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Author(s): Eric Mensah Kumeh, Claudia Bieling and Regina Birner

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Food-security corridors: A crucial but missing link in tackling deforestation in Southwestern Ghana

Eric Mensah Kumeh^{a,b,*}, Claudia Bieling^c, Regina Birner^a

^a *Social and Institutional Change in Agricultural Development (490c), University of Hohenheim, Wollgrasweg 43, 70599 Stuttgart, Germany*

^b *Bioeconomy and Environment Unit, Natural Resources Institute Finland, Itäinen Pitkätatu 4 A, 20520, Turku, Finland*

^c *Division of Societal Transition and Agriculture (430b), University of Hohenheim, Schloss, 70593 Stuttgart, Germany*

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ABSTRACT

Forest conversion for farming remains an issue of scientific and societal concern due to its growing impacts on biodiversity and climate change. Therefore, scientists and policymakers emphasise the urgent need to find a balance between forest conservation and agriculture. Meanwhile, across tropical Africa, subsistence farmers account for nearly two-thirds of forest conversion to farms annually. These farmers' perceptions and experiences about forest conversion may offer alternative perspectives about the problem and how to tackle it. However, such viewpoints remain scanty in the sustainable forestry literature. This paper employs narrative policy analysis to disentangle the stories that underpin farming by forest-fringe communities (FFCs) in protected forests. The FFCs' narratives were identified through fieldwork in 12 forest communities of Southwestern Ghana and juxtaposed with forest regulators and cocoa sector actors' narrativization of forest conversion in Ghana. The results indicate that a combination of factors incite FFCs to farm in protected forests, but the perceived need to respond to food insecurity is the most crucial factor. In the absence of strong grassroots organisations, FFCs cannot convey this crucial need to the forest policy arena, leaving it largely unaddressed in forest policy. Thus, forest encroachment has become a tool for FFCs to resist forest conservation, and generally, as a means for their survival. The paper proposes *food security corridors* (FSCs) as an integrated landscape management option that can enable FFCs and other policy actors to negotiate and institute food security and conservation goals within communities trapped in blocks of forest reserves. The potential FSCs hold to overcome forest conversion for subsistence farming can be unleashed when governments, development partners invest to refine and pilot the concept. Overall, the paper contributes to the land-use conflict literature, showing how context-specific food insecurity can accelerate deforestation. Forestry sector actors need to guard against oversimplifying their assumptions about forest conversion in order to find pragmatic and sustainable solutions to the problem.

1. Introduction

Concerns about food insecurity in tropical Africa have become prominent in debates about forest conservation and climate action. These concerns include questions about how we manage trade-offs in forest land use to meet the nutritional and livelihood needs of forest-fringe communities (FFCs) without destroying forest biodiversity. Carbon sinks and other forest values (Carrasco et al., 2016; Karki et al., 2018; Curtis et al., 2018). Moreover, policymakers and scientists recognise that forest conservation areas in post-colonial Africa are entangled with power struggles and conflicts (Agbosu, 1983; Boni, 2005;

Ribot et al., 2006). These struggles are widely linked with how the formation of forest enclosures in the early parts of the 20th Century dispossessed multiple forest communities, leading to their exploitation, disenfranchisement and embeddedness in poverty and inequality (Chomba et al., 2015). Others have also raised concerns about how green governmentality and related initiatives such as emission trading create green sacrifice zones by excluding forest-fringe communities from accessing their lands in order for multinationals to benefit from it (Fairhead et al., 2012; Kansanga and Luginaah, 2019; McAfee, 1999). Within this literature, FFCs' resistance to conservation efforts is recognised, on the one hand, as a pursuit of justice, an effort to by FFCs to

* Correspondence to: Institute of Agricultural Sciences in the Tropics (Hans-Ruthenberg-Institute), University of Hohenheim, Wollgrasweg 49, 70599 Stuttgart, Germany.

E-mail address: kumehe@uni-hohenheim.de (E.M. Kumeh).

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reclaim their lands, heritage as well as secure their food and livelihood needs (Grant and Le Billon, 2019; Gross-Camp et al., 2019). On the other hand, FFCs' resistance is heavily linked to conflicts with forestry regulators, leading to calls for forest actors to co-construct "institutions that are culturally situated in local meanings of forest and interact with global, state and other local normative orders in decolonial, transformative ways" (Dancer, 2021: 11).

This paper contributes to an understanding of how such institutions could look like: how should we approach forest-land use to minimise conflicts and address the livelihood needs of FFCs? Multiple studies draw upon institutional economics to highlight the essential role of rules and norms in regulating actors' relations and managing socioecological conflicts (Beckert, 2015). They argue that conflicts emerge due to diverging values and expectations among policy actors (Jullien and Smith, 2011; Marfo, 2006). These actors express their expectations through narratives that convey their experiences and values, and understanding the multiple narratives can provide new ways of tackling the conflicts (Boucquey, 2020; Roe, 1994). In this paper, we used a qualitative approach to analyse the narratives of forest actors in Southwestern Ghana, where conflicts between FFCs and state forestry institutions are driving widespread deforestation and biodiversity loss (Damnyag et al., 2013; Osei-Wusu et al., 2020; Welsink, 2020). Our analysis is grounded in the Juabeso District, where the conversion of forest reserves to farmlands by FFCs deforested 15,000 ha of the Krokosua Hills Forest Reserve between 2010 and 2019 (Brobbey et al., 2020; Welsink, 2020). We find that in the Ghanaian state's attempt to enforce forest conservation, many pressing concerns within FFCs never make it to the forest policy arena. While these concerns include competition over forestlands between the state and customary institutions and lack of employment opportunities in FFCs, food insecurity is the most pressing issue experienced by communities in the study localities. We identify and reflect on the potential of food security corridors (FSCs) as a transformative institution for enabling stakeholders to permanently accommodate food production and conservation aspirations in FFCs trapped within blocks of forest reserves. The allure of FSCs is in their potential to open up communication between forest actors and enable them to collaboratively and continuously work out their differences.

Multiple tensions characterize forest conservation in Sub-Saharan Africa. Thus, following, this Introduction Section, we review the literature on these tensions, including the various ways forest actors understand and depict forest conservation in Section 2. In Section 3, we draw on the narrative analysis literature to construct an analytical framework for understanding the nature of the forest conservation conflicts. We then introduce the case communities and clarify our research approach. Section 4 introduces the multiple narratives forest communities and state authorities' articulate to defend their respective position on the forest conservation and conversion at the grassroots. Section 5 is a synthesis discussion of the narratives, where we identify and explore the potential of FSCs as a transformative institution for building trust and collaboration between landowners, forest fringe communities and statutory authorities. We end the paper with some concluding thoughts in Section 6.

2. Literature review on tensions in forest conservation

Multiple organisations and conservationists justify sparing lands for forest conservation by pointing to the essential roles forests play in securing biodiversity and climate change mitigation (Edwards et al., 2019; Mitchard, 2018). Piggybacking on these benefits, conservationists claim a higher moral stand, arguing that forest conservation is an ethical obligation of humanity (Agrawal and Redford, 2009). Besides, they argue that forest conservation is a useful tool for combating poverty because it offers multiple livelihood opportunities for example through ecotourism (Corson, 2011; McAfee, 1999). And with the raging COVID-19 pandemic, development organisations link forest

conservation to the fate of humanity, arguing that deforestation increases our risk of contracting zoonotic diseases (FAO, 2020). Through these narratives, these actors normalise forest conservation, making them, what Redford and his colleagues refer to as, 'shibboleths' that inhibits a proper consideration of the social and political setting of the people within forest communities (Redford et al., 2006: 1).

However, one criticism that dulls the moral ethic of forest conservation is growing evidence on the deplorable livelihood conditions of people dislodged by forest conservation. Multiple studies in post-colonial countries demonstrate how forest conservation, like civil war and mega-development projects, displaces millions of people, obliterating their identities and cultures (Agrawal and Redford, 2009: 4). These studies do not only question the injustices forest conservation can impose on forest communities, but they also point out multiple instances of forests communities living in harmony with nature (Camacho et al., 2016; Whyte, 2017). Consequently, critics of land sparing for forest conservation argue that the fundamental assumption that people need to be displaced for conservation to be successful is flawed (Agrawal and Chhatre, 2006). Besides, they highlight how the burden of displacement can incite FFCs to sabotage and frustrate top-down forest conservation initiatives (Kansanga and Luginaah, 2019; Kumeh et al., 2021).

