

7.BIII TIWS INTERIM MANAGEMENT PLAN 2023

TIWAI ISLAND WILDLIFE SANCTUARY



INTERIM MANAGEMENT PLAN



2023-2025



Approval Page

The National Protected Areas Authority (NPAA) has approved the Implementation of this Interim Management Plan for Tiwai Island Wildlife Sanctuary.

Title/Institution & Date

Title/Institution & Date



This IMP for TIWS has been adapted from the 'Tiwai Island Co-Management Plan 2020-2030', initially prepared by a team of experts from Fourah Bay University College, Sierra Leone. Its preparation was prompted by The Government of Sierra Leone's decision to initiate a nomination process for Gola-Tiwai Complex serial natural World Heritage Site. While as much as possible keeping to the intention of the original text, the 2020-2030 Co-management Plan's structure, style and content have been substantially revised to fit the nomination requirements of the Operational Guidelines for the Implementation of the World Heritage Convention¹.

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Technical planning assistance was provided by James V Wakibara.

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Prepared by James V Wakibara, Consultant, UNESCO World Heritage Centre.

Photo credits: **Tommy Garnett** (Front cover, Plates C.4.1, D.1.1.1, D.2.1), **James Wakibara** (Plates C.1.1, C.2.1-a, D.3.1); **Chen Xiangling** (Plate C.2.1-b). *Front Cover:* Drone Overview of Tiwai Island Wildlife Sanctuary.

¹ <https://whc.unesco.org/en/guidelines/>

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Acronyms

CEPF	Critical Ecosystem Partnership Fund
CDC	Centers for Disease Control
CR	Critically Endangered
CMP	Comprehensive Management Plan
CSO	Civil Society Organization
CoMP	Co-Management Plan
CTF	Conservation Trust Fund
DSA	Daily Sustenance Allowance
EFA	Environmental Foundation for Africa
EN	Endangered
EPA-SL	Environmental Protection Agency, Sierra Leone
ERV	Exceptional Resource Value
EU	European Union
EVD	Ebola Virus Disease
FD	Forestry Division
FGD	Focus Group Discussion
FoSED	Food Security and Economic Development
GRNP	Gola Rainforest National Park
GTZ	German Technical Corporation
IMP	Interim Management Plan
LAC	Limits of Acceptable Change
LC	Least Concern
LFA	Logical Framework Approach
KEA	Key Ecological Attributes
MDAs	Ministries, Departments and Agencies
M&E	Monitoring and Evaluation
MP	Member of Parliament
MoU	Memorandum of Understanding
MRU	Mano River Union
MZP	Management Zoning Plan
NGO	Non-Governmental Organization
NPAA	National Protected Areas Authority
NSF	National Science Foundation
NT	Near Threatened
NTFP	Non-timber Forest Products
NU	Njala University
PA	Protected Areas
RSPB	Royal Society of the Protection of Birds
SMART	Specific, Measurable, Attainable, Realistic, Time-bound
SWOT	Strengths, Weaknesses, Opportunities and Threats
TCC	Tiwai Community Committee
TIAC	Tiwai Island Administrative Committee
TIWS	Tiwai Island Wildlife Sanctuary
TKS	Traditional Knowledge and Skills
UK	United Kingdom
UNHCR	United Nations High Commission for Refugees
UNESCO	United Nations Education, Science and Cultural Organization
USAID	United States Agency for International Development
VU	Vulnerable
WABiCC	West African Biodiversity and Climate Change

Foreword

Tiwai Island Wildlife Sanctuary is the oldest community-driven conservation initiative and one of the best known in Sierra Leone. For years, it has been at the international forefront in pursuing research in nature conservation, steered by strong stakeholder partnerships. Since its gazettelement some five decades ago, it was only in 2020 that the preparation of a formal management plan was completed. The “Tiwai Co-Management Plan 2020-2030” (CoMP), approved in September 2020, was a crucial stride in guiding for an objective management and administration of the Island. To an ordinary eye, the preparation of this IMP only about a year after the approval of the Co-Management Plan appears paradoxical. However, it connotes the current solid determination by the Government of Sierra Leone to jointly nominate Tiwai Island Wildlife Sanctuary and Gola Rainforest National Park as a World Heritage Site, the first in the country. Accordingly, this IMP is meant to meet the requirements of the Operational Guidelines for Implementation of the World Heritage Convention for a nomination dossier of a natural World Heritage Site.

Tiwai Island portrays seclusion and wilderness, and is currently abutted by a somewhat less dense rural community population. Ideally, this sparse population is a conservation advantage of its own. Yet, the Island remains vulnerable to a multiplicity of anthropogenically driven challenges, and potentially natural catastrophes and risks. The interventions envisaged in this IMP are meant to counter these pressures for the future Tiwa Island Wildlife Sanctuary. Nonetheless, this ambition cannot be realized in isolation: collective efforts of all our partners and stakeholders, particularly the local communities who are the rightsholders and frontline custodians of the Island must be pursued.

The Tiwai CoMP 2020-2030 was prepared through a thorough consultative process, involving a broad spectrum of stakeholders and partners from within the ecosystem and beyond. We are thus confident that their legitimate concerns were taken on board during the management planning process, which has now been extended to this IMP. Regrettably, time constraints precluded the preparation of a CMP, meaning that some chapters await the appropriate time - currently scheduled for early 2025. While this may be disturbing to some, it nevertheless depicts the very nature of protected area planning. We undertake to continue protecting Tiwai, and indeed the greater Tiwai-Gola ecosystem as a locally, nationally and globally renowned priceless resource, and remain confident that this IMP provides the best possible groundwork for achieving this determination.

It is thus with great pleasure that we declare our full political will, commitment and support for this IMP. We also entrust its implementation on the Tiwai management Team in collaboration with concerned partners.

