

Opportunities and Challenges of Community-based Natural Resource Management: The Case of Forest Conservation in Kedjom-Keku, North West Region of Cameroon

Oportunidades y desafíos de la gestión comunitaria de los recursos naturales: el caso de la conservación forestal en Kedjom Keku, región noroeste de Camerún

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ABSTRACT

Globally, the stewardship and use of forested land are increasingly recognized as essential to climate change mitigation and adaptation. However, rapid population growth, urbanization and the intensification and extensification of agriculture continue to drive deforestation, thereby exacerbating the climate crisis. This study examines community contributions and challenges to community forest management in the Kedjom-Keku community, in Cameroon. A mixed-methods approach was employed to collect data from 50 purposively selected respondents, complemented by informal discussions with a forest conservator and a community researcher, document review and field observation, in order to gain insights into local community contributions and challenges faced in community forest conservation. The results indicate that the ancestral roots and existence of Kedjom-Keku are closely associated with the Abongphen forest, and that the community engages in forest management practices, such as reforestation, with the aim of sustaining the forest. Community members respect the authority of the traditional palace institution and the *fon* as the main stakeholder (78%) in sustainable community forest resource management and governance. The major challenge to improved management of the Abongphen forest is bush burning (44%), apparently driven by agricultural expansion. In this study, we argue that inclusive management is essential for forest sustainability, and that traditional authorities, non-governmental organizations, and governmental and municipal stakeholders should leverage community actions in order to steer future pragmatic forest co-management.

Keywords: *Community-based forest management, traditional forest management, conservation, village chief and institution, Abongphen community forest*

RESUMEN

La gestión y el uso de los bosques se reconocen cada vez más como esenciales para la mitigación y la adaptación al cambio climático a nivel mundial. Sin embargo, el rápido crecimiento demográfico, la urbanización y la intensificación y extensificación de la agricultura siguen reduciendo los bosques, y exacerbando así la crisis climática. Este estudio examina las contribuciones y los desafíos de la comunidad en la gestión forestal comunitaria en Kedjom Keku (Camerún). Se utilizó un enfoque de métodos mixtos para recopilar datos de 50 participantes seleccionados intencionalmente, lo que se complementó con conversaciones informales con un conservador forestal y un investigador comunitario, la revisión de documentos y la observación de campo, para comprender mejor las contribuciones y los desafíos que enfrenta la comunidad local en la conservación de los bosques comunitarios. Los resultados muestran que la comunidad de Kedjom Keku vincula su existencia y sus raíces ancestrales con el bosque de Abongphen y participa en prácticas de gestión forestal, como la reforestación, para mantener el bosque comunitario. Los miembros de la comunidad respetan la autoridad de la institución palaciega tradicional y del *fon*, como principal actor (78%), en la gestión y gobernanza sostenible de los recursos forestales comunitarios. El principal desafío para mejorar la gestión del bosque de Abongphen es la quema de matorrales (44%), aparentemente impulsada por la expansión agrícola. Sostenemos que la gestión inclusiva es esencial para la sostenibilidad forestal y que las autoridades tradicionales, las organizaciones no gubernamentales y los actores gubernamentales y municipales deben aprovechar las acciones comunitarias para impulsar una gestión forestal conjunta y pragmática.

Palabras clave: *gestión forestal comunitaria, gestión forestal tradicional, conservación, jefe e institución de la aldea, bosque comunitario de Abongphen*



1. Introduction

Humans have relied on natural resources for their livelihoods and well-being for thousands of years. However, in more recent times the policy landscape for natural resource management has changed. This shift has been driven by rising population, increasing urbanization, the intensification and expansion of agriculture and the climate crisis (Tantoh and Simatele, 2018). Furthermore, globalization, technological advances, rising incomes and changing consumption patterns have led to overexploitation (Tantoh and McKay, 2021). These socioeconomic changes continue to exert pressure on natural resources, leading to environmental degradation and depletion (Tantoh and McKay, 2021). Given these pressures, international organizations and institutions, scholars and environmentalists now encourage national and regional governments, both in the Global North and the Global South, to create institutional frameworks, formulate and implement policies, and create tools to contribute to the effective management of natural resources (Roe *et al.*, 2009). Policies that promote effective natural resource management include the United Nations Sustainable Development Goals (UN SDGs). Globally, the role of such institutional structures and policies (Hodgson, 2006) has been to champion effective natural resource management.

