SAFEGUARDS IMPLEMENTATION AND MONITORING REPORT

KAKUM HIA

CLIMATE CHANGE DIRECTORATE

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AfDB	African Development Bank
CIF	Climate Investment Funds
COCOBOD	Ghana Cocoa Board
CRI	Crops Research Institute- CSIR
CREMA	Community Resource Management Area
CRMC	Community Resource Management Committee
CSIR	Council for Scientific and Industrial Research
CSO	Civil Society Organisation
DA	District Assembly
EA	Environmental Assessment
EMP	Environmental Management Plan
EMT	Executive Management Team
EPA	Environmental Protection Agency
ESAP	Environmental and Social Assessment Procedures
ESIA	Environmental and Social Impact Assessment
ESS	Environmental and Social safeguards
FC	Forestry Commission
FDP	Farm Development Plan
FGRM	Feedback and Grievance Redress Mechanism
FIP	Forest Investment Programme
FORIG	Forest Research Institute of Ghana- CSIR
FP	Focal Point/Focal Person
FR	Forest Reserve
GoG	Government of Ghana
GSWG	National REDD+ Gender Sub-Working Group
HFZ	High Forest Zone
HIA	Hotspot Intervention Area
HMB	Hotspot Intervention Area
IUCN	International Union for the Conservation of Nature
JCC	Joint Coordinating Committee
LULUCF	Land Use, Land Use Change and Forestry

MDAs	Ministries, Departments and Agencies
MESTI	Ministry of Environment, Science, Technology and Innovation
MOFA	Ministry of Food and Agriculture
MMDA	Metropolitan, Municipal District Assembly
MLGRD	Ministry of Local Government and Rural Development
NCRC	Nature Conservation Research Centre
NEAP	National Environmental Action Plan
NEP	National Environmental Policy
NGO	Non-Governmental Organisation
PMU	Project Management Unit
RCC	Regional Coordinating Council
REDD	Reducing Emissions from Deforestation and Forest Degradation
SA	Social Assessment
SEA	Strategic Environmental Assessment
SAP	Safeguards Action Plan
SESA	Strategic Environmental and Social Assessment
SHEC	Sub-HIA Executive Committee
SIS	Safeguards Information System
SRI	Soil Research Institute- CSIR
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank
WRC	Water Resources Commission
WRI	Water Research Institute- CSIR

1.0 INTRODUCTION

1.1 Background

The Ghana Cocoa Forest REDD+ Programme (GCFRP) is the premier emission reductions programme fully developed from a 25-year Ghana REDD+ Strategy (GRS) by the Government of Ghana through the Forestry Commission (FC) and Ghana Cocoa Board (Cocobod) with funding support from the Forest Carbon Partnership Facility (FCPF) of the World Bank. The programme seeks to significantly reduce carbon emissions resulting from cocoa expansion into forests through the promotion of appropriate climate-smart cocoa production approaches, including intensification and yield enhancement. The programme spans a mosaic landscape that produces commodities of international and national importance; - cocoa, timber, palm oil, food crops. However, the dominant crop in the landscape and also of national importance is the cocoa from which the programme derives the name "Ghana Cocoa Forest REDD+ Programme".

Cocoa is Ghana's most important agricultural commodity, accounting for roughly 57 per cent of all agricultural exports and supporting the livelihoods of about 2.5 million rural farmers and their dependents. Cocoa production is predominant in the High Forest Zone (HFZ) of Ghana. The Western Region holds the largest area of remaining primary forest in Ghana and produces over 50per cent of the country's cocoa beans. However, Ghana's forests have come under severe threat from agricultural expansion, which is the major cause of forest loss, mainly driven by cocoa production. This makes cocoa production the single biggest driver of deforestation in the landscape[1]. Underlying causes for this include limited financial and technical support for sustainable cocoa production leading to expansion into forest areas; legal disincentives to maintaining trees on farms; a lack of land use planning and landscape management; and a lack of collaboration amongst cocoa stakeholders.

In line with the goal of GCFRP, on-the ground implementation of GCFRP is routed through Hotspot Intervention Areas situated within the GCFRP operational area. The Kakum HIA is one of the designated landscapes where GCFRP implementation is underway with the support of a consortium made up of Forestry Commission (FC), COCOBOD, Nature Conservation

[1] Partnership for Productivity Protection and Resilience in Cocoa Landscapes (3PRCL) – Touton https://3prcocoalandscapes.com/about/intro-background

Research Centre (NCRC), World Cocoa Foundation (WCF), Hershey, Ecom, Lindt Cocoa Foundation, Olam, Nyonkopa, and Touton. The partnership adopts a jurisdictional approach which ensures that all stakeholders across the cocoa sector commit to and collaborate on achieving Climate Smart Cocoa which is tied to Ghana's Emission Reduction Programme. Key activities implemented in the HIA include Kakum Cocoa Agroforestry project, Enrichment Planting, Modified Taungya System, Trees-On-Farm, and Climate Smart Cocoa.

The United Nations Framework Convention on Climate Change (UNFCCC) requirements as stipulated in the Warsaw Framework for REDD+ recognizes that safeguards are a key part of REDD+ implementation and links the Cancun safeguards to results-based payment. This requires that countries implementing REDD+ should demonstrate how they have addressed and respected safeguards through the implementation of their REDD+ interventions. One of UNFCCC key priorities is ensuring that social and environmental safeguards are adhered to, throughout the REDD+ process. In addition, since the Carbon Fund via the World Bank will be purchasing the ERs generated from the GCRFP, environmental and social risks associated with the GCRFP activities would be mitigated and addressed using the World Bank safeguards policies and procedures. To comply with the World Bank's safeguards requirements, Ghana has carried out a Strategic Environmental and Social Assessment (SESA) to better understand the environmental and social concerns of the programme, and to better define the necessary mitigation mechanisms and safeguards compliance issues associated with activities to be implemented in the GCFRP. Specifically, it details the risks and opportunities, and identifies the World Bank Safeguards policies triggered. The SESA report resulted in an ESMF to guide the implementation of the proposed ER programme. The National REDD+ Secretariat (NRS) of the Forestry Commission is responsible for ensuring that mitigation measures and recommendations provided in the ESMF applicable to the ER Programme area are implemented.

Table 1: World Bank Operational Procedures triggered by the GCFRP

World Bank Safeguard Policy	**Potential to be Triggered under REDD+ in Ghana**

OP 4.01: Environmental Assessment	GCFRP will engage IN activities that use forest resources in the HIAs and potentially impact other environmental areas. These activities may have environmental impacts on a limited scale, but an ESMF has been prepared to guide in addressing or mitigating potential impacts.
OP 4.04: Natural Habitats	Some of the HIAs contain critical ecosystems. GCFRP will enhance the quality of the management of these critical ecosystems and reduce risks associated with cocoa and other agroforestry practices. The ESMF provides guidance on avoiding or mitigating impacts on natural habitats.
OP 4.36: Forest	Forest policy and management are a primary focus of this project, in addition to trees in the agroforestry landscape. The ESMF includes guidance on managing forest ecosystems and their associated resources.
OP 4.09: Pest Management	The project will not directly finance the use of pesticides but will promote integrated pest management (IPM) and climate-smart practices and resilient 'shade' cocoa. The project-specific Pest Management Plan has been prepared. The ESMF provides identification of IPM activities linked to the cocoa enhancement activities. In addition, key environmental and social issues and risks associated with chemical applications in cocoa have been analyzed in the ESMF.
OP 4.11: Physical Cultural Resources	The ESMF and Process Framework incorporate screening to ensure that the project would not have any negative impact on sacred sites. Screening of sites for pilot activities will include specific screening under the ESMF.
OP 4.12: Involuntary Resettlement	No involuntary resettlement is expected. However, as part of plans for ensuring that forests are protected and well managed there will be efforts to reduce encroachment due to expansion of cultivated areas. These restrictions of access will be negotiated with farmers. Inputs and incentives will be offered to increase agricultural productivity within the historical boundaries of admitted farms. Process Framework will be used to guide and ensure participatory processes during implementation.

This Safeguards Implementation and Monitoring Report has been developed to demonstrate how environmental and social safeguards requirements of the World Bank, as well as the

relevant national laws and regulations, policies and institutional requirements, are being adhered to throughout the implementation of activities/interventions in the Kakum HIA

2.0 GENERAL DESCRIPTION OF KAKUM HIA

2.1 Basic Administration

The Kakum Hotspot Intervention Area covers three districts namely: Assin North, Assin Central and Assin South districts. The districts are located in the northwest part of Central Region, forming part of the twenty-two districts in the region. Originally, they were formerly part of the then-larger Assin District in 1988, until the southern part of the district was split off to create Assin South District on 18th February 2004 and the remaining part named the first Assin North district, with Assin Fosu as its capital town (it was later elevated to municipal district assembly status on 29th February 2008 to become Assin North Municipal District). However, on 15th March 2018, the southern part of the district was split off to create the present Assin North District; thus, the remaining part has been renamed as Assin Central Municipal District.

Assin North has Assin Bereku as its capital town, Assin Fosu as the capital of Assin Central and Nsuaem Kyekyewere as the capital of Assin South. The Assin North District Assembly has a membership of 25 comprising 18 elected members and 7 government appointees representing the traditional authority in the district. The Presiding Member chairs during sittings of the Assembly.

Assin South District has one constituency, 25 electoral areas, 86-unit committees and six area councils. There are 36 Assembly members who are made up of 25 elected members and 11 government appointees. The district has two traditional paramountcies which are the Assin Apemanim and Assin Atendasu. Assin Apemanim paramount area is headquartered at Assin Manso, while Assin Atendasu paramountcy is headquartered at Nyankumasi Ahenkro.

The District Assemblies headed by District Chief Executives are the highest decision-making bodies in the districts. They are made up of 2/3 elected representatives from the communities as well as 1/3 government appointed members. The assemblies are responsible for the identification and execution of development projects in the districts. The reserves are not under the control or influence of the assemblies even though they enforce certain by-laws relating to conservation, i.e., issue of permits for bushmeat trade.

There are other socio-political organizations such as Area and Unit Committees, Fire Volunteers and Women's Movements that operate in the communities. They serve as rallying points for community development.

2.2 Socio-economic, geographic and environmental profile

2.2.1 Assin North

The Assin North District is bounded to the North by the Adansi South District in the Ashanti Region, to the South by the Assin Fosu Municipal, to the East by the Birim South District in the Eastern Region and to the West by the Twifu Ati-Morkwa District. The district covers an area of about 750 sq. km and comprises about 260 settlements including Assin Breku (District Capital), Assin Akonfudi, Assin Praso, Assin Kushea among others. The district is drained by numerous small rivers and streams. The main rivers include the Pra, Offin, Betinsin and Fum. Swamps also abound in the municipality which serves as potentials for fish farming and dry season vegetable and rice farming.

Assin North district falls within the moist tropical forest, mainly deciduous forest. Agriculture is the main economic activity in the district, employing 65% of the economically active population with as high as 74.4% of households engaged in it. Of those engaged in agriculture, the rural localities recorded as high as 86.3% compared with 54.7% in the urban localities. With most households in the district (97.6%) involved in crop farming the district produces agricultural products such as cocoa, rice, oil palm, cassava, maize, plantain, cocoyam, and variety of vegetables. Besides crops, livestock rearing is also a major agricultural activity in the district with animals like cattle, sheep, pigs, goats, fish farming and poultry (dominant) produced on commercial scale.

The 2018 projected population of Assin North District (as disaggregated from AFMA) is 113,148 representing 7.3% of the region’s total population. About 63.1% of the population resides in rural localities. Of the population 15 years and older self-employed without employees (62.7) constitute the highest proportion of employment category in the district. The private informal sector is the largest employer in the district, employing 91.1% of the population followed by the public sector with 5.2%

2.2.2 Assin Central

The Assin Central municipal shares common boundaries with Twifo Hemang Lower Denkyira on the West, Assin South District on the South, Asikuma Odoben-Brakwa and Ajumako Enyan-Esiam on the East, Upper Denkyira East Municipal on the North-West and Ashanti Region on the North. The Municipal covers an area of about 1,500 sq. km. and comprises about 1000 settlements including Assin Foso (the Capital), Assin Nyankumasi, Assin Akonfudi, Assin Bereku, Assin Praso, Assin Kushea and others. The population of the municipality according to 2010 population and housing census stands at 161,341.

The main economic activities of the Municipality include Agriculture (farming), Commerce mainly Wholesale/Retail Trade, Manufacturing (Agro - Processing) and Service. Agriculture and its related activities are the leading economic ventures and employs about 63.2% of the working population in the Municipality. Commerce is 24.8%, Services 9.6% and Industry 2.4%.

2.2.3 Assin South

The Assin South District shares political and administrative boundaries with the Assin North and Assin Central Districts in the North, Twifo Hemang Lower Denkyira on the West, Abura Asebu Kwamankese District on the South, Asikuma Odoben- Brakwa and Ajumako Enyan Essiam on the East. The district covers a total land area of 1,187 sq. km which is about 12% of the total land area, and the largest, in the Central Region (i.e., 9,826 km^2). The district falls within the moist evergreen and moist semi- deciduous forest zones. There are five (5) forest reserves in the district namely Ayensua, Krotoa, Apeminim, Atendansu and Kakum. While much of the forest in the protected areas remains thick primary or mature secondary forest, with significant areas of raffia and bamboo. The Atandanso area of the Kakum Conservation Area were managed as a forest reserve and logged up until the 1990s. The landscape has seen minor shifts in vegetation cover over the last two decades due to changing land use patterns. As of 2015, open forest remained the predominant land use type, but cropland had become the second largest land use in most sections with grassland also gaining more area. Common and/or important tree species in the landscape include Carapa procera, Celtis mildbraedii, Diospyros sanza-minika, Aulacocalyx, Funtumia elastic, Triplochiton scleroxylon, Terminalia superba, Milicia excels, Alstonia boonei, Terminalia ivorensis. The Kakum Conservation Area,

as well as the Ajensu, Apimanin and Bimpong Forest Reserves fall entirely or at least partly (Bimpong) in the Assin South District.

The population of Assin South District, according to the 2010 Population and Housing Census, is 104,244 representing 4.7% of the region's total population. Of the employed population, about 67.0% are engaged as skilled agricultural, forestry and fishery workers, 11.2% in service and sales, 10.1% in craft and related trade, and 5.9% are engaged as managers, professionals, and technicians. The private informal sector is the largest employer in the district, employing 92.3% of the population followed by the public sector with 5.1%.

The economic activities of the district are predominantly agriculture, accounting for about 68% and small-scale cottage industry for the processing of oil palm, palm kernel and cassava. As high as 81.1% of households in the district are engaged in agriculture with most households in the district (98.1%) involved in crop farming. Poultry (chicken) is the dominant animal reared in the district. The major crops produced in the district are cereals (maize, rice), legumes (cowpea), root and tuber crops (Cassava, Cocoyam and variety of Yam species), Plantain and Vegetables (Pepper, Garden Eggs, Okro etc.) forming the major staples in the district. Tree crops cultivated include Cocoa, Oil Palm and Citrus forming the major cash crops produced. Recently, rubber cultivation has also come to stay as one of the major cash crops. The availability of natural water bodies can be tapped for irrigation to boost food crop production especially during the minor season. Other natural resources that can be tapped to generate jobs and increase income generation include bamboo.

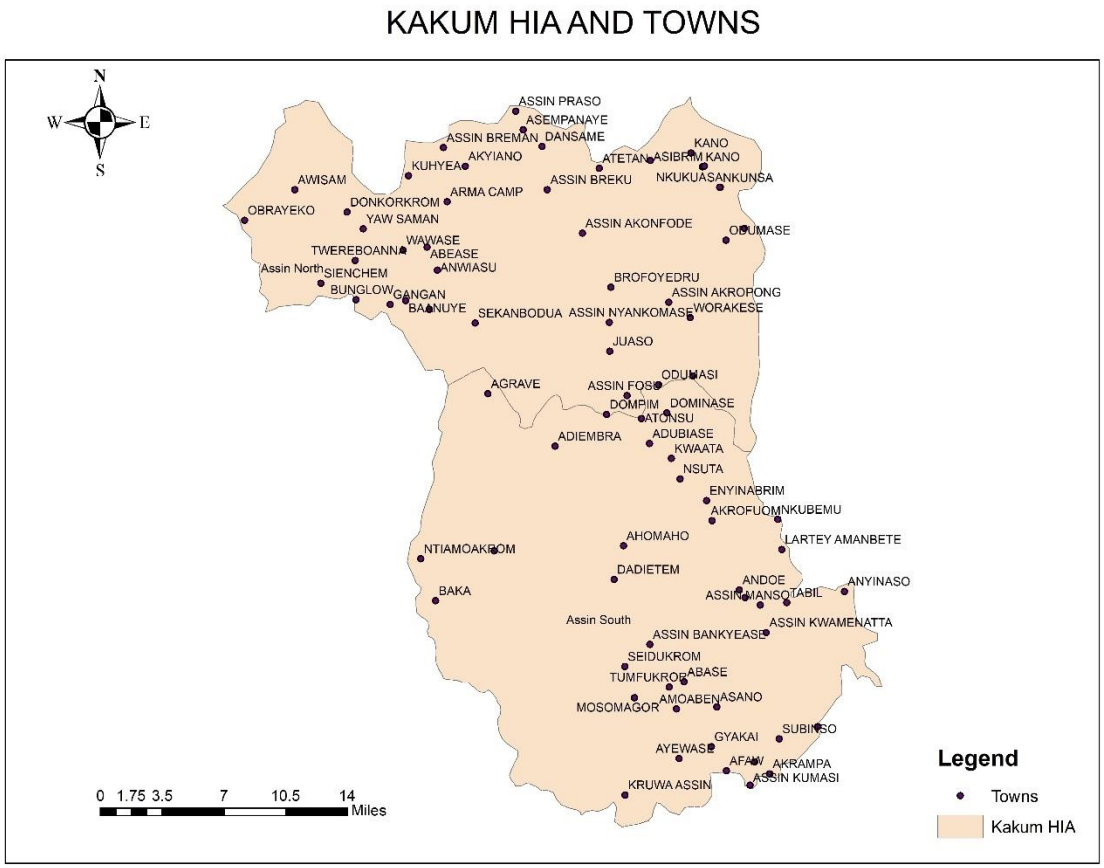


Figure 1: Map of Kakum HIA

The tourist sites in the landscape include the Obodan Stone Cave at Ongwa, the "Slave River" with the final slave bathing point (River Donkoh) and returned slave cemetery at Assin Manso, Bamboo Orchestra (Kukyekukyeku) at Mesomagor and the Tree Platform (Kakum National Park) at Mesomagor.

2.2.4 Other stakeholders in the landscape

A number of Non-Governmental Organisations (NGOs) that play important role(s) within the communities around the reserves are present. They contribute towards the improvement of the quality of life of the rural people by providing various forms of assistance to them. The assistance ranges from funds, food aid, technical assistance in construction and well digging, and day care centres.

The NGOs operating in the area include Adventist Relief Agency (ADRA), UNICEF, Star of Hope, Habitat for Humanity, 31st Women's Movement, COFOSODE and World Vision International.

2.3 Kakum Conservation Area (KCA)

Kakum National Park covers an area of 375km^2 (145 sqm). Established in 1931 as a reserve, it was gazetted as a national park only in 1992 after an initial survey of avifauna was conducted. The area is covered with tropical forest. The uniqueness of this park lies in the fact that it was established as the initiative of the local people and not by the State's Department of Wildlife who are responsible for wildlife preservation in Ghana. It is one of only three (3) locations in Africa with a canopy walkway, which is 350 m (1,150 ft) long and connects seven (7) tree tops which provides access to the forest.

Kakum Conservation Area is home to numerous important species of mammals, birds and reptiles including the Diana monkey, the bongo antelope, yellow-backed duiker, the densest population of forest elephants in Ghana (over 200 individuals), and endangered turtle species. The park is also an important bird area and dominant ecotourism destination, due to its world-renowned canopy walk; though very few benefits from tourism reach the surrounding communities.

According to the Wildlife Division (WD) of Forestry Commission, there are about 37,000 people reported to be residing in the 52 major communities (figure 3). Prior to the change in administration of the area from Forest Services Division (FSD) to Wildlife Division these communities used to hunt and extract Non-Timber Forest Products (NTFP) from the reserves. The population of the communities living inside and around the Kakum Conservation Area was derived from the 1970 and 1984 population census reports published by the Statistical Service Department of Ghana. Based on these projections, the total population of the individual communities [2]. Out of the total estimated population, 108 people live in the admitted farms in the north eastern part of the Assin Attandanso Resource Reserve, representing about 0.3% of the total population.

Kakum National Park and Assin Attandanso Resource Reserve are located in the Twifo Heman Lower Denkyera (referred to as Twifo Heman) and Assin Districts of the Central Region of Ghana (see figure 2). These two reserves together form about 360km^2 of contiguous forest

[2] For details of the computation refer to the socio-economic report for Kakum by Agyare, 1995

placed under protection initially by the Forest Department until 1989 when their management was transferred to the Wildlife Division (WD) because of change in management status. Kakum Conservation Area falls within the jurisdiction of the Assin and Twifo Heman District Assemblies with their respective capitals at Foso and Twifo Praso. The management authority for the two reserves has little or no interaction with any of these assemblies as all their administrative transactions are done at the Cape Coast Municipal Assembly.

Over a third of the Assin South District is gazetted as Kakum Conservation Area, which includes Kakum National Park and Assin Atandanso Forest Reserve. The conservation area covers 375km^2 moist evergreen forest and raffia swamps. The reserves lie between longitudes 1°51' and 1°30’ W and latitudes 5°20' and 5°40'N. Kakum National Park and Assin Attandanso Resource Reserve each cover about 210km^2 and 150km^2 respectively. A number of small main rivers also run through the park, including the Kakum River which flows out of the southeast corner of the park towards the coast and serves as one of the major sources of water for Cape Coast and the surrounding towns.