Signed
**Minister of Tourism
 and Cultural Resources**

Signed
**Minister of the Environment
 and Climate Change**

Executive Summary

This IMP (2023-2025) has been produced according to the “Strategic Planning Process” with some modifications to encapsulate the historical co-management experiences of Tiwai, and to make the plan more relevant to its day-to-day management needs. A participatory approach has been adopted to develop the IMP borrowing from the 2020-2030 Tiwai CoMP, which brought together a wide spectrum of stakeholders. The consultative process involved in the preparation of CoMP was two-tier, based on Focus Group Discussion (FGD), Key Informants and general interviews of the rest of the communities within the local Chiefdoms. This methodology was meant to elicit candid ideas and interests of stakeholders towards the sustainable safeguarding of Tiwai. Focus was placed on the eight local communities, which reside in close proximity to Tiwai, given they are its traditional rightsholders and frontline custodians. This approach enabled the diverse interest groups to work together constructively and where necessary to reach compromises and consensus at best protecting Tiwai ecosystem in the longer term. Consequently, this IMP provides a strong foundation for the future management of the Tiwai that is hitherto commonly agreed upon by the key stakeholders.

The main structural orientation of this IMP is its organization into four major management strategies:

- Ecosystem Management
- Tourism Management
- Community Outreach
- Operations Management

These strategies are designed to facilitate plan implementation by building a sense of ownership and accountability at the implementation level. Each Strategy includes clear management objectives and targets as set out for the next two years of the IMP. Formulation of actions and specific activities or tasks awaits the preparation of a CMP, envisaged in the next two years (2023-2025). The CMP will also address the potential environmental impacts associated with implementation of the four strategies and set the monitoring framework. In addition, a zoning concept will be employed to plan for use with the Limits of Acceptable Change (LAC) concept in mind. This approach is meant to ensure that the IMP remains dynamic, with the required flexibility and responsiveness to the changing management needs and priorities of Tiwai.

The IMP also incorporates the Logical Framework Approach (LFA) concept to conservation planning, the main feature of which is the explicit and logical linkages between the cascading planning levels i.e., Strategies, Objectives and Targets. During the preparation of the CMP, these linkages will be further extended to Actions and ultimately to the Activities or Tasks in the Annual Operations Plans. The application of LFA has helped develop an IMP that can be effectively and efficiently implemented, as well as easily monitored and evaluated.

This IMP defines henceforth a clear vision and overall purpose of Tiwai, with the purpose statement derived from Tiwai's Exceptional Resource Values (ERVs). The most important of these as identified by stakeholders are the Moa River, High canopy mature forest, Riverine Forest, and populations of chimpanzees, other primate species, as well as of the Pygmy hippo. A purpose statement for each Strategy has also been formulated to best orient its actual implementation on the ground. The specific objectives for each of the four strategies focuses on the following main considerations:

- ▶ *Ecosystem management*: reduction of conservation threats and enhancing monitoring and research.
- ▶ *Tourism management*: improving visitor experience, increasing revenue generation and mitigating tourism-related environmental impacts.
- ▶ *Community Outreach*: Strengthening co-management of Tiwai and benefit sharing mechanisms with local communities, enhancing conservation education and awareness, and strengthening collaboration with partners.
- ▶ *Operations Management*: Protection of Tiwai ecosystem core values, safeguarding human life and properties, improving infrastructure and facilities, and strengthening of Tiwai administration system.

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A. BACKGROUND INFORMATION

A.1 Conservation history

The TIWS was preserved due to its exceptional plant and wildlife diversity. Since the 1970s, however, its conservation profile has traversed a series of both fortunes and downturns (**Table A.1.1**). The ‘golden age period,’ for instance, saw TIWS thriving with impressive concentrations of wildlife, with ample research work and tourist visitations, respectively, and attracting a fair volume of external funding for supporting conservation efforts on the ground. In contrast, the 10-year wave of civil war starting 1991 led to a complete reversal of such achievements. Researchers were evacuated and the Island occupied by rebels. Financial support almost ceased, with a consequent increase in both poaching and deforestation that destroyed its biodiversity (Lindsell et al. 2011)².

Table A.1.1: Chronological history of Tiwai Island conservation³

Date	Activity
1970 (mid)	Identification of a high biodiversity value of Tiwai Island by Njala University researchers in Sierra Leone. Dense and diverse primate fauna was observed, together with other West African endemics such as the pygmy hippo.
1970 (late)	Discussions commence with the two Paramount Chiefs , especially V.K. Magona the VI th of Barri, on reducing hunting and other exploitation on the Island.
1987-1991	The ‘golden age’ of TIWS. American Universities ⁴ funded by the United States provided significant support to researchers on the Island (resulting in several ground-breaking papers led by John F. Oates, Whitesides, Fimbel etc.). A Research Centre is established by Njala University and a Tourist Camp established with American funds (although the number of tourists unknown).
1987	Tiwai Island is given legal protection as a ‘Game Sanctuary’ ⁵ after local chiefs and villagers requested the Forestry Department to designate it a Wildlife Sanctuary in 1984
1989	A Draft Management Plan⁶ is developed and supported by the United States Peace Corps ⁷ with substantial zoning i.e., 23 zones in total. This plan was never formally adopted although, fortunately, farming and logging did not restart.
1989	Establishment of the TIAC as TIWS governing entity - composed of communities, government agencies, universities and conservation groups
1991	Documentary: ‘Island of Apes’ produced for a United Kingdom based Anglia Television raises the visibility of Tiwai
1991-2001	Sierra Leone Civil War: Researchers and Peace Corp volunteers were evacuated very early on in the war as TIWS was close to where the insurgency started. Very high levels of poaching occurred during this period. Minimal financial support was provided from overseas and distributed through the Department of Forestry.

² Lindsell J, Klop E & Siaka AM (2011). The impact of civil war on forest wildlife in West Africa: mammals in Gola Forest, Sierra Leone. *Oryx*, **45(1)**: 69-77 <https://doi.org/10.1017/S0030605310000347>

³ Adapted from the 2020-2030 Tiwai CoMP.

⁴ The City University of New York Research Foundation, The University of Miami and the New York Zoological Society

⁵ The Government of Sierra Leone. Gazette Notice No. 342 of 1987.

⁶ Tiwai Island Administrative Committee (TIAC) (1989). Tiwai Island Wildlife Sanctuary. General Management Plan. Bill Eichenlaub. US Peace Corps.

⁷ This plan, developed by a Volunteer and ‘tentatively endorsed’ in 1991, proposed for limited (supervised) economic exploitation of TIWS. The extent to which local communities and other stakeholder participated in its preparation is unclear, and the 23 network of ‘use-zones’ it proposed were considered too cumbersome to implement.