Beginning in the 1970s, efforts to better address forest conservation conflicts led to the 'collaborative turn'. The collaborative turn dwells on the assumptions that participatory approaches to forest management build trust, improve inclusion, ensure legitimacy of decisions and leads to equitable benefit sharing (Charnley and Poe, 2007; Soliku and Schraml, 2018). Among others, this turn was led by development institutions such as the Food and Agriculture Organisation of the United Nations (FAO), who provided financial and technical assistance to several post-colonial countries to enable them engaged communities displaced by forest conservation. Consequently, many countries reformed their forest policies to accommodate communities' rights to forests in various ways. For example, in Asia and Central Africa, countries like Nepal, Thailand, Cameroon and the Democratic Republic of Congo recognised and devolved forest management rights to communities completely (Lescuyer et al., 2019; Schusser et al., 2016). However, scholars have noted that decentralisation can easily become a smoke-screen for further centralisation, deepening the power of state forestry institutions and local elites and their ability to control decision-making while limiting FFCs' ability to contribute to and benefit from forest conservation effectively (Cronkleton et al., 2012; Ribot et al., 2006). This occurs despite mounting evidence that effective devolution of forest management leads to better outcomes.

For example, in one of the largest study on collaborative forest management, Hajjar et al. (2021) analysed the environmental, livelihoods and natural resource rights outcomes from 643 cases of community forest management across 51 countries. They measured environmental outcome based on changes in forest cover, forest condition and biodiversity, livelihoods based on community and household income, and resource rights based on commercial and subsistence access. They found that while triple benefits were rare, areas that provided more complete devolution achieved better outcomes (Hajjar et al., 2021). Oldekop et al. (2016) arrived at similar conclusion following a meta-analysis of 165 protected areas globally. While these extensive studies indicate that better community involvement in forest conservation can help minimise trade-offs between socioeconomic and environmental outcomes (Baynes et al., 2015; Hajjar et al., 2021; He et al., 2021), they are cautious about how to achieve effective devolution of forest conservation because of contextual differences. The key to success, multiple studies emphasise, is to understand the historical context within which forest conservation is situated and the concerns and expectations among people directly affected by conservation rules and decisions (Chechina et al., 2018; Fasona et al., 2019; Hajjar et al., 2021). These concerns and expectations are revealed in the language and narratives actors use to describe their experiences and encounters with the rules and norms that structure forest conservation (Jullien and Smith,

2011). Therefore, we briefly review the literature on institutional and narrative economics to construct an analytical framework for understanding the multiple narratives underpinning forest conservation and its related conflicts in Southwestern Ghana.

3. Analytical framework and methods

3.1. Analytical framework

During the last quarter of the 20th Century, political economists began to question the notion that public policy is best understood through the rationality of the individual and their response to market forces. Critiques of the “rationality project” argue that it neglects the essential role narratives play in defining the rules of social interactions, including what can be perceived as reasonable or unreasonable in public policy negotiations. In “*Policy Paradox: The Art of Political Decision Making*”, Deborah Stone, argues that ‘narrative stories are the principal means for defining and contesting policy problems’ (Stone, 2012: 158). They argue that problem definitions are ‘stories with a beginning, a middle, and an end, involving some change or transformation’ and are laced with explanations that are often taken for granted and meant to ‘hold a powerful grip on our imaginations and our psyches because they offer the promise of resolution for scary problems’ (Ibid, 2021: 158). In conflict situations, policy actors employ several strategies in framing their policy arguments to gain control over policy outcomes (Roe, 1994; Stone, 2012). These strategies including blaming actors with opposing views and interests, highlighting the ‘evil’ of policy opponents while diminishing their good, and deference to scientific evidence (Merry, 2019; Sabatier et al., 1986; Stone, 2012). Invariably, dominant narratives become the basis for defining institutions, allocating resources and shaping socio-ecological interaction.

Narrative Policy Analysis (NPA) seeks to identify and disentangle policy actors’ storylines and how they argue them out to influence policy (Roe, 1994). One underlying assumption is that as stories progress, their narrator’s motivations, interests and relationships with other actors are revealed (Kansanga et al., 2017). Besides, disentangling the various actors’ stories on a policy conflict is essential for understanding whose voice counts and who benefits or loses out from the existing policies that have been shaped by dominant policy narratives. A focus on the narrator’s agency is essential given that the asymmetric material and power relations in the world may favour the articulation of some policy narrative over others, leading to (re)production of exploitative institutions (Saltelli and Giampietro, 2017). Viewed through this lens, NPA is a sound approach for understanding forest conflicts in terms of actors who may have been privileged or overlooked in forest policy formulation.

Two main approaches are used in narrative analysis in the public policy literature. Positivists use quantitative methods to identify generalisable attributes within policy narratives (Jones and McBeth, 2010). Such an approach aims to explain the extent to which specific policy elements account for observed policy outcomes. On the other hand, post-positivists use qualitative methods to establish how policy narratives evolve and assume meaning within policy discourses. Whereas discourses focus on the web of meanings, ideas and practices expressed in texts and the relationships between knowledge and power, narratives focus a narrator’s agency as expressed in their storylines (Bischoping and Gazzo, 2016). In the narrative analysis literature, Emery Roe’s NPA approach is noted for its appropriateness in analysing policy controversies, where actors have diverging interests and claims (see Benjaminsen, 2021; Inderberg and Bailey, 2019; Mockshell and Birner, 2020). Roe’s (1994) approach involves, first, identifying the various policy narratives actors adopt in contested settings to frame the policy problem. Second, other narratives that run parallel to the dominant policy narratives are identified. Third, the analyst compares the narratives identified from the first and second steps to generate a meta-narrative that shares the narrative and counter-narratives’ elements. Finally, the

meta-narrative is recast, based on social, economic, political, and legal realities, to offer new insights for solving the policy problem.

Empirically, some studies have used narrative analysis to critique forest conservation policy in Sub-Saharan Africa. These studies indicate that forest policy is ineffective in the region because it is removed from local communities’ experiences (Leach, 1995). Alternatively, others argue that the main voices that count in forest policy with the region are those of the academic community, international development agencies and state forestry officials (Kansanga et al., 2017). These actors build their storylines around preserving biodiversity, climate mitigation and forest-livelihoods to influence forest policy (Fairhead and Leach, 1995; Kansanga et al., 2017). Büscher (2014) in disentangling the stories framed around these themes found out that winning policy actors filter out conflicting voices and values that convey the realities and experiences on the ground to justify forest conservation policy. For example, in rural Tanzania, Svarstad and Benjaminsen (2017) analysed REDD+ within forest-fringe communities. They found that REDD+ project managers, diplomats and the Norwegian government tell success stories that seldom convey the experiences of forest communities in order to promote and sustain the country’s climate change policy and its influence in global environmental politics. They argue that understanding local realities is essential to put forward a counter-narrative that ensures a balance in forest conservation policy (Svarstad and Benjaminsen, 2017). We turn next to our case communities before clarifying our research approach.

3.2. Case selection

Centralised forest management in Ghana is closely linked with the country’s colonial history. Until the late 1920s, native chiefs administered forest lands in the country. Earlier attempts by the colonial government, the British Crown, to impose forest conservation on the colony were vehemently opposed by the natives, with the Aborigines’ Rights Protection Society (ARPS), playing a key role. The ARPS was made of local elites and lawyers, who argued that conservation was an inherent plan by the British Crown to appropriate lands in the Gold Coast colony. According to them, such efforts will displace multiple natives, ‘reducing them to the poor status of proletarians in their own land of birth’ (Agbosu, 1983: 83). The colonial government blunted these arguments by producing a series of research reports, indicating that native chiefs were recklessly allocating timber and mining to European merchants, imperilling sustainable resource use in the colony (Agbosu, 1983). Consequently, two actions ensued. First, chiefs were mandated to use bylaws to constitute forest reserves and regulate activities within their jurisdiction in 1883. Subsequently, the state reserved the right to create such reserves under the Forest Ordinance, 1927 (CAP 157). Through both arrangements 266 forest reserves, covering 1.2 million ha were created in Ghana by the end of the 20th Century. Initially, forest management rights were shared between native chiefs and the state (both colonial and post-colonial). However, this changed with the promulgation of the Concession Act, 1962 (ACT 124), with which the post-colonial government arrogated unto itself the right to manage forest reserves, and the right to all naturally regenerated trees in the country, seen by many as a punishment to chiefs for conniving with the colonial government (Hansen and Lund, 2017). The effects of these processes were two fold: first, they diminished local communities’ access to forest resources, including forest rents, and more broadly, their access to farmlands. Second, they created a disincentive for communities to nurture naturally regenerated trees, including those on their farmlands, because they had no rights over them. These, together with other factors, including rural unemployment exacerbated deforestation in the country (Kumeh et al., 2021; Marfo, 2010).

