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**Social and Institutional Change in Agricultural Development
Institute of Agricultural Sciences in the Tropics
(Hans-Ruthenberg-Institute)**

**Farming forest enclosures: contestations,
practices and implications for tackling
deforestation in Ghana**

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Executive summary

Within the last few decades, scientists and policymakers are awaking to the menacing impacts of deforestation on biodiversity and the livelihoods of the over one billion people reliant on forests. Concurrently, an upward trend in population and its corresponding rise in the global demand for feed, food, fuel, and fibre exerts new demands on limited land resources available to multiple stakeholders. As the competition over land intensifies, many smallholder farmers in the tropics employ several strategies to cultivate areas designated as forest reserves for their livelihoods, leading to further deforestation and conflicts with state forestry agencies. While many stakeholders recognise the potential for collaborative approaches for harnessing local support to overcome these conflicts and rehabilitate deforested landscapes, an understanding of the grassroots voices needed to create a common entry point for such approaches to take off is missing in many countries. Moreover, despite decades of investments in institutions to directly fund smallholder farmers' participation in rehabilitating deforested landscapes, little is known about the reach and performance of existing financial mechanisms.

This dissertation adds to filling these knowledge gaps based on qualitative case studies embedded in multiple analytical and data collection approaches in Ghana. The country is chosen because it has one of the highest deforestation rates in Africa despite several attempts by the government to overcome the challenges, including establishing a designated fund to promote reforestation. Presently, the country loses 2% (135,000 ha) of its forests annually. To understand the local processes that fuel this trend and how institutional attempts to reforest the country are performing, the dissertation responds, in separate chapters (2-4), to the following specific objectives: 1) examine the mechanisms and techniques farmers use to gain and maintain their ability to benefit from forest reserves, including how existing social structures enable or impede the practice, 2) disentangle and compare the narratives forest communities employ to legitimise farming in forest reserves with forest stakeholders' portrayal of the problem, and 3) analyse the effectiveness of financial support systems in place to support smallholder reforestation attempts in Ghana.

The first study, presented in chapter two, examines why and how farmers in forest communities gain and secure access to their farmlands within forest reserves to produce food and cash crops despite the state's prohibition of unauthorised farming in such areas. Data was gathered through an extended field stay in Ghana's Juabeso district, using multiple tools, including process-net maps, focus group discussions, in-depth interviews, and field observations. Content analysis of the data revealed a myriad of power struggles between state and customary actors who try to sanction farmers' access to forest reserves to consolidate their authority in the countryside. The study unbridles the multiple structural and relational mechanisms farmers apply to evade state attempts to rein in illegal farming in the area and how institutional deficiencies, notably corruption and elite capture of farming benefits by native chiefs, reinforce farming in forest reserves. Drawing on these insights, the chapter discusses the broader implications of the findings for the Ghanaian government's attempts to accelerate forest landscape rehabilitation,

noting that such efforts will need to adapt to the multiple struggles and latent actor interests to succeed.

The second article, presented in chapter three, disentangles the narratives and experiences of forest-dependent communities and compares them with the current assumptions underlying forest policy in Ghana from the perspective of the most dominant forest policy actors. The results contend with current assumptions that portray forest communities as environmentally destructive. Alternatively, it reveals that while several factors combine to drive forest-dependent communities to cultivate forest reserves, the challenge of food insecurity is paramount but un conveyed to the forest policy arena. The chapter proposes a novel concept of food security corridors (FSCs) as a meta-narrative for harmonising competing actor interests in forest reserves. The chapter also discusses the feasibility of FSCs and calls for further efforts to refine and pilot the concept in the global search for solutions to forest and agriculture land-use conflicts in the tropics.

The third article of the thesis, presented in chapter four, examines the governance of Ghana's Forest Plantation Development Fund as an incentive system instituted to attract smallholders into landscape rehabilitation. More than a hundred smallholder forest plantation developers were purposively selected and interviewed to understand their experiences and interactions with the fund. Similarly, other forest sector stakeholders, including the administrators of the fund and its board members, were interviewed to establish how they communicate and invite prospective beneficiaries to apply for grants in line with the objects of the fund. The study found that many of the legal provisions instituted to ensure the fund's transparent operation were not implemented by fund administrators. Consequently, many stakeholders had no awareness of the fund. Thus, they could neither apply nor demand accountability about the running of the Forest Plantation Development Fund. The chapter clarifies the information needs of various stakeholders of the fund, including information on the eligibility criteria, funding cycles, annual inflows and outflows, and a list of beneficiaries. It also discusses the implications of the findings, including mechanisms required to trigger the transparent running of the fund by its administrators.

The thesis reveals new patterns of perennial land competition between state and traditional institutions. It demonstrates how prevailing institutional challenges reinforce this competition and enable unsustainable land-use to flourish. At the same, it points to lapses in governance, including state failure to evolve its forest policies to meet changing demands and needs among contemporary actors and how the same challenges curtail access and ability to support forestation rehabilitation efforts in Ghana. Overall, the thesis notes that while tackling farming in forest reserves can be challenging due to its multiple drivers and the competing actor interests, Food Security Corridors have the potential to serve as an entry point that enables government and other actors to resolve their differences and to find lasting solutions that enable forest-dependent communities to achieve their livelihoods needs while contributing to sustainable landscape management. However, for this potential to be realised, actors need to invest in refining the concept and piloting it into specific localities.

Zusammenfassung

In den letzten Jahrzehnten sind Wissenschaftler und politische Entscheidungsträger auf die bedrohlichen Auswirkungen der Entwaldung auf die biologische Vielfalt und die Lebensgrundlagen von über einer Milliarde Menschen, die auf Wälder angewiesen sind, aufmerksam geworden. Gleichzeitig führt Bevölkerungswachstum und der damit verbundene Anstieg der weltweiten Nachfrage nach Futtermitteln, Nahrungsmitteln, Brennstoffen und Fasern zu neuen Anforderungen an die begrenzten Landressourcen, die den verschiedenen Interessengruppen zur Verfügung stehen. Da sich der Wettbewerb um Land verschärft, wenden viele Kleinbauern in den Tropen verschiedene Strategien an, um als Waldreservate ausgewiesene Flächen für ihren Lebensunterhalt zu bewirtschaften, was zu weiterer Entwaldung und Konflikten mit staatlichen Forstbehörden führt. Während viele Interessenvertreter das Potenzial für kooperative Ansätze erkennen, um die lokale Unterstützung zur Überwindung dieser Konflikte und zur Wiederherstellung entwaldeter Landschaften zu nutzen, fehlt in vielen Ländern das Verständnis für die Stimmen der Basis. Diese sind notwendig, um einen gemeinsamen Einstiegspunkt zu schaffen, damit solche Ansätze in Gang kommen. Darüber hinaus ist trotz jahrzehntelanger Investitionen in Institutionen zur direkten Finanzierung der Beteiligung von Kleinbauern an der Rehabilitierung entwaldeter Landschaften nur wenig über die Reichweite und Leistungsfähigkeit der bestehenden Finanzierungsmechanismen bekannt.

Diese Dissertation trägt dazu bei, diese Wissenslücken auf der Grundlage qualitativer Fallstudien, die in mehrere Analyse- und Datenerhebungsansätze in Ghana eingebettet sind, zu füllen. Das Land wurde ausgewählt, weil es eine der höchsten Entwaldungsraten in Afrika aufweist, trotz mehrerer Versuche der Regierung, diese Herausforderung zu bewältigen, einschließlich der Einrichtung eines speziellen Fonds zur Förderung der Wiederaufforstung. Gegenwärtig verliert das Land jährlich 2% (135.000 ha) seiner Wälder. Um die lokalen Prozesse zu verstehen, die diesen Trend anheizen, und wie die institutionellen Versuche des Landes zur Wiederaufforstung funktionieren, geht die Dissertation in separaten Kapiteln (2-4) auf die folgenden spezifischen Ziele ein: 1) Untersuchung der Mechanismen und Techniken, mit denen Landwirte Fähigkeiten erlangen und aufrechterhalten, von Waldreservaten zu profitieren, einschließlich der Frage, wie bestehende soziale Strukturen diese Praxis ermöglichen oder behindern, 2) Entflechtung und Vergleich der Narrative, die Waldgemeinschaften zur Legitimierung der Landwirtschaft in Waldreservaten verwenden, sowie der Perspektive der forstwirtschaftlichen Interessenvertreter, und 3) Analyse der Effektivität der bestehenden finanziellen Unterstützungssysteme, die Aufforstungsversuche von Kleinbauern in Ghana unterstützen.

Der erste Artikel, der in Kapitel zwei vorgestellt wird, untersucht, warum und wie Bauern in Waldgemeinden Zugang zu Ackerland innerhalb von Waldreservaten erhalten und sichern, um dort Nahrungsmittel und „Cash Crops“ zu produzieren, obwohl der Staat die nicht genehmigte Landwirtschaft in solchen Gebieten verbietet. Die Daten wurden während eines ausgedehnten Feldaufenthalts im ghanaischen Juabeso-Distrikt gesammelt, wobei verschiedene

Datenerhebungsinstrumente zum Einsatz kamen, darunter „Process Net-Maps“, Fokusgruppendifkussionen, Tiefeninterviews und Feldbeobachtungen. Die Inhaltsanalyse der Daten offenbart eine Vielzahl von Machtkämpfen zwischen staatlichen und gewohnheitsrechtlichen Akteuren, die versuchen, den Bauern den Zugang zu Waldreservaten zu genehmigen, um so ihre Autorität auf dem Land zu festigen. Die Studie deckt die vielfältigen strukturellen und relationalen Mechanismen auf, die Bauern anwenden, um sich den Versuchen des Staates zu entziehen, die illegale Landwirtschaft in der Region einzudämmen, und wie institutionelle Mängel, insbesondere Korruption und die Vereinnahmung der landwirtschaftlichen Gewinne durch die einheimischen Dorfoberhäupter die Landwirtschaft in den Waldreservaten verstärken. Ausgehend von diesen Erkenntnissen diskutiert der Artikel die weitergehenden Implikationen der Ergebnisse für die Versuche der ghanaischen Regierung, die Rehabilitation der Waldlandschaft zu beschleunigen. Der Artikel stellt fest, dass solche Bemühungen sich an die vielfältigen Kämpfe und latenten Interessen der Akteure anpassen müssen, um erfolgreich zu sein.

Der zweite Artikel, der in Kapitel drei vorgestellt wird, entflechtet die Narrative und Erfahrungen der vom Wald abhängigen Gemeinden und vergleicht sie mit den aktuellen Annahmen, die der Waldpolitik in Ghana aus der Perspektive der dominantesten forstpolitischen Akteure zugrunde liegen. Die Ergebnisse widerlegen aktuelle Annahmen, die Waldgemeinschaften als umweltzerstörerisch darstellen. Alternativ zeigt sich, dass, obwohl mehrere Faktoren zusammenkommen, die waldabhängige Gemeinden dazu bringen, Waldreservate zu kultivieren, die Herausforderung der Ernährungsunsicherheit im Vordergrund steht, aber in der forstpolitischen Arena nicht thematisiert wird. Auf der Suche nach Lösungen, die die gegensätzlichen Narrative der Akteure durchdringen, schlägt das Kapitel ein neuartiges Konzept von Ernährungssicherheitskorridore als Meta-Narrativ zur Harmonisierung konkurrierender Akteursinteressen in Waldschutzgebieten vor. Das Kapitel diskutiert auch die Machbarkeit von FSCs und fordert weitere Anstrengungen zur Verfeinerung und Pilotierung des Konzepts bei der globalen Suche nach Lösungen für Landnutzungskonflikte zwischen Wald und Landwirtschaft in den Tropen.

Der dritte Artikel, der in Kapitel vier vorgestellt wird, untersucht die Governance des ghanaischen „Forest Plantation Development Fund“ als ein Anreizsystem, das eingeführt wurde, um Kleinbauern für die Wiederherstellung von Landschaften zu gewinnen. Mehr als hundert kleinbäuerliche Forstplantagenentwickler wurden gezielt ausgewählt und interviewt, um ihre Erfahrungen und Interaktionen mit dem Fonds zu verstehen. Ebenso wurden andere Akteure des Forstsektors, einschließlich der Fondsverwalter und Vorstandsmitglieder, befragt, um herauszufinden, wie sie kommunizieren und potenzielle Begünstigte auffordern, Zuschüsse im Einklang mit den Zielen des Fonds zu beantragen. Die Studie ergab, dass viele der gesetzlichen Bestimmungen, die den transparenten Betrieb des Fonds sicherstellen sollten, von den Fondsverwaltern nicht umgesetzt wurden. Folglich hatten viele Betroffene keine Kenntnis über den Fonds. So konnten sie weder einen Antrag stellen noch Rechenschaft über die Funktionsweise des Fonds einfordern. Das Kapitel klärt den Informationsbedarf der verschiedenen Stakeholder des Fonds, einschließlich Informationen über die Förderkriterien,

die Finanzierungszyklen, die jährlichen Zu- und Abflüsse und eine Liste der Begünstigten. Darüber hinaus werden die Implikationen der Ergebnisse erörtert, einschließlich der Mechanismen, die erforderlich sind, um die transparente Verwaltung des Fonds durch seine Verwalter zu garantieren.

Die Dissertation zeigt neue Muster der Landkonkurrenz zwischen staatlichen und traditionellen Institutionen im postkolonialen Ghana auf. Sie zeigt, wie institutioneller Pluralismus den Landwettbewerb verstärkt und zu nicht nachhaltigen Waldlandschaften im Land führt. Gleichzeitig deckt sie auf, wie mangelnde Transparenz in den Abläufen staatlicher Behörden und ihr Versagen, die sich entwickelnde Dynamik der Waldgemeinschaften zu berücksichtigen, die Landwirtschaft in den Waldreservaten vertieft und gleichzeitig die Bemühungen zur Wiederherstellung der Wälder im Land behindert. Insgesamt stellt die Arbeit fest, dass der Umgang mit der Landwirtschaft in Waldreservaten aufgrund der vielfältigen Einflussfaktoren und der konkurrierenden Interessen der beteiligten Akteure zwar eine Herausforderung darstellt, die Ernährungssicherungskorridore der Regierung und anderen Akteuren jedoch das Potenzial bieten, diese Herausforderung zu meistern. Dieses Potenzial kann jedoch nur dann ausgeschöpft werden, wenn die Regierung, der Privatsektor und Entwicklungsorganisationen in die Verfeinerung des Konzepts und seine Umsetzung an ausgewählten Orten investieren.

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Lists of abbreviations and acronyms

AFR	African Forest Landscape Restoration Initiative
CAP	Code of Administrative Procedure
CFI	Cocoa and Forest Initiative
CHED	Cocoa Health and Extension Division
CMC	Cocoa Marketing Company
CO ₂	Carbon di Oxide
COCOBOD	Ghana Cocoa Board
CRIG	Cocoa Research Institute of Ghana
CSO	Civil Society Organisation
DA	District Assembly
FALUCs	Forest and agriculture land-use conflicts
FAO	Food and Agricultural Organisation
FAP	Food Assistance Programme
FC	Forests Commission
FDC	Forest Dependent Community
FDPF	Forest Plantation Development Fund
FGD	Focus Group Discussion
FLR	Forest Landscape Restoration
FSC	Food Security Corridors
FSD	Forest Services Division
FURACs	Forest and Agriculture Land-Use Conflicts
GDP	Gross Domestic Product
GHS	New Ghana Cedis
GSBA	Globally Significant Biodiversity Area
HFZ	High Forest Zone
IDH	Sustainable Trade Initiative
ILM	Integrated Landscape Management
IUCN	International Union for Conservation of Nature
KHFR	Krokosua Hills Forest Reserve
LBC	Licensed Buying Companies
MLNR	Ministry of Lands and Natural Resources
MTI	Municipality Transparency Index
MTS	Modified Taungya System
NGOs	Non-Governmental Organisations
NHC	National House of Chiefs
PDF	Plantation Development Fund
PNDC	Provisional National Defence Council
RCC	Regional Coordinating Council
REDD+	Reducing Emissions from Deforestation and Forest Degradation, and Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks
RMSC	Resource Management Support Centre

SDG	Sustainable Development Goals
UN	United Nations
UN-DESA	United Nations Department of Economic and Social Affairs
USA	United States of America
USD	United States Dollar
VPA	Voluntary Partnership Agreement

1 Introduction

‘We fundamentally depend on natural systems and resources for our existence and development. Our effort to defeat poverty and pursue sustainable development will be in vain if environmental degradation and natural resource depletion continue unabated. At the country level, national strategies must include investments in improved environmental management and make the structural changes required for environmental sustainability’. Kofi Annan, quoted from *In larger freedom: towards development, security and human rights for all* (United Nations, 2005: 19).

‘We must move away from the current situation where the demand for food is resulting in inappropriate agricultural practices that drive large-scale conversion of forests to agricultural production and the loss of forest-related biodiversity’ FAO quoted in the 2020 State of the World’s Forest (FAO, 2020: xx).

The publication of *Our Common Future* in 1987 was a resounding call by Gro Harlem Brundtland and his colleagues for world leaders to act swiftly in finding a balance between environmental exploitation and economic development. Nearly two decades later, in 2005, Kofi Annan, then UN Secretary-General, re-echoed this call during the 59th UN General Assembly in New York. Annan quoted above, called on world leaders to invest in environmental management and implement structural changes to overcome natural resource depletion and guarantee a sustainable supply of natural resources to society (United Nations, 2005). Much has changed since his address. From improved awareness and growing investment in eco-friendly projects, world leaders have also established a distinct framework to halt pressing environmental challenges, including deforestation and restore deforested lands by 2030. To achieve this aim, the UN in March 2019 has declared 2021-2030 as the decade of ecosystem restoration. Despite this tremendous progress on the policy front, there is evidence of mounting deforestation in many tropical countries, with agriculture expansion being the most significant cause (FAO, 2016). Responding to this challenge, many organisations, including the Food and Agriculture Organisation (FAO), quoted above, urge stakeholders to explore ways to overcome forest and agriculture land-use conflicts (FALUCs) and rehabilitate deforested landscapes (FAO, 2020). The FAO avers that to achieve a healthy relationship between forests and agriculture, actors must find a realistic balance between forest conservation aspirations and the need and demand of resources by local communities for their livelihood, food security and human well-being (Ibid, 2020).

This thesis seeks to improve stakeholders’ understanding of the issues that matter to local communities and derive institutional reforms required to manage deforestation from agriculture expansion and accelerate the rehabilitation of deforested landscapes. This introductory Chapter put the thesis into context. It begins by clarifying the research problem. In defining the problem, an emphasis is laid on Ghana, a country with one of the highest deforestation rates in Africa. Following the research problem, three research objectives are derived, and specific questions posed to bridge current knowledge gaps in our understanding of how to tackle FALUCs. The thesis's conceptual framing is then clarified, and an overview of methods used to engage the

thesis objectives established. The introduction concludes with a delineation of the geographical boundaries of the research, the key actors embedded in it, and an outlook of the remaining sections of the thesis.

1.1 Background and problem statement

The global human population is predicted to reach 10 billion by 2050 (UN-DESA, 2019). Simultaneously, climate change impacts are now visible in many areas, and natural resources such as fertile land and forests are declining. As a result, scientists and policymakers are seriously concerned about how to allocate the world's limited land resources to meet the feed, food, fuel and fibre needs of the world's growing population while restoring deforested areas in developing countries (FAO, 2016, 2020). Responding to this concern, many studies have focused on contemporary land deals by multinational corporations in developing countries (Borras et al., 2011; Margulis et al., 2013). Other studies also point to how the urge for a bioeconomy, centred around the production and efficient use of renewable biological resources, is changing land ownership regimes in the global south (Cudlínová et al., 2020; O'Brien et al., 2015). Consequently, there are rich theoretical and empirical debates about the economics and environmental outcomes of land deals in the global South (Davis et al., 2014; Tafon & Saunders, 2019; Zhan & Scully, 2018). Scientists are increasingly questioning how land deals in developing reproduce social inequality by diminishing marginalised groups' access to land, endangering agrarian livelihoods in many developing countries (Gyapong, 2020; Kansanga & Luginaah, 2019; Murphy et al., 2017; Tafon & Saunders, 2019). As a point of departure, this thesis focuses on internal land appropriation in Sub-Saharan Africa, where governments have historically used forest reservation to amass lands, leading to land-use conflicts and widespread deforestation in the region.

The scramble for Africa in the late 19th Century by imperial Europe left three imprints on forest land allocation essential for contextualising this dissertation. First, in a West African country such as Ghana, smallholder farmers were rapidly integrated into the global market, leading to changes in agricultural production patterns from food crops to cash crops, notably cocoa (Austin, 2005; Hill, 1961). This change imposed new demands on land and changed existing property relations from a collective, usufruct regime towards commodification and land privatisation. Consequently, traditional authorities, who possess fiduciary lands over most lands in the country, prefer to sell their lands to foreigners instead of granting access and usufruct rights to the indigenous people in their area (Amanor, 1999, 2008; Boni, 2005). Second, the colonial regime appropriated several tracts of land, classifying these lands as forest reserves to protect the environment and secure access and control over the commons and its rich timber and mineral resources (Agbosu, 1983; Enuoh & Bisong, 2015). This process unintentionally squeezed the natives in such areas onto smaller land parcels, leading to new forms of agrarian class relations in the country. Third, following political independence, the Ghanaian government took control over forest reserve lands for management in the interest of both traditional rulers and their subjects. Traditional authorities, however, retained allodial ownership over lands in forest reserves, resulting in an institutional dualism, where native

chiefs and the state are in a perennial struggle over how to control land resources to build their authority in the countryside (Amanor, 2008; Capps, 2018; Kasanga & Kotey, 2001).

Together with population growth, these factors have increased competition over forest reserve lands in Ghana. From about 6.6 million in the 1960s, Ghana's population more than quadrupled, reaching 30.4 million in 2019 (World Bank, 2020). Overall, 53% of Ghanaian households depend on farming to survive, with most cultivating less than two acres of land under low input systems (Ghana Statistical Services, 2020). Following reports that contexts characterised by extensive agriculture and poor governance are fertile grounds for deforestation (Hoffmann et al., 2018; Hosonuma et al., 2012), it is perhaps not surprising that Ghana has one of the highest deforestation rates in the world. Between 2001 and 2015, the country lost over 4.7 million ha of its forests at a rate of nearly 315,000 ha per annum (World Bank, 2020), with little difference between protected forest and production forests (Ankomah et al., 2019). Most of the deforestation is caused by agriculture expansion (Ankomah et al., 2020; Koranteng & Zawila-Niedzwiecki, 2016). The state's agency in charge of lands and natural resources argues that the growing deforestation imperils biodiversity and the livelihoods of more than 11 million Ghanaians who depend on forests for 67% of their livelihoods (MLNR, 2012). Besides, the World Bank estimates that deforestation costs the country about USD 400 million per annum, 'equivalent to 0.7 per cent of [the country's] 2017 GDP' (World Bank, 2020: 56), and sets Ghana back on its commitments to halt deforestation under the Sustainable Development Goals (MLNR, 2018).

The importance of forests to livelihoods and economic development, together with growing accounts of deforestation in Ghana, necessitates a critical analysis of the socio-economic and political contexts within which farming in forest reserve transpires. Such an analysis is also essential to derive institutional reforms to reduce the contributions of farming in forest reserves to deforestation and explore mechanisms for rehabilitating deforested areas. However, information on the nature and scale of contestations over lands in forest reserves, the means multiple actors use to gain, maintain and control their ability to benefit over such areas is limited in many developing countries, including Ghana. First, many studies have used remote sensing to analyse the scale of deforestation in forest reserves within Ghana (Coulter et al., 2016; Tsai et al., 2019). The result has been a proliferation of information on the growing trend of deforestation across the country and improved attribution of agriculture expansion as a primary driver of the menace (Ankomah et al., 2020; Brobbey et al., 2020; Kusimi, 2015). Second, institutional and governance scholars have used reviews and case studies to analyse the barriers to managing forest reserves in the country. They indicate that institutional deficiencies combine with systemic problems such as poverty and unemployment to accelerate agriculture expansion into such areas (Ankomah et al., 2020; Brobbey et al., 2020; Derkyi & Dietz, 2014; MLNR, 2012).

Third, researchers have explored market-based incentives as an option to tackle agricultural expansion in forest reserves and rehabilitate degraded areas concurrently. These studies have produced rich debates on emerging national and international forest policy regimes without questioning the fundamental structural issues that drive the challenge. For example, within the

Ghanaian context, many studies have focused primarily on forest rehabilitation strategies that offer farmers in land-hungry regions access to degraded forests on a short-term basis for food crop production and plantation development in order to rehabilitate such areas (Acheampong et al., 2016; Ros-Tonen et al., 2013). However, financial incentive systems, including state fund structures established to prop up smallholder landscape rehabilitation efforts, have been neglected. On the international front, one major incentive initiative is the Reducing Emissions from Deforestation and Forest Degradation, and Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks (REDD+). REDD+ seeks to provide monetary payments to local actors for their contributions to reducing deforestation and rehabilitation of deforested areas (den Besten et al., 2019; MLNR, 2016b; Saeed et al., 2018). Despite its potential, critics argue REDD+ interventions tend to be too top-down and are bound to reproduce inequality because they rarely pay attention to actual needs of forest-dependent communities' (Benjaminsen & Kaarhus, 2018; Lund et al., 2017; Saeed et al., 2018). One way to connect communities' needs to REDD+ interventions, and other initiatives that seek to overcome FALUCs would be to understand local communities' experiences, underlying motivations and the local politics that drive them to farm in forest reserves. However, very few studies exist in this direction. The little work available either bundle forest communities as environmentally destructive due to their farming activities in forest reserves (Owubah et al., 2000) or portray them as victims whose access to livelihood opportunities have been restrained by forest reservation (Sobeng et al., 2018). While such accounts are academically stimulating, they are also polarised and devoid of disaggregated views on the underlying issues that cause farming in forest reserves to persist. Without such insights, it would be challenging to formulate the targeted policy and institutional reforms required to overcome farming in forest reserves (Kansanga et al., 2017). Thus, farming in such areas will continue to expand, undermining efforts to halt poverty and achieve sustainable development as pointed out by Kofi Annan to world leaders in the opening quote (United Nations, 2005: 19).

1.2 Objectives and research questions

This thesis's overarching goal is to examine the rural politics of farming in forest reserves and the governance challenges to rehabilitating deforested lands to derive strategies for policy and institutional reforms that enable forest actors to manage and derive equitable benefits from forest landscapes. This goal is operationalised through three objectives, each addressed in a distinct chapter, as elaborated below.

The first objective (chapter 2) is to examine the mechanisms and techniques farmers use to gain and maintain their ability to benefit from forest reserves, including how existing social structures enable or impede the practice. As noted earlier, there is ample evidence that smallholder agriculture is the primary cause of deforestation in many African countries. For many of these countries, including Ghana, forest reserves are under the state government's control, and national laws prohibit unauthorised farming in such areas. How then are farmers able to establish new farms in such areas, and how do they secure their investments? Many studies point to institutional deficiencies as a reason why farmers can cultivate forest reserves (Ankomah et al., 2020; Brobbey et al., 2020). Others also suggest that unclear property rights

manifested in the sharing of management rights and ownership of rights over the forest reserves by the state and traditional authorities, respectively, is a contributing factor (Boni, 2005). However, the current means and strategies farmers use to benefit from forest reserves and the rural politics that reinforce their operations are poorly understood. Such an understanding could direct attention towards how farming in forest reserves is evolving, disaggregate actors' roles in facilitating the practice, and point towards options tackling farming forest reserves. Thus, chapter two examines:

- Why and how do farmers gain access to forest reserves for farming?
- What farming practices do the farmers conduct?
- What strategies do the farmers use to generate land security within forest reserves, and why?
- What lessons can be learned to improve sustainable resource use in the countryside?

The second objective (chapter 3) is to disentangle and compare the narratives forest communities employ to legitimise farming in forest reserves with forestry and cocoa sector actors' portrayal of the problem. Under conflict-ridden contexts, narrative analysis has proven an essential strategy for understanding the nature of actors engaged in the conflict, those whose voice count and those neglected (Mockshell & Birner, 2020). Besides, it has been used to harmonise conflicting actor positions and exploring feasible policy solutions (Roe, 1994). Despite this potential, its application in forest and agriculture land-use conflicts has not been extended to the voices and viewpoints of forest communities in many developing countries. Alternatively, such communities are branded as environmentally destructive in forest policy discourses (Fairhead & Leach, 1995; Kansanga et al., 2017). Such a blame approach merely touches on the physical manifestation of local communities' role in farming forest reserves without revealing the underlying issues that drive their actions.

Given that forest policy and interventions that draw on grassroots actors' voices and experiences have a better chance to succeed (Buijs et al., 2011; Robertson et al., 2000), it is imperative to elicit the voices of forest communities in regions plagued by deforestation. The third chapter embraces this challenge. It also strives to explore potential meta-narratives that create opportunities for managing competing and diverging claims associated with farming in forest reserves by engaging the following specific questions:

- What are the main stories that forest-dependent communities use to justify encroaching into protected forests for farming?
- How do narratives of forest-dependent communities compare with the main narratives underwriting forest policy in Ghana?
- What lessons can be learnt by comparing both narratives to support a policy that addresses forest conversion by forest-dependent communities?