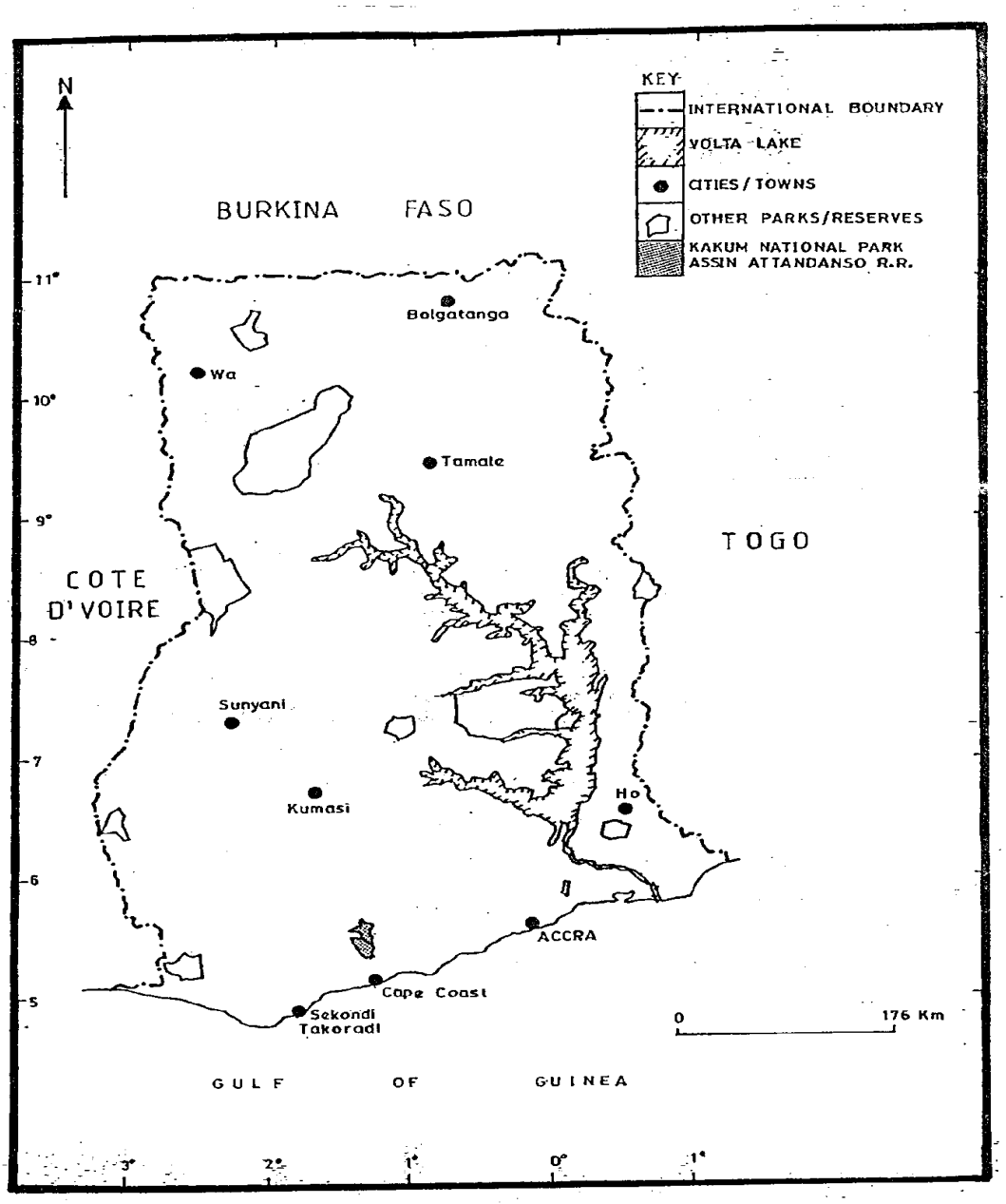


Figure 2: Location of Kakum National Park

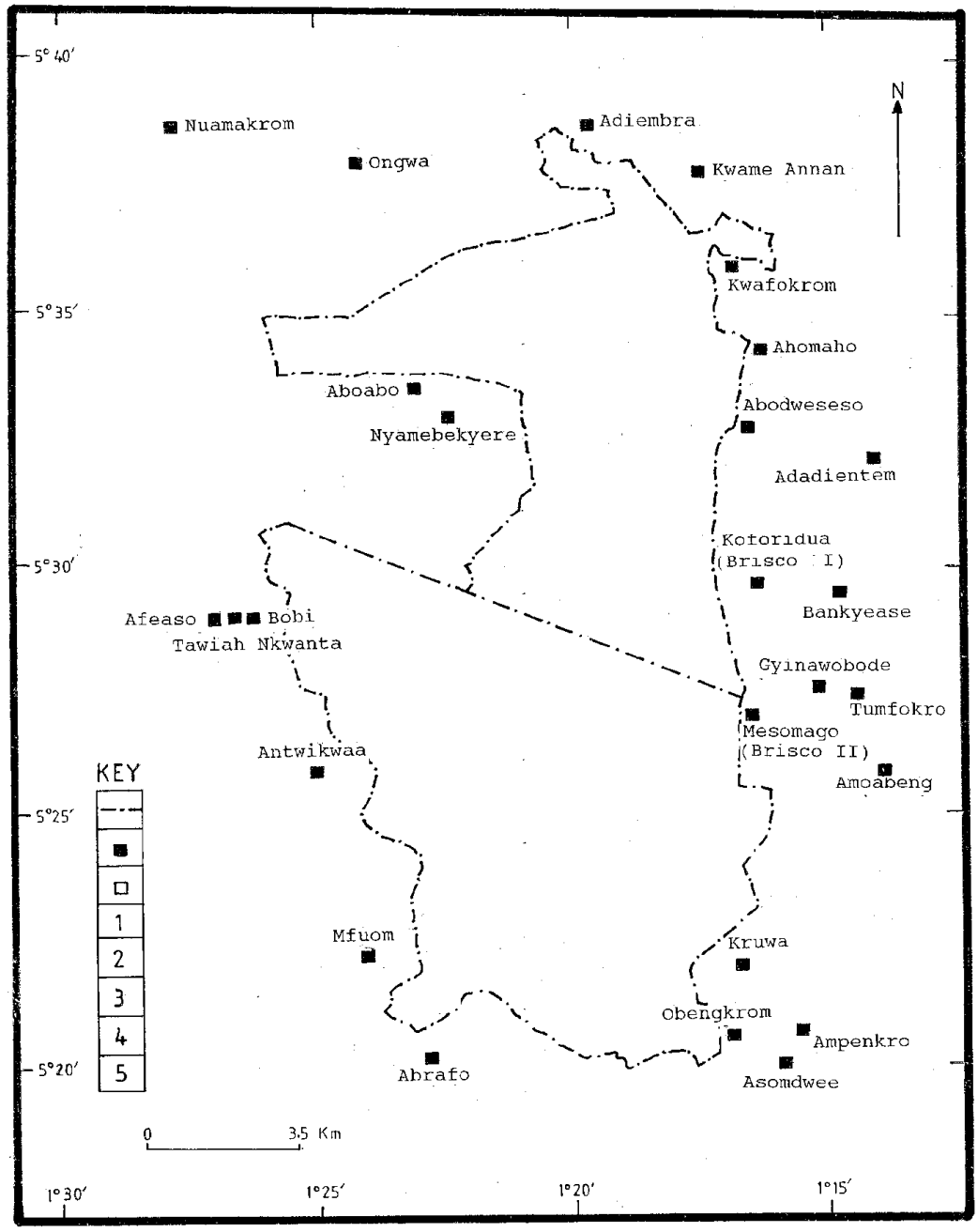


Figure 3: Local communities around Kakum conservation area

2.3.1 Traditional structures

The area in which the reserves are situated fall under the jurisdiction of Assin Attandanso, Twifo Heman, Denkyera and Abakrampa (Abura-Asebu) traditional councils. These councils are administered through a three-tier system with the paramountcy at the top of the hierarchy, followed by the divisional chiefs and the individual town/village chiefs. These three levels of chiefs form the traditional council. Functionally, the chiefs at all the three levels perform executive, legislative and judicial functions. There are four traditional groups within

the Assin South District: the Etsi traditional areas, which are not administered by any paramountcy; Atandansu Traditional Council; Apemanim Traditional Council; and Afutuakwa Traditional Council. Even though the district assemblies are the legal government administrations responsible for all development projects, these traditional administrations provide viable and dependable structures for the initiation and implementation of development programmes. Queen-mothers also play very useful roles in traditional administration. They serve as rallying points through which women can be mobilized for community development. They are also responsible for all affairs of women in the communities.

2.3.1.1 Etsi Tradtional Areas

The Etsi Traditional Areas, located in the southernmost part of the landscape, have three divisional stools and five independent community stools. The three divisional stools are the Kruwa Stool, with six communities under them; the Ati Bosomadwe Stool, with 15 communities under them; and the Etsi Abease Stool, with 12 communities. Jakai, Asaratuase, Betweane, Dossi and Amoaben have all formed independent community stools. Etsi communities sampled in the baseline study include Kruwa (Kuwa Stool), and Abease, Bankyease and Mesomagor (Abease Stool). Most of the stools in the Etsi traditional areas follow typical traditional leadership strategies, with chiefs and sub-chiefs who oversee daily activities.

The Abease Stool has its own traditional structure, but unlike the other Paramountcy, which have divisional and sub chiefs, Abease has a group of elders selected from the royal family to help the chief in decision making. In the past, the Abease people allowed jurisdiction over some of its land to the Hemang Stool, but when these lands were given to the Twifo Praso Oil Palm Plantation (TOPP), Abease protested and claimed back the lands. All the communities within the Abease Stool lands are settlers who have been given the land to farm. Key among these communities are Bankyease, Mesomagor, Seidukrom and Krobokese. Unlike the other traditional councils, chiefs in communities under Abease are appointed as “caretakers” on behalf of the Abease Stool. All land tenure transactions are handled by the Stool with the caretaker chiefs playing a facilitation role. Private landholdings bought from Abease Stool are also found under the broader jurisdiction of Abease, such as the 2km^2 area of land adjacent

to Abease, with about 150 tenants farming on the land and living in the Seseko, and the Kwaw Prah Land.

The Kruwa Stool also has its own leadership structure, which is made up of the chief and sub-chiefs that help the chief in the administration of the area. The traditional authority in Kruwa is key in the management of the Kakum forest landscape as it owns a major portion of the landscape.

Just like the Abease and Kruwa stools, Bosomadwe stool happens to be the biggest among the stools in the Kakum landscape with about 15 communities under its jurisdiction. The chief of Bosomadwe have control over the other chiefs in the various communities. He enstools sub chiefs in the smaller communities in consultation with the elders and according to family lines.

The Etsi are the earliest known inhabitants of the landscape and consider themselves to be indigenous peoples. The Etsi groups all have traditional authority structures and geographical jurisdictions, which are recognized by the other stools, but much of their lands have been lost over time through the in-migration of Assins, outright sale of lands, and through the gazettement of the Kakum Conservation Area. According to the oral tradition of the Etsi people, they are the original, indigenous populations who were present and living in the area before the arrival of the Assin and the Fante tribes, who came from Kumasi and Techiman to join them. However, the Etsi people also recognised that the Assins and Fante's were greater in number and comparatively more organized so they were better placed to deal with external colonial forces and government bodies on their behalf.

From the time of their arrival, the Assins continued to grow in numbers and ultimately took advantage of the power the Etsi had given to them and organised a stronger political leadership structure. During the colonial era, this led to a situation where the colonials recognised the Assins as the dominant ethnic group and made them their focal point in dealing with the area and its people and resources. Over time, the Assins began taking over the lands of the Etsi, especially those of Kruwa and Abease, so that their total landholdings were significantly reduced. Today, the Abease and the Kruwa people have managed to gain

back authority over some of their lands, but they are yet to receive their own traditional council.

2.3.1.2 Atandansu Traditional Council

The Atandansu Paramountcy, covering the areas in the south of the landscape (i.e., from Nyankumasi) to the north of the landscape (i.e. up to Adiembra), with its headquarters at Nyankumasi Ahenkro, has four divisional stools: the Homaho Stool, Adiembra Stool, Ongwa Stool and Asaman Stool. These divisional stools oversee the administration of various communities under them. The Homaho Stool serves eight communities, the Adiembra Stool ten, the Ongwa Stool 24 communities, and the Asaman Stool has six communities under it. Each stool has multiple divisional chiefs and sub-chiefs who perform activities under their Traditional Council. These chiefs supervise the day-to-day affairs in their jurisdictions while the Traditional Council settle large-scale land tenure transactions and boundary disputes. Communities sampled in the study include: Homaho (Homaho Stool); Adiembra and Mankata (Adiembra Stool); Aboabo, Nyamebekyere, Asorifie and Akweitey (Ongwa Stool); and Asaman, Kwame Annan and Kwafokrom (Asaman Stool).

Some of the communities under Atandansu have full control of their lands and resources as far as land tenure arrangements are concerned, but some smaller stools and landowners pay a voluntary amount in the form of royalties or tax to help support the administrative activities of the Traditional Councils. This is typical of many communities, such as in Kwame Annan, Akweitey and Nyamebekyere.

2.3.1.3 Apemanim Traditional Council

The Apemanim Paramountcy forms an enclave in the central portion of the landscape, surrounded by the Atandansu territory, and with its headquarters at Assin Manso. It has two of its stools within the catchment area of the landscape, thus Akrofrom Stool and the Adadientam Stool. Three communities under the Akrofrom stool fall within the landscape. These communities include Ayigbo, Beyeden and Nsuoakyie while Adadientam has 42 communities under its jurisdiction. The Apemanim Stool has various divisional and sub-chiefs who administer daily activities. Similar to Atandansu, some communities under Apemanim have full control over their lands and resources while other communities pay royalties.

The people of Adadientem occupy a private land-holding that their forefathers purchased from the Apemanim Stool and a small portion, in the southern part of the land, from the Abease Stool. Adadientem therefore have total control of the land that they occupy, and the land is held in trust with the chief and managed through the family land system. The total land area they cover is about 18 km2. Adadientem has aligned itself under the Apemenim Traditional Council. They are part of the Adonten Division of the traditional council. The leadership was given chieftaincy title during the reign of Nana Ago Lantai I. They have a centralised traditional authority and are not required to pay any royalties to the traditional councils in the district. They have their own chief and elders with other sub chiefs (odikro) within about 15 small communities under them. Examples of these communities include Adadientam number 1, Adadientam number 2 and Adadientam number 3.

2.3.1.4 Afutuakwa Traditional Council

The Afutuakwa Paramountcy mostly covers Assin Central to the north of landscape, with its headquarters in Assin Fosu. However, three communities in the landscape are found under the jurisdiction of the Afutuakwa Traditional Council: Bunso, Nuanua, and Nuanua 2. The paramountcy follows traditional leadership structures with divisional stools, divisional chiefs and sub-chiefs.

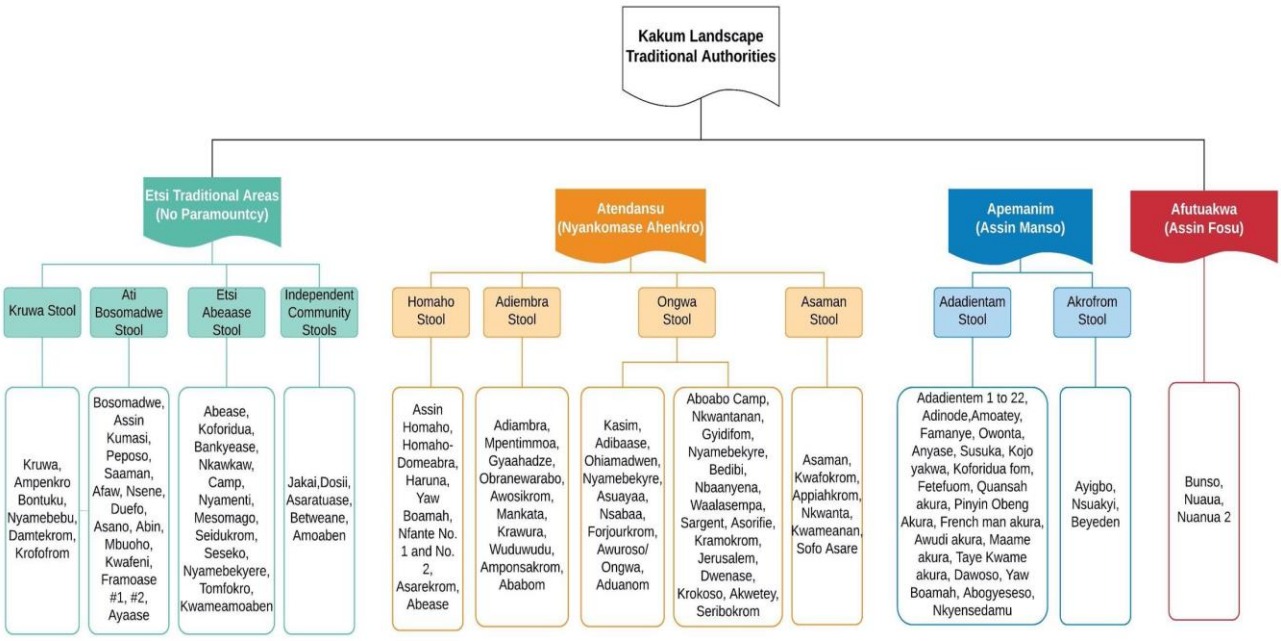


Figure 4: Traditional authorities' structure and the communities under them, in the Kakum landscape. (Source: NCRC)

2.3.2 Ethnicity

The KCA traditionally falls under the Twifo, Assin, Denkyera and Fanti (Abakrampa) people of the Central Region. The Assin people are said to have migrated from Ashanti as a result of inter-tribal wars. However, before the Assins settled in their present locations, the area was believed to be inhabited by an indigenous group of people called the Etsi. The Etsi people were probably not well organized in their social structures and this possibly accounts for their low representation and the domination of the Assins and in some cases the Denkyera over them. Apart from these major groups, most of the communities around the reserve are dominated by people from other parts of the country who have migrated there to take advantage of the fertile land and favourable climate for farming. They include Ewes, Krobos, Akwapims, Fantis, Ga-Adangbes and in isolated cases Dagartis, Frafras from the North and Moshies from Burkina Faso.

2.3.3 Socio-cultural values, beliefs and conservation practices

Across the landscape, communities share a common belief in river gods, which occupy the many rivers and streams that are within the landscape, such as Akoben in Mesomagor. Some communities pour libation for these gods, however, most have stopped this ritual. The belief in gods is linked to various taboos. Many communities in the landscape prohibit farming on certain days. Fridays are the most common taboo day in the landscape, particularly in the south. Tuesdays and Wednesdays are also common taboo days for some. Communities also follow taboo days on hunting, entering the forest and visiting rivers, the later mostly done on Tuesdays. According to the communities, the main reason for observing these taboo days is to appease the gods and allow them time to rest. Other taboos exist across communities within the landscape, such as on cursing people, women visiting the river during menstruation, having intercourse in the forest and the use of black utensils when fetching water from the river. Taboos related to particular species of animals or trees are less common across the landscape, although some do exist. Examples of prohibited animal-related activities are eating snails in Akweitey, rearing goats in Kruwa and the rearing of goats and pigs in Asaman. While many taboos are followed across the landscape, certain taboos are

inactive, such as taboos related to puberty rights and menstruation. Along with this, belief in river gods is also diminishing.

For many communities, conservation or forest protection is seen as fetish and is linked to the protection of sacred groves, rocks or sites. These sites are often protected as they are believed to have hosted the first ancestors settling in the landscape, hence their preservation is prioritised. However, beliefs linked to forest protection and sacred groves are less common within the landscape. Examples include the sacred groves in Abease and Mesomagor, and a sacred rock in both Adiembra and Kwame Annan, where protection of the sacred rock means weeding around it is prohibited. Some communities, however, have taboos/values linked to conservation that are not fetish but are instead seen as intrinsic, such in in Mankata where riparian vegetation is protected and Asorifie, where rivers are protected from fishing. Cultural celebrations are common within the landscape, the most popular being Akwasidae, which occurs on Sunday, after every 40 days. Awukudae and Afia Fofie, celebrated every 40th Wednesday and Friday respectively, are also common in the landscape. These traditions are celebrated to mark the seasons and timings of various agricultural activities. Some communities also celebrate annual festivals, such as the Tutu Festival in Aboabo. Celebrations of the Tutu Festival focus on bringing people together for development work. In most communities, festivals are celebrated in the hometown of these settler communities, allowing them to connect with their ancestors and share their culture with their children.

Some quotes or stories about sacred groves, conservation, and taboo animals as recorded by NCRC, are given below:

- “The key history was the creation of buffers on the river banks; bamboos were also planted to conserve water bodies.”“Trees like Odum, Wawa and Cedar were not harvested because they provided a lot of ecological benefits for crops.”

- “We have Tano, Tigare and Ananku. All the rivers were worshiped as deities with the most popular among them being the Kakum river deity with its main source from the Kakum forest, we mostly pour libation and invoke their presence during festive occasions.”

- "Currently, there is no active shrine in the village. This is as a result of their inability to find a successor to replace the dead fetish priest serving those shrines."

- "No hunting in August is still practice today. If you are caught hunting you will be made to pay a fine by the elders."

2.3.3.1 Festivals and Cultural Events

The under-listed festivals may not occur within the nearby communities but since one of the main objectives for establishing the KCA is tourism, it is appropriate to mention the colourful festivals in the Central Region so that tourists can plan their visits to the park to coincide with any of these festivals.

The unique culture of the people in the Central Region is depicted throughout the year through many interesting and colourful festivals (See Table 2). These festivals serve a variety of purposes including thanksgiving to God and ancestors, purification of ancestral stools, cleansing the communities of all evils, ancestral veneration and supplication to the deities for prosperity, peace and unity. The occasions are highlighted by drumming, dancing and firing of musketry. Chiefs adorned in rich kente cloth and bedecked in gold are carried through the towns in palanquins. These festivals are associated with different ethnic groups and are celebrated at different times of the year.

