



Ghana Cocoa Forest REDD+ Programme (GCFRP)

THE DEVELOPMENT OF GHANA'S EMISSION REDUCTIONS
PROGRAMME IMPLEMENTATION PLAN

Final Implementation Plan Report

Accra, July 2016



Ghana Cocoa Board
Poised to Maintain Premium Quality Cocoa

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Credits

Authors:

John J. Mason, Chief Executive Officer, NCRC

Rebecca Ashley Asare, Director of Programmes & Research, NCRC

Mariano Cenamo, Senior Researcher, IDESAM

Pedro Soares, Programme Manager for Climate Change and REDD+, IDESAM

Gabriel Carrero, Programme Manager for Sustainable Rural Production, IDESAM

Andrew J. Murphy, Independent Consultant, Ghana

Charles Bandari, Finance Officer, NCRC

Institutional Partnership:



Contact details:

Nature Conservation Research Center - NCRC

P.O. Box KN 925, Accra, Ghana



Contact details:

Institute for Conservation and Sustainable Development of Amazonas – IDESAM

Rua Barao de Solimões, 12 - Parque das Laranjeiras, Manaus, AM, Brazil

Phone: +55 9236425698

Website: <http://idesam.org.br/?lang=en>

Executive Summary

In April 2014, Ghana's Emission Reductions Programme for the Cocoa Forest Mosaic Landscape was formally accepted into the World Bank's Carbon Fund pipeline, opening up the possibility for Ghana to sign an Emission Reductions Purchase Agreement (ERPA) worth up to US\$ 50 million. This programme, which covers 5.9 million hectares of the High Forest Zone, represents an innovative, unique, and highly ambitious approach to reduce deforestation and degradation in a sub-national landscape of approximately 5.9 million ha.

At the end of June, 2016, Ghana's Emission Reductions Programme Document (ERPD) was submitted to the FCPF for a compliance check, and it is anticipated that following a successful review by the FCPF and the TAP, Ghana will make a formal submission to the Carbon Fund of the World Bank by late 2016. One of the main sections of the ERPD is a detailed description of the programme's Implementation Plan. This report forms the backbone of this section, as well as other key sections of the ERPD. In line with the ToR, the Implementation Plan Report specifically aims to; (1) identify key stakeholders, (2) assess the landscape, (3) recommend the main REDD+ interventions to be implemented in the ERP area, (4) conduct a risk assessment of the programme, and (5) develop a budget and financing plan for the programme.

Section 1 provides an introduction to the work. Section 2 focuses on stakeholder mapping and an assessment of the GCFRP landscape. The purpose of the stakeholder mapping was to identify key actors in the high forest zone landscape and across the cocoa sector, who have the potential to become the main implementation partners for the programme. It also sought to identify where these stakeholders are engaging and/or investing in the landscape according to administrative districts so as to identify opportunities for collaboration and for leveraging resources. Though additional stakeholders are likely to be identified over time, at present, the stakeholder mapping exercise identified 26 entities that are key stakeholders in the cocoa sector, of which 15 are active stakeholder or investors operating in 52 out of 92 districts in the GCFRP landscape. The partners Touton/PBC (and PBC/Touton) are present in 24 districts, Solidaridad is present in 21 districts, and Mondelez is present in 17 districts. Assin North and Wassa Amenfi West have the highest concentration of stakeholders (6) implementing cocoa activities, followed by Bia (5), Twifo Hemang Lower Denkyire (5), Asikuma Odoben Brakwa (4), Asunafo North (4), Atwima Mponua (4) and Juabeso (4).

Given that the team did not have access to the results of the MRV/REL consultancy, a preliminary analysis of deforestation using Hansen Global Forest Change 2011-2014 data was used. The data suggests that total deforestation across the GCFRP area was **217,137 ha** for the period 2011-2014, and annual deforestation in the GCFRP area has been increasing during this period. On a regional basis, the Western Region shows a remarkable "rocketing" trend, followed by Ashanti region. The other three regions (Central, Eastern and Brong Ahafo) appear to have kept their annual deforestation at a lower scale with only a slight increase over the period.

In terms of forest types, the moist evergreen forest has experienced the greatest total forest loss, followed by the moist semi-deciduous southeast forest subtype, the moist semi-deciduous northwest subtype, and the wet evergreen forest type. At the district level, 9 out of the 15 most deforested districts are located in the Western Region, and 5 out of the top 10 are from the Ashanti Region. These two regions are clearly facing the greatest forest loss as a result of cocoa, mining and illegal logging. A similar regional pattern was found with respect to deforestation inside of protected areas. Total deforestation within protected areas from 2011 to 2014 was 25,433 ha. Among the 15 top most deforested reserves, 6 are from Ashanti Region and 5 are from the Western region.

With respect to biomass, the total estimated aboveground live biomass of the area is 656 million mega-grams of biomass, with an average of 110.8 Mg/ha. On-reserve, the average biomass ranged from 58.1 Mg/ha to 190 Mg/ha, with a maximum biomass of 373 Mg/ha, and a minimum of 35Mg/ha, not counting 0 Mg/ha. The estimated biomass loss from deforestation for the period 2011-2014 was 22.5 million Mg of live biomass. This represents roughly 3.4% of the total biomass available in the landscape, however, it is important to mention these are only estimates that do not consider a residual carbon stock post-clearance, carbon sequestration from vegetation recovery, or partial biomass losses in converting forest types to other land uses.

In building from previous assessments of the drivers and agents of deforestation and degradation this report identified expansion and encroachment of cocoa farms, illegal small-scale mining, illegal logging, and loss of shade trees in the farming system are the main drivers of forest loss and degradation. The underlying causes of these drivers and main barriers to REDD+ broadly stems from sector policies that create perverse incentives (tree tenure policies) and promote expansion and growth with only limited regard for environmental sustainability (agriculture and mining sectors), low cocoa and agricultural productivity, increased market prices and demand (cocoa, oil palm, rubber, gold, domestic timber), lack of coordination and collaboration within and between sectors, ineffective law enforcement, and a total lack of land-use planning in rural areas.

With respect to socio-economic trends, cocoa production varies across the landscape. Quality Control Division production data was overlaid with Administrative District maps and average levels of production estimated as low (3.2 to 9.3 thousand tons of cocoa), medium (9.3 to 14.8 tons) medium-high (14.8 to 23.9 tons), and high (23.9 to 34.2 tons). The majority of districts had a low to medium level of production in 2013/2014. Most of the medium high and high production districts are located in the Western Region, or in districts that border the Western Region. In terms of population, the rural population density per km² is relatively uniform (0 to 170 individuals/km²) across the GCFRP landscape, with the exception of six districts that border Kumasi, and two districts in the Eastern Region that have relatively high population densities (170 to 792 individuals/km²).

By assessing the patterns and trends related to deforestation, cocoa production, drivers of deforestation, the potential scale of impact, and the presence of stakeholders, 9 possible Hotspot Intervention Areas (HIAs) were identified. These HIAs include 23 districts and together cover 2.4 million hectares. It is recommended that 6 HIAs are selected, following consultations, to serve as the priority areas for immediate concentrated interventions at the farm to landscape level.

Section 3 provides an overview of the main interventions and associated activities that will be implemented to set the programme in motion and enable it to achieve its goals. These interventions and activities are organized according to the programme's 5 main pillars: A) Institutional Coordination and MRV; B) Landscape Planning within HIAs; C) Increasing Yields via Climate-Smart Cocoa; D) Risk Management and Finance; and E) Legislative and Policy Reforms. These pillars are based on the original pillars described in Ghana's ER-PIN, but reflect a new degree of thought and experienced reflection on what it will take to make the GCFRP implementable and successful. In implementing the Plan in approximately 5 to 6 HIAs, it is estimated that Ghana could produce 4-5 million tCO₂e over the first 5 years of the program. This estimate, however, was made in the absence of a reference level and such impacts could prove more challenging if it is found that the current deforestation rate far exceeds the historical reference level.

It is estimated that the total cost of setting up and operating the GCFRP over its first 5 years is US\$ 199,347,250. Of this, it is anticipated that the programme will generate approximately US\$ 47,982,250 in revenue from emission reductions. Assuming that Ghana signs an ERPA in 2017, this

budget covers the period 2017- 2021. It is expected that funding for the implementation of the GCFRP will come from a mix of sources: REDD+ funds (24.1%), private sector and Cocoa Board investment (72.3%), Government of Ghana (0.3%), and donor grants (3.4%).

This report assessed the GCFRP's risk, and determined that it can be rated as moderate with an average risk rating of 2.3. The programme is innovative and potentially transformative for the high forest zone of Ghana, but it will face risks in successfully achieving the planned results, particularly with respect to the design and implementation of sector strategies and policies, technical design of the programme, institutional capacity and fiduciary management. In other five other categories, however, the risk is only rated as low to moderate.

The GCFRP presents a globally unique, ambitious, and exciting opportunity to reduce deforestation, increase cocoa farm resilience, produce climate-smart cocoa beans, and in doing so establish multiple avenues to significantly improve farmers' livelihoods and well-being across the cocoa forest mosaic landscape. To achieve this vision, a positive and innovative model of collaborative engagement and synergistic investment between government institutions, private sector companies, and civil society organizations at sub-landscape scales has been proposed. Focused round hotspot landscapes of deforestation and cocoa production, it is proposed that a consortium of stakeholders agree to work together towards a set of collective landscape goals, including reducing deforestation and increasing cocoa farmers' yields.

However, to achieve success, an enabling policy environment must be effected with respect to tree tenure reforms, the clarification of carbon rights, and the opening up of benefit sharing schemes in order to incentivize new actions and behaviors. For the GCFRP to achieve emission reductions, the lead government institutions, including the FC, the MLNR, and Ghana's Cocoa Board must demonstrate, through clear actions and a transparent discourse, that they are committed to bring about these types of reforms and that they will fully support implementation of such reforms on the ground. Sadly, Ghana's environmental and NRM sectors have suffered from a long history of talking about policies, analyzing policies, reviewing policies, and redrafting policies, with very limited evidence of any effort to try new arrangements and effect real and lasting changes on the ground. If an enabling policy environment is not established in the near future, and if scope is not made to implement these changes in the HIAs, then the future success of the programme will be at stake.

The report concludes by making five specific recommendations:

1. *Achieving policy reform:* One opportunity to fill the confidence gap and to create the enabling environment would be to establish a working group of government representatives from the three institutions to debrief stakeholders on each institutions' status and intentions with respect to their respective policy reforms, to outline a pathway to "auctioning" the reforms, and to commit to open meetings with stakeholders on a quarterly basis to provide progress reports and receive input.
2. *Implementing policy reforms:* With respect to implementation of reforms, we propose that the HIAs are used as landscapes for testing new tree tenure and benefit sharing arrangements, and for testing new cocoa input supply systems.
3. *Addressing illegal mining:* It is recommended that an early learning and testing site be established, as part of and possibly distinct from the HIAs, to facilitate a study of the main actors and factors driving the conversion of cocoa lands and forests into illegal gold mines. It is also recommended that the early lessons that will come from implementing the HIAs should be used to consider an adapted model to address illegal gold mining. Wassa Amenfi West and Wassa Amenfi Central would be ideal locations for such a site due to the presence of key

stakeholders, like IUCN Ghana, the surge in galamsey mining in recent years, and the importance of cocoa farming in the districts.

4. *Other tree crops*: Depending on where the HIAs will be located, there is an opportunity to work to integrate an oil palm estate, rubber estate, palm oil company, or rubber company into one of the HIA consortiums to work on related tree crop issues within the landscape. This could result in the development of a climate-smart oil palm or rubber product, similar to that of climate-smart cocoa. It may be that this is not possible at the start, so other tree crops should be specifically targeted for the second phase of implementation.
5. *Fund management*: It is recommended that an independent fund manager is employed to manage any carbon revenue that is intended to be shared as “benefits”, either in-kind or as cash, as a localized PES scheme.

1. Introduction

1.1 Context for this Implementation Plan

Ghana's National REDD+ Strategy states that Ghana will implement REDD+ at a national scale, but that it will implement concerted actions and activities at sub-national, landscape scales that are defined by ecological boundaries that align with major commodities and drivers of deforestation and degradation. These sub-national programmes will be nested within and benefit from national initiatives and systems, like tree tenure reform, MMRV, and safeguards. The strength and opportunity associated with Ghana's national-jurisdictional approach to implementation is that it leverages the accounting and monitoring efficiencies that come from using a single set of systems and processes, with catalyzing the collective, landscape-scale impacts that can only derive from cross-sector collaboration, private sector participation, and community-based mobilization.

In April 2014, Ghana's Emission Reductions Programme for the Cocoa Forest Mosaic Landscape was formally accepted into the World Bank's Carbon Fund pipeline, opening up the possibility for Ghana to sign an Emission Reductions Purchase Agreement (ERPA) worth up to US\$ 50 million. This programme represents an innovative, unique, and highly ambitious approach to reduce deforestation and degradation in a sub-national landscape of approximately 5.9 million ha (Figure 1). The programme goal is to significantly reduce emissions driven by cocoa farming and other agricultural drivers, as well as illegal logging and illegal mining, in a manner that will secure the future of Ghana's forests, significantly improve incomes and livelihood opportunities for farmers and forest users, and establish a results-based planning and implementation framework through which the government, the private sector, civil society, traditional authorities, and local communities can collaborate.

Ghana's Emission Reductions Programme Document (ERPD) was submitted to the FCPF for a compliance check in late June (2016), and it is expected that this will be followed by a technical advisory panel (TAP) review and then final submission to the Carbon Fund of the World Bank by late 2016. One of the main pieces of work that was needed to enable the submission of the ERPD was the development of an "Implementation Plan" for the Ghana Cocoa Forest REDD+ Programme (GCFRP). Though Ghana's ER PIN provides a preliminary list of the key agencies, organizations, and companies to partner the programme, and though it lays out a set of clear actions and activities to be implemented in concert, a more detailed strategy to guide implementation is required. This document provides the full details of this critical plan.

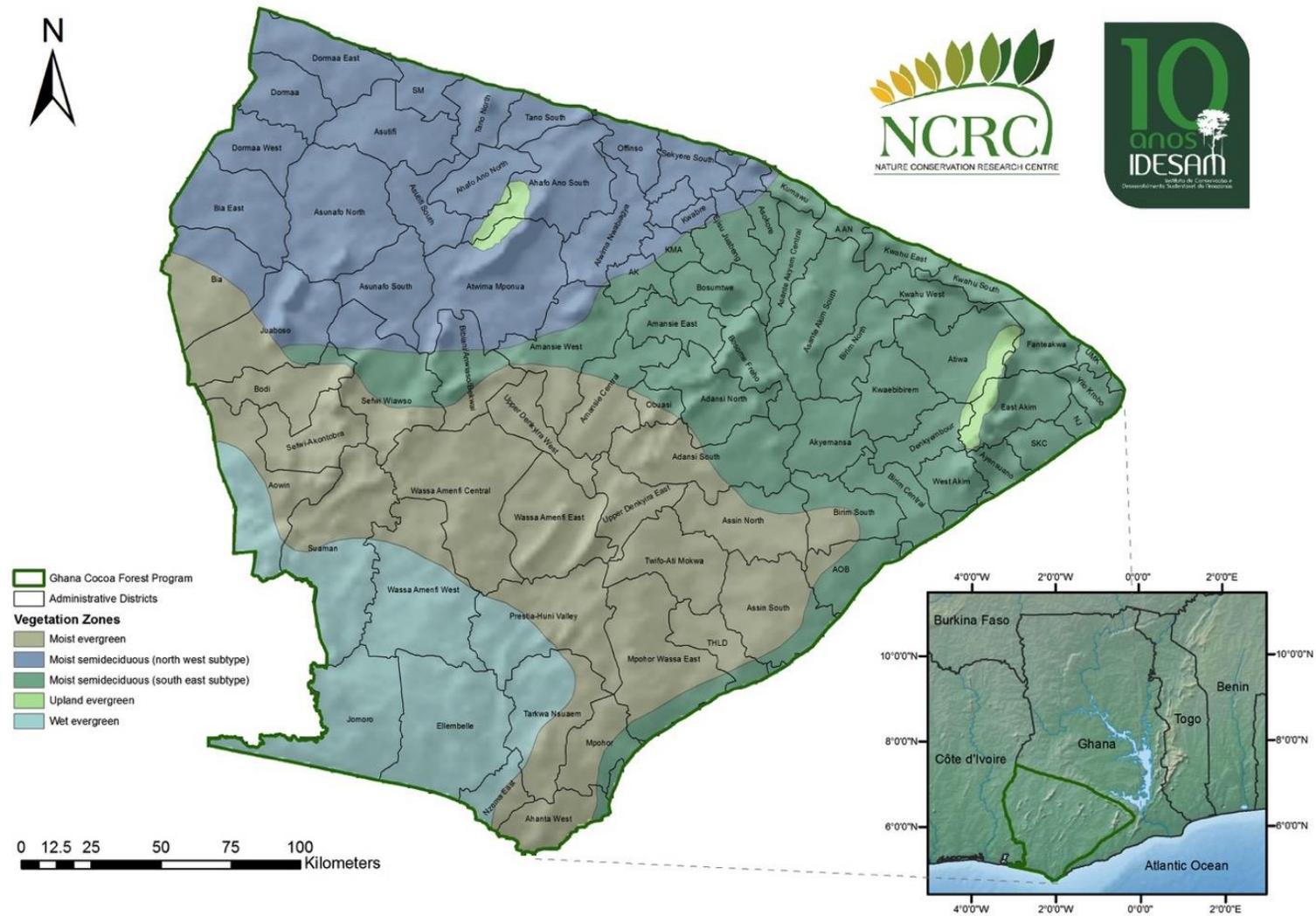


Figure 1. Ghana Cocoa Forest REDD+ Programme boundaries, forest types, and administrative districts within the area.

1.2 Scope of Work for Drafting Team

The scope of work for the drafting team consisted of three main elements:

- Identification and Assessment of REDD+ Interventions in ERP Area including:
 - Analysis to identify priority interventions and incentives needed to deliver Emission Reductions (ERs),
 - Estimation of the potential carbon impact (per ha and/or per \$) of the proposed implementation activities,
 - Preliminary cost assessment of implementation costs,
 - Inventory of actors, expertise and on-going activities and map their geographic locations.
 - Identification of hotspots of deforestation based on historical analysis from the Reference Level, as well as identification of potential future hotspots, and overlay with the map of actors to show synergies and potential gaps,
 - Description of existing/needed commitments from the government and programme actors to create an enabling environment and work with Government to identify the needed institutional arrangements and coordination mechanism to support implementation,
 - Finalize priority interventions and incentives needed to deliver Emission Reductions and identify gaps and additional activities needed to complement proposed/ongoing initiatives.
- ER Programme Risk Assessment including:
 - Identification of potential risks of the programme including the risk of displacement and reversals in the Accounting Area and assess the impact of these risks on the implementation of the ERP,
 - Develop a risk chart/map of the targeted areas for the programme,
 - Suggest practical mitigation actions for the identified risks,
 - Recommend a mechanism to be put in place to monitor and report any reversals of previously reported ERs.
- Cost Assessment, Budget and Financial Plan including:
 - Propose options for leveraging funding for the ERP, including identify actors who can support the initial investment of the ERP and potential business case,
 - Develop a plan on funding required for the programme and the targeted activities which this funding will support and describe the outputs and outcomes to be realized from these investments,
 - Estimate costs and benefits of the ER programme (calculation of the Net Present Value (NPV)) to determine the viability of the programme and help inform ERPA negotiation. To include: a) Opportunity, implementation, transaction and institutional costs, NPV of the uses of land on REF scenario and ERP scenario; b) Economic valuation where feasible and non-economical valuation of non-carbon benefits which will accrue,
 - Draft the Cost Assessment, Budget and Financial Plan sections of ERPD

This final report of the Implementation Plan report captures all of the main deliverables and pieces of work bulleted above. It is important to note that because the programme's forest reference level was being developed at the same time under a consultancy with Winrock, the NCRC-IDESAM team did not have access to important data and information, including historical rates of deforestation or land use change maps that showed hotspots of deforestation. Therefore, the NCRC-IDESAM team took independent steps to fill these gap so as to be able to complete this assignment.

1.3 Assignment deliverables and dates

This report represents the 6th and final output under NCRC’s contract with the Forestry Commission on the Implementation Plan. Table 1 (below) shows the time-frame in which work progressed and was delivered.

Table 1. Consultancy deliverables and dates.

Deliverable	Time Frame	Comments
1. Inception Report	Week of February 15 th	Delivered
2. Preliminary Report Identifying REDD+ Interventions in the ERP area	Week of March 7 th	Delivered
3. Draft Implementation Plan and Risk Assessment	Week of May 23 rd	Delivered
4. Consultation Meetings	June 7 th : Cocoa Board & Cocoa Private Sector June 14 th : Forestry Commission, NGO and development partners	Completed
5. ERP Cost Assessment, Financial Plan and Budget	Week of May 23 rd	Completed and included in Final Report
6. Final Report	Week of July 25 th	Delivered

2. Assessment of GCFRP Landscape

The GCFRP boundaries were defined using the boundaries of the vegetation zones that make up the High Forest Zone (HFZ), including the wet evergreen, moist evergreen, moist semi-deciduous north-west sub-type and south-east sub-type, and the upland evergreen (Figure 1). The GCFRP landscape was then overlaid with the Administrative Districts (and at times the Administrative Regions) to establish areas and units for analysis and future implementation (Figure 2). The entire area of the GCFRP is 5.92 million hectares and encompasses 92 administrative districts and five regions—Ashanti, Brong Ahafo, Central, Eastern and Western.

The purpose of this assessment was to understand major trends and patterns in the landscape related to deforestation and cocoa production, and use this to help identify potential Hotspot Intervention Areas (HIA) that are based on an assemblage of administrative districts where the data suggests that impacts can be made to reduce emissions and achieve important cocoa production and livelihood co-benefits.

This section therefore outlines the main methods used. It then shows the outcome of the stakeholder mapping process, the results of a deforestation analysis across the GCFRP area, and a description of the patterns of cocoa production and rural population density.

2.1 Methods

This document presents a draft plan for reducing emissions in the GCFRP landscape. The interventions and activities that are described were developed based on the team’s knowledge of the REDD+ process in Ghana and internationally, knowledge of cocoa farming and the cocoa farming sector, and knowledge of other key environmental issues and stakeholders in the landscape. This analysis was then further revised and refined by secondary data that was initially provided by the Forestry Commission, the Ghana Cocoa Board, and the Nature Conservation Research Centre, and then processed using a Geographic Information System. As a final step, consultations were held with a broad range of stakeholders, including Ghana’s Cocoa Board, the cocoa private sector, Forestry Commission, other government agencies, and the main NGO, development and research partners to ensure their understanding, generate feedback, and garner support.

Ideally, the data and maps on land use change and biomass should have come from outputs of the on-going MRV/REL work, which is being conducted by Winrock for the NRS. However, because the two consultancies were happening at the same time and both were working towards the same completion time-frame (submission of the ERPD in late June), it was not possible to wait for the MRV/REL work to be completed before carrying out this analysis. The outputs from this GIS based analysis, coupled with the team’s extensive experience provided the necessary information and experience based context with which to identify and assess REDD+ interventions in the GCFRP area. The shapefiles, sources, and details of the data that were used are described in the Table 2.

Table 2. Sources of information used for producing the dataset of HIA assessment.

	Layer Information	Source & Detail	Scale
1	Administrative District Units	Break down of metropolitan, municipal and district assemblies in Ghana. Provided by Forestry Commission to NCRC. The team opted to use the Admin District as the scale of analysis because it is recognized and used by all stakeholders, aligns with the local level of governance, and cuts across the other varied operational and management boundaries used by the FC (Forest Districts) and Cocoa Board (Quality Control Districts, Operational Districts).	Information provided in table-sheets by district
2	Vegetation Zones	Provided by Forestry Commission to NCRC	Unknown
3	Population (Rural and Urban) Data by administrative districts	Provided by Forestry Commission and sourced from Ghana Statistical Service 2010 Population & Housing Census District Analytical Reports, 2014, available at: www.statsghana.gov.gh . The available data was focused on population by region, district, locality of residence, age groups and sex in the Census year 2010.	Information provided in table-sheets by district
4	Land use change maps 2011-2014	Global Forest Change 2011-2014: Hansen/UMD/Google/USGS/NASA We are aware that the Hansen data is likely to be oversensitive to deforestation due to the extensive cloud	1 arc-second per pixel, or approximately 30

		cover over Ghana and difficult of getting cloud-free images, and the inconsistency in dates of clean images. Therefore, we are less interested in stressing the actual numbers (ha)/scale of deforestation than in using this data to identify broader trends and locations of major incidences of forest loss.	meters per pixel at the equator line.
5	Land use change maps 2000-2010	Provided by Forestry Commission of Ghana. Developed as part of the Forest Preservation Programme; an grant to the Republic of Ghana from the Government of Japan.	1:900,000
6	Biomass map	National dataset of Aboveground Live Woody Biomass Density, 2012. available at: whrc.org/mapping/pantropical/carbon_dataset.html	500m x 500m
7	Cocoa production estimates by Administrative districts (Ranked as high, medium-high, medium, and low).	Information provided by Cocoa Board in excel tablesheets according to Quality Control Division (QCD) districts and adapted by NCRC into Administrative Districts	Information provided in table-sheets by QCD Cocoa District.
8	Total deforestation estimates per Cocoa District	Produced by Winrock, following Cocoa District boundaries, using draft results from deforestation assessment.	Information derived from Ghana activity data in excel table sheets and QCD shape files
9	Stakeholders participation list by administrative district	Produced by NCRC, based on feedback from stakeholders and secondary sources	Table-sheets by district

2.2 Stakeholder mapping

The purpose of the stakeholder mapping was to identify key actors in the high forest zone landscape and across the cocoa sector, who have the potential to become the main implementation partners for the programme. It also sought to identify where these stakeholders are engaging and/or investing in the landscape according to administrative districts so as to identify opportunities for collaboration and for leveraging resources. The NCRC-IDESAM team recognizes that this is not a complete list in the sense that *new* stakeholders and partners will continue to be identified and incorporated into the programme. And further, that a more comprehensive assessment rests upon the full participation of stakeholders and their willingness to share information. However, in drafting the Implementation Plan, stakeholder mapping was a valuable exercise in that it provides an important look at where companies and NGOs tend to be focusing their resources on the ground, which companies and NGOs are working together, where there are potential gaps in the landscape, and how these activities overlap, or not, with areas of deforestation. Perhaps most importantly, because there is no pot of funds to support the implementation of the GCFRP, the programme will rely heavily on cocoa sector stakeholders to fund and carry out many of the interventions needed to produce emission reductions. Therefore, knowing where the main stakeholders are already working, where they are not working,

as well as who could work together were all important considerations in delineating HIA landscapes and HIA consortiums.

The stakeholder mapping exercise initially identified 20 entities that are key stakeholders in the GCFRP landscape and in the cocoa sector and following this consultation, the number grew to 26. The results show that some of these organizations maintain a strong, higher level influence on the sector, but are not currently engaged in project-based activities, an example being the World Cocoa Foundation (WCF) and its African Cocoa Initiative. Other organizations and companies, however, are very active and well-funded, either through their own resources (e.g. Licensed Buying Companies and processors like Ecom, Olam, and Touton), or as a result of donor funding (IUCN-Ghana, Solidaridad, Agro Eco) or private sector partnerships (Cocoa Abrabopa Association). Though too long to include in the main body of the report, Table 7.1-2 in Section 7.1 of the Annex provides a description of all of these organizations, their main activities, and their main partners and donors.