In Sub-Saharan Africa (SSA), natural resources are central to rural livelihoods and indispensable to socioeconomic development (DeGeorges and Reilly, 2009). While natural resources were sustainably managed before colonization through the local norms, customs and traditional management systems that shaped daily life and the use of resources (Roe *et al.*, 2009), colonization introduced centralized management systems which, over several decades, dismantled these traditional systems. The forms of centralized management sanctioned by government strategies and policies have been criticized widely for their ineffectiveness, bureaucracy, lengthy decision-making procedures and mismanagement (Agrawal and Gibson, 1999; Tantoh and McKay, 2021; Dingha and Mbanga, 2023a). Over recent decades, such centralized, top-down management systems have shifted towards more delegated and devolved strategies, known collectively as Community-Based Natural Resource Management (CBNRM). As a form of natural resource management and governance, CBNRM has proliferated across SSA. It is composed of three main pillars: economic development, environmental conservation and community empowerment (Heffernan, 2022). CBNRM strategies seek to strengthen local natural resource institutions, enabling local community groups to decide on the best uses and management of resources for their own livelihoods and well-being (Ostrom, 1990).

Traditionally, in Cameroon natural resources were managed through the management practice known as the

«people's law». For example, after a hunting expedition, the catch was taken to the village chief, who shared it with the community. Furthermore, before any hunting group went out to hunt in a neighboring village, they were obliged to inform the village chief, in the belief that, if they did not do so, they would become lost in the forest or return without a catch (Mengang, 1998). After the arrival of European imperialists, natural resources became the property of the colonial administration, through the establishment of formal management institutions that disregarded the customs of local communities (Mengang, 1998). While the imperial powers created parks, botanical gardens and nature conservancies, they did so for their own benefit and in their own interests. For example, the Germans (the first Europeans to colonize Cameroon) created the Limbe Botanical Garden, which exists to this day. Following independence in 1960, several operational hunting reserves were put in place in the country, such as Korup National Park, Boubandjidah, Benoue, Waza, Kalamaloe, Dja, Douala, Edea and Santchou. Furthermore, the population was educated to plant exotic trees, such as neem (*Azadirachta indica*), teak (*Tectona grandis*), and eucalyptus, in the savannah zone (including in Kedjom-Keku), while the exploitation of forest resources was regulated through permits, and rangers were recruited to protect forests and wildlife.

The governments that took over after independence left in place systems established by the colonial regime, with centralized, top-down management through government ministerial departments the cornerstone of the system of governance. However, centralized management systems present significant inefficiencies (Agrawal and Gibson, 1999; Dingha and Mbanga, 2023a; Mbanga and Dingha, 2024), with top-down management resulting in high levels of bureaucracy that is often poorly designed and planned (Tantoh and Simatele, 2018). Given the shortcomings of centralized management, many international aid organizations, non-governmental organizations, scholars, and practitioners of natural resource management and community development now advocate a shift from centralization to a more devolved and participatory form of management (Fonchingong and Fonjong, 2003; Roe *et al.*, 2009). In many communities, community-based management has now become a buzzword, with broad acceptance of the notion that those closest to a given resource are better placed to manage it than more distant managers (Dingha *et al.*, 2025). This concept has been advanced by several scholars, who argue that «people must have the right to manage, benefit from, and make decisions over resources if conservation is to be sustainable» (DeGeorges and Reilly, 2009; Tantoh and Simatele, 2018).

A number of studies have focused on the evolution of institutions for collective action (Ostrom, 1990), the benefits of communal natural resources management (Murphree, 1990), the realities of community-based

management (DeGeorges and Reilly, 2009), development, conservation and empowerment (Heffernan, 2022), collaborative management of natural resources (Musavengane *et al.*, 2019), complexity and uncertainty in resource governance (Tantoh and Simatele, 2018), and ways to strengthen community flexibility. However, to date there has been limited study of community forest conservation, particularly with regard to how local people can contribute to forest management in communities such as Kedjom-Keku. In this study, our aim was to examine community contributions and challenges to community forest management in Kedjom-Keku, a resource-rich and culturally rich area in Cameroon, through an interpretation of community contributions to forest management as an opportunity for conservation. Through a better understanding of contemporary dynamics in local forest management and the challenges faced by stakeholders, valuable information can be generated to support informed decision-making and improved forest conservation initiatives.

2. Research methods

2.1. Description of study area

Kedjom-Keku is located between latitudes 6°06'00" and 6°09'00" North, and longitudes 10°15'00" and 10°18'00" East. It is a locality in the Tubah Sub-Division, Mezam Division, in the North West Region of Cameroon, situated about 15 km from Bamenda, the regional capital. It is surrounded by the villages of Bambili, Bambui and Kedjom-Ketingoh (Figure 1).