Table 2: List of festivals

Name of Festivals	**Place**	**Time of celebration**
Aboakyer	Winneba	1st Saturday of May
Bakatue	Elimina	1st Tuesday in July
Edina Brunya	Elimina	1st Thursday of new year
Fetu Afahye	Cape Coast	1st Saturday of September
Odambea	Saltpond	Last Saturday of August
Akwanbo	Gomoa	August

Okyir	Anomabo	September
Odwira	Jukwa	November

2.3.3.2 Shrines and other Sacred places

There are quite a number of shrines and other sacred places within the conservation area and the local communities that can serve as tourist attractions. Notable among these is the Komfo Boateng's shrine near Aboabo and a big rock at Nuamakrom which looks remarkably like a section of the National Theatre building in Accra. Komfo Boateng's shrine is a circular, flat granite rock about 100 meters in diameter with a unique type of vegetation, (Hildegardia barteri - Polycarpaea tenuifolia) found exclusively round this rock outcrop and another at Ahomaho.

2.3.4 Settlement History and pattern of the Landscape and Cocoa's Expansion

According to Amanor (1996), the cocoa farming landscape of Central Region began its transition to cocoa around 1925, and oral histories put the date as far back as the late 19th century. The shift of cocoa from the east to the west of Ghana is attributed to cocoa farm degradation in the east. Early setters came to the Kakum landscape, predominately in search of land for cocoa cultivation, as well as for hunting activities, from eastern communities, such as Gomoa, Labadi, Nyankumasi, and Akim Asase.

Fynn (1974, as cited by Ampene 2010) also documents the unification of the indigenous Etsi people and the Akan immigrants from Akosontire and the Afutuakwa, when the Etsi people administered land to the incoming Assins, in return for protection from other tribes. As the Assins and Fantes were considered more 'organized' tribes, they were able to take advantage of the traditional administrative leadership structure and push the Etsi people further into the forest, into what is now Kakum. The descendants of the Etsis, originally belonging to the Guan ethnic group, are now noted to live in Bosomadwe, Andoe, Akomfode, Mokiwaa, Gyiwase, Akropong, Wurakese, Akekanse, Abease and Kruwa.

Cocoa has been one of the main cash crops in the area since the colonial period, with oil palm and citrus farming also playing important economic roles at different times. Cocoa expansion

is the major historical driver of settlement establishment and land conversion in most of the communities within the landscape, as the search for more fertile land for cocoa pushed communities into the forest. Typical examples include Kwafokrom, Adadientem, Bankyease and Mesomagor, where early settlers came in the early-to-middle of the 20th century.

Along with the expansion of cocoa in the Kakum landscape, information gathered by NCRC from the Kwafokrom focus group suggests challenges in the cocoa sector during the time of Nkrumah (1957-1962), the key challenge being the emergence of chronic cocoa diseases. Increased support from the government in the form of chemical sprays and fertilizers during this era is reported by communities within the landscape, with subsidies on cocoa inputs improving the ease of farming. However, according to most famers in the landscape, despite recent subsidies and technological advances, cocoa cultivation was less challenging in the past when land was more fertile and the need for fertilizers and other chemicals was low. Thus, the low income fetched from cocoa farming was sufficient to meet the requirements for basic needs, which in recent decades it is not. With limited land now available for cocoa expansion, coupled with low yields as a result of declining soil fertility, sustainable intensification strategies remain important for increasing yield.

At present 52 major communities immediately border the Kakum National Park and its adjacent Assin Attandanso Resource Reserve. Two settlement patterns, namely permanent and temporary, are discernible in the communities around the reserves. The permanent settlements are found in the indigenous and the old settler communities. These are of the cluster type and the living rooms are mostly built with mud and thatch. There are also buildings of brick and cement blocks and a good number of them roofed with metal sheets. The kitchens and bathrooms are, however, of the wattle and daub type with thatch roofing. The temporary settlements, which are of relatively younger settler farming communities, are the wattle and daub type with thatch roofing. The settlement pattern in these communities is either the cluster type where people live in a conglomerate of houses or the "core" type where the community head and his close relatives stay detached from the other community members. The other members of such a community are scattered with each family putting up their buildings close to their farmland.

Community oral histories within the Kakum landscape detail a similar cocoa farming landscape transition to the literature. The majority of communities were established in the early-to-mid-20th century, when migrants from the east of Ghana settled, in search of more fertile land for cocoa farming. Communities that migrated from the east include Adadientem, Kwafokrom, Homaho, Akweitey, Nyamebekyere, Asorifie, Mankata and Nuanua. Bushmeat hunting was also a predominant livelihood activity for some of these communities. The community oral histories also report that many communities within the Kakum landscape were established by settlers who migrated in the mid-20th century from other areas in the Central Region, including Bankyease, Mesomago, Aboabo, Aworoso, Asaman and Kwame Annan.

A few communities in the landscape have alternative settlement histories. Some communities settled in the landscape before colonial times, the Etsi people, and were pushed into the forest by the migration of the Assins and Fantes. These communities are the oldest in the landscape and include Kruwa, Abease, Bankyease, Mesomagor, Bosomadwe and Framoase (see Figure 1 for more examples). One community (Adiembra) describes their migration from the Ashanti Region during war, in search of land to farm cocoa.

Across the landscape, the need for greater access to land to farm cocoa has been a driving force, resulting in the migration of people into the landscape, and defining its settlement pattern.

2.3.5 Livelihoods & markets

2.3.5.1 Land tree tenure

Two land tenure regimes are found in the Kakum landscape: customary stool land and private family land, accounting for approximately 60% and 40% of the land area, respectively. Both stool and family land can be passed down through inheritance or as a gift. Family land across the landscape is commonly owned by direct or indirect relatives of the royal family. For migrants or settlers, access to land is granted by the landowner (stool or family), mostly under sharecropping arrangements. The two common arrangements found across all communities within the landscape are Abunu, where the crop proceeds are shared equally between the tenant farmer and landowner, and Abusa, which involves the division of crop proceeds into three parts, for the farm management, the farmer and landowner. Abunu and Abusa

arrangements can also be made for a share of land, rather than the crop proceeds, however this typically takes effect after seven or more years of farming and is not common in the landscape. This type of arrangement exists in Aboabo. Another common land tenure arrangement for migrants and settlers is the annual rent system, “Agofe”, found in Abease, Bankyease, Aboabo, Mankata, Nuanua, Akweitey, Nyamebekyere, Asaman, Kwame Annan and Ayigbo. In the annual rent system, an amount is paid each year by the farmer for cultivating the land and crop proceeds are solely for the farmers.

Under the Abunu tenancy, the proceeds from the harvest or the farm may be divided equally between the tenant and the landowner. Before this division, the harvest from cover crops such as plantain and cocoyam are shared equally, usually after sales, between the landowner and the farmer. During the division of the proceeds, the landowner has the first choice of the products as divided. This old practice that goes back to the pre-independence era, places an initial economic burden on the *Abunu* farmer as he/she is solely responsible for all the labour and cost associated with land preparation and cultivation. The continuous improvement in the producer price of cocoa from the early 1990s incentivised cocoa production and this saw a rapid expansion of the Abunu system (Hill, 1963, Ruf, 2011) with natives and non-native farmers practicing it.

In the case of the Abusa, the ratio of the tenant farmer's acreage to that of the landowner is two to one. Again, it is the landowner who has first choice, and in a large number of cases he takes care of the farm and harvests the crops himself. In some cases, however, the tenant farmer is employed to harvest the crop and take care of the farm for one-third of the harvest. In other cases, an entirely new person may be hired to take care of the farm under similar terms. While this arrangement allows those with fewer resources or social networks to move into cocoa production, it does make sharecroppers vulnerable to the whims of their landlords.

According to a survey by NCRC, while most landowners follow similar tenure regimes, granting access predominantly through sharecropping, and to a lesser extent through the annual rent system, a few communities differ. In some communities (e.g., Kruwa), before sharecropping arrangements commence, the farmer must pay a non-refundable commitment fee. In one community (Adadientam), land is entirely family owned and landownership is only granted

through inheritance. To access this land, community members present livestock or a small amount of money as a token, before entering sharecropping arrangements. In Abease and Aboabo, all land is owned by the stool and access is only granted through annual rent. This system is preferred by the Abease Stool due to its “effective” and “flexible” system for collecting rents, in comparison to sharecropping arrangements. Alternatively, some communities do not follow the annual rent system and instead only use sharecropping arrangements, such as Kruwa, Kawforkrom, Asorifie, and Aworoso.

Across the landscape, equal access to land for farming is granted to men and women, with the exception of Adadientem and Nyamebekyere. In these communities, women cannot access land without the help of a male affiliate and when this access is given, the land is recognised in the name of the man. Some communities note equal access for family land, but not for stool land, such as in Asaman and Asorifie.

Allocation of stool lands is the prerogative of the paramount chiefs who appoint representatives in the various communities to allocate land to tenants. Generally, land owners collect the cash equivalent of their share of the farm produce. In the case of cocoa, whose marketing is state controlled, tolls are collected by the lands Department. All revenue from stool lands is shared between the traditional council, the stool lands authority and the district assembly of the area.

Another form of land tenure practiced around the reserves is in cases where the land has been sold out to people from outside the districts. Those who have made outright purchases institute their own set of laws and customary practices for the lease of the land. The common practice here is that tenants are made to pay annual tolls of 200 cedis per acre of land.

Farmers are not allowed to fell such trees when clearing the land for farming. The trees are leased out on concession to timber contractors who log them at any time they wish. Non timber trees can, however, be cut and utilized by the tenants for fuel wood.

2.3.5.2 Agriculture

Both subsistence and commercial types of agriculture are the predominant activities and main livelihood in the communities surrounding the two reserves. Cocoa is the dominant crop

grown across the landscape, but other tree-crops are also farmed, including oil palm, rubber, and citrus (particularly in the south, near Kruwa). After cocoa, production of food crops, such as plantain, cassava, cocoyam, and maize, are also common. Farming of vegetables, including tomatoes, pepper, cabbage, garden eggs, okro, and onions, are the third most common agricultural activity. For some communities, rice is also an important agricultural product, second to cocoa (e.g., in Nuanua, Asorifie and Akweitey). The family serves as the basic labour force; however, within the Assin District alone, hired labour accounts for 52% of the total labour force. Both food and cash crops serve as export commodities which form the basis of the income of the people. The average farm size for households is about 10 acres, with 85% of households farming less than 16 acres.

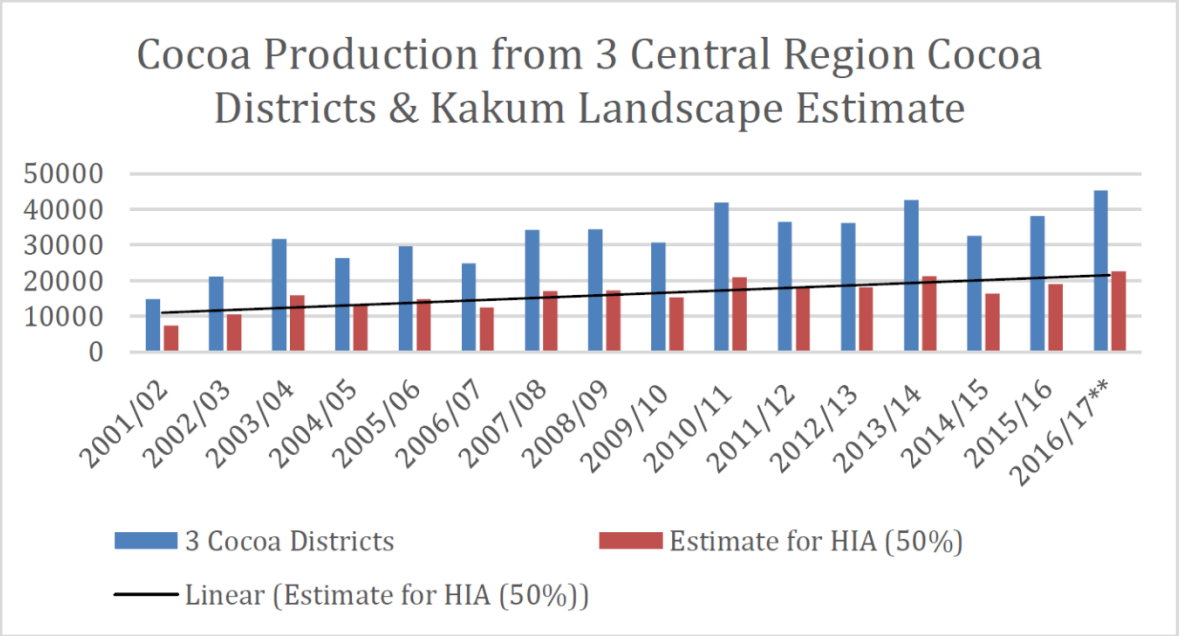


Figure 5: Cocoa Production from 3 Central Region Cocoa (Source: Cocoa Agroforestry Landscape Program report)

The system of farming is rain fed mixed cropping on shifting cultivation basis. Farming activity in the local communities is an all-year-round affair. The first maize crop is planted in March, followed closely by cassava, cocoyam, and plantain. Maize harvesting is from July. Preparation for the second maize season is done from August. The cash crops are planted at the peak of the rains from May to June. This coincides with the time the minor harvesting of cocoa takes place. The major harvesting season of cocoa is from mid-September. The harvesting of the second maize crop is done by the end of January the following year.

2.3.5.3 Women in crop farming

The duty of women on the farm is to assist their male counterparts. However, it is not uncommon for the men to give a portion of the cleared land to the women to plant, harvest and sell the crops for their own use. Planting of vegetables and spices is normally the preserve of the women. These crops belong exclusively to the women even if they are planted on the part of the farm belonging to the men. As economic conditions in most rural settings have become difficult women are increasingly getting involved in making their own farms. A field survey in 1992 revealed that about 32% of the women in the Assin District had average farm sizes of 5 -8 acres.

2.3.5.4 Crop marketing

The lack of good roads and motorized means of transport has resulted in head-porting of farm produce by women to the nearest marketing centres. In that case the women are only able to carry enough farm produce to the market to purchase basic household needs. Major market centres in close proximity to the reserves are located at Abrafo, Nyamebekyere, and Aworoso. Other marketing centres are Assin Fosu, Tweapease, Andoe and Fanti Nyankomase Ahenkro, Twifo Praso.

2.3.5.5 Livestock raising

In many of the communities visited by NCRC, livestock raising is a common feature as a supplementary source of income. Small scale sheep and goat rearing is mostly done for sale. Domestic fowls are kept as a supplementary protein source, even though they are sold in times of financial difficulty.

2.3.5.6 Other Economic Activities

Distillation of Akpeteshie serves as a secondary economic activity engaged in by some people in the local communities. Fermented palm wine is used as the major raw material. Apart from the production of palm oil in the well-established oil palm plantations, small scale palm oil milling is carried but mostly by women to supplement. household income. Other activities in

the communities include the preparation of food for sale, (especially kenkey and gari), basketry and wild honey hunting.

Establishment of woodlot as an economic venture is becoming a common exercise in some communities in the Mfuom and Aboabo areas. The wood lots are in most cases for individuals. Trees commonly planted are teak (Tectona grandis) and cassia (Cassia siamea). The teak is sold for electric poles whilst the cassia is cut for fuelwood.

Women's income tends to come from farming (cocoa, oil palm, maize, plantain), trading in food crops, vegetables and NTFPs (mushrooms, snails, cola etc.), and working as a seamstress, hairdresser, or in food and provisions vending.

Similar to women, men's main agricultural activities and sources of income are tree-crop farming (cocoa, oil palm, coffee) and food crop farming (plantain, oil palm, cassava), followed by vegetable production. Men also work as farm labourers and other artisanal jobs.

2.3.5.7 Adjacent land use patterns

Four forest reserves, Pra Suhien II, Ajuesu, Assin Apimanim and Bimpong, are located near the Kakum Conservation Area. The largest, Pra Suhien II forest reserve which extends about 104.12 km^2 closely abuts the south-western edge of the Kakum National Park, (see figure 6). These forests are managed by the FSD basically as a source of timber. The rest of the land adjacent to the KCA is used as farmland for both cash and food crops and also for settlement. There are, however, patches of degraded secondary forest in certain areas.

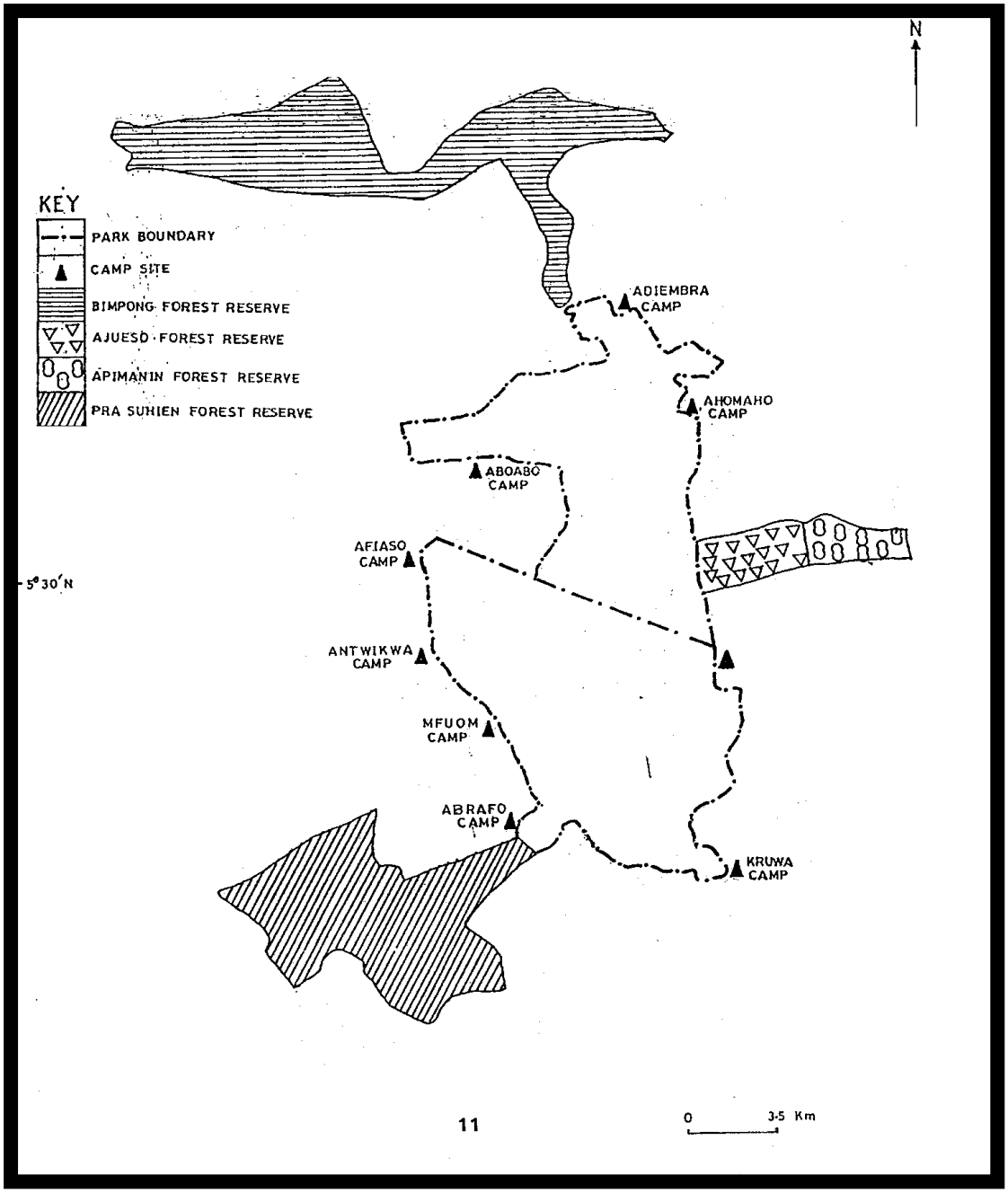


Figure 6: Land use around Kakum conservation area

2.3.6 Wildlife resource utilization

The culture of the Local people reveals a lot of dependence on wildlife resources for their basic necessities of life. Harvesting of NTFPs is a significant livelihood activity in Kakum landscape, and women tend to be more familiar with different species than men. Some communities suggested greater NTFP opportunities for women. The most frequently mentioned NTFPs were prekese (Tetrapleura tetroptera) and cola nut (Cola nitida). Other

species commonly mentioned included: kombo nut (Pycnanthus angolensis), kakapenpen/rauvolfia (Rauvolfia vomitoria), voacanga (Voacanga africana), tweapea (chewing stick), local sponge, pestil (woma) for pounding fufu, mushrooms, and snails. Many communities also noted important medicinal species, such as mahogany (Khaya ivorensis), nyamedua (Alstonia boonei) and emire (i.e., bark for high blood pressure) (Terminalia ivorensis).

While many of these NTFPs are commonly sold to national and international markets, some communities use them for subsistence purposes and do not sell to any markets, such as in Asaman.

Access to NTFPs is similar across the landscape. Harvesting of NTFPs is prohibited in the national park and forest reserve, and access is not granted by any means. NTFPs are “free” to harvest on your own farm, but permission is needed from the farm owner elsewhere. This is the same for men and women.

Access to NTFPs is significantly less than in the past, as forested areas in the landscape are all protected or have largely disappeared through agricultural conversion. Communities within the landscape indicate the depletion of NTFPs in recent times, due to illegal chainsaw logging and the use of farm chemicals. For instance, in Homaho, snails are the only NTFP available, while in Bankyease, only cola nut and mushrooms are available, in small amounts. The forest also serves as source for the construction industry and energy needs for the people.

2.3.6.1 Hunting

Hunting is one of the off-farming activities that are undertaken by the local people. There are however a number of indigenous people who hunt as their major source of income. The transfer of the administration of the two reserves to WD from FSD has tended to deprive them, to a considerable extent, of their source of livelihood. Their unrestricted access to the forest has been curtailed by WD operations which prohibit hunting.

2.3.6.2 Energy Source

Fuelwood is the main source of energy for the majority of households and small-scale industrial activities within the communities. Women with the assistance from their children

gather all the firewood for household needs. These needs include cooking, heating of water for bathing, fire to warm themselves in the cold season and also for palm oil milling, gari processing and fish and meat smoking. It is less frequently used to smoke out dampness in storage barns for the preservation of maize.

Fuelwood may not be a problem now in the communities but the rate at which it is being commercialized will create scarcity in the foreseeable future. People have made firewood selling their major economic activity and trucks load large quantities of it to Cape Coast for sale. Already communities in Assin Attandanso side of the reserves have to walk longer distances than before to 'get firewood for household uses.