Of these, 15 organizations were identified as being active and operational in 52 out of 92 districts of the GCFRP. The actual number is likely to be significantly higher. The consortium Touton/PBC (and PBC/Touton) are present in 24 districts (combined), Solidaridad is present in 21 districts, and Mondelez is present in 17 districts, as listed in Table 3. Secondary data suggests that Cocoa Abrabopa Association has priority operations occurring in at least 9 districts, but their presence actually extends across all Cocoa Districts (different from Admin Districts). Other entities, like IUCN Ghana or Yayra Glover Ltd. have chosen to focus in only a few districts, but their engagement has been sustained over a long period of time.

Figure 3 shows that Bia, Assin North, Wassa Amenfi West, and Twifo Hemang Lower Denkyire districts have the highest concentration of stakeholders implementing cocoa activities or related initiatives. It is interesting to note that these districts also have high to moderately high levels of deforestation.

Some districts, on the other hand, appear to lack any stakeholder (based on existing information); particularly those in the southwest, which also has some of the highest deforestation rates for the 2011-2014 period. Among the top ten most deforested districts, Prestia-Huni Valley (1st), Ellembelle (2nd), Mpohor (8th) and Tarkwa Nsuaem (9th) were not found to have major cocoa stakeholders operating, though this may change as more information becomes available. These districts are also noted to be major mining areas, where galamsey has become a significant issue in the landscape and not only threatens the forests but also poses a serious threat to cocoa production as many farms are converted into small scale mining sites.

Table 3: Organizations and companies identified to be engaging in cocoa sector activities and the number of districts in which they operate

Companies / Organization	No. District
Touton/PBC or PBC/Touton: Touton is an international commodity company that processes cocoa beans and PBC is the largest LBC in Ghana. The two companies teamed up on programmes to improve farmers' well-being improved farming practices and yields, and through greater professionalization and sustainable management of the landscape via a climate smart cocoa.	24
Solidaridad: an international Dutch NGO, with Ghana as West Africa base, that focuses on green commodity supply chains. It is well funded and focused on certification, best practices, access to farming resources, and rehabilitation of old farms.	21

Mondelez: an international chocolate company investing in and implementing the Ghana Cocoa Life programme, which focuses on farming, community, youth and the environment.	17
Ecom: An international commodity company that operates as an LBC and processor of cocoa in Ghana. Ecom invests in farmer programs on certification, traceability, access to farming resources, and access to drinking water sources and bednets.	13
CAA: a cocoa farmer association that trains farmers in GAP, certification, and business skills to improve yields and make farming more of a business.	9
Cargill: an international processing company, Cargill has been sourcing cocoa from Ghana for over 40 years and in 2008 opened a cocoa processing plant. The Cargill Cocoa Promise supports farmers in Ghana to increase their incomes and improve primary education.	7
Conservation Alliance: a Ghanaian environmental NGO that specializes in conservation initiatives and the implementation of cocoa certification programs and best practices.	7
A Rocha Ghana: Arocha Ghana has a strong focus on districts in the Eastern Region that surround the Atewa Forest Reserve Range, with a focus on preservation of forest ecosystem services and restoration of degraded lands.	6
Olam: an international commodity company that operates as an LBC and processor in Ghana. It prioritizes investments in certified, sustainable cocoa production with support to projects focused on climate smart cocoa.	5
Agro Eco: a Dutch environmental NGO that specializes in cocoa farmer certification, including RA and Organic.	4
Yayra Glover Ltd: a licensed buying company operating in the Eastern region that recruits and trains farmers in organic practices, and then purchases organic cocoa beans.	3
IUCN Ghana: IUCN Ghana supports CREMAs in Western Region where cocoa farming is the dominant farming activity. Projects focus on REDD+ and landscape conservation mechanism.	2
SNV: an international Dutch environmental NGO with project funding to implement two projects in areas of the HFZ on cocoa and REDD+.	2
Transroyal:	2

*Following the consultation, additional companies were identified and are included in Table 7.1.1 and 7.1.2 in the Annex.

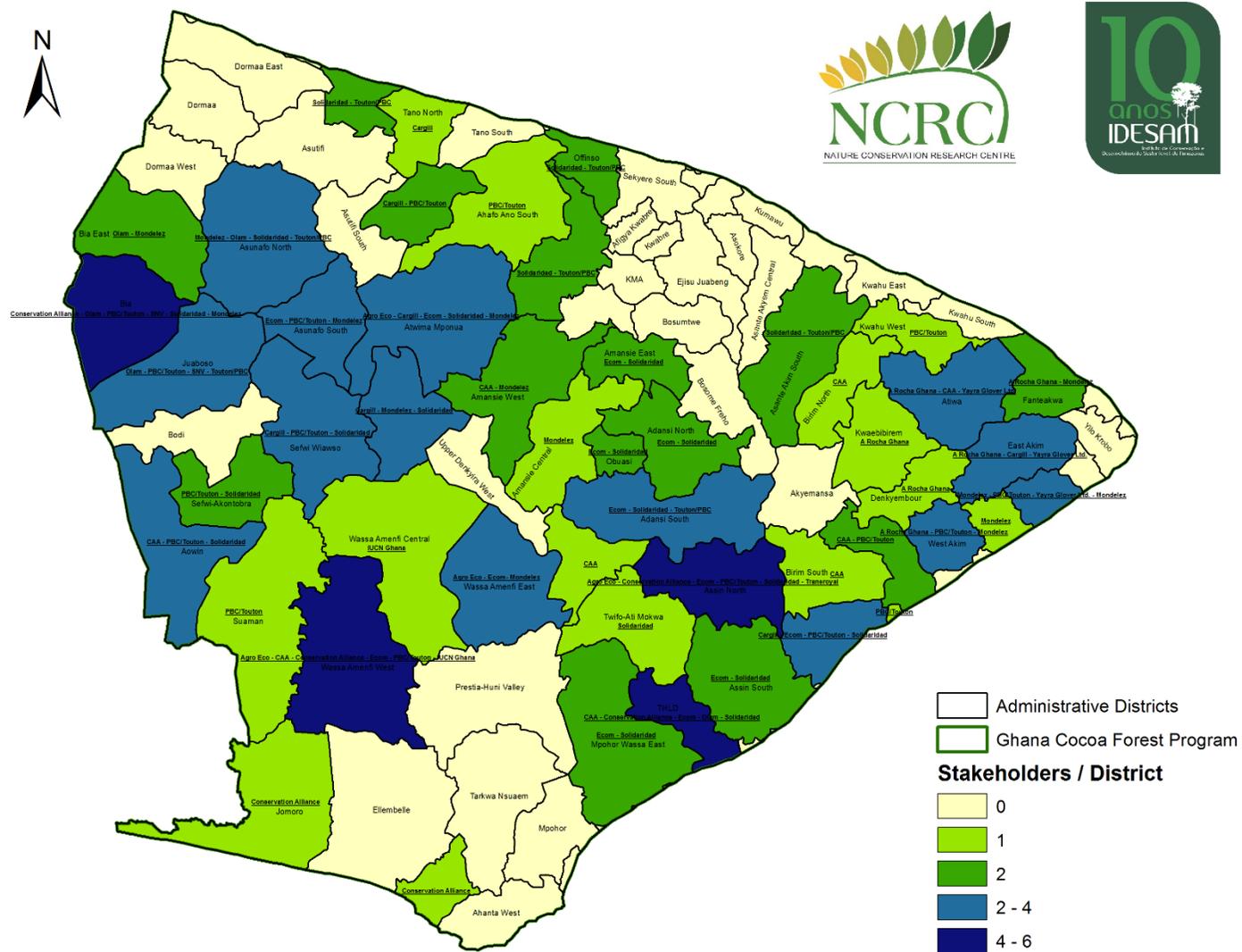
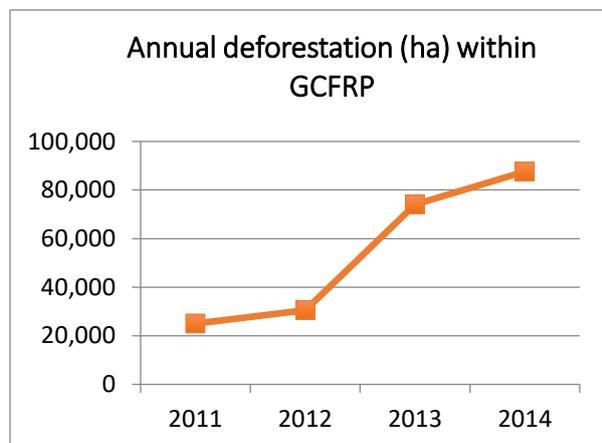


Figure 3. Number of stakeholder engaging in cocoa activities in districts within the GCFRP area.

2.3 Deforestation Analysis

A preliminary analysis using Hansen Global Forest Change 2011-2014 data shows that total deforestation across the GCFRP area was **217,137 ha** for the period 2011-2014. Based on this analysis, annual deforestation in the GCFRP area has been increasing with a marked increase after 2012 (Figure 4). The maps in Figure 6 capture this trend and show the main areas where forest loss has occurred.



On a regional basis, the Western Region shows a remarkable “rocketing” trend, followed by Ashanti region. The other three regions (Central, Eastern and Brong Ahafo) appear to have kept their annual deforestation at a lower scale with only a slight increase over the period (Figure 5).

Because the deforestation analysis is based upon a global forest change dataset, it is possible that it has overestimated forest loss in Ghana due to the complex nature of the mosaic landscape. For example, it is very possible that

Figure 4. Annual deforestation (ha) within the GCFRP area

the Hansen data does not adequately distinguish tree crops, like cocoa, from intact forest. On the other hand, the Hansen data may underestimate deforestation if based upon a lower forest definition threshold. In addition, Ghana has a high frequency of cloud cover, which makes it very difficult to obtain cloud free images, which would distort forest loss.

Nonetheless, the deforestation analysis is valuable because it does show trends, which are substantiated by strong anecdotal evidence, and it pinpoints key geographic locations where forest loss is likely to have been the most intense and therefore significant. For example, it shows areas of intensive deforestation in southern Western Region and in Ashanti Region, and this coincides with observed trends in the landscape. Furthermore, because this dataset also fails to capture degradation, which is thought to be causing significant emissions in Ghana, there is also the possibility that in some locations it may be under-estimating emissions.

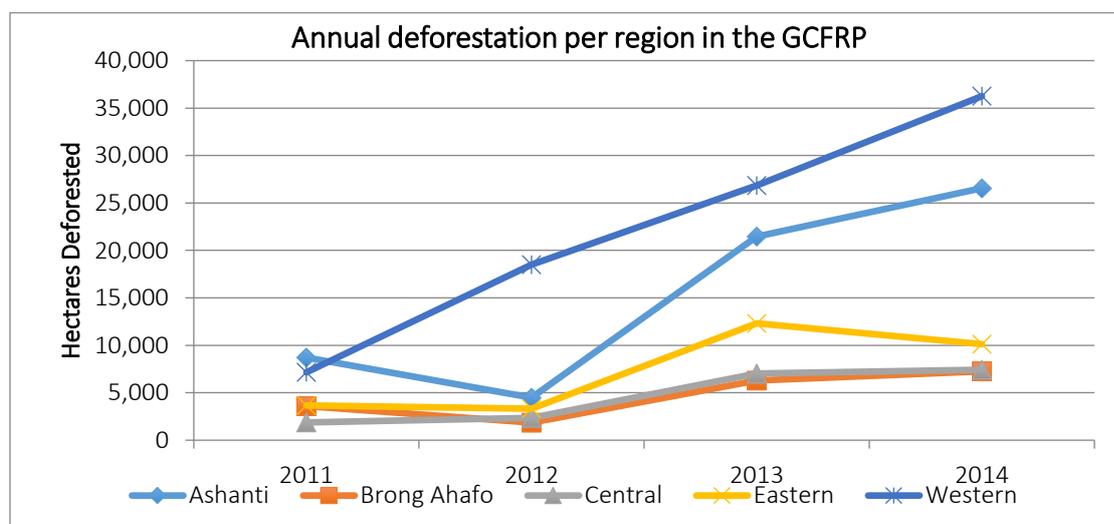
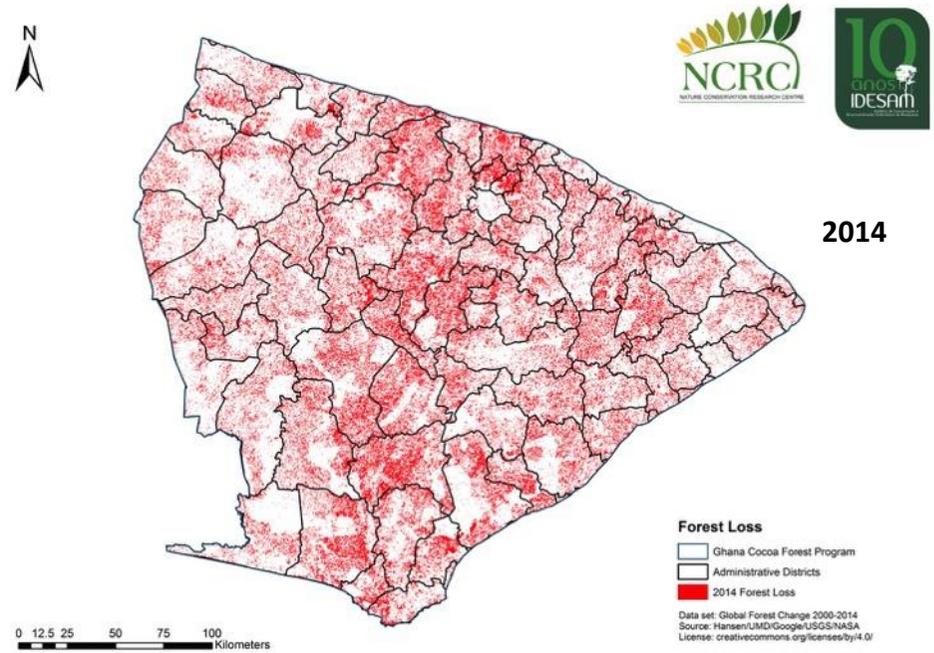
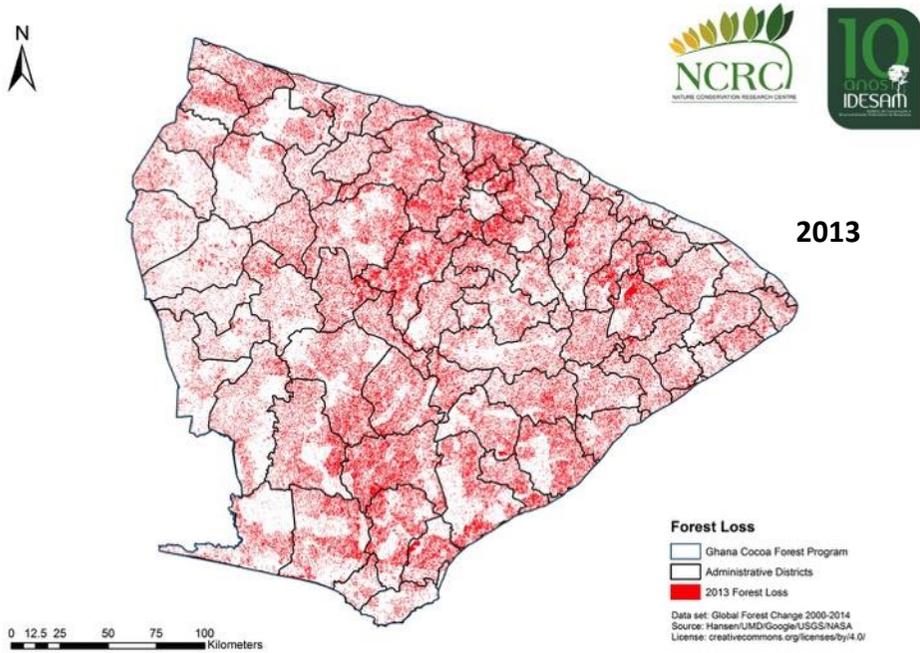
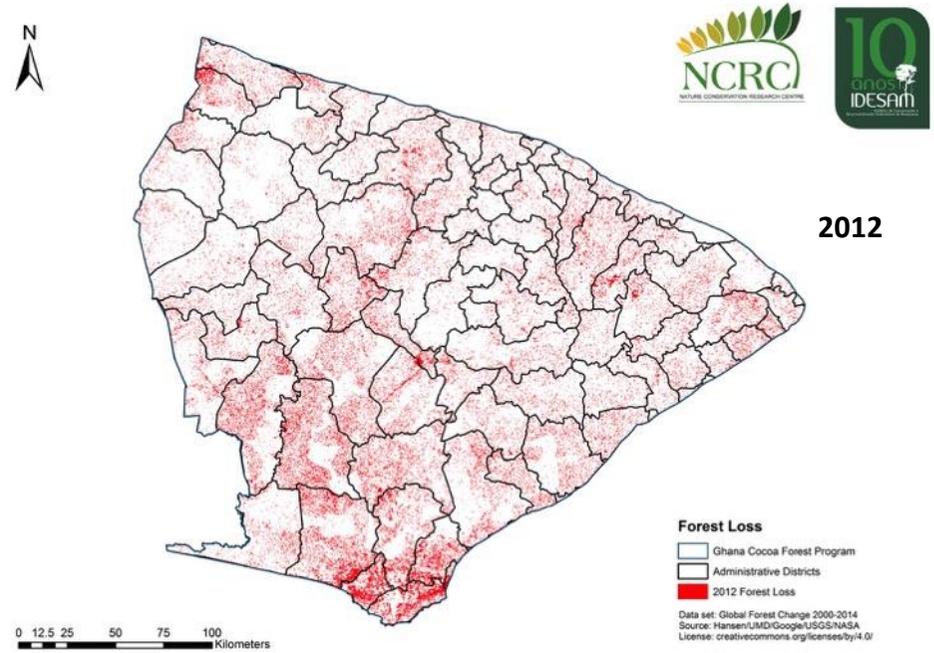
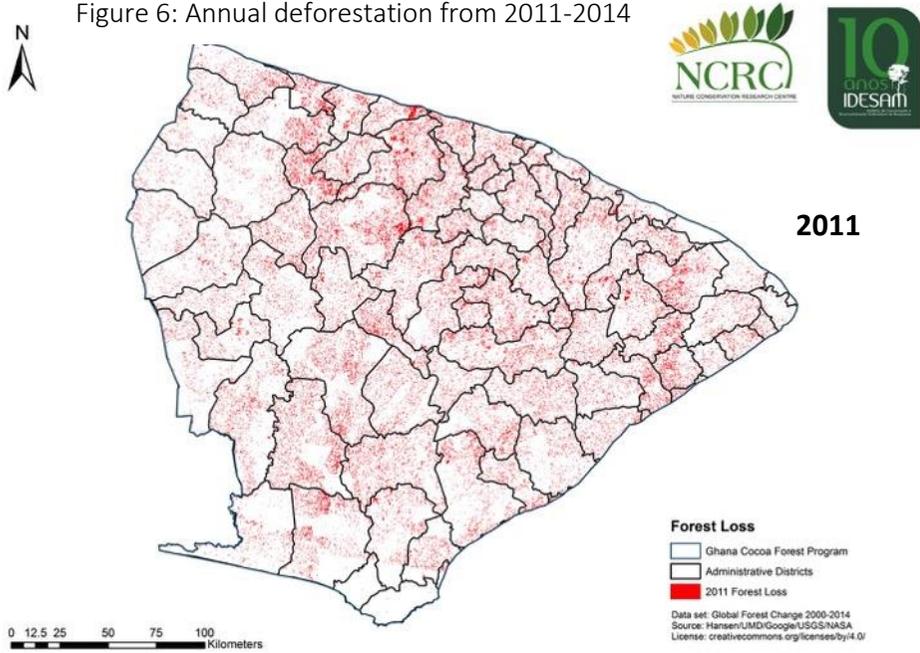


Figure 5. Annual deforestation (2011-2014) per region within the GCFRP area.

Figure 6: Annual deforestation from 2011-2014



The Figure 1 map was used to clip the forest loss land use change maps (2011-2014) to generate annual deforestation per vegetation zone as show in Table 4. The moist evergreen forest has experienced the greatest total forest loss, followed by the moist semi-deciduous southeast forest subtype, the moist semi-deciduous northwest subtype, and the wet evergreen forest type. The upland evergreen forest has experienced the least total forest loss, both in terms of total area and percent of area.

Table 4. Vegetation zones total area, annual forest loss, and total forest loss between 2011-2014 and loss as percentage of area.

GCFRP Vegetation Zones Forest Loss							
Forest Type	Total Area (ha)	2011	2012	2013	2014	Total	%
Moist evergreen	1,833,050	5,580	11,038	21,782	29,396	67,796	3.7%
Moist semideciduous (northwest subtype)	1,559,008	8,773	4,423	16,581	20,828	50,605	3.2%
Moist semideciduous (southeast subtype)	1,727,347	7,784	7,040	25,764	26,641	67,228	3.9%
Upland evergreen	62,599	243	135	583	813	1,774	2.8%
Wet evergreen	737,943	2,642	7,907	9,248	9,939	29,735	4.0%
Total	5,919,948	25,021	30,542	73,957	87,616	217,137	3.7%

Figure 7 (below) shows the annual deforestation area of the 15 most deforested districts in the GCFRP landscape during the same period. In corroborating the data per region, 9 out of 15 most deforested districts are from the Western Region, and 5 out of the top 10 are from the Ashanti Region. These two regions are clearly facing the greatest pressure for forest loss.

With exception of Tarkwa Mponua, Kwaebibirem, Atwima Nwabiagya and Asante Akim South, which have the greatest forest loss occurring in 2013, the rest of the 15 top most deforested districts experienced their highest forest loss in 2014 (Figure 5). A table showing annual forest loss per year (2011-2014) in the top 30 most deforested districts is available in Table 7.2-1 in the Annex to the Deforestation Analysis.

Total deforestation within protected areas from 2011 to 2014 was 25,433 ha. The same pattern was observed as in the districts. Figure 8 shows the top 15 most deforested reserves, led by Subri River Reserve which lost about 2,400 ha in 2014, and Jimira Extension Reserve which had 30% of its total area deforested in the time period. Among these 15 top most deforested reserves, 6 are from Ashanti Region (total reserve area of 93,293ha) and 5 from the Western region (total reserve area of 146,636ha). The total deforested area within the reserves was higher in the Western region (6,853 ha) compared to the Ashanti region (5,759 ha) for the period analyzed. Figure 9 maps total deforestation in the reserves and protected areas across the time period.

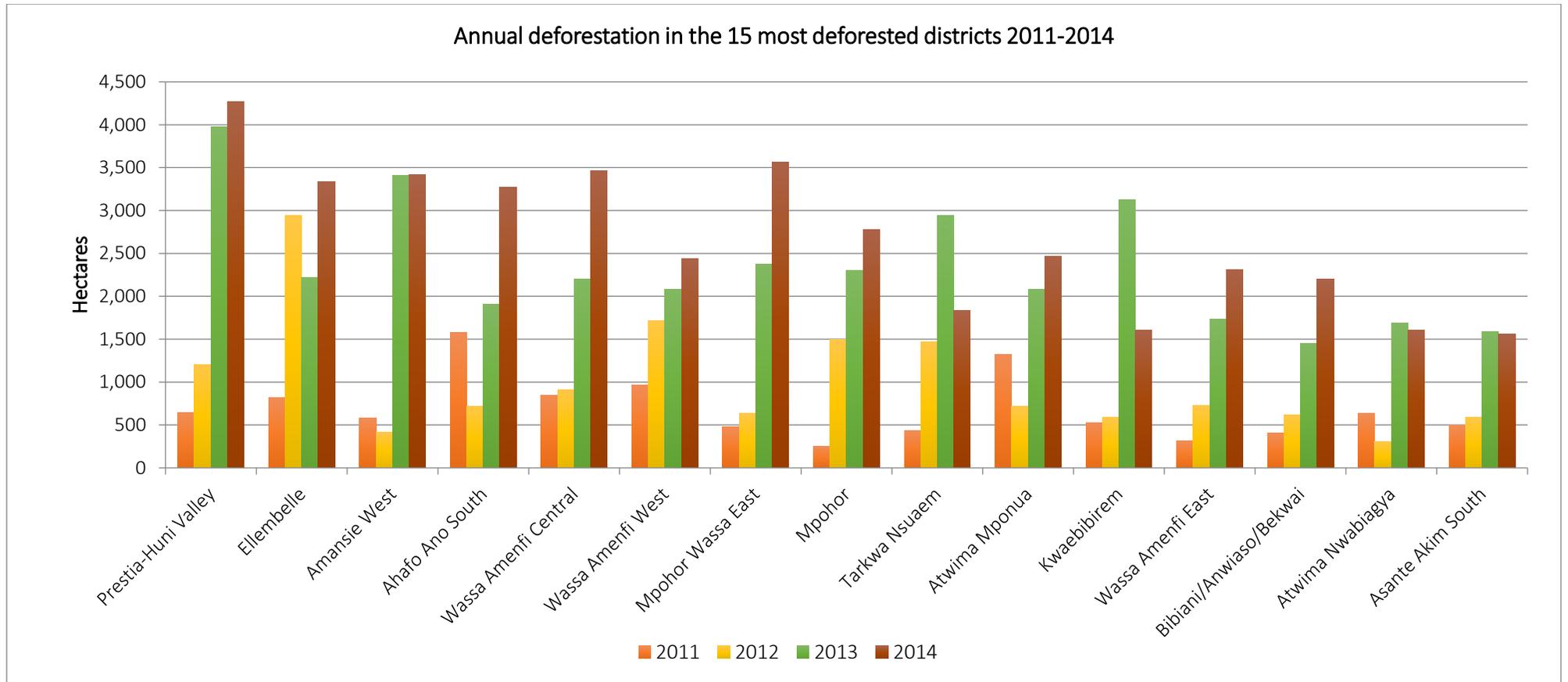


Figure 7. Annual deforestation on the 15 most deforested districts in the 2011-2014.