The third objective (chapter 4) is to analyse the effectiveness of financial incentives available to support forest landscape rehabilitation by farmers in Ghana. Globally, plantation forestry is widely recognised as a strategy for rehabilitating degraded forests, enabling smallholders to secure food and income while reducing their contributions to deforestation and enhancing their

contributions to climate mitigation (Jacovelli, 2014; Kiyingi et al., 2016). However, the adoption of plantation forests remains low among smallholders in Ghana due to a lack of incentives and support systems (Adane et al., 2016). Studies on landscape rehabilitation point to land security, market access, research and technical assistance, and direct financial support through grants, soft loans and tax rebates as factors that motivate farmers to rehabilitate degraded forests (Fasona et al., 2019; Zhang & Owiredo, 2007). Whereas many studies have examined measures to improve land tenure, link farmers who plant trees to markets (Acheampong et al., 2018; Gaither et al., 2019; Oduro et al., 2018), no study has examined farmers access to financial incentives for landscape rehabilitation in developing countries.

Consequently, there is a little benchmark on how to improve the performance and contribution of such funds to farmer's rehabilitation efforts. Chapter three moves away from this trend by examining the governance of Ghana's Forest Plantation Development Fund, an incentive mechanism established in 2002 to accelerate smallholder landscape rehabilitation efforts. Specifically, the following questions are analysed:

- What mechanisms do administrators of Ghana's Forest Plantation Development Fund (FPDF) use to reach out to its stakeholders?
- What is the information needs of stakeholders of Ghana's FPDF, and why?
- How do stakeholders perceive transparency in the management of Ghana's FPDF?

1.3 Significance of the thesis

The need to tackle questions around farming in forest reserves gains more currency when read alongside the growing calls for creative solutions to overcome forest and agriculture land-use conflicts in the tropics. Healthy forests are essential for biodiversity, climate change mitigation and contribute to livelihoods. More than one billion people depend to some extent on forests for their survival (FAO, 2020). Despite this, global forest resources are being lost rapidly, even more so in the tropics. The FAO estimates that smallholder agriculture accounts for two-thirds of the annual forest loss (FAO, 2016). On the one hand, such losses lay a foundation for food security and poverty alleviation in many forest-dependent villages in the tropics, where other livelihood opportunities are simply beyond the reach of the growing population. On the other hand, such losses could increase humanity's exposure to zoonotic diseases that are of forest origin, for example, Ebola (FAO, 2020). Thus, now more than ever, it is essential to find ways to manage FALUCs.

The thesis contributes to scientific debates on forest and agriculture land-use conflicts and resource governance, specifically, the competition over land in contexts characterised by overlapping customary and legal institutions. Its strength lies in disentangling actor narratives about farming in forest reserves and linking them with institutional and grassroots practices to reveal gaps in current attempts to manage the challenge. Categorically, the thesis, first, examines the multiple structural and relational mechanisms forest communities use to gain and control access to lands in forest reserves for farming. Second, it disentangles the multiple storylines and narratives around farming in forest reserves based on a case study in southwestern Ghana, where the most farming in forest reserves occur. The information elicited

challenges current assumptions that portray forest communities as environmentally destructive and draws attention to possible entry points for harmonising competing claims to forest land use in Ghana and beyond. Third, the thesis interrogates the governance challenges to funding forest landscape rehabilitation and provides insights for improving resource use. Overall, the thesis generates relevant information for scientists, policymakers, practitioners, social movements, and groups looking to overcome land-use conflicts and contribute to the sustainable development agenda to halt deforestation and restore degraded forest landscapes (SDG 15) while ending hunger and poverty (SDGs 1 and 2).

1.4 Conceptual framework

In pursuing the thesis' objectives, I engage with the political ecology approach, which focuses on analysing the power relations among environmental actors to understand the conditions that drive social and environmental problems (Robbins, 2012). The approach is suitable for examining questions around farming in forest reserves and landscape rehabilitation for at least two reasons. First, it provides an eclectic analytical lens for gaining a disaggregated understanding of forest actors and their contestations over material resources, notably forests and land, and over meaning, manifested in the stories and narratives they use in order to gain control over these material resources (Benjaminsen & Svarstad, 2018). The second reason for engaging the political ecology approach is its focus on deriving policy and institutional reforms that lead to a fair and sustainable world. Such an orientation fits very well with the overall thesis's goal to derive strategies that enable actors to manage forest-agriculture conflicts for equitable benefits flow from forest landscapes to people and nature, as shown within the framework in Figure 1. Moving from the present situation (P), where farming fuels deforestation in forest reserves (Figure 1), to a region of fair and sustainable use of forest landscapes (G) requires strong institutions (I). Stakeholders can develop such institutions when they understand the multiple actors involved in the problem, including state institutions (S) and local communities (L). The critical issues among these actors, their theoretical underpinning and how they connect with various aspects of the dissertation is clarified.

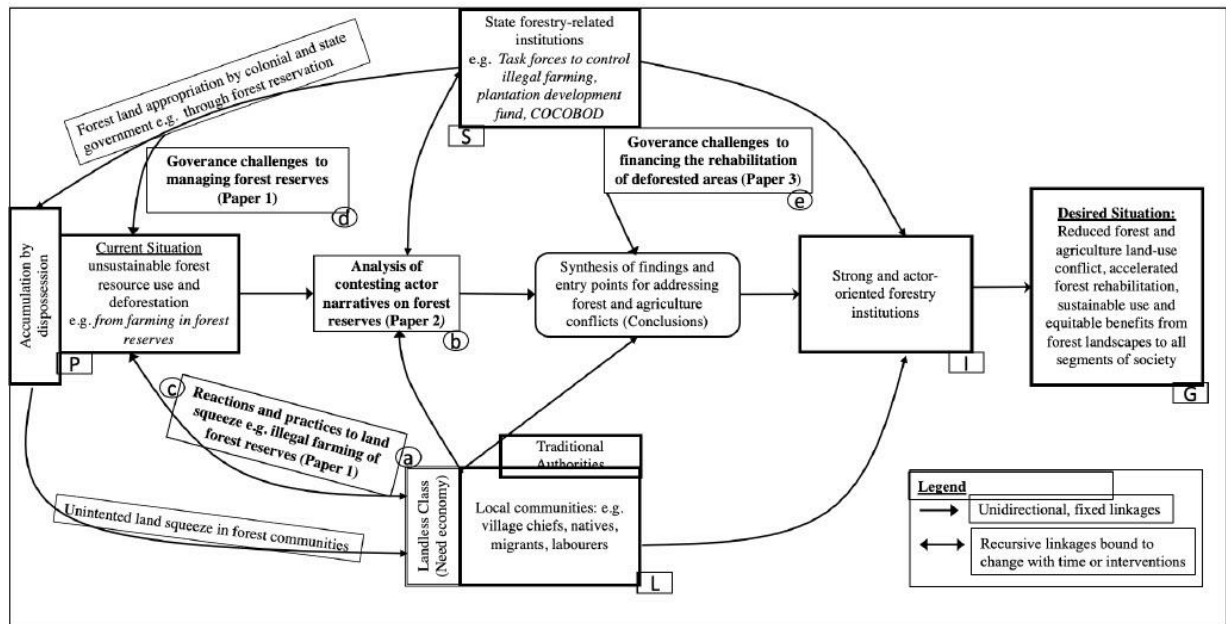


Figure 1. A conceptual framework linking issues and themes of the thesis

In applying the political ecology approach to study environmental problems, Robbins (2012) suggests asking questions about “what causes the environmental problems, who wins and who loses, and what political resistance has grown from local land-ownership transitions.” This thesis takes an eclectic approach anchored on four pillars to understand the hidden causes of farming in forest reserves and its associated rural politics. In describing the approach below, I refer to Figure 1, using the letter in brackets to direct attention to the specific issues and linkages in the diagram. First, noting that existing structural conditions can define practices, flow, and distribution of benefits from farming in forest reserves, I engage with material accumulation and class differentiation debates in the political economy literature (a). Bearing in mind that discourses incite power and can be used to wrestle control over resources or exclude specific actors from resource use, I draw on narrative analysis to shed light on voices neglected in current debates on the topic (b). Third, recognising that marginalised actors are creative in finding ways to exclusionary policies, I draw on James Scott’s everyday forms of peasant resistance to understand the local political reactions around farming in forest reserves (Scott, 1986) (c). Finally, I connect the above with institutions and governance challenges, given that institutions have a big role in perpetuating or overcoming farming in forest reserves (d, e). Governance challenges refer to the ‘characteristics of formal and informal institutions that jeopardize positive development outcomes’ (Birner & Sekher, 2018: 20). Below, I critically situate the four building blocks, clarifying potential tensions and associations.

1.4.1 Accumulation, dispossession and rural class differentiation

A meaningful exploration of farming in forest reserves is more plausible when one has grips of the practice’s origin. Marx’s account of primitive accumulation provides a useful lens for eliciting such an understanding. Succinctly, primitive accumulation is explored in this thesis in

line with the Ghanaian government's application of forest reservation to separate local farmers from their means of production and its influence on restructuring social class relations.

A known feature of primitive accumulation, as highlighted by Karl Marx and affirmed by many scholars, is that it severs the relationship between a producer and their means of production. The means of production are brought under the reigns of capital while the producer, now unemployed, transitions into a wage labourer for capitalist production. Benjaminsen & Bryceson (2012: 336) reiterate how primitive accumulation results in the conversion of 'communal property into private property and the suppression of rights to commons.' This means that they largely lose their right to 'grazing their livestock, collecting firewood, fishing and hunting, and other activities that provided a necessary complement to the subsistence they gained from cultivation' (Bernstein, 2010: 29). The implication of this is in two folds: first, by converting the commons into exclusive private property, land becomes alienable: it can be transacted or leased. Consequently, 'owners of capitalist landed property in the countryside do not necessarily farm it themselves but may rent it out to tenants who do' (Bernstein, 2010:28). Second, by denying peasants rights to the commons, they are inherently transformed into a reserve pool labour who, rendered landless, need to succumb to capital's need to expand itself for their social production. In effect, three social classes, of capitalist farmers, tenants and a landless labour class, are broadly distinguishable in matured agrarian capitalism (Bernstein, 2010).

As noted earlier, in rural Africa, many works draw attention to how imperialism and peasant integration into international markets in the 1900s facilitated class differentiation in the region. An apparent shift by the peasantry towards commodified crops such as cotton, groundnut and cocoa are widely documented in Western Africa. For example, in Ghana, the transition was mainly towards cocoa production, which changed local land configurations from kinship, paternalistic and patronage relations towards commodification. In Hill's seminal work, *The Migrant Cocoa Farmers of Southern Ghana*, she describes how the pursuit of fertile lands for cocoa production led to the emergence of a class of rural capitalists who applied capital to gain control over communal lands with the support of native chiefs Hill (1961). Other farmers, mostly migrants from different parts of the country, formed tenancy agreements with native chiefs, allowing them to use their labour to secure land through a share-cropping arrangement (Amanor, 2001; Berry, 2008; Ubink & Amanor, 2008). Next to this, the state also brought several tracts of communal lands under its reigns, depriving local communities of several rights of access (Larbi et al., 2004), which further deepened the class differentiation. Because lands channelled into forest reserves are unable to absorb the labour of the people it disposed of, a pool of surplus labour has evolved in several forest-dependent communities, and this keeps increasing with population growth, especially given that 53% of Ghanaian households are engaged in agriculture (Ghana Statistical Service, 2020). In advanced capitalism, industrialisation provides an escape route for many landless farmers by offering them employment opportunities. However, this can hardly be said for most post-colonial countries, including Ghana, because industrialisation projects envisaged following their political independence failed to gain traction (Page, 2012). Consequently, what happens when capital does not find space for the dispossessed class from primitive accumulation?

This question has puzzled many development studies scholars over the last few decades. Sanyal (2007) wondered what happens to the dispossessed class whose labour cannot be absorbed by capital. Focusing his analysis on post-colonial economies, he argues that this class falls outside the realms of capitalism and more into, what he terms, a need economy. According to Sanyal (2007), actors within the need economy in the countryside are not primarily concerned about accumulation, but their subsistence, a view posited by Chayanov (1966) in his classic, *A Theory of the Peasant* (I return to this again in the Section 1.4.2). Watt (2009), concerned about the apparent emergence of what seems like a disposable class of humanity – i.e., the surplus-labour class in the need economy– argues for an elaborate and context-specific analysis of labour in areas of dispossession. Embracing this challenge, Li (2010: 66) examined landlessness and the surplus-labour question in rural Asia, where oil palm and rubber production had led to the dispossession of ‘large numbers of people’ in Indonesia, Malaysia, Cambodia and Laos. She found that whereas India seems to have found a potential solution to protect its surplus population by instituting a ‘right to food’ legislation, the others did not. In response, she called for more context-specific systems to protect people in the need economy. In most northern countries, social protection schemes exist to attenuate the burden of actors within the need economy. However, the same cannot be stated for many developing economies in Sub-Saharan Africa, where such support systems are either inexistent or dysfunctional (Duffield, 2007). Nor are there strong advocacy-based organisations that can lobby for their interests and rights to the self-production of the surplus-labour class. Meanwhile, primitive accumulation of the commons under the flagship of conservation from the early 1900s in colonial Africa is assuming new forms that are widening the need economy in the region.

Conservation as a form of capital accumulation in post-colonial Africa is still an emerging topic in the development literature because forest enclosures were previously associated with public and not private property rights (Kelly, 2011). Historically, transforming the commons into exclusive private property involved violent suppression reminiscent of imperialist modes of operation. However, recent developments favour more nuanced and covert approaches that lead to dispossession, nonetheless. In *The New Imperialism*, David Harvey puts it succinctly:

‘The process of proletarianization, for example, entails a mix of coercions and of appropriations of pre-capitalist skills, social relations, knowledges, habits of mind, and beliefs on the part of those being proletarianized. In some instances, the pre-existing structures have to be violently repressed as inconsistent with labour under capitalism, but multiple accounts now exist to suggest that they are just as likely to be co-opted in an attempt to forge some consensual as opposed to coercive basis for working-class formation’ Harvey (2003:146).

Harvey (2003: 137) calls this new form of dispossession, which occurs to facilitate the continuous accumulation of capital, ‘accumulation by dispossession’. During forest reservation in the Gold Coast (now Ghana), the colonial government evaded violence by sharing ownership rights over forest reserves with traditional institutions, and in some cases, alienating patches of farmlands to communities in areas targeted for forest reservation (Agbosu, 1983; Hansen & Lund, 2017). While this act was diffused, obfuscating the ‘relations between the act of

enclosure and capital accumulation' (Kelly, 2011: 684), it crucially laid an institutional structure for future accumulation. Thus, the Ghanaian government's continuous allocation of forest reserves to commercial enterprises for capital accumulation through plantation forestry and emission reduction programmes (Forestry Commission, 2016, 2020) is the next stage in finally dispossessing communities from their communal lands that were expropriated throughout the 20th Century.

In off-reserve, Gyapong (2019, 2020) has recently shed light on the labour relations that emerge when land relations change from familial to commercial ownership for oil palm plantation development in Ghana's Volta Region. Gyapong (2020) avers that while a new class of surplus labourers have emerged from the changes in land ownership, its impacts were insignificant on the labourers because many had access to alternate parcels of land beyond accumulated or privatised areas. For many communities in Southwestern Ghana, where forest reservation expropriated them from their land, this is simply not possible (Brobbey et al., 2020). Instead, these communities reckon their alternative parcels of land by the disproportionate area of their lands accumulated by the state for conservation. At the same time, they have limited access to alternative employment opportunities. Again, 'the disposable' of a class of humanity question raised by Watts (2009:283) rears its head. While this alone is enough cause for concern, existing institutional clashes between state and customary actors add another dimension to the already complicated challenge.

In many post-colonial states, including Ghana, private property relations may not be fully developed (Benjaminsen & Bryceson, 2012b; Lund, 2008), or their enforcement may be problematic due to the prevalence of weak institutions (Derkyi & Dietz, 2014; Kumeh & Abu, 2019). Besides, in many areas, land accumulation by the state for conservation remains keenly contested by customary institutions, which wield allodial rights to land, and operates in parallel with the state in sanctioning claims to land (England, 1993; Owubah et al., 2000). In such areas, natural capital, fertile land, timber and mineral resources, and their associated rents lead to capital accumulation and class differentiation (Benjaminsen & Bryceson, 2012b). Under conditions of unclear private property and legal pluralism, Ribot & Peluso (2003) have posited that actors can draw on diverse structural and relational mechanisms to access resources. According to Ribot & Peluso (2003), access is the "ability to benefit from resources". This orientation shifts from the earlier political economy construct of access as a right primarily conferred by property. Building on this understanding, this thesis scrutinises how the different social classes that have emerged following their dispossession to make way for forest reservation interact, consensually and resentfully, with normative and legal institutions to guarantee their subsistence from forest reserves (Figure 1: a, c).

1.4.2 Moral economy and everyday politics of resistance

While the separation of producers from their means of production has in some cases been situated as an inevitable process in the advancement of capitalism, many accounts show patterns of resistance to modernization and exploitation, especially in rural communities. Chayanov (1966), in his classic work on peasants in Russia, avers that rural households are not

homogenous in their aspiration, leading to different perceptions of risk among the classes of actors in the countryside. For him, unlike capitalist farmers, some rural households are not fixated on profits; instead, their priority lies in achieving household subsistence, making them risk averse. Building on the works of several others, including Chayanov's *A Theory of the Peasant*, Scott (1976) pointed out that the peasantry's risk aversion forces them to invest in developing social relations that they can draw on during challenging times. Investment in social relation varies and can range from pooling land and labour with their neighbours or transferring the surplus from their production into their kinship and other community actions. According to Scott, the peasant's moral economy lies in that they appear amenable to all forms of moral obligations and other forms of exploitation so long as these demands do not push them consistently below their subsistence or expose them to unwanted risks. Alternatively, such risks incite the peasantry to deploy various tools to either endure or rebel against the established social norms and socio-political authority that facilitates their exploitation (Scott, 1976).

In his pivotal work on peasant resistance in Asia, Scott (1986:6) discusses a 'prosaic but constant struggle between the peasantry and those who seek to extract labour, food, taxes, rents, and interest from them'. This struggle, according to him, manifests in conducts such as 'foot-dragging, dissimulation, false compliance, pilfering, feigned ignorance, slander, arson and sabotage' (Ibid, 1986:6). These everyday forms of peasant resistance, 'typically avoid any direct symbolic confrontation with authority or with elite norms', tend to be covert and focused on short-term gains. Besides, these 'weapons of the weak' are seldom organised. While they might not significantly redefine the various forms of exploitation experienced by the peasant, they represent a form of individual self-help for the peasantry (Ibid, 1986). Scott avers that, in some cases, resistance achieves better outcomes when concealed because revealing them provokes vicious responses from the exploitative class. On the forest reservation question, this thesis views everyday actions as a pertinent analytical lens for understanding land politics in communities fringing forest reserves, specifically, how they experience forest conservation as a tool that reconfigures land ownership and power relations within their commune.

Earlier studies give rich insights into how exploited classes employ 'weapons of the weak' to resist exploitation. Scott's account includes outright sabotage and theft, used by farmers in rural Malaysia to resist the introduction of combine harvesters, which they perceived would render their labour surplus to requirement (Scott, 1986). Within the African context, Kouamé (2010) assessed the socio-political impacts of the commodification of land in Abure, Cote d'Ivoire, which had led to massive accumulation of family lands by foreigners from other West-African countries. He found that the accumulation had dispossessed many young people in Abure. To contend the exploitative class relations that had been established, Kouamé (2010) observed that the youth in Abure destroyed many young 'pineapple plantation belonging to Burkinabes' after which the 'Abure young men traversed the countryside planting red flags or stakes on the plots which they knew, through their information networks, were being prepared for a plantation by a foreign tenant'. In a similar study in Ghana, Amanor (1999) found that the unemployed youths, who had emerged as surplus labour because their chiefs alienated their lands to private developers, took to the nocturnal stealing of palm fruits from oil palm developers. For these youths, the "land was theirs before it was unfairly taken from them and that they too had to

eat” (Amanor, 1999: 110). These and other works were carried out outside reserve areas where property rights are more easily enforced. This thesis takes another perspective to the ‘weapons of the weak’, the weak being forest-dependent communities, and measures they use to contend land and class relations (Figure 1, b) in a context where property rights are highly fluid (Ubink & Amanor, 2008).

1.4.3 Discourses, knowledge and power

Another important aspect of the land struggles in forest reserves is language's role in reproducing established regimes of exploitation. In a world characterized by conflicting interests and keen competition over land resources, how actors describe their relationships with the environment affects the allocation of associated costs and benefits from exploiting these resources. Michael Foucault put forward this notion of discourse as a source of power, writing:

‘Truth is a thing of this world: it is produced only by virtue of multiple forms of constraint. And it induces regular effects of power. Each society has its regime of truth, its “general politics” of truth: that is, the types of discourse it accepts and makes function as true; ... the status of those who are charged with saying what counts as true.’ (Foucault, 1980: 131)

Read together with the accounts on class differentiation in rural societies (see Section 1.4.1) and farming in reserves and its impacts on forests, it is conceivable to ask who defines notions such as ‘degradation’, and ‘deforestation’, and whose account about the causes of these environmental challenges matter, because clearly, the answers have implications for environmental policies and actions. Answering these questions, for many poststructuralists, means deconstructing the diverse discourses around these environmental challenges to identify patterns and contradictions that may have been overlooked or taken for granted. A discourse embodies the common understanding actors possess about a particular issue and emerges from the narratives that actors convey. In contrast, narratives are the stories policy actors recount to stabilize policymaking assumptions and influence policy outcomes (Roe, 1994). Established narratives that dominate discussions and translate into institutional arrangements may be labelled a hegemonic narrative.

Narratives analysis over the last three decades points to a key element that appears relevant for understanding, contending and deriving alternatives for established interpretations of farming in forest reserves. Roe (1991) posits that narratives are structured – i.e., they have a beginning, middle and end. He draws attention to how hegemonic ‘development narratives’ continue to inform institutional reforms despite empirical evidence refuting the storylines upon which they are built (Roe, 1991). Rather than attempting to undermine hegemonic narratives with evidence, Roe argues that it is useful to focus on ‘creating and engaging counter-narratives to the more objectionable narrative or modifying that narrative to make it less objectionable’ (Ibid, 1991: 288). Counter-narratives emanate from various counter-claims that interrogate the consciousness of a hegemonic narrative. But in the process, they point to flaws in hegemonic narratives and offer a new storyline that redefines the former's underlying assumptions and put forward an alternative that subverts its political interests and positions. In situations with

competing narratives, Roe (1994:4) argues that tolerating multiple voices is possible when one finds a metanarrative that turns competing, ‘polarised narratives into another story altogether’.

Earlier works that deconstruct narratives around communities and forest reserves suggest some general themes. Wittmer & Birner (2005) examined discourses on nature conservation conflicts, particularly whether communities should be allowed a place in protected forests. They identified three dominant discourses: conservatism, eco-populism and developmentalism. Conservationists hold that some forests should be spared to secure biodiversity and other ecosystem services; eco-populists posit that indigenous communities are the better environmental stewards. At the same time, developmentalists argue that population growth and poverty are the main drivers of environmental degradation and biodiversity loss. To harmonize the three groups' divergent interests – nature conservation, indigenous rights protection, and poverty eradication – they concluded that the different actors need to move beyond romanticizing their discourses to accommodate neglected aspects of reality. While this indicates that understanding the various actor viewpoints is a crucial first step to tackling nature conservation conflicts, the information is simply not available in many African contexts, including Ghana. Instead, in such contexts, powerful actors and political elites label forest communities as ‘environmentally destructive’, feeding off environmental degradation narratives to exclude forest communities from benefiting from their immediate spaces (Benjaminsen & Bryceson, 2012a; Kansanga et al., 2017). This thesis attempts to disentangle the counter(narratives) forest communities use to justify farming in forest reserves and create an entry point for engaging existing hegemonic narratives that advocate for farmers’ exploitation and dispossession as the primary strategy for tackling deforestation in Ghana (Figure 1, b).

1.4.4 Institutional pluralism and governance challenges

As mentioned earlier, this thesis focuses not only on understanding the power relations and contestations over farming in forest reserves in Ghana but exploring and seeding alternatives for overcoming resource mismanagement. Seeds need good soils to take root; thus, it is imperative to examine institutions, the soil upon which farming in forest reserves emerge. This thesis understands institutions as the formal and informal rules humankind develops to guide their ‘political, economic and social interactions’ (North, 1991:97). Such a view is expansive and appropriate to understand not just formal or statutory rules governing forest reserves in Ghana but the informal norms and practices among grassroots actors, including traditional authorities.

On making and enforcing rules that enable societies to derive optimal benefits from forest resources, one widely held view is that governments should wield authority over resource management in the general public's interest in a given territory (Johnstone & Newell, 2018). Consequently, governments' role was at the centre of forest resource management goals and strategies. For many post-colonial countries, this position began to change rapidly in the 1970s, with many actors calling for more decentralised approaches that place forest communities at the zenith of forest management (Dupuits & Ongolo, 2020; Minang et al., 2019). The change

in position was among others necessitated by heightened deforestation, evidence of weak state capacity to effectively manage forest resources in most developing countries, protests and resistance by local communities against top-down approaches by facilitated elite capture of forest rents, and pressure from international agencies for these governments to tackle rural poverty (Charnley & Poe, 2007). It has been argued that ‘conflicts over institutions lay bare interests and power relations, and their outcomes not only reflect but magnify and reinforce the interests of the winners’ (Thenen & Steinmo, 1992:27). However, the outcomes of such struggles are not fixed. Instead, they become the arenas of future political and institutional struggle (Ibid, 1992). In a country like Ghana, where conflicts over the management of forestlands have been raging between traditional authorities, native elites and state since the 1890s (see Agbosu, 1983; Amanor, 2008; Hansen & Lund, 2017), it is essential to examine how the prevailing institutional regime that advocates state management of forest reserves aligns or contradicts with the interests of traditional authorities and their constituents over time and the reactions from below (Figure 1: d).

Finally, it is argued in the development studies literature that strong institutions are fundamental for effective resource management (Duguma et al., 2018; Sayer et al., 2015). As noted earlier, governance challenges can undermine the capability of institutions to deliver positive outcomes. Birner & Sekher (2018) have distinguished between three governance challenges related to markets, the state and third sector actors, notably civil society organisations. On forest management in Ghana, many studies have identified several governance challenges, including elite capture of forest benefits by state actors and traditional authorities and inadequate capacity of forestry officials. While this thesis is open to potential governance challenges emerging among various actors in managing forest reserves (Figure 1, d), it also gives detailed attention to specific institutions that have been neglected so far in the literature on rehabilitating deforested landscapes, notably Ghana’s Forest Plantation Development Fund Board (Figure 1, e).

1.5 Methodology

Each empirical study in this thesis (chapters 2-4) provides a detailed information on the methods used. Thus, this section mainly provides an overview the study context and its actors and the general research design employed for the thesis.

1.5.1 Study context: forest-agriculture conflicts in Ghana

The research was conducted in Ghana (Figure 2), where agricultural expansion remains a crucial contributor to the country’s deforestation of 135,000 ha per annum. The government estimates that agriculture is the main livelihood of 53% of Ghanaian households, with 97% engaged in arable crops or tree crop production (Ghana Statistical Service, 2020). Most forest-agriculture conflict occurs in the High Forest Zone (HFZ), which has different forest types from wet evergreen to dry semi-deciduous forests. About 1.6 million or 20% of the HFZ are currently forest reserves (Oduro et al., 2012). Many forest reserves are surrounded by villages, while there are also cases where specific villages have been cordoned to areas within specific

forest reserves. These villages received the rights to remain in such areas during forest reservation and are referred to as admitted communities. Although forest reserves surround them, admitted communities and other forest fringe communities are forbidden by statutes to trespass into forest reserve areas. While the logic at the time of forest reservation was to reduce resistance from the communities, such resistance seems inevitable, especially as these communities grow. Recent reports suggest that the many admitted communities have outgrown the spaces they were confined to during forest reservations (Brobbe et al., 2020). Besides this, many forest fringe communities are documented to have established unauthorised farms in their neighbouring reserves (Ameyaw, 2019; Forestry Commission, 2010).

The scale of deforestation and its perceived impacts have led to policy and institutional reforms that seek, on the one hand, to prevent forest communities from farming in forest reserves. On the other hand, these institutions encourage them to rehabilitate degraded forest lands through forest plantation development. These include a designated fund established to support forest plantation (Kumeh et al., 2019) and partnership schemes between landless farmers and forestry authority to grow trees and food crops on degraded forest reserves (Forestry Commission, 2016, 2020), and REDD+ initiatives that promise to reward forest communities for avoiding deforestation in the cocoa and forest frontier of Ghana (MLNR, 2016a; World Bank, 2017). Several institutions and actors operate within the forest-agriculture conflict nexus. I discuss them in Section 1.5.2. For now, I turn to the study areas where data was collected for the thesis.

It is useful to recall that the first objective focuses on understanding the structural and relational mechanisms forest communities use to access forest reserves, while the second objective seeks to unveil and disentangles the grassroots voices around farming in forest reserves. To achieve these, I focused the data collection in the Juabeso district of the Western North Region of Ghana (Figure 2, Study Area 1). The area was selected because it possesses the Krokosua Hills Forest Reserve, which continues to experience a high incidence of forest and agriculture land use conflicts (Forestry Commission, 2010). The third objective is to assess the effectiveness of direct financial incentives for forest plantations. To achieve this, I focused the analysis on Ghana's Forest Plantation Development Fund Board, established in 2002 to provide direct financial support to tree growers in grants and loans. To understand plantation developers' views and experiences with the Fund, I collected data from five districts with a strong history of engaging in plantation development (Figure 2, Study Area 2).