2.3.6.3 Materials for construction

Most of the houses in the communities around the two reserves are either mud or wattle and daub type. The materials for construction are poles for the framework and raffia palm for roofing. Good quality poles are obtained from the following species, Turraeanthus africanus, Mitrigyana ciliata, Pleiocarpa mutica, Funtumia elastica, Strombosia glancesens, Xylopiastrum villosum and Nesogordonia papaverifera.

Many tenant farmers have destroyed the raffia groves outside the reserves for rice farming. The two reserves were cited as the only places where good quality raffia can now be obtained. The people are therefore agitating for permission to harvest it from the reserves where it is claimed to be abundant.

2.3.6.4 Other uses of Wildlife

In the rural areas many people rely on herbal medicine for the treatment of various diseases. Quite a number of people, particularly the indigenous communities, practise herbal medicine as an important secondary economic activity. All manner of people visit these traditional herbalists for treatment of various diseases some of which the herbalists claimed orthodox medicine has declared untreatable. A major concern of the people in many of the communities was that certain plants species can only be found in the reserved forest. However, with the closure of the reserves to any form of extractive use, they no longer have

access to some vital ingredients in the composition of their medicines, thereby adversely affecting their efficacy or potency.

Canes are also required for weaving baskets for carrying cocoa and other farm produce. Canes have become scarce outside the reserves and the people requested that they should be allowed to harvest some from the reserves where they claimed the canes occur in abundant quantities. Educational institutions have also found it difficult teaching basketry in schools due to the inaccessibility of canes.

2.3.6.5 Human Wildlife Conflicts

According to the Nature Conservation Resource Center (NCRC), the main challenge posed by wildlife in the landscape is the destruction of crops. This commonly occurs when elephants, grass cutters, antelope and bush pigs invade farms. Elephants tend to visit farms around June and July, destroying mostly cocoa, cocoyam and cassava crops, while grass cutters and antelope mostly feed on cassava. Communities that reported experiencing these wildlife conflicts are Homaho, Kwafokrom, Aboabo and Mesomagor. Farmers express their frustrations about the havoc that elephants cause in their cocoa farms, particularly to farms on the fringes of the forest reserve. No physical harm to humans by wildlife has been recorded recently. In the past, one case of a boy who was killed by a bush pig in 1985 around Homaho was reported.

2.3.7 District Infrastructure and Services

2.3.7.1 Roads

Most of the communities around the two reserves are not easily accessible. Although the roads that lead to them are motorable throughout the year, their condition is so bad that only few vehicles ply them even in the dry season. Transportation to the communities from the main roads is mostly limited to market days. The communities are however linked with a network of footpaths. In almost all the communities surveyed, the condition of the roads was mentioned as the major disincentive to high agricultural production. A substantial amount of farm produce gets wasted because of the farmers inability to convey them at the right time to the marketing centres; which are generally far from the communities. Middlemen who are able to reach the communities take advantage of this plight and dictate the prices they should

pay for foodstuffs. The health of the people is also affected because serious cases cannot be rushed to the hospitals in time for immediate medical attention.

2.3.7.2 Public infrastructure

Public facilities such as schools are generally in very poor state. Many of these schools especially the primary schools are housed in temporary structures with thatch roofing. The buildings and roofs need frequent replacement and maintenance. The problem the communities now face is that the building and roofing materials hitherto obtained from the forest are no longer accessible to them due to the change in administrative authority from FSD to WD. Even though there are other forest reserves, they are far from most of the communities and cannot serve as easy sources of building materials. However, the poor condition of the schools can be blamed more on the people's lack of commitment to community facilities and community development projects.

2.3.7.3 Water

Water supply in terms of quantity and quality have improved considerably in some of the communities as a result of the provision of hand pump fitted bore holes by a number of NGOs operating in the area. Apart from Mfuom, Nyame Bekyere and Koforidua, where the people drink from streams and a spring in the case of Mfuom. all other major communities obtain their water supply from bore holes. There is no pipe borne facility in any of the communities. However. quite a number of people from those communities with bore holes still prefer the taste of the water from the streams.

2.3.7.4 Health status and facilities

A number of community clinics have been opened in some communities in the Assin District to meet the first aid needs of the people. Notable among these communities are Aboabo, Ongwa, Adiembra, Bankyease. Mesomago and Adadientem. Each of the communities selects somebody from among themselves to be trained to man the clinics. Apart from these clinics, bi-weekly mobile services are provided by the Assin District Hospital through its outlets at Assin Manso and Jakai. However, patronage to this facility is very low due to poor accessibility to the communities making effective coverage of about 30%.

Health delivery in communities within the Twifo Heman District is much poorer than the communities in the Assin District. Apart from Abrafo and Mfuom, none of the other communities here even enjoy the services of community clinics. Health post facilities can be obtained only at Frame, Jukwa and Twifo Praso which are far from the people living close to the reserves. The district has no hospital and people have to travel either to Foso or Cape Coast together the services of a doctor. However, a resident doctor for the Twifo Oil Palm Plantations at times attends to some of the sick people.

A number of Traditional Birth Attendants have been trained to cater for the child delivery needs of pregnant women in their communities. Bilharzia and guinea worm infection which used to be the predominant diseases have been significantly controlled by the provision of boreholes in most communities.

2.3.7.5 Educational status and facilities

There is a high degree of illiteracy among the adult population in the area. However, attempts have been made to correct the situation by the provision of basic education for their children. Apart from Koforidua, Gyinawobodee and Domi, which have no schools, all the other major communities around the reserves at least have primary schools up to class 6. A few communities, however, have Junior High Schools (JHS) but none of them have Senior High School (SHS).

Apart from the schools not having permanent structures, the absence of trained teachers is a major problem. Teachers posted to these areas usually vacate their posts for lack of accommodation and other infrastructural facilities. The schools are forced to make use of untrained national service personnel who leave after the service period. However, most of the schools at the time of the survey had adequate teachers with the average teacher: pupil ratio being 1:30 as compared to the national ratio of 1:40.

2.3.7.6 Environmental sanitation

Sanitation is generally very poor in all the communities around the two reserves. Refuse disposal is either done at specific places in the case of some indigenous communities or in

excavations close to individual houses in the case of settler communities. It is, however, a common feature to find litter scattered all over the communities.

Toilet facilities provided in some of the communities are open latrines at the outskirts. The inhabitants in many of the communities go free range. In Ahomaho, however, toilet facilities are provided close to the houses for individual homes, thus exposing the community to serious risk of infection should there be an epidemic outbreak.

2.3.7.7 Common rights

As documented by the Wildlife Division of FC, the following things are held in common in the various communities around the reserves.

1. the use of water is a common right except where the water is the result of an individual effort e.g., personal well, dug-out etc.
2. hunting rights are also common in character. One can hunt wild animals in the bush or other people's farms without trespassing. Traditionally a hind leg of any large animal, i.e., from bushbuck upwards, killed belongs to the chief.
3. collection of snails, mushroom except “Simbre”, crabs and wild fruits is also common in character.
4. fishing rights in water bodies within the communities are common. Strangers, however, need to obtain permission from village elders before fishing.

2.3.8 Forests, biodiversity, & threats

The HIA boosts of Kakum National Forest which is home to more than 500 butterfly species, seven primate species and 100 species of mammals, reptiles and amphibians. The most notable endangered species of fauna in the Kakum national park are Diana monkey, giant bongo antelope, yellow-backed duiker and African elephant. It is also an Important Bird Area recognized by the Bird Life International with the bird area fully overlapping the park area. The bird inventory confirmed 266 species in the park, including eight species of global conservation concern. One of these species of concern is the white-breasted guineafowl. Nine species of hornbill and the grey parrot have been recorded. It is very rich in butterflies as well, and a new species was discovered in 1993. As of 2012, the densest population of forest elephants in Ghana is located in Kakum.

The dominant vegetation type in Kakum is the wet forest. Other vegetation types encountered in the park include swamp forests (permanent and periodic) and riverine forests. Also reported are the Boval vegetation of Hildegardia barteri-Polycarpaea tenuifolia community found in exposed granite rocks and in shallow soils. 105 species of vascular plants consisting of 57 trees, 10 shrubs, 9 climbers, 17 herbs and 12 grasses are reported from the park. Epiphytic plants are also reported to grow on the trees and shrubs are orchids and ferns and also figs.

Logging operations were prevalent in the park between 1975 and 1989. It is, however, noted that the logged areas have regenerated secondary forest consisting of a thick green mantle and vine tangles. This does not extend over the entire park, as much of the dense forest still remains conserved. The park contains rare animals, including forest elephants, forest buffalo, civet and cats. Two hundred forest elephants (Loxodonta cyclotis), potto (Perodicticus potto), Demidoff's galago (Galago demidovii), African civet[43] (Viverra civetta), two-spotted palm civet[44] (Nandinia binotata), leopard (Panthera pardus), bongo (Tragelaphus euryceros), many species of duikers (small antelopes), red river hog (Potamochoerus porcus pictus), giant forest hog (Hylochoerus meinertzhageni), long-tailed pangolin[48] (Manis tetradactyla), white-belied pangolin (Manis tricuspis), giant pangolin (Manis gigantea), many species of forest squirrels, North African crested porcupine (Hystrix cristata), dwarf crocodile (Osteolamus tetraspis), monitor lizards, Home's hinged tortoise, serrated tortoise and many other fauna are reported from the park. Primates in the park include the Colobus vellerosus, Procolobus verus and Cercopithecus diana roloway.

The initial Feasibility Study for the establishment of Kakum National Park included a preliminary biodiversity survey of the fauna of the Kakum Forest Reserve and adjoining Assin-Attandanso Forest Reserve, and a survey of the area's resident African Forest Elephant population. The elephant population size in 1990 was estimated on the basis of spoor data to be 100-150 individuals (Dudley, Mensah-Ntiamoah, & Kpelle 1992).

The Bird Life International included the park area under its list of Bird Life Areas in Ghana in 2002 under the criteria A1, A2, A3. The species recorded are 266 and the species though identified but yet to be confirmed are 56. All the species are resident and most of them are under the Least Concern categorization. The globally threatened species listed under the Near Threatened category are: green-tailed bristlebill (Bleda eximius), red-fronted antpecker

(Parmoptila rubrifrons), rufous-winged illadopsis (Illadopsis rufescens) and copper-tailed glossy-starling (Lamprotornis cupreocauda). The Vulnerable species identified are white-breasted guineafowl (Agelastes meleagrides), brown-cheeked hornbill (Bycanistes cylindricus), yellow-casqued hornbill (Ceratogymna elata) and yellow-bearded greenbul (Criniger olivaceus)

The threats faced in the park which are being addressed relate to poaching; visible proof has been recorded in the form of "camps, empty matchboxes, pieces of rubber tyres, used carbide, gunshots and cartridges", hunting, land encroachments and chainsaw operation. Human-wildlife conflicts around the park are due to park elephants damaging the agricultural crops of the farmers. To prevent raids by elephants during the cropping season on the agricultural fields, farmers have adopted the practice of building pepper fences around their lands to protect their farms (NCRC).

Under the direction of Conservation International and with funding support from USAID, Kakum is considered the best protected forest in Ghana. As a result, it is now a major tourist spot. Though poaching is still prevalent, the management practice of involving local communities to share the benefits of the park would yield positive results. In the park, gamekeepers are specially trained in the medical and cultural significance of the local foliage.

2.4 Activities/Interventions in Kakum HIA

2.4.1 The Kakum Cocoa Agroforestry Project

The Kakum Agroforestry Landscape Project is a REDD+ Intervention under the Ghana Cocoa Forest REDD+ Programme (GCFRP) designed to transform the Kakum cocoa-forest landscape to a more sustainable cocoa agroforestry system, and source of beans, in which forests are protected, cocoa farmers and their families experience improved well-being and empowerment, and socio-economic and ecological resilience to climate change across the landscape is strengthened. The project's motto is Our Forest, Our Cocoa, Our Future. The project achieves its goal by implementing a community-based landscape governance mechanism and management planning system, implementing activities to raise cocoa productivity, supporting activities to reduce deforestation of the natural forest ecosystem and enhancement of trees across the farming landscape, and implementation of activities to diversify and improve farm income.

The programme is implemented in two fringe communities of the Kakum National Park in the Assin South District. It is in partnership with the Hershey Company, NCRC and Ecom Agrotrade Limited.

2.4.2 Restoration Activities

Restoration consists of activities that lead to tree planting in on-reserves and off-reserves. Under the emission reduction programme three main restoration activities are recognised in the HIA namely: Modified Taungya System (MTS), Enrichment Planting and Trees on Farm (ToF).

2.4.2.1 Modified Taungya System (MTS)

This is a system of agroforestry practice where farmers from fringe communities of Degraded Forest Reserves are allocated degraded areas on reserve to undertake plantation development. In this system, farmers provide labour for the site preparation, pegging, planting and tending of the plantation. The Forestry Commission provides logistics (including; pegs, tree seedling and some other farming tools as well as protective clothing) and technical support to the farmers. Farmers are allowed to grow food crops along with the tree seedlings and harvest the crops for themselves whiles tending the tree seedlings for three to four years when tree canopy closes and crop production becomes impossible under the shade. A Benefit Sharing Plan (BSP) has been instituted for the MTS with a proportion of 40%: 40%: 15%: 5% to Farmers, Forestry Commission, Community and Traditional Authorities respectively.

The selection of a community or farmer group for the MTS were based on the following criteria among others:

I. Proximity to the planting site; Since the plantation establishment is labour intensive especially during activities such as site preparation, selection of communities or farmer group is based on their proximity and thus those fringing the Forest Reserves are selected. Another reason is that communities are responsible for ensuring that the plantation and the Forest Reserve as a whole is protected from wildfire, illegality, etc. and so communities fringing the reserve are mostly selected.
II. Willingness to participate: As per the Benefit Sharing Plan, proponents are responsible for their individual roles, thus it requires a willing farmer or a community that

understand and are willing to invest and wait for the returns in a long term. Some farmers would prefer to be paid for their labour and forfeit future returns.

III. Previous experience: With the implementation of MTS in Ghana nearing two decades, the FC has had a myriad interactions and engagements with communities fringing Forest Reserves and have institutional memory of committed communities based on their past performance. Thus, the selection criteria of farmers also include past community performance in MTS establishment including their ability to protect previous plantation stands established.

IV. Ability to work on the farm: Selection of farmers are also based on their age and health conditions. Strong adults and youth are preferred regardless of the gender.

2.4.2.2 Enrichment Planting

Enrichment planting was undertaken in a fairly degraded forest with the aim of increasing tree cover by planting tree seedlings within the forest. This plantation model has introduced valuable species to degraded forests without the elimination of valuable individuals already present. In Kakum HIA, the Kakum Forest District manages Enrichment Planting activities. In Enrichment Planting, strips of 5-6-meter width are cut through the degraded portions of the compartment along which tree seedlings are planted and nurtured to increase tree density. This work is done under the supervision of Forestry Commission.

2.4.2.3 Trees on farms (ToF)

This system of carbon stock enhancement focuses mainly on cocoa farms in off-reserve areas that are unshaded or not fully shaded according to the right regime. Farmers are supported and have incorporated trees in their farms to ensure sustainable yield whilst at the same time contributing to climate change mitigation. By incorporating trees on their farms, they contribute to carbon stock enhancement, which serves as a carbon sink.

In executing this model, COCOBOD and private sector cocoa companies support ToF implementation since it falls directly within their remit although under strong coordination and partnership with the Forestry Commission and COCOBOD. Farmers benefit from agricultural extension services as well as supervision and logistical support. In this HIA, Assin

Fosu Forest District, COCOBOD Districts, and NCRC as well as Cocoa companies such as Ecom and Hershey are leading ToF.

2.4.3 Climate- Smart Cocoa

Climate-Smart Cocoa (CSC) consists of farm-level activities that lead to increased resilience, carbon sequestration and general improvement in the livelihood of farmers. At this, a number of REDD+ partners in the HIA including COCOBOD and the private sector cocoa companies undertake climate-smart related activities. The Ghana Cocoa Board generally term their version of CSC as Productivity Enhancement Programme (PEP). COCOBOD since 2017 has rolled out the PEPs to shore up cocoa production in the country and consolidate its position as the leading producer of premium quality cocoa beans in the world. The objective of the PEPs is to roll out a set of measures that will improve productivity per hectare and increase cocoa production levels well above 1 million metric tonnes per year (versus an average of 800,000 tonnes per year over the last ten years). The PEPs mainly entail measures to sustainably increase plant fertility; develop irrigation systems; rehabilitate aged and disease-infected farms; increase warehouse capacity; and create an integrated farmer database. Some of the activities under PEPs include the following:

- Cocoa Rehabilitation Programme
- Cocoa Diseases and Pest Control Programme (CODAPEC)
- Cocoa HiTech (Fertilizer) Programme
- Free Hybrid Cocoa Seedling Distribution
- Artificial Hand Pollination
- Mass Cocoa Pruning
- Cocoa Management System (CMS)
- Irrigation

1. Irrigation Cocoa Rehabilitation Programme

Under this programme, COCOBOD bears the full cost of the two-year rehabilitation process which involves the cutting of cocoa trees affected by the Cocoa Swollen and Virus Disease (CSSVD), treating whole farms and replanting them with disease-tolerant, early bearing, and

high yielding cocoa hybrid cocoa seedlings as well as complementary plantain suckers to provide temporary shade for the young cocoa seedlings and recommended desirable shade tree species to provide permanent shade for the newly established cocoa.

2. Cocoa Disease and Pests Control (CODAPEC)

COCOBOD introduced the CODAPEC programme (Mass Spraying) in 2001/2002 to control black pod disease and mirids (capsids) to prevent their effects on cocoa production. The programme comes at no cost to the farmer. Only mapped farms in good condition are considered under this exercise. COCOBOD takes full responsibility of carting chemicals to the regions and districts for onward distribution to farmers through various task forces in districts and communities. The chemicals are allocated to farmers to arrange with supervisors of spraying gangs to plan spraying schedules to spray their farms. There are 2 components involved:

- Capsid control
  i. A 7-member spraying gang (supervisor inclusive) ensures two (2) rounds of insecticides application in April/May and September/October respectively.
  ii. Cocoa farmers are then expected to complement the first two (2) rounds with additional two (2) rounds in June and December within a cropping year.
- Black pod Control
  i. The first three (3) rounds of fungicides application spraying are carried out between 3-4 weeks' intervals by COCOBOD in June, July and August/October.
  ii. Cocoa farmers are encouraged to work closely with the gang to identify which periods within the intervals to complement with additional three (3) rounds application of the fungicides

3. Cocoa HiTech Programme

Management of Ghana Cocoa Board (COCOBOD) re-introduced the Subsidized Fertilizer Programme following evidence of widespread theft, nepotism, favouritism diversion and smuggling which characterized the then 'Free Fertilizer Programme' some years ago.The aim of the fertilizer distribution was to restore soil nutrients depletion to enable a smooth process during cocoa production. The Subsidized Programme, which makes use of the private sector in the distribution processes, seeks to ensure availability, equity, and transparency. The

introduction of this new scheme, with active private sector participation, has also helped to create jobs to boost economic growth in the country. Generally, the Cocoa HiTech Programme has a number of benefits including:

- cutting off the needless politicization, nepotism and theft that hitherto characterized the distribution of fertilizers
- stimulating an industry that is one of Ghana's top earners of foreign exchange and accounts for about 7 percent of gross domestic product.
- eliminating market distortions as well as steps to map cocoa farms and soil, improving sector management, upgrading ports and storage facilities and rehabilitate ageing trees.
- enhancing access of the ordinary cocoa farmer to the right fertilizer which will help stimulate productivity and increase livelihood.
- Promoting a subsidized programme, which makes use of the private sector in the distribution processes, ensures availability, equity, and transparency

The mode of distribution of the farm inputs is done through the following processes:

- Farmer based Cooperatives are formed, in order to facilitate equitable distribution of fertilizers. Each farmer must belong to a community farmer based corporative.
- Cooperatives then must apply for the subsidized fertilizers at COCOBOD. Farmers can therefore apply through these approved farmer-based cooperatives.
- Farmers are given a one-year moratorium for the payment of the subsidized fertilizers.

4. Free Hybrid Cocoa Seedling Distribution program

Every year, Ghana Cocoa Board (COCOBOD) through the Seed Production Division (SPD) raises disease-tolerant hybrid cocoa seedlings for distribution to farmers free of charge. The initiative is aimed at increasing cocoa production and incomes of cocoa farmers.

Distribution of the seedlings to farmers is mostly done from May – July every year to enable farmers plant them. The mode of distribution takes the following processes:

- The seedlings are raised by the Seed Production Division (SPD) at over 380 nursery sites established in communities across the cocoa regions.

- The Cocoa Health and Extension Division (CHED) distributes the seedlings using farmer data.

5. Artificial Hand pollination programme

This is done to induce pollination of matured cocoa trees top enhance productivity. The processes involved are detailed below:

- A farm ear-marked for pollination must be pruned two months before it is pollinated
- Transfer of pollen grains is aided by forceps and containers
- Application of fertilizers is essential to support pod setting and development

6. Mass cocoa pruning programme

A strategy to prune all productive cocoa across all cocoa growing regions and districts. To this end COCOBOD has supplied 100,000 motorized pruners to various farmer cooperatives to encourage pruning and weeding/slashing as pruning is the master key that unlocks flowering in cocoa to aid flowering and pod setting. It also helps to reduce the incidence of pests and diseases that affects cocoa farms.

7. Cocoa Management System (CMS)

Popularly known as Cocoa farmer census is a program under which all cocoa farmers are enumerated with their data captured including useful sociodemographic characteristics. Their farm sizes and other farm characteristics are also captured. This data will eventually be the platform upon which essential services like cocoa farmers pension scheme would be rolled out for farmers by COCOBOD

8. Irrigation

Due to climate change and its devastating effects COCOBOD has embarked on an aggressive irrigation programme to bring irrigation to the farm gate of the ordinary cocoa farmer as a climate change mitigating and coping strategy. To this end a lot of boreholes have been sunk and solar powered to irrigate some clusters of farms in the various district. Plans are far advanced to dam some big rivers in the cocoa districts for irrigation purposes.