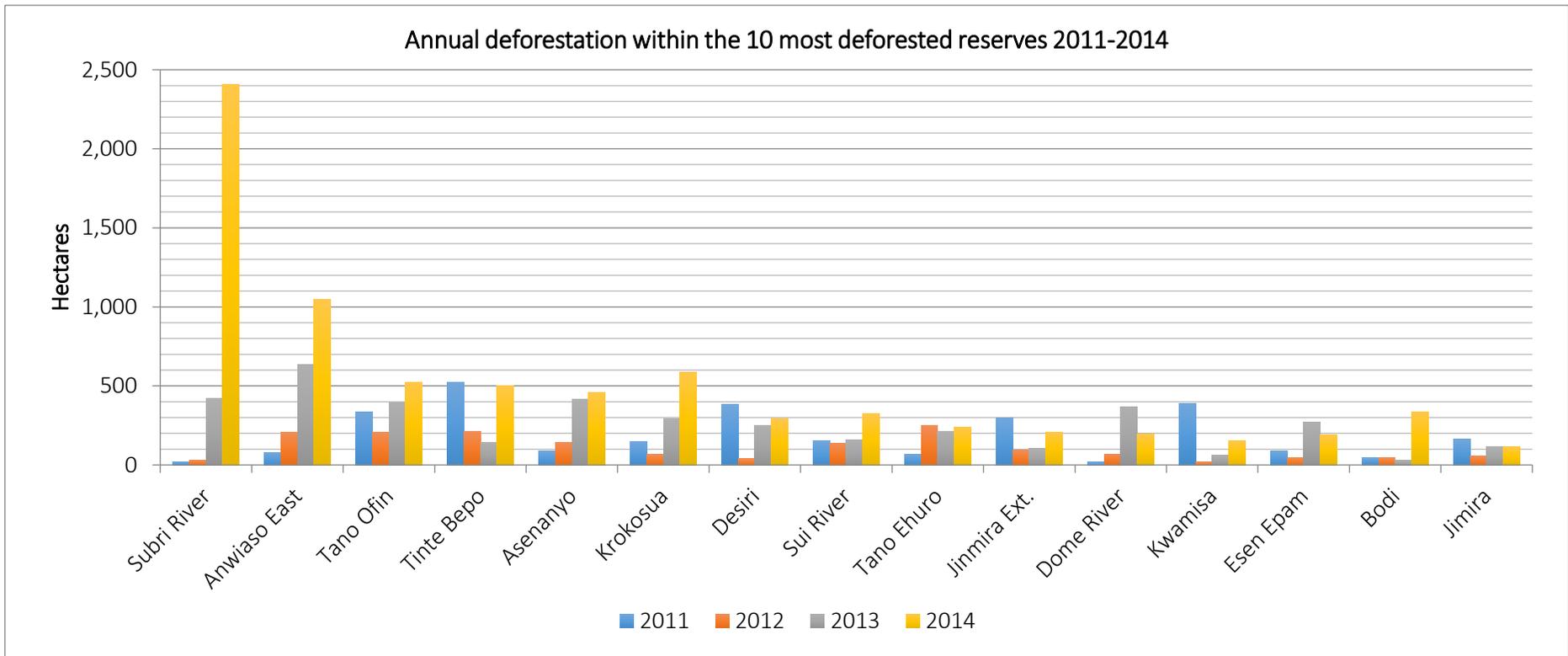


Figure 8. Annual deforestation within the top 15 most deforested reserves within the GCFRP area for the 2011-2014 period.

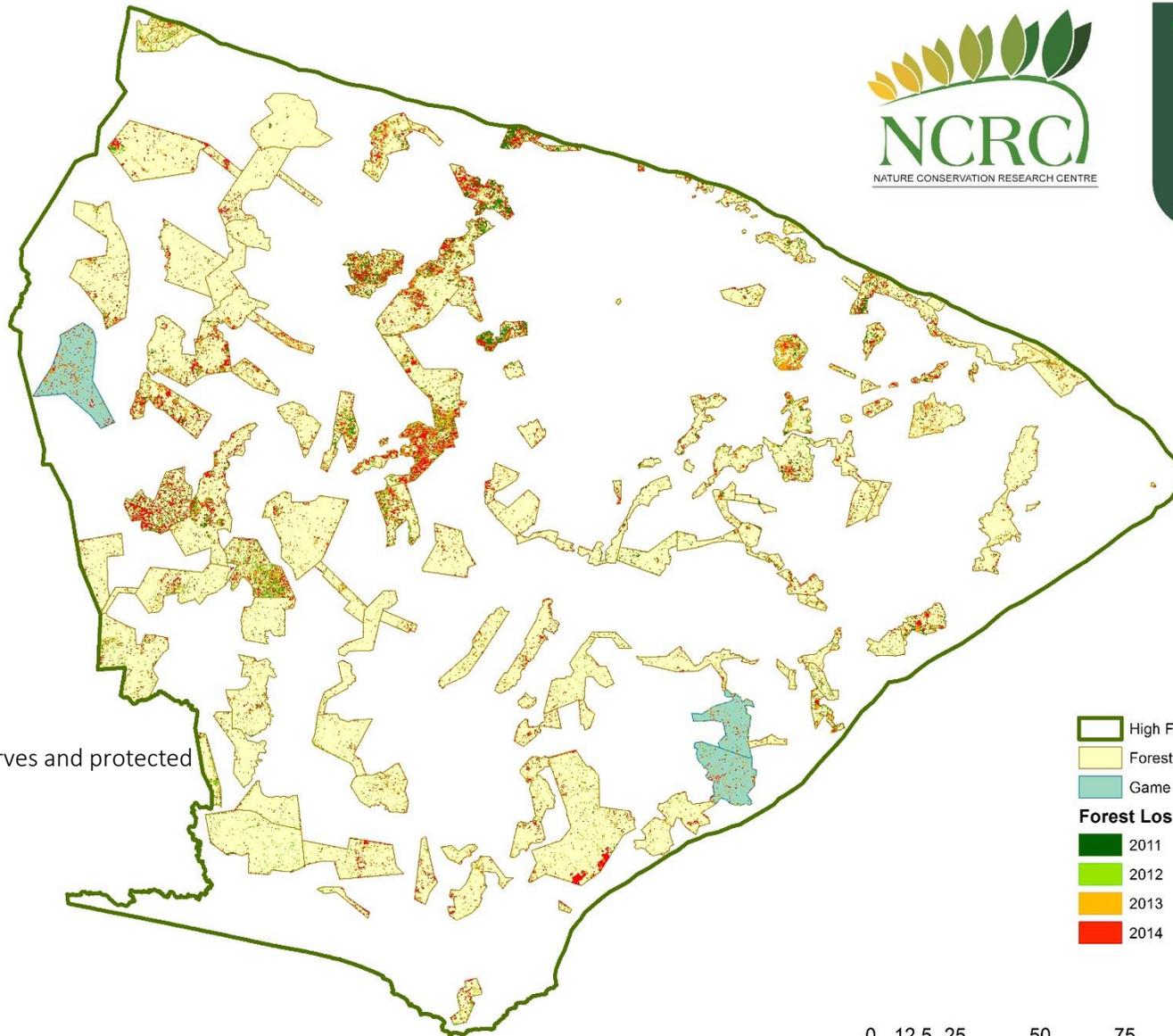
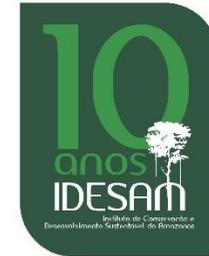
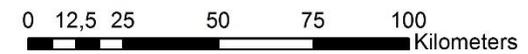


Figure 9. Deforestation in reserves and protected areas for 2011-2014.



With respect to biomass, the total estimated aboveground live biomass of the entire area is 656 million mega-grams of biomass (Figure 10). Table 6 shows the biomass distribution according to the vegetation zones. For the reserves, the total biomass for an area of 1.339 million hectares was 216,312,372 Mg. The biomass average for the reserves varied from 58.1 Mg/ha to 190 Mg/ha, and the maximum biomass was 373 Mg/ha, and the minimum was 35Mg/ha, with the exception of two reserves where the total biomass was zero (Ongwam 1 and Owabi Waterworks).

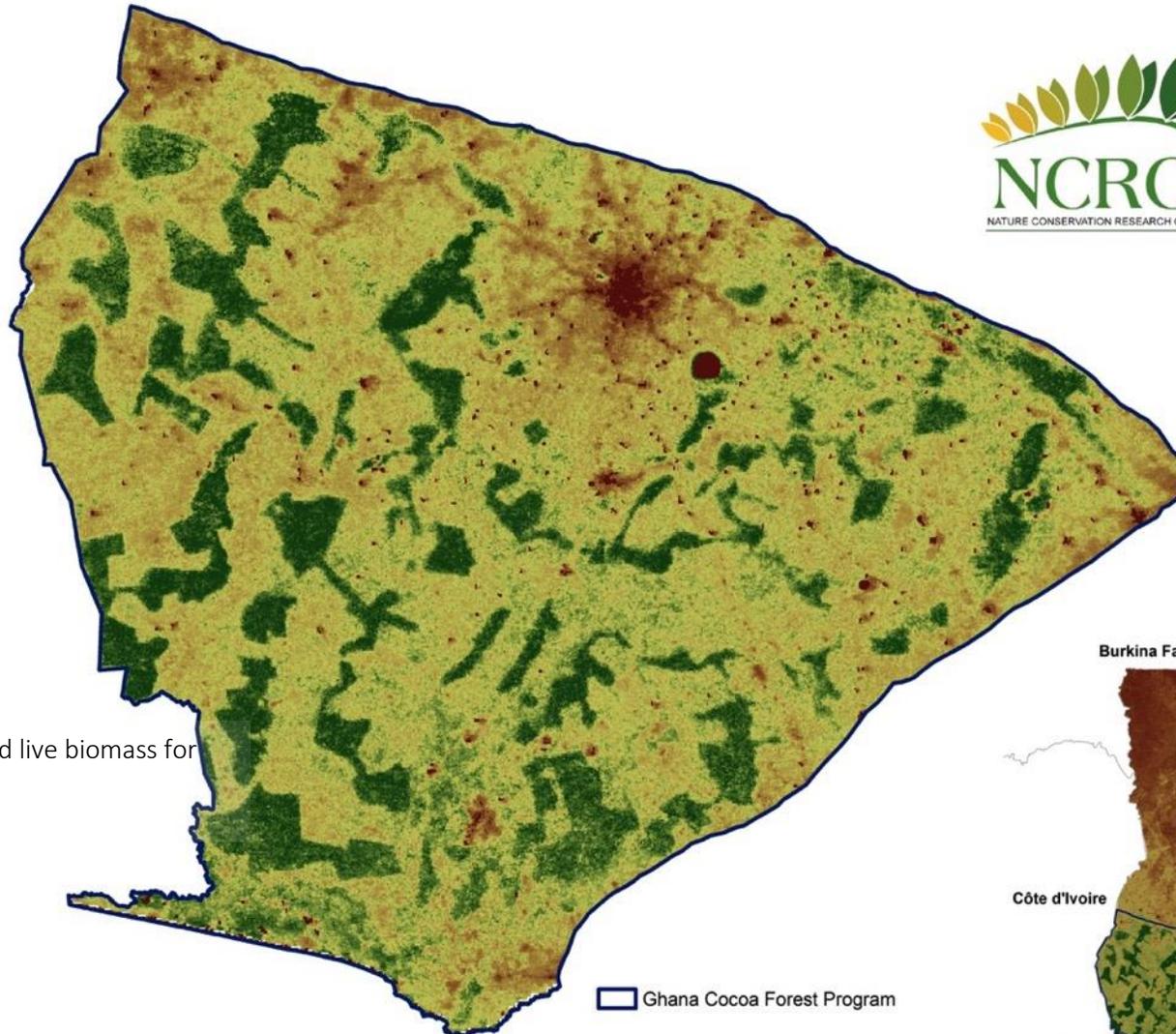
Table 6. Area, biomass average (Mg/ha) and total biomass for the GCFRP area (2010).

Vegetation type	Area Ha	Ave. Biomass Mg/ha	Total Biomass Mg
Moist semi-deciduous (north west subtype)	1,559,007.9	103.3	161,066,189.0
Moist semi-deciduous (south east subtype)	1,727,347.4	101.6	175,531,531.1
Upland evergreen	62,599.0	141.1	8,835,158.9
Moist evergreen	1,833,050.2	118.1	216,461,383.9
Wet evergreen	737,943.4	127.2	93,844,080.5
Total	5,919,947.9	110.8	655,738,343.3

We used the biomass map to intersect with the forest loss area to provide an estimate of biomass loss, under the assumption that in all of the deforested areas (forest loss) the biomass was brought to zero. The estimated biomass loss from deforestation for the period 2011-2014 was 22.5 million Mg of live biomass (Table 7). This represents roughly 3.4% of total biomass available in the landscape. It is important to mention these are only estimates that do not consider a residual carbon stock post-clearance, carbon sequestration from vegetation recovery, or partial biomass losses in converting forest types to other land uses.

Table 7. Total estimated live biomass loss from deforested areas for the 2011-2014 period.

Year	Area (ha)	Biomass Mg/ha	mean	Total (Mg)	Biomass Loss
2011	25,021.4	104.4		2,612,633.5	
2012	30,542.3	103.1		3,149,518.1	
2013	73,957.2	103.0		7,620,950.2	
2014	87,616.2	103.8		9,096,437.5	
TOTAL	217,137.1	103.5		22,479,539.3	



GCFP Zone Biomass



 Ghana Cocoa Forest Program

Source: National dataset of Aboveground Live Woody Biomass density, 2012.
Link: whrc.org/mapping/pantropical/carbon_dataset.html



Figure 10. Above ground live biomass for 2011-2014.

2.4 Drivers of deforestation and barriers to REDD+

Due to Ghana's high economic dependence on natural resources, the country maintained one of the highest deforestation rates in Africa, at over 2.0% nationally. Unlike other REDD+ countries facing frontier deforestation, Ghana's deforestation pathway is one of incremental degradation leading to deforestation. In 2010, the R-PP identified the principal drivers of deforestation and degradation, in order of relevance, as including¹:

- 1) Uncontrolled agricultural expansion at the expense of forests;
- 2) Over-harvesting and illegal harvesting of wood;
- 3) Population and development pressure; and
- 4) Mining and mineral exploitation.

Following the completion of Ghana's R-PP, it became increasingly clear that the rates of forest loss and the drivers of deforestation and degradation varied depending upon the eco-zone. During the development of the ER-PIN, a high level group of technical experts from the forestry and cocoa sectors assessed the main drivers and agents of emissions acting within the on-reserve and off-reserve landscape of the GCFRP. This has been further refined using the above analysis, resulting in a detailed list (Table 8) of the main drivers of deforestation and degradation in the programme area.

Table 8. Drivers and agents of deforestation and degradation in the GCFRP area

3. Drivers of Deforestation & Agents
Land Use Type: Protected Forest (Forest Reserve, National Park, Globally Significant Biodiversity Area)
Encroachment of low/no shade cocoa systems and associated food crops into protected forests by cocoa farmers.
Illegal logging in Forest Reserves by timber companies and chainsaw operators, legal logging by timber companies.
Illegal mining by small-scale miners (galamsey), as well as legal mining by mining companies and small-scale miners.
Land Use Type: Off-Reserve (Forests, Fallows & Trees in Landscape)
Elimination of shade trees from the cocoa system and other natural trees on-farm by cocoa farmers, chainsaw operators, and timber contractors
Logging in off-reserve concessions by logging companies.
Illegal mining by illegal small-scale miners (galamsey), as well as legal mining by mining companies and small-scale miners.
Replanting cocoa in over-aged, high shade cocoa farms by cocoa farmers as promoted by sector-wide rehabilitation and replanting efforts.
Expansion of cocoa into off-reserve forest or forest fallows by cocoa farmers.
Expansion of other tree crops and food crops into off-reserve forests or forest fallows by food crop farmers, as well as oil palm, rubber, and citrus farmers, often promoted by industry goals and packages.
Drivers of Degradation
Land Use Type: Protected Forests (e.g. Forest Reserve, National Park, Globally Significant Biodiversity Area)
Encroachment of cocoa systems into protected forests by cocoa farmers.
Legal logging by timber companies and illegal logging by timber companies and chainsaw operators.
Land Use Type: Off-Reserve (Forests, Fallows & Trees in Landscape)
Reduction in shade trees on cocoa farms and in the farming system.

¹ GoG, 2010. Readiness Preparation Proposal Ghana: Revised Ghana R-PP. Accra, Ghana.

https://forestcarbonpartnership.org/sites/forestcarbonpartnership.org/files/Documents/PDF/Jan2011/Revised_Ghana_R-PP_2_Dec-2010.pdf

The underlying causes of these drivers broadly stems from sector policies that create perverse incentives (tree tenure policies) and promote expansion and growth with only limited regard for environmental sustainability (agriculture and mining sectors), increased market prices and demand (cocoa, oil palm, rubber, gold, domestic timber), lack of coordination and collaboration within and between sectors, ineffective law enforcement, and a total lack of land-use planning in rural areas.

Table 9 speaks to the barriers that must be overcome or addressed in order to reduce these drivers.

Table 9. Barriers to REDD+

Drivers of Deforestation & Degradation	Existing Barriers to REDD+ and CSE
<p>Cocoa farm (and food crop farm) encroachment and expansion.</p>	<p>Lack of sector coordination: Institutional culture has discourage collaboration or coordination on the ground. The culture of government institutions, scope of responsibility, limited resources, and desire to retain control over the institutional “territory” has in many ways prevented government bodies, like the Cocoa Board and the FC, from working together. The inward focus of project by the private sector, civil society, and government initiatives has meant that there has been very limited coordination of resources across the landscape. The private sector and civil society are investing substantial resources into cocoa projects and programs. The main barrier, which this program will address, is the inward oriented, short term project-driven mentality of these initiatives, and competition between private sector players, which has prevented initiatives from thinking and working at a landscape, sector-wide scale. Writing the ER-PIN and subsequent design of the ERPD have already started to increase coordination between sectors. The FIP is also contributing to this shift. However, more progress is required.</p>
	<p>Ineffective law enforcement: Within the FC there is limited capacity and resources to monitor and enforce boundaries, and to pursue forestry cases within the courts. Communities and Traditional Authorities (TA) have few incentives to protect forests due to the absence of benefits and accountability to do so.</p>
	<p>Perverse or ineffective formal and customary policies: Within the cocoa sector, there is not a common definition of sustainability and landscape issues and emissions have never been addressed. Consequently, deforestation has continued relatively unabated, despite the implementation of numerous “sustainability” projects and certification initiatives. Extension systems, which operate under public-private partnerships, have very high implementation costs and therefore the majority of farmers do not receive access to any form of extension. Even farmers who want to follow best practices lack easy access to financial resources. Further, poor implementation of government’s input-supply policy has resulted in a recent fall in yields. Farmers who do practice recommended practices and invest in inputs on-farm are also at high risk from losses due to climate change. Traditional norms and land tenure arrangements also incentivize land clearing as a means of owning or claiming the land, and cocoa planting as a means to secure the tenure.</p>
	<p>Low cocoa yields: It is cheaper for farmers to expand/encroach in order to exploit the forest rent than to invest in inputs and other best practices. Farmers have limited access to key farming inputs and extension on best practices that could otherwise increase yields, as described above. FIP implementation has taken longer to commence than expected, however FIP activities focused on climate-smart cocoa production will give farmers in selected areas of the GCFRP access to cocoa farming resources with an aim to increasing yields.</p>
	<p>Lack of land-use planning in rural areas: In the absence of landscape level land-use planning, cocoa farmers and land owners can expand or encroach into forest areas with few consequences. The FIP is expected to help address this barrier, however implementation has taken longer to begin than expected. Once underway, FIP activities focused on CREMA establishment will support landscape level land-use planning. Ghana’s Land Administration Project (LAP) has the potential to address these barriers, and</p>

	<p>though it has been effective in its effort to reform Ghana’s Land Policy, efforts to support land-use planning have not focused on rural landscapes. The focus to date has been on urban and semi-urban land-use planning.</p>
Illegal logging	<p>Ineffective law enforcement: There has been limited financial resources and capacity of FC to effectively monitor, enforce or prosecute the laws. Community members and leaders are not authorized nor incentivized to support law enforcement.</p>
	<p>Market demand: The domestic demand for timber is very high and cannot be met by the annual allowable cut. Thus contractors often exceed their permits or yields without consequences and chainsaw operators are incentivized to cut trees within forest reserves or farms to meet the market demand.</p>
	<p>Perverse or ineffective formal and customary policies: Farmers and community members ignore or enable illegal logging because they do not have economic rights to trees.</p>
	<p>FLEGT-VPA: Ghana has made significant progress on its FLEGT-VPA, even leading an initiative to include domestic timber, but it has yet to receive authorization for a full roll out. This is expected to happen in the near future.</p>
	<p>Ghana Forest Plantation Strategy: The GFPS is going through final validation. Assuming that private sector and Ghana budgetary support follow, the strategy will help to reduce demand from illegal sources and support carbon stock enhancement in the GCFRP area.</p>
Legal and illegal small-scale mining	<p>Market demand: Due to the global price of gold, the promise of high economic return from mining drives these practices.</p>
	<p>Ineffective law enforcement and institutional weaknesses: Illegal small-scale mining is a national security threat due to the level of conflict that can and has ensued, and is thus this is not a barrier that the program can hope to address without national security bodies taking leading and enforcing the full implementation of the law.</p>
	<p>Perverse or ineffective formal and customary policies: Government messaging and policies in support of small-scale mining lend support to the illegal practices.</p>
	<p>Low cocoa yield: Low economic returns from cocoa farming and other practices due to depleted soils and lack of access to economic and agronomic resources often drive farmers to allow conversion of cocoa farms to small-scale gold mines.</p>
	<p>Lack of land-use planning in rural areas: In the absence of landscape level land-use planning, individuals can convert their lands to mining when and as they wish. This remains a major barrier to addressing the mining issue. Ghana’s Land Administration Project (LAP) has the potential to address these barriers, and though it has been effective in its effort to reform Ghana’s Land Policy, efforts to support land-use planning have not focused on rural landscapes. The focus to date has been on urban and semi-urban land-use planning.</p>
	<p>A myopic focus on maximizing mining revenues by actors, including the government, without due consideration of the negative and in some situations irreversible environmental impacts,</p>
	<p>Challenges with the governance framework on mining including an under-resourced Commission, inadequate compensation, and transparency concerns which drive key stakeholders including unemployed youth to undertake illegal mining activities. The lack of land use planning and absence of interventions to support best practices also contributes.</p>
Elimination of shade trees in cocoa farms and other lands	<p>Perverse or ineffective formal and customary policies: Farmers have no economic/management rights to economic trees, and receive no benefits when they are legally harvested by others. Timber Utilization Contracts (TUC) or Timber Utilization Permits (TUP) granted in cocoa farms causes damage to cocoa trees, with little to no compensation for farmers, and illegal chain-sawing of trees in farms further exacerbates the problem. It is widely recognized that Ghana’s tree tenure regime creates a perverse incentive to remove trees from the farming system. Despite the 2012 Forest & Wildlife Policy calling for change, there has been an over-emphasis on assessing tree tenure and benefit sharing with no serious actions to date to test or implement reforms. FIP is designed to address some of these issues, both by encouraging good shade management</p>

	<p>in cocoa farms (climate-smart cocoa) with access to shade tree seedlings, as well as tree tenure reforms. However, implementation has taken longer to commence than expected.</p> <p>Low cocoa yield: There has been a lack of information about the ecological benefits of shade trees in cocoa farms and many farmers have a negative perception of some shade tree species. As a result, many farmers eliminate shade trees in an effort to increase yields.</p>
<p>Replanting over-aged shade/high biomass cocoa farms</p>	<p>Perverse or ineffective formal and customary policies: The cocoa sector policy to replant/rehabilitate old cocoa farms has failed to acknowledge the high biomass in many of these farms. Currently the policy promotes farmers to reduce or eliminate the mature shade tree canopies, resulting in significant loss of biomass, through the recommended replanting practices.</p>
	<p>Lack of land-use planning in rural areas: The absence of landscape level land-use planning has meant that land owners and land users can manage their farms as they see fit.</p>
	<p>Low cocoa yield: Low cocoa yield pushes farmers to rehabilitate old farms and in doing so remove the shade tree canopy.</p>

2.5 Mapping socio-economic patterns: cocoa production and population

An effort to generate evidence to support the conclusions on the broad drivers of deforestation and degradation that were originally proposed in the R-PP and further refined under the ER-PIN was made through from analysis cocoa production and population data.

2.5.1 Cocoa production

Cocoa Board's Quality Control Division (QCD) production data for 2013/2014 showed that the annual harvest per QCD District ranged from approximately 3,200 tons per district to 34,200 tons per district. Because the QCD districts have different boundaries from and tend to be larger than Ghana's Administrative Districts, the team decided to conduct a clustering exercise and then rank the QCD districts into four production levels: districts with low production (3.2 to 9.3 thousand tons of cocoa), medium production (9.3 to 14.8 tons) medium-high production (14.8 to 23.9 tons), and high production (23.9 to 34.2 tons). The team then estimated the average cocoa production level of each administrative district by comparing maps of QCD district boundaries and regions to that of the administrative district boundaries and regions.

The results show that the majority of districts had a low to medium level of production in 2013/2014, but that most of the medium high and high production districts are located in the Western Region, or in districts that border the Western Region (Figure 9a). Table 10 presents the 26 districts where cocoa production was estimated to have high (23,900 to 34,200 tons) and medium-high yields (14,300 to 23,900 tons) yields. Of these, 17 of the districts (65.4%) are from the Western Region, and 10 out of the 26 districts (38.5%) are among the top 15 most deforested districts in the GCFRP area within the 2011-2014 period. This indicates that cocoa farming (forest clearance for new cocoa farms and the removal of shade trees from high shade cocoa farms) continues to be a main driver of deforestation, however, it also suggests that other drivers may have an important role to play in forest loss.

Table 10. Districts with estimated High and Medium High cocoa production in 2013/2014.

Districts	Region	Capital	Area (ha)	Cocoa Production H = 23.9-34.2
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				MH = 14.3-23.9 (thousand tons)
Juaboso	Western	Juaboso	134,086	High
Sefwi Wiawso	Western	Sefwi Wiawso	127,428	High
Suaman	Western	Enchi	177,077	High
Wassa Amenfi Central	Western	Manso Amenfi	189,110	High
Wassa Amenfi East	Western	Wassa Akropong	119,402	High
Wassa Amenfi West	Western	Asankrangwa	175,858	High
Sefwi-Akontobra	Western	Akontombra	71,663	Medium High
Adansi South	Ashanti	New Edubiase	129,694	Medium High
Ahafo Ano North	Ashanti	Tepa	55,967	Medium High
Amansie West	Ashanti	Manso Nkwanta	120,119	Medium High
Aowin	Western	Dadieso	128,253	Medium High
Assin North	Central	Assin Fosu	99,086	Medium High
Asunafo North	Brong Ahafo	Goaso	156,672	Medium High
Asunafo South	Brong Ahafo	Kukom	78,175	Medium High
Bia	Western	Old Debiso	109,474	Medium High
Bibiani/Anwiaso/Bekwai	Western	Bibiani	82,067	Medium High
Birim Central	Eastern	Akim Oda	51,329	Medium High
Bodi	Western	Bodi	70,798	Medium High
Ellembelle	Western	Nkroful	171,785	Medium High
Jomoro	Western	Half Assini	144,216	Medium High
Mpohor	Western	Mpohor	61,211	Medium High
Mpohor East	Western	Daboase	152,073	Medium High
Prestia-Huni Valley	Western	Bogoso	153,901	Medium High
Tarkwa Nsuaem	Western	Tarkwa	118,759	Medium High
Twifo-Ati Mokwa	Central	Twifo Praso	90,080	Medium High
Upper East	Central	Dunkwa	54,499	Medium High

As an interesting point of comparison, an analysis of deforestation per district (Cocoa QCD district) was mapped by Winrock using the emerging Ghana activity data (Figure 9b). When visually compared to the production data per district (Figure 9a) it is evident that the highest production districts overlap

with the areas of highest deforestation, contributing to the understanding of cocoa farming as a consistent driver of deforestation. However, this comparison is not perfect as the size of the district does skew the productivity and deforestation ranking, and the district boundaries for the two maps in Figure 9 are not the same.

2.5.2 Population data

Population data from the Ghana Statistical Services 2010 Census data was used to look at population trends across the GCFRP area. Because the activities articulated within this plan will occur in rural locations with a rural population, the urban population from each district was extracted to look at the average rural population and population density. The interest in reviewing population patterns across the districts was to ensure that none of the recommended districts for Hotspot Intervention Areas have un-manageably high populations.