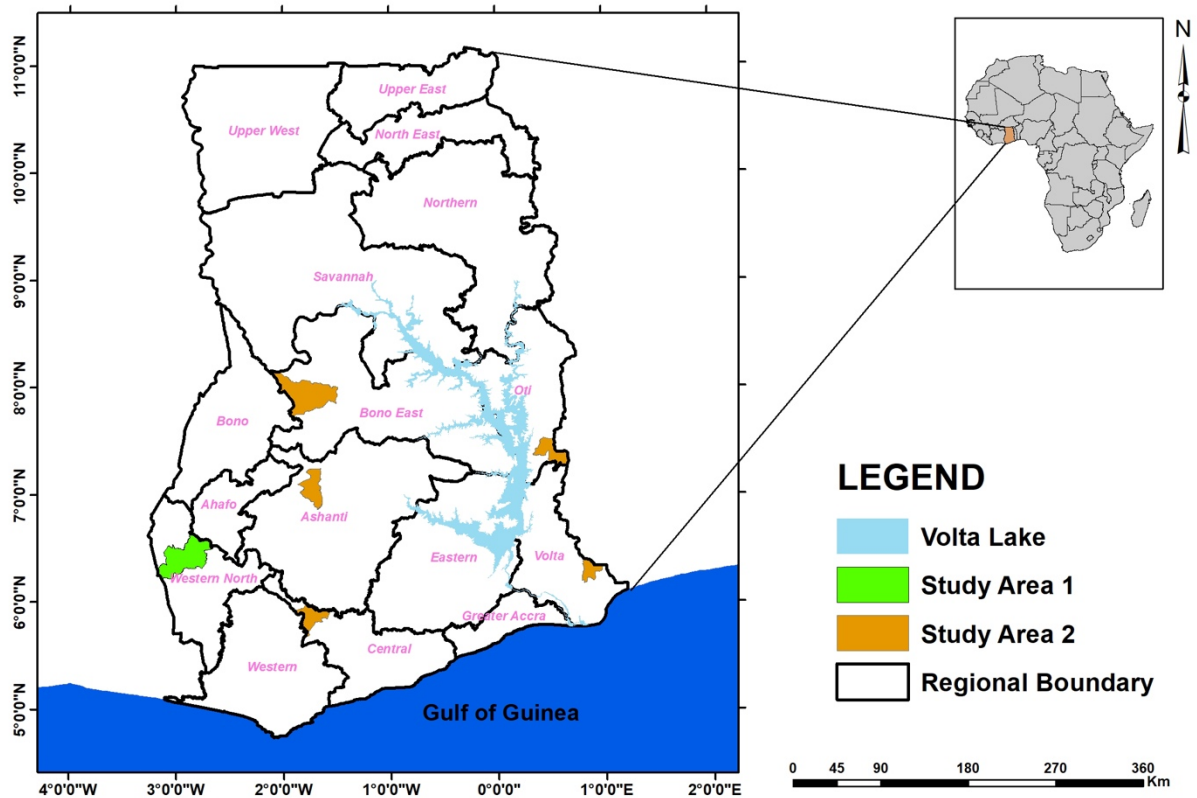


Figure 2. A map of the study area

1.5.2 Overview of actors and their interactions in farming forest reserves

The actors engaged in the forest-farming frontier can be placed in two broad categories: primary and secondary actors. Primary actors are directly involved in farming activities, while secondary actors are more involved in providing resources or regulating the primary actor's conduct (Kumeh et al. 2021). I provide a brief overview of each actor category, including their roles in regulating land and forest resources.

1.5.2.1 Primary actors

These actors are directly involved in the production and trade of food crops and cocoa within forest reserves. Farmers acquire, clear, and cultivate cocoa and food crops, notably plantain and cocoyam, or in isolation, harvest and sell them to merchants (Kumeh et al. 2022). Apart from clearing the forests, women conduct most of the crops-related cultural practices, including planting, weeding, harvesting, and selling the produce. Men tend to focus on labour-intensive activities, especially applying pesticides to cocoa trees. Labourers support farmers in clearing forestlands and carting cocoa and food crops and cocoa to an aggregation point for farmers and merchants. Merchants buy food crops, aggregate, and transport them to cities for retailing. They also provide credit to farmers to support their operations (Kumeh et al. 2021).

1.5.2.2 Traditional leaders and Chieftaincy

Chieftaincy is an old and very respected institution in Ghana. Nonetheless, it has witnessed many struggles and continues to be plagued with several internal conflicts (Boafo-Arthur, 2003). Schramm (2004: 167) puts this well when she avers that the Chieftaincy is a 'potent symbol of cultural resilience and political resistance.' Ghanaian societies are organised into ethnic groups, and the Chieftaincy provides a mechanism for centralised leadership. Within the country, chieftaincy is organised around the lands owned by specific ethnic groups, referred to as stool lands. The stool lands are headed by stool chiefs, supported by sub-chiefs. In Northern Ghana, 'skins' are the equivalent of 'stools' used in Southern Ghana, and the term denotes that symbol of the chief's authority. Thus, whereas chiefs are enstooled, literally placed on a stool during their ascension in Southern Ghana, those in Northern Ghana are enskinned, placed on skins. My thesis focuses on southern Ghana; thus, I will use stool from henceforth.

Hierarchically, paramount chiefs are the apex of the traditional council's stool lands. The traditional council also has divisional chiefs who are less powerful than paramount chiefs but more powerful than village chiefs. Village chiefs are in charge of the daily administration within specific communities. Most village and divisional chiefs are appointed and assigned specific roles within the traditional council. For example, within the Sefwi Wiawso Traditional Council, where my research was situated, the paramount chief has specific chiefs appointed as his council on forestry and mining-related issues. At the national level, the chieftaincy is coordinated through the National House of Chiefs (NHC), a body established by the Constitution of Ghana to examine, interpret, and codify customary laws and eliminate outmoded and socially harmful customs (Constitution of Ghana, Sections 271 and 272).

Chiefs are the primary custodians of land, possessing allodial land rights, i.e., absolute ownership rights. In the colonial era, chiefs were instrumental in negotiating mining and timber concessions on their lands (Agbosu, 1983). Similarly, they played an instrumental role in developing bye-laws for constituting forest reserves within their stool lands. Plate 1, for example, is a historical correspondence regarding the creation of the Krokosua Hills Forest Reserve (KHFR) through bye-laws by the Sefwi Wiawso Traditional Council in October 1935.

In contemporary Ghana, chiefs do not have the same legitimacy to allocate timber and mining concessions. This follows the promulgation of a series of legislation culminated by the Concessions Act, 1962 (Act 124) and the Chiefs (Recognition) Act 1959. Boafo-Arthur (2003: 131) puts it succinctly:

'Through these laws, the state assumed powers that were originally in the bosom of chiefs. These included the power to authorize the acquisition of land for either private or public use and the regulation of the collection and usage of stool revenue. Without a doubt, these laws undermined the economic base of chieftaincy, and more importantly, made most of them highly pliable and subservient to the central government'.

Chiefs are recognised in national statutes, including their allodial rights to the respective stool lands as established in customs and their rights to benefit directly from resources emanating

from their stool lands in the form of royalties as specified by Article 267 of Ghana's constitution (Ubink, 2007). As custodians of land, chiefs do not only allocate lands but mediate land disputes and grievances (Boni, 2008; Champion & Acheampong, 2014). Within the literature on farming and forest reserves, and as I will demonstrate in chapters three and four, chiefs appear to be complicated characters that facilitate farming in forest reserves and engage in the elite capture of rents from forest resources. Simultaneously, they seem immune to statutes that prohibit such practices due to their authority and capability to serve politicians' political interests (England, 1993; Owusu-Mensah, 2014). One final point worth noting is that although historical contests between the state and traditional authorities have led to some adaptation of the Chieftaincy:

‘traditional authorities do not exist as a consequence of their recognition and appointment by the governments of sovereign states. On the contrary, they are recognized and appointed to traditional offices, in accordance to customary laws because those offices are legitimated by the beliefs of the people, who expect them to exist in practice’ (Englebert, 2000 cf. Adotey, 2019: 2).

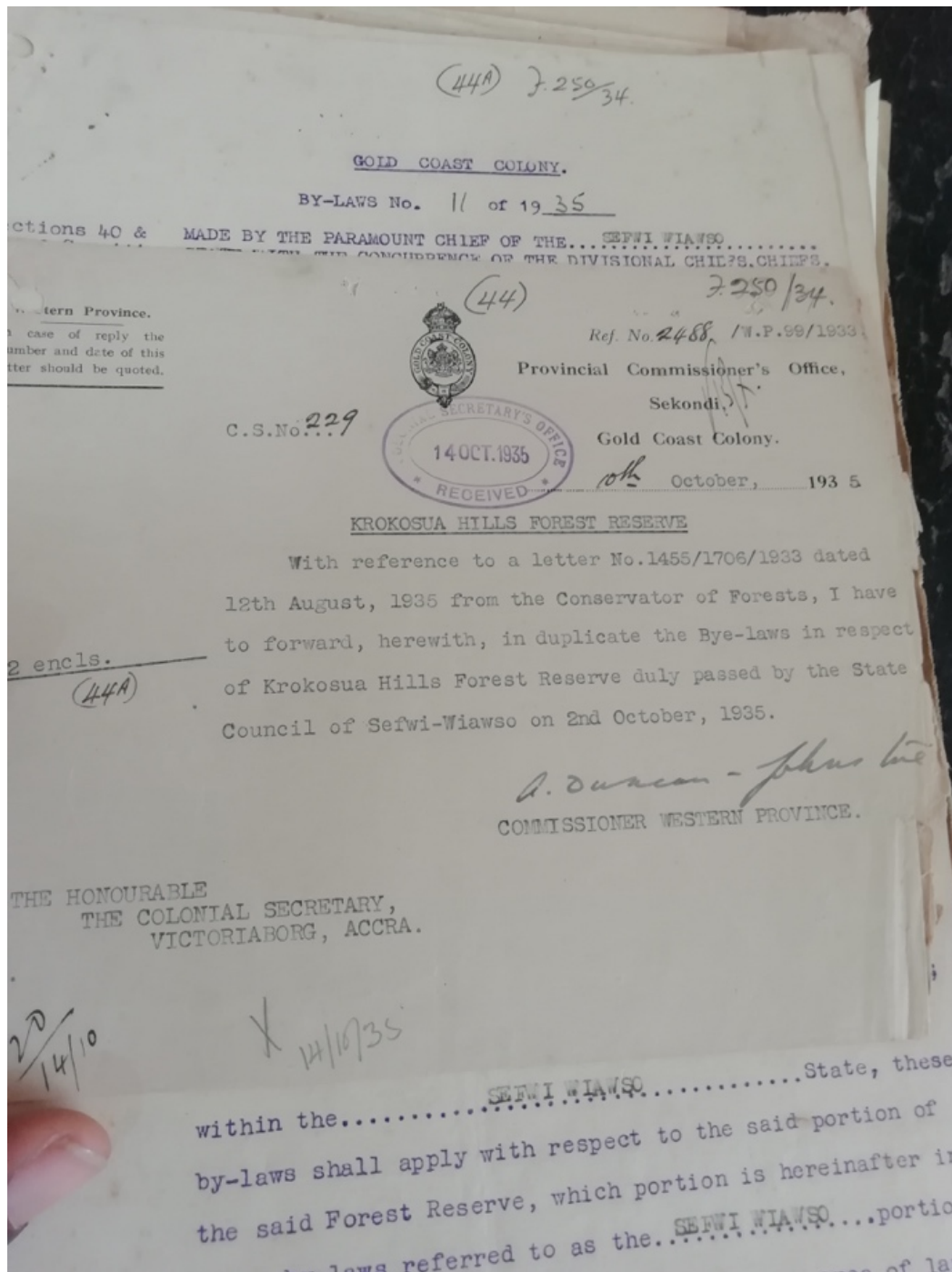


Plate 1. A correspondence between the Commissioner of the Western Province and the Colonial Secretary acknowledging bye-law developed by Wiawso Traditional Council for creating the KHFR in 1935 (Source: Author, with permission from the Public Records and Archives Administration Department, Accra).

1.5.2.3 Forestry Commission

The Forestry Commission (FC) was established by law in 1999 to replace the Forestry Department formed in 1909 to advance scientific forestry in Ghana (Hansen & Lund, 2017).

The FC's object focuses on 'regulation of the utilisation of forest and wildlife resources, conservation and management of those resources and the coordination of policies related to them' (Forestry Commission Act 1999 (Act 571). Technically, the mandate of the FC is restricted to the management of forest reserves. However, it also controls the exploitation of timber resources in off-reserve areas. The FC operates through various arms (Forestry Commission, 2020). For example, its Wildlife Division focuses on the management of the country's wildlife resources and national parks. There is also a Resource Management Support Centre (RMSC) that provides scientific and technical inputs for managing and exploiting the country's forest resources. The Forest Services Division (FSD) deals with the management of timber resources and has offices in every forest district in the country. Its office in the Juabeso district is headed by a district manager and two assistant managers. Forest range supervisors and forest guards conduct daily management and monitoring of forest resources. In executing the latter, the range supervisors and forest guards team up with security services from the Ghana Armed Forces as a joint task force to conduct routine operations to arrest illegal farmers in the KHFR for prosecution (Forestry Commission, 2010).

1.5.2.4 Ghana Cocoa Board

The Ghana Cocoa Board (COCOBOD) was established in 1984 as a corporate entity to replace the Ghana Cocoa Marketing Board. COCOBOD's central object, as described by PNDC Law 81, is to coordinate and regulate all aspects of the production and trade of cocoa, coffee and share in Ghana. COCOBOD achieves this through its five subsidiary institutions (COCOBOD, 2019). The Cocoa Seed Production Division invests in producing and supplying cocoa farmers with quality seedlings. The Cocoa Health and Extension Division (CHED) provides extension services to cocoa farmers and assists them to rehabilitate old cocoa farms and adopt good agronomic practices. The Quality Control Company (QCC) deals with post-harvest losses while the Cocoa Marketing Company (CMC) purchases, aggregates, transports, and exports cocoa beans in the country. Finally, the Cocoa Research Institute of Ghana (CRIG) conducts scientific research and provides inputs for cocoa development. Of all the departments, CHED has the most extensive coverage. They have offices in every cocoa-producing district across the country due to its direct engagement with cocoa farmers through Agricultural Extension Agents.

It is important to note that an unhealthy work relationship existed between COCOBOD and the FC for a long time. Two reasons account for this. For a long time, COCOBOD expressed concerns about the FC's allocation of permits to timber contractors to fell trees in cocoa farms, destroying cocoa trees without paying adequate compensation to cocoa farmers (Hirons et al., 2018). The FC, on the other hand, also blames CHED for promoting farming in forest reserves by supplying 'illegal' cocoa farmers with agrochemicals. As part of this tension, and as I will demonstrate in chapter three of the thesis, COCOBOD tends to dismiss cocoa contributions to deforestation in the country. In recent years, this conflict is changing, with both organisations now teaming up to implement interventions to tackle deforestation associated with cocoa production (Carodenuto, 2019; IDH, 2020; World Bank, 2017). Within the communities, CHED works through village committees, comprising the village chiefs, a chief farmer, a

representative of women, and an assemblyman, to distribute agrochemicals to support cocoa farming activities. There are, however, several challenges with this structure, including elite capture of the agrochemicals by political party executives and native chiefs (Abdul-Hanan & Anang, 2018).

1.5.2.5 District Assembly

Since 1988, Ghana practices a decentralised government based on a three-tier structure made up of the Regional Coordination Councils (RCCs), District Assemblies (DAs) and Area Unit Committees. District assemblies are at the centre of the country's decentralisation. They 'exercise political and administrative authority in the district, provide guidance, give direction, and supervise the other administrative authorities in the district' (ACT 462, Section 10). DAs by ACT 462 can charge revenues and levies and receive 49.5% of revenue accruing from natural resources extracted from lands in the district concern (Constitution Section 267(6) c). The DAs also possess several departments, including an agricultural development unit responsible for agricultural development within the district. Unit Committees represent DAs at the community level are at the lowest level of governance in Ghana. RCCs coordinate the activities of various district assemblies with specific regions in the country. While the district assembly is the vehicle of governance at the local, many tend to be faced with several personal, logistical and financial management challenges as are therefore largely ineffective in discharging their duties (Alam & Koranteng, 2011).

1.5.2.6 Cocoa Purchasing Companies

Except when cocoa is smuggled, cocoa beans trade in contemporary Ghana is conducted by the Cocoa Marketing Company (CMC) (Section 1.5.2.4). Since 1993, market liberalisation reforms in Ghana allow Licensed Buying Companies (LBCs) to buy cocoa beans directly from cocoa farmers before selling them to the CMC at a predetermined margin (Kolavalli & Vigneri, 2017). LBCs do not determine the farmgate prices for cocoa. Instead, the price is fixed by Ghana's government every year before the start of the primary harvest season in October. For the 2020/2021 season, GHS 10,560 (USD 1,837) per tonne, a 28% rise from GHS 8000 (USD 1523) per tonne from the previous season. From about six LBCs in 1993, there were 27 LBCs by 2017, with 11 accounting for about 96.4% of cocoa delivered to Ghana's ports (Kolavalli & Vigneri, 2017). In the bid to attract farmers, LBCs provide several incentive packages such as inputs and credit to cocoa farmers (Ansah et al., 2017; Bannor et al., 2019). They do this through their Purchasing Clerks, present in several remote cocoa-growing communities (Figure 3). Within the Juabeso District, there are several LBCs, and some of the most active LBCs are Produce Buying Company (PBC), Cargill Kokoo Sourcing Ltd (Cargill) and Touton.

1.5.2.7 Security Services and the Judiciary

The most active security agency in the study area is the Ghana Police Service and personnel of the Ghana Armed Forces. The former's objective is to 'prevent and detect crime, to apprehend offenders, and maintain public order and the safety of persons and property' (Ghana Police Service Act, 1970 (Act 350). The armed forces' personnel work directly with the FSD at the

district level as a Joint Task Force to combat illegal farming, logging, and mining activities in forest reserves (Figure 3). There is also a District Magistrate Court that handles disputes about farming in forest reserves. Cases beyond the Magistrate Court jurisdiction are referred to the High Court in Sefwi Wiawso.

1.5.2.8 Non-governmental organisations

These are also non-state actors working in the study localities to tackle several challenges, including poverty, deforestation and illegal mining. These include NGOs and community-based organisation that train farmers on agricultural practices and supply farmers with seedling to engage in agroforestry.

1.5.3 Research Design

Based on the conceptual framework, I draw on the critical research paradigm (Kincheloe & McLaren, 2005) to understand the contestation and power relations related to farming in forest reserves. The critical research paradigm is amenable to several research methods, including case study analysis, discourse analysis and ethnography. Before summarising the specific methods used in the separate chapters of the thesis, it is useful to clarify why I chose this approach. Critical research aims to go ‘beyond surface illusions to uncover the real structure in the material world in order to help people change conditions and build a better world for themselves’ (Neuman, 2003:110). Critical researchers analyse ‘competing power interests between groups and individuals with a society—identifying who gains and who loses in specific situations’ (Kincheloe & McLaren, 2005:228). Unlike the positivist research paradigm, which holds that society can be analysed in much the same way as the physical environment, critical research acknowledges and embraces multiple interpretations of language and action. Thus, outputs from critical research do not seek to inform generalisations but serve as inputs that can be contested, shared and used for transformative actions (Malterud, 2001; Neuman, 2003). Despite the inherent differences, positivist and critical research paradigms share some features essential for this dissertation, notably how they tackle doubt and ensure methodological rigour. For positivists, quality research should be refutable and allow for generalisation. Meanwhile, critical research adjudges scientific quality based on notions such as triangulation and reflexivity. I briefly explore how these two elements are applied to improve the quality of my research.

1.5.3.1 Triangulation

The fundamental notion of triangulation is to examine a phenomenon from multiple points to improve the validity and reliability of the knowledge generated (Denzin, 2009; Neuman, 2003). In this thesis, three approaches are employed to ensure the trustworthiness of the information generated. First, I draw on data from multiple sources, including the reviewing of archival materials on forest reservation, court cases on farming in forest reserves, reports from statutory agencies and news reports from the media. These were complemented with primary data gathered through diverse approaches, e.g. in-depth interviews, focus groups and participant

observations, and with multiple stakeholders (see Section 1.5.4). I conducted first-hand observations and benefitted immensely from an extended stay in the study communities. Second, I engaged multiple theories and analytical lenses to interrogate the issues that emerged from my data collection (see Section 1.4). Thirdly, my analysis and interpretation of the field data benefitted immensely from my cooperation with other researchers. These include experts that I co-authored papers with and several others who, through diverse I and seminars, provided valuable feedback and drew my attention to many theoretical and policy implications of my research findings.

1.5.3.2 Reflexivity

Reflexivity in critical research focuses on how researchers deal with their personal and ideological biases and their impacts on the research process, including the formulation of research, questions, data collection, analysis and interpretation of results (Berger, 2015; Daley, 2010). A researcher's background and position could shape 'what they chose to study, the angle of investigation, the methods they judged adequate for this purpose, the findings considered most appropriate, and the framing and communication of conclusions' (Malterud, 2001: 484). For transparency, it is essential to disclose 'the subjective aspects of the research process, the decisions taken at each stage, and the omnipresent power relations influencing' these decisions (Malterud, 2001: 484). Consequently, I provide information on my background, worldview and offer some perspectives on how I reflected and adapted my research based on my personal and field experiences.

Before starting this study, I worked for four and a half years as a researcher and project manager with Tropenbos Ghana, a non-profit organisation working on forest governance, agricultural and productive landscapes development. While I grew up in peri-urban areas and had some attachment to the countryside, my role as a project manager and a researcher at Tropenbos Ghana gave me richer insights into lives of people in the country. My initial perceptions about farming in forest reserves were mostly negative. My views were informed by the knowledge I had acquired from mainstream policy narratives reinforced throughout my academic training in natural resource management and environmental governance. This, however, changed following my immersion in various forest communities as part of my research activities for professional work. I became conflicted between seeing forest communities as 'destroyers' of valuable forest resources and as people struggling to make ends meet. Over several years, my immersion into the village economy also exposed me to village power structures, land ownership, land-use practices, and social norms in such areas. I generally think of myself as a pragmatist and tend to use predominantly qualitative approaches in conducting research. Beyond understanding and stretching the boundaries of academic knowledge, I seek to contribute technical and policy solutions to the issues I analyse.

My past experiences as a development worker in villages across Ghana enabled me to integrate into the research villages throughout my field data collection. In the villages, I relied on my awareness of local customs to call on native chiefs for their blessings to research their villages. During my engagement with the village chiefs, one challenge was the tension in asking them

difficult questions. This was so because some were admittedly facilitating activities considered illegal by law, such as allocating forest reserve lands to farmers and accommodating illegal mining referred to in the local parlance as *galamsey* in their communities. Chiefs are, indeed, powerful in their communities, and one wrong utterance could mean an end to my working in the communities. However, I found that by performing traditional rights such as calling on them with ‘customary drinks’ and clearly explaining that the rationale of my research was not to investigate them but to understand the dynamics of farming in forest reserves and explore sustainable solutions to the challenge enabled me to gain their trust. But more than these, I observed that the use of participatory approaches, including a process-net map and village mapping, and transect walks through the forests got chiefs, their elders and other members of the communities very engaged in the research discussions. In the end, many chiefs became my allies, and they helped organise their communities when the need arose.

During my field interactions with the local communities on their farms and in their homes, I frequently had to adapt my data collection techniques and engagements to suit the prevailing conditions. Some communities had active mining conflicts and expressed fear for investigative journalists and soldiers posing as researchers. Others were afraid of forestry officials posing as researchers to discover the location of their illegal farms in the forest reserve only to cut them down later. There was a feeling of what some of the respondents referred to as ‘*Anas*’, in reference to one of Ghana’s most revered investigative journalists, who has exposed the corrupt practices of many state institutions, including the judiciary, health practitioners and the state illegal mining task force. I had an awful experience with this ‘fear fever’ on Friday, November 29th, 2019. It was around 6:30 in the morning, and I was about to start the day with some household interviews when I encountered three middle-aged women carrying pans and machetes on their head and making their way to the farm. When I greeted and asked if I could join them to their farms, they dashed for the neighbouring bushes. In the process, one fell and hurt her knee. When I approached her to help, she held my leg, pleading that she had no illegal farms in the forest reserve and that I should not arrest her. I told her that there was no way I could arrest her because I was merely a student. As I tried to help her home, we encountered some of the earlier respondents from the previous days, and our interactions made the woman realise that I was not a forestry official. After that, she explained that most forestry officials wear olive-green t-shirts like the one I was wearing. I did two things from then. First, I called on the local chiefs to announce my presence through the village information centre. Second, I resorted to different clothes during the remaining part of my field data collection.

Finally, I would reflect briefly on the challenge of research fatigue and how it made me modify some aspects of my data collection. Many respondents in the villages indicated that several researchers conduct studies in their communities and that they were frustrated that they got nothing in return for all the time they give to these researchers. Some stated that they occasionally ignored their farm duties to provide information for researchers and have grown tired of them. Beyond taking several rounds to explain that I seek mainly to understand the issues and have no political power to change their living conditions directly, I also adopted a practical approach. I conducted the interviews and sometimes helped with their farm-related activities, such as picking chaff or dried placenta from dried cocoa beans. I found that this

approach made me more relatable to many of the respondents. Nonetheless, many respondents in the villages saw me as a privileged person and generally believed that I was better placed and in touch with the ‘government’. After our in-depth interviews, many would call on me to ensure the government hear why they farm in forest reserves and come to their aid because they were tired of persecutions from forestry officials and soldiers always exploiting them.

Reflecting critically on these experiences, I aim to develop a tailored policy brief that communicates the main findings and recommendations from the approved thesis to policymakers and practitioners in the Ghanaian context. Such orientation also fits well with the goal of the political ecology approach I employed, which apart from critiquing the power relations that underpin exploitative practices and inequalities, seeks to provide alternatives for ensuring a fair and equitable society (Robbins, 2012).

1.5.4 Data collection and analyses

The thesis predominantly engaged qualitative data collection and analytical approaches.

The first objective focused on examining how and why forest communities access lands in forest reserves for farming. This was operationalised through a qualitative case study in Ghana’s Juabeso forest district. Data collection was done through two stages. First, I conducted an extended field stay in six villages within the Juabeso District. The villages were selected based on the different levels to which they farm in farming forest reserves. Multiple approaches such as Process Net-Maps and Village Map, focus group discussion, and in-depth interviews were used to collect data from the villages (Nyumba et al. 2018; Schiffer & Waale, 2008) and these approaches are further clarified in Section 2.3.3. In conducting the interviews, I followed McGrath et al. (2019) for conducting qualitative interviews. Content analysis was applied to analyse the data for recurring patterns and themes of access (Ribot & Peluso, 2003) and the results were validated through a seminar involving the different actors.

The second objective sought to deconstruct the narratives forest communities employ to legitimise farming in forest reserves and compare them with those of forest policy actors. Data were collected through three steps. First, I documented forest communities’ narratives for farming in forest reserves through focus group discussions and in-depth interviews in 12 forest communities in the Juabeso district. The discussions and interviews focused on what motivates the farmers to cultivate the forest reserves and how they secure their investments in the reserve. The second step was to understand policy actors’ narratives about farming in forest reserves. This was done through key informant interviews with policy actors, including forest and cocoa sector public officials, NGOs, and cocoa buying companies. These actors were selected based on their engagement in forestry issues, elaborated in Section 3.3.3. The third step involved gathering documented narratives about farming in forest reserves. This was achieved by reviewing forest sector policy documents, government reports and news articles gleaned through a structured search within the databases of two dominant online media outlets in Ghana. The search was done in September 2020, using the following terms: “forest encroachment”, “cocoa encroachment”, forest conversion”, “deforestation”, and “forest

reserves”. Materials from the search were read and screened to eliminate those that did not convey policy actors’ narratives, for example, new items on forest-related project launch and dissemination workshops. Thematic analysis was conducted on interview transcripts and the selected policy documents and news materials. The identified themes were coded inductively in MAXQDA 2020 to identify various actors’ storylines on farming in forest reserves. Related themes were clustered and used as handles for depicting the narratives that emerged from the analysis.

The third objective examined the effectiveness of financial systems instituted to support smallholder forest plantation development in Ghana. Ghana’s Plantation Development Fund (PDF) Board was used as a case study. Data collection was conducted at two levels. The first level involved purposively selecting and interviewing smallholder plantation developers across five districts with a rich history of plantation development to understand their experiences and interactions with the PDF. The second stage of data collection involved key informant interviews with other stakeholders of the Fund, including forestry officials, timber companies and their associations, researchers, the staff of NGOs, the staff of Ghana’s Auditor General’s Department, and board members and administrators of the PDF. These participants were selected based on their experience, active involvement in supporting smallholder plantation forestry, and legal mandates concerning the management of the PDF. Semi-structured interviews were used to understand the various actors’ engagements with the PDF and their perceptions about transparency in the PDF Board’s activities. Descriptive statistics were used to analyse the multiple actors’ perceptions of transparency. Content analysis was employed to identify themes related to the institutional challenges and options to improve the administration of the PDF.