2.5 Wildlife Conservation and Protection

The Wildlife Division of the Forestry Commission has a mission to ensure conservation, sustainable management and development of Ghana's wildlife resources for socio-economic benefit to all segments of society. Specially, the Division has adopted the following strategies:

- Protect and develop Ghana's permanent estate of wildlife-Protected Areas (PAs).
- Promote management and development of wildlife outside wildlife-Protected Areas.
- Develop Eco- tourism potentials of the PAs.
- Promote the development of wildlife - based enterprises.
- Develop linkages with other agencies and NGOs whose activities impact wildlife.
- Assist local communities to develop and manage own reserves e.g., Boabeng Fiema and Agumatsa Wildlife Sanctuaries.
- Foster closer collaboration with communities closer to PAs through the promotion of community resource management areas (CREMA).
- Promote public awareness and education on wildlife management issues.

In line with the above, in the Kakum HIA, the Wildlife Division at the district level embarks on a number of activities including community education and sensitization, protection of cocoa farms against elephant crop raiding, livelihood improvements.

Some key project outputs in the Kakum HIA

I. Developed National Climate Smart Cocoa Standard with Government of Ghana, Civil Society and Cocoa Companies.
II. Designed Landscape level Monitoring, Reporting and Verification systems that align with the Ghana Cocoa Forest REDD+ Program methodology.

The outcomes of the project include measurable reductions in deforestation, enhanced community resilience against climate change, significant increases in most farmers' yields and incomes, and the marketing of deforestation-free cocoa beans.

3.0 INSTITUTIONAL SETUP FOR IMPLEMENTING GCFRP ACTIVITIES

NRS has put in place an inclusive and participatory approach for the implementation of all activities. In a broader sense, the main institutions implementing the REDD+ and have interest in environmental and social management include:

- Ministry of Lands and Natural Resources (MLNR);
- Ministry of Food and Agriculture (MOFA);
- Ministry of Environment, Science, Technology and Innovation (MESTI)
- Forestry Commission (FC): - National REDD+ Secretariat (NRS)/Climate Change Directorate (CCD), Forestry Services Division (FSD), Resource Management Support Centre (RMSC);
- Ghana Cocoa Board;
- Metropolitan, Municipal and District Assemblies (MMDAs);
- Environmental Protection Agency (EPA);
- World Bank and other donors.
- Traditional Authorities
- Cocoa Research Institute of Ghana (CRIG)
- Some Civil Society Organizations (CSOs) / Non-Governmental Organizations (NGOs)
- Some Private Companies and their representatives in-country
- Community members and farmer groups

Table 3: Organizations/institutions and Partner agencies involved in the programme implementation

NAME OF ORGANIZATION/PARTNERS	CORE CAPACITY AND ROLE
Forestry Commission of Ghana	Forestry Commission (FC) is the government institution responsible for the sustainable management of Ghana's forest and wildlife resources. Forestry Commission and COCOBOD set the national framework and developed an enabling cocoa policy and strategy around environmental sustainability for this project. The Climate Change Directorate of the FC was established in 2007 with a mandate to manage forestry-sector initiatives related to climate change adaptation and mitigation, including REDD+. It hosts the National REDD+

	Secretariat, which is responsible for coordinating Ghana's REDD+ process. The sector ministry for the FC is the Ministry of Lands and Natural Resources (MLNR). In partnership with Ghana's Cocoa Board, the FC is responsible for this programme, including its design, management, and implementation.
Ministry of Lands and Natural Resources (MLNR)	MLNR is the sector Ministry to which the Forestry Commission reports. It is also responsible for coordinating and implementing Ghana's Forest Investment Programme (FIP). The Minister of the MLNR chairs the National REDD+ Working Group (NRWG) which is an intersectoral body that provide oversight, Coordination and Management of the GCFRP.
Ghana Cocoa Board (COCOBOD)	Ghana Cocoa Board (Cocobod) is a co-proponent of the GCFRP with the Forestry Commission and together they co-lead the programme implementation. Cocobod is the government institution responsible for the regulation and management of the cocoa sector. Cocobod serve as co-chair, with the Forestry Commission on the GCFRP Joint Coordination Committee to provide strategic coordination and management for implementation of the programme
Ministry of Environment, Science and Technology (MESTI)	MESTI is the sector ministry with responsibility to formulate, develop, implement, monitor and evaluate environmental policies in Ghana, including the National Climate Change Policy. MESTI has a seat on the NRWG and is a key partner on all aspects of REDD+.
Ministry of Food and Agriculture (MOFA)	MOFA is represented on National REDD+ Working Group (NRWG) and is responsible for ensuring that extension services and interventions related to food and cash crops including oil palm and citrus align with the goals of Ghana's Cocoa Forest REDD+ Programme.
Environmental Protection Agency (EPA)	EPA is the National Focal Point for United Nations Convention on Climate Change (UNFCCC) and is responsible for all National Communication to the UNFCCC. EPA ensures that the programme's accounting is reflected in the national accounting. It also hosts Ghana's Climate Change Data Hub, which supports elements of data management and registry.
Forestry Research Institute of Ghana (FORIG)	FORIG is a research institute under the Council for Scientific and Industrial Research (CSIR) conducting research on forests and forest products for social, economic and environmental benefits of society. FORIG advises the Joint

	Coordinating Committee (JCC) and provide technical guidance on the implementation of field activities and development of appropriate systems for the success of the programme.
Cocoa Research Institute of Ghana (CRIG)	CRIG is a subsidiary of Cocobod established as a centre of excellence for developing sustainable, cost effective, socially and environmentally acceptable technologies for the cocoa industry. CRIG is responsible for all cocoa research that provides information and advice on matters relating to the production of cocoa and other mandate crops
National House of Chiefs	The National House of Chiefs is a body of elected representatives from Ghana's Regional Houses of Chiefs that is recognized by the Constitution. It is charged to advice on issues related to culture and chieftaincy, and works towards the codification of customary law. The national house of chiefs works with the programme to liaise with Paramount chiefs that have jurisdiction over landscapes within the programme area. They play critical role in the implementation of the Grievance Redress Mechanism and will also provide guidance on issues related to benefit sharing.
Nature Conservation Research Centre (NCRC)	NCRC is a continental leader in REDD+ and Climate Smart Agriculture, and has played major role to date on both issues in Ghana. It also has extensive expertise in implementing Community Resource Management Areas (CREMAs). NCRC is supporting the design of the landscape management governance structure at the district and regional levels. NCRC collaborates with relevant stakeholders to align the climate smart approach with the Emission Reduction Program of Ghana and design and implement a financially sustainable incentive mechanism for farmers that could be accrued from the REDD+ project in Ghana. They support data collection and support the national carbon accounting system. NCRC is a leading indigenous conservation NGO in Ghana, with years of experience in building community-based natural resource governance mechanisms and serving as one of the originators of the CREMA mechanisms.
World Cocoa Foundation (WCF)	WCF promotes a sustainable cocoa economy through economic, social and environmental development in cocoa-growing communities. It is organizing an

	industry commitment to end deforestation and forest degradation. The initiative will develop in consultation with the relevant cocoa producing country governments, farmers and farmer organizations, civil society organizations, development partners, and other stakeholders, measures to end deforestation and forest degradation, while improving the livelihoods of smallholder farmers working in the cocoa supply chain.
Hershey	The Hershey Company is the leading North American manufacturer of quality chocolate and non-chocolate confectionery and chocolate-related grocery products. The company also is a leader in the gum and mint category. For The Hershey Company, sustainability is part of an ongoing and expanding commitment to corporate social responsibility deeply rooted in its heritage since Milton Hershey founded the company. For more than 50 years, Hershey has been a major buyer of West African cocoa beans, primarily Côte d'Ivoire and Ghana. During that period, Hershey has helped family cocoa farmers and communities develop more productive agriculture practices, build educational and community resources, and improve labor practices. Hershey is currently focusing its initiatives in West Africa – Côte d'Ivoire and Ghana – because cocoa farmers there have the greatest need to improve their farms and raise living standards for themselves and their families.
Olam	Established in 1994, Olam Ghana is one of the leading agri food companies in the country. They supply food ingredients, feed and fibre to thousands of customers worldwide, from world famous brands to small family run businesses. As well as growing crops in their our own orchards and estates, they source from a global network of farmers and operate over 75 large processing and manufacturing facilities. They develop ingredients and packaging solutions, and deliver risk management, logistics and infrastructure to support customers' needs.
Ecom	Ecom is a leading global commodity merchant and sustainable supply chain management company. As an origin-integrated business operating in over 40 major producing countries worldwide, ECOM focuses primarily on coffee, cotton, and cocoa, as well as participating in selected other agricultural product

	markets. ECOM is one of the top two merchants in coffee, the largest coffee miller, and amongst the top four merchants in both cotton and cocoa, making ECOM a top tier participant in each of its core businesses. With over 150 years of market experience, ECOM is committed to responsible leadership within the soft commodities industry. Its global operations rely on its extensive knowledge and experience in supply chain improvement, risk management and client focused distribution to create a valuable and profitable environment for suppliers, customers, shareholders and employees. They are the largest buyers of Ghana cocoa beans and cocoa butter liquor and cake from Ghanaian processors. Their local supply chain extends across the cocoa belt procuring over 150 000 MT of cocoa annually. They are the largest sustainable and traceable cocoa supplier in the country.
Produce Buying Company (PBC)	PBC is one of the biggest licensed cocoa buying companies (LBCs) in Ghana, and has the greatest geographical presence, being present in every village/society.
HMB	The HIA encapsulates all the designated Sub-HIAs and therefore connects all HIA communities as though a single harmonized landscape-wide governance and/or jurisdictional entity. Therefore, HMB is the apex decision-making body structure of the HIA governance structure and responsible for guiding and directing all HIA management decisions towards a common vision in the collective good of Sub-HIAs, Zones/CREMAs, CRMC and communities.

3.1 Coordination of Interventions/Activities at the HIA Level

While NRS directs and coordinates implementation, the actual implementation of priority activities in each HIA rely on a consortium of stakeholders (HIA Implementation Consortium Partners) who live, work, or have investments within the landscape, and have an interest in the area. The HIA landscape is managed by an HIA Governance Body made up of local land-users, land owners and traditional authorities who organize themselves into a government recognized Natural Resource Management (NRM) structure, like that of the CREMA (i.e., modified CREMA), which accords them the right to manage their natural resources for their benefit.

The Consortium and the HIA Governance Body put in place how best to coordinate all activities related to the programme in the HIA. The NRS and the HIA Consortium carry on a participatory process to build the HIA governance and implementation structure at each location. Following successful negotiation of HIA initiation, the programme supports the requisite steps to establish management boards, prepare HIA constitutions, and hold regular HIA governance meetings. Key decisions of the HIA Governance Board are to determine how best to make the transition to a climate-smart, no deforestation, sustainable cocoa production system in line with the development of a standard. Key activities 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 is achieved through durbars, local FM radio announcements and other media.

3.2 Integration of Stakeholders in the Implementation of Interventions/Activities through the HIA Governance Structure

The HIA is designed to work in collaboration with a formal Consortium of key stakeholders, including private sector cocoa companies, NGOs and government agencies, through an established HIA Implementation Committee with representatives from both the community based HIA Management Board and the Consortium on this committee (Figure 10). The landscape is divided into a series of sub-landscape HIAs (Sub-HIAs) which together cover the area of the whole HIA. Each sub-HIA will provide localized leadership and governance within defined boundaries which reflect divisional or sub-chiefs' jurisdictions and/or appropriate environmental/geographic boundaries. Key aspects of creating or supporting Sub-HIAs are determining the boundaries, the zoning of conservation areas and development areas, as well as the creation of sub-HIA and HIA byelaws and then a Management Plan. At the landscape level, all of the Sub-HIAs have representatives on an umbrella body—the HIA Landscape Management Board. This Board has a formal relationship with the Consortium and is advised by the highest level of Patrons from the Traditional Council.

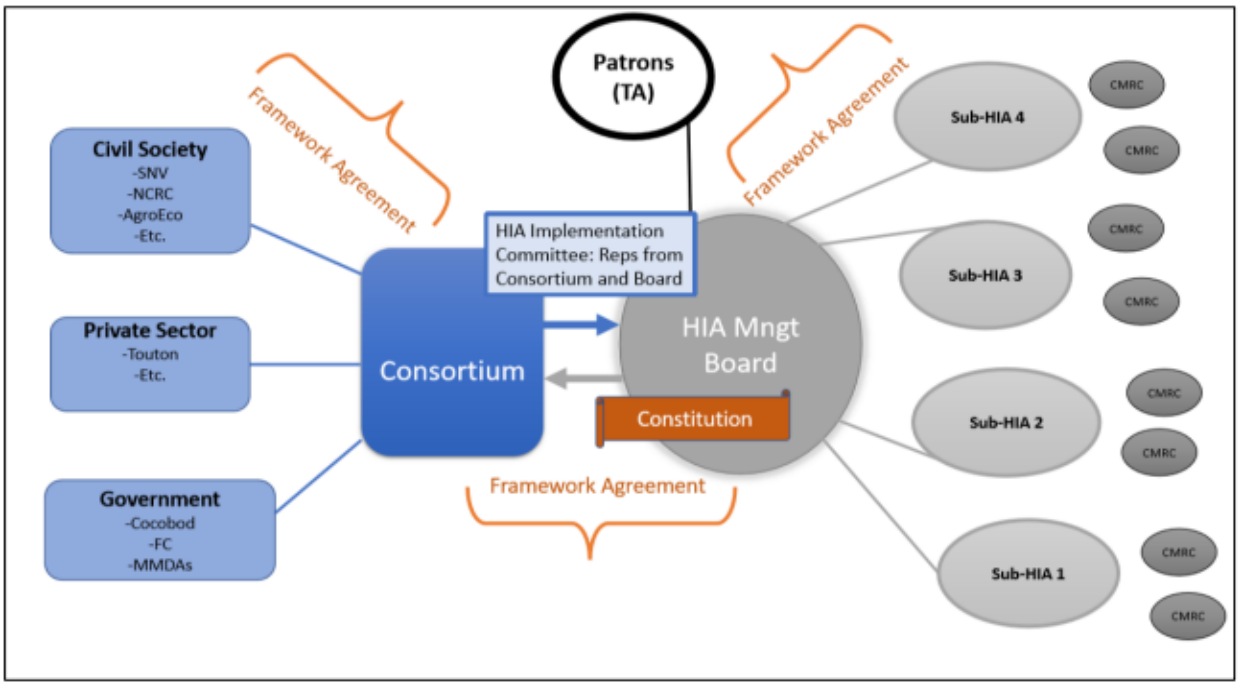


Figure 7: Collaboration within the HIA

The organization of communities for active REDD+ implementation is done at various levels (tiers) to ensure openness, inclusiveness, as well as participatory and transparent process. At the various levels (Community, CREMA/Zone, Sub-HIA and HIA), community-led leadership (Functional Units) is constituted to provide leadership. The Functional Units are the Community Resources Management Committees that provide leadership at the community level, CREMA Executive Committee that provide leadership at the CREMA level, Sub-HIA Executive Committee that provide leadership at the Sub-HIA level and HMB that provide overarching leadership at the HIA level.

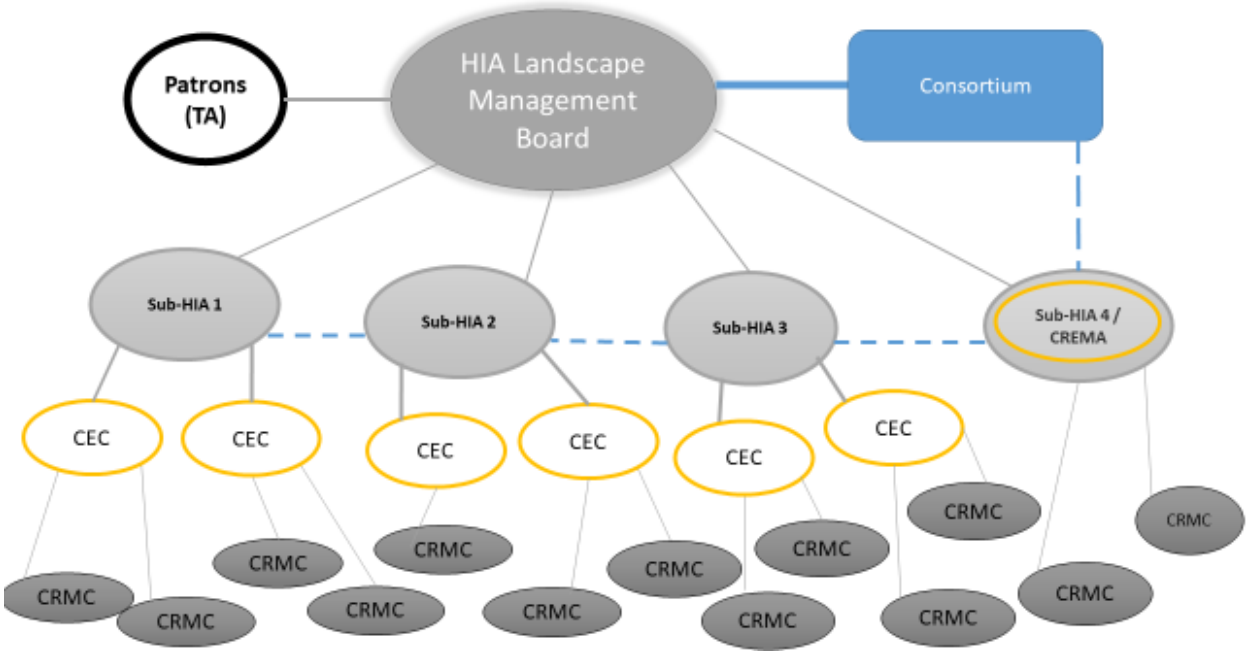


Figure 8: Tiers of the governance structure within the HIA

3.3 HIA functional units

3.3.1 Community Resources Management Committee (CRMC)

The Community Resources Management Committee (CRMC) is the basic unit of the HIA governance structure yet most crucial in that the strength of the entire structure depends on the quality of persons forming the CRMC who direct and mobilise farmers for action at the community level. Within each constituent community of the HIA, the CRMC has a representation of all identifiable interest groups. This structure is built on existing community governance and decision-making structures, and is tasked with the implementation and/or enforcement of CREMA, SUB HIA and HIA management decision within the respective communities.

3.3.2 Community Resources Management Area (CREMA)

Community Resources Management Area (CREMA) or Zone is the next phase of the HIA governance structure designed to achieve a landscape-wide governance structure. CREMA is defined as a geographically defined area that includes one or more communities that have agreed to manage natural resource in a sustainable manner guided by constitution and enacted by-laws. In the CREMA/Zone formation, several CRMC communities are clustered

together based on commonality of traditional boundaries, proximity, cultural or traditional ties. The term zone is conveniently used to denote the cluttered area/group that is worked on to achieve a CREMA status. This implies that areas designated as zones do not have bylaws but rather have rules and regulations to guide their operations owing to the relatively longer time and rigorous process involved in obtaining bylaws. At the Zonal level, elections are conducted to elect Zonal/CREMA Executives, known as the CREMA Executives, that have oversight responsibility over the CRMCs.

3.3.3 Sub-Hotspot Intervention Area (SUB-HIA)

In the HIA governance structure, the Sub-HIA is the third tier that encapsulates the CREMA and the adjoining Non-CREMA Area (NCA). In other words, several CREMAs and NCA subsume under a given Sub-HIA. The tier covers an expanse area same as, or normally larger than a CREMA area. It is managed by a Sub-HIA Executive Committee (SHEC) with equitable representation of all its constituent groupings and is responsible for decisions of collective interest. Similar to the formation of the CREMA, several zones are grouped together to form the Sub-HIAs based on political-administrative district boundaries, sizes of their communities and their population. Each sub-HIA has a seven-member SHEC who are elected from the respective CREMAs and NCAs constituting that particular sub-HIA. The Kakum HIA has 3 Sub-HIAs: Etsi Sub-HIA, Ajensu Forest /Kakum Central Sub-HIA and Atandanso Forest/ Kakum North Sub-HIA. Each sub-HIA is entitled to 1-2 patrons who are drawn from the traditional authorities or influential community members (Sub-Chiefs). They serve as advisers to the sub-HIA and are the final arbiters in traditional matters arising from activities within the sub-HIA. Patrons also act in making peace and unity in order to advance development within the sub-HIA.

3.3.4 Hotspot Intervention Area Management Board (HMB)

The HIA encapsulates all the designated Sub-HIAs and therefore connects all HIA communities as though a single harmonized landscape-wide governance and/or jurisdictional entity. Therefore, HMB is the apex decision-making body structure of the HIA governance structure and is responsible for guiding and directing all HIA management decisions toward a common vision for the collective good of Sub-HIAs, Zones/CREMAs, CRMC and communities. The HMB

was set up by a conscious consideration of creating space for a balanced representation of individuals from the Sub-HIA level to be well represented on the HMB. The selection of HMB representatives is subjected to a robust, competitive electoral process involving nominations, vetting, manifesto reading, and voting by a secret ballot.

The HMB, together with the HIA functional Units including the CRMCs, CECs, SHECs, are expected to play important roles at the landscape level including but not limited to the following:

- Commits to implement 'CREMA-type' landscape planning and management processes
- Commits to building local governance institutions to manage the cocoa landscape
- Commits to supporting farmers in the adoption of climate-smart cocoa practices, with attention to gender and youth
- Commits to participate in the identification of cocoa farms in the landscape including on-reserve
- Commits to participate in GCFRP activities within the landscape
- To educate communities on the importance of conservation of the natural and cultural resources and to stem further habitat degradation.

4.0 PUBLIC CONSULTATIONS

Public consultations placed centrally to safeguards implementation of activities/interventions at both national and sub-national levels. Public consultations were organised through meetings, community engagements, trainings and workshops. A series of information sharing and consultative programmes were undertaken to enhance awareness of the program and ensure that there is shared understanding of the critical roles of key stakeholders. Stakeholders consulted included Cocoa Private Sector actors', Multi-stakeholder Policy Actors. Legislators, MMDA's, NRWG, Traditional Authorities. A summary of public consultations that took place are detailed below:

Box 1: Public Consultation 1

Engagement and Sensitization of Safeguards Focal Persons

Between the periods 7th- 8th and 20th- 21st February 2018, Safeguards Focal Persons (SFP) were sensitized and trained on key global, donor and national level safeguards requirements for REDD+ implementation. The SFPs were drawn from the Regional, District and Park offices of FSD and WD. 71 SFPs were convened and trained on the requisite safeguards requirements for REDD+ implementation at Anita Hotel, Kumasi.

