

# Options for Community Participation in Landscape Restoration through Plantation Development



**Eric Mensah Kumeh**



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**AUGUST 2017**

This book was published under the project "*Developing mechanisms for improved landscape productivity: the case of smallholder forest plantations*" which was funded by the Directorate-General for International Cooperation (DGIS) of the Dutch Ministry of Foreign Affairs.

Published by: Tropenbos Ghana

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Citation: Tropenbos Ghana (2017). Options for Community Participation in Landscape Restoration through Plantation Development; Tropenbos, Ghana, Kumasi

Author: Eric Mensah Kumeh

Cover Page design & Layout : Eric Mensah Kumeh

Cover Photos: Eric Mensah Kumeh and Joseph Asante

Editing and Additional Design: Bernice Agyekwena

Printed by: JEB Solutions, Accra

Available from:

Tropenbos Ghana

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[www.tropenbos.org](http://www.tropenbos.org)

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## Acknowledgements

This report draws on the research work of many people who were involved in a collaborative research project coordinated by Tropenbos Ghana between 2014 and 2017, titled *"Developing mechanisms for improved landscape productivity: the case of smallholder forest plantations"*.

The research work of Eric Mensah Kumeh, Samuel Appiah Adane, Adu-Sarpong Emmanuel, Eric Osei-Appiah and Emmanuel Owusu with supervision from Professor Kyereh Boateng (FRNR-KNUST), Dr Daniel Inkoom (Department of Planning, KNUST) and Dr Paul Bosu (CSIR-FORIG) are greatly appreciated. We are indebted to Dr Paul Osei-Tutu (INBAR) and Roderick Zagt (TBI) for their immense comments that improved the quality of this report.

We also appreciate the in-kind contribution from the Forestry Research Institute of Ghana, Faculty of Renewable Natural Resources, KNUST and the efforts of Mrs Valerie Fummei Nassah, Messrs Alexander Asare, Godfred Ohene-Gyan and Edward Obiaw of the Resource Management Support Centre, Forestry Commission.

Many thanks to the project beneficiaries in Dunkwa, Offinso, and Kintampo forest districts and all those who provided research information in Jasikan and Sogakofe Forest Districts; as well as the staff of the Forest Services Division of the Forestry Commission and traditional leaders in the districts.

The Directorate-General for International Cooperation (DGIS), Dutch Ministry of Foreign Affairs made this research possible by providing financial support for the implementation of the project.

While this report is hugely indebted to the contributors mentioned above, the opinions expressed in the report are those of the authors, and not necessarily those of the DGIS.

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# Executive Summary

## Introduction

Accelerated rates of global deforestation and its contributions to global emissions as well as the risk it poses to rural livelihoods have made tackling deforestation a priority on the global agenda for sustainable development. Forest plantations have emerged as a cutting-edge strategy for timber production to meet the ever-rising global demand for wood resources, provide rural livelihood opportunities and address landscape restoration concerns. Consequently, forest plantations are burgeoning all over the world. In Ghana, existing policy frameworks provide ample enabling environment for effective smallholder forest plantations. However, such policies have often not been effective in practice. Forest plantation development has often focused on degraded forest reserves, and the plantations that have been established tend to be large in scale. Meanwhile, evidence from Ghana's cocoa sector, where small-scale farming is responsible for the country's enviable cocoa production suggests that given the right support, smallholders can effectively engage in forest plantations and make meaningful contributions to timber production, rural livelihood improvement and landscape restoration efforts.

Tropenbos Ghana in collaboration with a range of partners implemented a project to develop guidelines for improving the contributions of smallholders to landscape restoration through forest plantation development. The project involved an analysis of past and existing forest plantation initiatives, stakeholder consultations and the piloting of model tree growers' associations.

The analysis and stakeholder consultations focused on the integration of forest plantations in productive landscapes, identifying barriers to smallholder forest plantation development, assessing the effectiveness of incentive systems for smallholder forest plantation development and developing options for forestry extension service delivery for smallholders in areas outside forest reserves.

## Summary of key findings

The desire for financial returns, demand for fuelwood and a quest to improve farming systems as well as provide ecosystem services e.g. soil improvement and microclimate moderation were identified as key factors that drive smallholders to integrate trees with their primary land-use; farming. Three agroforestry systems, namely: Taungya System, Crop Rotation in Permanent Trees (Trees-on-Farms) and Permanent Tree-Crop Combinations were identified as the mechanisms employed by smallholders to integrate tree planting into their existing land use.

Under the Taungya System, farmers deliberately integrate and manage crops with trees until the trees attain canopy closure, where the crop component is withdrawn. In the Crop Rotation in Permanent Trees, farmers plant or nurture naturally regenerating trees within their cropping system. The trees occur randomly and often do not compete with crops for space or light. Farmers under the Permanent Tree-Crop Combination System, incorporated indigenous and exotic tree species with their perennial tree crop – cocoa – and managed the cocoa as an understorey component. However, tree species integrated into farms were not often attuned with farmers' motivation for engaging in forest plantations.

In decreasing order of stakeholder priorities: i) low pricing of plantation timber, ii) poor access to markets, iii) limited access to loans, iv) access to land, v) lack of preferred timber species and vi) lack of technical assistance were identified as barriers to smallholder forest plantation development. The long-term gestation period of plantation trees also emerged as a key factor that prevented some smallholders from investing in tree planting.

On incentives, the Forest Plantation Development Fund (FPDF) was identified as the sole institutionalised incentive offered by the government to smallholders. However, from views shared by stakeholders, including the Forestry Commission (FC), civil society organisations and private sector actors, most smallholders

were neither aware of the Fund nor had any trust in the Fund's administration. The administration of the Fund exhibited elite capture – where only prominent stakeholders such as chiefs and opinion leaders had access to the Fund. This phenomenon was deepened by poor visibility and lack of mechanisms to guarantee stakeholders' access to information about the administration of the Fund.

No structured forestry extension scheme was identified in the forestry sector. Lack of funding and identifiable farmer associations were identified as key constraints to forestry extension in the study areas. Smallholders expressed their unwillingness to pay for forestry extension services but indicated their desire for a state-led and funded forestry extension scheme that is complemented by NGO-led efforts to drive innovations in forest plantations.

To enhance cohesion amongst tree growers and improve their access to services, including forestry extension, funding and fair markets, 13 community and three district tree grower's associations were formed. Currently, the associations comprise of 253 tree growers. The community associations are evolving slowly but have provided a strong cohesive force for social functions. The community and district associations were scaled up to a National Tree Growers' Association (NTGA) that is gaining recognition in the forestry sector. The NTGA is currently housed at the premises of the Resource Management Support Centre of the FC in Kumasi, and has a seat on the high-level Forest Investor Forum hosted by the FC headquarters in Accra. A key challenge to the operations of the associations is limited funding.

### Summing up and looking ahead

Smallholders have shown innovation by employing three approaches for integrating forest plantations with their agricultural land-use types. However, as shown above, their efforts are constrained by several factors which is exacerbated by the lack of a coherent forestry extension service and poor access to existing financial incentives. To address these challenges and improve smallholder investment and performance in forest plantations, the following are recommended:

- Explore and institute innovative options to fund and deliver technical and marketing extension services for smallholder tree growers bearing in mind that they require such services to be effective but are unwilling to pay for them.
- Invest in expanding community, district and national tree growers' associations and explore options to make them financially independent and an outlet for effective forestry extension delivery.
- Restructure the Forest Plantation Development Fund to make it visible, transparent and accessible to smallholder tree growers.
- Invest in and develop the forest plantation timber value chain to enhance the potential of tree growers to add value to their produce; plantation timber, in order to attract fair prices.

## List of Acronyms and Abbreviations

AfDB	African Development Bank
ARTGA	Ashanti Regional Tree Growers' Association
ASM	Artisanal and Small-Scale Mining
CBOs	Community-Based Organisations
CDM	Clean Development Mechanism
CFMP	Community Forest Management Project
CIFOR	Centre for International Forestry Research
COCOBOD	Ghana Cocoa Board
CSIR	Council for Scientific and Industrial Research
CSOs	Civil Society Organisations
FAO	Food and Agriculture Organisation
FC	Forestry Commission
FCTC	Forestry Commission Training Centre
FORIG	Forestry Research Institute of Ghana
FORUM	Forest Resource Use and Management
FPDF	Forest Plantation Development Fund
FSD	Forest Services Division
GOP	Grains-of-Paradise
GSS	Ghana Statistical Service
HIPC	Highly Indebted Poor Country
HFZ	High Forest Zone
ITTO	International Tropical Timber Organisation
LI	Legislative Instrument
LRP	Landscape Restoration Project
MESTI	Ministry of Environment, Science, Technology and Innovation
MLNR	Ministry of Lands and Natural Resources
MOFA	Ministry of Food and Agriculture
MTS	Modified Taungya System
NGO	Non-Governmental Organisation
NTFPs	Non-Timber Forest Products
NTGA	National Tree Growers' Association
NUTREGA	National Union of Tree Growers Associations
PADO	Private Afforestation Developers Organisation
PES	Payment for Environmental Services
REDD+	Reducing Emissions from Deforestation and Forest Degradation, Carbon Stocks Enhancement and Sustainable Forest Management
RUDEYA	Rural Development and Youth Association
TA	Traditional Authority

TBI	Tropenbos International
TIDD	Timber Industry Development Division
TVC	Timber Validation Committee
UNEP	United Nations Environment Programme
US	United States
VPA	Voluntary Partnership Agreement
WD	Wildlife Division

# Introduction

*“... the current level of tree planting in Africa is well below the level required to meet the predicted demand from the populace and industry” – Paul Jacovelli, 2014.*

Halting and reversing forest and land degradation remains high on the global agenda towards sustainable development. This is because deforestation and forest degradation account for 18% of global greenhouse gas emissions, thus key drivers of climate change. Forest plantation development has been identified as a cutting-edge strategy which addresses landscape restoration and contributes to climate change mitigation, whilst providing livelihood opportunities.

To reverse forest loss in Ghana, different initiatives have been and/or are being implemented by statutory agencies, civil society, and the private sector actors. Key amongst these are policy reforms and the development of a strategy that fosters public-private partnership to establish 20,000 hectares of forest plantations per annum over the next 25 years, starting from the year 2016. Other activities by several Civil Society Organizations (CSOs) and industry-led initiatives lead towards the same end. Most initiatives often focus on large-scale forest plantations. Meanwhile, evidence from Ghana's cocoa sector and other forest plantation initiatives suggest that given the right support and incentives, smallholder forest plantation developers can contribute better to landscape restoration objectives than they are doing currently.

Tropenbos Ghana implemented the project *"Developing mechanisms for improved landscape productivity: the case of smallholder forest plantations"*, otherwise known as the Landscape Restoration Project (LRP) to develop guidelines for planning and implementing smallholder forest plantation development schemes in a manner that improves benefit flow to all stakeholders, especially local communities.

The project engaged stakeholders to examine key aspects of smallholder forest plantation development, including barriers/constraints to their operations, incentive systems that will promote and sustain their interests, options for effective extension service delivery as well as institutional arrangements that would optimize their contribution to landscape restoration. Options for integrating smallholder plantations into productive landscapes have also been studied. The studies under the project were carried out separately and are independent of each other, even though they all address the same fundamental issues. The various studies were carried out in three diverse areas, considered to be rich in forest resources (i.e. resource rich), to have average forest resources (i.e. resource medium) and the have poor forest resources (i.e. resource poor) based on earlier interventions implemented in the same area.

## 1.1 Aim of this report

This report harmonises research outputs from various studies conducted under the Landscape Restoration Project and draws tangible technical and policy recommendations to improve smallholder forest plantation development. Categorically, the report presents information on:

1. Mechanisms for optimising the contribution of smallholder plantation developers to landscape restoration.
2. Options for integrating smallholder plantations into productive landscapes.

## 1.2 Scope and technical approach

Information from this report is a product of a review of key deliverables produced from empirical research conducted under the Landscape Restoration Project and key informant interviews. The following research reports remain the main pillars for this report:

1. Barriers to smallholder forest plantation development in off-reserve areas of Ghana
2. Options for forestry extension service delivery in off-reserve areas of Ghana

3. Integration of smallholder forest plantations in productive landscapes of Ghana
4. The effectiveness of incentives for promoting smallholder forest plantation development in off-reserve areas of Ghana.

Additionally, information from stakeholder analysis and the piloting of the model tree growers' associations were used. Given the possibility that some relevant experiences might not have been registered in the reports above, but perhaps, could be captured through other sources; other relevant documents, including the Draft National Plantation Development Strategy (2015 – 2040) and other publications on smallholder forest plantation development in Ghana were consulted. Again, to expand, supplement and potentially correct the data found in the traditional research reports, additional sources of information were elicited through key informant interviews.

### **1.3 Structure of this report**

This report is developed into nine (9) sections. Section 1, of which this is inclusive, puts the report into perspective and explains the technical approach used to generate the information therein. Section 2 provides a global overview of forest plantation development, highlighting the key drivers. Forest plantation initiatives in Ghana, including its political economy as well as the areas where the project was implemented are explored in Section 3. Sections 4 to 8 summarise research findings and their implications, including lessons learnt from the piloting of the model tree growers' associations. Section 9 draws inferences from the results presented to offer technical and policy recommendations for practitioners and policymakers to guide the establishment of productive smallholder forest plantations that will contribute effectively towards the restoration of landscapes.