1.6 Outline of the thesis

This thesis is organized into five chapters. Chapter 1, including this part, gives a broader context to the thesis. Chapters 2, 3, and 4 are the empirical parts of the thesis. In Chapter 2, the structural and relational mechanisms forest communities use to access lands in forest reserves for farming and the various farming practices they conduct are presented based on a case study in Ghana’s Juabeso district. Chapter 3 gives empirical accounts of the hidden voices and experiences underpinning forest communities’ farming in forest reserves and contrasts with the narratives driving forest policy in Ghana. Chapter 4 provides detailed insight into the governance and institutional challenges of landscape restoration finance in Ghana, using Ghana’s Plantation Development Fund Board as a case study. In Chapter 5, the final chapter of the thesis, the main findings from the three empirical studies are synthesized and discussed. A reflection is offered on the limitations of the study. The thesis ends with a general conclusion, distilling the implications of the thesis findings for policy and institutional reforms and research towards managing forest and agriculture land-use conflicts in the global South.

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2. Customary power, farmer strategies and the dynamics of access to protected forestlands for farming: Implications for Ghana's forest bioeconomy

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Abstract

In the last decade, multiple scientists and policymakers have been promoting bioeconomy for decarbonisation and as a way to tackle the ongoing socio-ecological crises. An effective transition to the bioeconomy in developing countries, which are predominantly agrarian, depends partly on its amenability to existing land access regimes and how actors in such countries are able to manage competing claims and needs associated with land use for biomass production. However, this is sparingly examined in the bioeconomy-politics literature. Using a case study from Ghana, a Global South context aspiring towards a forest-based bioeconomy, we analyze how overlapping legal and normative institutions mediate forest-dependent communities' access to lands in forest reserves for their food and other livelihood needs. The study found that state and traditional institutions are racing to sanction forest communities' access to forest reserve lands in order to consolidate their authority over the area. In the emerging bioeconomy, the state employs plantation forestry as a tool to consolidate its control. Concurrently, traditional authorities contend this by facilitating farmers' access to the same area for cocoa production to establish claims to the land. Amid this contest, forest communities have constructed a robust discourse centred on their 'right to food', enabling them to apply their rich local knowledge to cultivate food and cash crops in forest reserves without deference to state institutions and traditional authorities. State forestry officials react by cutting down these 'illegal farms', causing periodic food insecurity in the study localities. Some farmers respond by adapting their access mechanisms, cultivating deeper into the reserve to evade forestry officials. The dynamism of this conflict makes sustainable resource use challenging in the study localities. But it also indicates that without proper safeguards and a coherent rural development policy, the bioeconomy will become an approach for reproducing oppressive land accumulation, impeding forest communities' ability to address their food and livelihood needs. Thus, while the findings bring to date the growing struggle over land in Sub-Saharan Africa, it cautions that governments need to recognize that the bioeconomy, despite its promise of sustainability, is no quick fix for entrenched structural problems in rural Africa.

Keywords: Socio-ecological conflict, deforestation, access, food security, forest-based bioeconomy

2.1 Introduction

In 2012, the European Commission (EC) published its Bioeconomy Strategy to enable the European Union reduce its dependence on fossil fuels and improve its competitiveness globally. The strategy noted that the European bioeconomy is worth 2 trillion euros per year. Besides, each euro invested in the bioeconomy, the Commission argues, returns ten euros of added value across multiple sectors and new employment opportunities (EC, 2012: 4). Since 2012, multiple EU member states and emerging economies have advanced designated bioeconomy strategies, and many developing countries are also integrating bioeconomy strategies in their development (Wesseler and Von Braun, 2017).

Bioeconomy means different things to different actors. The EU, when introducing its bioeconomy strategy defined it to encompass ‘the production of renewable biological resources and the conversion of these resources and waste streams into value-added products, such as food, feed, bio-based products, and bioenergy. This includes agriculture, forestry, fisheries, food, pulp, and paper production, as well as parts of chemical, biotechnological and energy industries (European Commission, 2012:9). In revising the 2012 strategy, the EU reflected on the diversity of its member states’ national bioeconomy policies to aver that:

“there is no single ‘bioeconomy blueprint’ to be followed. Instead, there is rather a variety of ‘bioeconomies’ to be developed at national and regional level, depending on the type and form of biomass available, infrastructure, markets, know-how and investment capacity” (European Commission, 2018).

An observable trend is that developed countries, especially those with limited natural resources focus their bioeconomy on knowledge, technology, and innovation to use their infrastructure network and human capital (Wesseler and Von Braun, 2017). In contrast, developing countries perceive bioeconomy as a tool to unlock the value of their natural resources and create jobs and economic opportunities for their large rural populace (El-Chichakli et al., 2016; Hale, 2020).

Across Sub-Saharan Africa, where infrastructure and know-how are largely under-developed, many forest-rich countries are working towards a forest-based bioeconomy, which focuses on developing forest biomass as a renewable biological resource (Rosa and Martius, 2021). For example, in 2016, Ghana launched an ambitious 25-year forest plantation strategy, aiming to invest over US\$ 4 billion to rehabilitate 3.1 million ha of forestlands while integrating trees into another 4 million ha or 75% of its arable land (Forestry Commission, 2016). This grand plan is expected to produce over US\$5 billion in returns on investments and create around 2.9 million jobs over the 25-year period. While the plan is also expected to provide multiple environmental benefits, multiple studies indicate that forestry-related investments can lead to dispossessions and affect the welfare of forest communities if they are not well planned or executed (Kansanga and Luginaah, 2019; Massarella et al., 2018; Sobeng et al., 2018).

Thus, one way to improve the chances of success of Ghana’s ambitious forest-based bioeconomy aspiration, and make it work for nature and the country’s rural people, is to understand how previous forestry-related interventions affected forest communities’ _access to land and how the communities responded. This is because land is essential for constructing

livelihoods in the countryside (FAO, 2016). However, few studies have delved into how a growing forest-based bioeconomy aspirations by the state affect local communities' _access to arable lands in Ghana. Alternatively, many studies demonstrate that deforestation is accelerating in rural areas due to the conversion of forest to farmlands (Ankomah et al., 2020; Brobbey et al., 2020a, 2020b). Some studies indicate that the conversion of forests is accelerated by a growing struggle between customary actors and the state to gain control of land and by extension people in the countryside (England, 1993; Kotey et al., 1998) while others attribute farming in forest reserves to the weak capacity of the state to implement forest laws (Acheampong et al., 2019). Throughout these debates, why and how forest communities' _access and secure rights to farm in forest reserves, and how it might affect the implementation of Ghana's ambitious forest rehabilitation plans is left in the margins. We address this knowledge gap based on fieldwork carried out in six forest communities in Southwestern Ghana.

We find that forest communities use multiple means to access and secure their farmlands within forest reserves, cultivating food crops and cash crops through multiple schemes that involves customary and state institutions. What emerges from the case study is that attempts to accelerate forest biomass production are likely to rekindle the perennial struggles for control over forestlands in the countryside between customary and state actors. In this case, and as has been indicated elsewhere (Kansanga and Luginaah, 2019; Mudombi-Rusinamhodzi and Thiel, 2020), plantation forestry has become a tool for the Ghanaian state to strengthen its grip and control over forestlands in the countryside even when such actions are at odds with the needs and welfare of forest communities. We demonstrate that communities find creative ways to meet their pressing needs when their access to forestlands is restricted and this may impede the successful implementation of Ghana's ambitious forest-based bioeconomy plans. Overcoming this dynamic struggle requires finding new ways to improve productivity in forest communities while strengthening the recognition of communities' _right to forestlands. Besides this, emphasis needs to be placed on developing the forest-biomass value chain to create upstream jobs and reduce the pressure and demand for land at the grassroots. Such a multi-faceted approach has a better chance of creating an equitable forest-based bioeconomy that meets forest communities' needs, rather than one that exploits forest communities and deepens socio-ecological conflicts and injustices in the countryside.

Before detailing the analytical approach and methods used for the study (Section 2.3), we provide a review of forest preservation, the state of dispossession and forest governance, highlighting key knowledge gaps (Section 2.2). Our research findings are presented in Section 2.4, after which we reflect on them in Section 2.5, and draw some broader conclusions for instigating equity in forest-based bioeconomy.

2.2 Forest ownership, conflicts, and the forest-based bioeconomy

Forest ownership in many parts of Africa is characterized by legal and normative pluralism, leading to multiple contestations and struggles to control forest land between state and customary institutions. In this section, we review this literature, highlighting its embedded

conflicts and knowledge gaps. We focus our analysis on Ghana and provide some information on the country's plans to significantly increase forest biomass production within the next 25 years.

2.2.1 The origin of forest reservation and dispossession

Most African societies are organized around ethnicities, clans, and families. These units are led by chiefs and family heads who extend land usufructs to their kinsmen and adjudicate related conflicts (Boni, 2005). However, colonialism and international trade introduced new actors with competing interests and claims to forestlands in the region (Barrow et al., 2016; Gyasi, 1994). On the one hand, multiple customary leaders and native elites began to engage in trade deals, negotiating timber and mineral concessions with European merchants (Agbosu, 1983). On the other hand, the British colonial rulers, who colonised the Gold Coast (today: Ghana) from the early 1820s until 1957, sort to introduce reforms to consolidate their control over forest rents and secure their long-term interest in the colony. Pursuant to the latter, the British colonisers introduced the Native Jurisdiction Ordinance in 1883 to empower chiefs to formulate byelaws to protect water bodies and forestlands. However, many native chiefs did not take up this offer as they perceived it as an impediment to their trade. Between 1899 and 1908, the colonial government tried to introduce three separate laws to enable it exercise management rights and access revenue from forest resources in the colony. For example, with the Timber Protection Ordinance of 1907, the British colonisers sort to regulate timber extraction by introducing minimum felling girths. However, the native chiefs, local elites, and European capitalists with business interests in the colony vehemently opposed the legislation on the grounds that it criminalizes 'landowners' for using their own resources (Agbosu, 1983: 175).

In 1909, the British colonial government invited H. N. Thompson to conduct an assessment on the status of forest resources in the Gold Coast and provide guidance to improve forestry in the country. Thompson was the conservator of forests in Southern Nigeria at the time. Thompson's work is lauded for its impeccable level of detail, including his classification of timber species, and forecast of their growth rates. Some of his many contributions include the recommendation to establish a forestry department, the creation of forest reserves to stop the advancement of the Sahara Desert and the establishment of a conducive environment for sustainable cocoa production in the Gold Coast. Crucially, Thompson argued that the constitution of reserves should not alter existing land rights (cf. Hansen and Lund, 2017).

The publication of Thompson's report coincided with the release of another report commissioned by the British colonial ruler, the Justice Pennington Commission, inquiring into the dynamics of logging in the Gold Coast. The Pennington Commission reported that many timber merchants operated without licenses and recommended some level of state intervention to reduce the wanton destruction of forests in the country (Agbosu, 1983). Armed with the recommendation from both reports, the colonial government proposed the Forest Bill, 1911. The Bill argued for the creation of forest reserves to be managed under one of three conditions: either by the owner(s) under the guidance of the governments' Forest Department for the benefit of the owner(s), or the government under lease from the owner(s). It also advanced

multiple restrictions, including limiting the ability of the natives to collect forest products and farm in areas placed under reservation (Ibid, 1983).

Native chiefs, local elites and European merchants strongly resisted the Forest Bill, as they had done previous legislative proposals. The natives expressed concerns that the Governor intended the Bill to appropriate lands in the Colony for the British Crown. J. E. Casely Hayford, a leading lawyer and educationist summed up the native elite's concerns, asking (cf. Agbosu, 1983: 183):

“Are we going to suffer ourselves to be reduced to the miserable status of the proletarian for exploitation purposes by foreign settlers to enrich themselves and make us landless people in the land of our birth?”

Hayford and other members of the Aborigines Rights Protection Society, a civil society organized to protect the natives' right to self-determination, vehemently opposed the bill. Their efforts combined with a strong lobby from the British capitalists, who had vested interests in the Gold Coast, led the government to rethink the Forest Bill. Thus, it was not until 1927 that the colonial government promulgated the Forest Ordinance, 1927 (CAP 157), a watered-down version of the Forest Bill. In CAP 157, the state clarified that forest reservation shall not alter land ownership (Section 17). Besides, it reaffirmed the ability of traditional authorities to constitute forest reserves through bylaws (Section 6) and recognize any reserve that was under the Native Jurisdiction Ordinance, 1883 (Section 21). Where the state leads the reservation of forests, CAP 157 provides for the appointment of a Reserve Settlement Commissioner to verify and settle existing claims to farmlands in the proposed forest reserve. All farmlands that the Commissioner allows to remain within forest reserves are referred to as admitted farms. Admitted farms are also used to characterize farmlands alienated when chiefs used bylaws to create forest reserves; however, it is unclear how the boundaries of such farms were demarcated and documented.

Invariably, forest reservation transformed power relations and forest benefit distribution in the countryside. First, it empowered the state to exercise greater control as opposed to customary leaders. Second, it changed the allocation of forest rents, with most of the benefits being accrued by the state. Customary leaders also received benefits in the form of royalties. Forest communities came out on the worst side of forest reservation because it reduced their access to farmlands. Besides, they were banned from farming or collecting forest products in commercial quantities in forest reserves (CAP 157, Section 29). With population growth and lack of employment opportunities, resistance appears an inevitable path in many forest communities.

2.2.2 Forest governance challenges and deforestation

The divergences of actors' interests around forestlands and their centrality for negotiating statehood in postcolonial societies make forest rights a particularly hot topic in the forest governance literature. Two overlapping research strands are discernible within this literature: contestations of forestland, and governance strategies to manage the divergent interests. On contestations, scholars argue for more attention to be given to the informal strategies actors use to impose or resist domination over forestlands. The literature speaks to conflicts and the politics of everyday forms of resistance to dispossession in forest communities (Dell'Angelo et al., 2017; Julia, and White, B., 2012; Li, 2010). The contestation literature also points out

typologies for a better understanding of the factors that enable communities to benefit from resources even when their rights are unrecognised (Ribot and Peluso, 2003), and their linkages to authority and state-building (Agyei et al., 2019; Mudombi-Rusinamhodzi and Thiel, 2020). With growing forest conversion and the need for reforestation, recent studies on contestations are also beginning to question how reforestation can be used by the state to recentralize its control over forestlands while frustrating local efforts (Kansanga and Luginaah, 2019). Reflecting on these developments, some authors have called for more studies to connect “domestic development, governance and practices in forestland use with global politics, in order to find meaningful solutions to issues of social inequality in the forestland sector (from access to use or preservation)” (Ongolo et al., 2021:3).

The second strand of literature on forest governance focuses on the multiple approaches for improving cooperation among forest sector actors for sustainable forestry. Debates have focused on the strengths and pitfalls of top-down as well as community-led approaches. Issues of corruption, elite capture and lack of competence are identified as stumbling blocks to either approach (Ankomah et al., 2020; Arts, 2014; Brobbey et al., 2020a, 2020b; Marfo, 2010). A synthesis of these debates emphasises the need to recognize contextual peculiarities rather than imposing generic models of forest management on local actors (Essougong et al., 2019; He et al., 2021; Kusters et al., 2020; Lescuyer et al., 2019; Nchanji et al., 2021). This literature also indicates that mutual respect among forest stakeholders, effective participation and equitable benefit sharing are essential for effective forest governance. The latter manifests in, reduced deforestation, buoyant forest livelihoods, transparency, and effective communication among forest sector actors.

Forest governance is problematic in Ghana, and this manifests partly in how rapidly the country is losing its forest resources. From 8.2 million hectares, the country’s original forest cover reached 4.6 million hectares in 2000 and has continued to decline at 2% (315,000 ha) annually (FAO, 2010; World Bank, 2020). Multiple forest reserves are severely degraded from illegal logging and agricultural expansion (Forestry Commission, 2016). While a lot of researchers report that multiple factors, including population growth and land scarcity accelerate farming in forest reserves (Ankomah et al., 2020; Brobbey et al., 2020a, 2020b), few studies have delved into how farming in forest reserves occur. Studies that attempt to reveal the dynamics of these processes was conducted more than two decades ago. They reveal that cocoa farming is a key practice that is facilitated by local chiefs to subvert the aims of forest reservation, leading to multiple conflicts with forestry officials (England, 1993; Owubah et al., 2000). However, forest policy has changed tremendously since then. One main policy change is a growing attempt by the state to better engage forest communities and civil society in forestry. This is because the state recognizes that without the cooperation of these actors, sustainable forestry is overwhelmingly challenging (Oduro and Marfo, 2011). In some cases, this has meant trying to make communities partners in rehabilitating degraded forests through partnerships known as the modified taungya system (MTS). The system promises farmers 40% of the trees they establish. Besides, the communities are entitled to food crops during the initial phase of rehabilitating the land. While the MTS has been critiqued for multiple governance challenges (see Acheampong et al., 2016; Ros-Tonen et al., 2013), it remains an integral aspect of the state’s forest biomass production ambitions.

2.2.3 Efforts to improve the forest-based bioeconomy

Multiple studies speak to different aspects of Ghana's attempts to accelerate the rehabilitation of its depleted forest resources, i.e., challenges (Adane et al., 2016), past and recent efforts (Forestry Commission, 2020), and finance (Kumeh et al., 2019). However, the country's 25-year Forest Plantation Strategy is, perhaps, its most compressive vision on how it intends to improve forest biomass production. Introduced in 2016, the strategy's object is to 'achieve a sustainable supply of planted forest goods and services to deliver a range of economic, social, and environmental benefits' (Forestry Commission, 2016) and echoes 'the triple-win' verbiage so often used to promote the bioeconomy. Similarly, plans to establish and use biotechnology laboratories to produce genetically improved trees and to process outputs from these plantations resonates with the knowledge and technology arguments of bioeconomy.

On scale, the government intends to integrate trees in about 75% of the country's croplands (approximately 4 million ha) while drawing a further 3.1 million hectares of fallow land and degraded forest reserves for plantation forestry (Ibid, 2016). The forecast is to, inter alia, create at least 2.8 million jobs, generate over US\$ 5 billion dollars in profits, plus additional income from payments for carbon storage (Forestry Commission, 2016). Besides, this strategy occurs next to plans to cultivate at least 238,000 ha of forest plantations under the country's Renewable Energy Plan (Ministry of Energy, 2019), and ongoing efforts to formulate a separate bioenergy policy to "develop and promote the sustainable supply and utilization of bioenergy to enhance energy security for Ghana whilst ensuring food security" (Ibid, 2019:19). While these plans are admirable, they also impose new demands on forestlands that are already constrained to the countryside, making it relevant to understand how forest communities currently access land for their livelihoods.

2.3 Methods

This research is a qualitative case study of how communities access lands in forest reserves for farming. In this section, we detail our approach. But first, we construct an analytical framework based on Ribot and Peluso (2003).

2.3.1 Analytical framing

Following Ribot and Peluso (2003), we understand access as actors' _ability to benefit from things. This construct departs from the traditional understanding of access as a right conferred by property in the political economy literature (Sikor and Lund, 2009), and enables us to understand how and why actors and farmers can benefit from forest reserves where they may have no recognized property rights over forest reserve lands (Government of Ghana, 1962). Under such a situation, Ribot and Peluso (2003) have pointed out that actors may employ multiple structural and relational means to benefit from the resource, including access to capital, markets, technology, labor and labor opportunities, authority, and social identity. For example, Hill (1961), in her seminal work, *The migrant cocoa-farmers of southern Ghana*, shows that farmers make various kinds of payments (capital) to local chiefs to gain access to fertile lands for farming. Farmers also mortgage their labor through share-cropping

arrangements with traditional rulers to gain access to land (Boni, 2005; Delville et al., 2002; Kasanga and Kotey, 2001). Many native farmers of southwestern Ghana draw on their ancestral roots and social ties with traditional rulers to secure lands for their farming activities (Amanor, 2008; Boni, 2006; Forestry Commission, 2020). More recently, other scholars, albeit in the charcoal sector, have pointed out that technology, innovation, and force are all means that farmers use to access tree resources from traditional rulers (Agyei et al., 2020; Brobbey et al., 2020a, 2020b). Many of these works examined farmers' ability to benefit from land and trees as a form of right-based access, where the farmers operate within prescribed norms and legislation. As a point of departure, this paper broadens access to include illegality. Illegality is a form of right-based access that runs converse to legal access, involving the subversion of socially prescribed laws and norms (Ribot and Peluso, 2003). And as highlighted in Section 2, unauthorized farming in forest reserves is prohibited under Ghanaian law (Forest Ordinance, CAP 157: 29, 1b).

Another aspect of the ability to benefit question that this paper seeks to analyze is the power relations that enable actors to employ the structural and relational means of access at their disposal. To account for the role of power in an actor's ability to benefit from a resource, Ribot & Peluso (2003,155) draw on the neo-Weberian view of power, defining it as 'some actors' capacity to affect the practices and ideas of others.' This view of power is rooted in agency, an individuals' capability to act and decide for themselves (Cleaver and Whaley, 2018). However, it remains unexplored by Ribot & Peluso (2003, 172), who note that their typology of access mechanisms is all different 'forms of social relations' (Myers and Hansen, 2019). Unlike Weberian view on power, Foucauldian notions of power portray power as a relational concept that includes the construction and use of knowledge and discourses as a form of power, which can also be used to gain access and control over resources, as noted earlier (Peluso and Vandergeest, 2020; Svarstad and Benjaminsen, 2017). In modern societies, how people exercise their agency is defined by laws and norms sanctioned by recognized socio-political institutions. In many other places, private property is the most secured mechanism of defining access because it guarantees holders total control over their resources. The Ghanaian context is characterized by legal plurality: customary actors have rights over land in forest reserves, while the state regulates operations on the same land (See Section 2.1). Within this plurality and history of contesting forest lands between state and custom, we also try to shed light on the 'bundles of power' that enable farmers to draw on the structural and relational means to farm in forest reserves.

2.3.2 Study area

We collected data from six communities in the Juabeso District of Ghana (Table 1). We selected these communities in consultation with forestry officials and NGOs working in the district to cover the different levels at which these communities farm illegally in the KHFR: high, medium, and low (Table 1). The KHFR, covering 481.61 km², was constituted with bylaws of the Sefwi Traditional Council on 2nd October 1934, and gazette in November 1935. It occupies about 35% of the Juabeso district (Forestry Commission, 2010). Fifty-one per cent (245.21 km²) of the reserve is under protection, while the remaining (236.39 km²) is for a production forest, used for timber production by the Ghanaian state (Ibid, 2010).

Economically, farming is the primary livelihood in communities around the KHFR with an estimated 76.7% of the inhabitants being farmers (Ghana Statistical Service, 2014). The region possesses a vibrant labor pool, with more than 70.2% of its inhabitant under 30 as of 2010 (Ibid, 2014). Farmers within the district, like cocoa households in other parts of Ghana, cultivate about 5 ha of cocoa, with mostly low input, yielding 423 kg/ha/year (Bymolt et al., 2018). Typically, a farmer owns or manages between two and five fragmented parcels of land. Most farmers have no separate lands for food crop production once their cocoa farms have attained canopy closure. Historically, people from Northern Ghana and several other areas immigrate to the Juabeso district to pursue fertile farming lands. The migrants typically engage in sharecropping with the locals. As of 2010, migrants constituted 23.6% of the district's 58,435 inhabitants (Ghana Statistical Service, 2014). But the Population Office of the District Assembly estimates that the population in the district has grown by more than 40% since the last national population and housing census in 2010.

2.3.3 Data collection and analysis

Data collection was done between September 2019 and February 2020 with multiple approaches, stakeholders, and sources, allowing us to triangulate and improve the accuracy of the information generated. In each study community, we began the data collection by conducting a process-net map with farmers to understand the village context and farming activities in the KHFR (see Raabe et al., 2010). The mapping enabled us to identify the actors involved in the forest encroachment, their roles, and the benefits accrued to them from the process (Fig. 1). We started the mapping with older farmers who possessed a rich historical knowledge of their communities. These initial maps were then used as an entry point for interviews and focus group discussions (FGDs) with farmers in all six villages. Before the interviews and FGDs, in each community, we conducted transect walks through some of the illegal farms in the KHFR to make a first-hand observation of the farmers' practices.

Drawing on earlier works that detail how social identity can influence how people access land for farming (Amanor, 2008; Boni, 2006), we selected and interviewed migrants, natives, women, men, and young people. In total, we engaged 290 farmers from the six communities (Table 1). The interviews were conducted in local languages: Twi and Ewe. During the interviews, we asked open questions about the farmers' experiences with farming the KHFR, how they acquired lands in the KHFR, the types of crops they cultivate, farming practices they conduct, and the measures they employ to protect their farms in the KHFR. We also collected data on their monetary and labor investments in farming and their outputs; however, this information is not presented here. In addition to the interviews, we also conducted 12 FGD. Three of the FGDs focused explicitly on local chiefs and elders, giving us a first-hand account of the village histories and social norms associated with land acquisition, both in and outside the KHFR. The remaining nine focus groups were conducted with farmers on their food crops and cocoa farms in the forest reserve, usually alongside farming activities, i.e., breaking cocoa pods or aggregating harvested plantation bunches. Each focus group had five to eight participants and was useful for delving deeper into farmers' struggles in cultivating the KHFR and eliciting their social relations with other actors, including local chiefs, merchants, and laborers.

Table 1. Case study communities and the number of farmers interviewed

Study communities¹	Level of farming in the KHFR	Number of farmers interviewed
Sankofa	High levels of farming in the KHFR, mostly	84
Enokrom	food crops for subsistence and commercial.	41
Kinbu	Medium levels of farming in the KHFR.	19
Juansa	More cocoa than food crops.	32
Adwoakrom	Low levels of farming in the KHFR, mainly	42
Manase	food crops for subsistence.	72
Total		290

In the final stage of our data collection, we interviewed forestry officials, district assembly officials, COCOBOD officials, NGO staff, cocoa buying companies, and food crop merchants to understand their perceptions and experiences about farming in the KHFR. Throughout our interviews, we only recorded data from 136 participants who voluntarily gave their consent. We assured respondents that they could opt out of the interviews whenever they wished to. Overall, four farmers pulled out, citing that researchers always collected information from their communities but gave them no concrete benefits in return.

We employed content analysis to analyze our data. First, we listened to, translated, and transcribed the tape recordings from our field interviews. Inductive coding was then conducted in MAXQDA 2020 to characterize the structure and relational means the farmers use to access the KHFR. We clustered the various sub-themes that emerged from our initial coding into broader themes to pull together the main issues revealed in our coding. For example, multiple forms of payments that migrant farmers make to chiefs at different stages of acquiring and securing their lands in the forest reserve are clustered together as payments and fees (capital). However, we provide an expanded narrative to highlight the relevant issues. In presenting our findings, we also use specific quotes to depict the farmers' experiences. We presented an earlier version of the results to a group, including farmers, academics, NGO workers, and forestry officials, in February 2020 to validate the findings, which we turn to in the next section.

2.4 Structure and relational means for different modes of farming in the KHFR

Property, capital, labour opportunities, access to authority and technology are among the diverse mechanisms that farmers used to access the KHFR. The farmers employ these mechanisms within four modes of farming in the KHFR (Figure 3), which are elaborated on below.

¹ Names changed to protect the identity of the communities.

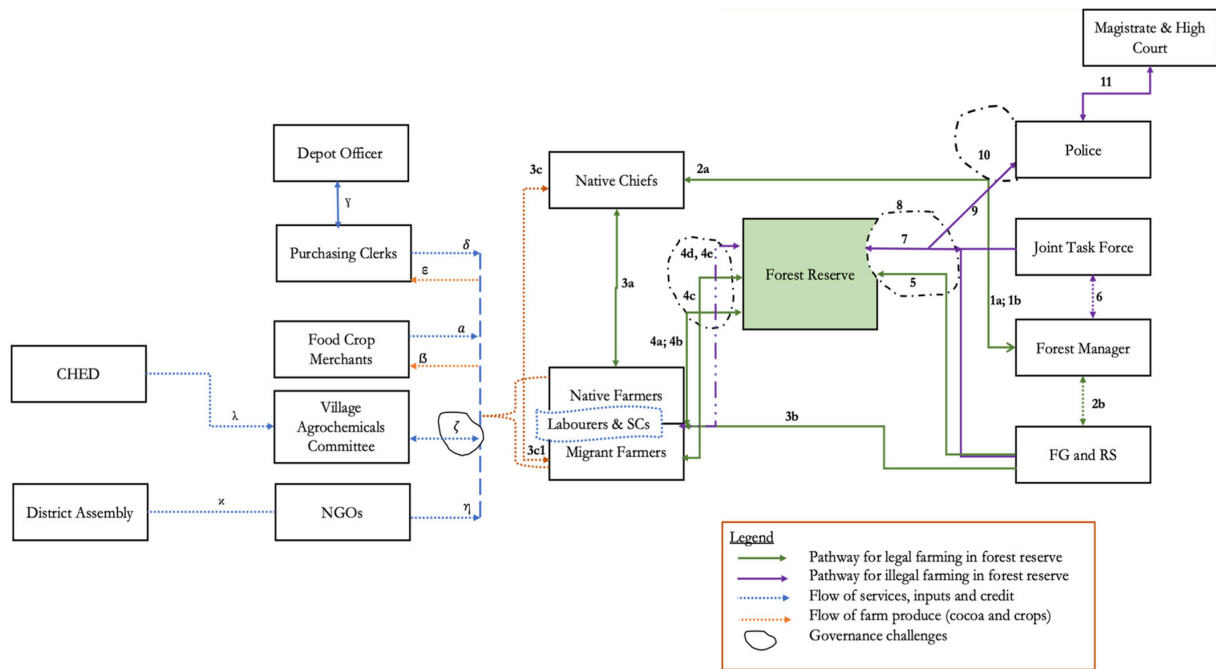


Figure 3. Process Net-Map depicting the steps involved in farming in the KHFR and actor interactions.