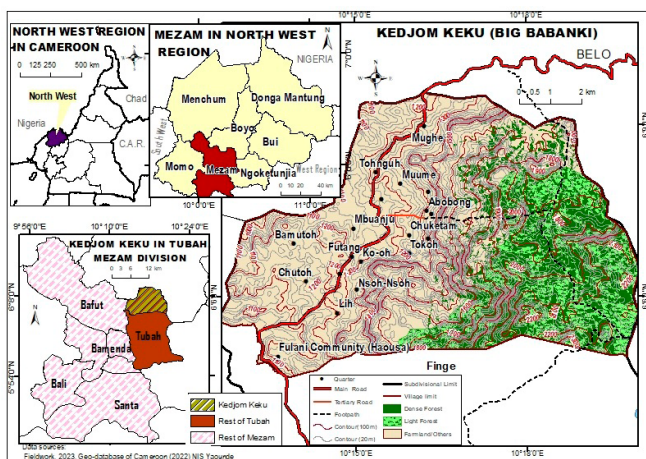


Figure 1. Location of Kedjom-Keku in the Tubah Sub-Division, Mezam Division and North West Region of Cameroon

Kedjom-Keku has a population of approximately 15,286, the majority of whom are involved in farming (Tubah Council, 2012). The literal translation of the appellation Kedjom-Keku is «people of the forest», reflecting the traditional attachment of local people to the forest. The Abongphen forest is one of the largest community forests in the Tubah Sub-Division.

It is a biodiversity hotspot and home to the endangered Nigeria-Cameroon chimpanzee, buffalo, antelope, and multiple fungal and bird species, including the threatened Bannerman's turaco. However, the Abongphen forest is facing multiple threats resulting from anthropogenic activities, including increasing population, deforestation, settlement expansion and agriculture. Although certain conservation actions were begun in the forest, championed by a Czech non-governmental organization in cooperation with local partners (such as The Green), these activities were halted as a result of the socio-political armed conflict affecting the English-speaking (North West and South West) regions of Cameroon, which emerged in the wake of civil strikes by teachers and lawyers demanding greater autonomy. The armed conflict has brought waves of insecurity to the area. Given the context of the community's rootedness in the forest and reliance upon its ecological services, coupled with the conditions imposed by the prevailing armed conflict, it is important that the opportunities and challenges for the conservation of the forest be investigated. Such investigation could potentially be critical in advancing the contributions of local communities to sustainable forest management and conservation.

2.2. Data collection and analysis

Ethical clearance to conduct the study was obtained from the Department of Geography and Planning of the University of Bamenda. During the field survey, the purpose of the study was explained to respondents, who were assured that the information provided would be used only for academic purposes and kept confidential.

The study used a mixed-methods approach comprising quantitative (field survey facilitated by a structured questionnaire [see supplementary material] [Newings *et al.*, 2011]) and qualitative methods (informal discussion, review of published secondary information regarding the Abongphen forest and documentation [institutional reports review]). This design was informed by an ongoing study focused on human-wildlife interactions, forest conservation and livelihood dynamics in this landscape (Dingha and Mbanga, 2023b), as well as the research questions included in this study and the experience of one of the authors (Mbanga), who is from the study area. The questionnaire for this study was designed to focus on the contributions of local people (opportunities) and the challenges to community forest management. Between February and March 2023, 50 questionnaires were administered. The participants in the study were those directly (e.g., local conservationists) or indirectly (e.g., carpenters, farmers and craftspeople) involved in forest resource exploitation and management in Kedjom-Keku, deemed best placed to provide information associated with opportunities and challenges related to the Abongphen forest. In the context of a total population of 15,286, and given the war-torn context of the study

area, the sample size was determined using an online sample calculator with an 8% margin of error and a 75% confidence level, which was then rounded (Newings *et al.*, 2011; Tubah Council, 2012). The participants were identified purposively, based on availability, using snowball sampling in relatively secure localities such as Bamehtuh, Tokoh, Fendieng, Keboh and Chikebeng. Due to insecurity in Kedjom-Keku stemming from the socio-political armed conflict and related risks to research stakeholders and respondents, it was determined that other selection approaches would not be feasible. Although such non-probability sampling and margins of error are often criticized for insufficient representativeness and researcher bias (Newings *et al.*, 2011), data procurement from online sources and informal discussions with local community members, in addition to field observations, provided nuanced perspectives that strengthened our results concerning community contributions to forest management. This is especially important to bear in mind, given that accessibility, together with the willingness and availability of respondents, is often impeded within a crisis context, such as that experienced in the study area, rendering data procurement difficult. For example, despite planning for key informant interviews, in order to complement information already obtained from other sources, repeated waves of instability in the study area made this difficult, if not impossible, in practice.