In 1994, Ghana adopted a forest policy aimed at greater community participation in forest governance. Widespread deforestation, from illegal logging and agricultural expansion into forest reserves, both facilitated by resistance and connivance from forest communities made

the state to recognise the ‘increasing need for popular participation in resource management’ (Ministry of Land and Forestry, 1995). Nevertheless, non-state forest actors’ participation in forest management under the 1994 forest policy was largely limited to symbolic one-off consultations. A new policy advanced in 2012 provides a broader scope for collaboration, with the state actively seeking to “encourage collaborative resource management among communities, government and other stakeholders” (MLNR, 2012: 10). Among others, this is achieved by forming partnership agreements with communities for rehabilitating degraded forests through agroforestry models, and the devolution of management rights to forest-fringe communities through Community Resource Management Areas (CREMAs) (Mawutor, 2020).

Despite this collaborative shift, encroachment and forest conversion for smallholder farming is accelerating, especially in Southwestern Ghana (Ankomah et al., 2020; Koranteng and Zawila-Niedzwiecki, 2016; Welsink, 2020). Southwestern Ghana is stocked with timber trees and possesses most of the country’s forest resources. It has 47 forest reserves (7367 km²) and two national parks (427 km²)¹ that constitute 32.6% of Ghana’s Western Region.² We focused our data collection and analysis on a forest district to characterise the intricate patterns and actor constructs associated with farming in forest reserves. Such an approach is consistent with Yin (2018) who emphasised the advantage of a case study to provide a rich picture of unique contexts. We selected communities around the Krokosua Hills Forest Reserve (KHFR) due to emerging reports of a high incidence of forest conversion by local communities (Brobby et al., 2020; FC, 2010) (Fig. 1).

The KHFR was constituted in 1935, and it covers an estimated 481.61 km². The area is controlled by the Sefwi-Wiawso paramountcy, which holds the allodial rights to lands in the region (FC, 2010). Administratively, however, the KHFR lies within Ghana’s Juaboso District. Since 2004, an estimated 30% of the reserve has been designated a Globally Significant Biodiversity Area (GSBA) owing to its richness in endemic fauna and flora species (FC, 2010). During the reservation, 25.79 km², representing 5.35%,³ of the total reserve area were established as existing farmlands (FC, 2010). Thus, they were demarcated and given to their owners as admitted farms.

Farming is the main livelihood of the 37 communities around the KHFR (FC, 2010). The FC, through the Forestry Services Division (FSD), at the district level, occasionally extends farming rights to landless farmers to cultivate crops under the taungya system, a collaborative forest rehabilitation strategy whereby farmers plant trees and crops on degraded forests and manage them as a single land use. The crop component is withdrawn when the trees attain canopy closure, usually after two or three years (Acheampong et al., 2016). With a growing population, limited land supply, and increased logging-related forest degradation, reports of illegal farms in the KHFR are growing. Farmers produce cocoa and food crops in the KHFR (Ameyaw et al., 2018; FC, 2010; Kumeh et al., 2021) – albeit illegal and sanctionable by a fine and up to five years imprisonment (Government of Ghana, 2002).

In the early 2000s, multiple farmers and native chiefs around the KHFR sued the FC for destroying their cocoa farms in the forest reserve. The farmers argued that farms that were cut by the FC were within their admitted farms. In its ruling dated 31st July 2007, Justice W. Kpentey, the High Court Judge of Sefwi-Wiawso High Court, mandated the FC to work with the local chiefs and a competent surveyor to re-demarcate all admitted farm boundaries within the KHFR (FC, 2007). He further restrained the FC perpetually from destroying food and cash crops

cultivated on the admitted farms. He also ordered the immediate destruction of farms and farmers’ expulsion in areas outside the admitted farms. Acting on the court’s order, the FC re-demarcated admitted farms within the KHFR the same year. During the re-demarcation, the multi-stakeholder team, including FC staff and local chiefs, observed that several farmers had exceeded their original boundaries. For example, in Farm B2,⁴ one of the admitted farms in the KHFR, they observed that:

‘hundreds of acres of areas outside [admitted] farm perimeters had been destroyed. Such areas had been converted into plantain farms and cocoa plantations while other areas had recently been weeded, awaiting planting’ (FC, 2007).

Since the re-demarcation, however, forest conversion by communities around the KHFR has not ceased. The district office periodically cut cocoa farms in the KHFR as part of its management practices, leading to conflicts with the surrounding communities (FC, 2010).

3.3. Data collection

We collected data in two phases, between September 2019 and February 2020, as part of a broader study examining the dynamics of access to the KHFR. To understand the narratives that underlie farmers’ encroachment into the KHFR, we conducted semi-structured interviews, with 426 farmers (Appendix 1a, and focus group discussion with 67 farmers across 12 communities⁵ (Appendix 1b). The farmers were purposively selected based on their reported involvement in farming within the KHFR. The interview focused on farmers’ production systems, including how they gain access to land in the KHFR, their underlying motivations, and their everyday politics to consolidate their access to lands in the KHFR. The interviews were done in local languages Twi and Ewe, and where farmers provided consent, we recorded the interviews. Overall, 268 interviews were recorded (Appendix 1a). The tapes were translated and transcribed into English for further analysis to identify the dominant narratives.

During the second phase of data collection, we reviewed policy documents, reports, news items from the Ghanaian media to identify how policy actors present forest conversion in the forest policy discourses. The documents reviewed included the 2012 Forest and Wildlife Policy, National REDD+ Strategy, the Cocoa Forest REDD+ Programme document, and the 2019 Cocoa and Forest Initiative progress report. We also combed through three online news archives: the Daily Graphic, the Ghanaian Times, and MyJoyOnline. The three were selected due to their strong presence and reach in covering national issues. We searched through the news archives using keywords: “forest encroachment”, “cocoa encroachment”, forest conversion”, “deforestation”, and “forest reserves” in September 2020. We retrieved 230 news items from the search covering the period of 2004–2020. However, many were irrelevant as they were very generic and covered either forestry project launch and close-out meetings or provided general information about deforestation. In the end, we used only 17 of the materials retrieved because they provide some information on the stakeholders’ views about forest conversion. We triangulated information from the search with key informant interviews with forest and cocoa regulators (17), civil society organisations (11), and cocoa buying companies (10) to obtain a more accurate overview of forestry official’s and cocoa sector actor’s stories about the issues that result in farming in protected forests. Moreover, we

¹ The figures are calculated based on list of forest reserves in Ghana provided by Oduro et al. (2012).

² Ghana’s western region covers 23,921 km². Since 2018 it has been divided into the Western North and the Western Region.

³ The total area of admitted farms is listed by the FC as 2579.7 ha. This value has been converted to square kilometres for uniformity. The conversion rate is 1 ha equals 0.01 km².

⁴ All admitted farms in the KHFR are given a prefix based on the last name of the colonial foresters that demarcated them. Farms B1-B19 (there is no B5) were demarcated by Buaton, Farms C1-C10 by Cansdale and Farms G1-G5, G10-G13 and G16 by Gaisle.

⁵ To ensure the anonymity of the communities, we do not use their actual names as these could be inferred from the map of the study area. Alternatively, we use pseudonyms in presenting the communities’ narratives.