The map is an aggregate of Process Net-Map and interviews with the following actors: CHED – Cocoa Health and Extension Division | NGOs – Non-governmental organizations | SC – Sharecroppers | FG – Forest Guards | RS - Range Supervisors | PC – Purchasing Clerks. Numbers and symbols elaborated on the next page.

- 1a. Native chief applies for admitted farm belonging to his ancestors (Section 2.4.1).
- 2a. Verifications are made and admitted farm is allocated to chief for his community.
- 3a. Chief redistributes alienated admitted farm to natives of his community.
- 4a. Native farmers have access to alienated land in the reserve for farming.
- 1b. Chief calls on Forest Manager for Taungya plots for their community (Section 2.4.2).
- 2b. Forest Manager and Staff (forest guard and range supervisors) identify and agree on degraded forest compartment.
- 3b. FG and RS work with community to clear boundary for degraded forest compartment earmarked for Taungya allocation.
- 4b. Native and migrant farmers have access to Taungya plots for farming in the reserve.
- 3c. Migrant farmer calls on chief for land for cocoa farming.
- 3c1. Chief liaise with migrants to facilitate access to land in the reserve for cocoa farming.
- 4c. Migrant farmers access admitted forest reserve lands for cocoa farming (Section 2.4.1).
- 4d. Farmers extend admitted farms (Section 2.4.1).
- 4e. Farmers cultivate new farms (Kalabule and lotto farms – See Sections 2.4.3 & 2.4.4).
5. Forest guard and range supervisors conduct monitoring activities and cut down illegal crop farms.
6. Forest Manager collaborates with Joint Task Force to conduct monitoring operations.
7. Joint Task force arrest illegal farmers and cut down illegal cocoa farms.
8. Governance challenges with monitoring of farms, bribery and assaults.
9. Joint task force arrests illegal farmers and takes them to the police.
10. Governance challenges including bribes.
11. Illegal farmers processed for court.
- x. District assembly and NGOs team up for projects.
- η. NGOs provide seedlings and other support services to farmers.
- λ. CHED supplies agrochemicals and other inputs to village committees.
- ζ. Village Agrochemical Committee supplies agrochemicals to farmers, with several governance challenges, including elite capture of the agrochemicals.
- α. Food Crop Merchants provide credit and other assistance to farmers.
- β. Farmers and labourers supply merchants with food crops from the forest reserve.
- γ. Depot Officer provides Purchasing clerks with money to buy cocoa.
- δ. Purchasing clerks provide short-term loans to cocoa farmers, including those in the forest reserve.
- E. Farmers repay PCs loan with dried cocoa beans.

2.4.1 Admitted farms

As noted in Section 3, some farmers operating in the Krokosua before its reservation could keep their farms, i.e., they possessed property rights over the area and are therefore referred to as admitted farms. Within the KHFR, the Forestry Department allocated such rights to farmers in the 1940s. Typically, farmers with knowledge that their ancestors possessed admitted rights need to adduce evidence to the state, after which such lands were allocated to them. At the time of data collection, most admitted farms had been assigned to their owners, except in Sankofa, where the chief's claim to four admitted farms, with an area of 125.7 ha, remains unresolved after more than 15 years of petitioning the state. This was astonishing because the Chief and Sankofa's subjects are listed as owners of two of the farms in question in the current KHFR management plan (Forestry Commission, 2010:61). The third owner is 'unknown', and the fourth is listed under only a first name. Forestry officials pointed out that they were investigating the claims, which was also surprising given that admitted rights were enumerated and should have been allocated to their respective owners over eight decades ago.

In multiple instances, farmers cultivate beyond the boundaries of their admitted farms illegally. Many respondents indicated that migrant farmers, who had emigrated from the Bono and Northern regions, were responsible for the expansions. Many migrant farmers stressed that they make four distinct payments to village chiefs and their associates to acquire land in the forest reserve (Table 2). Firstly, the migrant farmer pays a path clearance fee, *Akwantwadee*, of GHS 300–500 (USD 50–90) to view the forestland. This amount is equivalent to what an unskilled labourer receives for 15–25 days of work in the study localities. Secondly, the farmers pay GHS 300–350 (USD 50–60) to the village chief per acre of land they intend to cultivate in the forest reserve. The migrant farmers pointed out this was a 75–100% rise from the GHS 150–200 (USD 25–35) paid per acre in the 2000s. Often, the quoted prices are exorbitant, with the final amount heavily dependent on the migrant farmer's ability to lobby for a reduction. After paying the agreed amount, the migrant farmer bears all costs for clearing the forestland and establishing a cocoa farm. The highest cost, the respondents indicated, is hiring a chainsaw machine, and paying an operator to fell timber trees on the acquired forestland. Many migrant farmers secured cocoa seeds from their relatives. Their labor in establishing the farm was often not valorized but counted as a means that enabled them to benefit from the forestland (Table 2).

When the cocoa trees mature, usually after about 2–3 years, the migrant farmer shares half (*Abunu*) with the village chief that enabled their access. Afterwards, the farmer posts a guarantee, known as *Ntaase*, to consolidate their access to the received farm. There is no fixed rate for the *Ntaase*, and it depends on the bargaining power of the migrant farmer. The agreed amount is shared between a set of witnesses and the village chief, who attest that the matured cocoa farm belongs to the migrant. Typically, there are no receipts for any of the capital outlays.

Ideally, the payment of the *Ntaase* means that the matured farm is now a property of the migrant farmer. However, this did not happen in practice because we found several cases where forestry officials had cut down cocoa farms beyond the original boundaries of admitted farms. Many migrant farmers pointed out that when forestry officials intensify the cutting of illegal farms, they bribed the officials so that they skip their farms (Table 2). Some forestry officials accept

this capital while others denounce it to control the migrant farmers’ _access to the forest reserve. During our interviews, forestry officials indicated that they were overwhelmed by the scale of admitted farm expansion in the forest reserve:

“In 2019, we conducted an extensive operation to cut down illegal cocoa farms in the forest reserve. We delineated the boundaries of existing admitted farms to avoid conflicts. After several days of cutting the farms, we had no option but to stop. Honestly, the farmers have cultivated deep into the reserve and are beyond our control. For example, one admitted farm that is on our records as eight (8) ha is now over 136 ha in practice.” (G3)

For one case in Juansa, as the forestry officials were cutting the illegally extended admitted farm, the village chief called on them to stop because it was his farm. The officials stopped in deference to the chief’s authority. However, for many poor migrant farmers, this did not apply. One migrant farmer whose farm was cut by the forestry officials in March 2019 pointed out that:

“There is nothing to do when forestry officials cut the cocoa farm in the forest reserve. We have lost money and wasted our energy. Should the village chief offer us another land as compensation, we will accept it. But if not, there little we can do. After all, you can see for yourself [points to the farm], the farm is ‘over the bar’. That’s our ordeal here, and it is pervasive in our community”. (A2-K3).

Table 2. Mechanisms of access control and maintenance for admitted farms in the KHFR

<i>Actors</i>	<i>Means to gain, maintain and control access to forestlands</i>		
	<i>Gain</i>	<i>Maintain</i>	<i>Control</i>
Local chiefs (Odikros)	<ul style="list-style-type: none"> ● Property ● Access to authority ● Knowledge of ancestral lands ● Head of village economy 		<ul style="list-style-type: none"> ● Fees and rents
State institutions (FSD and district assembly)			<ul style="list-style-type: none"> ● Access to state authority ● Force ● Unofficial payments – bribes
Native farmers	<ul style="list-style-type: none"> ● Property ● Social ties with chiefs (submission of drinks) 	<ul style="list-style-type: none"> ● Farming know-how ● Ties with purchasing clerks 	
Migrant farmers	<ul style="list-style-type: none"> ● Capital for land acquisition ● Farming skills ● Share-cropping labour 	<ul style="list-style-type: none"> ● Periodic rents ● Ties with purchasing clerks ● Legal redress 	
Laborers (mainly weeding and carting of farm produce)		<ul style="list-style-type: none"> ● Ties with farmers ● Access to technology (bicycles and motorbikes) 	
Cocoa (PCs) and food crop merchants	<ul style="list-style-type: none"> ● Ties with farmers 	<ul style="list-style-type: none"> ● Ties with farmers 	<ul style="list-style-type: none"> ● Credit arrangements with farmers

The situation was quite different in Kinbu, where many wealthy migrant farmers organized themselves to challenge the forestry officials' actions in the law court. In the case docket, "E1/29/12 – Francis Adum & Or. Vrs. Forestry Commission & Ors.", the farmers argue that forestry officials had trespassed by cutting down their legitimate farms in the forest reserve. According to them, they have the rights to the farmlands because it was allocated to them by the chief, who holds allodial rights to the forestland. The Forestry Commission contends that the farms cut were beyond legal admissible admitted farm area. The case remains unresolved after more than eight years. Meanwhile, the farmers continue to benefit from their established farms because the court imposed an injunction against further cutting of the cocoa farms in question until the case is resolved.

Unlike migrant farmers, native farmers within the communities use their social ties with village chiefs to access admitted farms for cocoa production in the KHFR (Table 2). These native farmers do not pay path clearance fees or post any *Ntaase*; instead, they present drinks to their kin as gratitude for enabling their land access. We noted that the chiefs were less likely to allocate areas outside the legally demarcated admitted farms to native farmers. This is because the natives indicated that their chiefs redistributed all the admitted farms to their communities between 1989 and 2008. Therefore, any claims to admitted farms by their chiefs were contestable.

Laborers benefit from admitted farms in the KHFR by using vehicles, mostly bicycles and motorbikes, to transport cocoa and food crops from admitted farms and their extensions to merchants. Many laborers were landless and engaged in other modes of farming in the KHFR, notably Taungya (Section 2.4.2) and Kalabule (Section 2.4.4). Cocoa buying companies benefitted from admitted farms and their expansion by providing credit to farmers, especially to procure agrochemicals to protect their cocoa from the black pod disease, organize labor for harvesting, break their cocoa pods, and carting fermented cocoa beans from cocoa farms within the KHFR to their villages (Table 2). By providing these services, the cocoa buying companies establish a social contract that obliges farmers to sell their cocoa beans to them instead of their competitors.

2.4.2 Taungya farms

Since 2002, the FSD in Juabeso occasionally allocates degraded portions of the KHFR fringe communities for food crops production as part of a forest rehabilitation scheme, Taungya farming. Primarily, farmers in the villages use labour and monetary payments to secure Taungya farm allocations (Table 3). Each farmer pays GHS 40 (USD 7-8), the equivalence of two-days wage for an unskilled labourer, to acquire a half-acre plot of degraded forestland to farm food crops. The FSD provides the farmers with the seedlings of fast-growing trees, predominantly *Gmelina arborea* and *Cedrela odorata*, to integrate with their crops. The farmers are under strict rules on crops to cultivate with the trees on their plots. Plantain and cocoyam were the dominant crops, with some farmers also growing vegetables such as pepper, tomato, garden egg and okra. The FSD strictly forbids cassava cultivation, an important staple food crop in the study localities, and any farmer who grew them lose their Taungya plots. When

asked why farmers are not allowed to grow cassava, one forestry official pointed out that, ‘cassava has a strong regenerative ability. Allowing the farmers to cultivate cassava makes it difficult to evict when the trees mature, usually after two years’ (G3, 2020).

Many farmers pointed out that the Taungya was an excellent way to peacefully grow crops in the KHFR without harassment from forest guards. Several also stated that without the Taungya plots, they have no other option to cultivate food crops:

“All our lands are family lands, and we have used them for cocoa production. We have no other lands. So, we petitioned the FC to grant us some of the degraded parts of the KHFR for Taungya farming. We were fortunate to get some Taungya plots in 2019. If they do not allocate us plots for next year, we are dead.” (F9-S1).

Table 3. Mechanisms of access control and maintenance for Taungya farms in the KHFR

Actor	Means to gain, maintain, and control access to forestlands		
	<i>Gain</i>	<i>Maintain</i>	<i>Control</i>
State institutions (FSD)			<ul style="list-style-type: none"> ● Setting the rules for Taungya based on access to state authority ● Taungya clearance fee ● Threat of using force
Native and migrant farmers	<ul style="list-style-type: none"> ● Taungya demarcation fees 	<ul style="list-style-type: none"> ● Planting and nurturing of trees ● Ties with crop merchants 	
Labourers (cropping and transport)	<ul style="list-style-type: none"> ● Ties with farmers 	<ul style="list-style-type: none"> ● Access to technology motorbikes ● Credit arrangements with farmers 	
Food crop merchants	<ul style="list-style-type: none"> ● Credit arrangement with farmers and labourers ● Access to means of transport 	<ul style="list-style-type: none"> ● Credit arrangement with farmers and labourers 	<ul style="list-style-type: none"> ● Access to retail markets

During our field transects, we observed that some farmers had planted and were tending trees in the Taungya plots. However, there were also many instances where they refused to plant the trees. Such farmers indicated that their Taungya plots were too small. They also pointed out that the trees provided by forestry officials grew too fast, impeding crop performance. Many also noted that the Taungya gave them an excellent cover to cultivate new illegal farms in the reserve.

“My sister and I were walking home one evening from the forest reserve when we heard that the forestry officials were coming. She attempted to flee and broke her leg. She suffered. We have suffered in this town. Over time, we also developed new strategies. For example, when they allocate the Taungya to us, we find other areas to clear. When you are working there and hear that the forestry officials are coming, you quickly run to your Kalabule to your Taungya farm and pretend to work there. That way, nobody can arrest you. (A1-J12).

Forestry officials confirmed a lot of the farmers’ experiences with Taungya farms. During our interviews, one forestry official noted that:

“Many farmers are only interested in the crop component of the Taungya and non-cooperative with planting the trees. We allocated some areas to them a couple of years ago that they never planted. Our investigations revealed that many had gone beyond their Taungya plots to cultivate a lot of illegal farms.” (G3).

In some cases, we found that farmers sold surplus food from their Taungya plots. These farmers hired laborers to cart plantains from the various farms to an assembly point. The porters charged GHS 1–3 per bunch of plantains depending on the distance between the assembly point and the Taungya plot. In a few cases, there were merchants on hand to buy the plantains. These merchants also pointed out that they provide credit to farmers for a guaranteed supply of plantain from the farmers to their consumers in the cities: Kumasi and Accra (Table 3).

2.4.3 ‘Lotto’ farms

‘*Lotto farming*’, according to the communities involve cultivating cocoa in random areas within the KHFR. Farmers start their *Lotto farms* by planting food crops. After that, they intersperse the crops with cocoa, which they plant at stake. Unlike the admitted farm extensions (see Section 2.4.1), both migrants and native farmers engaged in lotto farming and do not defer to customary leaders for their access. Instead, they act on their own agency and at their own risk, preferring to pay occasional bribes to forestry officials (Table 4). Many pointed out that they simply try their luck because cocoa is a source of bulk revenue compared with other livelihood activities, thus the name *Lotto farms*.

“Cocoa brings us bulk cash, which is difficult to raise through other livelihood activities so, you simply try your luck. It is like the lottery. If you win, you win; otherwise, you lose.” (A1-J11).

Under the lotto mode, many farmers like to farm areas in the KHFR with cell phone reception so that our friend in the village can warn us whenever the FC staff are conducting an operation. Based on their in-depth knowledge of the KHFR, some farmers pointed out that they preferred to farm inaccessible forest areas to evade apprehension. For example, one desired destination due to the ruggedness of the terrain and its distance is “*Ekosuasan*”, which translates to, “stay home if you intend to cry along the way”. From our transects, we observed that a few farmers had also established cottages on their lotto farms in the KHFR. These farmers pointed out that they live on the farm during the cocoa harvesting season (September to January) to protect their mature cocoa pods and dried beans from been destroyed by forestry officials or stolen by thieves.

Table 4. Mechanisms of access control and maintenance for ‘Lotto’ and ‘Kalabule’ farms in the KHFR

Actor	Means to gain, maintain, and control access to forestlands		
	<i>Gain</i>	<i>Maintain</i>	<i>Control</i>
State institutions			<ul style="list-style-type: none"> • The threat of violent eviction • Acceptance of unofficial monies, bribes
Native and migrant farmers	<ul style="list-style-type: none"> • In-depth knowledge of forest reserve 	<ul style="list-style-type: none"> • Unofficial payments • Access to mobile phone technology • Housing as an innovation • Moral Economy right to subsistence • Violence and force* 	
Labours (cropping and transport)	<ul style="list-style-type: none"> • Supply of labour to farmers and merchants 	<ul style="list-style-type: none"> • Credit arrangements with farmers and migrants 	
Cocoa and food crop merchants	<ul style="list-style-type: none"> • Credit arrangement with farmers and labourers 	<ul style="list-style-type: none"> • Access to means of transport 	<ul style="list-style-type: none"> • Access to retail markets

*The use of violence by farmers has been episodic and applied solely to Kalabule plots.

2.4.4 ‘Kalabule’ farms

In the study localities, *Kalabule* involves producing only food crops in random areas within the KHFR. *Kalabule* farming was particularly prevalent in communities that had no active Taungya allocations (Section 2.4.2). In Ghana, *Kalabule* originates from the 1970s, when it was used to characterize the Ghanaian economy under the Provisional National Defence Council (PNDC), military regime. During this period, the PNDC introduced price controls to prevent private entities from charging exorbitant prices on essential commodities such as sugar and milk (Huq, 1989). Military officials were at liberty to ransack entities that were suspected of breaching the price controls. As a result, such entities operated latently to avoid detection by the military officers. In the study villages, many farmers pointed out that they neither talk nor go into their *Kalabules* with children because they did not want to attract forestry officials’ attention. Others preferred to go into their *Kalabules* at unusual hours; for example, farming in the forest reserve with torchlights from 4 am and returning home before 10 am to evade forestry officials.

From the transect walks, we observed diverse food crops in the *Kalabules*: cassava, plantain cocoyam, maize, rice, and vegetables. Many farmers pointed out that they encountered a lot of resistance from forestry officials, but they had no option but to farm *Kalabules*. Some farmers saw it as their right, pointing out that “they have a right to eat from the KHFR given that fisher

communities eat from the sea”. We found this association surprising given that the forest is in a landlocked area and more than 360 km from Ghana’s coast in Sekondi-Takoradi (Ghana Statistical Service, 2014). Further inquiries revealed that this anecdote was first used by a regional manager from the Forestry Commission in Takoradi, a coastal city, during a visit to the KHFR area between 2008 and 2009 to observe the scale of farming the forest reserve. Perhaps, the official used the anecdote to empathize with the communities and create common ground for finding a workable solution to farming in the KHFR. However, farmers in the villages appear to have misconstrued this, employing it as their tagline to cultivate *Kalabules*.

From the transect walks, we observed diverse food crops in the *Kalabules*: cassava, plantation, cocoyam, maize, rice, and vegetables. Many farmers pointed out that they encountered a lot of resistance from forestry officials, but they had no option, but to farm Kalabule. Some farmers saw it as their right, pointing out that “they have a right to eat from the KHFR given that fisher communities eat from the sea”. We found this association surprising given that the forest is in a landlocked area and more than 360 km from Ghana’s coast in Sekondi-Takoradi (Ghana Statistical Service, 2014). Further inquiries revealed that this anecdote was first used by a regional manager from the Forestry Commission in Takoradi, a coastal city, during a visit to the KHFR area between 2008 and 2009 to observe the scale of farming the forest reserve. Perhaps, the official used the anecdote to empathise with the communities and create common ground for finding a workable solution to farming in the KHFR. However, farmers in the villages appear to have misconstrued this, employing it as their mantra to cultivate *Kalabules*.

Of all four modes of farming in the KHFR, we found that those involved in Kalabule had the most encounters with forestry officials. Many were beaten, jailed, their farm tools confiscated, and crops cut down, but these did not deter them.

“The soldiers beat my husband severely. His eyes and face were all swollen, and our kids were even laughing at him when he got home. The younger asked him, dad, why is your cheek swollen like that?” (F9-S9).

“I was going for food from my Kalabule, but sadly, I the soldiers and forest officials caught me. They beat me thoroughly with the side of the machete. But I still go there because when a bird does not fly to pursue food, it starves.” (F9-S27).

Many of the farmers’ experiences were confirmed by the forest guards, who live within the communities and are more attuned to their experiences:

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 encroaching again. The reality is that a lot of them have no other option.” (G1).

To prevent their Kalabule farms from being cut, some farmers told us that they ‘incentivise’ the forest guards with bribes. One man in his 50s noted that:

“The FC cuts our Kalabule farms. However, the forest is big; so, some of us can dodge. They might cut yours and not see mine. When the forest guard meets you in the Kalabule,

and you agree to give him some money and honour your promise, he will never cut your farm. Kalabule! If not, they will monitor you and cut down your farm.” (A1-J6).

We observed differences in the scale of Kalabule in the research communities. For example, in non-taungya communities like Adwoakrom and Manase, farmers engagement in Kalabule were relatively small, and food access was usually problematic in these communities. Often, they had to rely on Enokrom and Sankofa, where *Kalabule* is an everyday practice. We observed that the people in these two communities had a shared understanding of farming in the KHFR, and they were willing to back each other up. They even organised themselves to fight forestry official and military officers when they perceived that the soldiers' operations were a nuisance to their farming activities in the forest reserve. Besides, farmers in Sankofa acknowledged and owned up to the reputation of being perceived as a ‘stubborn’ community by other communities and forest regulators alike.

“If it is illegal to farm in the KHFR, why don’t the soldiers destroy the crops and leave? Why do they have to benefit from our sweat and hard work by harvesting our crops and selling them? We got tired of them, and so last year, we barricaded their cars and stoned when they were returning with our crops.” (F9-S9).

“Things here are a bit different in our town because even some forestry officials are even afraid of us. After we beat the soldiers last year, they have realised that we would not allow ourselves to be taken for granted.” (F9-S20).

The situation was quite different in other communities. For example, in Juansa, many farmers noted that they were unorganised, pointing out that some villagers snitched on others to the forestry officials. They referred to this as *Kankama*. Many farmers indicated that their peers use *Kankama* against arrogant community members; for example, those flaunt their wealth by buying motorbikes or building a fancy house.

“We are all farm in KHFR, but there are a lot of gossips here. If you live in mud houses, people will not envy you, and your farms will be safe. As soon as you put up a concrete house, people begin to envy you, and they do Kankama for forestry officials to cut your farms.” (A1-J5).

There were also differences in the scale of *Kalabule* farms. Typically, more impoverished farmers farmed mainly for their subsistence while the richer ones engaged labourers on a credit basis to cultivate large swaths of the KHFR for food production. In some cases, food crop merchants, mostly from Kumasi and Accra, also funded Kalabule farmers on a credit basis. The farmers repay the credit with food crops, mainly plantain from their Kalabule plots, and merchants pay labourers, mostly women, to cart the crops.

In Sankofa, we came upon a case of resistance where the locals acted in unison to drive out soldiers and forestry officials from destroying their Kalabule farms in 2018. The farmers indicated that they had grown tired of the soldiers because they often brought vehicles and labourers to harvest the crops from the *Kalabules* to sell in the bigger town. Many farmers pointed out that:

2.5 Discussion

This paper sought to unravel how local communities access land in forest communities for farming in rural Ghana in order to provide guidance towards implementing Ghana's ambitious forest-based bioeconomy plans. We have demonstrated that forest communities employ many structural and relational means to farm and benefit from food crops and cocoa in the KHFR. These include their use of capital, labour opportunities, and force, reinforced by farmers' risk-taking attitude. We have also established that these access mechanisms depend on farmers' relations with customary rulers and the type of crops they seek to cultivate. We discuss these findings and explore their implications for institutional reforms amidst growing competition for land in forest communities for food, timber, and biomass production within Ghana's growing forest-based bioeconomy.

2.5.1 Disentangling factors mediating farmers' access

In Ghana, land is usually allocated 'through the agency of chiefs, whose authority derives from their people' (Hill, 1961: 38). Many scholars have documented how migrant farmers use capital and labour to secure lands from chiefs for cocoa farming in Southern Ghana (Berry, 2018; Boni, 2005; Delville et al., 2002). Our findings show that this practice prevails and has been extended into forest reserves, where property rights are different from outside reserve areas. Historically, forest reservation was presented to protect the environment and create a good microclimate for cocoa production in Ghana (Hansen and Lund, 2017). While forest communities at the time perceived and expressed concerns about how forest reservation threatens native rights and future access to farmlands, such concerns were largely ignored. Knowledge, primarily from Thompson's seminal forest inventory, became an indispensable basis for discrediting native chiefs' capability to sustainably manage forests in the country. The state advanced a vision that it was better suited to manage the country's forest resources. Yet the current state of forest resources in the country indicates that the state has not lived up to this vision. Contrastingly, most of the country's forest resources have been lost since the state assumed the reigns of forest management (FAO, 2010). Amidst this loss, it appears that the state is reinventing its role by drawing on discourses of green growth and bioeconomy e.g., rehabilitation, job creation, food security and the reappropriation of the spaces it had promised but failed to conserve. Invariably, the state's structural positioning gives it the ability to generate such knowledge and gain discursive hegemony to make the reinvention possible without much questioning. By positioning itself as the 'saviour of forests' and contrasting itself with 'environmentally destructive' forest communities (Kansanga et al., 2017), the state strengthens its grip on degraded forest reserves. And upon following up to allocate degraded forests to a few communities for taungya, the state creates contractual relationships that exploit the labour of forest communities to service its authority.

Nevertheless, the results suggest that local communities subvert the state's authority by situating their right to food and self-preservation in the same spaces that the state seeks to reappropriate. Invariably, the state recognizes the communities' rights to food, however, it is unable to meet the land demands of the forest communities, for example, through consistent taungya allocations. Besides, some sections of the communities want more than food, they want to create wealth. Thus, the communities draw on their local knowledge, labor, and capital

to farm inaccessible areas of the KHFR. The farmers know that they cannot convert such areas into property. Therefore, they do not defer to either the state or customary leaders for any form of formal recognition as revealed under the *Kalabule and Lotto modes of farming*. Alternatively, they use capital to bribe forestry officials to maintain their access for as long as possible.

As farmers move from the realm of food crops to cocoa production, especially in areas close to admitted farms, it appears that the extent to which they infringe upon statutes against farming in forest reserves blurs. This is because many chiefs with admitted farms use their agency to exert some form of control over such areas. These chiefs invite migrant farmers to cultivate such areas to establish a claim to the area. Kronenburg García and van Dirk (2019) argue that a claim is a junction between access and property. The chiefs gain multiple benefits, including free labor, rents, extended legitimacy, and authority over the migrants. In what von Benda-Beckmann (1981) refers to as ‘forum shopping’ in the property literature, it appears that the migrant farmers choose this arrangement because chiefs promise to convert their access right into property within three years. This is not possible with the state because farming in areas outside admitted farms is prohibited by law (Forest Ordinance, CAP 157: 29, 1b). The results indicate that chiefs and rich farmers choose litigation to contest the legitimacy of the state to legitimize their claims to these ‘illegal farms’, especially when forestry officials attempt to disrupt their activities in the contended areas. Here, the chiefs argue that they possess allodial rights to such lands; thus, it is within their prerogative to exercise control over the areas in question, not forestry officials (Agyei et al., 2019). Again, capital, which both chiefs and migrant farmers accumulate from farming such spaces becomes an important tool in navigating such cases, e.g., procuring legal services. In many instances, poor documentation makes it challenging to determine the right boundaries of the ‘admitted farms’ in question. Many of the cases mentioned in the results continue to drag in the courts for more than a decade. How the outcomes of such cases affect property rights and broadly the legitimacy of either the state or customary leaders in controlling access to contested areas within forest reserves is an area for future studies.

Access to authority and knowledge opens the possibility for farmers to farm in the KHFR. However, this potential is utilized differently depending on the people’s access to labour and capital. For poorer farmers with little capital, ‘the birds that starve, unless they fly’, labour is their main mechanism for accessing farmlands in the study area. And their urge to survive partly explains why they continue to expend their labour on farming in the KHFR, knowing very well that forestry officials could arrest, beat, jail, and cut down their farms at any time. In the next section, we reflect on the implications of the findings for forest-based bioeconomy policy and practice in Ghana. We give attention to poor farmers, who appear to be pawns in this high-stakes game of fighting for control over forestland between the state and customary leaders.

2.5.2 Implications of the findings for forest-based bioeconomy policy and practice

The current approach of cutting down food crops and farms as well as beating and jailing poor farmers in the study localities raises questions about how marginalized actors’ interests can be protected as Ghana steps up effort to increase forest biomass production under its ambitious

plantation strategy. As noted earlier, agroforestry and plantation forestry are key components of the bioeconomy in Ghana and many developing countries (Rosa and Martius, 2021). While countries may not explicitly use bioeconomy in discourses or policy documents, this study has shown how some of the main storylines of bioeconomy are used by political actors to reproduce exploitative regimes that enable them to retain control over the countryside. Whose voice, whose needs, whose lands, are key questions that forest-based bioeconomy needs to confront in developing countries (Backhouse et al., 2021). Surely, sparing forests reserves and other lands for timber and forest biomass production is good. However, should it be supplanted for food production in rural areas? The obvious answer is no. And while there is a tendency to argue that food and biomass production are not mutually exclusive, the results from this case suggest that for many forest communities, there is very limited room to meaningfully accommodate both objectives.