As shown in Figure 10, the rural population density per km² is relatively uniform (0 to 170 individuals/km²) across the GCFRP landscape, with the exception of six districts that border Kumasi, and two districts in the Eastern Region that have populations that range from 170 to 792 individuals/km².

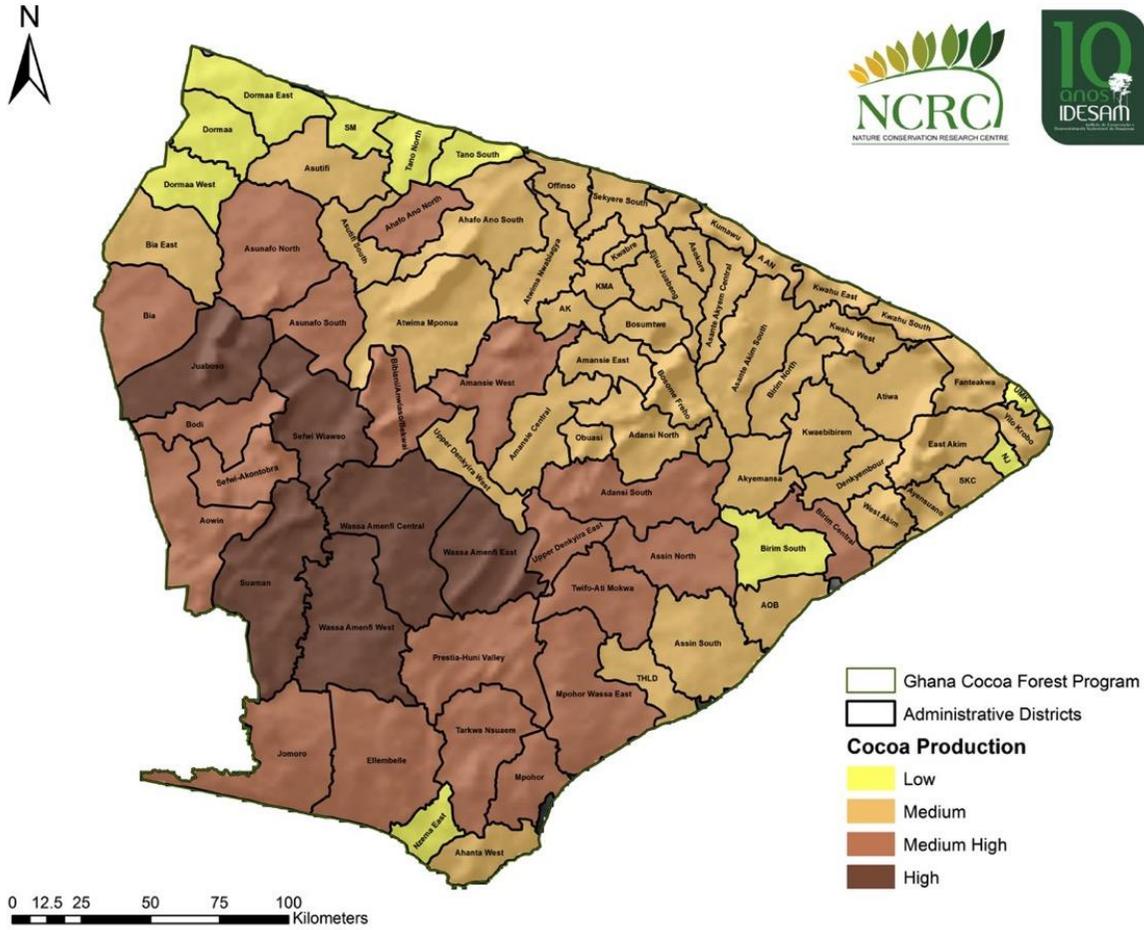


Figure 9a. Estimated level of cocoa production per administrative district in the GCFRP area for 2013/2014 harvest year

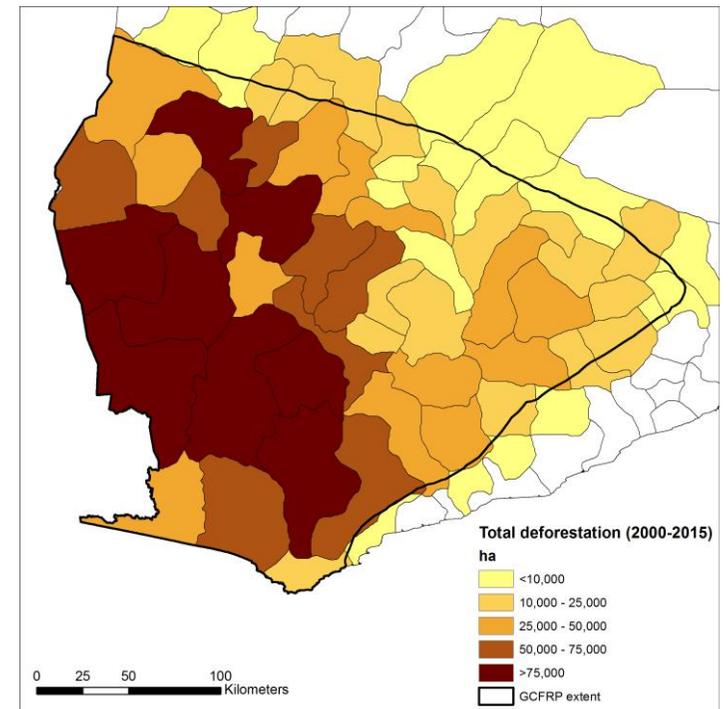


Figure 9b. Estimated total deforestation per Cocoa District (2000-2015) (Winrock).

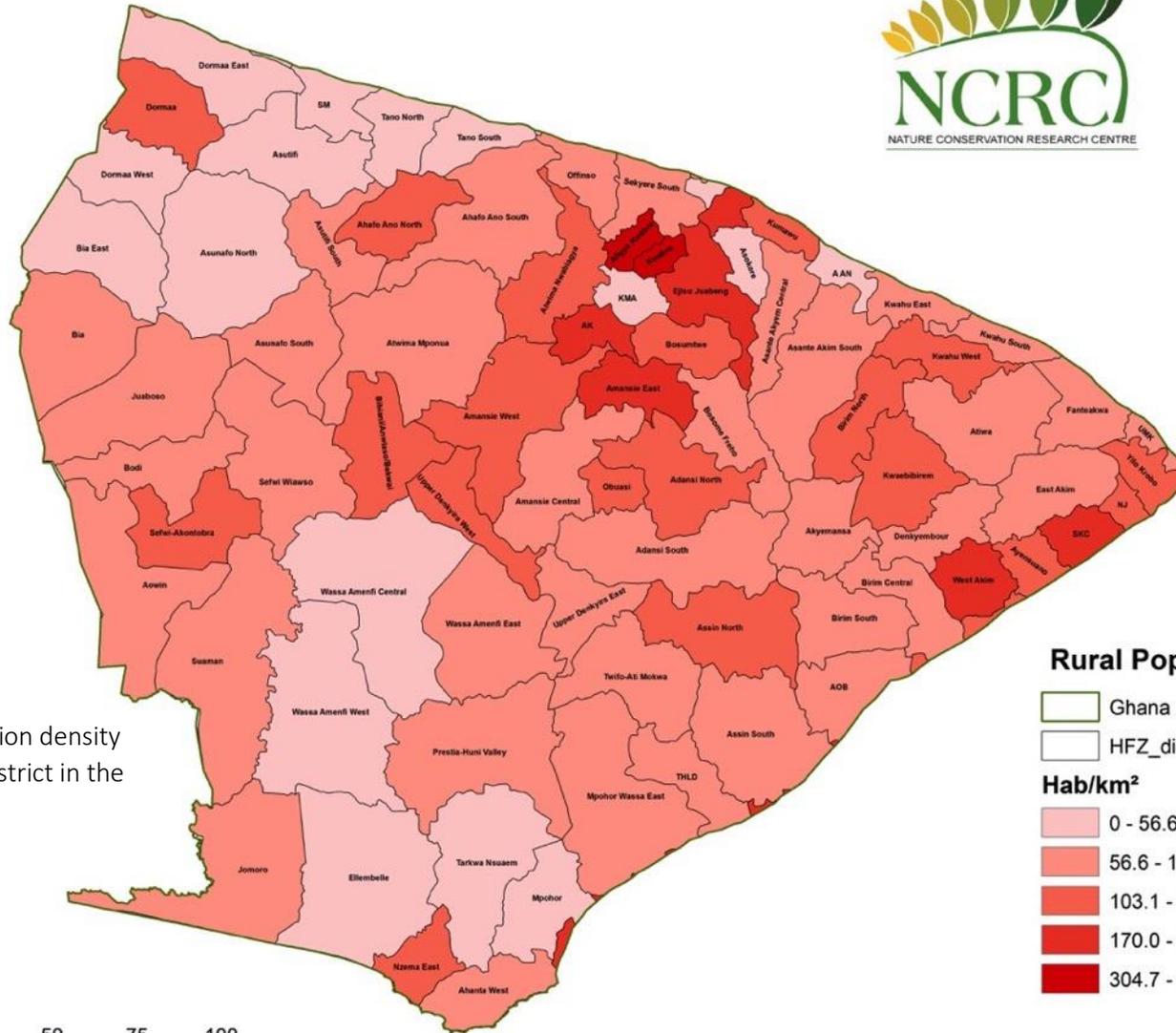


Figure 10. Rural population density (inhabitants/km²) per district in the GCFRP area.

0 12.5 25 50 75 100 Kilometers

2.6 Identification of Priority Locations —Hotspot Intervention Areas

The programme has identified 9 possible Hotspot Intervention Areas (HIAs), of which approximately 6 should be selected through consultations to serve as priority areas for immediate concentrated interventions at the farm to landscape level. These areas are described, below, in Table 11, and have been mapped into district groupings in Figure 11 (below). These HIAs were selected into groups based on the assessment and comparison of key parameters such as: (i) deforestation trends, (ii) cocoa production, (iii) drivers of deforestation, (iv) potential scale of impact, and (v) the presence of stakeholders. Consideration was also given to distributing the HIAs across regions.

In keeping with the emission reductions projections of the ERPD and focusing on manageable landscape sizes, it was decided that in the initial implementation phase, the HIAs should cover about 200,000 ha each and together account for approximately 30-40% of the GCFRP area (2 million – 2.5 million ha).

The recommended HIAs (Table 11), include 23 districts and together cover 2.4 million hectares, an area in which approximately 35% (76,000 ha) of forest loss has occurred. Key details are provided about each HIA, including the associated districts, each districts' ranking in terms of forest loss, the total area covered by the HIA, total forest loss that occurred within the HIA, and the percent of forest loss within the entire GCFRP area. Information is also provided on cocoa production levels, the known cocoa stakeholder active in the area, and the main drivers of deforestation.

It is recommended that a subset of these HIAs (e.g. six HIAs) should be selected for implementation. Section 3.2 provides more details on the potential groupings and their associated impacts.

Table 11: Possible Hotspot Intervention Areas (HIAs) for the GCFRP

Rank	Forest Loss	Districts	Region	Capital	Area_Ha	Total Forest Loss	District Forest Loss	Cocoa Production Level	No. Stakeholders
HIA #1									
4		Ahafo Ano South	Ashanti	Mankranso	120,098	7,470	3%	Medium	2
10		Atwima Mponua	Ashanti	Nyinahin	168,433	6,578	3%	Medium	4
14		Atwima Nwabiagya	Ashanti	Nkawie	77,142	4,237	2%	Medium	2
Total					365,673	18,286	8%		5
Stakeholders: Agro-Eco, Ecom, Cargill, Solidaridad, Touton/PBC									
Main Drivers: Cocoa, illegal logging									
HIA #2									
11		Kwaebibirem	Eastern	Kade	72,975	5,840	3%	Medium	1
15		Asante Akim South	Ashanti	Juaso	115,524	4,230	2%	Medium	2
18		Birim North	Eastern	New Abirim	57,477	3,736	2%	Medium	1
Total					245,976	13,805	6%		4
Stakeholders: A Rocha Ghana - CAA - Solidaridad - Touton/PBC									
Drivers: Cocoa, mining									
HIA #3									
13		Bibiani/Anwiaso/ Bekwai	Western	Bibiani	82,067	4,679	2%	High	3
34		Sefwi Wiawso	Western	Sefwi Wiawso	127,428	2,439	1%	High	3

Total				209,495	7,117	3%		4
Stakeholders: Cargill - Mondelez - PBC/Touton – Solidaridad								
Main Drivers: Illegal logging, cocoa, mining								
HIA	#4							
20	Atiwa	Eastern	Kwaben Town	99,116	3,376	2%	Medium	3
41	Denkyembour	Eastern	Akwatia	48,251	1,882	1%	Medium	1
43	East Akim	Eastern	Kibi	69,597	1,814	1%	Medium	3
Total				216,965	7,072	3%		4
Stakeholders:A Rocha Ghana - CAA - Cargill - Yayra Glover Ltd								
Drivers: Cocoa and mining								
HIA	#5							
19	Assin South	Central	Nsuaem Kyekyewere	113,777	3,555	2%	Medium	2
24	Assin North	Central	Assin Fosu	99,086	2,865	1%	Medium High	6
Total				212,862	6,420	3%		6
Stakeholders: Agro Eco - Conservation Alliance - Ecom - PBC/Touton - Solidaridad – Transroyal								
Drivers: Cocoa, illegal logging								
HIA	#6							
25	Adansi South	Ashanti	New Edubiase	129,694	2,714	1%	Medium High	3
26	Adansi North	Ashanti	Fomena	83,073	2,616	1%	Medium	2
Total				212,767	5,330	2%		3
Stakeholders: Ecom - Solidaridad - Touton/PBC								
Drivers: Cocoa, mining								
HIA	#7							
28	Asutifi	Brong Ahafo	Kenyasi No. 1	93,665	2,584	1%	Medium	0
35	Asunafo South	Brong Ahafo	Kukom	78,175	2,156	1%	Medium High	2
37	Asunafo North	Brong Ahafo	Goaso	156,672	2,124	1%	Medium High	4
Total				328,512	6,864	3%		5
Stakeholders: Mondelez - Olam - Solidaridad - Touton/PBC (PBC/Touton) – Ecom								
Drivers: Cocoa, illegal logging								
HIA	#8							
16	Suaman	Wester n	Enchi	177,077	3,956	2%	High	1
49	Sefwi-Akontobra	Wester n	Akontombra	71,663	1,728	1%	Medium High	2
51	Aowin	Wester n	Dadieso	128,253	1,709	1%	Medium High	3
Total				376,993	7,392	3%		3
Stakeholders: CAA - PBC/Touton – Solidaridad								
Drivers: Cocoa, illegal logging								

HIA	#9							
38	Juabeso	Western	Juabeso	134,086	2,124	1%	High	4
55	Bia	Western	Old Debiso	109,474	1,526	1%	Medium High	5
Total				243,561	3,650	2%		5
Stakeholders: Conservation Alliance - Olam - PBC/Touton (Touton/PBC) - SNV – Solidaridad								
Drivers: Cocoa, illegal logging								

A number of steps were taken to determine these HIAs. Each district in the GCFRP was initially ranked based on the level of deforestation (percent of total deforestation) and the level of cocoa production. Districts with high cocoa production and the highest deforestation were ranked highest, whereas districts that had low production and low deforestation were ranked lowest. The assumption, with this ranking, was that these districts represent the best areas for reducing deforestation and interfacing with a significant population of engaged cocoa farmers.

Following this ranking, the main drivers of deforestation were then assessed for each district and the presence of key stakeholders was reviewed. Rural population density was not used to inform the ranking process because it had already been established that rural population densities were relatively uniform across the programme area.

What immediately came to light during this process was that deforestation in 8 of the top ten districts appears to be being driven by mining activities. (Ahafo Ano South (#4) and Atwima Mponua (#10) were viewed as exceptions due to other drivers being equally prevalent. These districts are shown in Table 12 (below), with the majority located in southern Western Region. Because the GCFRP is focused on reducing deforestation and degradation from agriculture (including cocoa) and illegal logging, the current plan is not immediately equipped to tackle illegal mining, which is driven by a different set of actors and a different range of factors. Therefore, it was decided that the majority of these “top ranked” districts should not be included in the HIAs at the start. During the initial implementation phase of the programme (e.g. through 2021) the focus will remain of building successes through activities that target the cocoa sector and illegal logging. Post-2021 the lessons learned from the initial phase of implementation can be applied to tackling deforestation driven by illegal mining, but it is important to note that this will require the participation of a whole new range of stakeholders and a high level of commitment from government.

Table 12. Top ten ranked deforestation districts where mining is a dominant driver of deforestation

Rank Forest loss	Districts	Region	Capital	Area_ Ha	Total Forest Loss (Ha)	Forest Loss/ Total Forest Loss	Cocoa Production Level
1	Prestia-Huni Valley	Western	Bogoso	153,901	10,083	5%	Medium High
2	Ellembelle	Western	Nkroful	171,785	9,316	4%	Medium High
3	Amansie West	Ashanti	Manso Nkwanta	120,119	7,822	4%	Medium High
4	Ahafo South	Ashanti	Mankranso	120,098	7,470	3%	Medium
5	Wassa Amenfi Central	Western	Manso Amenfi	189,110	7,433	3%	High
6	Wassa Amenfi West	Western	Asankrangwa	175,858	7,201	3%	High
7	Mpohor Wassa East	Western	Daboase	152,073	7,050	3%	Medium High
8	Mpohor Tarkwa	Western	Mpohor	61,211	6,829	3%	Medium High
9	Nsuaem Atwima	Western	Tarkwa	118,759	6,669	3%	Medium High
10	Mponua	Ashanti	Nyinahin	168,433	6,578	3%	Medium

LOCALIZATION OF GHANA'S HIAs (ADMINISTRATIVE DISTRICTS)

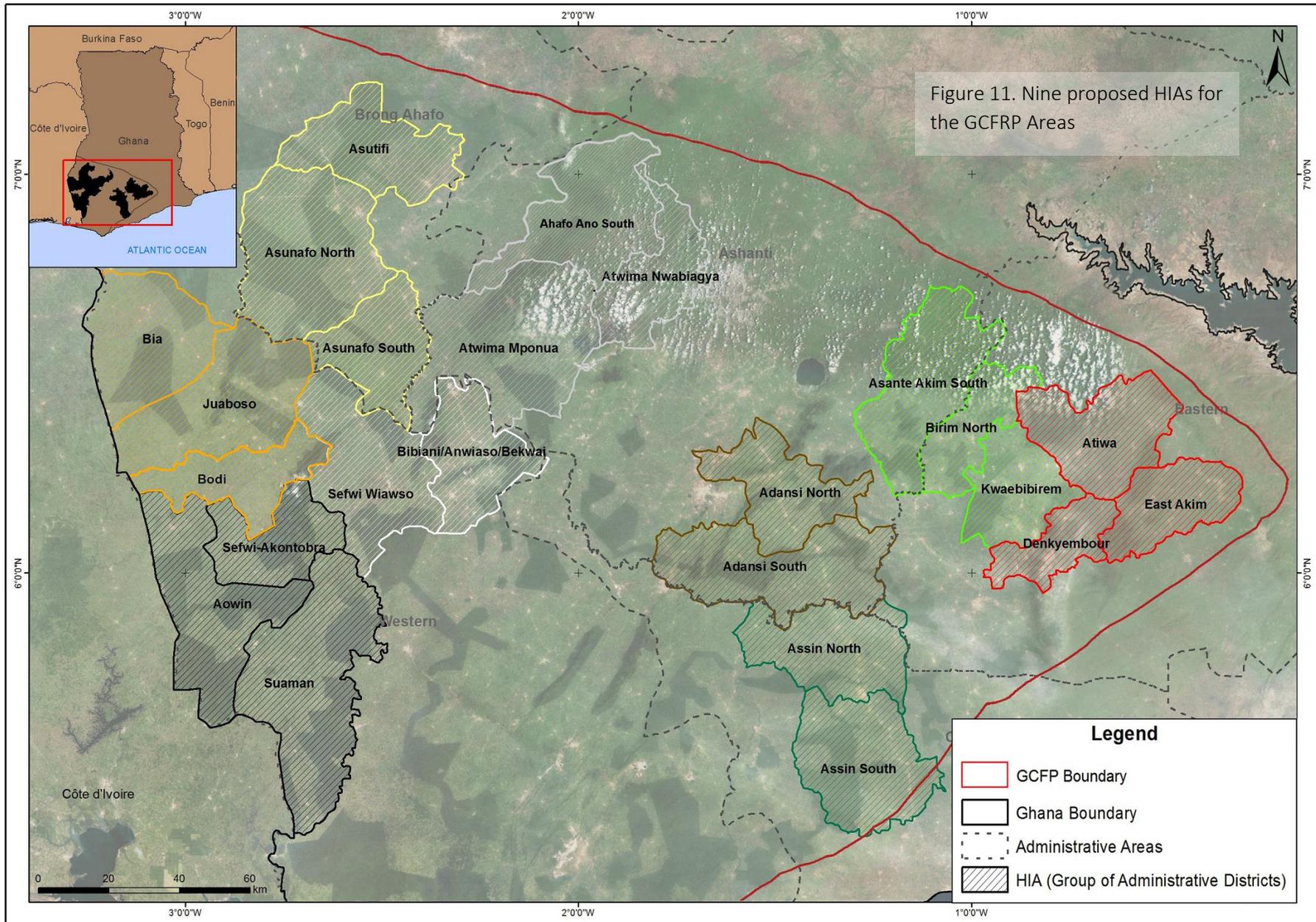


Figure 11. Nine proposed HIAs for the GCFRP Areas

3 Implementation Plan

Building from the main interventions laid out in the ER-PIN, the experience and outputs from the Climate-Smart Cocoa Working Group which met from 2011 through 2014, and the respective experiences of NCRC and IDESAM (Brazil) in implementing REDD+ projects, programmes, and other sustainable value chain and NRM initiatives at various scales, the drafting team has outlined a set of priority interventions and activities that are arranged according to 5 key pillars.

This section provides an overview of the main interventions and associated activities that will be implemented to set the programme in motion and enable it to achieve its goals. These interventions and activities are organized according to the programme’s 5 main pillars: A) Institutional Coordination and MRV; B) Landscape Planning within HIAs; C) Increasing Yields via Climate-Smart Cocoa; D) Risk Management and Finance; and E) Legislative and Policy Reforms. These pillars are based on the original pillars described in Ghana’s ER-PIN but reflect a new degree of thought and experienced reflection on what it will take to make the GCFRP implementable and successful. (See Figure 12 and Section 3.1).

These interventions, outlined below, are further elaborated in a Section 3.2 through a narrative description that provides the details about these interventions, their associated sub-activities, and the logic that underpins them.

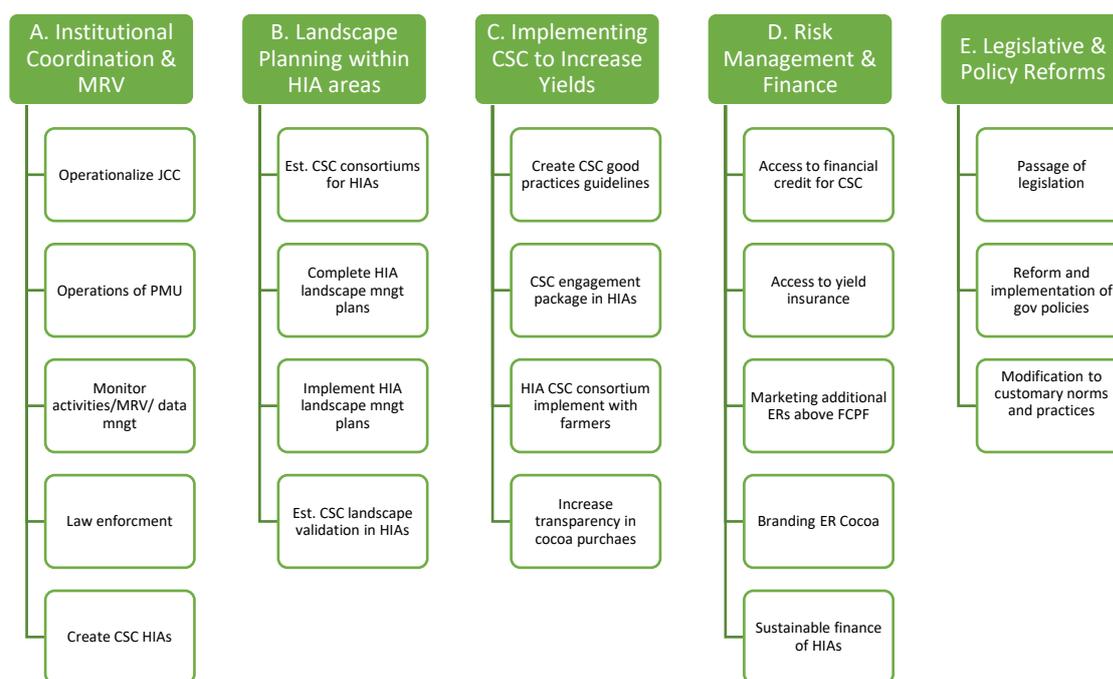


Figure 12. Implementation Plan interventions and activities

3.5 Overview of interventions and activities

Table 13. Overview of interventions and activities

A. Institutional Coordination and MRV	
1.	Operationalizing Joint Coordinating Committee (JCC)
1.1	Agree JCC roles and targets for Ghana Cocoa Forest REDD+ Programme implementation
1.2	Secure and maintain high-level government endorsement for GCFRP
1.3	Approval of overall/annual planning of the GCFRP implementation
1.4	Financial oversight of the GCFRP
1.5	Coordinate Inter-government collaboration and communication
2.	Establish and support operations of Programme Management Unit (PMU)
2.1	Establish and maintain PMU operations (office, equipment, vehicles, running costs)
2.2	Recruit PMU staff
2.3	Prepare GCFRP annual plans and implementation reports
2.4	Execute implementation agreements and supervise GCFRP annual plans
2.5	Coordinate discussions for additional REDD+ and CSC finance
2.6	Coordinate GCFRP MRV, safeguards and data management operations
3.	GCFRP activity monitoring/MRV/Data management system
3.1	Update and implement FRL/MRV
3.2	Monitoring activity implementation performance in HIA
3.3	Operate and maintain data management systems for GCFRP (safeguards, cocoa production, ERs)
3.4	Link to national NDC/UNFCCC (national communications)
4.	Law enforcement of GCFRP area
4.1	Support FC to reduce illegal activities (galamsey, chainsaw, bushfire)
5.	Creation of CSC Hotspot Intervention Areas
5.1	Entry level community engagements and key stakeholder meetings in target HIAs
5.2	Negotiations leading to formal decision to form HIA for CSC with due FPIC processes
5.3	Develop HIA governance structures and constitutions
5.4	Achieve key governance HIA decisions on CSC, ER and financial agreements
5.5	Ensure appropriate stakeholder communications of HIA progress