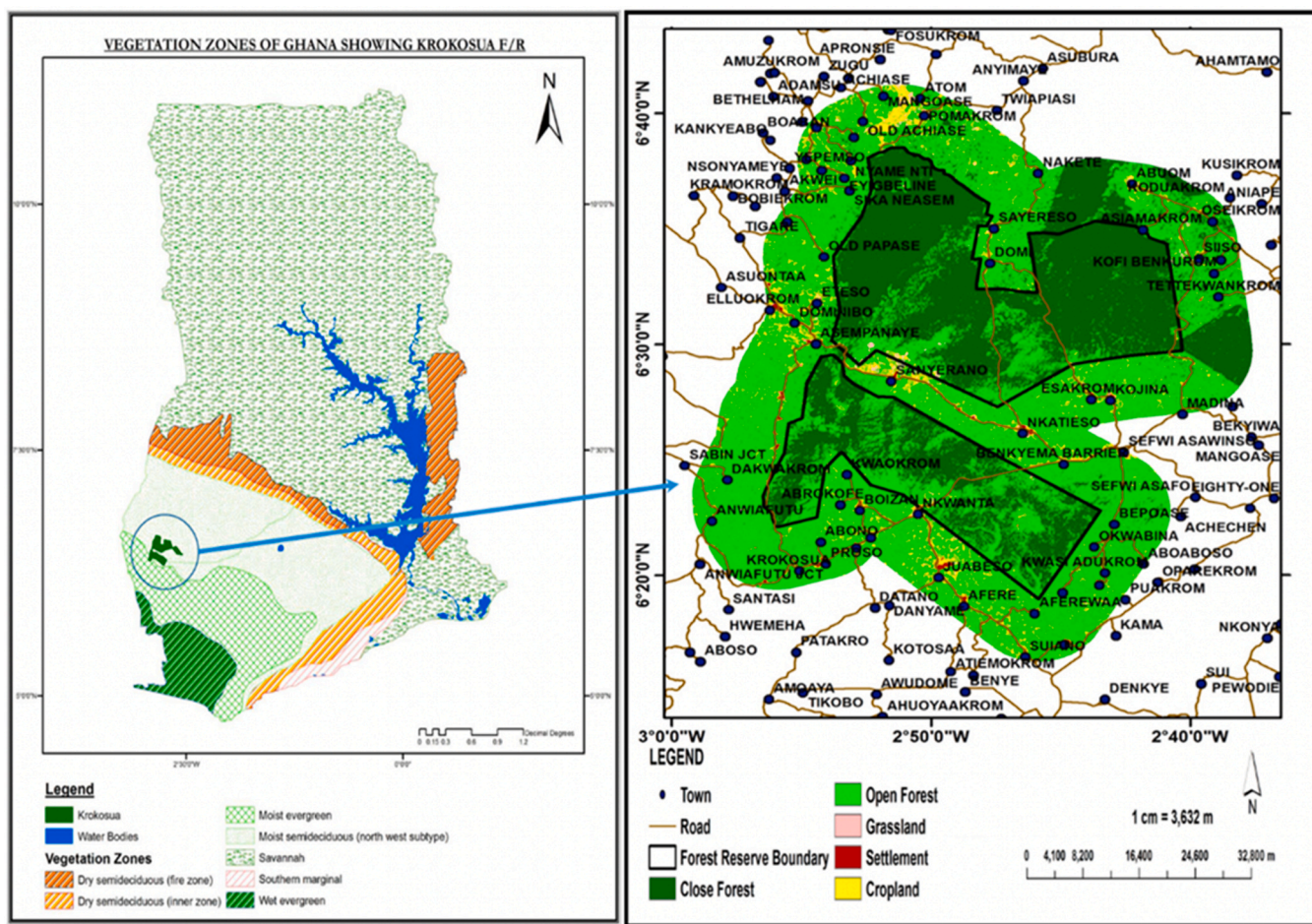


Fig. 1. A map depicting the location of the Krokosua Forest Reserve. (Source: Ameyaw et al., 2018).

organised a multistakeholder meeting in Kumasi on 13th February 2020 to discuss the themes that emerged from our analyses and receive feedback to further enrich our analyses.

3.4. Data analysis

The interview transcripts, policy documents, and news items were analysed using content analysis in MAXQDA 2020. We applied inductive coding to the interview transcripts to identify and label patterns and themes within the farmers’ and other stakeholders’ stories. In the next stage of the analysis, we clustered the sub-themes based on the central issues that they addressed. For example, the label “land competition” is used to put together all forms of land-related competition (between towns, migrants and natives, customary actors, and the state) that farmers used to justify their encroachment into the KHFR to farm. We present the main narratives based on how frequently they occurred in our interview transcripts and other materials reviewed. However, the narratives’ order does not suggest that one issue is more important than the other. In reality, many of the issues are interrelated as they reinforce each other. In presenting the results, we use quotes from farmers and resource regulators to emphasise their voices. For farmers, we depict the diversity of the respondents with markers such as sex male [M] female [F], age group (XX-YY), and residency status (native [N], migrant[M]).

4. Findings

We organise the research findings under two broad areas. First, we present FFCs’ narratives, disentangling the factors that fuel their role in

forest conversion. In triangulating the FFCs’ stories, we also refer to evidence from forestry officials who interact with FFCs on a daily basis. In the second part of the findings, we depict forest and cocoa sector actors’ narration of forest conversion based on existing policy documents, news items reviewed and interviews with the policy actors.

4.1. Narratives underlying forest conversion by FFCs

4.1.1. Food insecurity narratives

Food insecurity was the most prevalent issue in farmers’ narratives. Many farmers in the FFCs started their stories by noting that they have no lands to produce food because all their lands were already under cocoa production. They pointed out that the bush yam (*Dioscorea praehensilis*), locally referred to as *Kokoase bayere*, is one of the few food crops that grow well under shaded-cocoa farms. Some farmers indicated that they occasionally use openings within their cocoa farm to produce food crops. Alternatively, they integrated food crops with cocoa when rehabilitating their old and diseased farms. Otherwise, the farmers note that they cultivate degraded forestlands that are periodically allocated by forest officials, so called taungya plots. Only 4 of the 12 study communities had access to taungya plots during the period of data collection. Farmers with taungya allocation indicated that their taungya portions were small, 50 ft by 50 ft (0.6 acres). Besides, they observed that the trees provided by the forestry officials grew too fast:

“It is not possible for a family of six people to live on a 50 by 50 ft piece of land. Besides, the trees given to us by the forestry staff to

cultivate with our crops are very fast-growing, outcompeting even plantain.” (M/35–40/N).

Other taungya beneficiaries noted that “many people do not have the opportunity to engage in taungya farming. If they do not farm the KHFR illegally, there is no option but to buy food.” (W/40–45/N).

“If you do not steal a little [forest reserve] to cultivate, you would have to use all the money raised from your selling your cocoa sales to buy rice to eat. Even then, how much can you buy? After eating rice a few times, you lose the appetite for it.” (F50–55/N).

Multiple farmers indicated that they preferred to creep into the forest to farm rather than to buy food. However, they noted that even when the food crops in the forest reserve mature, food access becomes a challenge whenever forest officials intensified their patrols in the KHFR.

“I have food in the forest but cannot go to take it. So, now I buy food. Imagine living in this village and buying food.” (M/20–25/M).

After one intensive patrol by forest officials during the fieldwork, one woman narrated her experience pointing out:

“I was at a funeral in Enokrom⁶ last week. The new forest guard who got transferred there was in the forest reserve all week. He confiscated the farmers’ pans and machetes. Most farmers could not go into the forest to harvest their food crops. So, they have no food at the moment. Even the family of the deceased had to go to Sankofa to buy cassava [manioc, yuca] to serve their guests.” (F/50–55/N).

The farmers interviewed often ended the food insecurity story by calling on forest officials to allocate degraded portions of the KHFR for them to cultivate food crops because all their off-reserve lands were cocoa plantations, leaving them food insecure:

“It is because of our food insecurity situation that the government needs to show us mercy by allocating degraded areas of the forest reserve to us for taungya farming.” (M/40–45/N).

4.1.2. *Survival and subsistence narratives*

In the survival and subsistence narrative, farmers tied rural unemployment to forest conversion. They argued that farming in the reserve is the only livelihood strategy available to them.

“Our town is big and has a growing population. There are, however, no jobs for our youth to survive on. So, most of them encroach into the forest reserve to farm.” (F/55–60/N).

“To survive, most of my subjects have no choice but to encroach into the forest.” (Village chief, Sankofa: M/40–45/N).

In many of the study localities, most farmers indicated that they could not endure until forest regulators allocated taungya plots. Speaking to this issue, one farmer in his seventies noted, “we are thinking about what to eat today, and you are talking about tomorrow. What if I die? (M/70–75/N). Younger native and migrant farmers presented encroachment into the KHFR as an opportunity to evade a life of violence and crime:

“I encroach in order to save money to further my education. I studied science in high school, and I graduated with excellent grades. After graduating in the North, I had no money, so I came here to farm. I cannot steal, and I cannot harm someone because of money, but I have to use my body. When I work and earn money, it is better than to harm someone for their money.” (M/25–30/M).