# Why and how are forest plantations burgeoning in productive landscapes?

*“Forest plantation development can improve the overall environmental performance and increase ecosystem services related to biodiversity, carbon stocks, and landscape planning” – Indufor, 2012.*

This section provides an insight with regards to what constitutes forest plantations and their role in landscape restoration. It proceeds to review the changing context and what is driving government, the private sector and civil society to pursue forest plantation development as a means for achieving forest landscape restoration. It also examines global discourses on forest plantation.

## 2.1 What are forest plantations?

Multiple and often conflicting discourses characterise the definition of forest plantations, a term that has received enormous attention within the vast literature on landscape restoration. Between afforestation and unaided regeneration of natural forests continuum lies a range of human intervention. On one hand, it has been argued that some forests have long traditions of human intervention; yet these are not always defined as forest plantations. On the other hand, forest plantations have been considered as single species with uniform planting densities and even age (Carle and Holmgren, 2003). For the avoidance of doubt, forest plantations as used in this report mean:

*“Forest stands established by planting or/and seeding in the process of afforestation or reforestation. They are either of introduced or indigenous species which meet a minimum area requirement of 0.5 ha; tree crown cover of at least 10 percent of the land cover; and a total height of adult trees above 5 m” – FAO, 2001.*



A Forest plantation in Ghana

## 2.2 What current contexts frame the increase in global forest plantations in productive landscapes?

### 2.2.1 Deforestation, climate change, and rural livelihoods

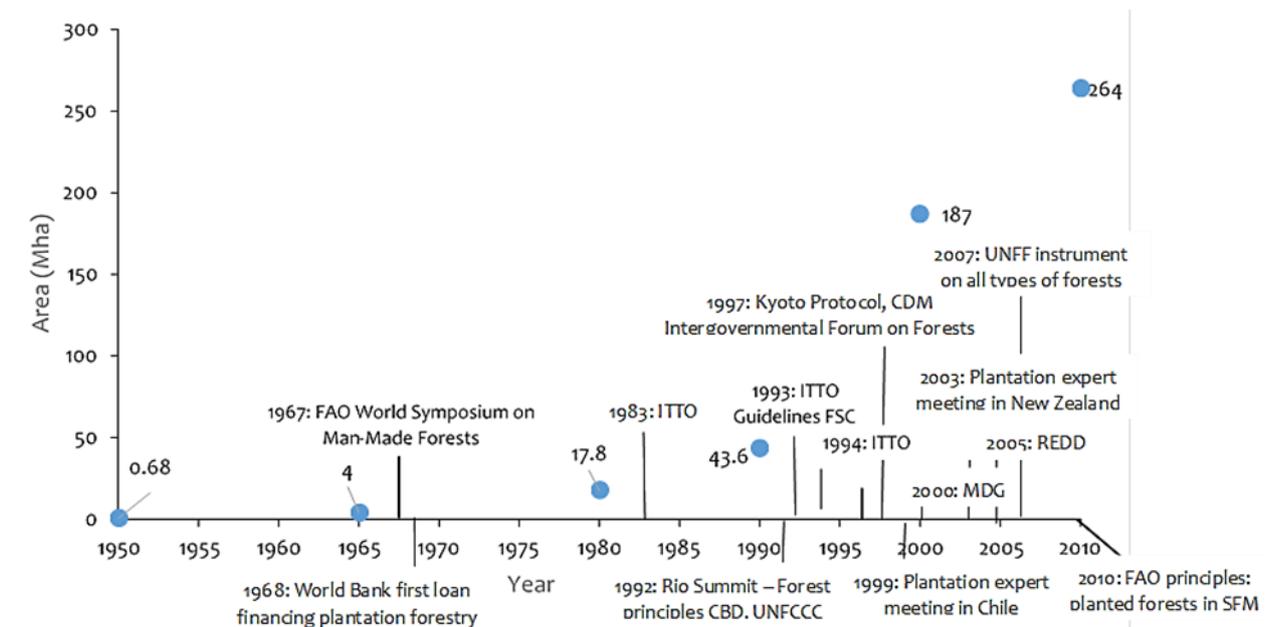
In 2010, the FAO reported that there is an alarming rate of deforestation. Global forest loss was reported to be around 13 million hectares each year in the first decade of the millennium, 2000 - 2010 (FAO, 2010). The report indicated that Africa has the second highest rate of deforestation worldwide (with 3.4 million hectares of forest loss annually). The situation is no different in Ghana. In less than 50 years, Ghana lost 90% of her primary forest, and between 1990 and 2005, the country lost 26% of its forest cover (UNEP, 2008).

The impact of deforestation is well documented and known to forestry sector stakeholders. It includes loss of rural livelihoods (Gillet, et al., 2016), loss of biodiversity (Vijay et al., 2016) and loss of ecosystem services (Collen, et al, 2014). In addition, deforestation contributes to about 15% of greenhouse gas emissions, which has implications for climate change. Climate change refers to any distinct change in indicators of climate such as temperature, rainfall, snow, or wind patterns lasting for decades or longer (USEPA, 2009). Heightened erratic weather characteristics, flooding, and disease conditions, which are all perils of a changing climate – or exacerbated by it – have direct and profound implications for economic development, particularly rural development (Lynn et al. 2011). Worldwide, about 1.6 billion people rely heavily on forest resources for their livelihoods. The US Department of Agriculture suggests that changes in forest density and agricultural production, expansion of arid land, the decline in water quantity and quality and stress from pests, diseases, and wildfire impose pressure on rural livelihoods, especially vulnerable groups, now more than ever (USDA, 2011). On the other hand, these challenges provide new opportunities for improved livelihoods based on sustainable land-use.

### 2.2.2 Enabling policy environment

Cognisant of the implications of climate change and how business-as-usual approaches could deepen these consequences, halting and reversing deforestation is high on the global agenda towards sustainable development (FC, 2008; Aronson and Alexander, 2013; CIFOR, 2016). Specific governance reforms have been proposed and/ or are being implemented to tackle deforestation and forest degradation. For example, forest market reforms such as certification schemes pursue legality as the first step to business. This ensures that timber supplies are from responsible or sustainably managed sources. Other measures include Reducing Emissions from Deforestation and Forest Degradation, and carbon stock enhancement (REDD+) and Clean Development Mechanism (CDM), amongst others. Most recent of such initiatives is the Paris Climate Change Agreement which is still being ratified.

Figure 1 (on the next page) shows how forest plantations have changed with global governance reforms. These governance mechanisms provide a platform for country-level legislation towards climate change mitigation and adaption schemes, including forest plantation development.



**Figure 1:** Changing area of forest plantations worldwide with the most influential milestones of global forest plantation politics (Adapted from Szulecka et al., 2014).

### 2.2.3 The invisible hand of markets

Global demand for timber and timber products continue to rise (Indufor, 2012) with global supply of timber from natural forests peaking in 1989 (Warman, 2014). In 2001, the FAO indicated that plantations were contributing to the supply of 20% of wood demand. It further predicted that this supply could increase to 50 to 75 percent by 2050. Evidence from Indufor (2012) shows that this prediction is well on course. In 2012, global demand for industrial round wood was over 1.5 billion cubic metres (m<sup>3</sup>); natural forests could supply only two-thirds (67%) of this demand. Plantation timber supplied the deficit. Global demand for industrial round wood is estimated to soar to 2 billion m<sup>3</sup> by 2030 (Indufor, 2012). Meanwhile, annual supply from the natural forest is expected to continue to dwindle relative to demand. This enormous gap in supply relative to demand renders forest plantation a viable investment.

All these contextual changes might trigger plantation development.

Meanwhile, ongoing discussions also show that a variety of factors may trigger forest plantation development. The points raised can be considered as hypotheses about the conditions under which forest plantation development could thrive. Attention is therefore given to them in examining the research outputs upon which this report is based.

# Forest plantation development and landscape restoration in Ghana

*“Large tracts of forest lands are degraded and need to be rehabilitated. There is the broad acceptance that plantations will require both public and private sector initiative with better information dissemination about the contribution of plantations to reverse land degradation, restore forest cover and improve rural livelihood ...” – 2012 Forest and Wildlife Policy.*

This section provides an insight on the historical perspective of forest plantation development and the institutional and policy frameworks, including stakeholders that characterise the forest plantation landscape in Ghana. Some forest plantation initiatives that were implemented within the landscape restoration arena are also explained.

## 3.1 Overview of plantation development initiatives in Ghana

### 3.1.1 Historical perspective

It should be noted that this section does not attempt to be a definitive history of forest plantations: this has been comprehensively carried out by some other authors, most notably, Nsiah (2009). It does, however, provide a summary of the main plantation development trends in Ghana.

#### *The early days*

Plantation development has evolved immensely in Ghana and dates back to the Gold Coast era when Ghana was under colonial rule. During the early 1930s, forest plantations were broadly carried out through enrichment planting in degraded forest reserves with a focus on timber and food crops. There was little focus on medium-term benefits to plantation developers. This was primarily done through the Taungya System.

Taungya is an agroforestry system that involves inter-planting trees with crops on the same piece of land. The crop component is withdrawn when the trees form a canopy. The tree-crop interaction is designed in such a way that it produces complementary effects instead of competing ones (Vieira *et al.*, 2009). Devised from Myanmar, the system was introduced in Ghana to provide landless farmers access to land for food crop production whilst helping to restore degraded forest lands (Agyemang, 2003). Initially, the system was patronised by local communities. Milton (1994) reported that it later failed because it failed to provide farmers with long-term revenue benefits. Agyemang *et al.* (2003) cited lack of effective supervision by the then Forestry Department (now the Forest Services Division (FSD)), inadequate financing mechanisms and abuse of power by public officials, especially in farm allocation, as underlying issues that resulted in the failure of the Taungya System.

Drawing on lessons from the Taungya System, it was restructured into the Modified Taungya System (MTS). The restructuring granted farmers part-ownership of the established trees. Under the arrangement, farmers are entitled to 40% of revenue accruing from the trees. Forty percent (40%) is given to the FC, 15% to TAs/landowners and the remaining 5% to adjacent communities (District Assemblies). The FSD (2013) shows that the MTS has been successfully used to establish 80,727.30 hectares of forest plantations since the commencement of the Forest Plantation Development Programme (FPDP) in 2012 (FSD, 2013).

#### *Proliferation of private smallholder forest plantations*

Smallholder forest plantation development has gained ascendancy in off-reserve areas in the High Forest Zone of Ghana. Insaadoo *et al.* (2012) have attributed this to increased awareness creation by civil society

organisations and the private sector which complements government efforts. Lamb *et al.*, (2005), argues that the status of forests and land degradation is overwhelming and that it can only be reverted if many individual farmers and landowners become involved in plantation development.

Records at the Forestry Commission (FC) of Ghana indicate that 35,000 hectares of smallholder forest plantations had been established by farmers mostly in the rural areas of the country before 2002 (FC, 2008). This figure represents 380% more plantations than commercial timber producing companies which had 9,198 hectares. The most dominant exotic tree species planted in the high forest zones are: *Tectona grandis* (teak) and *Cedrella odorata* (Cedrela) (Hoogenbosch, 2010). Indigenous species such as *Terminalia superba*, *Terminalia ivorensis* and *Khaya senegalensis* are also used but in very small proportions. Presently, actual smallholder plantation holdings and their distribution are unknown.

### 3.1.2 Current approaches

Present approaches have aimed at addressing the conundrum of providing only short-term incentives. They have also focused on improving the contribution of forest plantations to food security, biodiversity conservation, and climate change mitigation.

#### *The forest plantation development programme*

The Forest Plantation Development Programme (FPDP) was launched in September 2001 by the Government of Ghana to increase the rate of establishment of forest plantations in the country (FC, 2008). The goal of the FPDP was to encourage tree planting as a means of developing a sustainable resource base that will meet the future demand for industrial timber and improve environmental quality. It was anticipated that the Programme will reduce the pressure on the natural forest and increase the forest cover, create jobs for local people and reduce rural poverty, improve food security and enhance the provision of forest ecosystems services. The FPDP covers both forest reserves and off-reserve areas and has nine (9) components which have evolved over time. The components include the MTS, Highly Indebted Poor Country (HIPC) Plantations, Community Forest Management Programme (CFMP), Model Plantations, FC/Timber Industry Plantation Development Fund Plantations, Private Commercial Forest Plantations and Public-Private Partnership. These components are extensively described in the NFPDP 2014 annual report.

#### *Project based plantation development initiatives*

Government and non-governmental organisations have implemented several projects targeted at landscape restoration. Two are briefly described below. Others are summarised in Table 4 (see section 3.2).

- **Forest Resource Use and Management (FORUM) Project**

The project sought to increase biodiversity and agricultural productivity, improve water quality, soil and wildlife and diminish pressure on reserves, with stakeholders taking a centre stage in the economic, ecological and social management of forest resources. The project which received an amount of €12.5 million from the German Government targeted the protection and rehabilitation of the following forest reserves: Adomi River, Kabo River, Kpandu-West block, Kpandu-Dayi block and Abutia Hills. Additionally, it also focused on the establishment of private woodlots.

Overall, the project had about 10,000 beneficiaries and restored about 14,212 hectares of degraded forests. It also increased woodlots from 600 hectares (in 1993) to 5,817 hectares (in 2007). Furthermore, it contributed to the development of a legal framework for Collaborative Resource Management on ownership, management, and benefit sharing in the forestry sector.