Box 2: Public Consultation 2

Engagement of community members and other stakeholders

NRS engaged community members and other stakeholders in 10 districts within the 6 HIAs to sensitize them on REDD+ Safeguards in collaboration with CSOs within the landscapes. These engagements occurred in 10 forest districts across all the six Hotpot Intervention Areas (HIAs) Identified for the GCFRP. The districts are; Sefwi Wiawso, Cape Coast (Kakum National Park Area), Kade, Bechem, Juaso, Goaso, Nkawie, Ho, Begoro and Juaboso. Participants were 850 consisting of 580 males (about 70%) and 270 females (representing about 30%). These landscape activities were done in active collaboration with some Civil Society Organizations in Ghana namely Civic Response, International Union for Conservation of Nature (IUCN) and HATOF Foundation.

Box 3: Public Consultation 3

Training on SIS and FGRM for REDD+ regional and district safeguards focal persons

The Climate Change Department (CCD) organized a two-day training workshop on the functions of Ghana's REDD+ SIS and FGRM at the Forestry Commissions Training Centre (FCTC) in Kumasi from 19th-20th June, 2018 for regional and district safeguards focal persons within the High Forest Zone of the GCFRP. The selected 71 Safeguards Focal Persons (SFPs) were trained on the functions of Ghana's REDD+ SIS and FGRM. Feedback and recommendations were solicited from the SFPs on where and how to improve the SIS and FGRM.

Box 4: Public Consultation 4

Safeguards monitoring exercise

To ensure a successful REDD+ implementation, there was the need to monitor and evaluate activities undertaken during the readiness phase and seek suggestions to effectively implement the REDD+ programme. The objective of the field visit was to get feedback from stakeholders on the effectiveness of the safeguards capacity building workshop held in 2018 to achieve effective REDD+ safeguards implementation. Another objective was to go through pre-screening exercise of sub-projects under the GCFRP with Safeguards Focal Persons (SFPs) to identify potential environmental impact. The field visit commenced on 4th of March and ended on 15th March, 2019.

Box 5: Public Consultation 5

Stakeholder Engagement on Safeguards Implementation

32 Safeguards Focal Persons across the GCFRP operational area including FSP from the Kakum HIA were engaged on safeguards implementation in 2019. The engagement was to share experiences and perspectives on how SFP could deliver on safeguards mandates.

Box 6: Public Consultation 6

Consultative workshops to inform on tree tenure and benefit sharing plan for REDD+

7 consultative workshops conducted in Kakum, Begoro, Kade, Sefwi-Wiawso, Juabeso-Bia, Nkawie and Juaso.

Box 7: Public Consultation 7

REDD+ Awareness Creation and Sensitization of Stakeholders

Over 15 Awareness Creation and Sensitization events were undertaken including; meeting with Executive Management Team (EMT), GCFRP Launch, Safeguards workshops, TV and Radio shows etc.

Box 8: Public Consultation 8

Consortium meeting

A consortium meeting for the Kakum HIA was successfully held in Assin Fosu on 25 June, 2019 at the JOEES Plaza hotel conference hall. Partners present at the meeting included representatives from the Wildlife Division of the Forestry Commission, Climate change Directorate of the Forestry Commission, Forest Services Division, Cocoa Health and Extension Division of the Ghana Cocobod, ECOM commodities trading company, The Hershey Company and NCRC.

5.0 INSTITUTIONAL SETUP AND RESPONSIBILITY FOR ENVIRONMENTAL AND SOCIAL SAFEGUARDS IMPLEMENTATION REPORTING

5.1 Implementing Institutions

NRS has put in place a robust institutional arrangement for the implementation, monitoring and reporting of safeguards in close collaboration with EPA, the national Safeguards Working Group as well as partner organizations supporting the implementation of ER activities.

At the national level, Environment and social safeguards staff are recruited as part of the national level Project Management Unit (PMU). The PMU Safeguard Specialists are responsible for operationalizing all safeguards aspects of the GCFRP and overseeing and organizing all activities related to safeguards trainings, monitoring, and reporting within the program area. This team receives all of the safeguard's information and data from the Regional/district levels Safeguards Focal Points in order to review and further analyse the data as required, provide final verification, and where questions or gaps arise, worked with the Regional/district levels focal points to make corrections and improvements.

The national level PMU safeguards specialists play a key role in ensuring safeguards compliance and are further responsible for

- Coordinating environmental and social safeguards across the HIAs
- Providing Leadership across the regional and district levels for the implementation of safeguards
- Providing guidance and project level info and tools on safeguards for all stakeholders
- Managing the environmental and social safeguard experts at ER program areas
- Coordinating all safeguard activities with donors, implementing agencies and other potential investors
- Overseeing all environmental and social safeguard training and capacity building

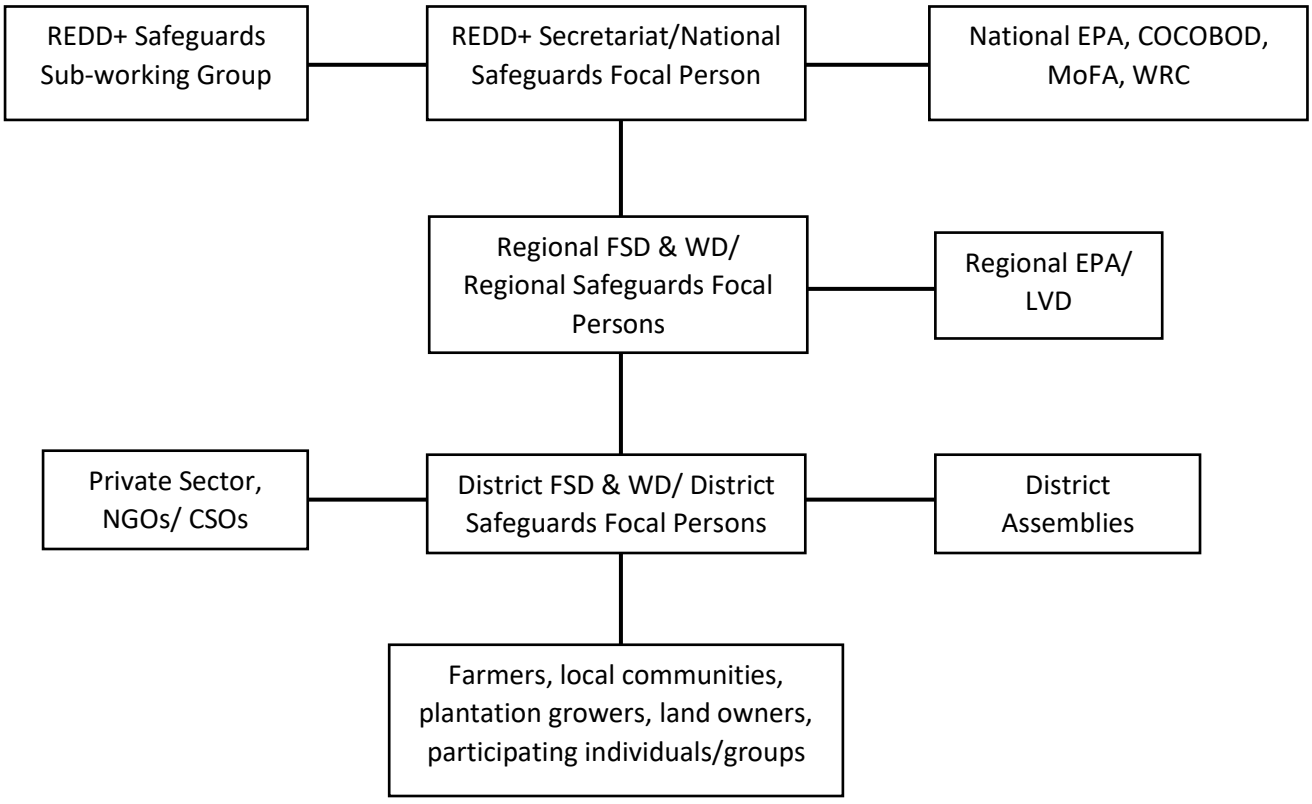
At the regional and districts levels

- **Regional/district levels Environmental and Social Focal Points are in place.** They work closely with the national level NRS Environmental and Social Safeguards (ESS) Focal Point to ensure that all environmental and social

safeguards issues are incorporated into Bid and specifications documents for all sub project types.

- ensure that safeguards issues are included as part of the training at District level and contractors invited to participate.
- draft safeguards report based on collated documents and reports from district activities as part of usual regional reporting on the project.
- are the first point of contact for the district in case of any challenging issues on project-related safeguards - land, environmental, safety and health and draw the FC ESS Focal Point's attention in case of lack of resolution
- collaborate with relevant authorities (chiefs and elders) and other community members and facilitate the implementation of subprojects and implementation of any other safeguards related activity.
- perform any other related activities that may be assigned by the NRS ESS Focal Point to whom s/he will report.

Below is the diagram illustrating safeguards implementation:



5.2 Collaborating Institutions

NRS supervises on-ground safeguards implementation including screening and monitoring of interventions/activities captured under the Ghana Cocoa Forest REDD+ Programme. This exercise is usually done collaboratively between NRS and other key partners such as the Environmental Protection Agency (EPA) and the HIA Management Board (HMB). The EPA being the statutory regulator of the environment provide technical n support to complement the effort of the NRS. The EPA undertake training and sensitization programmes focusing on safe handling of agro-chemicals, safety issues, and protection of natural resources including forest, biodiversity and water. The EPA collaborate with key institutions like the District Assemblies and the Department of Agriculture (under the Ministry of Food and Agriculture) in providing these services.

Also, the Ghana Cocoa Board being one of the proponents of GCFRP undertake measures to safeguards adherence through Climate Smart Cocoa, training on safe use of agro-chemicals, compost application, training on approved/recommended agrochemicals, and on-farm biodiversity conservation. The private sector cocoa companies similarly undertake such activities as part of their commitment to safeguards implementation. The Civil Society Organizations (NGOs) /Non-Governmental Organization (NGOs), on the other hand, promote the uptake of safeguards implementation among farmers at the community level. The CSOs/NGOs regularly interface with farmers/ farmer groups on a number of capacity building activities on safe compliance. All these are done in collaboration with the Regional/District level Safeguards Focal Points.

These important contributions from the GCFRP partners result to many positive outputs including yield improvement leading to hunger and poverty alleviation, biodiversity improvement and forest protection, to mention a few.

5.3 Safeguards Information System (SIS)

As part of requirements from the UNFCCC for receiving results-based payment under REDD+, countries are expected to provide information on how they are addressing and respecting safeguards. In addition, the UNFCCC requirements also require that information on the implementation of the safeguards associated with REDD+ activities at sub-national and site levels is collected and provided as evidence that the safeguards have been addressed and

respected in practice. This would include demonstrating that safeguards measures, processes / procedures have been applied as well as monitoring the impacts of REDD+.

Although there are no official guidelines, Parties to the UNFCCC have agreed on some broad guidance on the characteristics of a SIS. It should:

- provide transparent and consistent information that is accessible by all relevant stakeholders and updated on a regular basis;
- be transparent and flexible to allow for improvements over time;
- provide information on how all the safeguards referred to in Appendix I to decision 1/CP.16 are being addressed and respected;
- be country-driven and implemented at the national level; and
- build upon existing systems, as appropriate.

Reliable safeguards information is important not only for achieving REDD+ in a sustainable manner but can serve possible broader sustainable development and other national policy, goals (as well as other international reporting obligations). For Ghana, which has multiple reporting commitments linked to relevant agencies/initiatives (e.g., Cancun, FCPF Carbon Fund, Green Climate Fund, national and other safeguards) an SIS that is able to provide information to all of them, is a cost-effective approach. A comprehensive review of policies/laws/ regulations has been undertaken as part of the development of the SIS (safeguards information needs of the SIS), specific indicators and criteria were developed to serve as a basis for implementing and monitoring safeguards (Policies, Criteria and Indicators (PCIs)).

In the case of the Cancun safeguards, Ghana has determined 'what type' of information is needed to demonstrate whether they are being addressed and respected. This has been done in accordance with Ghana's clarification of the Cancun safeguards. It is worth noting that the clarification specifies how the general principles outlined in the Cancun safeguards translate into specific principles and objectives that are to be followed and promoted in the context of the implementation of REDD+ interventions in Ghana, and which are anchored in the country's policies, laws and regulations (PLRs). The clarification, interpretation or description

was an essential step in the design of an effective safeguard governance framework for REDD+ for two reasons:

- It is one of the foundations of the Safeguard Information System (SIS) as it is key to determining the types of information that are to be gathered by the SIS; and
- It is central to the preparation of the summary of information, as it helps to determine the information that should be provided to the UNFCCC to demonstrate how the safeguards are being addressed and respected.

Ghana's approach to the development of safeguards Principles, Criteria and Indicators (PCIs) within the country's context involved the identification of key elements from existing mandatory and voluntary safeguards standards/frameworks such as the UNFCCC (Cancun) Safeguards and World Bank Operational Policies, that relate to the rights of local communities; inclusive participation of all relevant stakeholders; equitable sharing of benefits and risks; gender mainstreaming; Free, Prior and Informed Consent (FPIC); enhancement of biological diversity and ecosystem services, and other key issues that affect social and environmental performance of REDD+ programmes and/or projects.

An initial identification/drafting of PCIs was carried out by a technical team through a step-wise approach, after which the draft PCIs were subjected to stakeholder consultations at the local and national levels for feedback and finalization. The safeguard information needs of the SIS is outlined in the framework document of the SIS.

In line with this, a web-based REDD+ Safeguards Information System (SIS) has been developed to provide transparent and consistent information that is accessible by all relevant stakeholders. The web-based SIS platform provides information on how REDD+ Social and Environmental safeguards are being addressed and respected throughout implementation of the REDD+ programme. The web platform was developed after a series of engagements by stakeholders. The web platform was developed by the ICT department of FC with financial support from SNV Netherlands Development Organization under the project ''Operationalizing national safeguards for results-based payment from REDD+'' with funding from the German Government. The SIS web address is www.reddsis.fcghana.org. This SIS was launched officially on 21st December, 2020. The FC has demonstrated its dedication to

boosting accountability, improving livelihoods and enhancing ecosystem resilience. The launch positioned Ghana again for positive and ambitious climate mitigation and adaptation action.

Through this participatory process it was determined that Ghana's SIS will report on the information:

a) Cancun safeguards;
b) ESMF process, policy, and outcome indicators on risks, opportunities and how they are being addressed from the project to national levels;
c) GCFRP benefit sharing;
d) Co-benefits;
e) FGRM: Indicators on grievance redress (conflicts and resolutions);
f) Additional indicators that will be determined to support effective implementation, as required.

The functions of the SIS are closely linked to the institutional arrangements, as the functions may be carried out by a single, or multiple agencies/institutions. Core functions considered by Ghana are:

- **Collection**: process of collecting raw data through information systems and sources.
- **Compilation**: process of acquiring requested information from the relevant systems and sources.
- **Aggregation**: process of aggregating, into a central repository/database, the information provided by the relevant sources and systems for the purpose of analysis.
- **Analysis**: process of undertaking a qualitative assessment of the information in order to determine to what extent the safeguards are being addressed and respected.
- **Dissemination of information**: process of disseminating, both internally (national level) and externally (international reporting) through appropriate means (e.g., website, reports, meetings with relevant stakeholders, etc.)

The SIS is populated with information that covers all the activities being carried out by NRS and all proponents of the GCFRP. Stakeholders are continuously educated on how to access

and navigate the SIS web platform. The web platform provides information on the Climate Change Directorate (NRS), its functions and mandate as well as the purpose of the SIS.

The information on the web platform has been categorized per HIA under the consultations section, with GCFRP area wide (National and Sub-national) reports and documents uploaded to the library page (publications and documents). Information that is HIA specific is uploaded and updated under the respective HIA as and when necessary. This includes data on the governance structure set up, the REDD+ activities undertaken and feedback from stakeholders. Information on the institutional arrangements under the GCFRP is also provided.

The programmes page has been populated with information on the various activities been carried out in the HIA, by which proponent of the programme and the timeframe. The FGRM page provides stakeholders with information on what FGRM is and its modalities. The page also has feedback in the form of videos from project proponents as well as various means of contact and reporting of feedback and grievances like hotlines and forms.

A SIS mobile application is been developed by the ICT department of FC with support from SNV. This mobile app is intended to be used for project screening and monitoring, providing information on GCFRP activities as well as FGRM reception and reporting.

6.0 COMPLIANCE WITH ENVIRONMENTAL AND SOCIAL SAFEGUARDS IMPLEMENTATION

A key activity under this programme is to clearly identify the associated potential environmental and social issues and concerns, both positive and negative. Thus, the potential impacts/risks of project/activities on various components of the environment and society in the HIA were identified and appropriate mitigation measures provided.

The key project activities that were screened for potential risks for which mitigation measures were provided comprise the following:

Component One: Forest Restoration

- Modified Taungya System (MTS)
- Enrichment Planting
- Trees on farm (ToF)

Component Two: Climate smart cocoa

- Cocoa Rehabilitation
- Cocoa Diseases and Pest Control Programme (CODAPEC)
- Cocoa HiTech (Fertilizer) Programme
- Free Hybrid Cocoa Seedling Distribution
- Artificial Hand Pollination
- Mass Cocoa Pruning

Component Three: Additional livelihoods Activities/Interventions

- Train and promote economically viable and environmentally sound on-farm income diversification options, (e.g., promotion of natural regeneration, vegetables, spices, food crops, bee-keeping, small ruminants, etc.) with a focus on women and youth groups
- Training of women on vegetable production
- Vegetable production, Start-up kits and Demo plots

6.1 Approach to the Safeguards Monitoring

Monitoring was done to ensure / verify ESS compliance under these activities. Compliance with ESS implementation is done in two parts, namely:

a) Addressing Safeguards: that is, confirming existence of National legislative instruments, policies and measures on REDD+ Safeguards. Addressing REDD+ Safeguards could also involve National Policy Reforms that aims at reducing/ mitigating social, environmental or economic risks from REDD+ programs/project implementation.
b) Respecting Safeguards: relating to activities undertaken to ensure that program activities triggering/ relating to safeguards requirements are being adhered to, including screening of program/project activities and outputs for risks and pre-determining measures to forestall/mitigate the risks.

6.2 Safeguards compliance of legislature and policy reform

The GCFRP is implementing an integrated set of activities (land use, policy reform on tree tenure, climate smart cocoa, community-based livelihoods, etc.) aimed at empowering local farming communities by amplifying their voice and agency in the planning, implementation, and monitoring of program activities. This program is building on the long tradition of social forestry in Ghana whereby CREMA has long since been established for the management of natural resources. To enhance greater inclusion and active participation, the HIA consortium has signed contracts (Addendum to the Framework Agreement) with each farmer or via farmer groupings or associations and has begun the registration of all committed cocoa farmers. Furthermore, a Farmers Contract is signed between the farmer, the HIA Governance Board and the licensed buying company consortium for future purchase. All registered cocoa farmers receive a photo ID card, an executed contract and regular training. Each HIA CSC Consortium has put together a 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 engagement package includes farmer's access to:

- hybrid cocoa seeds, seedlings, or other types of planting material that are recommended under the CSC Good-Practice Guidelines;
- fertilizer (organic or inorganic) and pest/disease management products so that they can reduce losses and increase productivity on farm;

- technical extension and training opportunities to enable them to understand and follow the CSC Good-Practice Guidelines, improve their practices, and increase yields;
- 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 (Farmer Business School (FBS));
- 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;
- shade tree planting material and promotion of assisted natural regeneration and maintaining mature shade trees.

6.3 Tree tenure

Tree tenure is understood to refer to the bundle of rights over tree and tree products, each of which may be held by different people at different times. These rights include the right to own, inherit, dispose, use and exclude others from using trees and tree products. The concept of benefit-sharing refers to specific forms of responsibility to direct returns from the exploitation of natural resources, be they monetary or non-monetary, to various actors in the activity and the local communities, in recognition of their rights, roles and responsibilities in the activity.

The various national afforestation programs invest huge capital in creating forest estates with government, private sector and community partnerships. However, most analyses of the underlying challenges to achieving legality in the management of off-reserve forest resources in Ghana and sustainable forest management in general conclude that 'existing tree tenure regimes is largely regarded as a disincentive to sustainable forest management' and inadequacies in the legislation and/or misinterpretations of the very complex texts relating to tree tenure and benefit sharing are at the root of the problem. Some major safeguards implications of this includes:

- Tree tenure arrangements for naturally occurring forest trees outside forest reserves where the farmers are not entitled to economically benefit from the revenue that

accrue from harvesting the trees. This is a great disincentive to encouraging shaded cocoa farming systems and in broader agro-forestry systems.

6.3.1 Mitigation measures

Under the Forestry Component of the Natural Resources and Environmental Governance Technical Assistance (NREG TA), the Ministry of Lands and Natural Resources (MNLR) engaged the services of a firm to help design options for tree tenure regimes with accompanying benefit sharing mechanisms in Ghana in consultation with the FC and a wide range of stakeholders. The result of this work is expected to contribute significantly to Ghana's drive at halting deforestation, enhancing its forest estate and promoting good forest governance

The major tree management regimes considered in this exercise are based on four main categories of arrangements viz: Naturally occurring trees on- reserve; Naturally occurring trees off- reserve; Planted trees on-reserve; and Planted trees off- reserve. Tree tenure reform and fair benefit sharing reforms are anticipated in forest and wildlife policy and this study is part of the effort by the MLNR to give currency to the policy intentions. Current tree tenure and benefit sharing are, however inadequate, based on statutory legislation and/or customary laws.