2000	First visit to Tiwai by staff from the Environmental Foundation for Africa (EFA).
2002	Re-establishment of TIAC with input from line Ministries (Forestry, Tourism), Local Government (MP's, District Councillors), Traditional Authorities (Paramount Chiefs), Academics (Njala University) and NGO's (EFA).
2004	Population of Campbell's monkey estimated at 10% of its pre-war levels by Ibrahim Bakarr of Njala University ⁸
2002-2006	Financial support obtained from the Critical Ecosystem Partnership Fund (CEPF), UNHCR and Irish Aid are used by EFA, partnering with Njala University, to reconstruct and restore the biological research and eco-tourism facilities on the Island, provision of a boat etc. Pre-war funding partners (i.e., Hunter College and Miami University) appear unable or unwilling to re-establish ties with Sierra Leone
2006	Official re-launch of TIWS as an ecotourism destination and site for research
2002-date	Numerous development initiatives are implemented with varying degrees of success but not all are 'branded' as being due to the conservation of Tiwai Island under the leadership of TIAC. Examples include; two of the culvert bridges on the road from Potoru-Kambama (funded by GTZ through EFA), the school at Kambama (funded from visitor income), Solar power sets for lighting and charging in all Tiwai Communities and the schools and clinics in their chiefdom headquarters Potoru and Boama (funded by the EU and implemented by EFA). Agricultural development (e.g., FoSED - funded by European Union, implemented by EFA and the international NGO Welt Hunger Hilfe). Eco-tourism development, employment of locals in guiding and supporting tourism, boatmen, construction and maintenance of facilities, cooking for visitors and assisting researchers, etc.
2013	Tentative listing of TIWS as a prospective World Heritage Site, together with three others, following applications by Sierra Leone's Monuments and Relics Commission, the Gola Rainforest National Park and the Environmental Foundation for Africa
2013-2014	Need for a new management structure is identified. Work is undertaken by Environmental Resources Management Foundation, UK on a 'pro-bono' basis and an eco-tourism management plan is drafted by an EFA intern. Extensive discussions are undertaken internally and externally, but a number of serious issues remain unresolved
2014-2015	Eruption of Ebola with zero income from visitors. EFA and partners mobilise some resources (rice and cash) for the communities.
2015	Declined attendance and input from most members of TIAC has dwindled, to the extent that EFA and the two paramount Chiefs are the only active members
2015-2016	Major storm on Tiwai Island causes extensive damage to buildings and various equipment including solar lighting at the visitor/ecotourism camp. EFA mobilises funds and works with local community to rebuild the structure and restore the services
2017	Major storm causes extensive damage to buildings at Field Research Station. A CDC grant enabled Njala University to repair, refurbish and upgrade the facilities at the field research station.
2018-2019	Preparation of Management Plan with funds from USAID, through WABICC, RSPB and Gola Rainforest National Park to commission consultants to prepare a new management plan Consultants appointed

The end of this war in 2001 revived the conservation efforts on the ground, spearheaded by TIAC and supported by the local communities, the government and the global conservation partners at large (**Plate A.1.1 & A.1.2**). The administrative and co-management framework of TIWS was progressively strengthened and funding support

⁸ Unpublished

reinstated. Over the last 20 years, steady control of anthropogenic disturbances on TIWS has allowed for a regeneration of secondary forest and a gradual recovery of biodiversity to its pre-war levels.

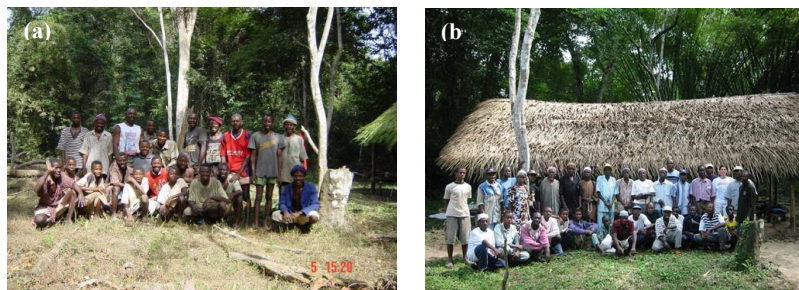


Plate A.1.1: Tiwai after the end of the ten-year (1991-2001) civil war: (a) Local communities after re-opening of the sanctuary (b) Visit by a Team of Donors in 2002

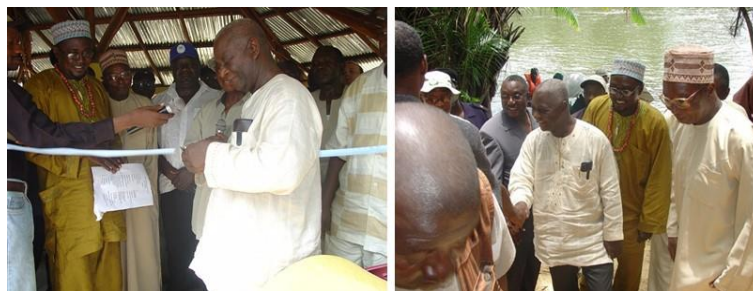


Plate A.1.2: Re-opening of Tiwai Island for research and eco-tourism in 2006 by the former Vice-President of the Republic of Sierra Leone, Hon. Solomon Ekuma Berewa (of blessed Memory) - an indication of the Government's commitment to conservation of the Sanctuary

A.2 Co-management of Tiwai

Co-management⁹ is a process in which two or more social actors or resource users negotiate, define and guarantee amongst themselves a fair sharing of the management

⁹ Also known also as participatory, collaborative, joint, mixed, multi-party or roundtable management, respectively - see e.g., Carlsson L & Berkes F (2005) Co-management: Concepts and methodological implications. *Journal of Environmental Management* 75: 65-76 [doi:10.1016/j.jenvman.2004.11.008](https://doi.org/10.1016/j.jenvman.2004.11.008)

functions, entitlements and responsibilities for a given area or set of natural resources¹⁰. It guarantees specific rights and responsibilities relating to, for instance, information sharing and decision-making. Co-management can also be seen as a pluralist approach to managing natural resources. It involves different partners with multiple roles towards environmental conservation, sustainable use and equitable sharing of natural resources. There are many successful examples of natural resources co-management in Africa and worldwide at large. In Sierra Leone in particular, besides Tiwai, this management model has been successfully adopted in some other protected areas.