Most middle-aged farmers presented agricultural encroachment in

the forest as a means to support their children and flee the burden of loans in their localities:

“I would rather go into the forest than take the 1-for-1 [credit].⁷ We encroach massively. The forestry guys cut our farms, but we will not renege because we have school-going children. As you can see [points to the children], they have just returned from school and are hungry. It is difficult life here, but our elders say that a bad job is better than theft.” (M/30–35/M).

However, in some cases, the distinction between farmers’ need to encroach for subsistence and their desire to exploit the KHFR for business was not very evident. Many poor farmers indicated that affluent farmers transcended the need to survive and were encroaching on a large-scale. These affluent farmers often hired labourers to cultivate large tracts of the KHFR. They were also better positioned to bribe forestry officials to secure their illegal farms in the KHFR.

“Sometimes, we, farmers in this community, are stubborn because some people do not encroach for their subsistence. Some of us have made farming in the KHFR a business. Instead of farming small portions in cycles, we do not. We keep expanding every year. So, we are stubborn.” (M/30–35/M).

“I am, honestly, engaged in plantain production, but I do not have land. I steal the land from the forest reserve. During the peak season, I can harvest a KIA truckload⁸ every other week. Sometimes when you are there, the FC staff come with soldiers, and we run away, but we return when they leave.” (M/50–55/N).

Despite the blurry lines between farming the KHFR for subsistence and business for affluent cocoa farmers, many farmers ended the survival storyline by juxtaposing their immediate space to coastal communities to assert that it is within their rights to cultivate forestland. They did through the pervasive anecdote “Fisherfolks eat from the sea. Why should we living by the forest not eat from it?” Many call for the government to allocate lands in the KHFR for them to cultivate, while others argue that if this is not done, they will take their fate into their own hands.

“The government should have mercy on us and allocate some of the lands in the forest reserve for us so that we can stop running in the forest. It is simply too dangerous, with the falling and rising, injuries from the beatings and what not.” (F/25–30/N).

“If the government does not allocate the degraded forest areas to us, the fact is that sitting in Accra or Juabeso, they do not know the forest like us. So, they need to allocate some for us and monitor that we plant trees in the farms. Otherwise, my brother, we will adapt our ways. I tell you, some of us even farm with touchlights at dawn and return home before the forest guards start working in the morning.” (M/30–35/N).

4.1.3. *Land competition narratives*

Farmers presented three storylines within this narrative, noting that forest conversion in the KHFR occurs due to competition for lands between 1) natives and migrants, 2) adjacent forest-fringe communities and 3) the state and traditional rulers. First, most native farmers argued

⁷ One-for-one is a local lexicon that is used to describe credit in the study localities. Upon enquiry, farmers explained that one would have to pay a 100% interest on a loan secured from another farmer or creditor in villages. This rate is compounded whenever a farmer deferred on repayment and there is usually documentation to cover the loan.

⁸ One Kia truck according to the farmers holds about 150 – 250 bunches of plantain i.e. 1500–2500 kg using the average weight of 10 kg per average bunch of plantain.

⁶ All village names are changed to protect the identity of the community.

that migrants had taken their lands. They portrayed migrant farmers as aggressive ‘forest grabbers’ that accumulate lands within the KHFR, and sometimes with the backing of village chiefs.

“Many migrant farmers know that most areas in the KHFR are illegal to cultivate. However, they do not care. They are relentless, and they work under the mantra, ‘Yen ammedi agoro’ (we are not here to joke). They have even named a cottage deep in the KHFR to that effect.” (M/62/N).

During our interviews, a migrant farmer pointed out that “as we speak, the chief of Kayerais allocating lands within the KHFR to some of my friends for cocoa farming at ‘*Ekosuasan*’⁹ (M/35–40/M).

In the second variant of the land competition narrative, farmers argued that their neighbouring villages had finished encroaching into adjacent areas of the KHFR and are now turning to those of other villages. Many farmers indicated that other communities had breached the ‘rules of engagement’ by working in ‘their parts’ of the KHFR. They indicated an urgent need to encroach into the KHFR before the other communities finish ‘their lands’:

“Initially, when our people started farming the reserve, our past chief called the town to tell us that if you trespassed and got into trouble, he cannot be bothered. So, our people got scared. This gave the migrants from the North an upper hand. The people of Kayera⁶ also have a lot of farms close to us. All they do is to go and bring north-erners and give them about 30 acres on condition that the established farms will be divided: the farmer gets a third, and the local who brought him gets two-thirds” (M/53/N).

“Farmers from Sankofa⁶ have finished their portions of the KHFR and are now conquering ours. Don’t the forestry officials go to work? Don’t they see them expanding rapidly into the forest reserve? (M/40–45/N).

“We know that what we are doing is wrong because the forest is neither my mum’s or dad’s, and we do not have permission from forestry officials. However, if we do not, it is not possible. Besides, if I do not cultivate it, somebody will. If someone doesn’t, I will. So, you better do it.” (F/45/M).

In the third variant of this story, some FFCs were sceptical about the forest reservation process. They argued that their lands had been unfairly appropriated and put to forest conservation. Many farmers and village chiefs told a story that ‘the Whites’¹⁰ lied to their forefathers and stole their lands.

“When the Whites arrived, they told our forefathers that they wanted to construct rail tracks beside our village. If they had told us that they wanted to reserve the area, we would not have agreed. So, they lied to us. Our people were happy to have trains passing through our backyard. Some of them even asked that they bring rail tracks closer to the village so their children in a town like Dunkwa, which had rail access, could come home to visit during festivities. After a while, ‘the Whites’ brought soldiers and told us not to trespass beyond the lines because it is a forest reserve (M/65/N - F9-S45; M/53/N; M/80–85/N; M/45–50/N).

We found no direct evidence to back this claim. However, upon examining archival materials on the establishment of the KHFR, we

⁹ *Ekosuasan* is named by the communities as such due to its rugged terrain and long distance. It literally means “if you intend on crying along the way, stay home”.

¹⁰ The KHFR was reserved in 1935 when colonial Ghana was known as the Gold Coast. In colonial Ghana, forests and land administration was done through White expats who were representatives of the British Crown (see [Amanor, 2008](#))

found some information that suggests that customary leaders expressed concerns during the formation of the KHFR will impact their farming activities in the future. In one letter dated 22nd February 1934, A. Duncan-Johnstone, the Commissioner of the Western Province, in reply to the Commissioner of Forests of the Gold Coast on “*Proposed Krokosua Hills Forest Reserve*” noted:

“The Omanhene is opposed to the reserve because (a) it contains two fetish grooves (b) it is too large and too much land has already been made into forest reserves. As you are aware of the difficulty to convince the Chiefs that the Forest Reserve will not interfere with their farming and other rights. Whilst fully sympathising with the need for forest reserves, I have to consider the effect on the attitude of the local native rulers. In this case, the Omanhene of Sewfi Wioso has been rather disgruntled lately and inclined to listen to strangers with subversive ideas.” (CSO10/2/64, Feb, 1934).

During interviews with forest officials, they pointed out that all claims to lands in the KHFR were settled during the forest reservation. However, some chiefs also reported unresolved land claims in the KHFR:

“I have some admitted farms in the KHFR. For more than 15 years, I have been calling for its demarcation for my community, but the government refuses. Farm C2, C3, B18 and B19, they are all my admitted farms. (M/60–65/N).

4.1.4. Forest depletion narratives

Several farmers pointed out that the KHFR is heavily depleted. Many indicated that large forest areas are now fallow land because most timber trees have been logged. Others noted that farms have taken over the forest. They attributed the forest depletion to corrupt practices by forestry officials who condone illegal loggers and farmers’ activities.

“Even as an illiterate, I know that previously they cut the forest at least 6-years apart. Now, every year, there are people felling trees. They use the skidders to destroy a lot of the biodiversity, snails, mushrooms, everything”. (M/40–45/N).

“What makes us destroy the KHFR is that the FC has forest guards and technical officers in the community. How is it that people are always going into the forest day in and out cultivating crops? They collect money from the people and order them to farm the forest.” (M/45–50/N).

“As a native, I will not sit and watch forest regulators be recruited, paid, and then look to them to sell lands in the KHFR to me. It would not happen! I would destroy the forest!” (M/50–55/N).