- **Community Forest Management Project (CFMP)**

This programme was financed by a USD 6,863,776.28 loan from the African Development Bank (AfDB). It was introduced as an option to address deforestation in Ghana. It targeted smallholder farmers within the

vicinity of denuded forest reserves to participate in collaborative forest management. The project improved the capacity of local communities in alternative livelihoods, constructed feeder roads and provided smallholders with charcoal kilns and other inputs, mainly seedlings, to engage in forest plantation development. It also developed the capacity of FSD staff to enhance their performance in forest management as well as that of beneficiary communities to enable them to successfully implement sustainable livelihood options. Overall, 13,388 hectares of plantations were established under the project while 4800 farmers were trained in sustainable livelihood initiatives. Feeder roads were also rehabilitated to improve access to markets (FSD, 2015; AfDB, 2009).

## **3.2 Governance of forest plantations in Ghana**

### **3.2.1 Institutional regime**

Ghana's forest plantation subsector is characterised by a variety of stakeholders. This section provides insight on the actors involved, including their roles. Table 1, summarises the stakeholders involved, their power and influence relations.

#### **a) Statutory agencies**

The forest plantation subsector is directly within the jurisdiction of the Forestry Commission (FC) and is nested under the Ministry of Lands and Natural Resources (MLNR). The Ministry is headed by a cabinet minister appointed by the President and has overall responsibility for forest sector planning and policy direction and for monitoring sector programmes towards the attainment of the national goal (Marfo, *et al.*, 2013). Also within MLNR is the Plantation Fund Board which is responsible for the administration and disbursement of the Forest Plantation Development Fund. Other ministries, for example, the Ministry of Food and Agriculture (MOFA) is a key player in plantation related sector to ensure cross-sector policy coordination. Also, the Ministry of Education, Science, Technology, and Innovation (MESTI) through the Forestry Research Institute of Ghana (FORIG) of the Centre for Scientific and Industrial Research (CSIR) provide evidence-based information to support decision making at both policy and technical levels.

The FC, headed by the Chief Executive Officer is responsible for the implementation of sector policies. Technical issues are handled by its three (3) divisions, two (2) Centres and a Committee. The divisions are the Forest Services Division (FSD), the Wildlife Division (WD) and the Timber Industry Development Division (TIDD). The centres include the Resource Management Support Centre (RMSC) and the Forestry Commission Training Centre (FCTC). The Timber Validation Committee (TVC) is the sole committee. Further information about these agencies is available at the FC's website.

#### **b) The Private Sector**

Commercial timber plantation developers, smallholder tree growers, middlemen and timber merchants are the key players in this sector. Commercial developers have large plantation holdings and are often capable of meeting their capacity and support needs. Smallholders usually have plantations less than five (5) hectares in diverse parts of the country. Middlemen, as their name, imply, have carved a unique niche for themselves where they link forest plantation developers with large timber firms. They are responsible for the purchase and transport of plantation timber from plantations to processing facilities. Timber merchants are responsible for processing plantation timber, usually into poles for export markets.

#### **c) Civil Society**

Traditional authorities (chiefs/land owners) are fiduciaries of land resources. Their ownership of land makes them key players in the forest plantation subsector. Local communities are next in line with regards to stewardship in the plantation subsector. Their roles in the plantation value chain are primarily tied to investment decisions regarding the allocation of resources to plantation development. In most cases, they are farmers who often establish plantations to augment income from their farm produce. Other people within communities who are of interest to forest plantation development are chainsaw operators and Non-

Timber Forest Product (NTFP) collectors. Civil society comprises NGOs, traditional authorities (chiefs/ landowners) and local forest users (Ibid., 2013). There are over 70 NGOs in Ghana's forestry sector (TBI, 2008), Key amongst them are Tropenbos Ghana, Nature and Development Foundation, Civic Response, Friends of the Earth, A Rocha Ghana and Proforest – Ghana. These NGOs undertake research to generate empirical information towards dialogue and advocacy in relation to their interests. Their interests include improving respect for community rights and the promotion of legal local livelihoods amongst others.

### 3.2.2 Legal and policy regimes

The forest plantation sub-sector is shaped by two primary legislations:

- the Timber Resource Management, 1997 Act 547, its amendment (Act 617) and accompanying Legislative Instruments (LI) 1649 and 1721 respectively. This amended Act makes it possible for farmers to own the trees they plant on their farms which hitherto was not so, and thus encourages farmers' participation in tree planting (Insaidoo et al., 2012).
- the Plantation Development Fund, 2000 Act 583 and its amendment (2002) provides financial assistance for the development of forest plantations on lands suitable for timber production; and for research and technical advice to persons involved in plantation forestry.

At the policy level, plantation development was prominent in the 1994 Forest Policy and is shown in Strategy 5.3.8 of the policy:

*“promotion of resource development programmes aimed at reforesting suitable harvested sites, rehabilitating degraded mining areas, afforesting denuded lands, regenerating desired wildlife species and habitats and sustainably developing wildlife potential”.*

This is iterated in the specific objective 2 of the 2012 Forest and Wildlife Policy:

*“To promote the rehabilitation and restoration of degraded landscapes through plantations development and community forestry informed by appropriate land-use practices to enhance environmental quality and sustain the supply of raw materials for domestic and industrial consumption and for environmental protection”.*

The most recent policy initiative to promote smallholder investment in forest plantations is the Ghana Forest Plantation Strategy 2016 – 2041. Strategic objectives one and two of the Strategy seek to “establish and manage planted forests” and “promote investment in forest plantation” respectively. The plan is to optimize the productivity and sustainability of smallholder farming systems by developing appropriate technologies that involve the integration of trees on farms. Additionally, it seeks to explore innovative financing mechanisms such as reforestation levies and taxes, REDD+ Carbon Credits, Payments for Ecosystem Services (PES) and environmental offsets (i.e. carbon offsets, biodiversity offsets, reforestation offsets) from which grants, concessionary loans, and performance-based payments may be sourced for the establishment and maintenance of their forest plantations; and explore avenues for providing smallholders with extension services as well as linking them to well developed markets where they can receive fair prices for their products.



*Conducting an analysis of stakeholders in Ghana's forest plantation timber subsector using participatory rural appraisal (PRA) at Donkro Nkwanta, Kintampo Forest District.*

**Table 1: Summarised stakeholder analysis of Ghana's forest plantation timber subsector.**

Stakeholders	Type (Primary or Secondary); Statutory (S), Private (P <sub>1</sub> ), Civil Society (C)	Category (based on interest and influence)	Power / Influence (potential)
<b>Smallholder tree growers</b>	P; P <sub>1</sub>	High interest, high influence	Choose type of tree species to establish Decide on harvesting period (optimal rotation cycle) Protect plantation from wildfire and illegalities e.g. theft Negotiate fair prices for plantation products and tree stand Integrate other crops during initial stages of stand establishment Payment to labourers
<b>Traditional Authorities</b>	P; C	High interest, high influence	Demand royalties from farmers and land owners. Stop illegalities associated with timber harvest. Ensure the observance of traditions e.g. taboos
<b>Landowners</b>	P; C; P <sub>1</sub>	High interest, high influence	Release sale and/ or lease land for plantation development and take it back in the event of breach of agreements Negotiate the purpose for which the land is to be used Prevent illegalities e.g. chainsaw milling Ensure timber contractors use valid documents in their operations Stop transactions that would not favour them Advice both farmers and timber contractors
<b>Government (FC/FSD)</b>	P; S	High interest, high influence	Ensure farmers adhere to rules and regulation associated with timber harvesting Support good management practices that promote the sustainability of off-reserve plantations, seed selection, pruning, harvesting, etc. Issue permits e.g. conveyance permits Track, arrest and prosecute illegal operators
<b>Tree Growers Committees and Groups</b>	P; P <sub>1</sub>	High interest/ high influence	Arbitration of dispute amongst their members and other parties. Monitor land agreement between farmers and land owners Liaise with FC/FSD for tree species selection Monitor activities of SHTGs Educate farmers on trending innovation and techniques Identification of stand diseases Enact bye-laws
<b>Timber contractors</b>	S; P <sub>1</sub>	High interest/ high influence	Provide funds (loans) and logistics Create employment for local communities Offer good prices and prompt payments to encourage SHTGs involvement in plantation development
<b>Women's groups</b>	S; C	High interest, low influence	Lobby for women's interest in forest plantation initiatives. Advocate for fair prices for plantation timber for their members
<b>NGOs/CBOs:</b>	S; C	High interest, high influence	Engage in tree planting Develop the capacity of smallholders to effectively engage in forest plantations Lobby and advocate for favourable and transparent policies for effective smallholder plantation development Assist in planning, implementation and monitoring state plantation initiatives.

<sup>1</sup> The stakeholder analysis is a product of a participatory rural appraisal in the project communities

### 3.3 Project areas

The project was primarily implemented in 15 communities within the Dunkwa, Offinso and Kintampo Forest Districts which had been previously categorised by the FC as resource-rich, resource-medium, and resource-poor respectively. The forest districts and their communities are shown in **Figure 2**.

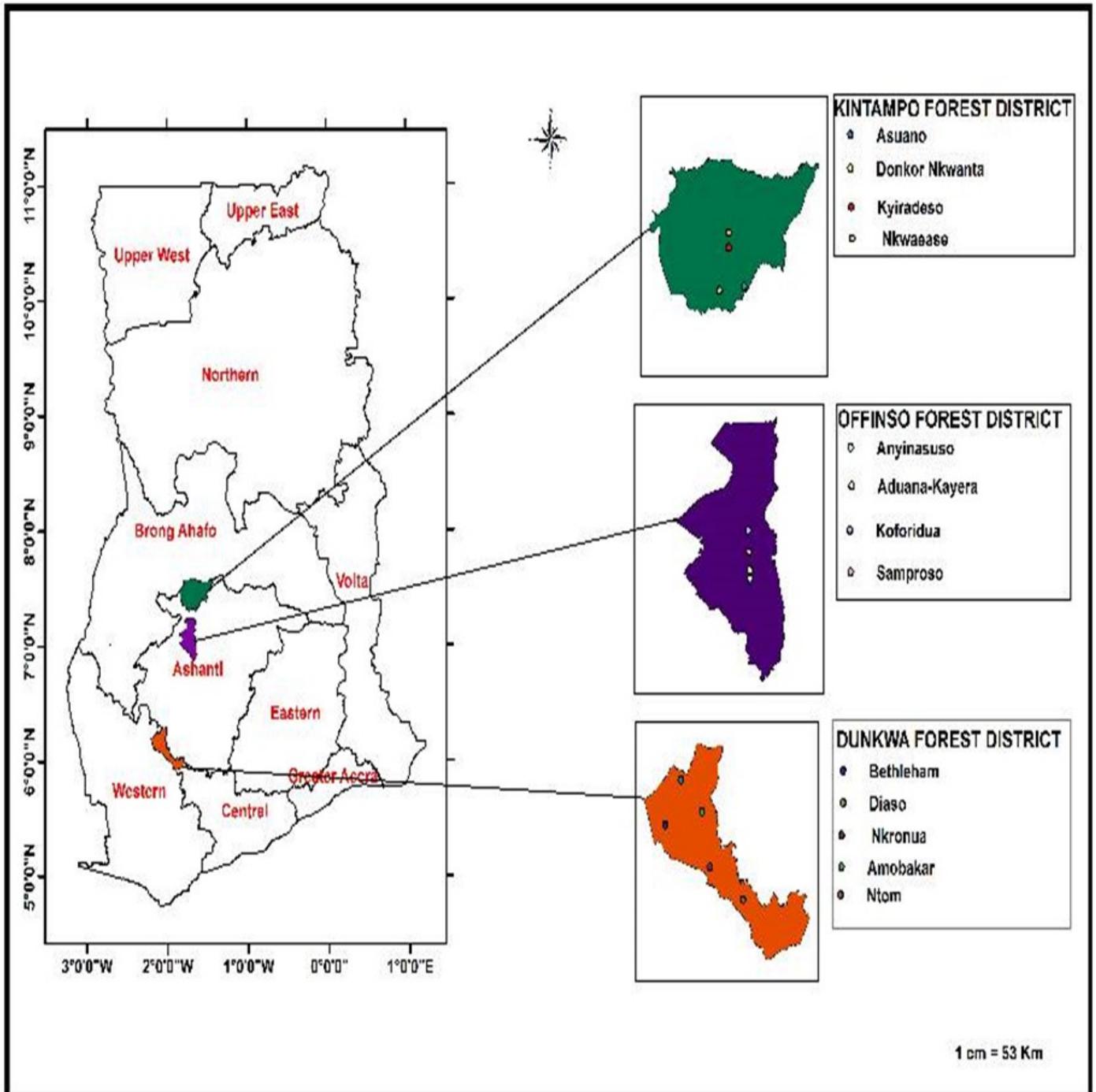


Figure 2: A map of the project communities

### 3.3.1 Dunkwa Forest District (resource-rich)

This area lies in the High Forest Zone of Ghana (HFZ). About 80% of the farming population work on cocoa as a cash crop (MOFA, 2016). The district is resource rich and contains a lot of timber resources (GSS, 2014). However, the timber resources have dwindled in recent years due to the prevalence of legal and illegal artisanal and small-scale mining (Schueler *et al.* 2011). As a result, there are increasing calls for plantation development in the district by several agencies, including the FC, Ministry of Food and Agriculture and COCOBOD (Adane, 2016). The project was implemented in five communities, namely: Amobakar, Bethlehem, Diaso, Nkronua and Ntom.