Based on synthesis of the views of various stakeholders and their preferred options for tenure and benefit sharing reform, recommendations have been made on the optimal reform options for the various tree management regimes identified. Recommended reforms, which are essential to the overall success of the programme identified through the assessment of Policies, Laws and Regulations (PLRs) and their relation to safeguards requirements include:

- Passage of the Wildlife Resources Management Bill which will support effective implementation of the 2012 Forest and Wildlife Policy
- Policy reform on tree tenure
- Policy reform on cocoa farm inputs
- Policies to address carbon transaction rights and benefit-sharing arrangements

While efforts are still underway to put in place land-use management plan and tree tenure policy reform, the Feedback and Grievance Redress Mechanism (FGRM) that has been

operationalized under the GCFRP addresses issues related to these as much as possible. Another related safeguards issue identified within the GCFRP Landscape is the absence of a comprehensive national land-use plan for the country. Though the Land Use and Spatial Planning Act 2016 provides a general framework for the development of land use plans, the Act does not specifically address forested areas or agricultural lands as the focus is skewed towards urban and peri-urban planning.

As a form of mitigation, the Forest Reserve Areas are being protected against encroachment by expansionist agriculture as well as against illegal harvesting of trees. The Forestry Commission has trained personnel to patrol the forest reserve areas. In Off-Reserve areas, extension services being provided by Agric and Cocobod extension officers are intensified and advocacy for intensification is being made as well as capacity building regarding Climate Smart Cocoa practices are being done to reduce further deforestation outside forest reserves for agricultural purposes. These extension services as well as protection of forest is serving as a short to medium term measure whilst engagement with the Ministry of Lands and Natural Resources and the Land Use and Spatial Planning Department to elaborate clear Land Use Plan for Forest Areas.

6.4 Tree registration

As agroforestry practices are being introduced to cocoa communities, trees from different species are planted on farms. Registering these trees is critical as it give farmers tree ownership and benefit financially from any revenue generated from their sale. Also registering planted trees provides farmers rights of alienation such that, should their registered cocoa tree get destroyed during the felling of economic shade trees, they will receive compensation from the timber merchant. To mitigate this action, Ghana's MLNR, along with FC, created a tree registration form to facilitate tree registration process. The cocoa and chocolate-producing companies undertook a first-of-its-kind initiative step to digitize this form into an innovative mobile application – with capability to work both on and offline. With the many sensitizations and capacity building on forest restoration, protection of existing trees and incorporating trees on farms, a major risk is the non-registration of most farmer planted trees. This in part reduces farmer confidence and trust in the rights and benefits from tree tenure being promised. Thus, the expeditious actions towards national

validation and rolling out of tree registration modalities is crucial to the attainment of expected outcome.

6.5 REDD+ Gender mainstreaming

Gender considerations are essential to REDD+. Gender sensitive initiatives have the potential to become a conservation, poverty reduction and climate mitigation strategy. Thus REDD+ projects are designed and implemented with a gender-sensitive perspective to be efficient and effective in decreasing the gender gap. FC partnered with the International Union for the Conservation of Nature (IUCN), to develop a roadmap that would guide the design and implementation of a gender-sensitive REDD+ strategy in Ghana, that recognizes and protects the rights and interests of women and other vulnerable groups such as youths. The National REDD+ Gender Sub-Working Group (GSWG) was established as a multi-stakeholder gender advocacy group to spearhead the gender mainstreaming process and provide technical support in the review of REDD+ documents and processes to ensure gender sensitivity, as well as capacity building at the grassroot level. The GSWG was convened and subsequently trained in Accra, on Climate Change, REDD+ and its status in Ghana, the links between gender, REDD+ and safeguard issues and the importance of mainstreaming gender considerations into the REDD+.

The GSWG also liaise with decentralized institutions such as the District offices of key Government Agencies, District Assemblies, Traditional Authorities, Local Communities and Civil Society Organizations to implement actions at the sub-national level. The members of the GSWG who include representatives from different Ministries, Departments and Agencies (MDAs), Traditional Authorities, Local Communities, Academia, Private Sector and NGO/Civil Society Organizations also developed an operational plan and budget for the implementation of actions in the Gender and REDD+ Road Map.

In all activities undertaken by NRS and its partners in the Kakum HIA, it is ensured there is at least 40% women representation. These include meetings, selection of beneficiaries, workshops trainings and even constitution of committee members as some examples. The various structures that make up the HIA governance structure also ensure gender equity through free and fair processes. Per the Gender Action Plan:

- Training materials on sustainable management of forests and REDD+ are developed to be accessible to women
- Training programmes (workshops, consultative meetings) on gender and REDD+ issues for implementing partners working on REDD+ issues are organised as part of sensitisation and education
- NRS has identified and documented good practices and actions in other forest management/ conservation initiatives that have fully and effectively integrated women and gender considerations
- The capacity of local women in project areas are built to actively participate in REDD+ activities
- Equal access and control are given to women and men in relation to tools, equipment, technology and resources needed to engage in REDD+ activities
- NRS identified potential risks of REDD+ implementation on rights and livelihoods (with particular attention to land and natural resource use; full and effective consultation and participation; fair access to information, education to enable decision-making and consent; and equitable distribution of benefits)
- Local women are informed of their rights, safeguards and their capacity built to use FGRM or protocols systems if safeguards are violated

6.6 Uptake of Safeguards in REDD+ Programmes/Activities at the HIA Level

Generally, the mix of projects/interventions being implemented in the Kakum HIA have contributed to many transformational positive impacts with minimal risks/impacts. This attests to the fact stakeholders have taken safeguards adherence extremely seriously following the capacity building/training on safeguards in project implementation. Additionally, community people interacted during the monitoring exercise attested to the numerous trainings/capacity building opportunities they have received from various stakeholders on a number of topics. The topics include climates-smart cocoa, farmer business school, safe handling of agro-chemicals, proper disposal of agrochemicals, compost/organic fertilizer application, buffer zone protection, wildlife and forest protection, to mention a few. Again, it came to light that there has been deep involvement of local traditional systems and decision-making processes throughout REDD+ related activities fostering many impacts

including community ownership and acceptance of the Ghana emission reduction programme. The rights and knowledge of local communities were observed to have been strictly respected including taboos and totems, experience/knowledge in cocoa farming and traditional conflict resolution mechanisms.

Furthermore, the non-carbon component of the emission reduction programme has been much emphasized. Greater number of communities have been supplied with farm inputs such as cocoa and shade tree seedlings free of charge to enhance contributions towards emission reductions and yield enhancement.

The adherence of the safeguard in the REDD+ implementation the HIA has helped to maximize both environmental and social benefits with some examples below:

- improved vegetative or tree cover in the project communities
- improved environmental integrity of the project landscape
- Lead to livelihood improvement of beneficiary communities
- improved resilience to climate change
- Encourage knowledge sharing among beneficiaries and communities
- Increased livelihood and economic activities of beneficiary communities
- Enhanced health standards
- Good time management for productive activities
- Reduced conflicts and enhance peaceful co-existence amongst community members
- Accelerated development of communities
- Improved income for farmers

Table 4: Results of monitoring of activities in the HIA

ACTIVITY	RISKS	OP TRIGGERED	MITIGATION MEASURES	INDICATOR/ MEANS OF VERIFICATION	COMMENTS
Modified Taungya System	Generation of smoke from burning of biomass (debris and logs) during land preparation	4.01 Environmental Assessment 4.04 Habitats 4.36 Forests	• Biomass generated was used as firewood and also as pegs • Minimized burning of biomass as much as possible • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate	• Site observation • Records of PPEs provided • FGRM operationalized	
	Exposure of workers/communities to smoke generated during land preparation		• Minimized burning of biomass as much as possible	• Site observation • Records of PPEs provided	

			• Fire was used only in situations where this was effective and least environmentally damaging • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate	• FGRM operationalized	
	Reverse gains from carbon sequestration – adding carbon into the atmosphere		• Minimized burning of biomass as much as possible • Fire was used only in situations where this was effective and least environmentally damaging	• Site observation	
	Lead to modification of natural habitat		• Environmentally sensitive sites and unnecessary exposure or access to sensitive habitats were avoided	• Site observation	

			• Sensitive sites with high erosion risk were identified and were not cultivated. Vegetation of such areas was maintained to help control erosion as well as to ensure soil stability • Planting was designed to include both exotic and indigenous plants in the right proportions and positions • Organic farming practices (planting nitrogen-fixing species, agroforestry practices, composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic fertilizers and herbicides that are major contributors to soil and surface water quality deterioration • Labour-intensive approach using simple farm tools like hoes and cutlasses was employed.		

	Have effect on flora and fauna		• Environmentally sensitive sites and unnecessary exposure or access to sensitive habitats were avoided • Planting was designed to include both exotic and indigenous plants in the right proportions and positions • Organic farming practices (planting nitrogen-fixing species, agroforestry practices, composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic fertilizers and herbicides that are major contributors to soil and surface water quality deterioration • Measures to correct low soil pH were implemented as much as possible: - Farmers were assisted to avoid the use of acidifying nitrogen-based fertilizers where soil pH was low	• Site observation • Training report	

			- Efficient fertilizer use considers the prescribed dosage, period or timing and intervals of application, and release properties • Labour-intensive approach using simple farm tools like hoes and cutlasses was employed.		
	Accelerate erosion by water		• Sensitive sites with high erosion risk were identified and were not cultivated. Vegetation of such areas was maintained to help control erosion as well as to ensure soil stability • Implementation of standard erosion and sediment control best management practices	• Site observation	
	Planting single tree species		• Planting was designed to include variety of both exotic and indigenous plants in the right proportions and positions • Planned and strategized the procurement of diversified seedlings	• Site observation • Records of seedlings supplied	

	Alterations in local natural water cycles/ hydrology		• Promotion of buffer zones along the local streams to ensure their integrity and protection of other aquatic life forms. The buffer reserves serve as natural filters for surface runoff from the planting areas. The reserves also play a major role in protecting the banks of the waterways from channel erosion. • Implementation of standard erosion and sediment control best management practices ensured throughout the project cycle.	• Site observation	
	Potentially pollute/contaminate water bodies (herbicides, pesticides, insecticides, weedicides, ash, dust)		• The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides. • Promotion of buffer zones along the local streams to ensure their integrity and protection of other aquatic life forms. The	• Site observation • Number of farmers trained • Training report	

			buffer reserves serve as natural filters for surface runoff from the planting areas. The reserves also play a major role in protecting the banks of the waterways from channel erosion. • Farmers trained and provided with tools to create buffer of no-spray zones in farms with close proximity to water body(s) • Farmers whose farms located along water bodies were provided with technical assistance to leave a vegetation cover as a buffer zone along the water bodies. • Implementation of standard erosion and sediment control best management practices • Organic farming practices (planting nitrogen-fixing species, agroforestry practices, composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic		

			fertilizers and herbicides that are major contributors to soil and surface water quality deterioration		
	Poor site selection		• Ensured good site selection taking into consideration condition score, natural regeneration potential and basal area	• Site observation	
	Improper disposal of chemical containers		• The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides • Complied with the requirements of applicable waste management regulations for the management of all waste generated as a result of the project activities • Education and sensitization on the proper disposal of hazardous waste and material	• Training report • Awareness creation materials displayed • List of approved and unapproved agrochemicals shared	
	Improper disposal of polybags		• Education and sensitization on the proper disposal of polybags	• Site observation	

	Land allocation conflicts		• Forest Management plan was prepared for all sites to also reflect community expectations • Technical assistance offered in land allocation • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate	• Forest Management plan • FGRM operationalized • On-site verification with farmers	
	Engagement of local communities in its development process		• Stakeholder consultations were done to identify best practices and guide implementation in partnership with traditional authorities. • Forest Management plan was prepared for all sites to also reflect community expectations • Equal opportunity was given to all abled bodied persons who wanted to participate	• Engagement report • Forest Management plan	

	Poor records of primary supply and contract workers		• Proper records of workers are kept and updated as appropriate	• Records of workers	
	Unfair allocation of more lands to families/persons/groups		• Equal opportunity was given to all abled bodied persons who wanted to participate • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate	• On-site verification with farmers • FGRM operationalized	
	Failure to honour MTS benefit arrangement		• Ensured engagement of MTS beneficiaries on the right percentages due them.	• Records of engagement	
	Low percentage of women accessing lands		• Equal opportunity was given to all women who wanted to participate	• Records of farmers	
	Unavailability and no/limited use of personal protective equipment		• Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate. • Education and sensitization were done on the need for and proper usage of PPEs	• Records of PPE supply • Confirmation with workers	

	Limited awareness creation programs on health and safety including chemical handling.		• Design and implementation of awareness creation programs to educate persons on protecting workers' health and safety including paying attention to chemical handling was done • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate.	• Confirmation with workers • On-site verification with farmers	
Enrichment Planting	Improper disposal of polybags	4.01 Environmental Assessment 4.04 Habitats 4.36 Forests	• Education and sensitization on the proper disposal of polybags	• Site observation	
	Poor records keeping of primary supply workers		• Employment and other opportunities were given to local communities as much as possible. • Proper records of workers are kept and updated as appropriate	• Confirmation with communities	
	Poor records keeping of contract workers				
	Unavailability and no/limited use of personal protective equipment		• Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate. • Education and sensitization were done on the need for and proper usage of PPEs	• Site observation • Confirmation with communities	

	Limited awareness creation programs on health and safety		• Design and implementation of awareness creation programs to educate persons on protecting workers' health and safety including paying attention to chemical handling was done • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate.	• Confirmation with communities • On-site verification with farmers	
	Delay in payment of contract workers		• Ensured workers were paid on time	• Records of payments	
Trees on Farms	Disturbance of flora and fauna	4.01 Environmental Assessment 4.04 Habitats 4.09 Pest Management	• Environmentally sensitive sites and unnecessary exposure or access to sensitive habitats were avoided • Planting was designed to include both exotic and indigenous plants (desirable trees) in the right proportions and positions • Organic farming practices were implemented and this helped minimize the use of inorganic fertilizers and herbicides	• Site observation • Training report (annual composite report-2019-2021)	

		4.36 Forests	that are major contributors to soil and surface water quality deterioration • Labour-intensive approach using simple farm tools like hoes and cutlasses was employed.		
	Planting single tree species				
	Planting/ keeping shade tree with undesirable characteristics e.g., Disease prone shade trees, host of pest and diseases, easily broken branches etc.		• Planting was designed to include variety of both exotic and indigenous plants (desirable trees) in the right proportions and positions • Planned and strategized the procurement of desirable and diversified seedlings	• Site observation • Records of seedlings supplied	
	Planting inadvisable shade tree species e.g. invasive species				
	Planting more trees than required leading to over-shadowing of cocoa farms.		• Farms were mapped to determine actual farm sizes and site/area specific conditions to avoid over supply of seedlings		

			• Thinning out was done to adjust the number of trees on the farms		
	Limited understanding on shade tree management.		• Education/ adequate trainings were provided to farmers	• Training report	
	Destruction from harvesting of timber resources on farm		• A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate • Appropriate sanctions were applied on offenders including fines and jail sentences	• FGRM operationalized • Reports	
	Failure to register trees in the name of farmers		• Sensitisation on tree ownership scheme • Records of farmers are kept	• Training reports • Records of farmers	
	Limited awareness creation on health and safety including tools and equipment handling		• Design and implementation of awareness creation programs to educate persons on protecting workers' health and safety including paying attention to chemical and equipment handling was done	• Training report • On-site verification with farmers	

			• Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate		
	Unavailability and no/limited use of personal protective equipment		• Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate. • Education and sensitization were done on the need for and proper usage of PPEs	• Records of PPE supply • Training report	
Climate Smart Cocoa	Exposure of local folks (farmers) to chemicals during and after application of agrochemical on cocoa farms.	4.01 Environmental Assessment 4.04 Habitats 4.09 Pest Management 4.36 Forests	• Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate. • Education and sensitization were done on the need for and proper usage of PPEs • The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides.	• Records of PPE supply • Training report	
	Generation of fumes and noise pollution		• Minimized burning of biomass as much as possible	• Site observation	

	during cutting down of diseased or over-aged cocoa trees.		• Fire was used only in situations where this was effective and least environmentally damaging • The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides. • Wearing of ear plugs	• Records of PPEs provided • Training report	
	Disturbance of flora and fauna		• Environmentally sensitive sites and unnecessary exposure or access to sensitive habitats were avoided • Planting was designed to include both exotic and indigenous plants (desirable trees) in the right proportions and positions • Organic farming practices (planting nitrogen-fixing species, agroforestry practices, composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic	• Site observation • Training report	

			fertilizers and herbicides that are major contributors to soil and surface water quality deterioration • Labour-intensive approach using simple farm tools like hoes and cutlasses was employed.		
	Land clearing and vegetation loss at rehab farms		• Organic farming practices (planting nitrogen-fixing species, agroforestry practices, composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic fertilizers and herbicides that are major contributors to soil and surface water quality deterioration • Labour-intensive approach using simple farm tools like hoes and cutlasses was employed. • Felled trees and cleared under- brushes were chipped and formed into windrows and allowed to decompose and/or used as pegs for planting	• Site observation • Training report	

			• Replanting of desirable species after establishment of farms		
	Encroachment into forests		• Sensitisation on intensification	• Training reports	
	May accelerate erosion by water		• Sensitive sites with high erosion risk were identified and were not cultivated. Vegetation of such areas was maintained to help control erosion as well as to ensure soil stability • Implementation of standard erosion and sediment control best management practices	• Site observation •	
	Potentially pollute/contaminate water bodies with (herbicides, pesticides, insecticides, weedicides, ash, dust)		• The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides. • Promotion of buffer zones along the local streams to ensure their integrity and protection of other aquatic life forms. The	• Site observation • Training report	

			buffer reserves serve as natural filters for surface runoff from the planting areas. The reserves also play a major role in protecting the banks of the waterways from channel erosion. • Farmers trained and provided with tools to create buffer of no-spray zones in farms with close proximity to water body(s) • Farmers whose farms located along water bodies were provided with technical assistance to leave a vegetation cover as a buffer zone along the water bodies. • Implementation of standard erosion and sediment control best management practices • Organic farming practices (planting nitrogen-fixing species, agroforestry practices, composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic		

			fertilizers and herbicides that are major contributors to soil and surface water quality deterioration • Proper disposal of used chemical cans		
	Involve the harvesting of timber resources		• A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate • Appropriate sanctions were applied on offenders including fines and jail sentences	• FGRM operationalized • Reports	
	Cultivating cocoa without adherence to the buffer zone policy		• Farmers trained and provided with tools to create buffer of no-spray zones in farms with close proximity to water body(s) • Farmers whose farms located along water bodies were provided with technical assistance to leave a vegetation cover as a buffer zone along the water bodies.	• Training report • Site observation	

			• Technical officers and farm inspectors sampled and visited farms to check compliance		
	Increase in pests and disease due to too much shade and undesirable shade trees		• Producers (farmers) trained on shade management (pruning techniques) to reduce unnecessary shade • Producers (farmers) trained to control pest using the Integrated Pest Management (IPM) techniques to use only approved crop protection products for all other crops fields.	• Site observation • Training report	
	Involve the use of unapproved/ not recommended agrochemicals (weedicides, pesticides, insecticides etc.)		• Raised awareness on the list of approved agro-inputs and the list shared/pasted at vantage points for public viewing	• Training report • List of approved and unapproved agrochemicals shared	
	Over-use of agro-inputs such as fertilizers and agro-chemicals.		• The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where	• Training report • List of approved and unapproved	

			possible, mechanical weed control was considered instead of the use of weedicides. • Education and sensitization were done on the proper use and dosage of agro-inputs	agrochemicals shared	
	Use of fire during land preparation		• Fire was used only in situations where this was effective (spot burning) and least environmentally damaging • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate. • Creation of fire belts	• Site observation • Records of PPEs provided	
	Limited and/or untimely supply of cocoa seedlings		• Seedlings were supplied on time to meet onset of reliable rainfall • Seedlings were sourced within close proximity/catchment area	• Records of seedlings supply	

	Establishing new farms/ cocoa farms within forest reserves.		• Admitted farmers that expanded beyond allowed limits were made to return to the permitted areas only • District Assembly by-laws used to support the conservation of dedicated forests and to sanction encroachment • Farmers trained and encouraged to involve in alternative livelihood programs to prevent the risk of expansion in to protected areas. • Sensitisation on intensification	• Engagement/training Reports • Records of admitted farms • DA by-laws	
	Generation of hazardous waste such as aboricides, herbicides, weedicides, and pesticides.		• Mass sprayers who spray agro-chemicals for farmers have been cautioned and educated on proper disposal of chemical containers after use • Famers have been encouraged to report hazardous activities of neighbors through the FGRM for correction remedy • Training on safe chemical application was given	• Training report • Awareness creation materials displayed • List of approved and unapproved agrochemicals shared • FGRM operationalized	
	Lead to the transportation of hazardous chemicals (aboricides, herbicides, weedicides, and				

	pesticides) (spillage during transportation)		• Trained farmers on how to wear PPEs and the essence of PPEs.		
	Improper disposal of hazardous waste				
	Poor storage of hazardous chemicals				
	Recycle/reuse of hazardous chemical containers				
	Improper or poor records keeping of direct workers		• Employment and other opportunities were given to local communities as much as possible. • Proper records of workers are kept and updated as appropriate	• Records of workers	
	Improper or poor records keeping of contracted workers				
	Improper or poor records of primary supply workers				

	Potentially could cause or aggravate land-use conflicts		• A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate • Stakeholder consultations done to identify best practices and guide implementation in partnership with traditional authorities • Forest Management plan prepared for all sites to also reflect community expectations • Admitted farmers that expanded beyond allowed limits were made to return to the permitted areas only • District Assembly by-laws used to support the conservation of dedicated forests and to sanction encroachment	• FGRM operationalized • Forest Management plan • Engagement/training Reports • Records of admitted farms • DA by-laws	
	Unavailability and no/limited use of personal protective equipment		• Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate.	• Confirmation with workers	