Over the past 40 years or so, the needs of the local communities abutting TIWS and their consequent pressures on its biodiversity have scaled-up. At the same time, the key stakeholders and their inherent relationships have also transformed variably. However, its historical hurdles (including protracted financial constraints¹¹) apart, TIWS can be said to have fairly been co-managed successfully, spearheaded by TIAC (**Figure A.2.1**). Co-management, therefore, appears to have been a historically strongly entrenched conservation philosophy amongst stakeholders of TIWS, which is considered to guarantee collective stakeholder appreciation and co-ownership of its resources. The case in point is that the local communities are not only the rightsholders of Tiwai, but also that their livelihood firmly depends on its ecosystem services (see **Section D.3**). Not surprisingly, therefore, during the management planning process, Tiwai co-management stood out sharply as a widely supported and cherished management style of choice by almost all the stakeholders consulted, in particular the local communities and their traditional leaders (details in **Appendices 1-3**). Accordingly, it has been duly adopted as a management model during the preparation of this IMP.

Examples of successful Co-management initiatives in natural resources conservation in Sierra Leone

- ▶ The Gola Forest Co-management: Local communities utilize the resources within the 4km 'Buffer zone' belt. They in turn benefit from several direct benefits such as cash payments and scholarship support for their children, and from provision of social amenities such as water holes and bridges projects, and sharing of funds generated from eco-tourism.
- ▶ Mamunta-Mayosso Wildlife Sanctuary Co-management: A collaboration between NPAA and the local communities. Seeds and farm tools are provided to the local farmers using part of Sanctuary eco-tourism proceeds.
- ▶ Sierra Leone River Estuary Co-management: Local community clusters co-manage mangroves and other natural resources in their respective areas (which are gradually expanding). They in turn benefit from a range of ecosystem services, in particular control of natural disasters such as flooding

Extracted from the Tiwai CoMP 2020-2030

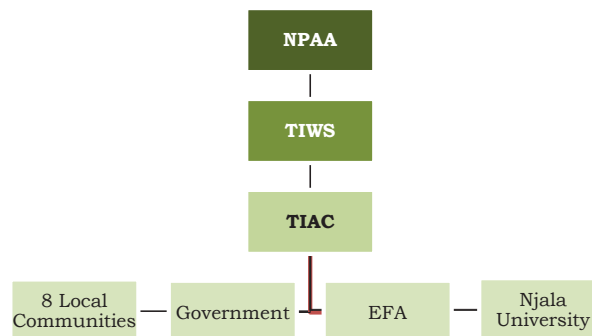
¹⁰ Borrini-Feyerabend G, Farvar T, Nguiguiri JC and Ndangang VA (2007). Co-management and natural resources: Organizing, negotiating and learning-by-doing. GTZ and IUCN, Kasperek Verlag, Heidelberg.

¹¹ Significant costs, for instance, relate to co-managing Tiwai through conducting regular TIAC meetings. Due to financial constraints, however, this burden has progressively fallen onto EFA and the two Paramount Chiefs of Barri and Koya Chiefdoms.

A.3 Policy, legal and legislative Environment

TIWS was declared a Game Sanctuary by Government Gazette Notice No. 342 of 1987 following a request by the local Communities to the Government of Sierra Leone in 1984. The legal provisions for its protection are supported in retrospect by the 1972 Wildlife Conservation Act and concurrently with the Protected Area Authority and Conservation Trust Fund Act 2012, which also applies to Game Reserves (the legal equivalent of a Game Sanctuary), National Parks and Strict Nature Reserves. In effect, TIWS is the equivalent of the IUCN's Habitat/Species Management area (Protected Area Category IV). The 1972 Wildlife Conservation Act provides general restrictions for unauthorized natural resources harvests in protected areas¹².

Figure A.2.1: TIAC co-management model for TIWS



Articles 12 and 27 of The NPAA and CTF Act of 2012 (revised in 2022) transferred the responsibility of national protected areas to the NPAA under the respective Ministry. This implies that the Government has the legal authority to manage TIWS. Thus, although the Barri and Koya Chiefdoms are still recognized as traditional rights holders of Tiwai, their legal control and user rights, respectively, are currently limited by the national laws.

These recent legal revisions pertaining to protected areas apart, the tradition for community ownership and management of land in Sierra Leone remains historically strong, supported by the Provinces Land Act Cap 122 of the Laws of Sierra Leone. Under this Act, all land in the country is vested in traditional authorities on behalf of local communities. In other words, the Paramount chiefs and chiefdoms are considered the

¹² While these restrictions apply to protected areas in general, there are no clear-cut provisions on the specific restrictions per protected area category including, Wildlife sanctuaries such as TIWS. Legal reviews are therefore needed to address this issue.

equivalent of land owners and must be involved in any land transactions (Renner-Thomas 2010 p. 195)¹³.

Restrictions of Wildlife Conservation Act (1972)

- ▶ Hunt or take possession of any wild animal
- ▶ Take any forest produce as defined in the Forestry Act
- ▶ Uproot, burn, strip the bark or leaves from, or otherwise damage any tree
- ▶ Set fire to any grass or herbage or kindle a fire without taking due precaution to prevent its spreading
- ▶ Do any act connected with forestry, agriculture or mining, excavate or prospect, drill or level the ground or construct or perform any work involving the alteration of the configuration of the soil or the character of the vegetation
- ▶ Fish or attempt to kill fish
- ▶ Set any snare, net, trap or other instrument for the purpose of catching or killing animals, or likely to catch, kill or injure any animals
- ▶ Introduce any species of fauna and flora, whether indigenous or imported, wild or domesticated;
- ▶ Construct any form of dam or weir across any river or streams or otherwise obstruct the channel of any river or stream

Extracted from the CoMP 2020-2030

This IMP focuses on strengthening four key strategic management areas: Ecosystem management, Tourism Management, Community Outreach and Operations Management (details in **Section D**). For its effective implementation, therefore, it should be supported by a wider set of appropriate policies and legal provisions, which cover not only conservation and land ownership issues, but also those related to tourism, community involvement and daily operations as well. Some of the relevant policies in this regard are summarized in **Table A.3.1** and frequently referred to in **Section D** in support of implementation of the four management strategic areas. It is therefore clear that the existing wider Sierra Leonean legal and regulatory environment provides for adequate support in safeguarding TIWS based on the strategic interventions being proposed in this IMP.