### 3.3.2 Offinso Forest District (resource-medium)

The Offinso Forest District is in the HFZ of Ghana. The forest district has six forest reserves, namely; the Ginana and Afram Headwaters Forest Reserves, Asufu West, Asufu East, Kwamisa and Opro River which contain several indigenous tree species, including *Melicia excelsa* (odum), *Triplochiton schleroxylon* (wawa), *Terminalia superba* (ofram) (GSS, 2014b). However, the Offinso Forest District is besieged by a high prevalence of illegal logging, agricultural expansion and bush fires and hence a high level of forest landscape degradation. To this end, several projects have been implemented by government and CSOs over the years to protect these forests and increase forest plantations. Amongst them are the Wildfire Management Project and the National Forest Plantation Development Programme by the FC. Currently, the Offinso Forest District is reported to have about 580.68 hectares of verified forest plantations (FC, 2016). This does not include individual forest plantations established in the forest district. Anyinasuso, Kayera-Aduana, Koforidua and Samproso were the four communities in the Offinso Forest District where the project was implemented.

### 3.3.3 Kintampo Forest District (resource-poor)

This forest district lies in Ghana's Forest Transitional Zone. The predominant economic activity in the area is agriculture. The main crops cultivated include cereals, legumes and root crops such as maize, yams, vegetables, cassava, groundnut, cowpea, cocoyam and plantain (GSS, 2014c). Aside from that, crops like cotton and tobacco also grow well in other parts of the Kintampo Forest District. Slash and burn methods of farming are mostly practiced by farmers in cultivating the land which exposes the soil to erosion leading to a gradual depletion of the vegetation and subsequently a change in the ecology of the district. Incidences of bushfires are very common in the area due to the activities of farmers, game hunters and charcoal producers. In 1983, the highest incidence of bushfires was recorded resulting in the destruction of the forest cover. The vegetation cover has not regenerated since then and hence, the vegetation in the area is rapidly changing into grassland. The forest district is also endowed with several natural resources like a vast expanse of land, water bodies, clay and gold deposits which serve as a good investment potential to spiral development. Most of these resources are being exploited whilst others remain unexploited (GSS, 2014c). Asuano, Donkro Nkwanta, Kyirideaso and Nkwaease were the focus communities in this district.

To provide further insight into smallholder forest plantations development, research activities conducted under the project also solicited information from two additional forest districts: Jasikan and Sogakofe. The areas were selected based on their history in the implementation of forest plantation initiatives.

# Integration of smallholder forest plantations in productive landscapes of Ghana's forest zones

*"Trees do not grow fast here at all. After 10 years, they still look small but you cannot grow cassava under teak because it will not do well, even if it does, the tubers will become bitter"* Tree grower, Nkwaease, Kintampo Forest District.

Ghana, in recognition of the need to restore its degraded forests and productive landscapes introduced a Forest and Wildlife Policy that placed emphasis on landscape restoration in 1994. Since then, numerous calls have been made for smallholders to integrate forest plantations in their landscapes. Most of the calls have focused on providing farmers with inputs without commensurate support on how to integrate such inputs in their existing production systems. In this section, an assessment was carried out in Dunkwa, Offinso and Kintampo Forest Districts to examine the extent to which smallholders have heeded to calls to invest in forest plantations, the technologies they have employed in doing so and their constraints with the aim of developing and building on their innovations to accommodate forest plantations in smallholders' production systems.

## 4.1 Farmers motivation for integrating forest plantations in productive landscapes

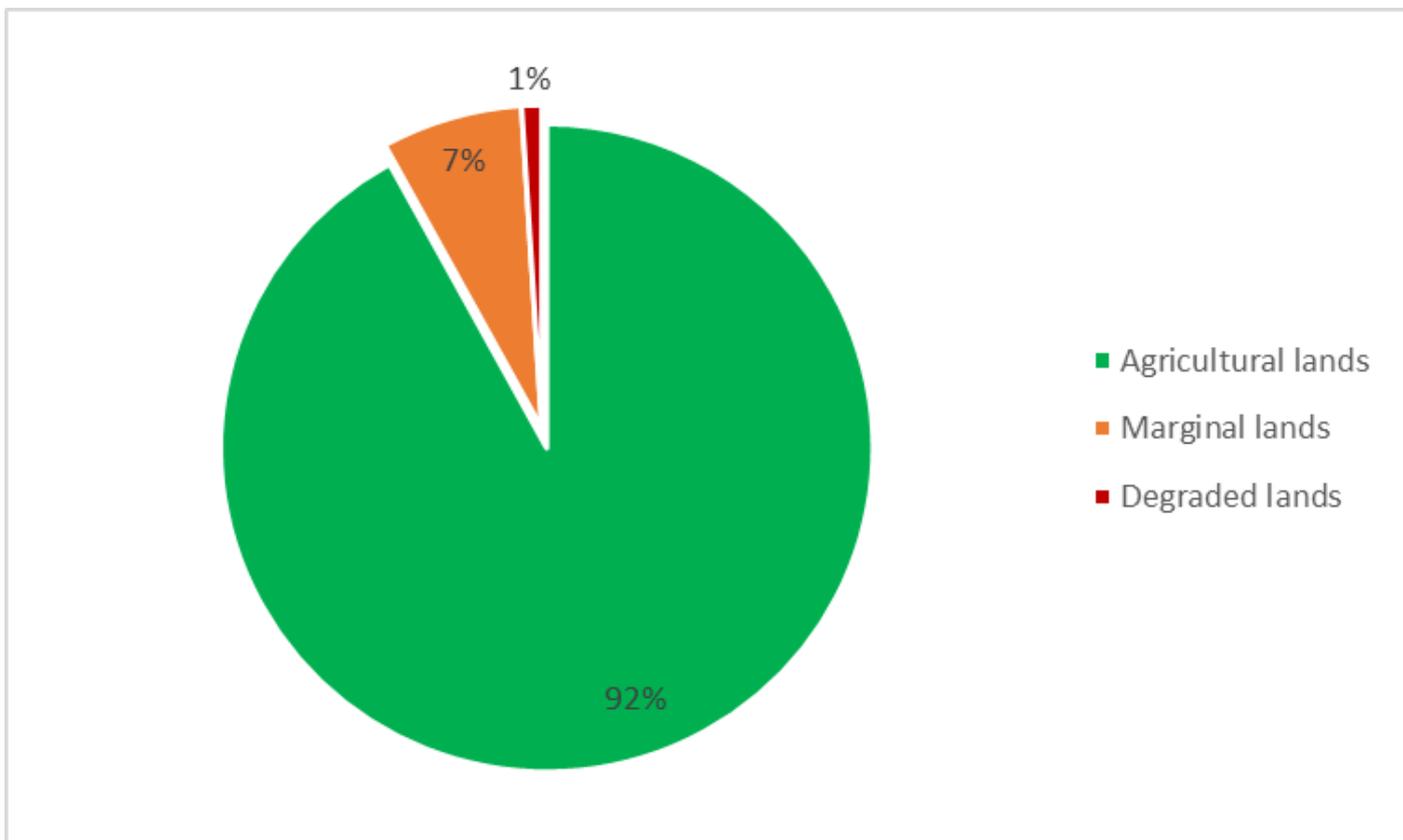
Livelihood support and ecosystem services were the main factors that encouraged farmers to engage in forest plantations. In terms of livelihood support, the prospects for financial returns (sale of poles and other products), protecting crops from wildfire, meeting domestic energy needs (fuelwood), improving crop yield and protecting land were provided as the specific incentives that attract farmers to invest in forest plantations. On ecosystem services, farmers expected trees to enhance soil water conservation, provide wildlife habitat and support the generation of non-timber forest products (NTFPs), promote fire resilient farms and stimulate microclimate moderation. These factors have implications for the design and implementation of effective support systems.

### *Who plants what and where?*

Our results showed no significant differences in sizes of smallholder plantations developed by both men and women. On the average, men had 2.05 hectares compared with 1.98 hectares for women. This shows that both men and women were equally capable of establishing forest plantations – a finding that is worth considering when designing and providing support systems for farmers engaged in plantation forestry. This is particularly important since men, as heads of most farmer communities, are often more vocal in attracting support services for themselves.

In terms of sizes of plantations, the study revealed that resource-poor areas have high average acreage of forest plantations compared with resource medium and resource rich areas. Average acreage for all three areas were: resource rich (0.8 hectares), resource medium (1.3 hectares) and resource poor (2.5 hectares) – a phenomenon which could be ascribed to the high concentration of efforts for forest plantation development in resource depleted areas due to the high availability of lands compared with resource-rich areas where the lands are used for cocoa production.

Another interesting finding was related to the types of land used for forest plantations. It became evident that 92% of lands used were lands suitable for agriculture, 7% were marginal lands whereas 1% was reported as waste lands as shown in Figure 3.



**Figure 3:** Types of lands used by farmers for forest plantations

## 4.2 Mechanisms by which smallholders combine forest plantations with other land-use types

Farmers employed different spatial and/or temporal arrangements in accommodating forest plantations in existing land-uses. Three distinct options were identified in the project communities: Taungya, Crop Rotation in Permanent Tree Systems (Trees-on-Farms) and Permanent Tree Crop Combination.

### 4.2.1 Taungya System

Farmers in all three forest districts reported using this system. They had integrated trees and crops on the same unit of land. Trees were reported to be established with a spacing of 3m × 3m. Crops are then planted in the spaces between the trees during the first few years and withdrawn when trees had formed a canopy. Crop component was reported to include annuals e.g. maize and beans. *Tectona grandis* (teak) was observed as the dominant tree species used by farmers. *Cedrella* and a few indigenous species such as *Terminalia superba* and *Terminalia ivorensis* were also used, but more sparingly. Farmers reported using teak because it was readily available, fast-growing and resistant to fire. However, they reported that when established, teak did not provide for lands to be used for other agricultural purposes – a situation which is a source of worry for farmers since land is becoming scarce.



*A nine-year teak plantation that was established using the Taungya System in Donkro Nkwanta, Kintampo Forest District.*

### 4.2.2 Trees-on-Farms

It was observed that farmers had planted and/ or intentionally reserved timber tree species on their farms. Cropping was often carried out with little disturbance to the trees. Trees were irregularly spaced to allow for the cultivation of traditional crops which have suckering ability and thus able to grow year after year e.g. plantain and cocoyam in addition to annual crops and vegetables. This system was the most occurring of all the systems observed. Farmers expected the trees to provide them with shade and fuelwood in the short term and timber trees in the long term. Trees under this system include teak and mahogany.

### 4.2.3 Permanent Tree Crop Combinations

Farmers' reports and field verification showed timber trees integrated with perennial tree crops, especially cocoa. There were cases where timber trees species such as *Terminalia superba* (ofram) and mahogany had been naturally regenerated. In other cases, ofram and *Terminalia ivorensis* (emire) were deliberately integrated by farmers. They cited that this was based on technical information and seedling supplied by Cocoa Board (COCOBOD).

Although farmers indicated spacing trees and cocoa at a recommended spacing of 3m × 3m and 4m × 4m respectively, field verification indicated otherwise. Tree components were often inadequately spaced and poorly managed.



A cocoa-cedrella agroforestry system at Bethlehem, Dunkwa Forest District

## 4.3 Strategies for improving the integration of smallholder plantations in productive landscapes

Although smallholders have several challenges (see Section 5), the study shows that they had been innovative in responding to calls for investment in forest plantations. Notwithstanding this, the strategies they have employed revealed a clear-cut weakness that must be addressed in order for them to become more productive. In this vein, it is important to consider the following:

### 4.3.1 Species choice to match objectives

Farmers' species of choice and their motivation for establishing forest plantations were not always in tandem. Most farmers had used teak for their plantations even when they wanted to improve crop yield and NTFP supply on their farms. Teak is known for its allelopathic effect on most crops and therefore not suitable for improving crop yield. It would have been appropriate to use leguminous tree species such as *Senna siamea* (cassia), *Albizia lebbbeck* (albizzia) in such contexts. Similarly, farmers who expected to attain financial returns from trees would have been better positioned if they invested in fast maturing species e.g. cedrella, teak, ofram, etc. instead of mahogany. There is the need to develop and communicate a database on tree species and their uses as well as sites they are well adapted to.

### 4.3.2 Adoption of good silvicultural practices

It was apparent that tree growers did not undertake good silvicultural practices, including tending trees. Often, trees were planted and not nurtured, even in instances where monocultures were established. There is the need to engage farmers and train them to effectively carry out silvicultural practices. One way of doing this could be through the implementation of a vibrant forestry extension system (see Section 7).

### 4.3.3 Build on farmer innovations

Mechanisms such as the Taungya System and other Permanent Tree Crop Combinations employed by smallholders indicate innovativeness. However, the implementation of the systems was not in line with best practices such as application of recommended spacing. Also, cultural practices were not properly implemented. There is the need to build on these innovations to enable farmers to access current support systems (see Section 6) in the country. One way of doing this could be by localising the definition of forest plantations to accommodate existing practices employed by smallholders. This will ensure that they are able to benefit from support systems that would have otherwise targeted farmers with the traditional concept of forest plantation which are often monoculture stands that do not increase the resilience of farmers' production systems.

# Barriers to smallholder forest plantation development in Ghana

*“Timber contractors pay us whatever they want and we have to take it, if not, nobody will buy the teak” Smallholder Tree Grower, Nkenkansu.*

In several parts of Ghana, especially in the High Forest Zones, many farmers have established small-scale tree plantations to generate income and improve their livelihood (Hoogenbosch, 2010). Statistics indicate that prior to 2002, smallholders had 35,000 hectares of forest plantations compared with 9,198 hectares for large-scale developers. Today, the statistics have changed tremendously in favour of large-scale plantation developers. Smallholders’ efforts seems to have dwindled completely. This section presents a summary of findings on obstacles to smallholder forest plantations in off-reserve areas of Ghana.