If you can bribe the forestry staff, they will never cut your farm. Honestly, if you are transferred here as a civil servant, police, forest officer, or district assembly staff, and you do not get rich, you will never succeed in life. [Why is that?] The corruption here is too much. If you know your way around, the law does not apply to you. We have three things here: parliament makes laws, the judiciary enforce, and the rich buy it. (M/40–45/N).

However, other also farmers pointed to their roles in protecting the KHFR, highlighting that resource regulators obscured facts about the state of deforestation within the KHFR:

“When Mr XXX¹¹ gained transfer to our district, we walked him through the KHFR to show him the scale of the encroachment. Along the way, he exclaimed, ‘Chairman! Let us return. We cannot. The battle is lost’. (M/62/N).

¹¹ Manager’s name redacted to protect his identity.

“The KHFR is heavily depleted. I even doubt if it is a forest; it is a fallow land. However, the forestry officials would not be honest with you; it is a fallow land. We living by the forest know the reality. Every dry season, we go there at least ten times to extinguish wildfires. It is only January, and we have already had one forest fire. (M/62/N).

As a result of the depletion, many farmers indicated that they could no longer rely on the forest for livelihoods because non-timber products such as snails, mushrooms, rattan, and pestles were minimal in supply.

“Previously, when we were walking through the forest collecting snails, we never went broke because we used that to earn additional income.” (F/35–40/N).

4.2. Forest regulators and cocoa sector actors' narratives on forest conversion in Ghana

Forest regulators and cocoa sector actors' narratives on forest conversion are not restricted to the KHFR. Instead, they are national in character. Many of the documents and the news items reviewed indicate that deforestation is dominated by agricultural expansion. Surprisingly, however, the news articles reviewed had little information on the issues raised by the forest-fringe communities (Section 4.1). Instead, the news articles focused on two main issues: 1) the destruction of farms in forest reserves by the forest services division, 2) the inauguration and close-out of forest conservation projects by NGOs and the Forestry Commission. What follows are the narratives underlying deforestation and associated attempts to tackle the challenge are predominantly the viewpoints of two main policy actors, forest regulators, and the Ghana Cocoa Board (COCOBOD).

4.2.1. Forest regulator's narrative on forest conversion

Multiple contradictions exist in the narratives of forestry actors at the policy and operational levels. At the policy level, farming in protected forests is seldomly discussed along with the narratives that communities use to justify their encroachment activities. Policy actors tend to direct attention primarily to the high rate of deforestation within forest reserves. For example, the Ministry of Lands and Natural Resources in the country's REDD+ strategy notes:

“Having lost over 60% of its forest cover from 1950 to the turn of the last century (2.7 million hectares), and considering the current deforestation rate of approximately 2% per year (135,000 ha/year), the future of Ghana's forests is an issue of major concern.” (MLNR, 2016:24).

Forest regulators attribute the decline in forest resources to agricultural expansion, mainly for cocoa production, illegal logging, and mining, all of which they blame on governance challenges. For example, in state notes in the 2012 Forest and Wildlife Policy,:

“The Forestry Commission (FC) has not fully developed its capacity for properly managing the forests and wildlife resources ... Morale is generally low due to unattractive remuneration and reward systems. Weak capacity is observed in technical skills, financial management and procurement.” (MLNR, 2012:6).

Many forestry officials at the study localities also acknowledge these governance challenges.

“Most farming in the forest reserve has occurred because of administrative lapses on our part: extension of admitted farms, claimants by persons unknown are all a result of administrative lapses.” (G4).

“Some of our staff have accounted for farming in the forest reserve. In some cases, when they should be demarcating lands to the communities, they leveraged share-cropping arrangements with the farms and encouraged them to cultivate the forest massively.” (G3).

Beyond the governance challenges, some forest officials present FFCs as environmentally destructive actors, albeit with different views on the causes of ‘their destructiveness’ at the policy and operational levels. Policy level forestry officials are relatively passive about the experiences of FFCs:

“many cocoa farming communities are living in or encroaching on forest areas, and to stop deforestation, these communities sometimes need to find alternative livelihoods or be resettled and receive compensation” (IDH, 2020:38).

However, forestry officials at the grassroots are more nuanced about the experiences of FFCs, noting that many farmers in the communities encroach into forest reserves out of desperation:

“There is hunger in Sankofa and many other fringe communities that do not encroach much into the reserve like the people here in my range. Typically, people from other communities come here to buy plantain and other food crops. Honestly, the forest reserve is the only land available for food production to this community. We arrest farmers, we beat them, we sack them, but they would not stop encroaching. We arrest and jail them, but immediately they are released, you will go and find them encroaching again. The reality is that a lot of them have no other option.” (G1).

These operational level forestry officials were also more attuned to the complexity of forest encroachment for farming and how to tackle, with an official noting:

“Is illegal farming in forest reserves even solvable? Unless it becomes a big debate in the government: you and I cannot do much. We think very differently here. If we form a watchdog group to monitor the forest, it will not amount to much because many people are against that, and this complicates the challenge here.” (G1).

Despite local forestry officials' indication that there is a need for more prominent debates about the local experiences of communities in finding a solution to farming in forest reserves, mainstream forest policy actors are primarily focused on international issues.

“The forestry sector today is also confronted with emerging global issues like the Voluntary Partnership Agreement (VPA), Forest Certification, Climate Change and Reducing Emissions from Deforestation and Forest Degradation (REDD) which have far-reaching implications for the forest and wildlife industry as well as local livelihoods” (MLNR, 2012: ix).

With the focus on international issues, forest regulators seek to attract investments into forestry in the country. And they present such investment opportunities as a utopian solution to all problems in the forest sector. For example, upon signing a five-year, USD 50 million Emission Reductions Payment Agreement with the Forest Carbon Partnership Facility (FCPC) Carbon Fund, administered by the World Bank, the Forestry Commission's Chief Executive noted:

“The program's two central goals – reducing carbon emissions in the forestry sector and producing truly sustainable, climate-smart cocoa beans – make it unique in Africa and the first of its kind in the cocoa and forest sectors worldwide. This program is helping to secure the future of Ghana's forests while enhancing income and livelihood opportunities for farmers and forest-fringe communities”.

4.2.2. Cocoa sector actor's narratives of forest conversion

Some cocoa sector actors, especially the COCOBOD, hold shifting views about cocoa's contribution to forest conversion. For example, in May 2019, a couple of months before Ghana signed the aforementioned emission reduction agreement, the Director of the Ghana Cocoa Board (COCOBOD), the primary agency in charge of cocoa production and trade in Ghana, at a Zurich meeting with Swiss Chocolatiers observed

that “cocoa farmers do not cause deforestation” instead, logging is to blame. From the documents reviewed, COCOBOD only acknowledges a link between cocoa and deforestation where it concerns the future of cocoa production. For example, in a recent report on the Cocoa and Forests Initiative (CFI), a multi-stakeholder initiative that seeks to halt cocoa-driven deforestation in Ghana, the Deputy Chief Executive of COCOBOD pointed out that:

‘Cocoa cannot thrive without forests. Yet estimates suggest that forests are depleting at a rate of 3,2 per cent per annum. We are at a critical point for which urgent action is needed to protect the symbiotic relationship between forests and cocoa’ (IDH, 2020:22).

However, within the CFI, civil society organisations (CSOs) are more upfront about cocoa’s contribution to deforestation. For example, the World Cocoa Foundation notes:

“In over ten years, 820,000 ha of the forest area has been cleared in Ghana, with cocoa being one of the drivers of deforestation. This situation is not sustainable.” (IDH, 2020:8).

Most cocoa sector actors attribute cocoa’s contribution to forest conversion to low productivity from old and diseased cocoa farms. These factors have historically led to migration and cocoa production from the eastern to southwestern high forest regions of Ghana. Occasionally, cocoa sector actors blame forest regulators for destroying cocoa farms, arguing that “the FC allocates permits to timber contractors, who harvest timber trees in cocoa farms, destroying such farms without paying compensation to the farmers” (G5).

COCOBOD links this argument with emerging global trends in sustainable commodity sourcing and pressure from CSOs to call for changes to the status quo:

“Our attention to cocoa and deforestation started with global stakeholders, cocoa industry stakeholders making so much noise that by 2020, they would not source cocoa from a cocoa related deforestation area.” (G5).

