive environment, forest certification will help promote the productivity, vitality and sustainability of all types of forests in the country. Reviewed literature shows that in the year 2021 the country launched the FSC Interim National Forest Management Certification Standard whose main objective is to promote conservation of forests for ecosystem services. The FSC standard appears quite robust and deliberately defines the irreducible minimums for forest management certification. These standards complement the existing efforts to promote forest management in the country through objective-led management plans. It is hoped that these standards will promote responsible forest management as proposed by Lemes et. al. (2022), Mexia et al. (2022), Gutierrez Garzon et. al. (2022) and Pannico et. al. (2022).

Tree nursery management is also an important ingredient for sustainable private forestry. In order to promote certification in this segment, KEPHIS is already conducting certification of forest tree nurseries in order to provide pest free high-quality seedlings to the public. To date, over 250 nurseries largely vegetable and fruit trees have been certified (KEPHIS Newsletter 2021). KEFRI has also developed the Tree Nursery Certification Protocol, 2021 as a practical guide for certifiers. Study results from Kenya attest to the effect of these positive conditions and present many opportunities for advancing private forest certification. Results indicate that there is significant concurrence between respondents with and without private forests on the willingness to pay or accept the cost of private forest certification. Already, respondents from the two study groups frequently

consume certified wood-based products, especially paper (Figure 3). All respondents have also expressed willingness to know the origin of consumed wood products and other pertinent information. This positive desire for private forest certification may be attributed to the favorable environment provided by the existing forest policy framework and the relatively high levels of literacy amongst the study participants. However, there is need for further studies to investigate the impact of demographic variables on willingness to pay for forest certification. Reviewed literature shows that age, income and education appear to be significant variables (Scholte et al. 2015; Tian 2022).

Reviewed literature also indicates challenges with private forest certification schemes are already emerging. Competition between schemes, unpredictable changes in government policy and technological changes have been referred to in reviewed literature. These challenges have also been identified by Upton and Bass (1995). However, in this study, given the greatest role played by the government as the formulator of policies for forest management, Kenya should embrace a certification program/scheme neutral stance or at least a ranked choice approach allowing for alternatives rather than program/scheme exclusion. Moreover, there is a need for supporters of certification to generate more data on certified forest products in the market by type and market share. Even though this study did not evaluate smallholder certification, reviewed literature also shows that certification should be tailored to target smallholders as a potential area of collaboration where tree growers can be engaged to enhance the market of forest products and services from farmland. Supporting the group certification scheme has the potential of adding value to the ongoing initiatives on farmlands, including enhancing the bamboo value chain. Supporting the already existing 11 Private Sector Enterprises who have received FSC Chain of custody (CoC) certification mostly in the packaging industry should also be pursued. Private sector uptake in CoC certification is crucial in that it provides an internal market for certified goods and services and can reduce or mitigate illegality in the timber trade in the country. It is hoped that with the introduction of Kenya's Interim National Standard, several companies will be in a better position to track their products from the certified forests to shelf and trigger further investments in the forestry sector. However, there is also a need for the government to support several officers who have already been trained on FSC certification processes in order to deepen their understanding of certification process as a whole.

5. Conclusion and Recommendations

Forest certification can be a good tool to promote responsible private forest management. The transparency that accrues from certification demonstrates the management performance of private forest management and can bring clear financial and market opportunities while ensuring the conservation of biodiversity and continuity of sustainability of forest management. As a result, awareness concerning the ecological, social and economic benefits and impacts of scientifically driven sustainable private forest management is growing, with many governments across the world reviewing and developing appropriate policy and legal frameworks for improving certification.

In Kenya, private forestry is steadily growing and so is private forest management certification. The country has developed supportive policies and legislation which provide opportunities for stakeholders to fully participate in private forestry activities. Consequently, study respondents have demonstrated that there is a high level of willingness to pay or accept private forest certification in Kenya. In fact, a significant proportion of respondents have asked for an increase in the area under certification in the country, besides being frequent consumers of certified wood-based products. This presents many opportunities for private forest certification in Kenya.

However, there are still a number of challenges affecting certification, including lack of regulations for operationalizing the private forest development incentives outlined in the Forest Conservation and Management Act of 2016 and lack of county forestry programmes. Thus, there is a need for developing regulations, establishing county forest programmes to promote certification, increased education and awareness about private forest management certification, and conducting more studies on the type and market share of certified products from private forests that are consumed in the country. Moreover, this study shows the need for more research, especially quantitative studies on the motivations and impacts of certification on different stakeholder groups in specific niches of private forest management, such as tree nursery management, which appears to have taken off in Kenya. While the major limitation of this study was the relatively small number of participants involved, this was balanced by a qualitative study approach based on in-depth literature review and secondary data and can contribute to signalling future developments for research and policy initiatives.

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Annex 1: Survey Questionnaire

1. : Questions regarding demographic characteristics

- 1.1. What is your gender?
- 1.2. What is your age?
- 1.3. What is your highest education level?
- 1.4. What is your average weekly income?
- 1.5. What is your family size?
- 1.6. What is your employment status?
- 1.7. Do you have a private forest?
- 1.8. Size of private forest _____ Hectares

(NB: A forest is land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ)

2. Perception of willingness to pay for private forest certification

- 2.1. Are you interested in knowing the origin of wood products and how they have been produced?
- 2.2. Would you like to receive more information about the origin of wood products and their production method?
- 2.3. How many certification schemes do you know?
- 2.4. Which certification scheme do you know?
- 2.5. Which certification scheme do you prefer?
- 2.6. Are you willing to buy certified forest products?

- 2.7. Which examples of forest products (e.g. in door furniture, food, clothes etc.) would you wish to have a wider choice of certification?
- 2.8. Do you wish to see an increase of certified private forest area in the country?
- 2.9. When did you hear or read a story about illegal logging?
- 2.10. What do you think is the key cause of deforestation?
- 2.11. Whom do you think is the most responsible for ensuring the certification of private forests in the country?
- 2.12. Which actor do you have the highest trust that they will ensure private forest certification in the country?
- 2.13. Is certification the best tool for ensuring the sustainable management of private forests in the country?
- 2.14. Which wood-based products do you often/frequently buy?
- 2.15. Which certified forest products do you buy?
- 2.16. What do you think are positive impacts of private forest certification in Kenya?
- 2.17. What do you think are negative impacts of private forest certification in Kenya?
- 2.18. What are the main causes of negative perception of private forest certification?

3. Improving Private Forest Certification

- 3.1. How can certification of private forests be promoted in Kenya?

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Competing Interests

The authors declare no conflict of interest.



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