An informal discussion was held with two local community members: a forest conservator appointed by the *fon* (the traditional leader of the community) and a community researcher who participated in forest management activities, including reforestation. To accommodate their individual availability, by road as well as on foot, the meeting with the forest conservator was held in Kedjom-Keku, while the meeting with the community researcher took place in Bambili—one of the main localities in the Tubah Sub-Division. The discussions were unstructured, but the prompts were focused on the community forest and local dynamics. Other individuals occasionally stopped by during these informal sessions, sometimes making interruptive, complementary comments. Although it may be argued that this impacted on the headcount of participants, it did help to provide a conducive, informal setting for discussion, enriching the conversation and enabling the authors to gain a better understanding of local perspectives on community forest and management (Ndi, 2024).

In addition, a targeted online search was conducted, in order to obtain relevant secondary information regarding the Abongphen forest, complementing the information already obtained, using keywords such as «Abongphen forest», «Kejom Kekou» and «community forest». These were occasionally combined in search engines such as Google, Google Scholar and ResearchGate, enabling the retrieval of information on the study theme, particularly

from grey literature, such as published news articles (the main sources retained, given the dearth of studies on the Abongphen forest). Also, a document review was conducted at the Tubah Council, focusing on the institutional activity reports available for the period 2008–2017. The aim was to source complementary information, and the review lens was focused on actions taken by the municipal council directed towards the conservation and sustainable management of the Abongphen forest. These provided direct textual extracts and field evidence, which were used to enrich the study.

To validate conservation efforts in the Abongphen forest, field observations were conducted in relatively secure areas—such as Tokoh and Abobong—with a focus on active, on-the-ground management activities. Observations were motivated by insights gained from the field survey and informal discussions. Although insecurity in the study area limited the depth and extent of our observations, these methods provided useful insights that enriched our analysis.

Questionnaire data were first checked for response completeness, particularly regarding the opportunities and challenges associated with community forest management. The responses were then entered into Microsoft Excel, in order to conduct descriptive analysis and create data visualization. Additionally, field evidence gathered from informal discussions and document reviews—specifically news articles regarding the Abongphen forest and reports from the Tubah Council—was noted in the form of direct text extracts, and then analyzed thematically and narratively. Relevant text extracts and clusters of opportunities and challenges were then highlighted and synthesized for presentation and interpretation in line with the study's objectives. This mixed-methods approach was essential for capturing the local community's specific contributions and challenges with regard to forest conservation in Kedjom-Keku.

3. Results

3.1. Community contribution to local forest conservation

The Abongphen forest is considered the ancestral homeland of the Kedjom-Keku people, and as such it is valued and cherished by the Kedjom-Keku community, as evidenced by an informal discussion with a respondent who stated: «No Abongphen [forest] no Kedjom-Keku». As suggested by Ostrom (1990), this may explain why the community strategizes and supports actions for its sustainable management. The Kedjom-Keku community also concerns itself with the health of the community forest because of the numerous ecological services it provides, such as non-timber forest products, fuel-wood, game for hunting, etc. As shown in Figure 2, they grapple with the management and protection of the forest through various means.

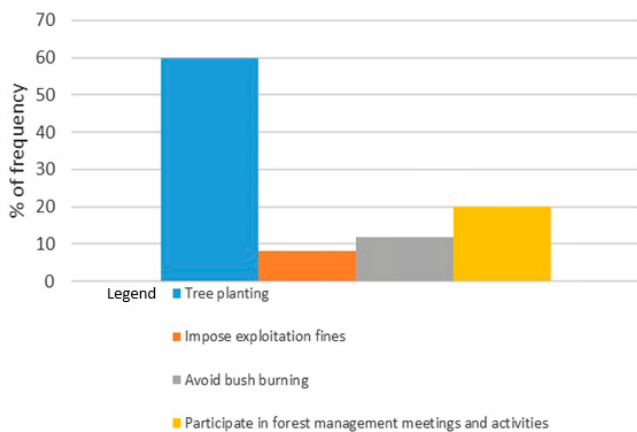


Figure 2. Activities of local people in favor of community forest management

As shown in Figure 2, tree planting is the primary activity identified by respondents in which the people of Kedjom-Keku engage in order to conserve the community forest. The village council, forest and water management committees, headed by the village chief, have helped mobilize villagers to contribute to tree planting activities, accelerated by NGOs such as The Green and SATEC (agricultural technicians). At the same time, respondents identified participation in community forest management awareness-raising campaigns spearheaded by NGOs as an important contribution, in the form of voluntary services for the conservation and management of the forest. During informal discussions, it became apparent that this perception ensured their participation in meetings, where they learned to contribute to the redressing of their actions (such as bush burning), with the aim of improving the health of the forest, demonstrating a willingness to take action to conserve the forest.