They argue for policy and legal reforms to improve cocoa productivity and ‘grow more cocoa on less land’ through rehabilitating old and diseased cocoa farms, cocoa intensification and cocoa agroforestry. For existing cocoa farms in forest reserves, some cocoa sector actors call for investments into “‘Cocoa Grandfathering’, where farmers intersperse illegal cocoa farms in forest reserves with timber trees and manage them for over 25 years, exiting the reserve when tree form a canopy”(G5).

5. Discussion

This paper aimed to examine the narratives farmers use to justify farming in forest reserves and compare them with forest and cocoa sector policy actors’ viewpoints about forest conversion. The findings indicate multiple contradictions between FFCs’ experiences and the primary issues underpinning forest policy in the Ghana. This section synthesizes the divergent claims, identifying and dissecting a meta-narrative that could enable forest and cocoa sectors to address forest encroachment for farming.

5.1. Same problem, different interests

Narrative policy analyses indicate that how problems are framed can limit the options conceivable to deal with the challenges (Buijs et al., 2011; Roe, 1994). In Ghana’s forest conservation discourse, forest regulators and cocoa sector actors frame encroachment into forest reserves for farming as a problem primarily caused by low cocoa productivity due to old and dysfunctional farms. Thus, as shown in the results, the solution appears to be simple: rehabilitate old cocoa farms to improve productivity while guaranteeing farms access to trees on their cocoa farms, and cocoa expansion into forests will cease. However, the results

indicate there are more issues to the encroachment challenge than is currently portrayed by policy actors. Indeed, some people in the study localities cultivate cocoa in the KHFR. Nevertheless, several others focus primarily on cultivating food crops in the forest reserve, using multiple techniques to evade apprehension from forestry officials (see Kumeh et al., 2021). Evidently, the felt need to combat food insecurity within FFCs appears to be the main rallying point for such communities to gain access to the forest reserve in the first place. Even forestry officials in the study localities acknowledge that food insecurity is a crucial challenge in FFCs that do not encroach into the KHFR. However, the FFCs’ experiences with food insecurity are not part of the mainstream discussions that inform forest policy. At the moment, such discussions are rather polarised, resting heavily cocoa-driven deforestation, and the need to secure forest for international public goods. For a coherent solution to forest conversion, forest regulators need to extend their understanding of the problem by embracing the elements currently missing in the forest policy discussions. From the results, these elements include the perennial struggle for forestlands between the state and customary actors, a general quest for survival that is reinforced by limited availability of farmlands for food crops production in FFCs.

The FFCs’ narratives revealed that customary leaders facilitate encroachment and farming in the KHFR. Writing on this facilitatory role, England (1993) observed that local chiefs deliberately encourage farming in forest reserves to undermine forest protection policy. Unfortunately, such actions have become a permanent feature of the structural dualism that blights post-colonial Africa. As a legacy of colonialism, there remains a perpetual conflict between multiple African governments and traditional institutions over how best access to land resources, especially given that whoever controls land consolidates their authority over people the countryside (Amanor, 2008; Boone, 2015; Kumeh et al., 2021). Through forest reservation, the Ghanaian state appears to have succeeded in bringing nearly a third of Ghana’s Western region under its control. However, the results indicate that many traditional rulers remain highly popular and influential in the grassroots level and will continue to challenge the state’s resolve to protect forest resources. Thus, neglecting traditional rulers in tackling forest encroachment and conversion appears inherently problematic. There is, therefore, a need to employ a historical lens to thoroughly investigate the nature of existing claims to lands within the KHFR by chiefs in the study localities and use the findings as an entry point for deliberations to overcome forest encroachment in the region.

While FFCs and forest regulators shared the narrative of forest depletion in the study localities, they have different views about how to use degraded forest areas. For forest regulators, the degraded forest is an opportunity to invest in forest rehabilitation to secure ecosystem services, notably timber supply and forest-related livelihoods (MLNR, 2012), and consolidate the state’s authority over such areas (Kumeh et al., 2021). Communities around the KHFR, however, perceived the degraded spaces in the KHFR as ‘fallow lands’. They see an opportunity to use this ‘fallow space’ for farming, their primary livelihood activity. The FFCs’ orientation is reinforced by food insecurity and the diminished supply of non-timber forest products such as canes, mushrooms and snails from the KHFR. Of course, resource regulators’ focus on using forests to secure ecosystem services is justified due to growing climate change impacts in several areas, including the study localities (Ameyaw et al., 2018). Nonetheless, the FFCs’ position on producing food within such also spaces merits attention because of daily encounter with food insecurity, unemployment, and poverty.

For example, in a study involving 1560 cocoa farming households in southern Ghana, Bymolt et al. (2018) found that farmers dread certain months of the year, notably June and July, because of high poverty and food insecurity. During this period, most farmers would have expended the monies they earned from the main cocoa season (October – January). As a result ‘some farmers may reduce the amount of food they consume or, as a last resort, take out loans’ (Bymolt et al., 2018: 69). Our results suggest that many farmers do not like to acquire loans in order to buy

food. Instead, they prefer to encroach into the forest reserve to produce food regardless of the consequences of being caught. For many in the study localities, it appears that growing food crops in the KHFR has become a way for them to survive, and this is why they use survival arguments to reinforce their food insecurity narrative. Thus, while many other factors work together to drive the communities to encroach into the KHFR, food insecurity runs paramount. On this account, what options can stakeholders pursue to address the food insecurity among farmers living in and around the KHFR? We revisit this question in Section 5.2, where we explore food security corridors (FSCs) as a potential meta-narrative that might enable stakeholders to tackle forest encroachment by FFCs and its related deforestation.

Meanwhile, comparing FFCs' and forest regulators' narratives raises questions about who is the most suitable actor to manage forests in the study localities. Forest regulators indicate that they would like to embrace collaborative forest management as a strategy to overcome deforestation. Ideally, this shift should transform FFCs from villains that destroy forests into forest management partners. Such an orientation is well placed, given the evidence that active community engagement in forest management leads to better outcomes (Buijs et al., 2011; Rahut et al., 2015; Raymond et al., 2010; Robertson et al., 2000). However, the narratives of both farmers and forest regulators, especially forest managers at the local level reveals that this shift has not occurred in the KHFR area. Instead, forest officials at the community level are struggling to engage with farmers in forest management. They attempt to justify their shortcomings by adopting a narrative strategy that characterises local communities as destroyers of the KHFR. The FFCs in the study localities counter this argument by pointing out that the forest regulators have failed in their mandate of forest protection; instead, they have become villains that work hand-in-hand with farmers, e.g., by accepting bribes, to destroy the KHFR. The 2012 Forest and Wildlife Policy had drawn attention to this challenge and highlighted the need to strengthen forestry staff capacity to have a good chance at halting deforestation (MLNR, 2012). On account of the results, the paper notes that the state is struggling to achieve this goal. And without urgent changes, deforestation may continue under the watch of forestry officials at the grassroots level.

This paper's results alone may not be enough to explain why FFCs' voices, as revealed in their narratives, are latent in the media. However, it corroborates earlier works that the forest protection policy arena in Ghana is dominated by the forest regulators who define forest policy with 'Western ideals', not grassroots perceptions and conditions (England, 1993; Kansanga et al., 2017). Ideally, CSOs should help bridge the information gap between forest regulators and local communities by presenting a counter-narrative that embraces grassroots experiences. Nevertheless, at the moment, there appears to be no concrete actions in this regard. Instead, FFCs exhibit resistance at the grassroots level, but this alone may not be sufficient to have their voices heard. There is, therefore, a need for strong grassroots organisations to convey communities' experiences in the media and the forest policy arena. In the next section, we draw on the issues raised here to propose a meta-narrative, the last step of Roe's (1994) narrative policy analysis framework, and discuss how it can tackle forest encroachment KHFR.

5.2. "Food-security corridors": the missing link in addressing forest conversion?