A. TOTAL US\$ 9.6 MILLION**B. Landscape Planning within HIA areas**

1.	Establish CSC consortium for each HIA
1.1	Engage key stakeholders (LBCs, CSO, farmers associations, government)
1.2	Conclude formal agreements with clear roles and responsibilities of the consortium partners
2.	Complete HIA landscape management plans
2.1	Map farms, reserves and other land uses
2.2	Analyze HIA land uses and deforestation/degradation/enhancement areas
2.3	Negotiate CSC options and strategies for reducing emissions within HIA
2.4	Draft landscape management plan for each HIA
2.5	Public review and validation of HIA landscape management plans
3.	Implement HIA landscape management plans
3.1	Conduct awareness/training on CSC with community leaders and opinion makers
3.2	Conduct regular patrols of the HIA and confirm land use changes as part of MRV
3.3	Undertake landuse enhancement activities together with HIA leadership and FC
3.4	Negotiate grandfathering arrangements for irregular land uses
4.	Establish CSC landscape level validation in HIAs
4.1	Agree criteria and parameters for CSC validation protocol
4.2	Test draft CSC validation protocol in 1 HIA and revise
4.3	Implement revised CSC validation protocol across the GCFRP
4.4	Third party auditing and verification
TOTAL US\$ 16.5 MILLION	

C. Implementing CSC to Increase Yields

1.	Ghana CSC Good-practices guidelines (on-farm and off-farm)
1.1	Establish an expert working group, led by Cocobod
1.2	Review existing best practice recommendations for yield increases, sustainability, and climate-smart

1.3	Draft guidelines that include on-farm and off-farm elements.
1.4	Share draft guidelines with stakeholders (including HIA consortium partners) and hold consultations for input and comments.
1.5	Agree on guidelines for on-farm good-practices for Ghana's CSC.
1.6	Consortiums apply in HIAs
2.	CSC farmer engagement package in HIAs
2.1	Negotiate distribution of package with HIAs consortium stakeholders
2.2	Access to planting materials
2.3	Access to inputs
2.4	Access to technical extension
2.5	Access to business extension
2.6	Access to financial and risk products (credits and insurance)
2.7	Access to shade-tree planting material/promotion to assist natural regeneration
2.8	Premium price on CSC bean
3.	HIA CSC consortium implement with cocoa farmers (consortium vary by HIA)
3.1	Farmers receive Free-prior information about CSC programme criteria, responsibilities and benefits
3.2	Register farmers and implement CSC package
3.3	Farmers receiving training and access to incentives and benefits through the engagement package
3.4	Farmers who fail to comply lose access to the package and associated benefits.
4.	Increase transparency in cocoa purchases
4.1	HIA Consortium members ensure that cocoa farmers are paid for the beans that they produce.
4.3	HIA Consortium members ensure that purchasing clerks are fairly compensated.
4.2	Spot checks are used to monitor compliance
C. TOTAL US\$ 120.6 MILLION	

D. Risk management/finance

1. Access to financial credit for CSC	
1.1	Map existing credit channels for CSC farmers
1.2	Stimulate new credit programmes within existent finance institutions
1.3	Create new facility/fund to develop innovative business approach for CSC
1.4	Explore loan guaranties
2. Access to yield insurances	
2.1	Access historical yield and weather data
2.2	Identify insurances companies interested in assessing and developing a product for Ghana's CSC
2.3	Guarantee funds for insurance premium payments for short-term (piloting) and long-term
2.4	Pilot and test CSC's insurance product in 1 HIAs
2.5	Implement the insurance product across GCFRP
3. Marketing additional ERs above FCPF	
3.1	Assess additional opportunities for accessing REDD+ finance
3.2	Package and present the GCFRP to potential investors and funders
3.3	Additional long term funds secured for the GCFRP
4. Branding ER Cocoa/marketing	
4.1	Develop market studies and demand for Ghana's CSC
4.2	Design and develop Ghana's CSC brand
4.3	Stimulate demand and sell Ghana's CSC
5. Sustainable Finance of HIAs	
5.1	Identify diverse long-term financial sources to support HIA governance
5.2	Plan and develop financial plan for HIA governance
5.3	Support start-up costs of HIA financial plan for 5 years
5.4	Establish trust fund with 3rd party financial management
5.5	Implement financial sustainability for HIA
TOTAL US\$ 51.9 MILLION	

E. Legislative and Policy Reform

1. Passage of legislation

1.1	Ensure passage of Forest Wildlife Bill legislative instrument
1.1.1	Support parliamentary sub-committee engagements leading to LI passage
2	Policy Reform and guidance to implementation of government policies
2.1	Tree-tenure reforms
2.1.1	All HIAs are approved to pilot new tree-tenure arrangements (tree passport and XX)
2.1.2	Independent studies within HIAs on tree-tenure arrangements
2.1.3	Prepare tree-tenure policy implementation guidelines
2.2	Clarification of carbon transaction rights + benefit-sharing agreements for GCFRP
2.2.1	Independent studies on transaction rights at multiple scales and benefit-sharing agreements
2.2.2	All HIAs approved to innovate carbon transaction and benefit-sharing agreements
2.2.3	Independent review on innovative carbon transactions
2.3	Reform of Cocoa Farm input system
2.3.1	All HIAs are approved to pilot farm input reforms
2.3.2	Independent review on farm input pilots
3.	Modification to customary norms and practices
3.1	Promote evolution away of perverse traditional land-use practices at Cocoa sector
3.1.1	Independent studies in HIAs to identify perverse land use norms
3.1.2	Support negotiation with traditional leaderships for HIAs level reforms
3.1.3	Independent review on implementation of land use reforms
E. TOTAL US\$ 745,000	

3.2 Narrative of activities and interventions

A. Institutional Coordination and MRV

A1. Operationalizing Joint Coordinating Committee (JCC)

The Joint Coordinating Committee is a six person committee that was established in 2015 to support the development of Ghana's Cocoa Forest REDD+ Programme (GCFRP), to ensure efficient communication and coordination between the NRS, Cocoa Board, the FIP, and the National REDD+ Working Group, and to eventually serve as a body to coordinate and guide high level implementation. The JCC is made up of two representatives from the NRS, two representative from the Forest Investment Programme (one from FC and one from the MLNR), and two representatives from the Ghana Cocoa Board.

The JCC's role as a cross-sector oversight committee will primarily be to guide and direct the PMU, but will also be linked to the roles of other bodies, partners and stakeholders. To ensure transparency and effectiveness, the roles and responsibilities will be made clear to all stakeholders and partners at the onset of GCFRP implementation. It is envisioned that on an annual basis (or otherwise), the JCC will be responsible to set targets for GCFRP implementation and to approve the annual planning of GCFRP implementation as drafted by the Programme Management Unit and the HIA consortiums. The JCC will maintain financial oversight of the programme. Further, the JCC will need to secure and maintain high-level government endorsement for the GCFRP and coordinate inter-governmental collaboration and communication.

A2. Establish and support operations of Programme Management Unit (PMU)

The Programme Management Unit will be the executive agency for the GCFRP. It will be composed of representatives of the Ministry of Lands & Natural Resources, Ministry of Finance, Forestry Commission, Minerals Commission, COCOBOD, District Assemblies and relevant NGOs, companies and other stakeholders directly involved with the implementation of the programme. The PMU will be responsible for developing an Annual Operational Plan (AOP) and implementation reports about the GCFRP (Figure 13).

The PMU should also promote partnerships among local stakeholders and other agencies and execute contracts and agreements to guarantee the implementation of the Programme, and coordinate and promote the attraction of investors and new potential sources of funds for CSC and REDD+ in the GCFRP region.

A3. GCFRP activity monitoring/MRV/Data management system

The NFMS and associated national structures will be responsible for implementing, monitoring, and updating the MRV and the FREL in the programme area. It will work in close collaboration with the PMU to ensure coordination of MRV operations, ensure annual monitoring and oversight of impacts and changing trends, guarantee the accomplishment of safeguards, and maintain the data management systems for housing key information related to REDD+ and CSC operation in the HFZ. Someone from the NFMS will sit within the PMU so that the two bodies are able to work in synchrony. As such, the PMU will be responsible to support the NFMS in coordinating the accounting and monitoring procedures to clearly demonstrate the performance of the GCFRP against its Reference Level. The PMU must also monitor and record the implementation status of activities in each Hotspot Intervention Area (HIA), and guarantee that the annual planning of activities is being followed and implemented.

The PMU shall guarantee that all information related to deforestation monitoring, emission reductions, social and environmental safeguards, CSC production and stakeholders mapping and interventions are being tracked and recorded, in order to have a unique data management system for the GCFRP. This will also provide updated information on REDD+ to support Ghana's national communications for the UNFCCC.

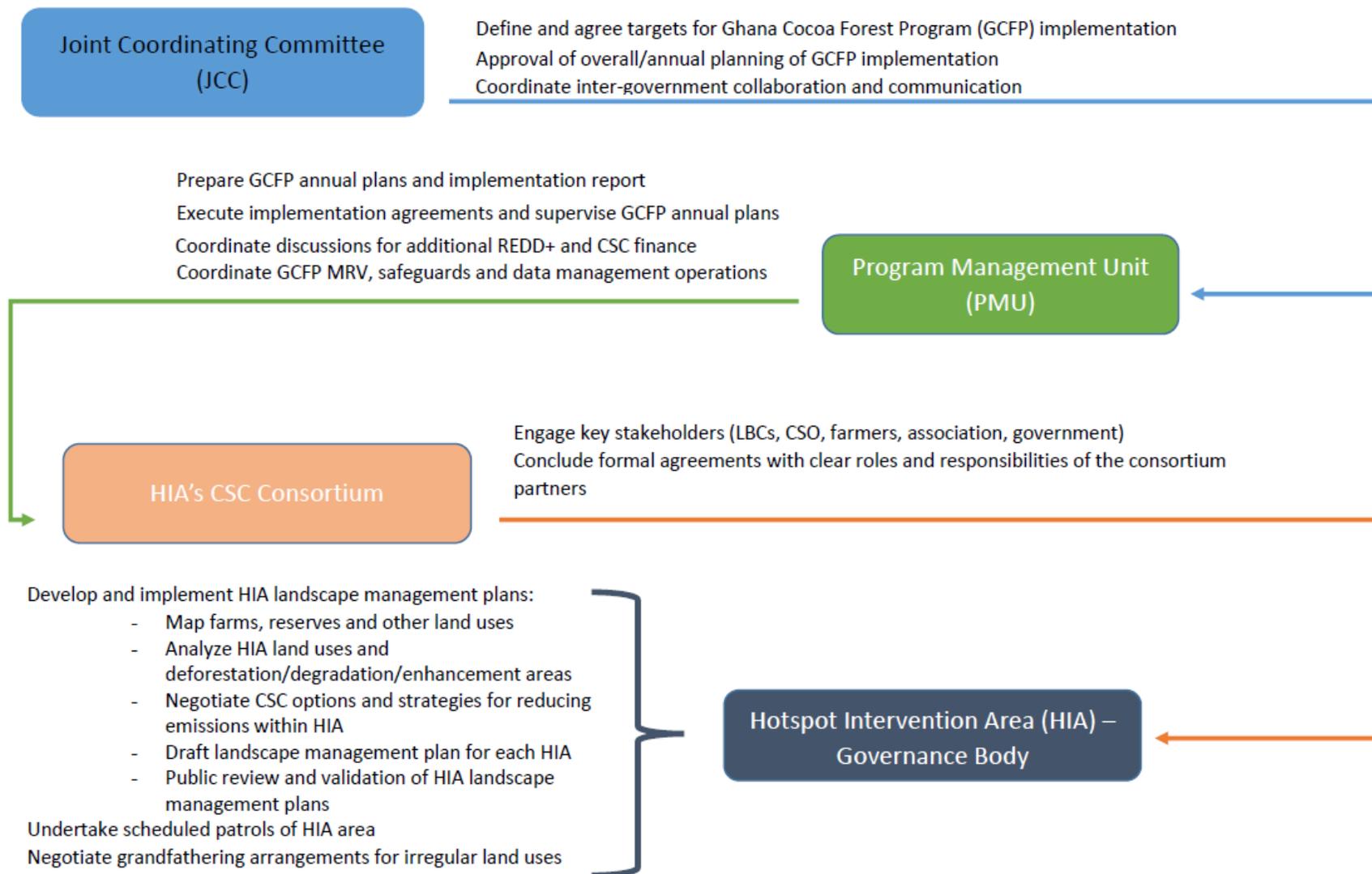


Figure 13. GCFRP Institutional Coordination Diagram

A4. Law enforcement of GCFRP area

To successfully achieve emission reductions within the GCFRP area, enhanced attention and significant financial support will be given to the FC (FSD and WD district offices) to reduce illegal activities associated with mining (galamsey), chainsaw operations, and bushfires. This will come through new collaborations with communities and other government agencies (Minerals Commission), improved monitoring techniques and expanded operations, and a significant scaling up of human and financial resources to support the full implementation of forestry and natural resource laws through arrests and prosecution of perpetrators.

Within the HIAs, monitoring of deforestation and degradation activities and trends will happen through an approach that combines remote sensing (e.g. RapidEye) with on-the-ground observations using existing structures and facilities within the RMSC. In line with HIA consortium agreements, partnerships will be established between FSD and Wildlife staff, the HIA governance board (see A5, below) and other consortium members to enable frequent patrols and monitoring. These collaborations and agreements will be developed such that community members can play a key role (under the authority of the FC) in monitoring and reporting illegal activities to the authorities.

If the prevalence of illegal activities is high, resources will be mobilized from within the programme law enforcement budget to FC district/regional offices to support swift reactions and enforcement of the laws. This could be in the form of increasing the number/strength of FC Rapid Response Teams, increasing the number of lawyers to prosecute violations of the law (both in district courts and in Accra), or increasing support to fire volunteer teams. At the community level, sensitizations on laws and illegal vs. legal activities will also take place. Further, each HIA constitution will incorporate rules that outlaw activities related to illegal logging, mining and/or bush fires, and these rules will be backed by district level by-laws, which enable arrests and prosecutions to take place locally.

In areas that fall outside of the first set of HIAs, increases in deforestation and degradation will be monitored from annual remote sensing analysis or identified by regional and district level FSD and WD offices. Where deforestation and degradation events emerge, the GCFRP will make resources available to the FC and other partners to be able to respond to the threats in a timely and effective manner.

A5. Creation of CSC Hotspot Intervention Areas

The programme has identified 9 possible Hotspot Intervention Areas (HIAs) (Figure 12), of which approximately 6 should be selected through consultations to serve as priority areas for immediate concentrated interventions at the farm to landscape level. These areas have been delineated as groups of districts and selected based on the assessment and comparison of key parameters such as: (i) deforestation trends and drivers of deforestation, (ii) cocoa production, (iii) and population.

In order to ensure manageable intervention landscape sizes, it was decided that in the initial implementation phase (first 5 years (2017-2021)), the HIAs should cover about 200,000 ha each and all together account for approximately 30%-40% or 2 million – 2.5 million ha (maximum) of the total GCFRP area. Estimates based on three groupings of HIAs suggest that the GCFRP could achieve 5 million tonnes emission reductions (CO₂e) in the first five years of the programme.

Table 11 provides a general breakdown of the nine proposed HIAs. The programme has already identified 3 HIAs where efforts are slated to begin, or have already begun. The “Suaman Sefwi-Akontonbra Aowin” HIA Consortium (#8) will be led by the FIP team, the “Juabeso-Bia-Bodi” HIA Consortium (#9) will be led by Touton/PBC and other key actors like SNV, and the “Adansi South Adansi

North” HIA Consortium (#6) will also be led by Touton/PBC. The remaining HIAs and their consortiums will be identified in the coming months.

The implementation of priority activities in each HIA will rely on a consortium of stakeholders (HIA CSC Consortium²) who live, work, or have investments within the landscape, and have an interest in the area. The landscape itself will be managed by an HIA Governance Body made up of local land-users, land owners and traditional authorities who organize themselves into a government recognized NRM structure, like that of the CREMA, which accords them the right to manage their natural resources for their benefit.

The Consortium and the HIA Governance Body will establish how best to coordinate all activities related to the programme in their HIA’s. The PMU and the HIA Consortium will carry on a participatory process to build the HIA governance and implementation structure at each location. Depending on the status of any existing work on-going in the area, the programme will support community entry processes and key stakeholders engagement meetings with traditional authorities, district assemblies, LBCs, and farmers. Following successful negotiation of HIA initiation, the programme will support the requisite steps to establish management boards, prepare HIA constitution, and hold regular HIA governance meetings.

Key decisions of the HIA Governance Board will be to determine how best to make the transition to a climate-smart, no deforestation cocoa production landscape. Key activities will involve landscape planning, zoning land use practices, approving CSC practices to be adopted by farmers in the HIA, financial planning and management structures, and reaching agreements with the HIA CSC Consortium. Appropriate levels of communications with all stakeholders will be achieved through durbars, local FM radio announcements and other media.

B. Landscape Planning within HIA Areas

B1. Establish CSC consortium for each HIA

Landscape planning within HIAs will happen through the HIA Consortiums of key stakeholders and in collaboration with the HIA Governance Board. The essence of a consortium is to ensure that all of the major stakeholders, actors, and entities existing or operating in the landscape are working together towards a common goal of reducing deforestation and degradation, and not operating in isolation, or worse, in contradiction to this goal. Only through the establishment of a consortium can the GCFRP hope to achieve landscape-scale impacts on the ground.

The first step, which in line with A5, above, is therefore to identify the key stakeholders (traditional authorities, LBCs, CSO, farmers associations, government agencies) in each HIA so as to facilitate their engagement with the GCFRP in the HIA. Work has been completed to identify some of the major NGO and private sector programme partners that are active and operating in the programme area and administrative districts. However, The NRS and PMU will need to ensure that all key HIA stakeholders have been identified and then move to conclude formal agreements that establish clear roles and responsibilities of the consortium partners. This will require initial meetings with each stakeholder, followed by broader meetings and discussions before moving to specific negotiations and the conclusion of written agreements.

² Though CSC primarily refers to climate-smart cocoa, it encompasses the broader concept of transitioning land use practices and production system across the HFZ to a climate smart, low emissions landscape that supports sustainable production system. Therefore, where other tree crops (like oil palm or rubber) or land use practices (like illegal mining) are contributing to deforestation and degradation (or other types of emissions), the same concepts, structures, and steps will apply.

B2. Complete HIA Landscape Management Plans

In order to ensure full buy-in and agreement on landscape management, each HIA will need to complete an HIA Management Plan (HIA-MP). A recommended process has been developed, but adaptations will likely be needed. The programme will support all aspects of this process including mapping farms, forest reserves and other land uses within the HIA. This is reflected in the GCFRP budget. Analysis will be undertaken of the land uses and areas of deforestation/degradation and possible enhancement areas. Negotiation processes with all stakeholders will be supported to determine the CSC options and strategies appropriate to the HIA that will result in reduced emissions. The outcome from this process will be the preparation of a landscape management plan for each HIA. Following the drafting of this plan, the programme will support a public review/validation process at the HIA level. The outcome from this process will be the delivery of a consensus plan with strong traditional leadership support and endorsement by the Forestry Commission and the Cocoa Board.

B3. Implement HIA Management Plans

An important step for establishing “Climate Smart Cocoa” initiatives in the GCFRP landscape is structuring guides and procedures that connect good-practices for cocoa production with accounting strategies for the emission reductions generated in the HIA landscapes. The data management system and the MRV system are being designed such that performance can be linked to HIA landscapes. The procedures for assessing good-practices and accounting methods should be organized and presented through a “Technical Protocol for CSC validation”. The protocol, which could also be referred to as a Standard, will be presented for public consultation and afterwards tested.

It is critical to note that the main purpose of the GCFRP and CSC should not be to only focus on the farm level outcomes, as even the most coordinated tool for assessment of good productive practices at the farm level (the cocoa certification standards) does not provide procedures for accounting deforestation in the landscape beyond the farm level. As has been observed, despite the focus on certification, deforestation rates across the landscape and within areas targeted with certification, have increased dramatically. Therefore, the CSC strategy across HIAs takes a broader view of the benefits and impacts of good-productive practices in the landscape. The purpose of the Standard is therefore to incentivize a landscape approach to cocoa farming.

After piloting the Protocol in one HIA area, the document should be updated, incorporating lessons learned and new comments and reviews. The final version will then be applied across the other HIA and then the entire GCFRP area, generating indicators and indices for assessing the impacts and the efficiency of the GCFRP for reducing deforestation in the HFZ.

As a last step, the PMU may use a third-party auditing and verification process to assess the implementation of the Protocol by the HIA Consortiums, its applicability, as well as the results and performance of the GCFRP.

B4. Establish CSC landscape level validation in HIAs

While the GCFRP aims to reduce the increasing rate of deforestation and forest degradation in the country, and in doing so demonstrate significant emission reductions over time, the programme’s ability to demonstrate emission reductions rests upon hundreds of thousands of cocoa farmers and forest users changing their practices on the ground. This is no simple under-taking, and therefore the benefits to these land-users and land owners must be significant, clear, and consistent. The central logic of the programme is therefore to support cocoa farmers to significantly increase their on-farm cocoa production (and income) by giving them access to a suite of critical farming resources. Provision

of these resources and the resulting yield increases at the farm level are the dominant benefit to people in the programme and therefore this pillar is of critical importance.

C. Implementing CSC to Increase Yields

While the GCFRP aims to reduce the increasing rate of deforestation and forest degradation in the country, and in doing so demonstrate significant emission reductions over time, the programme's ability to demonstrate emission reductions rests upon hundreds of thousands of cocoa farmers and forest users changing their practices on the ground. This is no simple under-taking, and therefore the benefits to these land-users and land owners must be significant, clear, and consistent. The central logic of the programme is therefore to support cocoa farmers to significantly increase their on-farm cocoa production (and income) by giving them access to a suite of critical farming resources. Provision of these resources and the resulting yield increases at the farm level are the dominant benefit to people in the programme and therefore this pillar is of critical importance.

C1. Ghana CSC Good-Practices Guidelines (on-farm and off-farm)

Many organizations, companies and institutions are now interested in or are already applying climate smart cocoa projects and practices, as evidenced by Touton, Olam, Mondelez, IITA, SNV, NCRC, the FIP and other partners. However, to ensure uniformity and programmatic impact, the GCFRP will establish CSC Good Practices Guidelines that cover both on-farm and off-farm practices and activities aimed at increasing yields and incomes, contributing to mitigation, and enabling adaptation and resilience.

An expert working group, led by Ghana's Cocoa Board, will be established to review existing best practice recommendations for yield increases and sustainable cocoa farming, and assess landscape trends related to cocoa expansion, deforestation/degradation and climate change so as to draft the GCFRP CSC Good-Practice Guidelines. This draft will then be shared with major cocoa sector stakeholders and HIA consortium members (Implementing Partners) and consultations held so as to receive comments and critical input on the guidelines. With agreement, the expert working group will finalize the guidelines and consortium members and implementing partners will apply them in the HIAs.

The CSC Good-Practice Guidelines must address cocoa farming practices on-farm (e.g. farm establishment, planting material and sources, inputs and pest control, weeding, pruning, shade management) and respond to off-farm trends and actions that contribute to forest degradation and deforestation and increase threats to the forest and farming system (e.g. climate change, fires, etc). The guidelines should also support the monitoring of activities that are contrary to a CSC landscape—unplanned cocoa farm expansion, illegal cocoa encroachment into forest reserves, removal of mature trees during farm establishment, etc. It must also identify mitigation and adaptation measures that will enhance the resilience and sustainability of cocoa farming systems in the future.

C2. CSC Farmer Engagement Package in HIAs

The main benefit to farmers in the GCFRP will be their access to critical farming resources, resulting in increased yields and incomes. Therefore, each HIA CSC Consortiums must put together a CSC farmer engagement package that gives farmers access to the agronomic, economic and knowledge resources to be able to achieve and maintain substantial yield increases. The logic is that access to the CSC package will come in exchange for farmers' compliance with the CSC Good-Practice Guidelines and the HIA's management plan, developed through the land use planning process and as supported by the Constitution.

The roles and responsibilities that align with the distribution of the package to farmers will be negotiated by the HIA Consortium members. It is possible that responsibilities could be shared between different members. For example an LBC, an NGO, and CHED could all provide extension services. It is also possible that each member will serve distinct roles given their unique technical and financial capacities. However, the consortium will need to ensure that over time, the package can be extended to all farmers within the HIA who want to engage.

The engagement package will include the following resources and benefits. Most of these resources are already available to farmers, however, not necessarily in a full package or at the scale required to achieve the needed impacts.

Access to planting materials: Cocoa farmers within each HIA will have access to hybrid cocoa seeds, seedlings, or other types of planting material that are recommended under the CSC Good-Practice Guidelines.

Access to inputs: A rapid assessment, coupled with information from previous initiatives, research and analysis, will determine soil fertility conditions and the dominant pests and diseases within the HIA. Based on needs, cocoa farmers within each HIA will have access to fertilizer (organic or inorganic) and pest/disease management products so that they can reduce losses and increase productivity on farm.

Access to technical extension: Cocoa farmers within each HIA will have access to technical extension and training opportunities to enable them to understand and follow the CSC Good-Practice Guidelines, improve their practices, and increase yields. A number of different extension, training, and/or demonstration models are available to some farmers, including farmer field schools, promoters or extension agents, and agricultural service providers. All of these models have proven successful in significantly increasing yields with different groups of farmers, however within the HIAs the main objective will be to ensure that all farmers who want to participate have access to training and extension.

Access to business extension: Cocoa farmers within each HIA will have access to professionalization services or business training opportunities so that interested farmers can realize and maximize benefits from yield increases through improved record keeping and financial literacy, enhanced professional capacity, and more detailed planning of their farm management.

Access to financial and risk products: While financial and risk management product remain limited in scale (credit) or non-existent (CSC insurance product), cocoa farmers within each HIA require access to credit facilities and risk management products to enable them to invest in recommended practices, purchase products and labor at the right time in the season, and reduce losses as a result of weather based events. Following the activities outlined in Section D, HIA consortium members and cocoa sector stakeholders will need to take immediate actions to develop a CSC insurance product. Once developed, cocoa farmers within each HIA will have access to credit facilities to support their farming practices and management decisions, and to an insurance product that will reduce the considerable risk of losses associated with changing rainfall patterns and temperatures.

Access to shade tree planting material and promotion of assisted natural regeneration and maintaining mature shade trees: Farmers within each HIA will be encouraged to maintain mature trees during land preparation/cocoa rehabilitation so as to conserve carbon stocks and provide recommended shade cover to their cocoa trees. Where on-farm shade cover does not exist or is inadequate, consortium members will promote assisted natural regeneration of shade trees into farmers, and farmers will have access to shade tree planting material.

Premium price on CSC bean: The aim is for cocoa farmers within the HIAs that have access to the CSC resource package, follow the CSC Good-Practice Guidelines, and adhere to the HIA's management plan and constitution will receive a premium price for the cocoa beans that they produce. Negotiations are being planned to discuss this opportunity with major international cocoa/chocolate stakeholders. Consortium members, led by key LBCs, other cocoa companies, and/or NGOs, will need to engage with Chocolate companies to negotiate a premium that validates the value of the GCFRP's climate smart beans. The basic purchase model for the HIA would involve cocoa purchased from registered farmers under contract to the Consortium following the official Cocoa Board price for the current season. In addition to the official price, each registered farmer would receive a Climate Smart bonus equal to 15% and the HIA Governance Board in which the cocoa bean was grown would receive payment of 10% for its role in the programme success and the funds would be invested in a trust fund. Bonuses would be paid annually on completion of all purchasing.