It was also revealed through informal discussions that conservation NGOs had established a tree nursery as a method of ensuring reforestation of the area, and that the community contributed labor to this activity. With the support of the community, the Abongphen community forest was also demarcated, and fire traces were established. While it was noted in informal discussions that most of these efforts had been affected by the ongoing armed conflict in the area, these actions demonstrate the villagers' contribution to preventing bushfires and maintaining the health of the forest. In addition, although the planting of eucalyptus trees is controversial in terms of environmental friendliness, these were seen to have been planted by the community as a means of contributing to reforestation (see Figure 3).

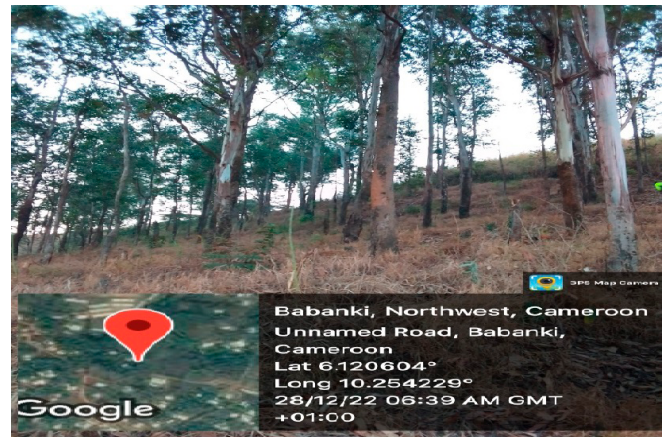


Figure 3. Reforested section of the Abongphen forest

The Kedjom-Keku community is aware of the importance of tree planting in forest conservation. Through informal discussions, it was revealed that the *fon* of the Kedjom-Keku community, who is the chairperson of the village council and the prime custodian of the Abongphen forest, has always urged the villagers to plant trees and protect the community forest, in recognition of its perceived status as their ancestral home, resonating with the earlier insight revealed by the perception that the Kedjom-Keku people would not exist if it were not for the forest, and Ostrom's CBNRM. This is reflected in the finding that the Kedjom-Keku community is perceived as organized (50%) in favor of community forest management (Figure 4), as manifested by the efforts of the villagers, the palace and the village council to ensure the sustainable management of the Abongphen forest.

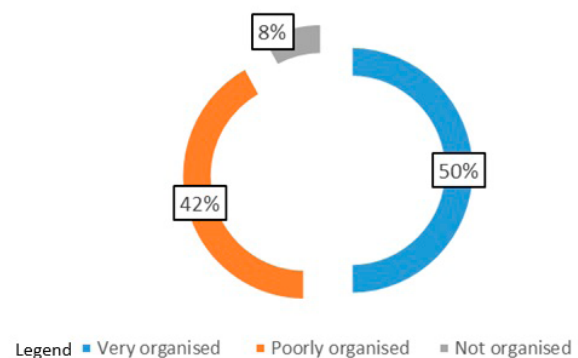


Figure 4. Level of community organization towards forest management

With regard to organization, however, 42% of participants indicated that they believed the Kedjom-Keku community was poorly organized in managing the Abongphen community forest (Figure 4). This may be a consequence of the high levels of deforestation still visible in and around the forest, and carried out by some of the villagers, including in the form of bush burning, which in addition to destroying the forest also threatens biodiversity. Such activity would seem to indicate that



not every individual in the community is concerned with protecting the Abongphen forest.

Nevertheless, the Abongphen community forest has been managed and controlled by the traditional palace/village council and by volunteers who serve as conservators, in order to ensure the forest's continued protection and growth. Over the years, the palace has managed the forest through the creation of water and forest management committees, and through the appointment of forest conservators to oversee the forest and work with NGOs and tourists visiting the Abongphen forest. It should be noted that those appointed provide on a voluntary basis their services for the management and conservation of the forest. With regard to the sourcing of the resources required for sustainable management, a discussion with one of the forest conservators revealed that: «We could get funding for natural resource conservation and management activities through projects brought by tourists, NGOs or the *fon* himself». This places the *fon* as the principal custodian of the forest, as seen in Figure 5, which shows that 78% of respondents pointed out that the Abongphen community forest is controlled and managed by the palace, with the *fon* as the main custodian. Figure 5 shows details of the community's assessment of the stakeholders responsible for the management and conservation of the Abongphen community forest.