The last step of Roe's (1994) narrative policy analysis is to explore meta-narratives that offer new insights for tackling the policy problem at stake. With the forest encroachment challenge, a starting point to bridge the wide gap between local communities and forest regulators is to adopt a people-centred approach to forest management (FAO, 2016). Integrated landscape management (ILM) seems to be a candidate approach to reach this goal. ILM enables stakeholders to perceive forest spaces, surrounding institutions, and forest-fringe communities as interdependent units (Kusters, 2015; Sayer et al., 2015). Through ILM,

all stakeholders, forest regulators, cocoa sector actors, civil society organisations, and FFCs can collectively negotiate and pursue a shared vision for managing their landscape (Kusters et al., 2020; Ros-Tonen et al., 2018). For example, under this approach, stakeholders could collectively designate some degraded forest areas as *food-security corridors* (FSCs). In our view, an FSC is a geographical area established around protected forests to accommodate forest security interventions for FFCs that traditionally depend on the protected forests for all or part of their subsistence. FSCs could enable stakeholders to jointly institutionalise food security around designated protected forests and reduce FFCs pressure to encroach into forest reserves for food production. Tentatively two options could be applied to implement FSCs.

For the first option, forest regulators, FFCs and other stakeholders could collectively rezone some of the protected forest areas for the purpose of food crops production. This will enable stakeholders to spare the more interior areas of the KHFR from further conversion. Designating permanent FSCs responds to FFCs calls for the Ghanaian government to show them mercy and enable their subsistence and self-reproduction. When planned properly, FSCs could be a good substitute for taungya farming, which, as demonstrated in our results, appears to be failing in the study localities. To overcome the risk that more prosperous farmers would monopolise the rezoned areas, actors could collectively explore rules to regulate operations within the FSCs. This could be done through an FSC board of elected local officials with chiefs as patrons of the board, tasked with ensuring sustainable use of the FSCs. Meanwhile, functional FSCs could also be an entry point to tackle the long-standing struggle between customary actors and the state over forestlands (Ubink and Amanor, 2008). The continued oversight roles the village FSC board and its associated benefits could be tied with their ability to keep their constituents at bay, halting further encroachment in the KHFR, a role the FSC board could be easily deliver based on their intimate knowledge of their terrain and people. Such an approach could foster trust between the communities and forestry officials, improving the chances for FSCs to succeed (Bardsley et al., 2021). Besides, it would unleash additional human resources, easing the pressure on the limited resources available to the FC for monitoring forest encroachment. In turn, forestry officials would have more time to conduct silvicultural activities, including assisted forest regeneration, instead of farmer persecutions that lead nowhere. With the permanent food production area, FFCs could work towards their food and livelihood security, while contributing to forest management. This is important given the evidence that access to farmlands motivates FFCs to participate in forest management (Acheampong et al., 2018). This FSC option could be implemented with funding from the Ghanaian state's flagship agricultural campaign 'Planting for Food and Jobs' (PFJ), which seeks to bolster rural development by improving food security, developing the value chains of selected food crops and creating green jobs in rural communities.

A second variant of the FSC concept relates to the investment and redistribution of forest rents, including emission reduction payments under Ghana's Cocoa Forest REDD+ programme. One idea is for the state to use part of REDD+ payments to provide food subsidies to FFCs as a form of compensation for appropriating their farmlands. Such an approach is contrary to Ghana's "REDD+ Resettlement Policy Framework", which by focusing on REDD+ in terms of new displacements, fails to account for FFCs as actors who have been historically displaced by forest conservation; thus, excluding them from its REDD+ entitlement framework (FC, 2016). To overcome this policy lacuna, the state could zone FFCs based on their incidences of poverty and food insecurity, and apply different classes of food subsidies to them accordingly. For example, the subsidies could cover maize, beans, yams and other local foods identified through a comprehensive assessment of food preferences in the region. Food assistance programmes (FAP) to improve food security at the grassroots level are not a new practice. From the provision of food stamps to food subsidies and food price stabilisation, many FAP options have been explored in the literature and are used in several countries (Barrett, 2002; von Braun et al., 1992; Yu et al., 2015). While

various viewpoints exist on the efficiency of the different approaches, the success of FSCs as proposed here rests heavily on continuous stakeholder negotiations of landscape objectives, roles and benefits sharing. In this vein, the government of Ghana and the development partners working to tackle deforestation in the study landscape could channel some of their investments, for example, funds from ongoing REDD+ and the CFI interventions to facilitate initial stakeholder discussions and pilot the FSC options discussed. Once established the government could apply part of taxes it raises at the district level to facilitate the multi-stakeholder dialogues needed for FSCs to function effectively.

FSCs, as discussed here, have a wide resonance for tropical forest conservation, especially across Sub-Saharan Africa. In the region, countries such as Ivory Coast, Nigeria and the Democratic Republic of Congo are all faced with forest conversion, especially for cocoa and oil palm production (Abu et al., 2021; Kouassi et al., 2021). As a legacy of colonialism, these countries experience the consequences of colonial resource enclosures that removed local inhabitants from their lands and reduced their access to land and forest resources in the interest of the 'greater good' (Amanor, 2008; Berry, 2018; Kumeh, 2017). FSCs may help recognise and re-engage FFCs and atone for the damages forest enclosures inflicted upon multiple FFCs in post-colonial Africa. Nonetheless, there might be context specificities that lead to different local political dynamics. The study, therefore, recommends a landscape-specific analysis and an eventual piloting of the FSCs as an approach to tackling forest conversion by FFCs for subsistence farming.

6. Conclusions

This paper has identified the narratives that FFCs employ to encroach and farm in the KHFR and compared them with forestry and cocoa sector actors' understanding of the problem. In disentangling the narratives, we have shown a mismatch between policy actors' perception of the

problem and FFCs' experiences. We have enriched the literature with empirical information on FFCs' viewpoints, which was missing in the forest policy discourses (Kansanga et al., 2017). We have demonstrated that local forestry officials' understanding of forest conversion is partly different from higher level forest policy actors' portrayal of the problem. We urge forest sector actors to move away from the outright labelling of FFCs as environmentally destructive because although several factors combine to buttress FFCs' encroachment into the KHFR for farming, food insecurity appears to be paramount and a reinforcer of the many issues. This means that unless food insecurity is tackled in the area, current programmes such as the Cocoa and Forest Initiative, the National Cocoa Rehabilitation Programme, and the Ghana Cocoa and Forest REDD+ Programme may find it extremely difficult to halt encroachment for farming and its contributions to deforestation.

We have proposed the novel concept of *food security corridors* (FSCs) as an entry point for forest and cocoa sector actors to recognise and institutionalise food insecurity in the study localities. Through FSCs, forest regulators and FFCs can negotiate and work towards a functional landscape that guarantees food and livelihoods to the local communities and improves the chances of securing the remaining forest frontiers. However, these benefits can only be achieved if stakeholders embrace, discuss, refine the FSC, and invest in piloting it. We emphasise that the KHFR case results may not inform generalised conclusions about deforestation caused by farming in forest reserves. Alternatively, it indicates the need for forest actors to guard against oversimplifying assumptions about the drivers of forest conversion within FFCs.

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Appendix 1a. An overview of the interviews conducted and recorded per community

| Community (names changed to protect the identity of the specific communities) | Number of interviews | Number of interviews recorded |
|---|----------------------|-------------------------------|
| Aboabo | 15 | 8 |
| Adwoakrom | 37 | 22 |
| Bambakrom | 40 | 28 |
| Bayereano | 16 | 9 |
| Donaso | 34 | 20 |
| Enokrom | 41 | 19 |
| Juansa | 22 | 16 |
| Kayera | 44 | 24 |
| Kinbu | 12 | 15 |
| Manase | 67 | 42 |
| Sankofa | 73 | 46 |
| Safiano | 25 | 19 |
| Total | 426 | 268 |

Appendix 1b. Breakdown of the focus group discussions conducted

| Community | Number of participants | Interview date | Type of Group |
|-----------|------------------------|----------------|-----------------------|
| Adwoakrom | 5 | 16.10.2019 | Men only |
| Donasu | 6 | 21.10.2019 | Men only |
| Manase | 5 | 25.11.2019 | Chiefs (men) |
| Safiano | 5 | 29.11.2019 | Men only |
| Bambakrom | 5 | 30.11.2019 | Mixed: 3 men, 2 women |
| Kayera | 8 | 2.12.2019 | Mixed: 6 men, 2 women |
| Sankofa | 6 | 12.12.2019 | Chiefs (men) |
| Sankofa | 5 | 13.12.2019 | Women only |
| Juansa | 5 | 21.01.2020 | Chiefs (men) |
| Juansa | 5 | 22.01.2020 | Women only |
| Kinbu | 7 | 27.01.2020 | Mixed: 5 men, 2 women |
| Aboabo | 5 | 29.01.2020 | Men only |

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