C3. HIA CSC Consortium implement package with cocoa farmers

The implementation process must begin through outreach and engagement within the HIA area. This includes adherence to traditional protocols and meetings with traditional leaders to introduce the programme and its broad aims. Following these traditional protocols, several workshops would be organized with local stakeholders to properly introduce the programme.

As part of this outreach, farmers will receive full, prior information about the CSC package and programme before being asked to make commitments to participate. Farmers who agree to participate in the programme are registered with the consortium and commit to implement the approved CSC Good-Practice guidelines and adhere to the HIA landscape management plan. As described above (Section C 2.3), farmers who are registered in the programme receive appropriate training from consortium members after their induction and at least every 2 years following induction. Farmers who successfully implement the guidelines are also entitled to receive a set of incentives (Engagement Package) including technical assistance, risk management tools (credit and insurance) and access to farm inputs. However, farmers who fail to implement the guidelines are withdrawn from receiving the programme supports. The HIA consortium member LBC(s) would benefit by developing farmer level contacts and would enter contracts with each farmer or via farmer groupings or associations.

Initial engagement would be followed by intensive training of every interested farmer and HIA member about the programme principles. The programme would begin registration of all committed cocoa farmers. GPS coordinates, area polygons and essential production model of all registered farms would be collected. All farms data would be entered on a GIS mapping of the target area which would confirm if any farms are inside the legal boundaries of established forest reserves. Any farms inside the legal boundaries of forest reserves would be identified for negotiated exit over an agreed time period, with re-establishment on alternate lands designated by the community/CREMA.

At the conclusion of the training and registration a Farmers Contract would be signed between the farmer, the HIA Governance Board and the licensed buying company consortium. All registered cocoa farmers would receive a photo ID card, an executed contract and regular training.

C4. Increase transparency in cocoa purchases

Since the 2004/2005 season, Ghana's Cocoa Board has guaranteed farmers a producer price of 70% of the F.O.B. price. In 2016, Ghanaian cocoa farmers were to receive GhC 425 per 64kg bag of cocoa, reflecting 74% of the net F.O.B. However, many farmers never receive this price due to the un-transparent practices of cocoa purchasing clerks at the community/society level who tamper with their scales, resulting in documented losses.

In communities surrounding Assin Fosu, in Central Region, for example, single sales of beans (not cumulative) resulted in weight losses to farmers that ranged from 5%-60%, with a median of 12% and mean of 16%. The economic losses associated with reduced weights ranged from GhC13 to GhC285, with a median of GhC80 and a mean of GhC95³. Consequently, the single easiest way to increase farmers' income (and thus give them a benefit from the programme) is to ensure that farmers are paid fairly for the cocoa beans that they produce.

To increase transparency in cocoa purchases, the HIA consortium, and particularly the LBCs within the consortium will ensure that their purchasing clerks are adequately and fairly compensated for buying cocoa beans, they will ensure that all scales used for weighing cocoa beans are set accurately and they will spot check sales to check for compliance.

D. Risk Management/Finance

D1. Access to financial credit for CSC

One of the main strategies for reducing deforestation in the programme area is to increase funding and credit channels to foster good-practices for implementing climate smart cocoa production. The main goal is to allow the achievement of a "premium product" that attends to corporative demands for more sustainable supply-chains and products that are not leading to deforestation, forest degradation or poor social and labor conditions.

As a fundamental first step, the PMU will map available finance sources and credits lines that are already being accessed by farmers or could be accessed so as to channel vital credit to producers implementing CSC. Depending on the outcome of this mapping exercise, the PMU will work with experts and existing financial institutions to foster new credit programmes or increase the accessibility of current programme to farmers. The PMU will then work with industry experts to create a new facility or fund geared towards the development of more innovative and sustainable business plans focused in producing premium climate smart products. The GCFRP will take steps to explore financial "guarantees" for Consortium members, investors, and stakeholders engaged in the roll out or adoption of CSC programmes.

D2. Access to yield insurances

Currently, one of the main threats to sustained adoption of recommended practices and application of inputs is climate change. Farmer associations and organizations that provide extension and inputs to farmers have already found that when farmers make investments into their farms but then fail to realize the expected productivity gains due to long dry periods or low rainfall the farmers tends to abandon future investments and practices to avoid the associated risks. Considering that changes in rainfall patterns and temperature are expected across the cocoa growing in the near and long term as a result of climate change, farmer access to insurance products that help them to better manage such risks is critical to the success of the programme.

Recent research by McKinley⁴ has shown the potential value of a climate-smart cocoa insurance product for Ghana. In assessing how yields are affected by the adoption of key CSC practices and the

³Oxford University and NCRC, unpublished data. Ghana Eco-Limits Project. Ecosystem Services for Poverty Alleviation Research Grant Programme (ESPA).

⁴ McKinley, J., Lanier Nalley, L., Asare, R.A., Dixon, B.L, Popp, J.S., D'Haese, M. 2016. Managing risk in cocoa production: Assessing the potential of climate-smart crop insurance in Ghana. *Journal of International Agricultural Trade and Development*, Vol. 10:1.

feasibility of a crop insurance product, the authors found that across 19 districts, producers who followed the CSC recommended practices had higher estimated yields by 19-25%, were 5-25% less likely to have a yield loss large enough to receive an insurance payment, and the total expenses associated with indemnity payments in an insurance programme were 20% less for CSC farmers.

Therefore, the GCFRP and its HIA stakeholders and partners will work together to develop an insurance product which can be rolled out across the various HIAs. To do this, the GCFRP will need to secure access to historical yield data and weather data so that insurance companies can assess the overall risk and parameters of a potential product. The private sector cocoa companies in Ghana have decades of yield data and farmer practice data which consortium members and other interested parties could make available for the purpose this purpose. Ghana's Cocoa Board and the JCC will lead in engaging these stakeholders to make their data available. Historical weather data can be obtained by Ghana from multiple sources for free, including the Ghana Meteorological Association and AWhere Inc.. When historical yield and weather data is available, then the GCFRP leaders and key stakeholders will identify insurance companies who are interested in assessing and developing a CSC product for the GCFRP. The GCFRP will then need to guarantee funds for insurance premium payments for short-term piloting and long term roll-out. The next step will be to pilot and test a CSC insurance product in one of the HIAs, and assuming a successful outcome, to implement the insurance product across all HIAs and eventually the entire programme area.

D3. Marketing additional ERs above FCPF

By 2037, when the ERPA crediting period ends, the GCFRP may have avoided total emissions of 316 MtCO₂e. Assuming that the GCFRP is accepted by the Carbon Fund, and that agreement is reached on a purchase agreement in the range of US\$50 million, then this will go towards supporting the total implementation costs for the GCFRP. However, the programme still anticipates a funding gap of US\$6.7 million, and it is of great importance to pursue other funding opportunities and present the programme to other potential investors and donors, to secure the long-term finance strategy for the GCFRP.

Once the ERPA period is finished, the GCFRP should package and present its potential for generating emission reductions beyond 2021 to potential funding alternatives as:

- Green Climate Fund: Ghana must indicate the institution that will represent the country at the GCF and will be responsible for presenting projects and local initiatives to be financed by the UNFCCC financial mechanism in the post-2020 scenario. The GCFRP must have close communication and cooperation with the indicated agency, for guarantee that additional long term funds could be channeled to REDD+ and to the HFZ.
- Private investors: Looking for new business plans that are able to deliver CSC ("Ghana premium cocoa") plus emission reductions in the long-term
- Impact investments: for channeling resources to innovative initiatives that intend to change the business-as-usual scenario of forest degradation and poor agriculture and production techniques in the HFZ

D4. Branding ER Cocoa/marketing

In parallel to climate finance strategies, the GCFRP should foster the development and marketing of a Ghana's CSC brand that could create new opportunities for trading a "premium product" on the international market. There is a growing demand worldwide for climate friendly products that are not associated with deforestation. This demand is motivated by the urgent crisis of climate change, and growing awareness amongst consumers all around the world that products should not be contributing

to deforestation. Good examples of the potential for climate friendly products can be found in portals like [Canopy Bridge](#), [Landscapes.Org](#), [Rainforest Alliance](#) and others. The first step for moving this initiative forward is to develop market studies about the current demand for Ghana's Climate Smart Cocoa and create a national brand for recognizing good practices and allowing access to more conscious markets and consumers. The next step will be then to stimulate demand for Ghana's CSC at the international market, selling the product as a "premium" cocoa bean.

D5. Sustainable Finance of HIAs

A key aspect of the long term success of this programme will be to ensure that each HIA target area has a sound financial foundation. In order to establish a firm foundation, each HIA will enhance revenue streams from cocoa, NTFP harvesting, other perennial tree crops, and climate finance. It will manage its operating expenses well within its income levels and it will establish a trust fund which will build up reserves to ensure long-term stability.

Each HIA will require a 5 year grant to support the costs of establishment including covering expenses for the initial 5 years and seeding the trust fund. Real revenue streams must be developed to ensure that the HIA has diversity in its financial sources estimated to achieve significant levels within 5 years. Expenses will need to be controlled to ensure a positive balance sheet at the end of each financial year. In addition long-term sustainability will be linked to the HIA having a successfully managed trust fund which can support targeted activities beyond the scope of annual finances and as a security in difficult years when revenues suffer unexpected dips.

The HIA expects to develop five types of revenue: climate-smart cocoa premiums, wild harvest NTFP premiums, other tree crop premiums, climate finance, and grant revenues. From the beginning grant revenue will be critical to kick things off but this should rapidly transition into wild harvest NTFP premiums, CSC premiums (or other tree crops) and climate finance.

It is expected that a foundation grant will be provided to allow for the formation of the HIA finances and the early implementation of the NTFP and CSC activities. Third party private sector companies will be involved in aspects of this implementation but there will be many activities which the private sector will not be prepared or willing to finance. It is anticipated that grant money will support this period of approximately 3-5 years. At the end of the grant period the HIA will not require external financial support for recurrent activities.

By year 2, NTFP related funds will begin to flow to HIA farmers/community members and into the HIA accounts in direct payments. A negotiated portion of any premiums will be paid directly to the HIA Trust Fund account in Accra as outlined below. By year 3 and 4, CSC related funds will begin to flow to HIA cocoa farmers and a negotiated portion of premiums will be paid directly to HIA accounts and trust fund. The HIA expects expenses to follow the categories of expenses include HIA staff salaries, meeting costs, transport, training programmes, utilities for offices and office rent.

The HIA will establish a financial trust fund under the management of third party professional money manager in Accra. The fund will be at arm's length from the HIA Management Board through structural arrangements that allow for withdrawals within pre-agreed thresholds thus avoiding unauthorized withdrawals which would hamstring the future operations of the fund. Ideally the fund would be established with the full or partial grant under the formation stage.

Following the establishment of the fund, no withdrawals will be permitted until the fund surpasses a foundation valuation of the principle. Thereafter, no withdrawals will be permitted should the principle fall below the foundation valuation target. This target figure will be adjusted from time to time based on overall performance and macro-economic conditions prevailing in Ghana.

If the Trust Fund is fully seeded as outlined then the HIA Board will be able to request withdrawals not exceeding the financial managers' recommendation for the year which will be based on overall performance of the fund and prevailing macro-economic analysis.

E. Legislative and Policy Reforms

E1. Passage of Legislation

The passage of the 2015 Legislative Instrument (LI) on the National Forest and Wildlife Bill is essential to the overall success of the programme. Several key issues in the legislation are key to implementation of the programme. The LI is on the schedule of bills to be passed by the current Parliament which will end in 2016. Under this sub-activity the programme will lobby for the passage and implementation of this LI. This will be achieved through strategic support to the Parliamentary Sub-Committee on Natural Resources. Through the initial three years of the programme, support will be available to host the Sub-Committee for field visits and formal engagements to ensure their support and lobby within Parliament.

E2. Policy Reform and Guidance to Policy Implementation

There are three areas of necessary policy reform or guidance to support implementation of the current policy which has yet to be implemented effectively. These areas are outlined in the sections below: tree tenure reforms, carbon transaction rights and benefit-sharing arrangements and cocoa farm input arrangements.

Tree tenure reforms: The Forest and Wildlife Policy which backs the LI mentioned above is progressive and provides the necessary structure for implementation of the required tree tenure reform, but guidance and support is necessary for success. The programme will support the process of having all the HIAs approved by the FC to pilot new tree tenure arrangements within the target areas. A number of such tree tenure reforms have already been piloted in Ghana including the tree passport system (IUCN Ghana), and the CREMA devolution process. The implementation of such activities will be conducted under section C of the plan above but the programme will support independent studies within HIAs on such implementation of tree-tenure arrangements which will result in the preparation of official FC tree-tenure policy implementation guidelines.

Clarification of carbon transaction rights + benefit-sharing agreements for GCFRP: The Forest and Wildlife Policy which backs the LI mentioned above is progressive and provides the necessary structure for clarification of carbon transaction rights and benefit-sharing agreements but requires guidance for successful implementation.

The programme will promote the completion of on-going assessments that clearly state the ownership of carbon credits transactions. In general terms, the ownership of carbon rights doesn't have to necessarily align with the land owners. Rather, it suggests that the GCFRP will have to finalize and present an innovative benefit sharing agreement that is agreed by MLNR, traditional authorities, District Assemblies, CREMAs, others, allowing that carbon transaction rights flow to the HIAs and other areas that are implementing CSC strategies and reducing deforestation in the programme landscape.

The process has started with the development of an independent assessment on carbon transaction rights at multiple scales, which is expected to be completed by August. Work is set to begin on defining a BSP, which will be followed by public consultation to present and validate the proposal, formal agreements among the different scales and independent review on the innovative carbon transactions proposal. The goal is to have a benefit-sharing approach that allows that REDD+ benefits flow to the

HIAs that are implementing CSC techniques on the ground - in partnership with local farmers - and performing in terms of reducing deforestation in the HFZ landscape.

Reform of cocoa farm input system: Ghana's Cocoa Sector Strategy II was developed and drafted in 2014 and 2015 through a consultative processes that involved a wide range of stakeholders. The draft sector strategy calls for, amongst other things, (i) increased production and distribution of free hybrid seedlings, (ii) a phased approach to fertilizer liberalization in which fertilizer is made freely available to farmers through the *hi-tech* programme up to 2017, and then a phased withdrawal to increased, direct distribution of recommended fertilizers at market prices, (iii) increased and direct distribution of chemicals for disease and pest control with a focus on accessibility and timely availability at market prices, and (iv) the development of private sector spraying gangs as business entities who provide services to farmers.

The validation and approval of the Cocoa Sector Strategy II has been delayed, but is expected to occur by 2017. The validation and passage of this sector strategy is critical to the success of the programme and its climate-smart cocoa activities because it will provide clear sector-level policy support on specific issues and activities to the programme. For CSC to deliver yield increases, improved resilience and reductions in deforestation farmers must have equal access to farm inputs at fair prices and in a timely manner. Resources from the programme will be made available to support the passage and implementation of the cocoa sector strategy.

E3. Modification to Customary Norms and Practices

The vast majority of landholding in Ghana is under the control of traditional governance structures and follows customary norms and practices. There are very broad systems of farming within the traditional systems but these vary from location to location. A number of these traditional systems have perverse incentives to wise cocoa farm management. This is particularly so in the case of settler farms throughout the cocoa programme area.

The programme will support dialogues and negotiations in each of the HIAs to seek pathways to promote an evolution away from perverse incentives in traditional land-use practices which directly affect cocoa farming. The programme recognizes that this process will take different pathways across the set of HIAs and will thus support independent studies in HIAs to identify perverse land use norms. The programme will support negotiation with traditional leaderships at HIAs level and will encourage progressive traditional leaders to experiment with such change. The programme will support independent review on implementation of land use reforms.

3.3 Emission Reductions Impacts

It is recommended that approximately 6 out of the 9 HIAs described in Section 2.5 should be implemented in line with the Implementation Plan during the first phase of the GCFRP.

Three possible groupings of 6 HIAs are proposed. Group One covers 1.36 million hectares, about 23% of the programme area, and accounts for 24% (55,492 ha) of the deforestation observed in the programme's landscape over the time period. Group Two covers 1.44 million hectares, 24% of the GCFRP landscape, and 22% (48,464 ha) of the deforestation occurred within the associated districts. Finally, Group Three covers 1.36 million hectares, which is 23% of the programme area, and 24% (53,144 ha) of forest loss occurred within the districts.

Figures 14a, 14b, 14c give estimated performance effectiveness scenarios (40%, 60%, 80% and 100%) of avoided biomass, avoided emissions (tCO₂) and potential carbon revenue (USD 9.5/ton). It is assumed that the time period covers the first 5 years of the programme. It is also assumed that despite the implementation of activities within the selected HIAs, forest losses will still be occurring in other

parts of the landscape, and therefore demonstrating performance within HIAs will be crucial to the programme’s overall success.

However, the estimated emission impacts and potential revenue calculation have not been constructed against a reference level as this has yet to be completed. Depending on the current level of actual deforestation and the historical reference level that will be finalized, actual impacts could vary significantly.

At a very low level of success in the HIAs (40%), the GCFRP could expect to reduce approximately 1.6 – 2.4 million tons of CO2es, which would result in approximately USD 8 million in emission reductions payments or carbon-based revenue

If the HIAs are 100% successful at reducing deforestation within their landscapes, then avoided emissions of 4-5 million TCO2 could be expected, resulting in approximately USD 47.5 million payments in the first 5 years.

HIA Group One

Ahafo Ano South
Atwima Mponua
Atwima Nwabiagya
Kwaebibirem
Asante Akim South
Birim North
Bibiani/Anwiaso/Bekwai
Sefwi Wiawso
Atiwa
Denkyembour
East Akim
Asutifi
Asunafo South
Asunafo North

HIA Group One Implementation Effectiveness Scenarios				
	40%	60%	80%	100%
Avoided Loss of Biomass	888,431	1,332,646	1,776,862	2,221,077
Avoided CO2 Emissions (TCO2)	1,630,271	2,445,406	3,260,541	4,075,676
Carbon Revenue USD	\$8,151,353	\$12,227,029	\$16,302,706	\$38,718,922

Figure 14a. Members of HIA Group One and associated implementation effectiveness scenarios

HIA Group Two

Ahafo Ano South
Atwima Mponua
Atwima Nwabiagya
Kwaebibirem
Asante Akim South
Birim North
Adansi South
Adansi North
Suaman

Implementation Effectiveness				
	40%	60%	80%	100%
Avoided Loss of Biomass	897,534	1,346,301	1,795,069	2,243,836
Avoided CO2 Emissions (TCO2)	1,646,975	2,470,463	3,293,951	4,117,438
Carbon Revenue USD	15,646,266	23,469,399	31,292,532	39,115,665

Sefwi-Akontobra
Aowin
Juabeso
Bia
Bodi

Figure 14b. Members of HIA Group Two and associated implementation effectiveness scenarios

HIA Group Three

Ahafo Ano South
Atwima Mponua
Atwima Nwabiagya
Kwaebibirem
Asante Akim South
Birim North
Bibiani/Anwiaso/Bekwai
Sefwi Wiawso
Assin South
Assin North
Asutifi
Asunafo South
Asunafo North

	Implementation Effectiveness			
	40%	60%	80%	100%
Avoided Loss of Biomass	894,875	1,342,312	1,789,750	2,237,187
Avoided CO2 Emissions (TCO2)	1,642,095	2,463,143	3,284,190	4,105,238
Carbon Revenue USD	15,599,904	23,399,857	31,199,809	38,999,761

Figure 14c. Members of HIA Group Three and associated implementation effectiveness scenarios

3.4 Programme Costs and Budget

Ghana estimates that the total cost of setting up and operating the GCFRP over its first 5 years is US\$ 199,347,250. Of this, it is anticipated that the programme will generate approximately US\$ 47,982,250 in revenue from emission reductions. Assuming that Ghana signs an ERPA in 2017, this budget covers the period 2017- 2021.

Table 14 provides a summary financial plan for the GCFRP. A detailed budget with full cost breakdowns accompanies this report as a separate excel file.

Table 14 . Summary financial plan

<i>ITEM</i>	<i>DESCRIPTION</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>TOTAL</i>
<i>Costs related to administrative oversight of the ER Program</i>	<i>Items A1 & A2, Set-up of the JCC and the PMU</i>	\$ 1,402,600	\$ 656,700	\$ 664,995	\$ 673,705	\$ 682,850	\$ 4,080,850
<i>Operational and implementation costs related to the actions and interventions that are part of the ER Program</i> <i>(add separate rows for each of the ER Program Measures identified in section 4.3</i>	<i>Items A4 & A5: Law Enforcement and Indentification of CSC Hotposts</i>	\$ 1,065,000	\$ 1,120,000	\$ 1,120,000	\$ 1,120,000	\$ 620,000	\$ 5,045,000
	<i>B. Landscape Planning within HIA areas</i>	\$ 2,098,300	\$ 4,067,700	\$ 3,459,000	\$ 3,495,700	\$ 3,345,700	\$ 16,466,400
	<i>C. Increasing Yields via CSC</i>	\$ 24,300,000	\$ 24,070,000	\$ 24,070,000	\$ 24,070,000	\$ 24,070,000	\$ 120,580,000
	<i>D. Risk management/finance</i>	\$ 260,000	\$ 520,000	\$ 50,590,000	\$ 280,000	\$ 280,000	\$ 51,930,000
	<i>E. Legislative and Policy Reform</i>	\$ 120,000	\$ 100,000	\$ 235,000	\$ 140,000	\$ 150,000	\$ 745,000
<i>Financing costs (e.g., interest payments on loans)</i>		N/A	N/A	N/A	N/A	N/A	
<i>Costs related to development and operation of the Reference Level and Forest Monitoring System;</i>	<i>Items A3: GCFRP activity monitoring/MRV/Data management system</i>	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 500,000

<i>Costs related to the Implementation of Benefit Sharing Plan and relevant Safeguard Plan(s)</i>		TBD	TBD	TBD	TBD	TBD	
<i>Costs related to the implementation of the feedback and grievance redress mechanism(s);</i>		TBD	TBD	TBD	TBD	TBD	
<i>Costs related to stakeholder consultations and information sharing</i>		TBD	TBD	TBD	TBD	TBD	
<i>Other costs</i>							
TOTAL		\$ 29,345,900	\$ 30,634,400	\$ 80,238,995	\$ 29,879,405	\$ 29,248,550	\$ 199,347,250

4 Programme Risks and Mitigation Measures

4.3 Risk Rating Summary and Overall Risk Explanation

Table 14. Risk categories and overall ratings

Risk Categories	Rating
1. Political and governance	Low (1 pt)
2. Macroeconomic	Moderate (2 pts)
3. Sector strategies and policies	Substantial (3 pts)
4. Technical design of programme	Substantial
5. Institutional capacity for implementation and sustainability	High (4 pts)
6. Fiduciary	High
7. Environment and social	Low
8. Stakeholders	Low
9. Other	-
Overall	Moderate (2.3)

GCFRP's overall risk is rated as moderate with an average risk rating of 2.3. The programme is innovative and potentially transformative for the high forest zone of Ghana but it will face risks in successfully achieving the planned results.

The cocoa and forestry sectors represent over USD 2 billion/year of in-country economic activity. Much of the deforestation and degradation associated with these sectors is driven primarily by the land-use behavior of millions of smallholder farmers and forest users, sector stakeholders who pursue personal interests or are prevented from performing their duties, as well as other stakeholders and variables outside the direct influence of the current available financing for the GCFRP. There are also capacity constraints at all levels of implementation and governance for a cocoa sector jurisdictional REDD+ programme that has a carbon accounting area of just under 6 million ha. Measures to address some of these risks are planned, as part of the National REDD+ Strategy and part of the GCFRP Implementation Plan. Despite the complexities involved in coordinating the large number of national and local actions needed to facilitate landscape management and changes throughout the programme area, the GCFRP's overall implementation risk is rated moderate.

4.4 Risk Analysis by Category and Mitigation Measures

4.2.1 Political and Governance

The risk associated with politics and governance is listed as low. The country has had a stable governance system since 1982 and has enjoyed multi-party democracy and democratic decision-making since 1993. Ghana has made major strides towards consolidating democratic institutions shown through various elections and court cases in which elections were contested. Elections which have twice resulted in changes in ruling parties has demonstrated that its political parties, leaders, and people are committed to democracy and stability. The Ghanaian Parliament is vibrant, and

despite inherent challenges and the dominance of the two leading political parties, has created the avenue for debate and vigorous legislative activity.

Ghana is constantly ranked among the top countries in Africa for freedom of the press and freedom of speech. The broadcast media is the strongest, with radio being the most far reaching medium of communication. All these put Ghana in an enviable political position, and provide it with formidable social capital.

Ghana has made solid progress in REDD Readiness and is seen as a leader on the African continent in the climate change space. There is strong commitment to climate related programmes from the current Government and Parliament and the GCFRP programme enjoys solid support from the leading government bodies for cocoa and forestry. The planned mitigation is to maintain strong awareness and engagement from high office holders and Parliamentary Sub-Committee towards the programme. Also activities to maintain and ensure a deep level of media engagement with all aspects of the programme will guarantee broad awareness and social support for the programme.

4.2.2 Macroeconomic

The risk associated with the macroeconomic context is ranked as moderate. The country has been liberalizing its economy for the past two decades with significant progress. In the past few years it has weathered significant economic stress with persistently high inflation despite efforts to tighten monetary policy and fiscal consolidation to reduce the deficit. Ghana's real gross domestic product growth is projected to rebound to 5.2% in 2016 from 3.4% in 2015.

The country's external trade balance improved in 2015, despite unfavorable global economic conditions. The international prices of oil and gold, which account for 50% of Ghana's exports, fell by 47% and 8%, respectively in 2015. Development of the oil and gas sector has been attracting investment and supporting economic growth but this exacerbates Ghana's commodity dependency with the country heavily exposed to international price trends.

While growth in Ghana has been inclusive, most of the jobs generated have been in the informal economy, with significant spatial disparities and rising income inequality. Although Ghana met the first Millennium Development Goals (MDG) target, that of eradicating extreme hunger and poverty, four of its ten regions are lagging behind. However, Ghana will not meet the MDGs related to reversing the loss of environmental resources, reducing the proportion of people without access to improved sanitation, and achieving significant improvement in the lives of people living in slum areas.

No targeted mitigation activities are planned in this regard as risk is deemed outside the remit of the programme and is manageable.

4.2.3 Sector strategies and policies

The risk associated with sector strategies and policies is ranked as substantial. The Forest and Wildlife Bill has been pending at Parliament for a long time without being passed. This needs to receive Parliamentary approval to form the new legislation for the forestry sector. The bill will give legal backing to the implementation of new tree tenure policies, which are critical to changing cocoa farmer behavior on their farms with regard to shade regimes.

The Cocoa Board has a draft new Cocoa Sector Strategy II, which gives backing to a number of reforms in the sector including a Ghana Cocoa Standard and farm input reforms. It is essential this is approved and implemented.

Finally, reforms will be needed in traditional customary land arrangements, particularly with settler farmers. This issue is particularly important as current norms act as a perverse incentive to settler farms to avoid cocoa farm rehabilitation/replanting at all cost.

The programme will mitigate these issues through a focused set of implementation activities designed to deliver on the necessary sector policy changes.

4.2.4 Technical design of programme

The risk associated with technical aspects of the programme are listed as substantial. The two main technical risks are displacement and reversals.