¹³ Renner-Thomas, A. 2010. Land tenure in Sierra Leone: The law, dualism and the making of land policy, Milton Keynes. Author house.

Table A.3.1: Policies and legal provisions supporting strategies identified in this IMP for the management of Tiwai¹⁴

Provision	Relevance	Supported strategy
The National Protected Areas Authority (NPAA) and Conservation Trust Fund (CTF) Act of 2012	▶ Bring together the administrative and operational functions of all protected areas (PA) under a single supervisory agency ▶ Forge collaborative partnership with local authorities for the management of PAs. ▶ Supervise all protected areas including TIWS. ▶ Promote ecotourism in Protected Areas ▶ Formulate and implement conservation awareness activities for local communities, schools, and local administrations ▶ Promote knowledge of and participation in conservation programs and services, relating to socioeconomic and environmental issues including, fisheries, agricultural and forestry best practices, forest management, land, soil and water conservation in Protected Areas 'and buffer zones ▶ Develop management objectives, structures, and mechanisms necessary for the management of the National Protected Areas ▶ Sensitise local communities and address local stakeholders' interests in land conservation and socioeconomic issues	Ecosystem Management Community Outreach Tourism Management Operations Management
The Environmental Protection Agency Act of 2008 and its amendments of 2012	▶ Provide guidance on aspects of environmental management and safeguards	Ecosystem Management Tourism Management Operations Management
The Forestry Policy 2010	▶ Develop collaborative partnerships with local communities and other relevant stakeholders for the sustainable management of reserve forests ▶ Ensure sustainable streams of	Community Outreach Ecosystem Management

¹⁴ These are also specifically and repeatedly referred to in Section D in support of the proposed respective management strategies (see **section D**).

	economic, social and environmental benefits.	
The Wildlife Conservation Policy of 2010	▶ Maintain viable populations of indigenous species of flora and fauna in their natural habitats ▶ Apply appropriate measures to monitor and improve their conservation status.	Ecosystem Management
Local Government Act 2004 and its 2007 Amendments	▶ Have jurisdiction and authority over all local community areas within districts ▶ Promote development and welfare of local communities in their localities	Community Outreach
Local & Investment Policy 2012	▶ Link local economies with foreign investment opportunities, including through transfer of technological and skills	Community Outreach Tourism management Operations management
Development of Tourism Act No 11 of 1990 (under review)	▶ Establish of a National Tourism Authority ▶ Incentivise investors in the Hotel and Tourism sector	Tourism Management Operations Management
The Customary Land Rights Act no. 20 of 2022	▶ Protect customary land rights ▶ Manage and administer land subject to customary law	Community Outreach
Mines and Minerals Act no. 12 of 2009	▶ Manage harmful environmental effects of mining	Ecosystem Management

B. PLAN INTRODUCTION

B.1 Context

This 2023-2025 Interim Management Plan (Thereafter, Interim plan) builds on the existing '2020-2030 Tiwai Island Co-Management Plan,¹⁵ (Thereafter, Co-Management Plan - CoMP) that was approved for implementation in July 2019. However, initial attempts to prepare a formal Management Plan for TIWS was in 1989 by TIAC, supported by an American Peace Corp initiative. Yet, this plan¹⁶ was considered too cumbersome to implement partly because its preparation was not fully participatory.

In January 2022, the Government of Sierra Leone embarked on a process to jointly nominate TIWS and GRNP as its very first World Heritage property. This prompted a fresh review of the by then approved CoMP, so as to align it to the requirements of the Operational Guidelines for the Implementation of the World Heritage Convention.¹⁷ A quick appraisal by a Team of experts undertaking a UNESCO Mission to Sierra Leone to support this nomination process¹⁸, resolved that in its existing form, the plan had substantial gaps. For instance, it appeared (in its own right) to be heavily inclined towards involvement of local communities in the co-management of TIWS, perhaps reflecting the historical approach to managing protected areas in Sierra Leone (**see A.2**), and to better their issues and concerns of the time. However, it did not exhaustively address the fundamental issue of how TIWS's natural values - the very reasons for its preservation - could be better managed and sustainably preserved. Thus, aspects such as of Tourism, infrastructure development, resources protection and daily administrative operations, respectively, were addressed only in a fragmentary way or ignored altogether. To address this and other fundamental gaps in the planning process, a decision was reached to revise the 2020-2030 CoMP. Nonetheless, time constraints dictated that the plan be revised to at best align with the IUCN (2008).¹⁹

Although in its current form this IMP stops short of defining the operational details on the ground, it is nevertheless structured to allow for continuity on onward preparation of a comprehensive plan. The latter is expected to not only detail the baseline conditions of TIWS, but also to clarify how the management would be delivered on the ground and assessed. It will also entail 'SMART' targets to benchmark the desired future of Tiwai over the medium 10-year planning horizon. Operational details related to the provision of human, physical and financial resources and responsibilities for supporting the efficient management of Tiwai will also be elucidated. Thus, on the whole, this IMP has been

¹⁵ Tiwai Island Administrative Committee (TIAC) (2020). The Co-Management Plan of Tiwai Island Wildlife Sanctuary, 2020-2030. Prepared by AB, Karim A, Okoni-Williams and J Squire.

¹⁶ Tiwai Island Administrative Committee (TIAC) (1989). Tiwai Island Wildlife Sanctuary General Management Plan. Sierra Leone.

¹⁷ see IUCN (2008) Protected Area Programme. Management Planning for Natural World Heritage Properties. A Resource Manual for Practitioners. Gland, Switzerland.

¹⁸ The Mission was carried out from 27 July-5 August 2022 and comprised of staff from The UNESCO World Heritage Centre and from the States parties of The United Kingdom, Japan and The United Republic of Tanzania.

¹⁹ *Ibid.*

structured to encapsulate the interim generic requirements of a management plan for a natural site, while at the same time setting the requisite ground for a comprehensive management plan as illustrated in **Figure B.2.1**.