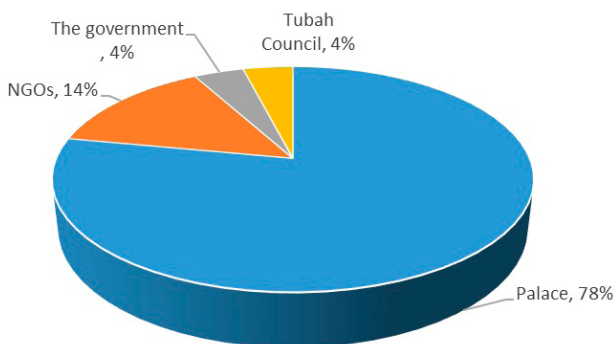


Figure 5. Stakeholders involved in the management of the Abongphen community forest

In practice, all activities in the Abongphen forest require palace approval, making unauthorized use illegal. At the same time, NGOs are also perceived as important contributors to forest management, as shown in Figure 5. This can be explained by the fact that the palace recognizes civil society organizations such as the Kedjom-Keku Association for Sustainable Development (KK CASUD), a community-based association that works in partnership with organizations such as The Green and La Liberté Arts. Through these organizations, forest conservators have been trained to check for illegal logging,

chemical spraying in the forest, and the killing of certain animal species, such as the Bannerman's turaco, a bird species endemic to the North West Region of Cameroon. During an informal discussion, it was revealed that forest conservators and community members were also taught sustainable farming methods, including organic farming, fruit farming, apiculture, tree planting and tree nursery practices, with the support of the palace. It was also found that the forest conservators helped to raise awareness among the Kedjom-Keku people regarding the importance of protecting and preserving their forest for both environmental and socioeconomic benefits.

Given the lack of targeted interventions, it is the state and its local agencies, including the Tubah Council, which demonstrate the lowest level of stakeholder engagement in the management of the Abongphen community forest (Figure 5). The activity reports from 2008 to 2017 reviewed at the Tubah Council revealed that no specific activities were conducted in the Abongphen forest. Rather, the Council carried out media campaigns to raise general awareness of the protection of the Tubah Upland Forest (a broader landscape within the municipality) and of land tenure regulations in Cameroon. This engagement, while institutionally and legally significant in the management of forest resources broadly, appears insufficient for the conservation of a sensitive, unique and culturally critical area such as the Abongphen community forest, and positions the Kedjom-Keku community forest as a unique CBRM setting in which traditional and local community organizations are the dominant actors.

Participants also noted that the forest could be sustainably managed through conservation efforts, including more tree planting, increased recruitment of forest rangers, and improved local education on the importance of the community forest and its sustainable exploitation. The informal respondents emphasized that it was important that these strategies be implemented because the forest is an important source of fresh water for the village and should be protected. They also stated that protecting the forest was very important because its ecological resources contribute to economic activity and serve as recreational centers.

3.2. Challenges for conservation of the Abongphen community forest

Over the years, the Abongphen community forest has been subject to severe exploitation, posing a threat to biodiversity. In addition to deforestation, the forest faces other challenges which contribute to its degradation, such as bushfires and unsustainable farming practices. As shown in Figure 6, human activity results in multiple challenges and negative impacts on the Abongphen community forest in Kedjom-Keku.

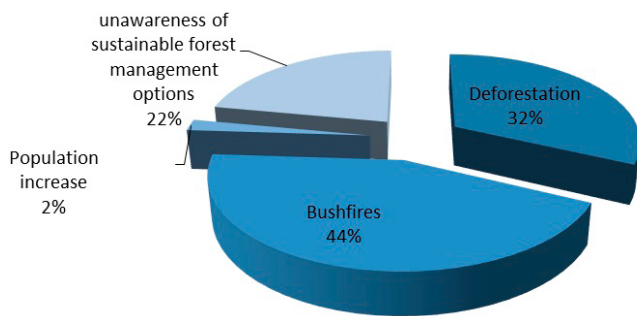


Figure 6. Challenges to the sustainable management of the Abongphen forest

Human activities in and around the community forest pose several challenges to sustainable management in Kedjom-Keku. As Figure 6 shows, bushfires (44%) are the primary perceived challenge to management of the Abongphen forest. Originating from indiscriminate bush burning, bushfires are a recurrent issue, posing a severe threat to the sustainable management of the forest (Figure 7).