4.2.4.1 Displacement

The programme does not expect to cause any kind of displacement (leakage), as the programme interventions are directly focused to address two of the main drivers and agents of deforestation and degradation in the region (cocoa/subsistence farming and unsustainable logging), providing them with permanent climate-smart agriculture options. Furthermore, the programme drivers and agents are not relevant outside of the programme area, with the exception of illegal mining. For example, the ecological limits of the HFZ and that of the agricultural products grown in the programme area, including cocoa, conform with the programme’s ecological boundaries. Thus, expansion of cocoa, food crops, or other tree crops outside the programme area is highly unlikely, especially with the increasing threats from climate change. Therefore, the selection of the programme’s boundaries along the ecological zone represents a key leakage avoidance strategy.

The risk of international displacement of emissions (leakage) is not considered to be a problem for this programme given that Ghana does not have jurisdiction over other sovereign states. More practically, however, the boundaries between Ghana and Côte d’Ivoire (the only likely border for international leakage) are monitored closely, making it difficult for people to migrate seamlessly or to transfer products like timber or cocoa beans. Moreover, the factors driving deforestation in Ghana, including agricultural expansion, could not shift onto Ivorian soil without encountering significant barriers or consequences. Finally, Ghana is a member of the UNFCCC, and is closely watching decisions on international leakage and will conform as needed or as necessary.

Table 15. Displacement risks associated with different drivers of deforestation

Driver of deforestation or degradation	Risk of Displacement. (Categorize as High, Medium or Low)	Explanation / justification of risk assessment
Cocoa farming	Low	Agents are not migratory and will be directly engaged in the programme interventions
Subsistence agriculture	Low	Agents are not migratory and will be directly engaged in the programme interventions
Illegal logging	Medium	The programme holds the majority of the timber resources being logged illegally for building and construction purposes. Sources of timber outside of the programme’s ecological boundaries are quite limited. A significant increase in monitoring by stakeholders at the scale of HIAs and through rapid response to other hotspots will reduce the incidence and opportunity.

		Agents will be directly engaged in the programme interventions.
Illegal small-scale mining	Medium	The land owners are not migratory, though some of the agents are. In the second phase of the programme (post-2020), lessons from the HIAs will be applied to areas with illegal mining. Increased income from climate-smart agriculture and other benefits will help to mitigate the opportunity cost.

The programme is not likely to generate any displacement. Nevertheless, deforestation and degradation potential displacements will be monitored annually across the programme area and its surroundings. If displacements are identified and attributed to the programme, they can be deducted/compensated with reductions in future ERs generated by the programme.

4.2.4.2 Reversals

The Programme acknowledges that given its size and scale, there are some inherent reversal risks. The most significant risks include:

- Increasing scale of illegal mining
- Potential commodity price volatility—price of cocoa, oil palm, rubber, etc.
- Forest fires

Illegal mining (galamsey): Illegal mining does appear to be responsible for deforestation in some areas of the GCFRP. Small-scale illegal gold mining occurs all across the country in sporadic “bursts” that come and go when substantial veins are discovered. Controlling illegal mining is beyond the mandate of the programme and the programme doubts whether it can fully compensate the opportunity cost associated with gold mining, especially at the outset of the programme, during its initial phase (up to 2020). Therefore, it will just focus on campaigns and sensitization within HIAs and FIP areas and perform damage control activities if/when such activity happens.

The Minerals Commission and National Security bodies will be the key institutions in mitigating risk from this issue. It is also assumed that landscape planning will address some of the socio-cultural issues driving illegal mining. There is already strong evidence in Western Region (Wassa Amenfi West and Wassa Amenfi Central districts) that community-based management and planning approaches can significantly reduce the incidence of mining. In the second phase of the programme (post-2020), lessons from the HIAs will be applied to areas where illegal mining is a major problem. Increased income from climate-smart agriculture and other benefits will help to mitigate the opportunity cost and threat of reversal.

Commodity price volatility: Cocoa has experienced a stable increase in prices over the last 10 years and it is very unlikely that a crash may happen in the near future. There is actually a potential risk that some farmers may wish to expand their crops after being successful with the new models for climate smart cocoa farming.

Ghana’s Cocoa Board regulates the price of cocoa in Ghana, which therefore moderates potential future price volatility affecting farmers’ decision making. However, it will be important to make sure that the appropriate resources are in place to foster long-term tree-crop farming systems in appropriate lands. To avoid and monitor this risk, the programme will register all farms included in the programme and monitor if the intensified crops are profitable enough to sustain their social needs.

Forest fires: This represents a potential risk of reversal in any REDD+ programme. The use of fire for forest clearing is illegal in Ghana, but the occurrence of uncontrolled forest fires may happen as a result of illegal practices related to illegal logging, land clearing, charcoal production, and as a result of dry years (El Nino events).

The programme will mitigate this risk of forest fires by further strengthening fire management and control units at Forestry Commission. The programme's MRV system will help to identify forest fires almost in "real time" and the improved structure for surveillance and fire brigades will allow for immediate reaction. Better land use planning and reductions in illegal logging will also ensure healthy forests which are less susceptible to fires.

4.2.5 Institutional capacity for implementation and sustainability

The risks associated with institutional capacity for implementation and sustainability are listed as high. There is weak cross-sectoral coordination, and the complexity of the institutional and implementation arrangements for coordinating, verifying, receiving and disbursing ER payments at a jurisdictional scale of this size is a potential risk for GCFRP success. Coordinating across natural resource-related agencies (environment, forestry, agriculture, cocoa, water, minerals, and energy) at the local and national levels combined with: (i) the complexity of monitoring requirements for performance-based carbon finance; and (ii) the complexity of orchestrating hundreds of thousands of land-users to act toward common goals of forest conservation and climate-smart cocoa agriculture is a high risk. The mitigation of the risk will depend on the identification and effective implementation of measures to strengthen the capacity of participating institutions, carry out joint annual work planning and budgeting across sectors for GCFRP, enhance safeguards implementation, and ensure the timely performance and delivery of operational and coordination requirements. The programme's strategy to focus interventions in decentralized deforestation hotspots will prove an excellent opportunity to build measures to mitigate implementation risks.

4.2.5.1 Implementation capacity. FC and Cocoa Board have experience in managing WB-financed technical assistance projects, including the NRMP, FIP and REDD+ Readiness process. However, there is still a need to further strengthen capacity at all levels from national down to district. Having the funds flowing through the Ministry of Finance, then on to the JCC-level institutions may cause delays in the flow of funds. National and district agencies responsible for forestry, cocoa and other resources, will need to work operationally together to achieve mutual goals. The risk mitigation approach would be to finance a coordination mechanism and accompanying tools, building on the experience from previous WB-financed programmes.

4.2.6 Fiduciary

The risks associated with fiduciary aspects of the programme are rated high.

4.2.6.1 Benefit sharing and funds flow. Benefits associated with emissions reductions payments may not reach the stakeholders whose behavior needs to be changed to ensure reductions in deforestation. There may also be elite capture of benefits and exclusion of some stakeholders, particularly underserved members of the communities. An equitable BSM to incentivize cocoa farmers and forest communities to conserve and rehabilitate forest is being developed, and should be finalized with no-objection from the WB prior to ERPA signature. The proposed mitigation approach would be to ensure that a well-consulted BSM is in place before a certain level of benefit-sharing is made coupled with a strong safeguards approach.

There is a risk associated with the fact that the GCFRP does not have a non-performance grant component but rather is entirely performance based. *There is risk associated with a scenario where Ghana does not get to the ER payments period.* This risk is mostly due to expectations raised exogenously in the ever-evolving global climate change finance dialogue among countries and other actors. The mitigation action for GCFRP would be to emphasize to stakeholders that there are important benefits for the country.

4.2.6.2 Procurement management risk. This risk rated substantial due to weak procurement oversight bodies and lack of qualified procurement staff in key offices. The key mitigating measures are to emphasize continual training and close implementation support.

4.2.6.3 Financial management risk. This risk is rated substantial due to high turnover and a shortage of qualified accountants and auditors particularly at FC and Cocoa Board. The key mitigating measures are to emphasize continual training and close implementation support.

4.2.7 Environment and Social

Environmental and social risk is low. The programme will operate in a changing environment with complex commercial and social relationships, but these are predominately longstanding relationships. As such, the programme is not likely to face social concerns related to the existence of underserved and vulnerable groups in its intervention areas. There may be some concerns about inadequate understanding of social issues and weak capacity and expertise within the government structures to deal with both social and environmental risks to properly implement and document safeguard instruments. However, within the cocoa sector, there is over a decade of experiences amongst private sector and government institutions to eliminate environmental and social risks like child labor and gender.

The risk mitigation measures would rely on a carefully designed safeguards management plans and capacity building measures to strengthen implementation capacity of the implementing bodies, and reinforced by a dedicated safeguards management activity sub-component in the design. The Programme has prepared the following safeguard instruments: (i) an ESMF in compliance with OP 4.01, (ii) a RPF and PF in compliance with OP 4.12, and (iii) a Social Assessment (SA) and Social Development Plan (SDP) in compliance with OP4.10 as part of the Strategic Environmental and Social Assessment (SESA). The ESMF, RPF, PF and the SESA (plus SDP) were consulted upon and disclosed prior to appraisal. Furthermore, in compliance with REDD+ requirements, the SESA was prepared as part of National REDD+ Readiness. The nationwide SESA is being adapted for GCFRP. In addition, with regards to resettlement, the program does not anticipate any involuntary settlement, however, for illegal farms, farmers would be given the opportunity to rehabilitate the farms for a period of 10years to take them out of the forest reserves gradually.

4.2.8 Stakeholders

There is low stakeholder risk as the programme has clearly identified its stakeholders and a high degree of formal and informal consultation has been completed during design and early implementation. The in-depth inclusion of cocoa farmers, their rural communities, women, children and the private sector and farmer associations will ensure a high degree of buy-in. This risk would increase if there was lack of sufficient consultation and awareness creation on the basics of the programme and implementation plan. This risk will continue into early implementation phase when the hotspots areas engagement begins.

In order to mitigate this, establishment of HIAs should be preceded by continuous community consultation involving the whole forest dependent community, village leaders and community elders and other key persons to increase ownership, inclusiveness, avoid disappointment and ensure sustainability while garnering broad community support. This will be buttressed by the implementation of safe guards and grievance mechanism under the programme.

5 Financing

Funding for the implementation of the GCFRP will be from a mix of sources: REDD+ funds (24.1%), private sector and Cocoa Board investment (72.3%), Government of Ghana (0.3%), and donor grants (3.4%). In the current budget, the mix of funding sources is summarized in Table 16.

Table 16. Summary of GCFRP funding sources.

Summary of Funding Sources	Total	%
REDD+ Funding	\$ 47,982,250	24.1%
Private Sector	\$ 144,100,000	72.3%
Grants	\$ 6,710,000	3.4%
Government	\$ 555,000	0.3%
TOTAL	\$ 199,347,250	100%

REDD+ Funding

CF financing will contribute approximate US\$48 million to the programme, 24.1% of the total. Carbon Fund financing will be used primarily for Institutional Coordination, the MRV, and the establishment of the PMU. In addition, the development and implementation of the HIA Landscape Management Plans will be funded through CFF. Other interventions to be supported by REDD+ funds include increasing transparency in cocoa purchases, marketing of additional ERs, branding CSC, and developing a sustainable finance solution for the HIAs.

Private sector financing

The private sector and Cocoa Board investment of US\$144,100,000 represents over 72% of the total value of the programme. In 2015, Ghana's entire cocoa sector was worth US\$ 1.8 billion, as evidenced by the syndicated loan that the Cocoa Board signed on behalf of the private sector in Paris in September. On top of this, the private sector makes additional investments through their public-private partnership extension programmes and sustainability initiatives, which are focused at the grassroots producers. Therefore, the GCFRP does not expect the private sector to bring substantial *new* money, but rather it expects to leverage a portion of the existing investments and influence this investment into new and wise use. Specifically, the private sector will fund the major elements the programme, namely the establishment of CSC and the development and implementation of farmer engagement packages and better farming practice guides. In addition, the fund to support access to financial credit and providing access to yield insurance will be supported through private sector funds. Additional details will come following further discussions with the parties involved.

Grant Financing Sources

There are multiple potential grant sources of funding for this programme, and multiple work streams that could be packaged for such. In the current budget, grant funding will contribute approximate

US\$6.71 million to the programme, or 3.4% of the total value. For example, NCRC/VCS/IKI will fund the entire budget for activity B4: Establish CSC landscape level validation in HIAs. In addition, item A4: Law Enforcement of the GCFRP, will be packaged for funding from a bi-lateral donor. Finally, Pillar E: Legislative and Policy Reform, will be packaged for funding through the Forestry Investment Programme (FIP) of the World Bank's Climate Investment Fund.

Potential sources of grant funding include: Solidaridad, SNV, IUCN Netherlands Committee, NCRC/ Forest Trends and the 25 million Sterling DFID/Palladium fund to support climate smart agriculture that contributes to emissions reductions.

Government Financing Sources

In the current budget, government funding will contribute approximate US\$555,000 to the programme, or .03% of the total. Government will fund the establishment of the Joint Coordinating Committee and the Steering Committee. Costs related to the Implementation of the Benefit Sharing Plan will be added once the plan is designed and validated. The costs of implementing the FGRM and stakeholder consultations and information sharing are under discussion and will be added to the next draft of this document.

6 Recommendations & Conclusions

The GCFRP presents a globally unique, ambitious, and exciting opportunity to reduce deforestation, increase cocoa farm resilience, produce climate-smart cocoa beans, and in doing so establish multiple avenues to significantly improve farmers' livelihoods and well-being across the cocoa forest mosaic landscape. To achieve this vision, a positive and innovative model of collaborative engagement and synergistic investment between government institutions, private sector companies, and civil society organizations at sub-landscape scales has been proposed. Focused round hotspot landscapes of deforestation and cocoa production, it is proposed that a consortium of stakeholders agree to work together towards a set of collective landscape goals, including reducing deforestation and increasing cocoa farmers' yields.

This Implementation Plan has made a strong case for where to work in the landscape, for how stakeholders need to engage together at all levels, for what specifically needs to be done, and for how much this will cost and how funds can be generated. The GCFRP Implementation Plan is comprehensive in its broad scope and sufficiently detailed so as to give a very clear direction to implementation, yet significant room remains for the plan to be interpreted and adapted as needed.

What this plan cannot do, however, is ensure the full and committed participation of stakeholders. What will determine the extent to which this plan is put into action will be strong and open leadership from the government, and the willingness of key private sector partners to become champions of the programme. On the government side, leadership must be shown to create a positive and enabling environment for the program. In response to this leadership and the emerging environment, stakeholders from the private sector will come forward.

Therefore, the rest of this section discusses some of the main issues that are key to the creation of an enabling environment, and highlight critical gaps that will need to be addressed.

6.3 Enabling Environment and Gaps

An enabling policy environment must be effected with respect to **tree tenure reforms, the clarification of carbon rights, and the opening up of benefit sharing schemes** in order to incentivize new actions and behaviors. For the GCFRP to be successful, the lead government institutions, including the FC, the MLNR, and Ghana’s Cocoa Board must demonstrate, through clear actions and a transparent discourse, that they are committed to bring about these types of reforms and that they will fully support implementation of such reforms on the ground. Sadly, Ghana’s environmental and NRM sectors have suffered from a long history of talking about policies, analyzing policies, reviewing policies, and redrafting policies, with very limited evidence of any effort to try new arrangements and effect real and lasting changes on the ground. If an enabling policy environment is not established in the near future, and if scope is not made to implement these changes in the HIAs, then the future success of the programme will be at stake. From the programme’s cocoa farmers to its private sector investors and partners the government must demonstrate its commitment early on, otherwise trust in the government will be lost and confidence in the programme will erode.

An enabling environment will also require that there is **full buy-in from Ghana’s Cocoa Board**. To date, this program and process has received Cocoa Boards support, and on paper there is full endorsement. However, implementation goes beyond far beyond paper agreements, and thus requires a higher degree of ownership by Cocoa Board and more meaningful and committed collaboration between the two lead institutions. This is easier said than done, both practically and philosophically, however the nature of this partnership will set the overall tone for implementation.

Since the conceptualization of the GCFRP, **illegal mining** has increased across the landscape. Though the programme was not conceptualized to directly tackle this driver at its current scale, it is an issue that will need to be addressed in the near future. In addition to the forestry and cocoa sectors, steps must be taken to bring the Minerals Commission and mining sector into the dialogue about solutions. Strong support from Cabinet will also be required to reduce the prevalence and negative impacts from mining.

The leaders of the GCFRP will also need to reach out and **bridge the gap to other agricultural commodities like oil palm and rubber**. To date, neither sector has been squarely involved in the REDD+ or climate smart agriculture space, but both industries present opportunities for collaboration, as well as threats to the forest and the GCFRP. For example, the recent expansion of GREL and the cutting and replanting of old, overgrown rubber and oil palm estates has resulted in deforestation within the GCFRP landscape. However, the private sector interest in sustainable supply chains and the expansion of out-grower schemes related to rubber and oil palm presents an excellent opportunity for collaboration.

Creating an **enabling and transparent environment around the management and distribution of carbon revenue and financial benefits** is of paramount importance to how people will perceive the programme and its success.

6.4 Recommendations

Policy reform: One opportunity to fill the confidence gap and to create the enabling environment would be to establish a working group of government representatives from the three institutions to debrief stakeholders on each institutions’ status and intentions with respect to their respective policy reforms, to outline a pathway to “auctioning” the reforms, and to commit to open meetings with stakeholders on a quarterly basis to provide progress reports and receive input.

Policy reforms: With respect to implementation of reforms, we propose that the HIAs are used as landscapes for testing new tree tenure and benefit sharing arrangements, and for testing new cocoa input supply systems.

Illegal mining: It is recommended that an early learning and testing site be established, distinct from the HIAs, to facilitate a study of the main actors and factors driving the conversion of cocoa lands and forests into illegal gold mines. It is also recommended that the early lessons that will come from implementing the HIAs should be used to consider an adapted model to address illegal gold mining. Wassa Amenfi West and Wassa Amenfi Central would be ideal locations for such a site due to the presence of key stakeholders, like IUCN Ghana, the surge in galamsey mining in recent years, and the importance of cocoa farming in the districts.

Other tree crops: Depending on where the HIAs will be located, there is an opportunity to work to integrate an oil palm estate, rubber estate, palm oil company, or rubber company into one of the HIA consortiums to work on related tree crop issues within the landscape. This could result in the development of a climate-smart oil palm or rubber product, similar to that of climate-smart cocoa. It may be that this is not possible at the start, so other tree crops should be specifically targeted for the second phase of implementation.

Fund management: It is recommended that an independent fund manager is employed to manage any carbon revenue that is intended to be shared as “benefits”, either in-kind or as cash, as a localized PES scheme.

6.5 Conclusions

This document outlines a detailed Implementation Plan for Ghana’s Cocoa Forest Programme. As a key deliverable for the development of the programme’s ERP, it maps out stakeholders, assesses trends in the landscape, proposes areas for implementation, lays out a suite of specific activities and interventions, and describes the costs and financing required to support the programme. Though comprehensive in its detail and scope, the Implementation Plan will need to be shared with and validated by key stakeholders in order to ensure their understanding and buy-in. Two meetings are already planned for June 7 and June 14th, but it is clear that many additional meetings will be required, even after the ERP is completed and submitted to the FCPF by the end of June and the Carbon Fund by late 2016.

What makes this programme exciting is that it leverages the investments, activities, and commitment of a wide range of stakeholders towards a series of common natural goods and social benefits. But what makes this programme a challenge is that it asks stakeholders and actors at all levels to jointly change how they interact and act on the ground. The NCRC IDESAM team believe that this Implementation Plan provides a clear and detailed pathway that can deliver success, and so it is our sincere hope that all stakeholders will give it serious thought and ultimately a serious commitment.

7 Annexes

7.1 Annex to Stakeholder Mapping

Table 7.1-1 Breakdown of the Administrative Districts in which the identified stakeholders are engaging

Name	A Rocha Ghana	Agro Eco	CAA	Cargill	Cocoa Partners Fdn	Cocoa Merchants	Coservation Alliance	Ecom	IUCN Ghana	Kuapa Koko	Mondelez	Nyankopa Cocoa Buying Co.	Olam	PBC/Touton	SNV	Solidaridad	Touton/PBC	Transroyal	Yayra Glover Ltd.	Unicom	Ranking	
Adansi East							CA															2
Adansi North								Ecom								Solidaridad						2
Adansi South								Ecom								Solidaridad	Touton/PBC					3
Agona East														PBC/Touton								1
Ahafo Ano North				Cargill							Mondelez			PBC/Touton								3
Ahafo Ano South					CPF					Kuapa				PBC/Touton								3
Amansie Central																						0
Amansie East								Ecom								Solidaridad						2
Amansie West			CAA								Mondelez											2
Aowin			CAA											PBC/Touton		Solidaridad						3
Asante Akim South					CPF											Solidaridad	Touton/PBC					3
Asikuma Odoben Brakwa				Cargill				Ecom						PBC/Touton		Solidaridad						4
Assin North		Agro Eco			CPF		CA	Ecom						PBC/Touton		Solidaridad		Transroyal				7
Assin South					CPF			Ecom								Solidaridad						3
Asunafo North											Mondelez		Olam			Solidaridad	Touton/PBC					4
Asunafo South								Ecom			Mondelez			PBC/Touton								3
Atiwa	A Rocha		CAA		CPF						Mondelez									Yayra Glover		4
Atwima Mponua		Agro Eco		Cargill	CPF	CM		Ecom			Mondelez					Solidaridad						7
Atwima Nwabiagya										Kuapa						Solidaridad	Touton/PBC					3
Ayensuano							CA				Mondelez											1
Bia											Mondelez		Olam	PBC/Touton	SNV	Solidaridad						6
Bia East											Mondelez		Olam									2
Bibiani Awhiaso Bekwai				Cargill	CPF						Mondelez					Solidaridad						4
Birim Central			CAA											PBC/Touton								2
Birim North			CAA																			1
Birim South			CAA																			1
Denkyemboa	A Rocha																					1
East Akim	A Rocha			Cargill																Yayra Glover		3
Ewutu Senya											Mondelez											1
Fanteakwa	A Rocha										Mondelez											2
Jomoro							CA															1
Juabeso											Mondelez		Olam	PBC/Touton	SNV		Touton/PBC					5
Kwaebibirem	A Rocha													PBC/Touton								1
Kwahu West																						1
Mpohor Wassa East								Ecom								Solidaridad						2
New Juaben											Mondelez											1
Nzema East							CA															1
Obuasi								Ecom								Solidaridad						2
Offinso																Solidaridad	Touton/PBC					2
Sekyere East											Mondelez											1
Sefwi Akontobra					CPF							NCBC		PBC/Touton		Solidaridad				Unicom		5
Sefwi Wiawso				Cargill	CPF									PBC/Touton		Solidaridad				Unicom		5
Suaman														PBC/Touton						Unicom		2
Suhum Kraboa Coalta											Mondelez			PBC/Touton						Yayra Glover		3
Sunyani																Solidaridad	Touton/PBC					2
Tano North				Cargill																		1
THLD			CAA				CA	Ecom					Olam			Solidaridad						5
Twifo-Ati Mokwa			CAA													Solidaridad						1
Upper Denkyira East			CAA																			1
Wassa Amenfi East		Agro Eco						Ecom			Mondelez											3
Wassa Amenfi Central									IUCN Ghana													1
Wassa Amenfi West		Agro Eco	CAA				CA	Ecom	IUCN Ghana					PBC/Touton								6
West Akim	A Rocha										Mondelez			PBC/Touton								3

Table 7.1-2 Description of the broad activities of key organizations and companies operating in the GCFRP area and their main partners.

Organization / Company	Private Sector / Partners	NGO	Description of Activities	Sources of Info
African Cocoa Initiative (World Foundation)	Cocoa	ACDI/VOCA Transmar Mondelez Hershey Ecom	A public-private partnership that aims to double productivity for 100,000 cocoa farm households in West and Central Africa through the strengthening of local and national institutions, and in doing so raise farmer incomes by 150-200%. Overall goal to institutionalize effective public and private sector models to support sustainable productivity growth and improved food security on diversified cocoa farms in the region. This initiative is implemented from 2011-2016.	Information received from WCF and website materials.
World Foundation	Cocoa	ACDI/VOCA Transmar Mondelez Hershey Ecom	Have new funding from USAID for a climate smart cocoa programme (5 years). Strong regional focus on West Africa. Focus on breeding drought resistant cocoa, climate-smart cocoa, and a climate smart cocoa production manual.	Conversation with WCF
Ecom Ghana Ltd. / Armajaro		Solidaridad Agro Eco	Armajaro is invested in trainings and certification activities that include biodiversity conservation and protection of water bodies, the responsible use of chemicals and agro-inputs, good agricultural practices, and sustainable intensification. It maintains two key initiatives: <i>Geo-traceability:</i> Project to collect data on small-holder farmers and trace the cocoa bean along the supply chain. Collects personal data on farmers, as well as farm area, geographic location, and information about the management and conditions of the farm. It can then analyse and present results on web-based platform. This project has also tested a rapid biodiversity assessment method. <i>Source Trust:</i> Reaching over 89,000 cocoa farmers through improved access to drinking water, distribution of bed nets, establishment of village resource centres, distribution of cocoa seedlings and spraying equipment, and establishment of demonstration farms..	Feedback from consultation.
Mondelez		CARE UNDP World Vision VSO Olam	Cocoa Life Programme: Cocoa Life is our largest, most comprehensive cocoa sustainability effort to date. The cocoa life programme will see us invest \$400 million over the next ten years to fund sustainable cocoa production in the Asia Pacific region and around the world. It will reach more than 200,000 farmers across six countries, benefitting more than a million people, and ultimately lead to all our cocoa supply being sourced sustainably, with third-party verification. Cocoa Life's approach is to create win-win relationships that benefit farming communities by working with partners in four key ways:	Responded to stakeholder survey

			<p>Farming: helping farmers improve their yields and livelihoods to earn larger incomes</p> <p>Community: empowering cocoa farming families to create the kind of communities they and their children want to live in, while promoting gender equality</p> <p>Youth: working towards eliminating child labor by helping communities tackle its root causes. Making cocoa farming a more attractive profession for the next generation</p> <p>Environment: protecting the landscapes in which cocoa is grown to maintain eco-systems and provide viable environments and farming land for future generations</p> <p>In Ghana, Mondelez International's Cocoa Life programme has partnered with the United National Development Programme (UNDP) to address the problems of deforestation and drought by encouraging farmers to adopt environmentally sustainable production practices in the cocoa sector. Through the partnership, farmers receive support from UNDP to either replant destroyed trees or introduce new shade trees, which promotes biodiversity, improves conditions on cocoa fields, and makes them more resilient to the risk of pests and disease. Since 2014, the project has distributed over 787,000 shade tree seedlings to nearly 10,000 cocoa farmers. It is gratifying to report that seedling planting and survival rates are in the region of 90% and 95% respectively. There is also support to applying the CREMA approach (community resource management area mechanism).</p>	
Cocoa Association	Abrabopa	KCL ABL Ascot Amsterdam Wienco RMG	<p>Cocoa Abrabopa Association is present in all cocoa districts and has a membership of approximately 12,000. It focuses on training farmers in farm management and business skills so that cocoa farming becomes more of a business. Farmers are trained in Good Agricultural Practices, based on CRIG recommendations, and given access to credit to purchase and use inputs. CAA also implements RA and UTZ Certification in some areas with its farmers. Farmers Within first 3 years farmers are able to boost production from national average of 3 bags/acre (192 kg/acre or 422 kg/ha) to between 8-12 bags/acre (512-768 kg/acre or 1126-1689 kg/ha). Implementing Rainforest Alliance and UTZ standards. CAA holds certificates on behalf of farmers.</p>	Responded to email. Additional information from website and secondary sources.
SNV		Forestry Commission Cocobod District Assemblies KASA Ghana	<p>Funding from the German Federal Ministry for Environment, Conservation, Building and Nuclear Safety (BMU) for project, "From Full Sun to Agroforestry Systems: Rehabilitation of smallholder cocoa farms and forest ecosystems for enhanced conservation and sustainable use of forestry resources in the High Forest Zone in Ghana".</p> <ol style="list-style-type: none"> 1. Improved cocoa agroforestry model introduced through rehabilitation of overaged farms. 2. Functional community land use planning system established and operational in 15 communities. 3. Traceability system established to trace cocoa beans to farm level and also monitor no deforestation in supply chains among three private cocoa companies. 4. The project also seeks to promote multi-stakeholder engagement at landscape scale to facilitate sustainable lands use planning and implementation at local level. 	Responded to email survey

			<p>Second project: ‘Operationalising National Safeguard Requirements for Results-based Payments from REDD+’. Bia NP, Bia North FR, Krokrosua Hills.</p> <p>1) Development of Country led Safeguards Approach and Safeguards Information System; 2) Preparation of low emission development plans; 3) Piloting REDD+ related participatory forest monitoring in selected parts of project area.</p>	
Yayra Glover Ltd.		SECO	Yayra Glover Ltd is a licensed buying company that purchases organic cocoa beans from approximately 3,000 smallholder cocoa farmers in districts in Ghana's Eastern Region and Volta Region. Yayra Glover engages in recruiting and training these farmers and purchasing their beans. The organic beans can be traced to the particular farm it was produced in.	
Agro-Eco		Ecom	Impact Project on RA Certification, Tano Biakoye Organic Cocoa Farmers’ Cooperative, Ntobroso Organic Cocoa Farmers Cooperative	Responded to email survey.
Olam			An international commodity company that operates as an LBC and processor in Ghana. It prioritizes investments in certified, sustainable cocoa production with support to projects focused on climate smart cocoa.	Conversation with Olam.
Produce Company Ltd. (PBC)	Buying	Touton	PBC is one of the biggest licensed cocoa buying companies (LBC) in Ghana, and has the greatest geographical presence, being present in every village/society.	Feedback from consultation
Touton / PBC			Touton, in direct partnership with Produce Buying Company Ghana, is engaged in two main types of programme: 1) Farmers Well-Being through the “Akuafio Yiedie Fie” programme, with pillars on training and professionalization, access to inputs, cocoa rehabilitation, intensification and productivity, bancarisation, and additional livelihoods and food security. 2) Professionalization within Sustainable Landscapes through a Climate Smart Cocoa programme, which offers the above pillars plus a strong focus on landscape governance and landscape planning . Touton/PBC and PBC/Touton are also involved in multiple certification and farmer training initiatives.	Responded to email survey.
Cargill			Cargill is a cocoa processing company that supports the training of farmers on good environmental practices and implementation of CSC to increase yields and sustainability.	Participated in consultation.
Cocoa Foundation	Partners	Royal Commodities Transroyal Ghana Ltd Federated Commodities Ltd Cocoa Merchants Ltd	Cocoa Partners Foundation works with the associated companies to support sustainable farming practices. It is exploring risk management and finance as a means to support the implementation of CSC and sustainable yield increases.	Feedback from consultation.