UNESCO Requirements for an Interim Management Plan for a natural World Heritage Site

- ▶ *Commitment to Implementing the Plan*
- ▶ *Initial Assessment and factual statement of the condition of the property's natural values*
- ▶ *A review of issues and challenges associated with maintaining the properties' values and integrity within its geographic and socio-economic context*
- ▶ *The long-term ambition of the Property i.e., its vision and objective*
- ▶ *The management policies and measures provided or to be introduced*
- ▶ *The financial and human resources to be provided in order to protect the properties integrity prior to completion of the complete plan*
- ▶ *Completion of the comprehensive plan within a maximum of 2-3 years*

Source IUCN (2018) Protected Area Programme. Management Planning for Natural World Heritage Properties. A Resource Manual for Practitioners. Gland, Switzerland (emphasis added).

B.2 Function and Structure

This plan is meant to guide the effective management of TIWS resources and facilitate their sustainable uses and development during an *interim period*²⁰ of two years from 2023-2025. However, despite its 'interim' nature, it clearly sets forth the long-term ambition (or vision) of TIWS and the management strategies for its eventual realization. It also elucidates the enabling policy and legislative environment, as well as the institutional set-up for its effective implementation - backing on the continued firm historical commitment of the Government of Sierra Leone (**Plate B.1**) to preserve TIWS. Although in its current form this plan stops short of defining the operational details on the ground, it is nevertheless structured to allow for continuity on onward preparation of a comprehensive plan. Such a plan is expected not only to detail the baseline

conditions of the Island, but also to clarify how the management would be delivered on the ground and assessed. It will also entail SMART targets to benchmark the desired future of TIWS over the medium 10-year planning horizon. Operational details related to the provision of human, physical and financial resources and responsibilities for supporting the efficient management of TIWS will also be elucidated. Thus, on the whole, this IMP has been structured to encapsulate the interim generic requirements of a management plan for a natural site while at the same time setting the requisite ground for a comprehensive management plan as illustrated in **Fig. B.2.1**.

²⁰ This is the permissible Interim period to allow for the preparation of a 10-year detailed or Comprehensive Management Plan that fully responds to the World Heritage Committee Operational Guidelines requirements of a formal Management Plan for a Natural World Heritage Site

B.3 Alignment of the Interim Plan with Tiwai Administrative Framework

In consideration of the main management issues confronting TIWS emanating from detailed stakeholder consultations conducted during the preparation of the 2020-2030 co-management plan - (see **section B.8** below), this IMP has been structured into four (4) 'Strategic Management Areas' of intervention as follows:

- Ecosystem Management
- Tourism Management
- Community Outreach
- Operations Management

It is anticipated that addressing these key areas will help attain TIWS's overall purpose and sustainably maintain the values for which it was established to safeguard. Structuring the plan into these four broader strategic areas of management intervention is meant to not only enable a clear understanding of the prevailing issues, but also to ease the administration of the required interventions. This will in turn aid to build a sense of collective responsibility, ownership and clear accountability by TIWS staff on the ground.

B.4 Strategic and action plan structure

Best practice in strategic planning (see e.g., Fuertes et al. 2020)²¹ dictates a series of logically linked long-term (20-30 year) Vision, medium-term (10-year) Programs and/or Strategies, each of which should then nest a (3-year) Action plan and a corresponding (1-year) Operational (or activity plan) in that order (**Figure B.4.1**). In addition, for the plan to be both relevant and realistic, it should provide for a clear linkage of its operations (or activities) to the (annual) budgetary cycle. Such a structure ensures that the plan retains the longer-term strategic vision while at the same time providing the required flexibility and responsiveness to the changing priorities and management needs on the ground. Understandably, this IMP process could not be extended to the operational (or activity) level at this time - as explained earlier. Nevertheless, it provides for a set of clear strategies, objectives and targets that are envisaged to feed into the details of the impending CMP.

B.5 Logical Framework Approach

This IMP also follows a 'Logical Framework Approach' (LFA), which is a widely accepted principle of choice in development project planning. The LFA provides for an efficient, accountable and logical rationale for planning resulting in a plan that can be more effectively and efficiently implemented, as well as more easily monitored and evaluated (e.g., Rodríguez-Rivero et al. 2020)²². As already stated, the main feature of the LFA is the

²¹ Conceptual Framework for the Strategic management: A literature review-descriptive. Fuertes G, Alfaro M, Vargas Manuel, Gutierrez S, Ternero R & Sa J (2020). *Hindwai Journal of Engineering* <https://doi.org/10.1155/2020/6253013>

²² Rodríguez-Rivero, R., Ortiz-Marcos, I., Ballesteros-Sánchez, L., Mazorra, J., Sánchez-Naranjo, M.J. (2021). The Logical Framework Approach, Does Its History Guarantee Its Future? In: Ayuso Muñoz, J.L., Yagüe Blanco, J.L., Capuz-Rizo, S.F.

explicit and logical linkages that are established between the long-term strategies, medium-term objectives, short-term action plans, and ultimately the management tasks (or activities).

(eds) Project Management and Engineering Research. Lecture Notes in Management and Industrial Engineering. Springer, Cham. https://doi.org/10.1007/978-3-030-54410-2_35