## 5.1 Barriers to smallholders’ participation in forest plantation development in Ghana

The promise of good markets and revenue, environmental protection and availability of logistical and financial incentives were established as the core reasons why smallholders venture into plantation development. Contrary to farmers’ expectations, they were beset with a myriad of problems. **Table 2** ranks the obstacles smallholder forest plantation developers are confronted with in their operations.

**Table 2:** Communities’ prioritisation of barriers to smallholder forest plantation development

Barriers to plantation development	Percentage (%) of tree growers			Rank
	Forest district			
	Dunkwa	Kintampo	Offinso	
Low pricing of trees	70	88	60	1
Poor access to markets	25	64	43	2
Poor access to loans	25	4	70	3
Limited availability of land	15	14	26.7	4
Limited availability of preferred seed and/ or seedlings	5	2	40	5
Absence of technical support	5	32	6.7	6
Increased transaction cost	5	2	13.3	7

### 5.1.1 Low pricing of trees

Seventy-six percent of tree growers from the project communities indicated low pricing of plantation timber as the most pressing challenge for forest plantation development. In respect to this challenge, farmers stated the strong position of middlemen in the plantation timber value chain who are responsible for harvesting and transporting timber to timber merchants. Most smallholder plantation developers cannot afford these activities, thus restraining their bargaining power. Consequently, middlemen dictate prices to tree growers who are forced by their circumstances to accept such prices because they perceive that to be their sole option. Prices offered range from eight to fifteen Ghana Cedis (GHS 8-15) per pole of teak. Typically, a pole is the equivalent of 0.2 m<sup>3</sup> due to the inability of most smallholders to grow and maintain their poles in line with best practices. That notwithstanding, the prices offered are peanuts compared with standard prices. **Box 1**, compares global and local prices of teak which is the primary species produced by smallholders

### Box 1: Comparison of local and international prices of teak

Teak prices vary with their country of origin. Generally, the unit price of quality teak logs from Myanmar is higher than those from other countries. Between 2005 and 2014, global teak prices varied from US\$ 615/m<sup>3</sup> to US\$ 1000/m<sup>3</sup> for teak from Myanmar to US\$320/m<sup>3</sup> – US\$430/m<sup>3</sup> for those from Africa and Latin America (Kollert and Walotek, 2015).

Our research findings indicate that between the same period, smallholder teak plantation developers in Ghana – Africa received about US\$ 19/m<sup>3</sup>#. Using the conservative value of US\$ 320 on the international market at the same period reveal a difference of over US\$ 300/m<sup>3</sup>. This gives an indication that profits from plantation timber trade in Ghana are most likely to accrue to upstream actors of the plantation timber value chain.

Several factors account for this but the most important factors are the low bargaining power of smallholder plantation developers and their limited ability to produce high-quality timber stands.

# Approximately 5 teak poles = 1 m<sup>3</sup>; 1 US\$ = GHS 3.96



### 5.1.2 Poor access to markets

Market access constitutes the availability of ready market and demand for plantation timber. Results from studies in the project communities indicated that tree growers perceive a low demand for their produce. The perceived low demand could be attributed to wide spatial distribution, isolation and poor visibility of smallholder tree growers. Additionally, tree growers have limited access to information about markets and potential customers. Only 13.2% of 174 respondents from the forestry extension service study had access to marketing information. There is no data available to farmers on potential companies, wood treatment firms, timber merchants and their locations, thus making it difficult for them to make contacts with the market. This finding has a direct relationship with the poor pricing of trees.

### 5.1.3 Poor access to loans

Tree growers reported that they do not have access to loans for investment in plantation development. According to them, financial service providers are unwilling to provide them with loans. Further probing revealed that most farmers lacked property marks – valid documents to authenticate their ownership of plantations – thus they are in a weak position to negotiate for loans from banks and perhaps the forest plantation development fund. Section 3.2.1 provides more information about the FPDF which was established to provide smallholder farmers with loans and grants for their operations.

### 5.1.4 Limited availability of land

Smallholders, particularly, migrants across the study communities had very little access to land for forest plantations. The highest incidence of land unavailability occurred in Offinso (66.7%). Fifteen percent of tree growers from Dunkwa and 14% from Kintampo had similar concerns. Forest plantation establishment is a long-term venture, requiring a minimum of 10 years. Some landowner felt leasing their lands for such periods could unsettle the land tenure dynamics by strengthening migrants' right to lands. Others were of the view that their lands are best utilised for short-term investments which guarantee returns e.g. cashew production, particularly in Offinso and Kintampo Forest Districts.

### 5.1.5 Limited availability of preferred tree species

Although teak was the dominant tree species planted by smallholder plantation developers, they reported collecting seeds from unknown provenances. They mentioned that teak was not their species of choice, rather, *Cedrella odorata* and *Terminalia superba*. Teak, however, was the species readily available and easily accessible.

### 5.1.6 Limited technical assistance

Technical information includes species land matching, nursery establishment, plantation management and marketing. Most smallholders reported that they did not access such information from the staff of the FC.

### 5.1.7 Increased transaction cost

At Offinso, 13.3% of the respondents from the study on barriers complained of bureaucratic hurdles in harvesting and marketing of plantation timber. According to them, these processes include unofficial expenditures like spending money on FC officials at both district and regional forestry departments for inspection and enumeration of their stands, and even in some cases, payments of bribes to facilitate the issuance of plantation timber conveyance certificates. A similar problem was mentioned in the other study areas; Kintampo and Dunkwa Forest District communities.

### 5.1.8 Barriers for engaging in forest plantations

To provide a more elaborate insight into the barriers hindering smallholder engagement in forest plantations, non-tree growers were also asked to enumerate what prevents them from establishing forest plantations. In order of priority, their responses were: long gestation period of trees, relative profitability of agricultural crops, lack of information about forest plantations and their benefits and limited availability of land.

## 5.2 Options for addressing barriers to smallholder forest plantation development

Tree growers provided four options when it comes to addressing barriers to their operations. The options are presented in order of their preference.

### 5.2.1 Financial support

Most tree growers indicated that their operations would be most effective if they were provided with funds, including loans for their operations. According to them, such funds would be vital for expanding and managing their plantations, including logging and transport of logs to attractive timber markets.

### 5.2.2 Additional livelihoods

Training in additional livelihood options was requested by tree growers to diversify their livelihoods to improve their access to income during tree rotation cycles.

### 5.2.3 Extension services

Extension support requested by tree growers included; training in tree nursery establishment, lining and pegging, tending and linkages to markets. Section 7 provides an insight into how extension services are currently organised and mechanisms for improving them.

### 5.2.4 Provision of fast-growing timber trees

According to tree growers, current tree germplasm in use are late maturing – which discourages them from planting. Early maturing species are required if smallholders' involvement in plantations is to be sustained.

Further consultations with experts in the forest plantation sub-sector culminated in an identification of short, medium and long-terms options for addressing the identified barriers. This is presented in **Table 3**.

**Table 3: Experts' suggestions for addressing barriers to sustainable smallholder forest plantation development**

Barrier	Options to addressing barrier (in order of Priority)		
	I	II	III
<b>Low price</b>	<p>Improve information flow to smallholder tree growers and their negotiation skills to be able to negotiate for good prices (FC (lead role), CSOs, FORIG)</p> <p>Formation of SHTG associations to improve their bargaining power (CSOs)</p>	<p>Improve quality of stands through the adoption of good silvicultural practices (FORIG)</p>	<p>Publish guiding prices of poles (FC)</p>
<b>Poor market access</b>	<p>Improve quality of stands through the adoption of good silvicultural practices (FORIG)</p>	<p>Update and publish an interactive database of SHTGs on FC platforms (website)</p>	<p>Formation of SHTG associations to improve their visibility</p> <p>Create a platform to link buyers and sellers e.g. OLX, Totonaton , FC</p>
<b>Poor access to loans (Funding)</b>	<p>Explore innovative ways of funding SHTGs through taxation of the industry</p>	<p>Explore a PES system to support SHTGs</p> <p>Committing a portion of the CF to support SHTGs</p>	<p>Exploring ways of giving farmers advance payments towards final harvest</p> <p>This is possible when mechanisms are designed to insure plantations</p>
<b>Access to Land</b>	<p>Fashion out or adapt B/S arrangements between tenant farmers, landowners and communities to encourage landowners to allow tenants to grow trees</p>	<p>Adopt agroforestry schemes to ensure that tree growing does not replace existing livelihoods</p>	
<b>Choice seeds/species</b>	<p>FC /FORIG and private firms should provide superior quality seeds</p>	<p>Certify nursery operators to produce quality seedlings</p>	<p>Embark on large scale development of national seed orchards</p> <p>Train farmers to match species to sites</p>
<b>Technical assistance</b>	<p>Establishment of a well-structured forestry extension system within the FC</p>	<p>Train community extension agents to deliver forestry extension services</p>	<p>Harnessing indigenous ecological knowledge, especially in establishing agroforests</p>
<b>Illegal payments and high transaction cost associated with harvesting and selling of timber</b>	<p>Educate farmers to know their rights and not make any payments not statutory</p>	<p>Educate FC staff to view inspection of private plantations as part of their job and not favours</p>	<p>Publishing statutory fees on FC notice boards and FC website, for SHTGs, to know payments required of them.</p>



*Plantation timber poles in the operational area of a private timber contractor, Kintampo Forest District*

# Effectiveness of incentives for smallholder forest plantations development in Ghana

*“They told us beautiful stories, sweet stories about good market for teak, the possibility of securing our pension ... What they did not tell us was the bitter end, how we were sacrificing our efforts and potential retirement benefits on the altar of false hope. My peers who went into cocoa and rubber farming are now well off while I continue to wallow in poverty”- Tree Grower, Dunkwa Forest District*

Incentives have received enormous attention in the literature on forest plantations. It refers to mechanisms that create enabling environments to stimulate stakeholders, in this context smallholders to act (establish forest plantations). In Ghana, incentives for forest plantation development dates back to the 1930s, when under colonial rule, the then Gold Coast Government launched the Plantation Development Programme using the ‘Taungya System’. The system provided for landless farmers to integrate crops with trees in degraded forest areas. Farmers were entitled to all outputs from the crop component. Building on the taungya concept and others, incentive systems for plantation development in Ghana has evolved to take different forms, including the provision of cash payments in the form of loans and grants.

In this section, incentive systems in place to promote smallholder involvement in forest plantations are categorised as institutionalised incentives and project based incentives. Both options are discussed and their constraints identified. Options are also suggested for improving such incentive systems.

## 6.1 Institutionalised incentives

They are incentives that are backed by legislation and are integrated into the operations of the FC and other statutory actors. The Plantation Development Fund was the only incentive identified under this category. Although the other documents, notably, the 2012 Forest and Wildlife policy, Climate Change Policy and the National Forest Plantation Development Strategy 2016 – 2041 all provide a framework for forest plantation development, they were not factored into this category because they are not legally binding documents but prescriptions of what ought to be done.

### 6.1.1 Overview: Forest Plantation Development Fund

The Forest Plantation Development Fund (FPDF) was established by Act 583, 2000 and its amendment Act 623 of 2002 to support people engaged in plantation forestry by providing loans and grants for the management of plantation as well as research and the provision of technical advice. Money from the Fund is primarily 1.5% timber export levy imposed by the Fund Act. Other sources include those that have been solicited by the Fund Board, which has oversight of the Fund. The Fund Board is headquartered by a Secretariat in Accra. There is, however, a field office at the premises of the Resource Management Support Centre of the FC, Kumasi. Membership of the Board is by political appointment and the criteria for selection is stipulated in the Fund Act 583 of 2000 to include key stakeholders in the plantation sub-sector.

**Annex 1** is a classification of stakeholders of the Fund and their interests and power relations.

Accessing the fund starts with an application to the Fund Board. All eligible applicants e.g. Ghanaians with a minimum of four (4) hectares<sup>2</sup> of plantations on registered lands file their application to the Plantation Funds main office in Accra (around the Independence Square) or field office at the premises of the Resource Management Support Centre, Adum, Kumasi. The applications are assessed by staff of the Fund Board and in some cases, the staff of the FC who make recommendations to the Fund Board. The Board examines the list of recommended applicants and makes a funding decision after which payments are made by the Agricultural Development Bank, the financial managers of the Fund.

<sup>2</sup>This figure is debatable as there is no concrete documentation of proof. Interactions with stakeholders, including staff of the Fund Board suggest that the figure is only a guide and that discretion plays a key part in determining one's eligibility as it

## 6.1.2 Stakeholders' interactions with the FPDF

To assess how stakeholders have interacted with the fund, stakeholders were asked if they were aware of the fund and/ or have applied for it. Responses are presented according to stakeholder groups.

### *Smallholder plantation developers*

Research findings show that most smallholders are not aware of the fund. In the few cases where they were aware and had applied, only those who seemed to be of high social status had access to the fund, the remaining applicants received no response from the administrators of the fund. Generally, smallholders rated transparency in the administration of the fund as poor. They cited elite capture and poor communication of funding decisions as their reason. According to one respondent,

*"They only share the money amongst themselves. If you are not a chief or you do not have strong connections in forestry there is no way you will ever get that money. How else can you justify that of all 14 of us sitting here, not even one has qualified for the fund, especially when we all have large teak plantations." Key Informant <sup>3</sup>, Offinso Municipal, December 2016.*

Beneficiaries encountered in the study were chiefs, chief farmers and heads of community based organisations.