Yet, when the issues of community rights and access emerge, many actors hasten to direct attention to the need for safeguards to protect the poor and vulnerable, and Ghana is no different. However, most discussions about safeguards misrepresent the problem of these communities by portraying them as nuisance actors that state the needs to accommodate somehow. For example, in safeguards developed under Ghana's REDD+ program to protect forest communities, the state acknowledges that there is 'increasing demand for forest lands for farming/settlements by fringe communities *because productive lands are not available*' and "several farmers have extended the boundaries of their admitted farms" (Forestry Commission, 2016a:30, *emphasis by authors*), all of which may undermine the success of forest rehabilitation activities and cause further deforestation. Thus, the Ghanaian government seeks to 'support local communities to restore and protect their forest lands in a way that meets their [the communities] needs'. As a strategy, the government seeks to "compensate and expel farmers who have extended the boundaries of their admitted farms" _and "provide employment and other opportunities to local communities as much as possible" (Forestry Commission, 2016a:34). Such framing is problematic because it fails to acknowledge forest communities as the true owners of forestlands. Besides, it also fails to acknowledge the role the state has played in dispossessing these communities and how forest extraction by the government sparingly benefits forest communities.

Farming is the main employment opportunity available at the moment to most forest communities, and the limited availability of arable land is a major constraint to their operations. It appears that safeguards are mentioned to reproduce the prevailing forest reserves management regime that largely limits forest communities' ability to benefit from their forests. A more meaningful approach would be to invest in improving agriculture, mainly increasing productivity so that farmers achieve more on the limited lands available to them on the one hand. In addition, the government needs to rethink forest reserve management in a way that recognises forest communities' right to subsist from their environment. This will require recognising forest communities as equal partners, not subordinates in forest reserves management. To achieve this, the government can, for example, introduce *food security corridors* to enable communities trapped within and around blocks of forest reserves to engage in permanent agroforestry for food and livelihoods (Kumeh et al. 2022). Targeted investment

of REDD+ payments within the study localities could fund the multi-stakeholder governance institutions required to develop and manage *food security corridors* effectively.

Undoubtedly, land is a crucial resource for the forest-based bioeconomy. Unless radical structural reforms are made, the traditional authorities' ability to control access to land in Sub-Saharan Africa will remain (Capps, 2018). As demonstrated in our results and indicated elsewhere (Boamah, 2014; Campion and Acheampong, 2014), many traditional rulers have a predisposition to abuse their power for personal gains and do not seem particularly concerned about the interests of their constituents. The government is in no way different because it also allocates large tracts of degraded forest reserves, for example, to private companies for large-scale forest biomass production (Forestry Commission, 2020). And when it does not, it uses creative agroforestry schemes like *taungya* to exploit communities, "*reducing them to the miserable status of the proletarian for exploitation in their own land of birth*" (Agbosu, 1983: 183), just like Casely Hayford had avowed when calls for forest reservation were made in the early 1900s. If the state and traditional authorities are overlooking the interests of the forest communities: who speaks for these communities? Besides, what can stakeholders do to limit power abuse by traditional authorities and the state in negotiating land deals in and outside forest reserves in the emerging bioeconomy?

One answer may lie with the third sector. There is ample evidence of how strong social movements can help grassroots communities secure some basic rights, including their 'right to food' by having them enshrined in legislation (Deere, 2017; Martin et al., 2016). While this study did not directly examine the state of environmental movements in the study context, Gyapong (2020) points out that in Ghana, many of the NGOs who could take up this role, remain far from the experiences of grassroots communities and do not adequately represent communities' interests and concerns. For now, the only strategy the communities use is the everyday forms of resistance they employ, as elaborated in the results. Development partners and other others should support building stronger grassroots organizations if forest communities are to be integrated and properly represented in the growing forest-based bioeconomy.

2.6 Conclusions

Meeting the food and fuel needs at the time resource scarcity, and the onset of climate impacts has stirred many national and regional governments' interests in the need to transition towards an economy built upon renewable biological resources: a bioeconomy. While this emerging approach aims to solve one problem, it appears to create another, imposing new demands on the limited land resources. This study sought to provide insights into possible barriers and opportunities for Ghana's growing forest-based bioeconomy by analyzing how forest-dependent communities' access forest reserves for farming in Southwestern Ghana. While the choice of the case was selective, it has nonetheless been sufficient to show the struggle between different actors over forest land for diverse needs: food, income, secure future claims to land, and the authority to control the countryside. Although the contest between state and customary institutions to control land has been widely noted, this analysis goes a step further to

demonstrate how food insecurity drives local communities to find creative ways to subvert forest reservation, including forest-based bioeconomy strategies introduced by the state to reproduce their exploitation. What broad conclusions could be drawn regarding the land question and the interactions between customary and state institutions in the politics of bioeconomy in the global South?

Well, noting the complexity of the conflicts and interests at stake, we make three tentative inferences. First, the purpose of forest reservation in Ghana needs a rethink. In the case presented, it is apparent that the forest reserve is being transformed from a natural forest to plantation forests of exotic timber species by the state, drawing on farmers as a source of cheap labour. Given that this change contradicts the original rationale of forest reservation and emerging demands for food in the study localities, it is imperative that actors explore alternative ways to manage forest reserves to ensure that Ghana's growing forest bioeconomy does not deepen inequalities in forest communities.

Second, customary institutions and their overlaps with state institutions appears conflictive, exploitative of vulnerable farmers, and ineffective, creating a fertile ground for unsustainable resource use in the study cases. Several authors have recently drawn attention to the chieftaincy's exploitative powers and how it increases inequalities by inter alia diminishing women's and youths' access to land as a productive resource (Capps, 2018; Tsikata and Yaro, 2014). Quick fixes and talks of safeguards as advanced under REDD+ and related investments would not fix the structural challenge. Therefore, substantive changes may be required, which is addressed in the final point.

The study notes that land struggles between traditional authorities, the state and citizens have been raging for over a century (Amanor, 2008). Forest enclosures in Ghana and many other Sub-Saharan countries have dispossessed local communities, squeezing them onto small parcels of land. With population growth and over-cultivation, many of these fragmented land parcels can no longer meet the locals' needs in forest-dependent communities. Moreover, employment opportunities in the countryside are minimal, partly because forest rents accruing to state and traditional authorities are rarely reinvested in developing the countryside due to corruption and elite capture (Kumeh et al., 2019; Kumeh and Abu, 2019; Marfo et al., 2012). Thus, sub-Saharan African governments need to put these issues into perspective and recognize that the bioeconomy, despite its promise, cannot be a quick fix to the underlying problems in the countryside. Doubling up attempts to establish plantation forestry in the countryside may exacerbate inequalities by denying local communities access to arable lands. Consequently, governments need to create the enabling conditions for developing comprehensive rural development policies that are not only ambitious for biomass production but justice and equity, where rural agriculture is guaranteed. and combine plantation forestry with rural agriculture investments. Without such reforms and visions, any attempts to implement a forest-based bioeconomy will experience backlashes and resistance from ever more marginalised forest communities.

2.7 References

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

Kumeh, E.M., Bieling, C., Birner, R. 2022. Food-security corridors: A crucial but missing link in tackling deforestation in Southwestern Ghana. Land Use Policy 112 (2022) 105862. <https://doi.org/10.1016/j.landusepol.2021.105862>

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.

Keywords: Socio-ecological conflicts, collaborative forest management, rural development, political ecology

3.1 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 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 socio-ecological 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 (Brobbe 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 communication between forest actors and enable them to work out their differences collaboratively and continuously.

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 3.2. In Section 3.3, we draw on the narrative analysis literature to construct an analytical framework for understanding the nature of forest conservation conflicts. We then introduce the case communities and clarify our research approach. Section 3.4 introduces the multiple narratives forest communities and state authorities articulate to defend their respective position on forest conservation and conversion at the grassroots. Section 3.5 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 3.6.

3.2 Literature review on tensions in forest conservation

Multiple organisations and conservationists justify sparing lands for forest conservation by pointing to the essential role 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 smokescreen 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 studies 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.

3.3 Analytical framework and methods

3.3.1 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 include 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 analysis focus on a narrator’s agency as expressed in their storylines (Bischoping and Gazso, 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.

3.3.2 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 twofold: 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)² that constitute 32.6% of Ghana's Western Region.³ 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 (Brobbe et al., 2020; FC, 2010) (Figure 4).

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).

² The figures are calculated based on list of forest reserves in Ghana provided by Oduro et al. (2012).

³ Ghana's western region covers 23,921 km². Since 2018 it has been divided into the Western North and the Western Region.

During the reservation, 25.79 km², representing 5.35%,⁴ 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 B2,⁵ 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).

⁴ 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.

⁵ 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.

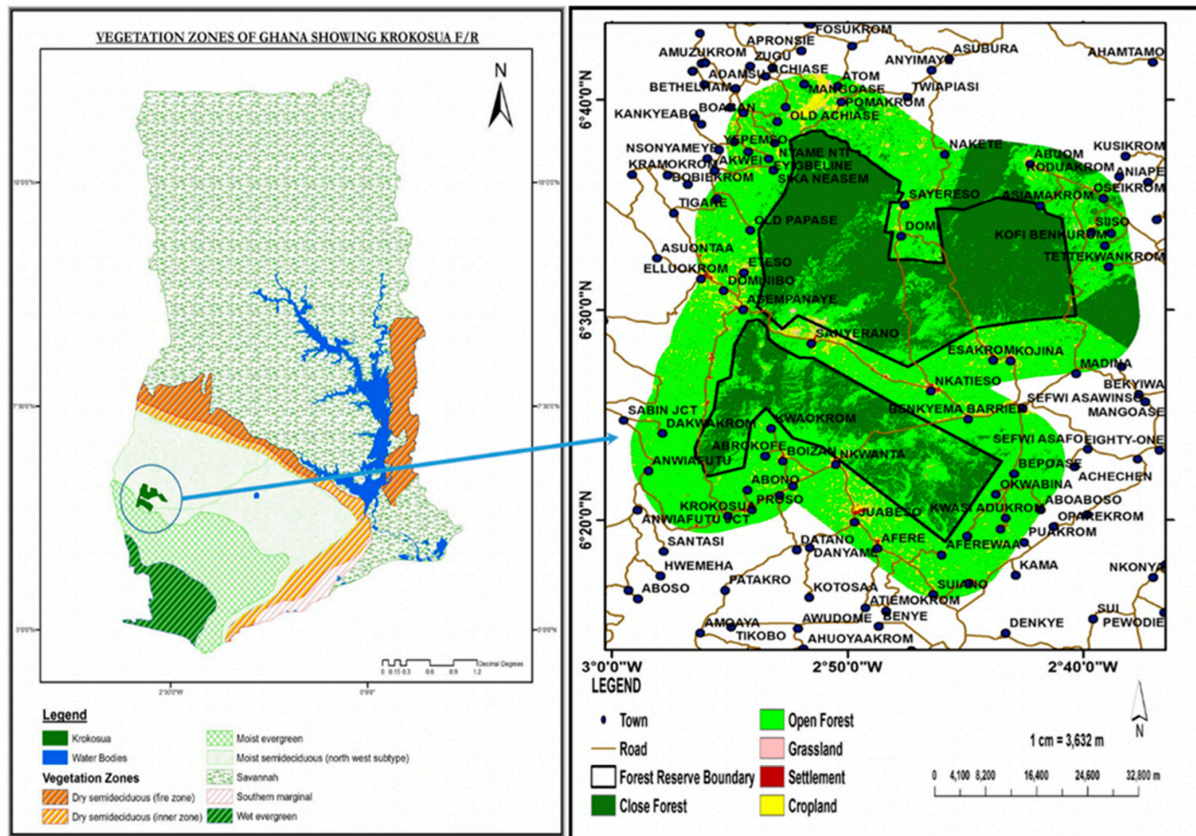


Figure 4. A map depicting the location of the Krokosua Forest Reserve. (Source: Ameyaw et al., 2018).

3.3.3 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 communities⁶ (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

⁶ 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.

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 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.

3.3.4 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. 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]).

3.4 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 daily. 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.

3.4.1 Narratives underlying forest conversion by FFCs

3.4.1.1 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 plantation.” (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 regulators during the fieldwork, one woman narrated her experience pointing out:

“I was at a funeral in Eteso last week. The new forest guard who got transferred there was in the forest all week. He confiscated the farmers’ pans and machetes. For about four days, most farmers could not go into the forest to harvest their food crops. So, they have no access to food at the moment.” (F/50-55/N).

The farmers interviewed often ended the food insecurity story by calling on forest regulators 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).

3.4.1.2 *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.” (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 come home from school and hungry. It is difficult, but our elders say that a bad job is better than theft” (M/30-35/M).

However, in some cases, the distinction between some farmers’ need to encroach for mere subsistence and their desire to exploit the KHFR on a full-time basis was related to farmers’ social class. Many poor farmers indicated that more affluent farmers transcended the need to survive and were encroaching on a large-scale. These more 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 many do not encroach for their subsistence. Some of us have made farming in the KHFR a business. Instead of

⁷ One-for-one is a local lexicon that is used to describe credit in the study localities. Upon inquiry, 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.

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. 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, 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 farmers 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 whatnot.” (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 torchlights at dawn and return home before the forest guards start working in the morning” M/30-35/N).

3.4.1.3 Land competition narratives

Farmers presented three storylines, showing that forest conversion in the KHFR occurs due to competition for lands between 1) natives and migrants, 2) adjoining forest-fringe communities and 3) the state and traditional rulers. First, most native farmers argued that migrants had taken their lands. They portrayed migrant farmers as aggressive ‘forest grabbers’ that accumulate lands within the KHFR with local chiefs' support.

“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 [town]⁹ is allocating lands within the KHFR to people for farming at “*Ekosuasan*”¹⁰ (M/35-40/M).

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.

⁹ Town name redacted for anonymity concerns.

¹⁰ *Ekosuasan* is an area of the reserve named by the communities as such due to its rugged terrain and long distance. The name literal means “if you intend on crying along the way, stay home”.

In the second variant of the land competition narrative, farmers argued that their neighbouring villages had finished encroaching into adjoining areas of the KHFR and are now turning into 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 northerners 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 Sankofa have finished their portions of the KHFR and are now conquering ours. Don’t the FC staff go to work? Don’t they see the expansion? (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 the permission of the FC. 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, farmers were sceptical about the forest reservation process. They argued that their lands had been unfairly appropriated and put to forest conservation. Many farmers and traditional rulers told a story that the ‘Whites’¹¹ 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 us even asked that they bring rail tracks closer to the village so their children in a town like Dunkwa, which had rail access, can come home to visit. 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, in examining the available records on the establishment of the KHFR, we found some information that suggests that customary leaders expressed concerns that establishing 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

¹¹ 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)

farming and other rights. Whilst fully sympathizing 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 regulators, they pointed out that all claims to lands in the KHFR were settled during the forest reservation. However, some chiefs also reported during our fieldwork that they have 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).

3.4.1.4 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 had been logged. Others noted that farms had 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 least 6-years apart. Now, every year, there are people felling trees. They use the skidders to destroy a lot of the biodiversity”. (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 watch on for forest regulators to be recruited, paid and look on for 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).

Other 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 XXX¹² 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).

¹² 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 those 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).

3.4.2 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 3.4.1). 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 as 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).

3.4.2.1 Forest regulators 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, the state notes in the 2012 Forest and Wildlife Policy that:

‘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 operational forestry officials 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 Asempaneye 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 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 the challenge of forest encroachment for farming and reflective about how to tackle the challenge:

“Is this 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 communities in finding a solution to farming in forest reserves, mainstream forest policy actors are currently based mainly on global and 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-dependent communities”.

3.4.2.2 Cocoa sector actors 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 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 deforestation contribution. The World Cocoa Foundation, for example, notes:

“over ten years, 820,000 hectares 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 and pressure from CSOs to call 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 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 trees form a canopy” (G5).

3.5 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 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.

3.5.1 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 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 does 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 on cocoa-driven deforestation, and the need to secure forests 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 the 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 conversation 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 encounters 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 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 therefore 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 3.5.2, 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 the most suitable actor is 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 reveal 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 together 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.

3.5.2 "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 the 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 the 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 eventual piloting of the FSCs as an approach to tackling forest conversion by FFCs for subsistence farming.

3.6 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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4. Transparency in the governance of landscape restoration finance: A case study of Ghana's Forest Plantation Development Fund

Kumeh, E.M., Kyereh, B., Oduro, K.A., Brobbey, L.K., and Nketiah, S.K. 2019. Transparency in the governance of landscape restoration finance: A case study of Ghana's Forest Plantation Development Fund. Scientific African, 6, e00185. <https://doi.org/10.1016/j.sciaf.2019.e00185>

Abstract

Many global and national initiatives have evolved in recent years to finance plantation forestry as a means to restore degraded landscapes. However, little information is available in the academic literature on how these funds are governed to optimise their reach and application. Using Ghana's Forest Plantation Development Fund as a case study, this study bridges this knowledge gap and provides insights into how without insistence on transparency, accountability can be lacking on the way such funds are utilised. Data was collected from 103 plantation developers in five forest districts using semi-structured questionnaires and key informant interviews with other stakeholders, including administrators of the Fund. The study found that there were no mechanisms in place to address stakeholders' information needs about the Fund. This translated into low awareness and limited access to the fund by its intended beneficiaries as well as weak participation of stakeholders in the governance of the Fund, including stakeholders' capacity to demand accountability. Fund administrators were unwilling to disclose information to stakeholders, which is reinforced by a lack of incentives to do so. The study recommends the implementation of a right to information legislation and an active press to demand accountability and ensure transparent use of the fund. The findings further highlight an opportunity for global discourse calling for landscape restoration investments in sub-Saharan Africa to be accompanied with governance reforms to address barriers that militate against the efficient use of climate mitigation investments.

Keywords: Forest landscape restoration, Climate financing, Transparency, Accountability, Right to information

4.1 Introduction

Mitigating climate change and its impacts, particularly on the livelihoods of rural communities in developing countries remain a priority in the global pursuit of sustainable development (Kiyangi et al., 2016; UN, 2015; van Noordwijk & Sunderland, 2014). In such countries, landscape restoration through plantation forestry is heralded as a strategy by which local communities can address their livelihood needs while contributing to global climate action and landscape restoration aspirations (FSC and Indufor, 2012; Jacovelli, 2014; King, 2012; McGuire, 2014; Oduro et al., 2018). Consequently, the development community—and with much success—continue to wage debates for increased investment in forest landscape restoration (FLR) by national governments and the private sector (Brand, 2012; IUCN, 2018).

Among many others, funding of cross-border initiatives like the Bonn Challenge and the African Forest Landscape Restoration Initiative (the AFR100) which together seek to restore 450 million hectares of deforested and degraded landscapes are testaments of the extent of stakeholders' commitment to funding landscape restoration (AFR Secretariat, 2017; IUCN, 2018). However, FLR initiatives are not only financed at the global level. Specific nations are increasingly introducing environmental taxes, subsidies and grants to fund landscape restoration initiatives within their own jurisdictions (Ding et al., 2017; Kombat & Wätzold, 2018). The examples of countries such as the USA, New Zealand, Sweden and China are well documented, and their achievements acknowledged (KPMG, 2016; Sandewall et al., 2015). In other countries, however, such initiatives remain obscure and more importantly not subjected to any critical analysis to see how they can be improved. One such example is the case of Ghana, a country which established a dedicated Fund for plantation development in 2002, more than a decade before the Bonn challenge the New York Declaration on Forests and other related initiatives were birthed.

In 2002, the Government of Ghana through the Forest Plantation Development Fund Act, 2000 (Act 583) and its amendment Act, 2002 (Act 623), established a forest plantation development fund (FPDF) to provide direct financial assistance, research support and technical advice for persons engaged in plantation forestry (Forestry Commission, 2016). Resource accruing to the Fund stems from two main sources: 1) proceeds from Ghana's timber levy and 2) other sources (loans and grants from the international community for plantation development projects). Funds accrued are subsequently distributed to eligible stakeholders as loans and grants to enable them to undertake plantation forestry (Forestry Commission, 2016, 2017). The FPDF, therefore, presents local farmers and entrepreneurs with an opportunity to create and retain wealth in the country through plantation forestry while contributing to national sustainable forest management and emission reduction aspirations (Forestry Commission, 2015, 2016). Although the FPDF presents an admirable opportunity, it also presents a challenge, namely: how the fund should be best managed to meet the expectations of stakeholders.

The answer may lie in promoting good governance - a catchword which has received enormous attention in recent literature due to its ability to strengthen democracy and human rights, promote economic prosperity and social cohesion, reduce poverty, enhance environmental protection and the sustainable use of natural resources, and deepen confidence in government and public administration (Keping, 2017; Krawczyk & Sweet-Cushman, 2017; World Bank, 2010). Although there are several elements to good governance, transparency and access to information has been cited to be indispensable and remains a prerequisite for attaining most of the other elements of good governance (Forssbaeck & Oxelheim, 2014; Gupta & Mason, 2016; Quiroz & Vieyra, 2018). Literature is replete with information on how transparency improves the overall level of good governance by fostering trust which stimulates stakeholders' participation, improves resource mobilisation and reinforces capacity to ensure projects are well implemented while providing a basis for holding stakeholders accountable for their decisions and actions (Forssbaeck & Oxelheim, 2014; Keping, 2017; Koyama & Kania, 2014).

Given the role of transparency as a first step for promoting good governance, it is important to understand how transparency manifests in the administration of the FPDF. This is made even more important given recent calls by stakeholders, particularly resource regulators in Ghana, and in line with global landscape restoration investment aspirations, for more resource allocation to the FPDF (Forestry Commission, 2017) . Meanwhile, besides the Act that establishes the Fund and periodic news items on the constitution of a new Board when there is a national change in government, there is little documented information on how the Fund Board operates. There is also no information on how previous resources are used to address stakeholders' expectations, and in a situation where the country is consistently performing poorly on corruption perception (Transparency International, 2016, 2017, 2018) there is a good reason to scrutinise the level of openness with which the Board conducts its business. This paper, therefore, examines governance mechanisms instituted by FPDF administrators to: reach out to the stakeholders of the fund, address stakeholders' information needs and how this shapes stakeholders' perceptions of transparency about the management of the FPDF.

4.2 Overview of forest plantation development in Ghana

Forest plantations in Ghana occur at two levels on forest reserves and outside forest reserves (off-reserve). On-reserve forest plantation development is well documented and is largely traced to the 1930s, when the colonial government of the then Gold Coast (present-day Ghana), introduced the Taungya system to reclaim degraded forest lands (Agyeman et al., 2003) . Devised from Myanmar, the system enabled landless farmers to acquire portions of degraded forests to cultivate crops together with trees. Crops were withdrawn from the system when the trees attained canopy closure, usually around three years. The system encountered several governance challenges, including a lack of transparency in land allocation and the non-provision of timber benefits to farmers which limited its success (Ibid, 2003). It was, therefore, suspended in 1984 (Acheampong et al., 2016). In an attempt to address these challenges, revisions were made for the farmers to be entitled to 40% of the standing tree value (STV). Other stakeholders, notably the Forestry Commission, landowners and local community received 40%, 15% and 5% of the STV respectively. The new system was dubbed “modified taungya system was relaunched in 2002 (Forestry Commission, 2016). The MTS largely targets smallholders, however, there are equally large-scale forest plantation establishments in Ghana.

Besides the MTS in on-reserves is the large-scale forest plantation where an investor pays USD 2 per ha of land per annum as land rents and bears all costs of the rehabilitation (Forestry Commission, 2016). On maturity, the investor earns 90% of the STV while the remaining is shared between FC (2%), landowners (6%) and local community (2%). Usually, fast-growing exotic timber species such as *Tectona grandis*, *Eucalyptus spp.* and *Gmelina arborea* is planted in the degraded areas. However, actors are encouraged to integrate indigenous species, and in the case of large-scale developers, a threshold of 10% indigenous species is recommended. *Terminalia ivorensis* (Emire), *Terminalia superba* (Ofram), *Milicia excelsa* (Odum), *Triplochiton scleroxylon* (Wawa), *Khaya ivorensis* (Mahogany) are among indigenous species that have been reported in rehabilitated forest reserves (Kalame et al., 2011).

In off-reserve areas, farmers have always found creative means of integrating trees in their production systems. This ranges from selectively tending trees on farms through boundary planting to the establishment of plantations (single and mixed stands). The FC reported that before 2002, such individual efforts accounted for 79% of the 44,198 ha forest plantations available in Ghana (Forestry Commission, 2016). The remaining were large scale plantations by private companies. The government of Ghana as well as NGOs frequently attempt to support smallholder plantation forestry in off-reserve areas through projects. In addition, the government have also attempted to provide systematic support systems to improve farmers' involvement and performance in relation to forest plantation. The FPDF is one such example which enables farmers to acquire grants to boost their investment in forest plantations on a landscape level. However, beyond the Fund Act and occasional mentions of the Fund in national policy documents such as the Forest and Wildlife Policy 2012 and the National Forest Plantation Development Fund, little information is available in the literature about how the fund is governed.

4.3 Ghana's Forest Plantation Development Fund

The FPDF was established in 2000 by Act 583. Among other things, the Act defines the object of the Funds, rights of beneficiaries. Four main income streams are defined for the Fund to include, a fraction of proceeds of the timber export levy (currently 1.5%) and grants and loans for plantation forestry from both local and international institutions. The Act further establishes a Board trusted with managing the Fund and Secretariat to support its operations. The Board is also tasked with developing and publishing criteria for disbursement of the Fund in consultation with the sector Minister. Similarly, it is tasked with payment of fees to the Bank that manages the Fund as well as other expenses it deems relevant for its operations. The Act further provides for the Fund Board to furnish the sector Minister with an annual audited report within one month of submission of the Auditor General's audited report. Initially, the Act mainly focused on commercial plantations. However, an amendment was instituted by Act 623 of 2002 to accommodate private plantations.

4.4 Analytical background

The study's starting point is the presumption that transparency is a prerequisite for making stakeholders aware, able to access and use the FPDF. Transparency, as used in this study, refers to "the availability and accessibility of information about an organisation's or actor's internal processes and decisions" (de Licht & Naurin, 2016; Gerring & Thacker, 2016). The cardinal principle of transparency is access to information which often manifests in the disclosure of accurate and reliable information to stakeholders in accessible formats, including periodic publications, responses to specific information requests and/or clarifications of why such information cannot be provided. Access to information provides a basis for accountability, a phenomenon that has resulted in the frequent use of transparency and accountability alongside one another in the literature on good governance (Keping, 2017).

Transparency incites accountability and the latter renders the former a subject of contention due to its instrumentality (Koyama & Kania, 2014). Essentially, actors in position of power and with access to information may not be willing to provide others with such information, especially when it could be used to hold them accountable. Right to information legislation is often used in some contexts to provoke transparency. Other contexts promote non-agent-controlled transparency, whereby anonymous actors investigate and disclose information that actors in power may not be willing to disclose (Lindstedt & Naurin, 2010). Despite its potential to trigger full transparency, non-agent-controlled transparency is criticised for its potential to disclose information that could compromise safety and national security. This presents a dilemma where achieving full transparency becomes an illusion. However, there is a consensus that transparency is good and needs to be pursued by stakeholders entrusted with power, including public agencies (Koyama & Kania, 2014; Lindstedt & Naurin, 2010).

Over the last few decades, many studies have adopted different methods to measure transparency within organisations. Most deploy surveys as a subjective gauge to understand stakeholders' perception of transparency based on their access to information regarding a specific entity (Caamaño-Alegre et al., 2013; Cucciniello et al., 2014; da Cruz et al., 2016; Transparency International, 2018). Cruz *et al.* (2016) through a participatory approach developed a municipal transparency index (MTI) for measuring the transparency of information available on municipality websites. The approach involves 76 indicators grouped in seven dimensions, including plans and planning, and relationship with citizens as customers. The MTI is, however, criticised for reducing a complex issue of transparency to numbers, ignoring the scale, scope, context, and, more importantly, the quality of information (da Cruz et al., 2016). The MTI is also not applicable when agents of information do not have a website; as is the case with Ghana's FPDF.

Cognisant of these critiques, the study employed a survey based on a Likert Scale (Table 6) to provide an overview of stakeholders' perceptions of transparency but paid detailed attention to the qualitative information unpinning their perceptions. It, therefore, paints a rich picture of stakeholders' expectations of transparency from the FPDF and the realities that transpired in the administration of the Fund.

Table 5. The Likert scale used for assessing stakeholders' rating of transparency and its interpretation.

Likert Scale	Interpretation
Very High	All (100%) stakeholder's transparency information needs are met by Fund administrators
High	About 75% of stakeholder's transparency information needs are met by Fund administrators
Medium	Some (about 50%) stakeholder information needs are met but stakeholder unaware of the proportion
Low	Between 25-50% of stakeholder's information needs are met by fund administrators
Very Low	Less than 25% of stakeholders' information needs are met by fund administrators.