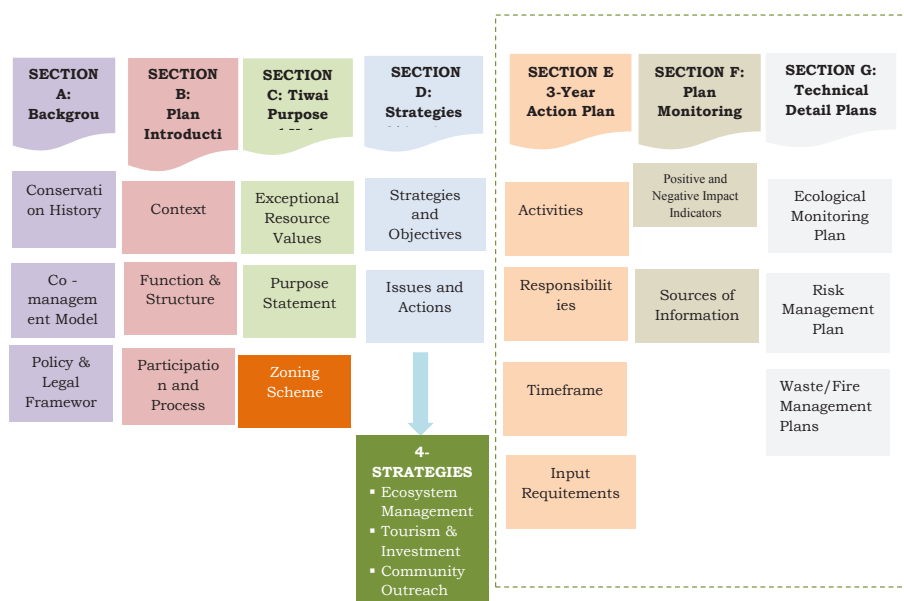


Figure B.2.1 Schematic presentation of the Interim Plan Structure incorporating sections A-D. Sections E-F (dotted frame) will be completed during the preparation of a comprehensive Management plan of which Sections A-D provides the foundations. Note also that the 'zoning scheme' item will also await preparation of comprehensive plan

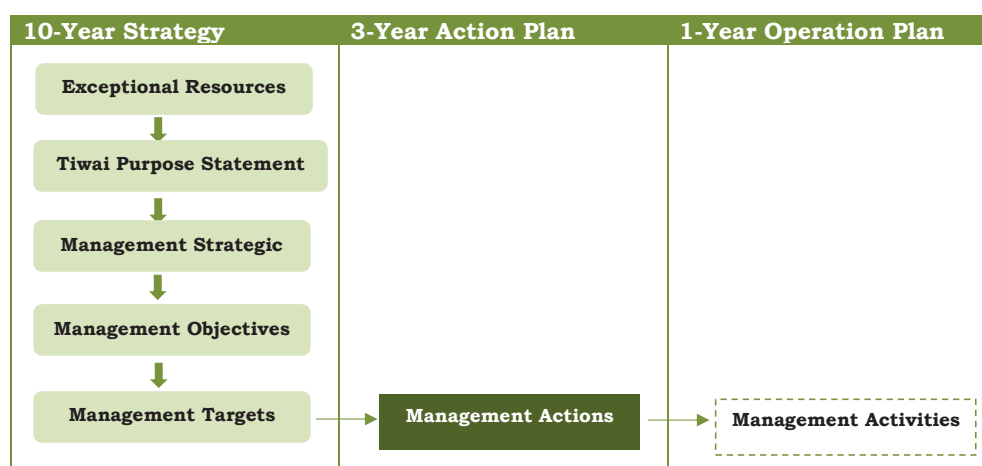


Figure B.4.1: Linkages between the three planning levels (Strategies, Actions and Activities)

B.6 Stakeholder analysis

With regard to stakeholder participation, this IMP borrows substantially from its 2020-2030 CoMP predecessor. At an early planning stage, the CoMP, created a list of 17 stakeholder groups for subsequent consultations. These were then assigned into three ‘categories’ based on their anticipated level of participation in the planning process (**Table B.6.1**).

Table B.6.1: Identified stakeholder groups

	Category	Description	Groups identified
1	Key or Primary stakeholders	The most important groups of stakeholders whose activities or policies directly impact the Island. They have voting rights on critical decisions affecting the management of the island. They may also form the core membership of the future management committee for the Sanctuary	▶ The Tiwai Island Communities – the Paramount Chiefs and local community representatives ▶ National Protected Areas Authority (NPAA). ▶ Pujehun District Council ▶ Kenema District Council ▶ Environmental Foundation for Africa (EFA) ▶ Njala University
2	Secondary stakeholders	This group of stakeholders prepare policies and undertake activities that could affect the island, but they do not play direct roles in the management and administration of the island.	▶ The Environment Protection Agency (Ministry of Environment and Climate Change) ▶ Forestry Division, Ministry of the Environment and Climate Change ▶ Ministry of Tourism and Cultural Affairs

		▶ Ministry of Local Government ▶ Tiwai Community Committee ▶ Conservation Trust Fund (CTF) (NPAA) ▶ The Member of Parliament Barry Chiefdom (Pujehun District) ▶ The Member of Parliament Koya Chiefdom (Kenema District)
3	Prospective or potential stakeholders	This group of stakeholders are those who have been identified as being potentially important in augmenting the operations and investment potentials of the island. They may be co-opted into the island's management committee either as permanent members or on a rotational basis as and when required ▶ Carma Cola ▶ Ministry of Tourism and Cultural Affairs ▶ The Gola Rainforest National Park ▶ Any NGO working in the area ▶ Academic/Research Institutions ▶ International Non-governmental Organizations (INGO's)

For those stakeholders considered key, an attempt was made to understand their in-depth roles and responsibilities as potential forefront members in the Co-management of Tiwai (**Table B.6.2**).

Having identified a wider range of TIWS stakeholders, using the Strengths, Weaknesses, Opportunities and Threats (SWOT) approach (see recent review by Benzaghta et al. 2021).²³ the initial planning Team then carried out a detailed stakeholder analysis as a basis for developing and implementing a simple communication strategy to facilitate their full participation during the consultative process as presented in **Table B.6.3**.

Table B.6.2 Responsibilities of key Tiwai stakeholders

	Key stakeholder group	Responsibilities relevant to the management of TIWS
1	Government (represented by NPAA under the Ministry of the Environment)	▶ Lead entity tasked with the responsibility of protecting the natural ecosystem, especially areas designated with conservation of natural resources. ▶ Creates policies, laws and legislations, and legal security of the resources. Coordinates and fosters collaboration amongst the stakeholders, including the universities and local communities. ▶ Fosters interactions between institutions and individuals in planning, development, supporting, conflict management, local participation and involvement. ▶ Interconnect the entire system of tourism and environmental activities for sustainable development.