### *Civil Society, private sector, and statutory agencies*

Generally, stakeholders in the project communities have not been able to interact well with the NFPDF or its administrators. Civil society actors e.g. NGOs and CBOs, and statutory actors, including staff of the FC do not have access to information about the eligibility criteria, funding cycle, a list of beneficiaries, etc. due to limited availability of publications on the operations of the Fund Board. This was clearly expressed in the responses elicited from key informant interviews. For example,

'I have not come across any identifiable procedures for ensuring transparency in administering the FPDF such as publication of annual disbursement records, publication of audited accounts etc.' Staff, Civic Response (NGO), March 2017.

'There is a total disjoint between the FC and the Fund Board. The administration of the Plantation Development Fund seems to be shrouded in secrecy. It is only a privileged few who know about it and are able to access it' ... Even we (staff of the FC) and in some cases the Fund Board are themselves unaware of the actual eligibility criteria because it is not properly documented and communicated – Staff, FC (Statutory Agency), February 2017.

"There is generally not much information to stakeholders about the administration of the Fund. People only bring us letters requesting us to assess their plantations and eligibility. Once we do that and submit the report to the Fund Secretariat, we do not hear anything from them. Neither is there any post on the FC website or internet about a list of beneficiaries. We have no clue whatsoever how our assessments impact funding decisions and we have no basis for monitoring the plantations of beneficiaries to ensure that they repay the loans before issuing them with conveyance when they decide to harvest their stands ..." Staff, FC (Statutory Agency), February 2017.

"Our output directly dictates amounts accruing to the fund and yet, we have no inclination whatsoever as to what the monies are used for. If the stories we keep hearing are true, then the administrators of the fund are not living up to what the fund was established to do. Given that natural stocks of timber are running out, they need to sit up and use the fund to support forest plantations, if not, we might not have any timber to export and no monies will accrue to the Fund" – Key Informant (Private sector) February 2017.

"We are to blame for poor transparency in the administration of the Fund. We have not put in place measures to make the processes leading to the award of the grant component of the Fund transparent. It is often abused. There are instances where chiefs who neither have plantations nor the intention to establish one have been given large sums of money" – Key Informant, March 2017.

## 6.1.3 Stakeholders' information needs about the FPDF

Stakeholders expect to find information on eligibility criteria, funding cycles, a list of beneficiaries, inflows and outflows for a variety of reasons, including improving the ability to apply, educate other stakeholders and hold the Fund Board accountable for their actions and inactions. For each information category, stakeholders indicated their preferred means for access as shown in Table 4.

**Table 4: FPDF stakeholders' information needs and preferred means for access**

Stakeholder group	Information need	Motivation	Media
<b>Plantation developers</b>	Eligibility and assessment criteria	To assess chances of securing the Fund	Community outreach Radio/community centres
	Funding cycle	To be abreast with when to apply	Radio/community centres Internet posts
	Contact unsuccessful applications	To reduce anxiety associated with waiting for an outcome	Phone calls
<b>FC</b>	Eligibility and assessment criteria and funding cycle	To better educate prospective applicants. For monitoring compliance with the laid down criteria.	Website/Internet Info sheets 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
<b>CSOs</b>	Eligibility and assessment criteria and funding cycle	To be abreast with when to apply and the maximum amount available for the specific funding period.	Periodic internet adverts
	Number of beneficiaries, including 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
	Annual inflows from other sources	Monitoring accountability as Civil Society Assess sustainability of the Fund Assess the performance of the Fund Board	Website/internet, Info sheets Annual reports
	Annual outflows	Monitoring accountability	Website/internet, Info sheets Annual reports
	Geographical distribution of respondents	To assess whether funds are evenly distributed	Internet
	Retrieval of Funds	To establish the sustainability of the Fund	Website/Internet Annual reports
<b>Industry</b>	Number and list of beneficiaries	For tracking accountability	Website/internet Info sheets Annual reports
<b>Research and Academia</b>	Eligibility criteria and funding cycle	To be able to apply for research funding	Website

### 6.1.4 Barriers to effective administration of the FPDF

The administration of the FPDF is curtailed by three key factors: political interferences, limited availability of funding and poor transparency.

#### *Political interferences*

According to key informants, a lot of politics is involved in the administration of the fund, particularly in the selection of the Board Members. It was reported that sometimes the eligibility criteria selecting Board Members as prescribed in the Fund Act has been neglected and discretion used to oust some members who are deemed as obstacles to a specific political party's agenda. According to one respondent,

"Membership of the Board is always aligned with political parties' interests and this carves a niche for abuse of the funds. Such abuses make it difficult for the Fund Board to be open to the public about their operations. Unless the Board is made free and independent of political parties, it cannot operate transparently" – Key Informant, March 2017.

Membership based on institutional representation seemed not to have worked effectively in the management of the fund. Moving forward, there will be the need for legal reforms to allow for the selection of Board Members based on their expertise and ability to operate in accordance with the objectives of the fund.

#### *Limited availability of funds*

Up until now, no document is available to the public on funds that have accrued to the NFPDF or how it has been utilised. However, it was reported that monies accruing to the fund are inadequate to meet stakeholders' needs and allow for the Fund Board to acquire more staff to meet stakeholders' information needs. According to a key informant,

"Some stakeholders' information needs require active analysis before they can be provided. At present, I do not think the Secretariat has such personnel to provide that kind of information to stakeholders" – Key informant, March 2017.

#### *Poor transparency, deepened by weak visibility*

Although access to information is a constitutional right in Ghana, there is no exclusive legislation in place to guarantee citizens' access to information. Within the administration of the FPDF, it was reported that limited transparency provisions curtail fund administrators from meeting stakeholders' information needs. Interviews with current and past members of the Fund Board revealed instances of adverse selection where they argued that: "We cannot disclose a list of beneficiaries because the money given to them are loans. If we do, it will breach business confidentiality provisions". Meanwhile, stakeholders' information needs transcend list of loan beneficiaries to include basic information such as eligibility criteria, funding cycle, and annual inflows.

Furthermore, interviews revealed that the Fund administrators have no concrete mechanisms for improving the visibility of the Fund. At present, the Fund Board have no websites to publish information on their operations. Reports on the operations of the Fund is also not available to stakeholders and this prevents stakeholders such as the media from following the operations of the Fund Board and disseminating information to stakeholders.

## 6.2 Project based incentives

### 6.2.1 Overview

These incentive packages are provided by government, NGOs and some private firms through donor-funded projects. Project driven incentives usually focused on short-term measures and are often in the form of inputs, technical assistance/information and in some cases cash payments. Some projects that provided incentives for smallholder forest plantation development in the project areas are summarised in **Table 5**.

**Table 5: Key projects implemented to promote smallholder forest plantation development in the project communities**

Project area	Brief description
<p>Community Forestry Management Project (Offinso and Sunyani Forest Districts)</p>	<p><b>Status:</b> Ended  <b>Donor:</b> AfDB  <b>Implementers:</b> Forest Services Division, Forestry Commission  <b>Start – End:</b> 2003 – 2010</p> <p><b>Description:</b> The project sought to rehabilitate degraded forest reserves whilst increasing the production of agricultural, wood and non-wood forestry products and strengthening the capacity of relevant institutions. It carried out capacity building, supplied inputs and provided additional livelihood programmes for forest reserve fringe communities.</p> <p><b>Remarks:</b> On evaluation, the project received a performance score of 3/5. The current concern raised by farmers is the delay in the harvesting of trees. Field observation shows that additional livelihoods provided under the projects have collapsed.</p>
<p>Forest Resource Management and Use Project [FORUM] (Jasikan and Sogakope Forest Districts)</p>	<p><b>Status:</b> Ended  <b>Donor:</b> GTZ and KfW  <b>Implementers:</b> Forestry Commission  <b>Start – End:</b> 1993 - 2008</p> <p><b>Description:</b> This project was aimed at reducing the degradation of forest resources in the Volta Region through the protection of the remaining natural forest, rehabilitation of degraded forest reserves and the promotion of private woodlot establishment. The main incentive provided to smallholder plantation developers were capacity building, provision of seedlings and charcoal production kilns.</p> <p><b>Remarks:</b> Farmers indicated that plantations established by the project have reduced the incidences of wildfire and made the area conducive for cocoa production again (no scientific study has been conducted to validate this). A key challenge identified was a lack of a database on beneficiaries of the project.</p>
<p>NTFPs; Green Farmers Organizations Off-reserve;</p>	<p><b>Status:</b> Ended  <b>Donor:</b> International Tropical Timber Organization (ITTO)  <b>Implementers:</b> Rural Development and Youth Association (RUDEYA)  <b>Start – End:</b> 2012 - 2014</p> <p><b>Description:</b> The project sought to establish sustainable Community Forest Management Enterprises to reduce rural poverty through improved alternative livelihood options, reduced deforestation and land degradation, climate regulation and soil fertility management through established MTS plantations.</p> <p><b>Remarks:</b> The project successfully trained farmers and provided them with alternative livelihoods. They were also supported to integrate Grains of Paradise (GOP) in MTS plantations. Some beneficiaries are still engaged in applying the skill they acquired but this is to a very limited extent.</p>

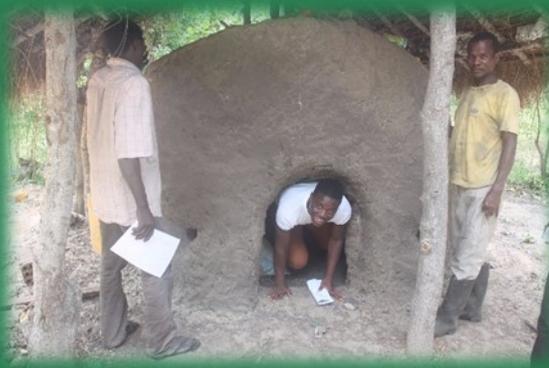
Since most project-based incentives focused on temporal fixes, participation in activities initiated was reported to fade out soon after project funding ended. It became evident that most project beneficiaries discontinue livelihood activities that were introduced to them. A key exception was identified and this is shown in **Box 2**. In some instances, it was difficult to locate beneficiaries of such initiatives e.g. beneficiaries of the FORUM project.

### **Box 2: Do project based incentives ever achieve their results?**

Sustaining project-based incentives for smallholder forest plantation development can be extremely difficult. It takes a lot of commitment and hard work from beneficiaries. However, it is achievable.

Following the supply of seedlings and an earth kiln under the Forest Resources Management and Use Project (see 3.1.2) to establish a forest plantation for sustainable charcoal production, Mr. Ahoritor took off where the project ended. He has expanded his plantations by 10 acres with mixed species including, *Senna siamea*, *Acacia auriculiformis*, *Khaya senegalensis*, *Eucalyptus spp* and *Tectona grandis*. Additionally, he has built a second kiln to improve his operation.

Today, he produces charcoal from his stands for the local market and earns between GHS 1500 – 2500 per month depending on the time of the year and the stage of his plantation stands. According to him, *“Commitment is my secret. I knew if I work hard, all the training I had received would yield results. Although I have problems registering my lands and producing for international markets, I believe I will overcome them, especially with some support from the government and NGOs”*. He truly is a model of how incentives if carefully managed can lead to sustainable livelihoods and improved welfare.



## **6.2.1 Challenges to effective incentives provision for smallholder forest plantations**

### **a) Inadequate planning and short-term orientation of incentives**

All project-based incentives provided to smallholders focused on increasing plantation timber. The incentive packages were reported to include: inputs e.g. seedlings, and tools and equipment e.g. boots, cutlasses; and technical information and/ or training in silvicultural practices, and in some cases, training on additional livelihoods. They did not train farmers to establish and manage forest plantations as viable business enterprises. Consequently, most farmers were not equipped with business management skills such as inventory taking, negotiation, artisanal timber processing, and marketing. This could be the reason behind farmers' inability to market their produce (see Section 5.1.1), a situation which has led to the waning interest of smallholders' in forest plantation development (see **Box 3**).

### **b) Poor commitment from beneficiaries**

Some forest plantation developers do not actively own their investment in plantations. They expect active support from government and NGOs to manage them based on the assumption that their plantations provide ecosystem services. In situations where additional livelihood schemes are introduced to smallholder plantation developers, they take to them without questions, mostly with the mindset that *'half a loaf is better than none'*.

This apparent lack of ownership often leads to the collapse of additional livelihoods (see **Box 4**).

## **6.3 Plantation developers' expectations from incentives**

Tree growers indicated that they needed the following to improve their operations:

- periodic financial grants, including quarterly payments and/ or farmer-friendly loans,

- free supply of seedlings and tools,
- provision of free technical advice,
- training in additional livelihood schemes and provision of start-up capital, and
- linkages to markets for established plantations.

According to smallholders, forest plantation establishment is a long-term investment and the provision of periodic grants and/ or soft loans will enable them to effectively manage their plantations. Training in additional livelihoods and the provision of start-up capital could enable them to earn some medium-term revenue to support their families and investments in plantations. Several additional livelihoods, including soap making, beekeeping, setting up provision shops and poultry production were mentioned. However, these options should be selected in consultation with each community and not imposed on them in pursuance of project objectives.

### Box 3: The perils of incomplete incentive packages

#### Operations to safeguards smallholders' interest:

Over the years, stakeholders have focused on providing incentives for increasing the supply of timber from smallholder forest plantations without a commensurate focus on the plantation timber commodity chain development. This seems to have created a problem where timber contractors take advantage of the local supply and extort smallholder plantation developers.

Most smallholder plantation developers receive less than US\$ 20 per cubic meter of teak (See Box 1). This phenomenon is driving smallholders from forest plantations to tree crop alternatives, notably cashew and cocoa which are considered more lucrative. Several cases were observed where smallholders had eradicated their forest (teak) plantations to make way for arable crops or cocoa as in the picture on the right.