Figure 7. A section of forest on fire (Source: Ndimuh 2017)

Often instigated by farmers, bush burning is a significant threat to the community forest, negatively affecting biodiversity. Added to this is the issue of deforestation in the Abongphen forest through the felling of trees for timber and the expansion of agricultural land, assessed at 32% (Figure 6). The Abongphen forest experiences logging, clearance and burning to create more land for agriculture. In the area, the practice of slash-and-burn farming is widespread, with the land cleared used for the cultivation by members of the community of staple crops such as Irish potatoes, cocoyam, cassava and beans, in addition to the large-scale cultivation of commercial crops such as tea, as well as animal grazing. This was stressed by the executive director of Kedjom-Keku Conservation Association for Sustainable Development in an interview granted to Ndimuh (2017), who stated that:

Ndawara [a local agro-pastoral investment venture] is also another threat. He rented some 2000 hectares from the former *fon* of Big Babanki who [lost his life through mob justice] because of this [action] but [the investor] never

[apparently] gave back [the land] despite losing the case in 2012; he is instead increasing his plantation and extending to the Abongphen Highland Forest and the forest towards this area is gone because he's got thousand[s] of cows there and a big plantation, and to remove him is very difficult.

Ndawara is a large-scale agro-pastoral developer in Cameroon, specializing in the cultivation and production of tea, as well as in grazing. In an alleged collaboration with the former *fon* of this community, as alluded to in the extract above, he acquired a large area around the community forest, in an act which the community deemed unacceptable, leading to some sort of mob action against their leader and the subsequent summoning of the real estate developer. Despite the community being declared victorious, as the interviewee maintained, the developer refused to relinquish the area of community forest land and instead expanded his plantation and agricultural activities in the area, reportedly leading to destruction within the community forest. The interviewee added that:

The biggest challenge is actually the turning of [the Abongphen community] forest in to farmlands and residents. The villagers are selling the land to local cooperatives, lawyers, rich people etc. With all these, the forest is going to disappear latest in five years.

This testimony highlights how the threat of agricultural and settlement expansion into the forest and its potentially imminent destruction extends beyond the threats posed by agro-industrial giants.

Worse still, the interviewee further noted that the Ministry of Agriculture and Rural Development's decision to construct a road into the forest, intended to serve as a farm-to-market road, facilitated deforestation and imposed further pressure on the Abongphen forest. This was expressed as follows:

[O]ne of the biggest threats to the [community] forest is the [«wrong»] approach by the Ministry of Agriculture and Rural Development, who opened up road [in]to this forest; for instance, the population has increased like ten times in the last six months just because of the road.

The population mentioned here may refer to farmers who engaged in agricultural activities via the accessibility provided by the road, with such accessibility leading to increased clearing of the forest to make way for agriculture and other anthropogenic activities. Figure 8 shows the considerable destruction of the Abongphen forest resulting from the construction project itself. Added to this is the issue of corruption. Despite contributions from some community members and local organizations in providing information about illegal activities, the actions taken to address the problem leave much to be desired. An interviewee lamented this situation with the following words:

We are trying to work in collaboration with MINFOP [Ministry of Forestry] and to inform them of what's happening on the ground daily but corruption is a whole

issue. For example, we saw a truck with planks, inform the [forestry] Chief of Post about what is happening but he let the people pass. All the farmers [equally] break the law! (Source: Ndimuh, 2017).



Figure 8. Road constructed by MINADER in the Abongphen community forest captured by Kedjom-Keku (2019)

Figure 8 shows the impact on the Abongphen community forest of visible destruction resulting from road construction. The socio-political crisis in the Northwest and Southwest Regions of Cameroon has also led to indiscriminate deforestation.

4. Discussion

The results of our study revealed that the ancestral roots and existence of the people of Kedjom-Keku are closely associated with the Abongphen forest, and that in this context the forest is valued and cherished by the community. Studies have shown that local people have engaged in conservation of the forest and other natural resources for millennia (Roe *et al.*, 2009; Ngalim and Djou, 2016). Thus, traditional management institutions and strategies support actions for successful forest management. This has been possible through strong community leadership, which, as Mengang (1998) noted, was effective long before colonization, with village chiefs acting as the main administrators of natural resource management. Many community development analysts argue that the role of chieftaincy is central to the sociocultural and political landscapes of Sub-Saharan African countries (Nyamnjoh, 2003). This is in line with both our findings and those of Tantoh and Simatele (2018), who noted the importance of traditional authorities in natural resource management. However, emerging trends have skewed the cultural terrain, resulting in chiefs who are neither entirely traditional nor entirely modern (Nyamnjoh, 2003). In this context, the institutionalizing of traditional management practices may not, in and of itself, as Ostrom (1990) maintained, make them strong enough amid the rising sociocultural

and political complexities surrounding the issue of environmental governance (Fisiy, 1995). As seen in the case of Abongphen, degradation continues to be observed, and when local leaders succumb to corruption during periods of economic expansion, degradation can be accelerated. However, this is not to imply that local contributions should be neglected, as they can serve as scaffolding for the implementation and scaling of improved protection and conservation activities, which are clearly required in the context of the Abongphen forest.