			• Education and sensitization were done on the need for and proper usage of PPEs		
	Limited awareness creation of programs on health and safety including chemical handling		• Design and implementation of awareness creation programs to educate persons on protecting workers' health and safety including paying attention to chemical handling was done • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate	• Training report • On-site verification with farmers	
Additional livelihoods Activities/Interventions	Generation of smoke from burning of biomass (debris and logs) during land preparation for vegetable farming	4.01 Environmental Assessment 4.04 Habitats 4.09 Pest Management 4.36 Forests	• Most biomass generated was used as firewood and also as pegs • Minimized burning of biomass as much as possible • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a	• Site observation • Records of PPEs provided • FGRM operationalized	

			timely manner, providing solutions and taking corrective measures as appropriate		
	Exposure of workers/communities to smoke generated during land preparation for vegetable farming		• Minimized burning of biomass as much as possible • Fire was used only in situations where this was effective and least environmentally damaging • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate	• Site observation • Records of PPEs provided • FGRM operationalized	
	Potentially pollute/contaminate water bodies (herbicides, pesticides,		• The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides.	• Site observation • Training report	

	insecticides, weedicides, ash etc.)		• Promotion of buffer zones along the local streams to ensure their integrity and protection of other aquatic life forms. The buffer reserves serve as natural filters for surface runoff from the planting areas. The reserves also play a major role in protecting the banks of the waterways from channel erosion. • Farmers trained and provided with tools to create buffer of no-spray zones in farms with close proximity to water body(s) • Farmers whose farms located along water bodies were provided with technical assistance to leave a vegetation cover as a buffer zone along the water bodies. • Implementation of standard erosion and sediment control best management practices • Organic farming practices (planting nitrogen-fixing species, agroforestry practices,		

			composting, application of organic fertilizers) were implemented and this helped minimize the use of inorganic fertilizers and herbicides that are major contributors to soil and surface water quality deterioration		
	Potentially could be located within buffer zones or water bodies		• Promotion of buffer zones along the local streams to ensure their integrity and protection of other aquatic life forms. The buffer reserves serve as natural filters for surface runoff from the planting areas. The reserves also play a major role in protecting the banks of the waterways from channel erosion. • Farmers trained and provided with tools to create buffer of no-spray zones in farms with close proximity to water body(s) • Farmers whose farms located along water bodies were provided with technical	• Site observation • Training report	

			assistance to leave a vegetation cover as a buffer zone along the water bodies. • Technical officers and farm inspectors sampled and visited farms to check compliance		
	Use of fire during land preparation		• Fire was used only in situations where this was effective and least environmentally damaging • Most biomass generated was used as firewood and also as pegs • Minimized burning of biomass as much as possible • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate • A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate	• Site observation • Records of PPEs provided • Training report • FGRM operationalized	

	Over-use of agro-inputs such fertilizers and agro-chemicals		• The use of agrochemicals including inorganic fertilizers, weedicides and pesticides was reduced as much as possible. Where possible, mechanical weed control was considered instead of the use of weedicides. • Education and sensitization were done on the proper use and dosage of agro-inputs	• Training report • List of approved and unapproved agrochemicals shared	
	Limited and/or untimely supply of cocoa seedlings		• Seedlings were supplied on time to meet onset of reliable rainfall • Seedlings were sourced within close proximity/catchment area	• Records of seedlings supply	
	Lead to the transportation of hazardous chemicals (herbicides, weedicides, and pesticides)		• Mass sprayers who spray agro chemicals for farmers have been cautioned and educated on proper disposal of chemical containers after use • Famers have been encouraged to report hazardous activities of neighbours to through the FGRM for correction remedy	• Training report • Awareness creation materials displayed • List of approved and unapproved agrochemicals shared	
	Generation of hazardous waste such as herbicides,				

	weedicides, and pesticides.		• Training on safe chemical application was given • Trained farmers on how to wear PPEs and the essence of PPEs.	• FGRM operationalized	
	Improper disposal of hazardous waste				
	Improper storage of hazardous waste				
	Improper or poor records keeping of workers		• Employment and other opportunities were given to local communities as much as possible. • Proper records of workers are kept and updated as appropriate	• Records of workers	
	Potentially could cause or aggravate land-use conflicts		• A grievance mechanism was established to ensure any complaints/comments regarding the Project is received and responded to in a timely manner, providing solutions and taking corrective measures as appropriate • Stakeholder consultations done to identify best practices and guide implementation in partnership with traditional authorities	• FGRM operationalized • Forest Management plan • Engagement/training Reports • Records of admitted farms • DA by-laws	

			• Forest Management plan was prepared for all sites to also reflect community expectations • District Assembly byelaws used to support the conservation of dedicated forests and to sanction encroachment • Admitted farmers that expanded beyond allowed limits and were made to return to the permitted areas only		
	Low percentage of women in livelihood improvement activities		• Employment and other opportunities were given to local communities as much as possible. • Equal opportunity was given to all abled bodied persons who wanted to participate	• Records of farmers	
	Prioritization of a few demographic in terms of labour				
	Unfair selection of beneficiaries				

	Limited awareness creation of programs on health and safety issues		• Design and implementation of awareness creation programs to educate persons on protecting workers' health and safety including paying attention to chemical and equipment handling was done • Workers were required to wear suitable Personal Protective Equipment (PPE) as appropriate	• Training report • On-site verification with farmers	
Wildlife protection and management	Public health risks resulting from poor beekeeping management practices	4.01 Environmental Assessment 4.04 Habitats 4.36 Forests	• Beehives sited in safe environment away from settlements and people • Protective gears put on when performing operational activities on beehives • Honey extraction equipment kept safe and professionally cleaned during and after use • Community members sensitized on the locations of beehives • Warming signals strategically placed in locations of beehives to turn off people	• State of beekeeping protective gears and extraction equipment • Field observation • Report • Evidence of warning signals	

	Elephant crop raiding		• Fringe communities sensitized and educated on elephant behaviour • Fringe communities trained on elephant crop raiding measures	• Reports • Field observation	

NB: With regards to Personal Protective Equipment (PPE), stakeholders are entreated to protect themselves as much as possible even in the absence of industrial grade PPE. That is, clothing that covers every inch of the body like PPE would (long sleeved shirts, jeans, boots/footwear, mask).

7.0 OPERATIONALISATION OF FEEDBACK AND GRIEVANCE REDRESS MECHANISM (FGRM)

Feedback and Grievance Redress Mechanism (FGRM) is generally designed to be the "first line" of receipt and response to stakeholder feedback and/or concerns from implementation of GCFRP activities. This mechanism provides an enabling environment and structures for stakeholders to provide feedback and also access support for conflict resolution resulting from the program activities. Not all complaints/ conflicts are handled through the FGRM. Complaints of acts of criminal nature or grievances that allege corruption, coercion, or major and systematic violations of rights and/or policies are normally referred to organizational accountability mechanisms or administrative or judicial bodies for formal investigation, rather than to FGRMs for collaborative problem solving.

Broadly, the FGRM is operationalized in four steps.

Parties seeking to have any REDD+ dispute resolved would file their complaint with the safeguards focal person (SFP) at the district office (FSD) including the offices at the MMDAs within the ER program area where it will be received, and processed before it is communicated through the regional safeguards focal person to the National FGRM coordinator to ensure transparency and the effective exercise of oversight responsibility.

1. If the parties are unable or unwilling to resolve their dispute through negotiation, fact-finding or inquiry a mediator chosen with the consent of both parties would be assigned to assist the Parties to reach a settlement.
2. Where the mediation is successful, the terms of the settlement shall be recorded in writing, signed by the mediator and the parties to the dispute and lodged at the FGRM registry. The terms of the settlement will be binding on all parties.
3. If the mediation is unsuccessful, the Parties will be required to submit their dispute for compulsory arbitration, by a panel of 5 arbitrators, selected from a national roster of experts.
4. The awards of the arbitration panel will be binding on the Parties and can only be appealed to the Court of Appeal. All questions of law would be referred to the High Court.

Support is provided by private sector, NGOs/CSOs, and other stakeholders necessary for helping local actors submit their grievances.

NRS has made provisions for FGRM hotlines and stakeholders have been made aware of this through sensitization and awareness creation. While activities are being implemented within the Kakum HIA, there have been a few reports on grievances and feedback has been received.

Some documented activities under FGRM are presented in annex 2.

8.0 INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING

Capacity building is viewed as more than training. It is human resource development and includes the process of equipping individuals with the understanding, skills and access to information, knowledge for successful implementation of the proposed projects. It also involves organizational development, the elaboration of relevant management structures, processes and procedures, not only within organizations but also the management of relationships between the different organizations and sectors (public, private and community).

In every engagement with stakeholders, the opportunity is taken to continuously build their capacities and provide updates on activities within the HIA and GCFRP as a whole.

Table 5: List of some Institutional strengthening and capacity building events

S/N	Institution	Topics
1	NRS	1. Training on safeguards for REDD+ Regional and District focal persons 2. Engagement of community members and other stakeholders on REDD+ safeguards 3. Training on SIS and FGRM for REDD+ regional and district safeguards focal persons 4. REDD+ safeguards landscape monitoring
2	WD	1. Engagement of communities on livelihood improvements 2. Engagement of fringe communities on protection against elephant crop raiding 3. Sensitization and education of communities on environmental protection
3	FSD	1. Engagement of fringe communities on fire management 2. Engagement with Taungya heads on gender-mainstreaming

		3. Engagement of fringe communities on tree management 4. Engagement of communities on tree seedling embellishment 5. Engagement of communities on conflict resolution
4	COCOBOD, ECOM	1. Training of farmers on safe chemical application 2. Training of farmers on compost preparation and compost application 3. Training of farmers on buffer zone protection 4. Training of farmers on good agronomical practices 5. Training of farmers on wildlife protection and conservation 6. Training of farmers on proper disposal and storage of chemical waste. 7. Engagement of farmers on shade tree management 8. Training of farmers on additional livelihoods 9. Training on CSC practices 10. Training on nutrition and production of nutritious vegetables 11. Training of lead farmers to become trainers on CSC and NTFPs 12. Trainings in CREMA governance and management
6	NCRC	1. Training of farmers in sustainable Kombo Nut harvesting and drying. 2. Training of farmers on additional livelihoods 3. Training of farmers on climate-smart cocoa 4. Training of farmers on tree integration in cocoa farms 5. Training of farmers on safe handling of agrochemicals

		6. Trainings and workshops on HIA governance and environmental laws.

9.0 RECOMMENDATIONS AND NEXT STEPS

The proponents of GCFRP as well as implementing partners (from government, private sector and CSOs/NGOs) have exhibited strong dedication to sound environmental and social safeguards measures in the implementation of interventions/activities under GCFRP by demonstrating robust compliance to both national and the World Bank safeguards policies. By involving communities in methods that provide them with environmental and financial benefits, the programme has a strong potential to increase carbon stocks (achieve emissions reductions) in the High Forest Zones by reducing deforestation and forest degradation. Certain negative environmental and social effects (soils, water supplies, biodiversity, and some socioeconomic issues) that result from GCFRP implementation have been identified and mitigated against thereby maximizing the reputational, economic and social benefits of the programme

The recommended mitigation measures are sufficient to protect the environment and promote social growth.

Some recommendations to further enhance programme implementation were drawn based on monitoring of the safeguards implementation:

- There is a need to strengthen partnership and coordination with key stakeholders at the HIA level
- Regular and timely monitoring of activities/interventions undertaken by partners is encouraged
- Continuous stakeholder engagement with project proponents on safeguards implementation is recommended

ANNEXES

Annex 1: Lists of stakeholders consulted/engaged

Training on safeguards for REDD+ regional and district focal persons

NAME	POSITION	LOCATION	CONTACT	
Joseph Bempah	ARM	CAPE COAST	0244804624	akorabempah@yahoo.com
Dorothy Dampson	DM	WINNEBA	0244527088	ddampson@yahoo.com
Ernestaina Anie	APM	CAPECOAST	0241157685	anie.ernestina@yahoo.com
Attah George	ADM	DUNKWA	0243986048	attageorge791@gmail.com
Gilbert Ampofo	ADM	ASSIN FOSU	0205596969	gilbertampofolartey@yahoo.com

REDD+ safeguards landscape monitoring and training

NAME	ORGANIZATION	LOCATION	CONTACT
Mr. Joseph Tsali	Ag. Reg. Dir. EPA Central Region	Kasoa/Cape coast	0501301636
Ernestina Anie	Safeguards Focal Person, FC	Kakum	0241157685
Mr. Kyei Baffour	COCOBOD	Kakum	
Mr. Ashie	District Manager, FC	Kakum	
Nana	Queen mother	Abrafo-Odumase	
Mr. Riverson	Law Enforcement officer, FC	Kakum	

List of participants for the Kakum consortium meeting

NAME	ORGANISATION
Raymond Sakyi	FC-CCD
Albert Martey	Hershey
Tawiah Agyarko- Kwarteng	Hershey
Bismark Nkrumah Baiden	Ecom Field Officer
Emmanuel Nii Arku	Cocobod CHED Regional Office
Philip Bedzra	Cocobod CHED Regional Office
Samuel Tsatsu Adiglor	Cocobod CHED- Fosu

Enoch A. Ashie	FC- WD-Kakum National Park
Ernestina Anie	FC-WD-Kakum National Park
Samuel Nartey	Ecom Field Officer
Eric Bani	Cocobod CHED
Frank Agbenu	Assin South District Assembly
Henry Kudiabor	FC-FSD Foso District Mngr
Emmanuel Baffoe-Bonnie	Ecom Manager, Kumasi
Rebecca Ashley Asare	NCRC
George Effa-Sargpong	NCRC
Sulemana Bawa Gbewa	NCRC

Annex 2: Some recorded FGRM

The Feedback and Grievance Redress Mechanism was found to be operationalized at the institutional level. A number of cases of feedback/grievance had been reported. In all cases responsible institutions had taken steps and had resolved those cases. The table below highlights on cases reported and the processes used in resolving them.

Table 6: FGRM recorded

Institution	**Number of Feed/Grievance received**	**Nature of feedback/Grievance**	**Status**
COCOBOD	23	Access to free and improved cocoa and tree seedlings reduce the stress of having to purchase them by farmers	
WD	5	Elephant crop raiding	Resolved through training, dialoguing and sensitization
COCOBOD	7	Limited supply of cocoa and tree seedlings	Resolved through dialogue
FSD	20	Access to fertile land within degraded forest reserves to undertake MTS where they are able to produce enough crops for sale	**N/A**

Annex 3: NCRC community engagement for socio – economic survey

*Table 7: Socio-cultural assessment communities. *Criteria used to assess relative community size*

Community	District	Relative community size*	Proximity to forest area	Nearest major town (if small community)
Kruwa	Assin South	Large	Less than 1 km	Nyankomase Ahekro
Mesomagor	Assin South	Medium	Less than 1 km	Nyankomase Ahenkro
Abease	Assin South	Small	Less than 1 km	Nyankomase Ahenkro
Bankyease	Assin South	Large	About 1 km	Andoe
Kwafokrom	Assin South	Medium	Less than 1 km	Assin Fosu
Adadientem	Assin South	Small	Less than 1 km	Andoe
Homaho	Assin South	Medium	Less than 1 km	Andoe
Aboabo	Assin South	Small	Less than 1 km	Assin Fosu
Adiembra	Assin South	Large	Less than 1 km	Assin Fosu
Mankata	Assin South	Small	Less than 1 km	Assin Fosu
Nuanua	Assin South	Small	Less than 1 km	Assin Fosu
Asorifie	Assin South	Medium	Less than 1 km	Assin Fosu






Figure 9: Some communities engaged by NCRC

Annex 4: Land holding and tenure arrangements in some communities

Table 8: Land holding and tenure arrangements in some communities[3].

Community	Land tenure		Land tenure arrangement	Migrant population*
	Stool land	Family land		
Kruwa	100 %	-	Access granted by land owners (stool).	80% local
		-		20% migrant
			Sharecropping (Abunu & Abusa).	
Mesomagor	30%	70%	Access granted by land owners (stool/family).	20% local
				80% migrant
			Sharecropping (Abunu & Abusa).	
Abease	100%	-	Access is granted by the Abase Stool.	
		-		80% local
			Annual rent fees in cash.	20% migrants
Bankyease	90%	10%	Access granted by the Abase Stool and families.	
				70% local
			Sharecropping (Abunu).	30% migrant
			Annual rent.	
Kwafokrom	30%	70%	Sharecropping (Abunu & Abusa)	90% local (original settlers) 10% migrant
Adadientem	-	100%	Inheritance.	30% local

[3] Migrant population figures do not apply ethically but are highlighted to understand how many people have land rights or are in land tenure arrangements

Annex 5: List of approved and banned agro chemicals

TRADE NAME	ACTIVE INGREDIENT	PRE-HARVEST INTERVAL	RE-ENTRY INTERVAL	DOSAGE
AKATE MASTER	*BIFENTRIN*	21 DAYS	48 HRS	100 ML/ 11L of water
AKATE STAR 3 EC	*BIFENTRIN*	21 DAYS	48 HRS	20 ML/ 11L of water
ACTARA	*Thiamethoxam*	21 DAYS	48 HRS	17ML/11L of water
ACETA STAR	*Acetamiprid&Bifenthrin*	21 DAYS	48 HRS	120ML/11L of water
ACATI POWER	*Thiamethoxam*	21 DAYS	48 HRS	20ML/11L of water
PRIDAPOD	*IMIDACLOPRID*	21 DAYS	48 HRS	20ML/11L of water
VIPER SUPER	*INDOXACARB ANDACETAMIPRID*	21 DAYS	48 HRS	105ML/11L of water
GALIL 300	*IMIDACLOPRID AND BIFENTRIN*	21 DAYS	48 HRS	13ML/11L of water
AF CONFIDENCE	*CAPSAICIN*	21 DAYS	48 HRS	200ML/11L of water
SIVANTO	*FLUPYRADIFURONE*	21 DAYS	48 HRS	40ML/11L OF WATER
NORMAX 150	*ALPHA-CYPERMETHRIN TEFLUBENZURON*	21 DAYS	48 HRS	52 ML/11L WATER
BUFFALO SUPER	*ACETAPRIMID*	21 DAYS	48 HRS	98ML/11L WATER
THODAN SUPER	*LAMBDACYHALOTHRIN+ACETAMIPRID*	21 DAYS	48 HRS	110ML/11L WATER
A1	*IMIDACLOPRID*	21 DAYS	48 HRS	20ML/11L WATER
CALLIFAN SUPER	*BIFENTHRIN+ACETAMIPRID*	21 DAYS	48 HRS	20ML/11L WATER
AKATE GLOBAL	*THIAMETHOXAM*	21 DAYS	48 HRS	20ML/11L WATER
RAGENT 200	*FIPRONIL*	21 DAYS	48 HRS	17ML/11L WATER

FUNGICIDES

TRADE NAME	ACTIVE INGREDIENT	PRE-HARVEST INTERVAL	RE-ENTRY INTERVAL	DOSAGE
RidomilGold	*CuprousOxide&Mefonoxam*	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
Funguran-OH	*CupricHydroxide*	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
Metalm72WP	*Metalxyl*	21 DAYS	12 HRS (0.5 DAY)	1 Sachet/ 16L of water
Fungiki l 50WP	*Metalxyl*	21 DAYS	12 HRS (0.5 DAY)	1 Sachet/ 16L of water
Kocide2000	*CupricHydroxide*	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
CopperNordox75WG	*CuprousOxide*	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
Champion	*CupricHydroxide*	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
SidalcoDefender	*DicopperChroride trihydroxide,SC*	21 DAYS	24 HRS (1 DAY)	150ML/ 16L of water
Fantic	Benalaxyl M+Copper(I)Oxide	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
Forum R	homorph + 400 g/kg Co	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
Vamos 500SC	500 g/L Fluazinam	21 DAYS	24 HRS (1 DAY)	75ML/ 16L of water
Banjo Forte 400 SC	methomorph + 200 g/L	21 DAYS	24 HRS (1 DAY)	75ML/ 16L of water
Royal Cop 50WP	50% Copper (II) hydroxide	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water
Delco 75WP	75 % Cupper (I) oxide	21 DAYS	24 HRS (1 DAY)	1 Sachet/ 16L of water

FERTILIZERS GRANULAR (ORGANIC)

TRADE NAME	ACTIVE INGREDIENTS	DOSAGE
Asaasewura	NPK 0-22-18+9CaO+75+MgO	3 Bags/ acre
Cocofeed	NPK 0-30-20	3 Bags/ acre

Cocoa Master	NPK-1-21-19+9CaO+65+6MgO +18	3 Bags/ acre
Dua Pa	NPK 3-25-18-7CaO+45+6MgO+0. 3(B+Zn)	3 Bags/ acre
Ferta Agra Cacao Sup	NPK 3-21e20+10CaO+55+5Mg O+0.5(B+Zn)	3 Bags/ acre
So Aba Pa	NPK 4-22-18+4CaO+45+5MgO +0.5B+0.2Zn	3 Bags/ acre
Adom Cocoa Fertilizer	NPK2-23- 18+8 CaO+6SO3+6MGO +0.5ZN+0.5B	3 Bags/ acre
Adehye Cocoa Fertiliz	NPK2-23- 18+8 eCaO+6SO3+6MGO +0.5ZN+0.5B	3 Bags/ acre
Sidalco	NPK 6:0:20 + Trace elements (Mg, Fe, Mn,Cu,Zn)	21 DAYS
Lithovit	Urea+Carbonates of Ca and Mg+Trace elements	21 DAYS

List of banned agro-chemicals

GAMALIN 20 (DDT)

UNTENT

COCOSTAT

KABAMALT

PARAQUATS

Banned pesticides

1. 2,4,5-T and Its salts and esters

2. Aldrin

3. Binapaeryt

4. Cantalo

5. Chlordane

o Clordinciorn

7. Chlorobenzilate

8. Dichlorodiphenyitrichloroethane(DDT)

9. Dieldrin

10. Dinoseb and its calts and esters

11. Dinitro-orthocresol (DNOC) and its salts (such as ammonium salt, potassium salt and sodium salt)

I2. Endria

13. HCH (aixed isomere)

14. Heptachlos

15. Hcxachlorobenxene

16. Parathion

17. Pentachlorophenol and its salts and esters

18. Toxaphene

19. Mirex

20. Methamidophos (Soluble Iquid formulations of the substance that exceed 600 g active ingredient/I)

21. Methyl-parathion (emulsifiable concentrates (EC) with at or above 19,5% active ingredient and dusts at or above 1.5% active ingredient)

22. Monocrotophos (Soluble liquid formulations of the substance that exceed 600 g active ingredient/D

23. Parathion (all formulations - aerosols, dustable powder (DP), emulsifiable concentrate (EC), granules (CB) and wettable powders (WP) - of this substance are included, except capsule suspendions (CS))

24. Mosphamidon (Soluble liquid formulations of the substance that exceed 1000 1 active ingredient/I)