Unicom Ghana Ltd.		As an LBC, Unicom engages in farmer training on GAP, certification, and tree planting.	Feedback from consultation.
Rainforest Alliance		<p>Certification of SAN climate standard. The objective of the SAN Standard is to encourage farmers to analyze and consequently mitigate environmental and social risks caused by agricultural activities through a process that motivates continual improvement. The standard is based on the themes of environmental soundness, social equity and economic viability. It focuses on Social & Environmental Management System, Ecosystem Conservation, Wildlife Protection, Water Conservation, Fair Treatment & Good Working Conditions for Farmers, Occupational Health & Safety, Community Relations, Integrated Crop Management, Soil Management & Conservation, Integrated Waste Management.</p> <p>In Ghana, the goal is to bring large areas of cocoa agroforestry landscapes under sustainable management while increasing cocoa production and securing premium payments for certified beans.</p> <p>Promoting certified cocoa in Ghana with multiple private sector and public partners. Testing SAN Climate Module to be added to current RA standard. Farmers organized into groups using lead farmer model. Each group has farmer leader and documentation officer. Both receive training in SAN standards.</p> <p>833 farmers from 12 communities certified in December 2012. Now being prepared for Climate Module verification. Expansion to 20 more communities. As of Nov 2012, over 50,000 MT RA Certified cocoa from Ghana</p>	No response to email.
Kuapa Kokoo Ltd	Twin Trading	Kuapa Kokoo is the largest cocoa farmer association in Ghana, and operates as an LBC to purchase the Fairtrade beans that its members grow. Kuapa Kokoo engages in tree planting on farms and extensive training of farmers in multiple areas of interest.	Feedback from consultation
UTZ		<p>Started in 2009. Approximately 100,000 – 150,000 engaged in certification. Create a sustainable supply chain from producer to consumer. Focus is on Good Agricultural Practices, Cocoa Communities, Natural Resources & Biodiversity, Effective Implementation of the Code of Conduct, Product Flow Control, Social Responsibilities, Internal Control System, Internal Inspection and Registration of Producers.</p> <p>3 way relationship between Solidaridad, Akafo Adamfo and Cargill to support sustainable cocoa production through certification. Farmer groups pursuing certification: AHANSUCOFA, SWACOFA, COMFA, Cocoa Abrabopa, Conservation Cocoa Association</p>	Email exchange but no response to email survey.
Cocoa Merchants Ghana Ltd			Engagement in consultation.

Nyonkopa Cocoa Buying Company Ltd		Nyonkopa supports farmer trainings, afforestation activities and environmental protection in support of sustainability.	Feedback from consultation
Solidaridad	Forestry Commission Permian Okyehene Environmental Foundation	Solidaridad West Africa leads implementation of the UTZ Certification standard for cocoa, it is a major partner to the Cocoa Board in replanting and rehabilitating old farms, and it is also active in the Roundtable for Sustainable Oil Palm (RSPS) in Ghana.	Response to email and participation in consultations.
Conservation Alliance	Forestry Commission FAO FORIG IITA Arocha Institute of Foresters Rural Support Network Conservation Cocoa Assoc. Olam Transroyal Samartex	Conservation Alliance is a Ghana-based Environmental NGO. Current projects are being implemented across the cocoa production landscape and include a focus on the development of a Transfrontier Conservation Area linking forest reserves and protected areas in Ghana and Cote d'Ivoire (Bia Juabeso landscape), ecosystem restoration and monitoring, cocoa farmer trainings in best practices, tree-planting on farms biodiversity education and farm mapping.	Responded to email survey.
IITA		IITA is a leading international research organization focused on cocoa systems with a regional office in Ghana. Through its CCAFS project and agroforestry research agenda, IITA is a key stakeholder engaged in research and development activities that support CSC practices and implementation, particularly with respect to best practice guidelines and climate change adaptation.	Feedback from consultations.
IUCN-Ghana	Danida ICI Forestry Commission Tropenbos Int. Civic Response/Forest Watch Ghana Institute for Cultural Affairs A-Rocha Ghana Codesult Network	IUCN-Ghana has been implementing CREMA in the Western Region for a number of years. Two current projects include: Towards Pro-Poor REDD+ Project Phase II (2012- 2017): 1. Established Baselines to support development of community targets to reduce D&D, and for the enhancement of livelihoods 2. Demonstrate and integrate nature-Based Business/livelihood Options into landscape mgt strategies as incentive measures to reduce D&D 3. Facilitate improvements to existing landscape strategies which enhance collaborative natural resources management arrangements particularly CREMAs. 4. Facilitate integration of gender measures into landscape and national level policies/ strategies. 5. Facilitate integration up-scaled/ integration of landscape models into national Forest, REDD+, CC mitigation strategies	Response to email survey.

		The second project is focused on Protected Area categories V and VI as landscape mechanisms for enhancing biodiversity in agricultural land, ecological connectivity and REDD+ implementation (Proposal in progress of receiving Approval. Planned from 2016 - 2018). The aim is to: 1. Developing cross-sectoral consensus and stakeholder ownership; 2) Establishing landscape-level institutional frameworks; 3) Testing of Sustainable land-use institutional arrangements; and 4) facilitating Feedback loops at local, national, regional and global levels.	
Arocha Ghana	Forestry Commission Permian Okyehene Environmental Foundation Dutch Embassy A.G. Leventis Foundation	Arocha Ghana has a strong focus on Eastern Region districts in proximity to the Atowa Forest Reserve Range. One project—Living Waters from the Mountain Project—has worked on demonstrating the value of ecosystem services, media campaigns, training and capacity building on legal and policy issues, forest forums, community sensitization, livelihood enhancement, alternative livelihood options like ecotourism, conservation agriculture, NTFP development, and local timber production. The second programme—Atowa Critical Conservation Action Programme (ACCAP)—is centered on demonstrating the restoration potential of abandoned mines, baseline surveys of biodiversity and biomass, skills needs assessments in mining communities, environmental sensitizations, and livelihood enhancement.	Response to email survey.
Forest Investment Programme		Ghana’s Forest Investment Programme, which is being implemented by the MLNR, is happening in all districts in Western and BA regions.	

7.2 Annex to Deforestation Analysis

Table 7.2-1. Top 30 most deforested districts of GCFRP area over the 2011-2014 period (Areas in ha)

Rank	Districts	Region	Capital	Area_Ha	2011	2012	2013	2014	Total	Percentage
1	Prestia-Huni Valley	Western	Bogoso	153,901	644	1,199	3,973	4,267	10,083	7%
2	Ellembelle	Western	Nkroful	171,785	816	2,945	2,216	3,339	9,316	5%
3	Amansie West	Ashanti	Manso Nkwanta	120,119	580	416	3,409	3,417	7,822	7%
4	Ahafo Ano South	Ashanti	Mankranso	120,098	1,577	718	1,907	3,268	7,470	6%

5	Wassa Amenfi Central	Western	Manso Amenfi	189,110	850	912	2,203	3,468	7,433	4%
6	Wassa Amenfi West	Western	Asankrangwa	175,858	962	1,720	2,080	2,439	7,201	4%
7	Mpohor Wassa East	Western	Daboase	152,073	476	631	2,375	3,567	7,050	5%
8	Mpohor	Western	Mpohor	61,211	255	1,494	2,304	2,776	6,829	11%
9	Tarkwa Nsuaem	Western	Tarkwa	118,759	433	1,466	2,938	1,832	6,669	6%
10	Atwima Mponua	Ashanti	Nyinahin	168,433	1,318	715	2,083	2,462	6,578	4%
11	Kwaebibirem	Eastern	Kade	72,975	529	587	3,121	1,602	5,840	8%
12	Wassa Amenfi East	Western	Wassa Akropong	119,402	316	732	1,735	2,307	5,089	4%
13	Bibiani/Anwiaso/Bekwai	Western	Bibiani	82,067	403	621	1,449	2,205	4,679	6%
14	Atwima Nwabiagya	Ashanti	Nkawie	77,142	638	305	1,685	1,609	4,237	5%
15	Asante Akim South	Ashanti	Juaso	115,524	501	586	1,584	1,558	4,230	4%
16	Suaman	Western	Enchi	177,077	466	1,196	987	1,308	3,956	2%
17	Amansie Central	Ashanti	Gyakobu	91,289	374	94	1,192	2,258	3,919	4%
18	Birim North	Eastern	New Abirim	57,477	383	519	1,614	1,221	3,736	7%
19	Assin South	Central	Nsuaem-Kyekyawere	113,777	263	421	1,591	1,280	3,555	3%
20	Atiwa	Eastern	Kwabon Town	99,116	591	290	1,500	995	3,376	3%
21	Upper Denkyira West	Central	Diaso	55,219	423	643	913	1,395	3,374	6%
22	Nzema East	Western	Axim	35,631	13	1,825	413	711	2,962	8%
23	Ahanta West	Western	Agona	53,717	2	1,752	331	820	2,905	5%
24	Assin North	Central	Assin Fosu	99,086	307	235	1,188	1,134	2,865	3%

25	Adansi South	Ashanti	New Edubiase	129,694	545	262	782	1,126	2,714	2%
26	Adansi North	Ashanti	Fomena	83,073	422	202	740	1,252	2,616	3%
27	Ejisu Juabeng	Ashanti	Ejisu	60,263	296	146	1,105	1,048	2,596	4%
28	Asutifi	Brong Ahafo	Kenyasi No. 1	93,665	543	172	803	1,066	2,584	3%
29	Jomoro	Western	Half Assini	144,216	187	391	1,036	911	2,525	2%
30	THLD	Central	Twifo Heman	49,800	206	291	832	1,149	2,478	5%

Table 7.2-2. Top 15 most deforested reserves within the GCFRP area between 2011 and 2014.

Rank	Reserves Name	Region	Total Area (ha)	2011	2012	2013	2014	Total	Percentage
1	Subri River	Western	59,155	19	32	422	2,405	2,878	5%
2	Anwiaso East	Western	12,237	79	209	638	1,049	1,975	16%
3	Tano Ofin	Ashanti	41,155	336	209	395	523	1,463	4%
4	Tinte Bepo	Ashanti	12,139	523	211	144	499	1,377	11%
5	Asenanyo	Ashanti	25,894	90	144	417	459	1,110	4%
6	Krokosua	Western	47,048	147	67	292	586	1,091	2%
7	Desiri	Brong Ahafo	15,624	381	39	249	291	960	6%
8	Sui River	Western	35,642	153	138	157	326	775	2%

9	Tano Ehuro	Western	21,052	67	251	214	238	769	4%
10	Jinmira Ext.	Ashanti	2,354	299	94	105	210	708	30%
11	Dome River	Ashanti	7,980	17	70	370	194	651	8%
12	Kwamisa	Brong Ahafo	4,522	391	19	65	151	625	14%
13	Esen Epam	Eastern	4,622	89	49	273	191	602	13%
14	Bodi	Western	18,551	45	45	30	337	457	2%
15	Jimira	Ashanti	3,771	164	57	115	115	451	12%

Table 7.2-3 GCFRP district level information on forest loss and cocoa production

Districts	Region	Capital	GCFRP Districts Forest Loss (ha)							Forest Loss/ District Area	Forest Loss/Total Forest Loss	Cocoa Production Level
			Rural pop in GCFRP	Area_Ha	2011	2012	2013	2014	Total			
TOTAL	XX	XX	4897606	0	0	0	0	0	1	100%	100%	
Amansie West	Ashanti	Manso Nkwanta	128364	3	580.02	416.16	3409.08	3416.68	7821.94	7%	4%	Medium High
Ahafo Ano South	Ashanti	Mankranso	109958	5	1	718.11	1907.12	3268.16	7470.4	6%	3%	Low
Atwima Mponua	Ashanti	Nyinahin	104360	6	9	715.03	2082.75	2462.25	6578.12	4%	3%	Medium
Atwima Nwabiagya	Ashanti	Nkawie	102134	7	637.87	305.25	1684.86	1609.08	4237.06	5%	2%	Medium

Asante Akim South	Ashanti	Juaso	97375	4	500.74	586.47	1584.21	1558.12	4229.54	4%	2%	Medium
Amansie Central	Ashanti	Gyakobu New	80759	91289	374.48	94.28	1191.65	2258.28	3918.69	4%	2%	Medium
Adansi South	Ashanti	Edubiase	96412	1	544.51	261.91	782.02	1125.91	2714.35	2%	1%	Medium
Adansi North	Ashanti	Fomena	89787	5	421.65	202.32	740.47	1251.69	2616.13	3%	1%	High
Ejisu Juabeng	Ashanti	Ejisu	104197	4	295.8	146.25	1105.36	1048.11	2595.52	4%	1%	High
Bosome Freho	Ashanti	Asiwa	60397	3	280.9	201.74	561.48	824.92	1869.04	3%	1%	Medium
Asante Akyem Central	Ashanti	Konongo	33026	47733.5	239.09	180.47	653.9	711.17	1784.63	4%	1%	Medium
Amansie East	Ashanti	Bekwai	97277	48357.2	198.91	55.23	733.9	735.94	1723.98	4%	1%	High
Bosomtwe	Ashanti	Kuntenase	65535	1	141.09	54.95	808.7	605.26	1610	4%	1%	Medium
Ahafo Ano North	Ashanti	Tepa	76527	9	271.78	75.06	387.56	615.45	1349.85	2%	1%	Medium
Atwima Kwanwoma	Ashanti	Afrancho	72688	4	166.93	49.49	620.64	510.81	1347.87	5%	1%	Medium
Kwabre	Ashanti	Mamponteng	48504	1	62.52	20.36	423.93	661.1	1167.91	10%	1%	Medium
Offinso	Ashanti	Ofinso	35519.2	9	254.87	65.58	307.26	430.07	1057.78	3%	0%	Medium
Asokore	Ashanti	Asokore	0	3	83.08	47.42	242.11	523.48	896.09	4%	0%	High
Asante-Akyem North	Ashanti	Agogo	7127.36	7	113.48	47.82	178.28	312.19	651.77	3%	0%	Medium
Obuasi	Ashanti	Obuasi	24997	3	111.74	26.41	203.13	298.82	640.1	3%	0%	Medium
KMA	Ashanti	Kumasi	0	4	64.52	18.75	178.44	76.36	338.07	1%	0%	Medium
Sekyere East	Ashanti	Effiduase	25126.7	4	40.38	20.06	103.01	155.51	318.96	2%	0%	Medium
Kumawu	Ashanti	Kumawu	30784.3	1	61.11	39.11	85.86	100.67	286.75	1%	0%	Medium

Sekyere Central	Ashanti	Nsuta	1682.98	5936.64	41.45	14.27	69.83	120.84	246.39	4%	0%	Medium		
Offinso North	Ashanti	Akumadan	84.95	228.72	4.78	0.15	4.19	6.62	15.74	7%	0%	High		
Asante Mampong	Ashanti	Mampong	437.16	485.52	0.69	0.79	2.1	8.87	12.45	3%	0%	Medium		
Asutifi	Brong Ahafo	Kenyasi No. 1	35536	7	543.13	172.17	803.11	1066.02	2584.43	3%	1%	Medium		
Dormaa East	Brong Ahafo	Wamfie	16303.7	83058.1	4	5	302.04	385.67	1199.84	590.32	2477.87	3%	1%	Low
Asunafo South	Brong Ahafo	Kukom	71580	8	371.27	177.27	702.52	904.46	2155.52	3%	1%	Medium		
Dormaa	Brong Ahafo	Domaa	68387	1	130.56	418.96	770.19	818.87	2138.58	3%	1%	Low		
Asunafo North	Brong Ahafo	Ahenkro	77358	7	285.17	113.28	717.3	1008.29	2124.04	1%	1%	High		
Asutifi South	Brong Ahafo	Goaso	57795.0	8	672.13	75.68	440.22	575.07	1763.1	3%	1%	Medium		
Tano South	Brong Ahafo	Hwidiem	18596.8	35595.1	543.48	53.93	373.11	720.85	1691.37	5%	1%	High		
Sunyani Municipal	Brong Ahafo	Bechem	11640.7	34411.9	5	4	378.78	185.32	387.42	407.71	1359.23	4%	1%	Low
Dormaa West	Brong Ahafo	Sunyani	10823	2	93	180.77	377.3	684.35	1335.42	2%	1%	Medium		
Tano North	Brong Ahafo	Nkrankwanta	25775.3	46057.6	8	5	274.54	80.49	482.79	465.78	1303.6	3%	1%	Low
Berekum	Brong Ahafo	Nkwanta	656.34	1224.77	3.76	9.32	28.94	14.12	56.14	5%	0%	High		
Jaman South	Brong Ahafo	Berekum	497.46	622.09	0.39	4.17	7.3	2.01	13.87	2%	0%	High		
Assin South	Central	Japekrom	101668.	113776.	3	9	262.75	420.84	1591.5	1280.28	3555.37	3%	2%	High
Upper Denkyira West	Central	Nsuaem-Kyekyawere	55218.9	3	423.45	642.69	913.48	1394.85	3374.47	6%	2%	Medium		
Assin North	Central	Diaso	99085.5	2	307.01	235.32	1187.96	1134.37	2864.66	3%	1%	Medium		
THLD	Central	Assin Fosu	103631	2	307.01	235.32	1187.96	1134.37	2864.66	3%	1%	Medium		
	Central	Twifo Heman	33862.8	49799.6	7	6	206.31	290.74	832.1	1148.89	2478.04	5%	1%	Medium

Twifo-Ati Mokwa	Central	Twifo Praso	87406	90079.5 8	329.58	282.52	1038.51	788.97	2439.58	3%	1%	Medium High
Upper Denkyira East	Central	Dunkwa	36405	54499	141.97	224.11	798.39	888.18	2052.65	4%	1%	Medium High
Asikuma Odoben	Central	Asikuma	41536.2	55094.2								
Brakwa	Central	Asikuma	9	6	170.7	258.65	621.72	747.41	1798.48	3%	1%	Medium Medium High
Agona East	Central	Nsabaa	2600.19	1932.45	9.46	1.88	19.49	29.4	60.23	3%	0%	High
Abura/Asebu	Central	Abora										
Kwamankese	Central	Dunkwa	3975.29	1847.2	16.77	5.02	17.05	10.93	49.77	3%	0%	Medium
KEEA	Central	Elmina	671.44	318.89	5.68	1.87	8.57	2.6	18.72	6%	0%	Medium
Ajumako Enyan Essiam	Central	Ajumako	578.92	295.39	0.32	1.15	2.91	2.02	6.4	2%	0%	Medium
Kwaebibirem	Eastern	Kade	98500	72974.7 6	529.31	587.07	3121.43	1601.71	5839.52	8%	3%	Medium
Birim North	Eastern	New Abirim	71016	8	382.88	518.69	1613.54	1221.28	3736.39	7%	2%	Low
Atiwa	Eastern	Kwabon Town	73674	99116.1 6	591.28	290.25	1499.72	995.01	3376.26	3%	2%	Medium
Akyemansa	Eastern	Akim Ofoase	63373	62004.6 6	209.04	114.22	701.09	1004.43	2028.78	3%	1%	Medium
Denkyembaour	Eastern	Akwatia	33902	48251.3 9	319.85	178.96	741.84	641.07	1881.72	4%	1%	Low
East Akim	Eastern	Kibi	67828	69597.3 44197.6	199.83	391.83	659.25	562.82	1813.73	3%	1%	Medium Medium High
Kwahu West	Eastern	Nkawkaw	45616	6	206.9	141.65	531.04	887.64	1767.23	4%	1%	High
Birim Central	Eastern	Akim Oda	42485.7	51328.6 5	305.65	134.25	659.42	645.27	1744.59	3%	1%	Medium Medium High
Birim South	Eastern	Akim Swedru	62854	5	196.52	154.93	703.54	647.43	1702.42	2%	1%	High
West Akim	Eastern	Asamankese	120089	40396.0 1	242.84	125.98	413.14	368.81	1150.77	3%	1%	Medium
Suhum Kraboa Coalta	Eastern	Suhum	77054.4	27068.1 2	141.51	219.67	414.6	275.46	1051.24	4%	0%	Low
Kwahu East	Eastern	Abetifi	21298.9	28343.3 3	82.94	63.97	216.36	405.9	769.17	3%	0%	Medium

Fanteakwa	Eastern	Begoro	37433.6 2	48060.2 1	82.21	96.75	291.58	276.58	747.12	2%	0%	not considered
Yilo Krobo	Eastern	Somanya	29981.9 3	26560.0 9	21.48	64.9	185.85	218.94	491.17	2%	0%	Medium
New Juabeng	Eastern	Koforidua	10876.8 7	11899.0 3	60.34	111.81	177.01	119.85	469.01	4%	0%	Low
Upper West Akim	Eastern	Adeiso	9625.3 20776.3	6087.28 24781.5	32.81	14.72	105.37	49.62	202.52	3%	0%	Medium
Kwahu South	Eastern	Atibie	10025.1 5	10461.9 9	24.32	23.48	89.93	52.49	190.22	1%	0%	Medium
Upper Manya Krobo	Eastern	Asesewa	5 5	3 3	4.3	12.64	55.42	87.23	159.59 10083.3	2%	0%	Low
Prestia-Huni Valley	Western	Bogoso	100361	153901 171784.	644.1	1198.9 2944.6	3973.16	4267.22	8	7%	5%	High
Ellembelle	Western	Nkroful Manso	69491	6 189109.	816.42	5	2216.23	3338.9	9316.2	5%	4%	Medium
Wassa Amenfi Central	Western	Amenfi Asankrangw a	61710	6 175857.	850.21	911.81 1720.4	2203.28	3467.71	7433.01	4%	3%	High
Wassa Amenfi West	Western		56805	5 152073.	961.9	7	2079.59	2438.55	7200.51	4%	3%	High
Mpohor Wassa East	Western	Daboase	103715 31328.0	2 61210.7	476.26	631.42 1493.6	2375.33	3567.08	7050.09	5%	3%	Low Medium
Mpohor	Western	Mpohor	9	3 118758.	254.78	2 1466.0	2304.11	2776.05	6828.56	11%	3%	High
Tarkwa Nsuaem	Western	Tarkwa Wassa	63072	8 119401.	433.33	3	2938.3	1831.67	6669.33	6%	3%	Medium
Wassa Amenfi East Bibiani/Anwiaso/Bekwa i	Western	Akropong	77728	8	316.04	732.04	1734.86	2306.54	5089.48	4%	2%	High Medium
Suaman	Western	Bibiani	88135	82067.3	403.29	620.53	1449.49	2205.3	4678.61	6%	2%	High
Nzema East	Western	Enchi	118691	177077 35631.3	465.76	1195.8	986.68	1307.61	3955.85	2%	2%	Medium
Jomoro	Western	Axim	40173	3 144215.	13.23	1824.8	413.5	710.66	2962.19	8%	1%	Medium
Sefwi Wiawso	Western	Half Assini Sefwi	97023	7 127427.	186.82	391.09	1036.22	910.78	2524.91	2%	1%	High Medium
	Western	Wiawso	89175	6	266.25	279.26	771.1	1122.08	2438.69	2%	1%	High

Juaboso	Western	Juabeso	99202	5	263.1	187.49	472.77	1200.66	2124.02	2%	1%	not considered
Sefwi-Akontobra	Western	Akontombra	75180	4	223.06	249.35	297.95	957.15	1727.51	2%	1%	Medium
Aowin	Western	Dadieso	106097	128253	196.56	347.54	373.6	791.3	1709	1%	1%	Medium
Bia	Western	Old Debiso	92979	1	132.4	118.95	342.91	931.45	1525.71	1%	1%	Medium
Bia East	Western	Adabokrom	23393	3	97.25	115.04	355.14	588.36	1155.79	1%	1%	High
Bodi	Western	Bodi	46223	8	133.76	133.36	150.84	689.2	1107.16	2%	1%	Medium
STMA	Western	Sekondi	7691.45	3938.14	16.03	192.63	30.94	26.03	265.63	7%	0%	High