According to one plantation developer who was provided with teak seedlings and technical support in the early 1990s to establish forest plantations,

*“They (FC) told us beautiful stories, sweet stories about good market for teak, the possibility of securing our pension ... What they did not tell us was the bitter end, how we were sacrificing our efforts and potential retirement benefits on the altar of false hope. My peers who went into cocoa farming are now well off while I continue to wallow in poverty.”*

Today, he and his peers use their experience to discourage people from investing in a forest plantation.

To reverse this trend, there is the urgent need for discussions on developing the entire plantation timber value chain. For example, it is worth considering:

- How do we develop a comprehensive framework to guide the provision of incentives for smallholder forest plantations, including mechanisms for building synergies?
- How do we develop and implement a forestry extension scheme to train smallholder forest plantation developers on basic business and management skills in addition to training in silvicultural practices and who should pay for delivery of such a service?
- Is it possible to develop and link smallholders remotely to a database where they can access and share information on their forest plantation size, stages of plantation development, contact information and pricing information?
- Can we register middlemen and establish minimum standards for their?

Too ambitious or far-reaching? Maybe so, but worth discussing!



#### **Box 4: Ownership: The missing link in sustaining forest plantation development projects**

Most projects are designed with sustainability mechanisms as an integral component. For examples of such projects, see 3.1.2. However, it was observed that situations on the ground were not reflective of such plans. For example, in communities such as Asempanaye and Kokotesua which are both beneficiary communities of the Community Forestry Management Project (see Table 4), it was observed that housing units provided under additional livelihood components of the project were empty. In other communities such as Ntom, smallholder plantations established under projects had been completely abandoned by project beneficiaries.

Lack of commitment from project beneficiaries in owning projects' outcomes could be the cause of poor sustainability. Project beneficiaries expect continuous support from projects and fail to invest to sustain their operations, except in a few cases (See Box 2). Other factors that could lead to poor project sustainability, include: inadequate funding and poor access to credit, lack of ready market, low income, lack of training and monitoring, lack of interest, promotion of unpopular livelihoods, and negative socio-cultural attitudes such as cynicism, pessimism, opportunistic tendencies and social values (Kodom, 2015; Ntakor, et al., 2014; Hilson and Banchirigah, 2009).

A higher involvement of proposed beneficiaries in designing projects could be a way to secure their commitment towards projects, thus improving their sustainability.



## **6.4 Options for improving incentives for smallholder forest plantation development**

### **6.4.1 Structural adjustments within the FPDF**

The current set-up of the Fund Board, where membership is based on institutional representation does not allow for adequate transparency and effective performance. Strong competencies in fund management, commitment to public service and transparency are required for administration of the Fund to improve. One way to ensure this is to appoint members to the Fund Board based on their qualifications instead of the current set-up where institutional representation is used. This way, the Board can be held accountable for measurable targets. However, this can only occur when legislative reforms are made to Section 6 of the FPDF Act, 2000 which defines criteria for appointing Board Members.

### **6.4.2 Improve information flow to stakeholders**

Stakeholders need to engage the Fund Board to develop a website for improving information flow from the Fund Board and feedback from stakeholders. This will improve stakeholders' confidence in the operations of the Fund Board and enable them to contribute innovative options for improving the administration of the Fund, including sourcing of funds, which remains a major challenge for successive Boards.

### **6.4.3 Diversify FPDF's sources of funds**

At present, timber export levies remain the primary source of funding for the FPDF. If the Fund is to meet the objective for its establishment, there is the need for the Fund Board to explore additional funding opportunities in line with the Board's mandate in FPDF Act 583. Potential options could include monies realised from 1) charcoal conveyance levies and 2) international climate finance mechanisms 3) investments in model plantations. However, these options need a thorough stakeholder engagement to ensure proper ownership of the option(s) selected.

#### 6.4.4 Develop the entire plantation value chain

There is the urgent need to develop plantation timber value chain, including improving tree productivity, intermediate products, access to markets and processing. This will be critical for attracting good prices for plantation timber as it increases competition for timber resources. There is the need to explore how artisanal millers can work with smallholder plantation developers to create a market for plantation timber. There is also the need to explore avenues for improving productivity in forest plantations to help provide smallholders with short and medium-term benefits.

#### 6.4.5 Design projects with sustainability as a cardinal principle

There is the need to make project sustainability strategies feasible. One way is to develop projects in consultation with beneficiaries. Additionally, it would be prudent to regulate the supply of incentives particularly during the initial stages of project implementation until committed beneficiaries are identified, where they can be supported to be models for emulation.



*Some smallholders showing the project team a charcoal kiln they produced following training under the FORUM project.*

# Forestry extension and smallholder forest plantation development in Ghana

*“... subsistence farmers are unable to pay the full cost of advisory services” (Swanson, 2008)*

The term smallholder often connotes limitations and this is particularly the case in Ghana, a developing country. In the previous chapters, forestry extension was suggested as an option for addressing challenges to smallholder plantation development. This chapter presents results of how forestry extension services are currently organised in Ghana and options for improving it for effective smallholder forest plantation development in off-reserve areas of Ghana.

Forestry extension in this report refers to situations in which smallholder plantation developers are directly and willingly involved in plantation establishment activities from which they anticipate recognised benefits. It does not hang on formal teaching of courses or only provision of technical information but rather relies mostly on informal self-development processes.

## 7.1 Existing forestry extension models and methods

### *Forestry extension models*

With regards to forestry extension models associated with institutional arrangements in place to execute extension activities, five (5) models were reported in the project communities. These were Public, NGO/Project-Based, Hybrid, Cooperative and Private Extension Models. All the models identified were implemented arbitrarily, particularly as they relate to smallholder forest plantation development.

The Public Model was reported to involve the FC, Ministry of Food and Agriculture (MOFA) and Ghana Cocoa Board (COCOBOD). Under this model, the statutory agencies engage farmers and/or tree growers and provide them with information on how to improve their production systems i.e. plantation monoculture or agroforestry systems. Visitations to provide information were reported to occur at irregular times and often focused on improving the tree or crop component based on the organisation in question. Provision of inputs in the form of seedlings and tools such as machetes, boots and other protective clothing were also reported. MOFA and COCOBOD are reported to focus on cocoa or cashew (crop component) while FC focuses on the tree component. This situation has the potential to present conflict, especially since the supply of productive land is on the decline.

The NGO/Project Model, as its name suggests, is based on projects that are often delivered by NGOs. This model was reported to be planned and well-coordinated during the lifespan of the projects but ceased eventually when the projects ended. The content was reported to be like the Public Model, where technical information and inputs are provided to beneficiaries.

The Hybrid Model was reported to involve NGOs and the FC or other statutory bodies. In most cases, this happens when the NGOs have funds but lack the technical capacity to effectively engage tree growers or where they seek to link tree growers to statutory agencies.

The Cooperative Model was reported to occur in very limited instances, where smallholder tree grower groups support themselves with technical information.

Private Extension Models occurred in situations where technical individuals support smallholders with technical information to improve their activities. This was reported to have occurred among very few smallholders in the project area. Unlike other contexts where experts are paid for such services, respondents used private social contacts to secure these services at little or no cost.

In terms of the preferences of tree growers' for the identified models, an interesting pattern was observed. Resource-rich areas (Dunkwa Forest District) respondents preferred the public-led extension model compared with resource medium (Offinso Forest District) and resource poor (Kintampo Forest District) areas where farmers preferred NGO-led extension services. This finding is attributable to increased attempts by NGOs to increase smallholders' participation in forest plantations for landscape restoration in resource-medium and resource poor areas compared with resource-rich areas where statutory agencies are more likely to interact with smallholders.

### **7.1.2 Extension methods and smallholders' preferences**

Three extension methods are found in literature: individual, group and mass methods. All three methods were reported in the project communities. However, contrary to a suggestion by some authors, most smallholders in the project communities preferred group methods to individual methods. According to them, it presents them with the opportunity to learn from their colleagues as well as other experts. Mass methods e.g. radio campaigns were the method tree growers least preferred. It is recommended to combine multiple extension methods in the design and implementation of extension programmes.

## **7.2 Farmers' expectations from forestry extension services**

Farmers were not willing to pay (82%; n= 174) for forestry extension services. They reported that it should be championed by the public. They expect forestry extension services to focus on providing technical advice on plantation development and management, and material support e.g. seedlings, basic tools, and equipment. Additionally, they reported that efforts of government should be complemented by the NGO and Hybrid models to drive innovations.

## **7.3 Factors militating against effective forestry extension service delivery**

### **7.3.1 Lack of a structured forestry extension service model**

Tree growers reported that the 'start-stop-start' approach to extension service delivery, whereby tree growers are engaged only during project implementing stages did not help in consolidating outcomes. They reported that in some cases, the lack of follow-ups sway them to pursue other opportunities that are introduced in their communities e.g. investment in cashew production. There were also reports that inconsistencies in the messages transmitted by NGOs and statutory agencies also affect their decision. For example, whereas some NGOs make promises that standing forest plantations could yield monetary payments through REDD+, others promote the opposite. This leaves farmers in limbo – unable to make a concrete decision and commit to them.

### **7.3.2 Limited availability of funds and logistics**

The study revealed that lack of funding was a key obstacle to the provision of forestry extension services. Public agencies do not have adequate staff and logistics, including means of transport and communication aids to adequately interact with tree growers. Meanwhile, tree growers reported that they were not willing to pay for extension services, even when such payments would result in a higher yield; a finding that is well documented in the literature. This suggests that other options must be explored to fund forestry extension activities. Tree growers suggested that one way was to impose a forestry extension levy on all timber products that are exported.

### **7.3.3 Limited availability of identifiable tree grower associations**

Forestry extension agents reported that it is expensive to implement individual extension methods. According to them, mass and group methods are more economical, even though they were less effective. Additionally, group methods only work where there are strong producer associations and cooperatives. Unfortunately, farmers do not readily have such groups and/or associations.



*The research team in a smallholder's cocoa-cedrella farm at Ntom, Dunkwa Forest District.*

# Building strategic alliances: Model tree grower associations for effective smallholder forest plantations in Ghana

*“If you don’t visit us regularly, encourage us and provide us with some support, most of our people will move on to cashew production. Money is readily available there and buyers are chasing us to pre-finance our activities. Member, Tree Grower Association, Nkoranza”*

*“We have found out that running a tree grower association as a non-profit organisation is difficult and unsustainable. Therefore, we have also developed a business wing to generate income for our operations” Member, Private Afforestation Developers Organisation.*

Tree growers’ associations consist of predominantly smallholder farmers who integrate trees in their productive landscapes. Three model associations were formed in project districts i.e. Dunkwa, Offinso, and Kintampo Forest Districts as part of the landscape project to provide insight into how smallholder forest plantations can be better organised for improved landscape restoration. The model associations culminated in a National Tree Growers’ Association of Ghana (NTGA). However, there is the need for a limited supply of funds to support the activities of the associations, including outreaches, capacity building, and investments in model plantations as well as plantation businesses. The associations are evolving slowly with some members resorting to other alternative livelihood options.

## 8.1 Overview of tree grower associations in Ghana

There is little information in the literature about the history, composition, and operations of tree growers’ associations in Ghana. Efforts towards smallholder tree growers’ associations emerged in the late 1980s. By 1996, the Ashanti Regional Tree Growers’ Association (ARTGA) was formed. Later an umbrella body, the National Union of Tree Growers’ Associations was formed and was quite active in the forestry sector. However, due to poor transparency and accountability, a breakdown in leadership and lack of funding, the Union eventually collapsed.

One tree grower association that has withstood the test of time is the Private Plantation Developers Association (PADO). It was formed in the late 2000s but became an official organisation in 2010. PADO’s mission is to "ensure an environmentally sound management and enhanced employment opportunities through private sector afforestation investment". Today it boasts of 97 members who are predominantly large-scale forest plantation developers around the Ashanti, Brong-Ahafo and the Volta regions of Ghana. Its operations include tree planting activities in a manner that will create employment opportunities for the vulnerable, especially, inhabitants of forest fringe communities and policy advocacy for effective landscape restoration.

## 8.2 Status and role of the associations

Thirteen community associations, three district associations, and a national tree growers’ association have been formed. **Table 6** shows the communities and districts of these associations and their numerical strength. All the associations’ members were trained in group dynamics, management of associations and linked to Forest Services Districts in their localities. They were also supplied with T-shirts, membership cards and stationary to facilitate their operations.

**Table 6: Membership base of model associations in project communities**

Forest district	Community	Membership	Total
Dunkwa	Amobakar	8	71
	Bethlehem	11	
	Diaso	16	
	Nkronua	22	
	Ntom	14	
Kintampo	Asuano	25	106
	Donkro Nkwanta	32	
	Kyirideso	15	
	Nkwaease	34	
Offinso	Anyinasuso	28	78
	Kayera-Aduana	9	
	Koforidua	20	
	Samproso	21	
<b>Total</b>			<b>253</b>



*Inauguration of the Diaso District Tree Growers' Association, Diaso, Dunkwa Forest District*

Currently, all community and district level associations are operational with varying degrees of activity and are in contact with the project implementation team who facilitates their operations by directing them to information sources and linking them to service providers for support. The NTGA is situated at the Resource Management Support Centre (RMSC) of the FC and their operations are supported by both RMSC who accommodate them and Tropenbos Ghana who oversee their day-to-day operations. Efforts are also underway to legally register the Association as part of the 2-year mandate of the Executive Committee.

The operations of the NTGA include outreaches to expand their membership base, development of project proposals for funding and meetings with key stakeholders, including the FC to solicit support for their operations.