4.5 Methodology

4.5.1 Study sites

The study was carried out in five forest districts with different forest resource endowments and history in small-scale plantation forestry, namely: Dunkwa, Jasikan, Offinso, Kintampo and Sogakofe (Figure 5). Dunkwa lies in the Moist Evergreen Forest zone of Ghana and is considered a forest resource-rich area by Resource Management Support Centre (RMSC) classification (RMSC, 2001). It has a few forest reserves whilst the area outside reserves is dominated by cocoa farms which contain a good number of forest trees used to provide shade for the cocoa. However, the recent proliferation of illegal surface mining has resulted in massive land degradation in the area. Offinso and Jasikan have mainly dry semi-deciduous forest vegetation with agriculture as the principal land use. Forest reserves here are generally degraded with most of them converted into *Tectona grandis* (teak) plantations. The agricultural landscape in this area has fewer cocoa farms and trees than the Dunkwa area and is classified as forest resource-medium. In off-reserve areas, smallholder forest plantations consist mainly of teak and *Cedrella odorata* (Forestry Commission, 2015). The Kintampo area has a forest and savannah mix vegetation with high incidences of bush fires and described as forest-poor area. Teak plantations and lately cashew farms are sprawling in the area (Aabeyir et al., 2017). The Sogakofe area which is also forest poor is predominantly a savannah zone sparsely populated with *Khaya senegalensis* and *Azadirachta indica* and very susceptible to bush fires (Koku, 2001).

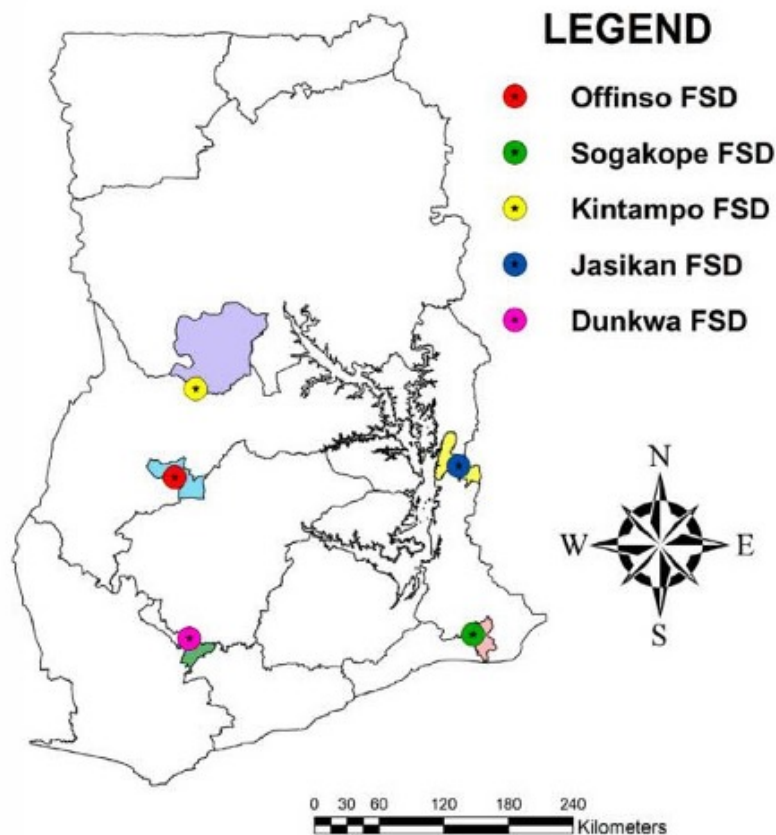


Figure 5. A map of districts where smallholder plantation developers were interviewed

Many plantation forestry projects have been implemented by the FC and civil society organizations (CSOs) in the study areas to encourage farmers to invest in forest plantations (Adane et al., 2016; Forestry Commission, 2016). Consequently, farmers in these areas have been involved in tree growing on off-reserve areas (farmlands) for more than a decade. Additionally, these areas have tree growers who are members of tree grower associations, such as the Private Afforestation Developers Association, community and district branches of the redundant National Union of Tree Growers Association and the latent National Tree Growers Association, Ghana.

4.5.2 Survey and key informant interviews

The following stakeholder groups: Fund Administrators, including the Fund Board, timber industry actors, forest plantation developers, FC, CSOs and research and academia were surveyed by the study based on their participation in implementing plantation forestry initiatives in Ghana.

Given that plantation developers constituted the largest number of stakeholders and remain a primary target of the Fund, a survey involving 103 respondents was conducted to establish their

views. The survey involved administration of a semi-structured questionnaire to establish their awareness and experiences with the Fund as well as their information needs and the extent to which they were met (Appendix 1). The semi-structured questionnaire was tested with respondents from the Offinso forest district, and refinements made. The plantation developers were identified with the help of staff of the district Forest Services Division (FSD) who had previously provided them with technical information or seedlings towards their plantation establishment. The research team randomly visited the plantation of 40 respondents to confirm their active engagement in plantation development.

Following this, key informant interviews were conducted with other stakeholders (Table 7) based on their expertise and history of involvement in forest plantation development in Ghana. The interviews were semi-structured and done in person and respondents assured of anonymity and confidentiality of their responses. Stakeholders were asked about the experiences with the Forest Plantation Fund and their perception of transparency in the Fund Board’s operations. Fund administrators and Fund Board members were also asked about which type of systems they have instituted to furnish stakeholders with information about their operations.

Table 6. The number of respondents per stakeholder group interviewed.

Stakeholder Groups	Number of Respondents
Plantation developers	103
Forestry Commission	8
Civil Society Organisations	8
Research and academia	4
Timber industry actors	3
Fund Board Members	3

Descriptive statistics were employed in the analysis of surveyed data. Transcripts of answers to open-ended questions were analysed through a content analysis where specific themes were identified. This provided for a greater focus on descriptive and interpretative analysis which are ideal for investigating the subject of transparency (Cucciniello et al., 2014; Dawes, 2010).

4.6 Results

4.6.1 Demographic characteristics of respondents

Table 8 provides details of sex, age and education attainment of plantation developers surveyed. Males dominated the respondents (94.2%) in all the five forest districts. No female plantation developers were found in Sogakofe and Jasikan. On educational attainment, 36% of the plantation developers had primary education, 21.4% had no formal education while the remaining had different forms of education such as formal technical or vocational training.

Table 7. Sex, age and educational attainment of plantation developers interviewed

Demographic attribute	Information classes	Percentage of respondents					Total (n = 103)
		Dunkwa	Offinso	Jasikan	Kintampo	Sogakofe	
Sex	Male	94.4	91.2	100	90.9	100	94.2
	Female	5.6	8.8	0	9.1	0	5.8
Age (years)	26 – 35	5.6	14.7	12.5	18.2	15.4	13.6
	36 – 45	38.9	8.8	18.8	9.1	15.4	16.5
	46 – 55	22.2	17.6	31.3	36.4	38.5	27.2
	56 – 65	22.2	17.6	18.8	18.2	0	16.5
	>65	11.1	41.2	18.8	18.2	30.8	26.2
Highest level of education attained	Primary school	38.9	41.2	25.0	31.8	38.5	35.9
	Middle school	33.3	26.5	0	18.2	23.1	21.4
	High school/						
	Technical	0.0	5.9	37.5	22.7	7.7	13.6
	Tertiary	0.0	0.0	18.8	9.1	0.0	4.9
	Certificate courses	5.6	5.9	0	0	0	2.9
	No formal education	22.2	20.6	18.8	18.2	30.8	21.4

4.6.2 Governance mechanisms for achieving transparency in the FPDF administration

The results show that there were essentially no structured systems in place by administrators of the FPDF to meet fund stakeholders' information needs. At the time of the key informant interviews (January 2016 to March 2017), the Fund Secretariat had no website, news bulletin/newsletter or concrete strategy for addressing stakeholders' information needs. The Fund Secretariat is based in the capital city Accra, with a subsidiary office in Kumasi. Fund administrators seem not to have complied with Section 9 of the FPDF Act 2000 (Act 583), 2000 which mandates the Board to publish information on its operations, categorically the eligibility criteria for disbursing the Fund. At the time of our interview, we found that the Accra office had one administrator and two support staff who were national service persons. The Kumasi office was also manned by a single staff within the premises of the Resource Management Support Centre of the FC.

Several discrepancies were found during interviews with the staff and past board members. For example, when we inquired to view the eligibility criteria for accessing the fund, one respondent informed the research team that:

“The eligibility criteria are on file at the Fund Secretariat. We do not have a website to publish them. As for the grant component, it was always disbursed based on the discretion of the Board Chairman. I cannot say much about the loan component because publishing information about it may constitute a breach of business confidentiality provisions (Past FPDF Board Member, March 2017).

Another respondent raised questions about the nature of our research saying that the information needs were sensitive and likely to be ignored by fund administrators. He noted that:

“Your research is a very sensitive one and I do not expect that the Fund Secretariat will provide you with the kind of information you need. My experience when I served on the Board was that information flow was always a problem, with certain individuals dictating everything that goes on with the Fund.” (Past FPDF Board Member March 2017)

All efforts by the research team to access a copy of the eligibility criteria, including three appointment-based visits to the Fund Secretariat, proved futile. Also, attempts to find out how Fund administrators were doing concerning Provision 19 of Act 583 which mandates the publication of annual reports, including audited accounts did not yield many results as research team were not provided with any of such reports.

In an attempt to look outside the box, the research team reviewed the ‘*Auditor-Generals Annual Report on Public Boards, Corporations and Other Statutory Institutions*’. Reports examined included those from 2010 – 2013 but we found no mention of the FPDF Board, although it is by law a public board. A follow-up interview to the Auditor General’s Department revealed that it did not have the Forest Plantation Fund Board in its database. After an extensive search, the senior officer interviewed at the Auditor Generals Department stated:

“It is very surprising they (Plantation Fund Board) are not in my system. I thought they would be on the list of organisations that we sublet for third-party audits, but I have looked through that list and they are not there as well. I am very surprised because our name is categorically stated in the Fund Act you just provided me to audit them annually. I have tried searching for their contact and location on the internet but could not find them. If I did, I would have called them right away. (staff, Auditor General’s Department, March 2017)

What this implies is that the Board may not have been audited by the Auditor General as prescribed by legislation since it began operations contrary to the law that established it.

4.6.3 Stakeholders’ information needs from administrators of the FPDF

To further understand what stakeholders expect of the Fund Administration in order to be considered as operating transparently, stakeholders were asked to state their specific information needs expected from the FPDF. They were further asked to provide a basis for their information needs and their preferred media for accessing this information. The responses are presented in Table 9.

Table 8. A summary of stakeholder’s transparency information needs and preferred media for accessing such information

Stakeholder group(s)	Information need	Reason	Preferred Media
Plantation developers	• Eligibility and assessment criteria	• To assess chances of securing the Fund	• Community outreach • Radio/communication centre announcements
	• Funding cycle	• To be abreast with time to apply	• Radio/communication centre announcements • Internet posts
	• Contact unsuccessful applicants	• To reduce anxiety associated with waiting for an outcome	• Phone calls
FC	• Eligibility and assessment criteria and funding cycle	• To better educate prospective applicants. • For monitoring compliance with laid down criteria	• Website/internet • Infosheets • Sensitisation meetings
	• Number of beneficiaries and list of beneficiaries	• For monitoring and providing technical advice to beneficiaries • To facilitate collection by checking for repayment of loans before issuing conveyance	• Website/internet • Memos
	• Contact unsuccessful applicants	• To inform unsuccessful applicants	• Phone calls
	• Eligibility and assessment criteria and funding cycle	• To be abreast with when to apply and the maximum amount available for a specific funding period	• Periodic internet adverts
CSOs	• Number of beneficiaries, including a list of beneficiaries	• Verifying compliance with the criteria for selection • Research and validation • For tracking accountability • To know the pressure on the Fund • To motivate other plantation developers to apply and invest in forest plantations	• Website/internet
	• Annual fund inflows (timber export levy)	• For monitoring accountability as CSOs • To better understand the standing of the FPDF in policy discussions such as funding for plantation strategy	• Website/internet, • Info sheets • Annual reports

	<ul style="list-style-type: none"> • Annual inflows from other sources 	<ul style="list-style-type: none"> • Monitoring accountability as civil society • Assess the sustainability of the Fund • Assess the performance of the Fund Board 	<ul style="list-style-type: none"> • Website/internet, • Infosheets • Annual reports
	<ul style="list-style-type: none"> • Annual outflows 	<ul style="list-style-type: none"> • Monitoring accountability 	<ul style="list-style-type: none"> • Website/internet, • Infosheets • Annual reports
	<ul style="list-style-type: none"> • Geographical distribution of respondents 	<ul style="list-style-type: none"> • To assess whether funds are evenly distributed 	<ul style="list-style-type: none"> • Internet
	<ul style="list-style-type: none"> • Retrieval of Funds 	<ul style="list-style-type: none"> • To establish the sustainability of the Fund 	<ul style="list-style-type: none"> • Website/Internet • Annual reports
Industry	<ul style="list-style-type: none"> • Number and list of beneficiaries 	<ul style="list-style-type: none"> • For tracking accountability 	<ul style="list-style-type: none"> • Website/internet • Infosheets • Annual reports
Research and Academia	<ul style="list-style-type: none"> • Eligibility criteria and funding cycle 	<ul style="list-style-type: none"> • To be able to apply for research funding 	<ul style="list-style-type: none"> • Website

4.6.4 Stakeholders' awareness and interactions with the Forest Plantation Development Fund

More than 60% of the plantation developers interviewed had never heard about the FPDF. Forty-one plantation developers (39.8%) knew about the Fund; most of them informed us that they got the information predominantly from Range Supervisors (technical officers) of the FC (Table 10). This was done mainly by word of mouth during the operations of the actors. Of the number that knew about the Fund, 34.2% of them had applied for the Fund; with 21.4% ending up as beneficiaries. The beneficiaries were all prominent people in their communities: i.e., a chief, a chief farmer, and the leader of a community-based organisation.

All CSOs, research and academia, FC and timber industry actors interviewed knew about the existence of the FPDF and had interacted with it at different levels from informing plantation developers about its existence to assessing funding applications at the request of the FPDF Secretariat.

Table 9. Plantation developers' awareness and interaction with the FPDF

	Response	Percentage of respondents
Awareness of Plantation Development Fund (n =103)	Yes	39.8
	No	60.2
Source of information (For yes respondents, n = 41)	FC	51.2
	CSOs	29.3
	Others (farmers, researchers)	19.5
Previous applicant (For yes respondents, n = 41)	Yes	34.2
	No	65.8
Fund beneficiary (for applicants, n =14)	Yes	21.4
	No	78.6

4.6.5 Stakeholders' perceptions of transparency in the administration of the FPDF

Plantation developers who had applied to the Fund Secretariat and other stakeholders were asked to indicate the extent to which their information needs were met by administrators of the FPDF based on the Likert Scale in Table 6. More than 64% stated that less than 25% of their information needs were met and therefore ranked transparency to be very low, while less than 4.4% had more than 60% of their information needs to be met (high rating of transparency). Table 11 shows the specific and cumulative transparency rating of the stakeholder groups consulted during the study.

Table 10. Stakeholders rating of transparency in the administration of the FPDF

Attribute	Rating	Stakeholder classes (%)						Cumulative n (45)
		PD ^a	FC ^b	CSOs ^c	R&A ^d	P ^e	FPDF BM ^f	
Transparency Rating	Very high	0	0	0	0	0	0	0
	High	7.1	0	7.7	0	0	0	4.4
	Indifferent	7.1	12.5	15.4	25	0	0	8.9
	Low	7.1	37.5	30.8	25	0	0	22.2
	Very low	78.7	50	46.1	50	100	100	64.4

^a Plantation developers who had applied for the Fund (14); ^b Forestry Commission Staff from the five forest districts, Resource Management Support Centre and FC Headquarters, Accra (8); ^c Civil Society Organisation (13); ^d Research and Academia (4); ^e Private sector actors (3); ^f Current and Past Board Members (BM) of the Forest Plantation Development Fund (3).

The research paid attention to what informed stakeholders' ratings of transparency in the administration of the Fund. Consequently, respondents were asked to state what informed their ratings. It became apparent that poor communication of operations of the Fund Secretariat, for example, lack of publications on the eligibility criteria for accessing the fund and progress achieved with the Fund as their main reasons for stakeholders' ratings. In Table 12, we disaggregate the reasons cited by each stakeholder group for their ratings.

Table 11. The basis for rating transparency by stakeholders

Stakeholder class	The basis for transparency rating
Plantation developers	<ul style="list-style-type: none"> • Poor communication of funding decisions by Fund Secretariat and outcomes to applicants. • Elite capture of funds by opinion leaders such as chiefs and taungya headmen.
Forestry Commission	<ul style="list-style-type: none"> • Lack of publications such as annual narrative and financial reports. • Poor working relations with the FC, including failure by Fund Administrators to inform FC about funding decisions after the FC assesses the eligibility of applicants.
Board Members	<ul style="list-style-type: none"> • Elite capture and disbursement of grants to undeserving personalities based on Board Chairperson's discretion. • Failure to adhere to criteria for constituting Fund Board membership.
Civil Society Organisations	<ul style="list-style-type: none"> • Lack of information about operations of the Fund, even upon formal requests. • Lack of publications on eligibility criteria, funding cycles, annual disbursement records and annual audited accounts.
Formal Timber Industry	<ul style="list-style-type: none"> • Failure of Fund Administrators to keep stakeholders informed about their operations.
Research and Academia	<ul style="list-style-type: none"> • Lack of calls for proposals by the Fund Secretariat to address plantation forestry research needs.

4.7 Discussion

4.7.1 Weak adherence to transparency legislations reinforced by lack of incentives

The results show that the provisions prescribed in Act 583 to guarantee stakeholders access to information and improve transparency are largely not implemented by the Fund Board. A fund disbursement criteria have not been adequately published by the Fund Board and no structured mechanisms are in place to share information with stakeholders of the fund. Ingram et al. (2016) contend that properly defined, well-known, enforced, and functioning arrangements and institutions create an enabling environment for stakeholders to operate effectively and transparently. The apparent lack of functional information disclosure platforms such as websites, periodic reports, and public engagements by FPDF Secretariat, thereof, has created a gap between it and the constituents they were created to serve. This explains why more than 80% of plantation developers who knew about the FPDF had their information from the FC and CSOs rather than the Fund Board. The problem with the FC and CSOs assuming this responsibility is that they themselves are not too well informed about certain aspects of the

fund including the eligibility criteria and funding cycles. This limits their impacts and explains the overall low awareness and participation of plantation developers in the governance of the Fund. However, if the information needs of such actors can be improved, they would be a useful resource for the FPDF Secretariat to reach grassroots actor based on the former's engagements at that level.

From the results, stakeholders' information needs are driven by two main factors: 1) to access the fund for their operations, and 2) to seek accountability from the Fund Board. However, the kind of information that the Board is required by law (Act 583 and its amendment Act 623) to provide to the public is not adequate to ensure the level of transparency stakeholders want. For example, the number and list of beneficiaries and cash flows, are not covered within current legislation. Given the apparent reluctance of the Fund Board to provide stakeholders with information on basic issues such as eligibility criteria (access) which is required by law it is unlikely that it will furnish the public with the pro-accountability information that stakeholders are requesting. Nonetheless, it is in the interest of stakeholders and sustainability of the funds that such information is provided. It is, therefore, important to consider subsidiary legislation that can define information needs that needs to be met by the Board and those that are deemed confidential. Such a provision is catered for by Section 21 of Act 583 which establishes the Fund. Moreover, the timber sector has recently, established a similar provision within the Timber Resource Management and Licensing Regulation, 2017. Section 76 of the Legislation mandates the FC to provide the public access to pre-defined information needs to promote transparency in the timber sector. Beyond this, however, further investigation needs to explore measures, for example, sanctions to ensure that the Board delivers such information, especially those that can be used to incite accountability.

Forssbaeck & Oxelheim (2014) have shown that it is in the interest of good governance for actors in position of power to voluntarily provide the stakeholders they serve with information about their operations. However, the results indicate this is not the case with the Board of the FPDF. On the other hand, Bearfield & Bowman (2017) have highlighted the role active demand can play in to increase stakeholder's access to information. The study, however, found no instance where a stakeholder had made formal information request to fund administrators. There were, however, reports of an informal request by 'word of mouth', the common practice in Ghana which yielded no results. The research team's experience as shown in the results suggests the Fund Secretariat is largely not ready to answer even written requests. The situation is not helped by the absence of a functional right to information mechanism to guarantee citizens access to information. Transparency International (2016) argues that right to information acts (RTAs) is an effective way to stimulate transparency from public organisations because it creates a context for information disclosure, including how to handle sensitive information and sanctions for failure to meet relevant stakeholder information needs.

Ghana is one of the few countries in sub-Saharan Africa whose constitution guarantees citizens the right to information [(Client Earth, 2013). However, the legislation needed to implement this provision is now gaining traction. Having stalled in parliament since 2010 (CHRI, 2012), it was finally passed in March, 2019. In the absence of a functional right to information system,

perhaps, the Fund Board little incentive to meet stakeholders' information needs. An implementation of the RTA could be instrumental in improving information disclosure by the Fund Board. Beyond this, however – in the interim and beyond – there is the need to create awareness among stakeholders, particularly the media who can stimulate non-agent-controlled transparency through independent investigation and disclosure of information on the inner working of the Fund Board. Sharing of such investigative findings could put pressure on the Fund Secretariat to sit up and operate transparently (Lindstedt & Naurin, 2010).

4.7.2 Breakdown in trust among FPDF stakeholders owing to poor transparency

Whalen et al. (2012) have shown that transparency improves trust, fosters investor confidence and garner stakeholders' support towards forestry-related investments. The results suggest a unanimous breakdown in stakeholder trust in the administration of the Fund. Also striking is finding that, even within the Fund Board, discontents exists due to inadequate information sharing, single-handed decision-making and purported elite capture by leaders. This suggests inequities and inefficiencies in governance by the Fund Board. This has led to intra- and inter-stakeholder gaps between Fund Board members and fund stakeholders respectively. For example, the FC is increasingly distancing itself from the Fund due to lack of reporting from the Fund Board on how it takes into consideration the FCs application assessment recommendations. Plantation developers are shifting from forest plantations to other opportunities, e.g., cashew and rubber production, due to wane in their hopes to acquire funding support for their forest plantations (Kumeh, 2017). There is also no place for fund driven research and innovation. Meanwhile, lack of quality germplasm, limited technical support, poor pricing and marketing plantation timber remain key barriers to plantation forestry in Ghana (Adane et al., 2016).

The current set-up and operations of the Fund Board also inhibits stakeholders from monitoring the operations of the Fund, both in terms of its fund generation, use efficiency and contributions to plantation forestry in Ghana. Kombat & Wätzold (2018) have shown how the absence of functioning institutions in developing countries increases the risk of diverting funds from environmental taxes to line the pockets of corrupt officials. To avert such abuses, it is essential to explore ways to open the operations of the Fund Board to enable it to serve stakeholders interests as well as provide a basis to better market the Fund, and make it easier for the Fund Board to raise additional funds in line with its mandate (Forestry Commission, 2017).

The results also raise questions about the most appropriate media to supply stakeholders' information needs. Stakeholders who are more oriented towards information and communication technology e.g., CSOs, FC, research and academic actors prefer written and internet-based platforms for accessing information from the Fund Board. Plantation developers on the other hand who are not well connected to modern information systems showed a preference for active communication avenues e.g., community outreaches and radio programmes. This corroborates the findings of Bearfield & Bowman (2017) who observed that the stakeholder level of education affects their preferred media for accessing information with educated stakeholders generally preferring internet-based information sharing. This implies the

Board ought to have multiple outreach mechanisms to improve its communication and transparency.

4.7.3 Implications of findings for the governance of landscape rehabilitation funding in Africa

Ghana's FPDF is but a small case in global landscape rehabilitation finance. Nonetheless, the findings have relevance for climate mitigation investment in sub-Saharan Africa (SSA). The success of most SSA countries in meeting their nationally determined contributions (NDCs) – an important component of the Paris Agreement – depends heavily on how they can secure and use funds for landscape rehabilitation actions, including forest plantation development (ICF International, 2016). The findings suggest that that fundraising alone will not lead to efficient application of such funds. Alternatively, there is a need to institute rigorous governance provisions to ensure the efficient deployment of such funds. Such strong institutions are indispensable to foster and reinforce investor confidence in towards landscape rehabilitation and restoration (Berger & Stilma, 2012; Whalen et al., 2012). The challenge is that most countries in SSA have underdeveloped governance system that cannot effectively scrutinise how environmental taxes and investments are applied for optimal outcomes (Kombat & Wätzold, 2018). One way to improve transparency at national levels is through promulgation and good implementation of the right to information legislation (Keping, 2017). However, most African countries have yet to institutionalise or adequately implement the right to information legislation (Adu, 2018). The study, therefore, notes that calls for investments in landscape rehabilitation within SSA present an opportunity to bring to bear, and simultaneously address the underlying challenges to good governance.

4.8 Conclusions

More than a decade after the establishment of the FPDF, the Fund Board responsible for its management has no concrete arrangements in place to ensure stakeholders' access to information on their operations despite a legal obligation to do so. It is also noted that compliance with the law setting up the fund alone will not ensure full transparency of its operations as demanded by principles of good governance. At present stakeholders generally, perceive the Fund Board to be opaque because it does not meet their information needs. In this state of obscurity and opacity, the fund runs the risk of being abused and not meeting the objectives for which it was established. Transparency of the FPDF, therefore, adds up to the list of issues to be addressed in forest governance in Ghana. The study, therefore, recommends urgent action from stakeholders to demand changes in the way the Board operates including subjecting itself to public scrutiny and auditing. Measures should also be taken to implement the right to information legislation which has been recently promulgated since March 2019. The study findings also highlight an opportunity for global discourses that aver for investments in landscape restoration within SSA to be accompanied with governance reforms to address the barriers that militate against the efficient use of such investments.

4.9 References

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5. Discussion

This section pulls together the main findings from the three empirical studies. It provides relevant insights for policymakers and rural development practitioners that seek to tackle deforestation while concurrently overcoming food insecurity and rural poverty. Scientifically, the work enriches the scholarship on property, access and authority and its relations with state-building in contexts characterised by overlapping legal and normative institutions. Some limitations to the current study are raised and pathways offered for future research. The chapter begins with a summary of the findings from the three empirical studies. Throughout the discussion, I refer to the empirical chapters 2, 3 and 4 as “customary power study”, “FSC study” and “landscape restoration study”, respectively.

5.1 Summary of main results

In sub-Saharan Africa, smallholder farming is associated with more than 60% of deforestation in the region. The customary power study sought to analyse the strategies forest communities use to gain access to forest reserves for farming and how statutory and institutional overlaps facilitate or hinder such efforts. This was done through a qualitative case study based on multiple data collection strategies, including participatory mapping, direct observations, and key informant interviews in the cocoa-forest frontier of Southwestern Ghana. Specifically, it focused on Ghana’s Juabeso district and Krokosua Hills Forest Reserve, characterised by complex landholding arrangements. The study found that state and customary institutions authorise forest communities’ access to the reserve as a way to secure labour, build their authority, and benefit financially from farming activities in the forest reserve. However, increasingly, local communities employ multiple strategies, including their rich local knowledge, to cultivate farms in different forest reserve areas without deference to either state institutions or traditional authorities. State forestry officials react by cutting down the illegal farms, causing periodic food shortages in the study localities and leading farmers to apply new forms of everyday politics to consolidate their access. The disaggregated insights reveal multiple power configurations, actor roles and contributions to farming in forest reserves in the countryside. It also sheds light on local class struggles and how competition between state and customary actors over land undermines sustainable land use in the region.

The FSC study sought to reveal the issues that have been ignored or overlooked in framing forest reserve management policy in Ghana. Narrative analysis was used to disentangle the stories forest-dependent communities use to justify farming in forest reserves, and emerging storylines were juxtaposed with forest and cocoa sector actors' narrativization of deforestation in Ghana. The study found that a combination of issues drives forest communities to farm in forest reserves, including land struggles and competition between state actors and customary institutions, excessive depletion of forest resources, and food insecurity. It further notes that food insecurity is paramount among all the narratives conveyed by forest communities. While forestry officials at the community level acknowledge the challenge of food insecurity, it is not among the dominant narratives that underlie Ghana's forest policy. Instead, the mainstream

narratives shaping forest policy are based on biodiversity conservation and the role of forests in moderating future cocoa production. These findings lessen the validity of prevailing discourses that portray forest communities as environmentally destructive. The findings suggest that forest stakeholders need to embrace a context-specific understanding of forest conversion in order to ensure targeted solutions that make a difference in managing farming in forest reserves. Thus, Food Security Corridors (FSCs) is put forward as a potential policy approach that can enable forest-dependent communities to work with state actors in addressing their food insecurity concerns while contributing to forest conservation and deforested landscape rehabilitation attempts in Ghana and beyond.

Despite the emergence of several global and national initiatives to fund landscape restoration efforts, little academic information exists on how such funds are governed. The landscape restoration study examined landscape restoration finance, using Ghana's Forest Development Fund as a case study. The study found several governance challenges that militate against an effective administration of the fund. The challenges include a lack of structured mechanisms for reaching out to stakeholders about the operations of the fund, its disbursement criteria and accountability measures. This translated into low awareness, inadequate access to the fund, poor perception of transparency and a breakdown in trust between stakeholders of the fund and its administrators. To enable transparency and nurture an environment for demanding accountability in the use of the reforestation fund, the study outlines stakeholders' information needs on several aspects of the fund, including funding cycles, eligibility criteria, annual inflows and outflows to the fund and a list of beneficiaries. It provides information on the media stakeholder prefers for accessing the various information. A key message from this study is that calls for investment in landscape restoration need to be backed with demands for institutional improvement for optimal use of such resources.