Another significant finding of this study is the contribution of local people to forest management activities, such as the reforestation initiative championed by the Kedjom-Keku Conservation Association for Sustainable Development. This is in line with the findings of Tantoh and Simatele (2018), who noted that traditional management systems and community-based organizations play a vital role in resource mobilization and management. The involvement of local communities in the initiation, execution and management of their resources and other matters that concern them is crucial to the realization of major objectives (Ostrom, 1990; Tantoh and Mckay, 2020), because their participation enhances social interaction and empowerment, and improves local capacities, which are an essential component of sustainability (Musavengane *et al.*, 2019). When addressing the diverse objectives of community-based management, Tantoh and Mckay (2020) noted that participation at the local level is essential for reducing disparities and nurturing and building the capacities, aptitudes and skills of local people, and Mbetiji (2021) has argued that various institutional procedures have emerged and are now used by local communities in order to govern forest resources, in a context of growing exploitation, environmental degradation and water shortages.

During the study, forest fires were identified as a major challenge for the Abongphen community forest. And, alongside deforestation, the forest faces other challenges, such as unsustainable farming practices, which lead to further degradation of the forest. Several studies have noted that humans lived in harmony with their natural environment until recent trends in population growth and agricultural expansion altered that balance (Matose, 2006; Yang, 2018; Kometa *et al.*, 2026). Deforestation has resulted in environmental degradation and, coupled with climate change, this has negatively affected biodiversity (Ngalim and Djou, 2016). The Abongphen forest has been subjected to logging, clearance and burning on a massive scale, in order to make more land available for agriculture, with widespread slash-and-burn farming in the area, engaged in by community members for the cultivation of staple crops such as Irish potatoes, cocoyam, cassava and beans, alongside the large-scale cultivation of commercial crops such as tea, as well as grazing. What we see in Kedjom-Keku is how this complex intersection of livelihoods, expanding economic interests and armed

conflict undermines local people's contribution to forest conservation and CBRM. In this context, what is required is integrated action to target forest conservation and management that goes far beyond typical CBNRM, in the form of co-management as a nature-based solution. This can catalyze practical measures across governmental, traditional, corporate and non-governmental sectors, fostering collaboration to enhance forest sustainability.

We acknowledge the limitations of our study, particularly with regard to the difficulty of obtaining data in the area as a result of the ongoing armed conflict, as well as our incorporation of available grey literature. We employed purposive sampling, which raises questions concerning possible bias in representation, and we therefore caution that our results should be interpreted with these limitations in mind. However, in light of current global environmental challenges and the incorporation of one of our author's own lived experience in the study area, together with field observations and informal discussions, we hope that our contribution will add to the existing literature on community-based natural resource management and help to inform better ways to manage the Abongphen forest. Future studies should focus on the uses of biodiversity, land conflict, the impact of war on resource conservation, forest restoration and human-wildlife interactions.

5. Conclusions

Our study revealed that the Abongphen community closely identifies the forest with their ancestral roots, and that they employ traditional management practices within the community forest. They respect the authority of the village chief in both governance and the management of resources, and this has contributed to community forest management. In recent decades, strategies for natural resource management have changed dramatically, particularly in the developing world. Population growth, agricultural expansion, changes in patterns of consumption, and the effects of climate change, have combined to exert enormous pressure on natural resources, leading to their overexploitation. Regional and national governments are now calling for

the establishment of institutional structures and the formulation and implementation of a wide range of policy instruments and tools that can contribute effectively to the protection, conservation and sustainable management of natural resources. Such institutional structural and policy arrangements could be managed and implemented through different configurations, including governmental, private, and/or community conduits. In this study, we argue that inclusive management that takes into account local people and institutions is essential for effective community-based forest management. We recommend, therefore, that the local contributions seen in Kedjom-Keku be leveraged by non-governmental organizations, municipal stakeholders, government, business and other authorities, in order to steer the pragmatic conservation and sustainable management of the Abongphen forest, in the form of co-managed nature-based solutions.

Authors' contributions

C.B.D.: Conceptualization, methodology, investigation, data collection and analysis, writing: original draft, writing: revision and editing, supervision, validation.

H.B.T.: Conceptualization, writing: original draft, writing: revision and editing, validation.

L.A.M.: Conceptualization, methodology, supervision, validation.

K.T.V.: Methodology, investigation, data collection and analysis, writing: original draft, validation.

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The authors have no conflicts of interest to declare.

Artificial intelligence disclosure

The authors declare that no generative AI tools were used in the preparation of this article.



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