### **8.3 Success factors**

A primary factor that strengthened the association is the decentralised nature of the association. Since the associations occur at the community level, it is easier for members to meet and take decisions. For example, after a series of meetings by the associations in the Kintampo Forest District, members sent a delegation to the district FC office requesting for support for their operations. Similar mechanisms are also used to support extra association-related activities such as funerals and other social events concerning members.

Another key factor that is improving the operations of the association is recognition by the FC and other stakeholders due to their involvement in the establishment of the association. The RMSC and Plantations Department of the FC are playing a key role in ensuring the association evolves to become a key player in the plantation sector. Among the activities that point to the commitment of the RMSC is the allocation of an office space for the association as well as a seat on the latent Plantations Development Investor Forum platform which seeks to attract investments for forest plantations.

Funding under the Landscape project has also been crucial in enabling the associations, particularly the NTGA in carrying out its operations. However, there is concern that their operations might not be so effective when the project ends because dues paid by members would not be sufficient to run the association.

### **8.4 Challenges**

Limited availability of funding remains the biggest challenge in the administration of the associations. Although members agreed to make contributions to support their activities, most members do not pay their contribution and funds realised is often inadequate and cannot finance the initiatives planned by the associations.

Another challenge to the associations is the emergence of more promising agricultural investments. Recent reports from leaders of the Kintampo association indicated that the membership is likely to dwindle if efforts are not put in place to make forest plantations attractive. The reports suggested that other NGOs and private individuals are using cash incentives to drive some members into cashew production.

### **8.5 Lessons learnt**

Properly managed tree grower associations have the potential to address key constraints to smallholder forest plantations development. However, in forming such associations, it is important to understand the interest of tree growers and develop a mechanism to ensure that the associations give priority to their interests. Some tree growers in the Kintampo Forest District are moving to other supposedly greener pastures because the associations have not directly resolved their current challenge of not finding good prices for their teak stands. The lesson here is that associations need to adopt processes that ensure that members see their membership as an opportunity to consolidate gains from their plantations.

The model associations have also shown that internally generated funds from dues paid by members of tree grower association are often insufficient to support their operations, at least in the short-term. At the very least, there is the need for some level of external support to ensure that the associations invest in alternatives to boost income generation for their operations.

Gains made during the initial phases of association formation need to be consolidated through continuous capacity building, linkages to service providers for support services and development of transparency mechanisms to promote openness and accountability and foster trust amongst members.

## Summing up and looking ahead

*"We are drowning in information while starving for wisdom. The world henceforth will be run by the synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely" –*

*Nancy Harris, 2016.*

A lot of information has been presented on smallholder forest plantation development in Ghana's productive landscapes. This section harmonises the information and provides clear-cut options for improving smallholder forest plantations for effective landscape restoration in Ghana.

### 9.1 Options for effective smallholder forest plantation development

#### 9.1.1 Development of the plantation timber value chain

The quality of smallholders' products needs to be improved. This can be done through improving the supply of quality planting materials and continuous capacity building in good silvicultural practices for tree growers. Options need to be explored in linking smallholders to markets. At the very least, the FC must explore ways for ensuring that guiding prices are clearly communicated to smallholders. This can easily be carried out through extension agents or information and communication technology platforms such as 'Short Message Service' (SMS) via mobile phones.

Smallholder plantation timber wields an enormous potential to contribute to domestic timber supply and improve Ghana's implementation of international commitments under the Voluntary Partnership Agreement (VPA). This potential can be realised when investment is made in the local plantation timber industry. There is the need to pilot artisanal milling of plantation timber as an option for supplying lumber to the domestic market. Awareness creation is required to stimulate artisans interest in the use of plantation timber for their products.

Another issue to consider in the development of the plantation timber value chain is how to provide livelihood opportunities to tree growers in the medium term when their investments in the plantations are yet to produce returns. Training in integrating shade loving plants in canopied plantations are in order, however, such training needs to be accompanied by value chain development to ensure farmers find markets for products. This is being piloted with grains of paradise and black pepper under the TREEFARM project being led by RMSC with funding from NWO-WOTRO<sup>4</sup>. Other traditional livelihoods such as mushroom production, beekeeping and non-traditional livelihoods e.g. table-top trading which is a characteristic of NGO-led projects is worth considering. However, as pointed out from the study on incentives, such livelihoods should be developed with communities to ensure ownership.

#### 9.1.2 Good policy and legal frameworks: but it is time to act!

Existing policy frameworks provide ample enabling environment for effective smallholder forest plantations. Plans to improve trees-on-farms which was identified as a key technique by which smallholder farmers integrate forest trees with their land-use is laudable; and so are plans to leverage funds through reforestation levies and taxes. However, there is the need to put in place concrete efforts to implement such plans as soon as possible, especially, in view of the fact that the interest of smallholder tree plantation developers' is shifting to other livelihood ventures such as cashew production.

#### Box 5: NOW-WOTRO<sup>4</sup>

<sup>4</sup> The full project title is 'Improving smallholders' food and income security by introducing non-timber forest products in reforestation schemes and tree-crop farms: A collaborative learning process in Ghana', but is commonly known as the Tree farms project. It is carried out by a trans disciplinary team consisting of the Resource Management Support Centre (RMSC) of the Ghana Forestry Commission, the Rural Development Youth Association (RUDEYA; non-governmental organisation based in Kumasi, Ghana) and two universities (University of Energy and Natural Resources in Sunyani, Ghana, and the University of Amsterdam in the Netherlands).

Some legislative changes are also required to consolidate gains realised from such levies and taxes. For example, there is the need for subsidiary legislations to Act 583 and its amendment Act 623 to improve the visibility of the Fund and promote citizens' access to information regarding the operations of the Fund. Specific information that is of interest to stakeholders include: a list of grant beneficiaries, areas of plantations supported and their distribution, and research activities supported by the Fund. There is also the need to develop a website for the Fund and clearly publish guidelines for accessing the grants and loan components of the Fund. There is the need to reconsider the constitution of the Fund Board. The current set-up where a prominent chief serves as a Board Chairman while other members are selected based on institutional representation has proven ineffective thus far and is likely to remain ineffective. Traditional leaders wield enormous power and this does provide for consensus building within the Fund Board. However, such power dynamics is also likely to affect accountability. Consequently, there is the need to explore an option where board chairpersons and members are selected based on merit. For example, a written guideline could be developed on key attributes and qualifications expected of institutional nominees. This guideline should be developed in collaboration with stakeholders to allow for ownership and monitoring of its implementation.

### **9.1.3 Strong support systems, including service providers**

Most of the barriers to smallholder forest plantation development could be addressed with strong support systems. Clearly, there is a consensus amongst stakeholders on the need for a functional extension service in Ghana's forest sector to train tree growers on good agroforestry and silvicultural practices, link them to fair markets and credit facilities. Stakeholders also agree that this should be publicly owned and funded but supported by other stakeholders, particularly NGOs, to drive innovations. Implementing a national forestry extension service is no easy task. The FC seems to have taken up outputs from dialogues and will pilot a model where graduates are recruited to provide such services. However, there is the need for further research and analysis to support these efforts. Of prime importance is the need to conduct a thorough cost-benefit analysis of the stakeholder preferred options: Public and Hybrid (Public/NGO) Partnerships; and mechanisms for sustainable funding. Also, clear-cut guidelines must be developed for implementing functional forestry extension services to ensure that extension messages are harmonised.

Smallholders can truly unlock the value of their plantations when they register lands for their plantations. Hence, there is the need for stakeholders to explore cost-efficient options for enabling stakeholders to register their plantations. Perhaps, a business model can be developed where the Forest Services Division (FSD) maps smallholders' forest plantations in exchange for production information such as stage of plantations and species which can then be used to link buyers to smallholders at the expense of buyers. Such an innovation will require initial investment which the FC could leverage from the Forest Plantation Development Fund or other sources, including Public-Private Partnerships.

Another support system that needs an overhaul is the FPDF. There is the need to improve the visibility of the Fund and this can be done by setting up a website to display information about the administration of the Fund, particularly to the literate community. Community outreach programmes such as durbars and radio talk shows can also be used to reach farmers in areas with no internet access. Alternative funding sources must be secured to augment funds realised from timber export levies which support the Fund. One point that needs stakeholder attention is revenues realised from charcoal conveyance certificates issued by the FC.

### **9.1.4 Strong smallholder associations**

Vibrant smallholder tree growers' associations are required to improve the status, bargaining power of smallholders and eventual provision of support services to members and beyond. It is urgent that a mechanism that will ensure continuous support for the National Tree Growers' Association and its subsidiaries be properly established. In this vein, we put forward the following recommendations:

- Funding and expansion of membership base to all regions.
- Expansion of capacity building among leaders to include formation and management of private organisations.
- Expand the scope of the NTGA to engage in profit making ventures and eventual registration of the profit-making wing under appropriate national provisions. The profit-making wing would employ experts who would work to generate profits that would be used to support the operations of the NTGA.
- Establishment of model plantations in all regions with the assistance of FC and support from the FPDF
- Stakeholder engagement on the potential roles of the NTGA in reclaimed mined landscapes to generate income for their operations.

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## List of Annexes

### Annex 1: Forest Plantation Development Fund stakeholders' interests, potential actions, and influence

Stakeholder group	Interest	Actual activities	Potential activities	Influence (power)
Plantation Fund Board and Administration	Meeting the objects of the fund.	Receive applications for funding for potential beneficiaries Selection of beneficiaries. Monitoring fund use for investment in forest plantations	Investment of fund into research and provision of technical advice. Publication of research findings and documentation of success stories. Publication of a number of beneficiaries and provision of other stakeholder information needs.	Responsible for day-to-day administration of the Fund and funding decision. Custodian of all information regarding the administration of the Fund and can decide on what to keep and/or share.
Ministry of Lands and Natural Resources (MLNR)	Operations of the Fund Board and its administration align with sector policies and strategies	Facilitated processes leading up to the promulgation of the Fund Act	Fund Act and propose legislations and directives for improving transparency in the administration of the plantation development fund.	Responsible for policy and legislative within the sector
Auditor General's Department	Promote good governance in the areas of transparency, accountability, and probity in the public financial management system of Ghana by auditing to recognised international auditing standards, the management of public resources and reporting to Parliament.		Review operations of the Fund administration and recommend options for improving resource use efficiency.	Reporting of the statement of accounts and performance, including any infractions to parliament and the general public.
Parliamentary Select Committee on Lands and Forestry	Coherent and functional sector legislations to regulate the sustainable management of sector resources		Consult stakeholders towards the establishment of subsidiary legislation to promote transparency in the administration of the plantation development fund.	Responsible for interrogating proposed sector legislations and offering consented recommendations

Public Accounts Committee (PAC)	Examine the audited accounts of government showing sums granted by Parliament to meet public expenditure and of such other accounts laid before Parliament		Interrogate audited report of the Fund Secretariat to examine how efficiently funds were utilised. Recommend practical options for improving efficiency in the allocations of the fund.	Can summon the Fund Secretariat and Board to interrogate fund administration and recollection efficiencies.
Traditional leaders and landowners	Provide land for relevant investment, including plantations development.	Providing lands for the establishment of forest plantations	Provide lands for the establishment of forest plantations. Influence decisions about transparency in the administration of the Fund	Custodians of stool lands which are usually used for forest plantations.
Plantation developers	Secure funds for plantations establishment; improve welfare through financial returns from plantations and repayment of loans procured from the administration of the Fund.	Forest plantation establishment and management. Procuring funds from the FPDF for their operations	Repayment of loans procured from the Fund.	Responsible for investment decisions, establishment, management of plantations and repayment of loans.
Forestry Commission	Promote investments in the establishment and management forest plantations; increase investments in research and development, extension, training and capacity building for forest plantation development.	Assess applicants and make funding recommendations to the Fund Board	Monitoring of investment of fund into plantation development. Alert authorities to recollect loans when plantations are established.	Legal mandate over the management of forest resources, including forest plantations.

Civil Society Organisations (NGOs and CBOs)	Efficient allocation of funds to smallholders; transparency and accountable Fund administration, improved productive landscape governance, acquisition of funds for research	Create awareness on the FPDF	Suggest legislative proposals for improving transparency in the administration of the Fund. Lobby for the implementation of transparency mechanisms by the Fund's administrators. Monitor the use of fund by beneficiaries for plantation activities. Secure the funds for research in forest plantations development.	Play watchdog role to the operation of other stakeholders.
Industry (GTMO, GTA)	Efficient use of timber export levy contributed to the Fund		Lobby for the review of the timber export levy (the primary source of money for the Fund).	Responsible for annual inflows to the fund.
SMFEs	Securing funds for plantations establishment	Establishment of forest plantations	Lobby for measures to improve Fund administration.	NA
Media (radio and television, including community information centres)	Broadcasting relevant information and garnering stakeholder support towards effective public administration	Reporting in the inauguration of successive Fund Boards	Dissemination of information from the Fund Secretariat to all stakeholders Probe the administration of the FPDF and stimulate public debate.	Influence public opinion about transparency in the administration of the Plantation Development
Agricultural Development Bank	Investment of funds accruing to the Fund; effective utilisation of loans and repayment.		Disbursement of approved grants Design mechanisms for optimal loan recovery, including publication of a list of beneficiar-	Publication of list of loan defaulters or debtors.
Academia	Funds for research; how the concept of transparency is practically implemented	Research on transparency in the administration of the FPDF	Conduct research to explore: ways for improving the productivity of plantation stands, options for viable forestry extension and technology transfer, assess the implementation of the Fund Acts and suggest options towards effective implementation.	Public discourse on transparency in the administration of public funds

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