5.2 Discussion of results

The three studies give insights into many aspects of resources management in post-colonial Ghana. While the richness of the individual cases renders empirical generalisation challenging, they raise issues about the broader themes on institutions, resource governance and rural class relations and agrarian development, notably: 1) institutional and governance deficiencies, 2) institutional pluralism and competition over jurisdiction and authority, 3) class differentiation and equitable resource use, and 4) the need for a transformative approach to managing forest-farm conflicts for rural development. This section reflects on these issues by connecting the findings with the broader literature on institutions, and land-use conflicts, where the ensuing resonance enables me to draw a few inferences beyond the specific cases presented.

5.2.1 Institutional and governance deficiencies

All three empirical studies point to many institutional deficiencies and policy flaws, including the lack of transparency from state institutions to their constituents, elite capture of benefits from forest resources and various forms of corruption. The FSC study sums up the pervasiveness of the latter, noting in the cocoa-forest frontier of Ghana, justice is for sale to the

rich and powerful. This thesis corroborates earlier works that have pointed to many institutional challenges in Ghana's forest sector (Acheampong et al., 2016; Ankomah et al., 2020; Brobbey et al., 2020; Hirons et al., 2018; Ros-Tonen et al., 2013). However, it goes further to demonstrate that many of the institutional challenges are reinforced by policy flaws or policies that have outlived their usefulness. A case in point is the policy on admitted rights, which the evidence from the customary power and FSC study have proven as a knee-jerk, colonial policy that has failed to embrace the ever-evolving dynamics within forest communities. During forest reservation, admitted communities comprised a handful of people. However, as shown in the FSC study and confirmed affirmed elsewhere (Brobbey et al., 2020; Sobeng et al., 2018), these localities have burgeoned with people, people with a right to pursue decent livelihood opportunities in line with global sustainable development aspirations to halt hunger and poverty. Despite this, many studies reproduce mundane policy narratives, characterising forest communities as trespassers that breach the boundaries they were originally confined to by forestry officials in the 1900s (Eludoyin & Iyanda, 2019; Owubah et al., 2000). One thing that is not mentioned in the literature but demonstrated by the customary study is that there are still forest communities that have not had their share of the farmlands that were legally allocated to them during forest reservation due to institutional lapses by forestry authorities.

The second aspect of governance challenges relates to the ambivalence of the Ghanaian government about the rationale for forest reservation and how it sharply contrasts its misrepresentation of forest-dependent communities as destroyers of forest resources in order to exploit them. Historically, forest reserves were earmarked for three functions in Ghana: 1) protect the environment and water bodies, 2) prevent the advancement of the Sahara desert, and 3) create a good microclimate for cocoa production (Hansen & Lund, 2017). While timber extraction was never portrayed as a central goal for forest reservation, many studies demonstrate that it remains the main operational goal of the state government, leading to persistent overharvesting of timber resources in forest reserves and widespread forest degradation in the country (Hansen & Lund, 2017; Kotey et al., 1998; Narh, 2019). Through the Taungya system, highlighted in the customary power study and the Modified Taungya System in other forest reserves (see Acheampong et al., 2016; Ros-Tonen et al., 2013), the state is converting large tracts of degraded forest reserves into plantations of fast-growing exotic timber species. While 'sustainability' is used by the state to sell its plantation forestry strategy for forest reserve areas (Forestry Commission, 2016, 2020), field assessments suggest otherwise. In one study in the Bono-Ahafo region, Narh (2019) found that the state's plantation activities in forest reserves focus predominantly on financial gains from such areas, leaving its social and political impacts on forest-dependent communities to the margins. Following a similar analysis in the Bono-Ahafo and Ashanti regions, Kansanga & Luginaah (2019) concluded that agrarian livelihoods are under siege in forest reserve areas because the government is growing trees in place of food and using temporal land access of two to three years as a means to exploit poor, landless farmers.

Read together with recent developments – where the Forestry Commission in Ghana is privatising large areas of degraded forest reserves by leasing them out to private companies for large-scale plantations (Forestry Commission, 2020), and attempts by the state to convert some

of the country's most biodiverse forest reserves, including one that is a fountain of three major rivers in Ghana, into a bauxite mine despite resistance from civil society groups (Purwins, 2020) – it is apparent that the Ghanaian government perceives forest reserves predominantly for monetary gains. Of course, one may argue that increased financial flows from the destructive use of forest reserves by the state would translate into improved welfare of people in forest communities because the state would reinvest the revenue into developing such communities. However, one would only need to look to the FSC study, among other works (Armah, 2020; Crawford & Botchwey, 2017; Damoah et al., 2018; Gaither et al., 2019; Kumeh & Abu, 2019) to see how poor transparency, elite capture and corruption complicate the implementation of trickle-down economics interventions in Ghana. Alternatively, resource rents are exported from resource-rich parts of the countryside to the impoverishments of the locals.

Many studies suggest that these challenges are not confined to the Ghanaian context, but extends to many developing countries, where the separation of forest communities from their lands to facilitate forestry and conservation-related project wrestles forest benefits from the poor to local elites, deepening poverty and inequality in the process (Asiyanbi & Massarella, 2020; Awung & Marchant, 2020; Hook, 2020; Koch, 2017; Lund et al., 2017; Massarella et al., 2018; Pasgaard & Chea, 2013). Such developments militate against the global aspiration to eliminate hunger, poverty, inequality, and environmental degradation. To tackle these problems, it might be better to rethink the policies used to manage forest reserves in the region. New policy reforms need to place local rights and needs at the forefront of forest reserve management. I conclude the discussion on institutional and governance deficiencies by reflecting briefly on three potential solutions to give more voices to forest-dependent communities in forest reserves management: revisiting the admitted farm policy, improving transparency and access to information, and nurturing decentralised decision-making.

Revisiting the admitted farm policy means the state government needs to critically evaluate the policy's merits and demerits vis-à-vis recent developments, including population growth and how it inflames land-use competition and conflicts in forest communities. The FSC and customary power studies have contributed in this respect. However, there is room to extend the analysis to other forest reserves experiencing challenges with admitted farms. Transparency stimulates accountability, especially when it enables stakeholders access to accurate and timely information about the processes and decisions of state actors. Forestry officials can improve their operations and relationships with forest communities when they establish and communicate procedures for their operations. For example, in the short term, they need to work with stakeholders to establish guidelines and standard operating procedures for redistributing degraded forest reserve lands to local communities, including the basis for land size allocations, related charges and their justifications. In addition, there is a need to contextualise decision-making regarding forest reserves, and this requires decentralisation, which is the final point. Decentralised decision-making means that forest management plans and strategies are made and implemented at the lowest level possible and not through pseudo-participatory approaches like one-off consultation meetings. The first step towards real participation would be for forest policy actors to unlearn their preconceived notions about forest communities. Already, the FSC

studies demonstrate that forestry officials within forest communities have a different perception of farming in forests compared to high-level forest policy actors. It would be more prudent for high-level forest policy actors to connect with the experiences and perspectives of forestry officials and forest communities that are in direct contact with forest reserves because such an approach leads to fairer forest policies that have a better chance of implementation success (Duguma et al., 2018; Essougong et al., 2019; FAO, 2016). The FSC study has highlighted how food security corridors (FSCs) can become a fluid handle that unites all stakeholders in the quest for better and fairer policies for managing forest reserves.

5.2.2 Class differentiation, power asymmetries and equitable resource use

The differentiated roles of chiefs, native, and migrant farmers in farming forest reserves draw attention to issues of class and power within local communities. In the development and conservation literature, Agrawal & Gibson (1999) argue that building decentralized institutions for effective resource management depends partly on how actors are able to critically disaggregate the multiple interest and actors in local communities, including how they influence decision-making. Previous studies bridle forest communities together as one unit of environmentally destructive actors (Appiah et al., 2009; Owubah et al., 2000). The findings from the customary power and the FSC studies contend that this widespread notion is misinformed and misleading for at least two reasons. Firstly, both studies demonstrate that forest communities comprise different social classes and embedded asymmetrical power relations. These differences translate into multiple motivations, approaches, and techniques for generating land security in forest reserves. Specifically, the studies have revealed, on the one hand, native chiefs and other local elites may facilitate farming in forests for capital accumulation and as a means to establish future claims to forest reserve lands. On the other hand, for many poor farmers who are in the need economy because forest reservation has rendered them landless and unemployed, farming in forest reserves is a choice between securing their next meal, starving, or becoming indebted. The essence of this differentiation is not to provide a basis for nuanced ‘actor shaming’ on the farming in forest reserves dilemma. Alternatively, it is to highlight that the farming in forest reserves is fuelled by multiple interests and claims that may require different approaches for a meaningful resolution. Secondly, the blanket labelling of forest communities as ‘environmentally destructive’ is not constructive because it is an easy option that enables the state to absolve itself of the blame for the fact that its admitted farm policy was naïve, short-sighted, and bound to fail with population growth and lack of employment opportunities in the countryside. In failing to admit this, the state continues to infringe the rights of the locals and suffocate their voices, relegating them to the margins of society.

Another dimension of class and power imbalances relates to the unequal relations between state actors and local forest resource owners and users, which have implications for farming in forest reserves. The customary power and FSC studies indicate the prevalence of exploitative hierarchical structures that are headed by bureaucrats. Chiefs come next, before indigenes, with migrant farmers and labourers wallowing at the bottom of the chain. Within this hierarchy, higher-level actors, i.e., bureaucrats and native chiefs, exploit the poor in forest communities,

prying on their landlessness to harness their labour for capital accumulation. Viewed from this perspective, new forms of farmers' engagement in farming forest reserves without deference to forestry officials or native chiefs appear as their way of resisting the exploitative social order. After all, why should forest communities provide free labour to the state to reproduce a land-use regime that excludes the former from their ancestral lands while imperilling their present and future access to land for food production? More succinctly, why should forest communities provide labour to the government in a way that enables the state to further dispossess communities from their ancestral lands? This thesis does not provide a conclusive answer to this question. However, evidence from the customary power study, including the 'everyday weapons of the weak' communities use to farm forest reserves, suggests that the present forest rehabilitation strategy, i.e., the Taungya system is not incentivising enough for its target group. A key inference here is that managing farming in forest reserves should not be about imposing elitist notions of sustainable practices on forest communities. Instead, it is more about making rehabilitation practices worthy of forest communities' attention. This point relates to the broader issue of social equity in the sustainability literature, which I reflect on briefly.

In recent years, many scientists have called for more research to document how the social aspects of sustainability manifest in initiatives like REDD+ and the growing bioeconomy transition (Benjaminsen & Bryceson, 2012; Kansanga & Luginaah, 2019; Ramcilovic-Suominen & Pülzl, 2018). This thesis contributes to this emerging field with context-specific information from Southwestern Ghana. It points out that the Ghanaian government's attempts to rehabilitate degraded forest reserve as part of REDD+ commitments and plans to rehabilitate deforested lands gives precedence to increasing tree cover over addressing the food and livelihood needs of forest-dependent communities. Measures to nurture a more inclusive strategy that accommodates the diversity of actors within forest communities and their needs and interests in tackling farming in forest reserves have been identified by both FSC and Customary power studies.

5.2.3 Legal pluralism and competition over jurisdiction

Previous works on land in sub-Saharan Africa indicate that land ownership rights tend to be inconclusive and are highly renegotiable, especially as land scarcity deepens (Berry, 2009; Lund, 2008; Ubink & Amanor, 2008). Boni (2005) presents a rich account of how amid land scarcity, native chiefs of Sefwi in Southwestern Ghana institute retrospective norms to exclude migrant farmers from lands over which they had duly acquired farming rights in off-reserve areas. The native chiefs achieve this by, for example, making declarations that restrict farmers' access to only areas that they have planted or they limit farmers' cultivation rights to the life cycle of established crop (Boni, 2005). Through the customary power study, I have extended the scope of areas where some native chiefs are aiming to introduce insecurity, so they can regain control over such lands. Moreover, I have provided nuanced insights into the specific strategies these actors use to destabilise established rights over forest reserves in order to lay future claims that trigger their renegotiation.

Competition over jurisdiction between state and customary actors raises questions about which actor offers a better prospect in applying forest reserve lands to address the growing food, livelihood needs and environmental concerns in forest communities, and why? This thesis takes a pluralistic view on this question. The evidence from the customary power and the FSC studies indicate that either institution has its peculiar shortcomings, many of which have been noted earlier. For one, traditional authorities are not egalitarian as may be perceived (Capps, 2018; Peters, 2004). Alternatively, both the state government and traditional authorities are rather opaque and exploitative in their dealings with the land question in forest reserves in Ghana (Kotey et al., 1998; Kumeh & Abu, 2019) and other Sub-Sahara African countries, including Nigeria (Eludoyin & Iyanda, 2019; Schoneveld, 2014) and Zimbabwe (Matose, 2008). Perhaps, the only silver lining is that state governments have independent arms that can provide a form of self-check. Besides, citizens can always seek redress from courts when they feel their rights have been infringed. The FSC study provides an example, where some groups of farmers sued forestry authorities for infringing on their rights, i.e., destroying their crops within the forest reserve. In principle, traditional authorities also need to be answerable to their subjects because it is the former's collective power that enables traditional leaders their fiduciary role, empowering them to exert control over land resources. However, this does not happen in practice, leading to gross abuse of power by traditional authorities in redistributing forest lands (Schoneveld, 2014). Thus, the answer to the question may not lay with a specific actor. Instead, a group of actors, working together to improve transparency, demanding mutual accountability from all mediating institutions, and as a result, participating actively in the state-building process.

Land conflicts, in general, appear to be an essential process in state-building that extends beyond the Ghanaian context. For example, based on a comparative historical approach, Peluso & Vandergeest (2001) shed light on how national and state governments in Thailand, Malaysia, and Indonesia employ legal interventions to change the local understandings of forests and legitimise the state's capacity to gain control over lands. Guha & Gadgil (1989) and Guha (2001) draw on the history of forests in India to illustrate how attempts by the colonial administration to increase the exploitation of forest resources while diminishing forest communities access fuelled social movements and everyday forms of peasant resistance, including arson and non-compliance with forest laws, resulting in a policy change that nurtures community forestry. Similarly, in rural Zimbabwe, local communities and their leaders employ various strategies, including squatting to retake control over communal lands that were appropriated by colonial administration as forest reserves and reinforced by the post-colonial state (Matose, 1997, 2008). In Southeast Nigeria, a strong political alliance between chieftaincy institutions and ruling state elites strengthen the privatisation of forest reserves to the detriment of indigenous communities while quelling all forms of local resistance to dispossession in south-eastern Nigeria (Schoneveld, 2014). Land questions are so embedded in state politics to the extent that promises of land redistribution have been consistently used to capture and retain political power in several countries, including Zimbabwe, Cote d'Ivoire, Tanzania Kenya (Boone, 2015; Boone & Kriger, 2010). Concerned about struggles over lands and its influence on political outcomes, Kenya's recent constitution took a progressive stance, calling for institutional reforms that redistribute land to actors on the principles of justice and equity

(Boone, 2012). The point here is that struggles over land between multiple actors in post-colonial Africa can be complicated. However, in an attempt to resolve them, new opportunities emerge for greater actor recognition and inclusion in the politics of state-building. Thus, it is imperative for policy actors to perceive the current competition over lands in forest reserves not as a nuisance but as an opportunity to recognise and engage more actors, particularly grassroots communities, in nation-building. The FSC and landscape restoration studies have provided some guidance on how state actors could relish this opportunity, for example, by improving information flow to and actively engaging grassroots actors.

5.2.4 Need for transformative approaches to managing forest and agriculture land-use conflicts

Before proceeding to reflect on new perspectives for managing forest and agriculture land-use conflicts, it is useful to recall that land sparing for conservation as a colonial policy is proving problematic in many developing countries and not only Ghana (Enuoh & Bisong, 2015; Wiafe, 2015; Wiggins et al., 2004). Some studies suggest that transferring forest rights to communities may lead to better management (Dupuits & Ongolo, 2020; Lescuyer et al., 2019). However, other studies indicate that unlike in the last 30 years, many communities do not want such rights anymore because it diminishes their access to agricultural land (Gross-Camp et al., 2019). Thus, the greater challenge of finding a balance between conservation and agriculture remains a fundamental issue. Through the FSC study, I have posited that Food Security Corridors (FSCs) can become a fluid handle for actors to continuously negotiate multiple actor interests within forest landscapes. While such an approach might be time and resource-intensive, it lays a critical foundation for correcting erroneous assumptions held by multiple stakeholders and improve the chances of success of ownership and management prescriptions that stakeholders decide for themselves. A good way to invest in refining and piloting FSCs is to start by channelling some resources global stakeholders are investing in landscape restoration. In the Ghanaian context, the Forest Plantation Development Fund, which is highlighted in the landscape restoration study, could be a useful investment avenue for pursuing such a transformative path in managing forest and agriculture land-use conflicts.

5.3 Strengths, limitations and future research

The process net-map tool was very instrumental for the field data collection. I reflect on its strengths and areas for improvement before pointing out some limitations of the current work and areas where more studies are required to complement the information presented in this dissertation.

5.3.1 Usefulness of the process-net map in access mapping

Considering that Ghanaian laws forbids unpermitted farming in forest reserves (CAP 157, Section 29), I had anticipated that it would be challenging to gather accurate information on the various structural and relational means actors employ to derive multiple benefits from such areas. Beyond securing farmers' consent and carefully explaining the rationale of the study, I found that applying the process-net map tool was very useful in breaking the ice, enabling

participants to actively reflect not only the series of steps involved in gaining access to forest reserves but also the multiple structural actors they defer to in the stages of the process. A discussion of the produced maps with others clarified, contested and in other cases complemented the various relations that were produced from earlier access mapping exercises. In the end, the approach revealed mechanisms beyond the typologies described by Ribot & Peluso (2003), as demonstrated in the customary study. However, beyond revealing the different mechanisms and pointing towards power bundles that underpin them, it also directed attention towards specific actors that required further attention and follow up.

One area the present work could have improved in the use of the process net-maps is to elicit respondents' perceptions of power and influence ranks among the multiple actors that operate along the forest frontier. Such information is relevant for a more targeted application of the recommendation that may emerge from the mapping. While follow-up in-depth interviews and focus group discussions were used to infer such power relations, a categorical ranking of the power and influence relations by the various actors during the mapping process could have led to a better outcome and is highly encouraged in future research that embraces the process-net map in mapping access.

5.3.2 Limitations

Restricting data collection to specific localities helped in gaining detailed insights into forest communities' daily practices of farming in forest reserves, which has been rarely studied in forest and agriculture conflicts literature. However, the use of a case study approach may limit the external validity of the study findings. Of course, many regions in Ghana and other parts of Africa possess pluralistic institutions and are also engulfed in forest and agriculture land-use conflicts. Nonetheless, there are also inherent differences. Even within the Ghanaian context, several configurations are plausible for comparative analysis of the farming in forest reserves question, for example, due to differences in inheritance and land ownership regimes, e.g., matrilineal and patrilineal societies, between stool and skin lands, and differences in vegetation zones, e.g., evergreen rainforest, deciduous and semi-deciduous forests and the savannah. Besides, as demonstrated in the customary power study, in a given traditional authority, there may be differences in how specific village chiefs normalise or embrace a neutral stand about farming in forest reserves. Thus, this thesis does not attempt to generalise the findings. Alternatively, more research is needed to embrace the multiple parameters stated here and beyond. Such studies could build on the evidence presented in this dissertation to deepen scholarly understanding of how different societies confront forest and agriculture land-use conflicts, enabling learning and sharing of best practices for overcoming this pressing challenge.

Another limitation relates to the timeframe of data collection. While an extended stay in the villages was beneficial in the case study approach employed, the period (October to February) represents the main cocoa harvest season. An outbreak of the COVID-19 pandemic meant that data collection during the lean season was not possible under this study. Given that food insecurity is a critical concern in many cocoa-growing areas during the lean season (Bymolt et

al., 2018), there may be changes in the strategies that farmers use to guarantee their access to farmlands in the study localities. However, this is an area for further research as pointed out in the next section.

5.3.3 Suggestions for further research

The dissertation has shed light on the local practices and means farmers use to acquire lands for farming in the Juabeso District. While it does not give insights into the scale of the farm's lands under the various farming practices, there are indications from the customary power study that food crop cultivation is the predominant practice. Such a hypothesis lessens the long-held views that cocoa production is the dominant driver of deforestation in Southwestern Ghana and has implications for managing deforestation in the landscape. However, it also means that current strategies for halting deforestation in the study localities, which rest heavily on stopping cocoa farming in forest reserves, may be flawed. Consequently, more studies are required to delineate the relationship between cocoa farming and food crop farming in forest reserves in order to develop more targeted solutions for addressing deforestation in the study landscape. One the food element, longitudinal studies are required to quantify the contributions of farming in forest reserves to food security across different household types in the localities and city centres. Such studies would reveal both local and broader linkages of farming in forest reserves, leading stakeholders to embrace more nuanced views on managing farming in forest reserves.

More research is required on the relative distribution of benefits from farming in forest reserves across various actor groups. The present study points out the multiple direct benefits derived by the actors, including food crops, cocoa beans, land rents, and gratitude. It is essential to elaborate the relative proportions of these benefits and their distribution among various actors to reveal the winners and losers from farming in forest reserves. Such information will enable stakeholders to negotiate better actor roles and responsibility in exploring equitable solutions for managing the challenge of farming in forest reserves.

5.4 Policy recommendations

Several recommendations are tenable from the discussion for strengthening institutions towards better management of forest and agriculture land-use conflicts, which is an overall aim of the thesis objective.

a) Developing and implementing clear guidelines for funding forest landscape rehabilitation

The FSC and customary power studies highlight the need for clear operating procedures in governments approach to rehabilitation deforested areas. Operations of the Forest Plantation Development Fund Board (FPDFB) is not transparent, and the same applies to the allocation of allocation deforested lands for rehabilitation by the district Forest Services Division's under the Taungya system. The Ghanaian government's decision to create a website to improve stakeholders' awareness of the FPDFB, following the publication of the landscape restoration study and its relay to state actors, is admirable. However, to improve the transparent application

of the funds, the government needs to build on the current gains to publish a clear criterion for selecting grantees as well as other information stakeholders pointed out that they require to demand accountability in the administration of the Fund. These include information on financial inflows and outflows, number, a list of beneficiaries, and many others stated in the landscape restoration study.

Another area government needs to provide clarity to stakeholders in the short term is how it allocates degraded forests to forest communities. Such a clarification means publishing the basis for allocating such lands, including how much area each actor gets, and the timelines for allocating such areas. Also, the government needs to clearly justify why it excludes some staple crops in such rehabilitation contracts. Such information would improve stakeholders' confidence in the process and create a basis for them to better engage with the government in its attempts to rehabilitate deforested reserves. However, for a sustainable solution, the government needs to invest in FSCs, which is explored next.

b) Investing in refining and pilot of Food Security Corridors

The FSC article outlines food security corridors as one approach that government can use to better engage stakeholders in finding a sustainable solution to FARUCs in Ghana. While local and international development institutions can provide financial and technical support to improve this concept, the Ghanaian government can take the lead by allocating part of the funds accruing to the FPDF to support such applied research and doing this fit well with the second object of the fund to support research and provide technical assistance for persons engaged in plantation forestry. Embracing the lead role will encourage other stakeholders, including researchers and non-governmental organisations, to actively engage in refining and piloting the concept for future application.

c) Tackling current deficiencies in the implementing of forest rules

Many institutional challenges have been identified across all three empirical studies. Generally, the government needs to improve how it enforces rules by local forestry officials and administrators of FPDF. In this vein, evidence about the roles some forestry officials play in facilitating farmers' encroachment into forest reserves for the former's gains needs to be investigated and rigorous action taken against defaulting actors. Such an approach will serve as deterrence to others, enabling forestry officials to play their roles as custodians in diligence.

d) Reviewing admitted farms policy and pursuing long-term land reforms

The FSC and customary power studies demonstrated that while the admitted-farms policy may have been well-intended during forest reservation in the early 1900s, its usefulness in contemporary Ghana is questionable. Many forest-fringe communities have established counterclaims that suggest their rights were either infringed during forest reservation or are currently being infringed because they are being denied their right to food and survival. The sooner such claims are resolved, the better for all actors involved. Of course, resolving such claims is no easy task because of the long history of land contestations between the state and traditional authorities as well as within multiple traditional authorities. Nonetheless, continuous

dialogue may provide common grounds for making headway. The thesis has highlighted FSCs, as discussed above an entry point for facilitating such dialogue.

e) Creating long-term employment opportunities in the countryside

Overall, a strong dependence on farming for survival plays a part in driving farming in forest reserves, as shown in the FSC study. To reduce this dependency, the government needs to work with private sector actors to create long-term jobs in the countryside. For example, specific opportunities that enable local farmers to process their food products or those that enable them to venture into other green business opportunities such as sustainable charcoal production or small ruminants rearing could lessen the dependency on forest lands for farming. These can be achieved through targeted reinvestment of timber and cocoa revenue by the governments in Southwestern Ghana. Civil society organisations can also support such actions by training farmers in alternative livelihood options and providing technical support to farmers through strategic development projects.

5.5 Conclusion

The thesis started with the aim to unravel the rural politics that reproduce farming in forest reserves and examine existing financial incentives for landscape restoration in order to derive policy and institutional reforms to reduce forest and agriculture land-use conflicts and promote equitable use of forest landscapes. I have demonstrated how the competition over authority between state and customary institutions nurtures farming in forest reserves. I have contended the notion that forest communities are environmentally destructive by revealing the voices that have been ignored in the forest policy arena. This includes how the urgent need for food leaves forest communities with no option but to encroach into forest reserves for farming. Notwithstanding, I have also drawn attention to the complexity of actors within forest communities and the need to unbridle and embrace their diversity in trying to find meaningful solutions that lessens farming in forest reserves. Finally, the thesis has also revealed how several institutional challenges, including lack of clear operating procedures and poor communication and relations between public institutions and their constituents, fosters mistrust and inhibits some actors' meaningful engagement in landscape rehabilitation. While specific recommendations have been offered to overcome many of the governance challenges, their implementation success hangs on the state's commitment and investment in building strong and resilient forestry institutions. There is no room for hesitation or delays because the remaining forest frontier dwindles by the day.

5.6 References

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Appendices

Appendix 1. Data collection instrument on stakeholders' perceptions and interactions with Ghana's Plantation Development Fund

Demographic information

1. Gender (Sex)	Male	Female
2. Age class (years)	Less than 18 18 – 35 36 – 45 46 – 55 55 – 65 More than 65	
3. Highest level of education attained	No formal education Primary Secondary Tertiary Others (please specify)	
4. Awareness of the Forest Plantation Development Fund	Yes No	
5. Source of awareness information	Forestry Commission (FSD, RMSC, WD) NGOs Mass Media Fund Secretariat Others	
6. Prior application	Ever applied Never applied	
7. Information about outcome of application	Successful Not successful (Explanation)	
8. Perception of transparency	Very High (All information needs met) High (About 75 of information needs met) Indifferent (Roughly 50% of information needs met) Low (Less than 50% of information needs met) Very Low (Less than 25% information needs met)	
9. Could you explain what informed your choice in 8?		

10. Which of the following information would you like to be provided with in relation to the Forest Plantations Development Fund and why? Also, please indicate the medium and/or media through which you would like to receive such information.

Information	Please tick	Why	Media (Radio, Internet, etc.).
Eligibility and assessment criteria			
Funding cycle			

Annual fund inflows (timber export levy)			
Annual inflows from other sources			
Annual outflows			
Number of beneficiaries			
List of beneficiaries			
Geographical distribution of respondents			
Others			

Appendix 2. Guiding questions for interviewing farmers on their access to land for food production in the Krokosua Hills Forest Reserve

Interview date:

Name of interviewer:

Region:

Cluster Name:

Name of village:

Section A: Demographic information	
Name of respondent (by day)	
Sex of respondent	Male [] Female []
Age of respondent (in years)	
Residency status of respondent	Indigene [] Migrant []
Head of household	Male [] Female []
Type of landholdings	Freehold Leasehold Share-cropper Squatter Others (specify)
Number of landholdings	
Total size of landholdings	Approx. acres:
Section B: Guiding questions	
	<p>Could you tell me a little bit about how you acquired the land for your farming activities?</p> <p>How did the actors you mention help you in the land acquisition?</p> <p>What differences have you encountering with farming in your land outside the reserve compared with the one in the reserve?</p> <p>Could you tell me a little bit about the types of crops you cultivate on your land in the reserve?</p> <p>How do you negotiate boundaries on the farms that you have in the forest reserve? How do you differentiate your boundaries from that of others?</p> <p>Could you tell me a bit more about your experiences in farming the forest reserve?</p>

Appendix 3. Guiding questions for focus group discussions on land access with the Krokosua Hills Forest Reserve

Date and time	
Information about participants (number and sex)	
Preamble	<p>The rationale of our discussion is for our research team to understand some of the issues around farming in the Reserve, the different practices involved and all your experiences and to discuss ways to live in harmony with the forest and those charged with forest management.</p> <p><i>Followed by setting of ground rules</i></p>
Key questions	<ol style="list-style-type: none"> 1. Could you tell me a bit about your town, neighbors and how you relate with the Krokosua? 2. Could you explain a little bit about your admitted farms, including how it was distributed to you? 3. What about those without admitted farms, how do they farm and what crops do they produce? 4. What are your experiences with farming in the Krokosua? 5. How do you see the Krokosua in the next twenty to twenty-five years? 6. Could you share some ideas on how we can address the challenges you have raised?

Appendix 4. List of focus group discussion conducted, including dates and participants

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)
Safianon	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

Appendix 5. List of communities and number of respondents 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