²³ Benzaghta MA, Elwalda A, Mousa MM, Erkan I & Rahman M (2021). SWOT analysis applications: An integrative literature review. *Journal of Global Business Insights* 6(1): 55-73. <https://digitalcommons.usf.edu/globe/vol6/iss1/5/>

2	Non-Governmental Organizations (NGOs)	▶ Influence the conservation efforts of Protected Areas ▶ Together with the private sector, promote ecotourism and attract visitors to TIWS ▶ Create environmental awareness within and outside the Tiwai Communities. ▶ Support the management of Protected Areas through project interventions for ecosystem and biodiversity conservation
3	Potential Investors	▶ Implement a range of activities relating to promoting tourism, tour guiding and non-exploitative community development initiatives. ▶ Attract visitors to the island and provide enabling facilities for them. Stimulate local spending from visitors and provide opportunities for tourism initiatives involving local communities ▶ Provide mechanisms for mobilizing sustainable means of income to the TIWS programme and surrounding communities
4	Local communities	▶ Support protection and conservation efforts for the sustainable development of the Island ▶ Create the necessary local activities for attracting tourists to the Island. ▶ Complement (and support) government and other partners (NGOs etc.) efforts to promote sustainable conservation and livelihoods for the communities.
5	Academia (Njala University will incorporate other institutions as necessary)	▶ Carry out research (scientific, ecological, social, socio-cultural, anthropologic, impacts, etc.) on the Island. ▶ Produce educational materials both for the general public and academic communities. ▶ Create an enabling environment for research and attract researchers to the Island.
6	Local authorities	▶ Complement the efforts of the government and other stakeholders in assuring the security and maintaining the sanctity of the Island. ▶ Develop bye-laws and ensure the communities are visitor-friendly. Provide strategic oversight that entails regular monitoring and supervision. ▶ Have the legal framework that would support the NGO's activities and also to participate in a regulated recruitment of the NGOs/Investors.

Table B.6.3: Stakeholder communication strategy

Strategy	Description	Stakeholders
1 Involve	Key stakeholders invited to participate in and contribute to the planning issues through meetings	▶ The Tiwai Island Communities – the Paramount Chiefs and local community representatives ▶ National Protected Areas Authority (NPAA). ▶ Pujehun District Council ▶ Kenema District Council ▶ Environmental Foundation for Africa (EFA) ▶ Njala University
2 Consult	Important stakeholders who were actively consulted during the planning process and whose inputs were directly incorporated. Consultations were carried out through a one-to-one interview.	▶ The Environment Protection Agency (Ministry of Environment and Climate Change) ▶ Forestry Division, Ministry of Environment and Climate Change ▶ Ministry of Local Government ▶ Tiwai Community Committee ▶ National Protected Area Authority (NPAA) ▶ Conservation Trust Fund (CTF) ▶ The Member of Parliament from Barry Chiefdom (Pujehun District) ▶ The Member of Parliament from Koya Chiefdom (Kenema District)
3 Raise awareness	Stakeholders whom were kept informed about the progress in the planning process and given an opportunity to provide feedback but who were not directly involved or consulted.	▶ Carma Cola ▶ Ministry of Tourism and Cultural Affairs ▶ The Gola Forest National Park ▶ Any NGO working in the area
4 No action	Stakeholders for whom there was no immediate benefit in targeting for involvement in the planning process.	

B.7 Participation

The planning process adopted for the CoMP, therefore, involved a multilayered approach to participation. The objective was to provide an opportunity for as many key stakeholder groups and individuals as possible to contribute to the planning process in realistic and appropriate ways, commensurate with the appropriate policies of the Government of Sierra Leone²⁴. The fundamental assumption here is that the free and robust participation of a wide spectrum of stakeholders during the preparation of the initial 2020-2030 CoMP is testimony to both their ownership of the planning process and a

²⁴ See **Table A.3.1** for examples of these policies

consequent commitment to the plan implementation to the time that this IMP was being prepared.

B.8 Consultation process

As already detailed before, the 2020-2030 CoMP was developed through a broader participatory process, following a detailed stakeholder analysis. The aim was to ensure that it has wider support amongst the various stakeholder groups and that it was both realistic and easily implementable at the end. The consultation process, held between August and September 2019 was two-phased, targeting both primary and secondary stakeholders. The first phase focused on understanding the perspectives of each of the eight communities living adjacent TIWS. This involved detailed questionnaire interviews, guided by a set of 16 pre-formulated 'leading' questions on various management issues of TIWS (see **Appendix 1-3** for details), followed by direct consultations with key members of each of these communities. The second phase of consultations also involved a two-tier consultation. Firstly, FGDs were held with key informants selected from each of the respective Chiefdoms and institutions and later, group consultations held with the rest of community members from all the respective Chiefdoms followed.

Where necessary, interviews and discussions were held in vernacular (*Mende* and *Krio*), later translated into English. FGDs involved 515 individuals from all the eight (8) local communities residing in the immediate vicinity of TIWS of which 54.2% were male and the rest (45.8%) female. Key informants involved a total of 40 people comprising of five (5) from each of the eight communities as per the following composition: Town/section Chief, women leader, youth leader, an elder and a religious leader (Imaam). On the whole, the consultations focused on exploring the stakeholder perspectives on the key management issues of TIWS, including their level of awareness on its existence, its legal status, their involvement in its activities, its conservation and management status, and its impact on community livelihoods. For a detailed description of the consultative process during the preparation of the CoMP, see **Appendices 1-3**.

The results of both stakeholder consultations described above, combined with extensive information gathered through literature survey led to the preparation of the 2020-2030 CoMP. This document thus presented an up-to date synthesis of key background information and an in-depth state of knowledge on TIWS at the time. It comprised basic information on issues such as: the status of fauna and flora, description of the physical environment of the Island, wildlife and aquatic resources, threats to the Island (including natural calamities), local community dependency on the Island, and Management and administration issues including infrastructure development and tourism services delivery.

B.9 Preparation and verification of the IMP

This IMP was prepared between January and April 2023. It involved a thorough re-organization of the 2020-2030 CoMP contents to reflect the long-term strategic

management framework for TIWS. This entailed a comprehensive review of TIWS's purpose and resource values and the identification and prioritization of its main management issues and opportunities. It also involved the elucidation of any prevailing and imminent threats that are impacting or likely to impact on TIWS's values, respectively. The strategic interventions needed for achieving TIWS's purpose, together with an elaboration of the management objectives and targets have also been formulated for the management on the ground to focus on in the interim. While it proved exacting to engage all stakeholders originally present during the 2020-2030 CoMP preparation, their representation was nevertheless ensured during the preparation of this IMP. The Paramount Chiefs in particular, were key in representing their respective local community chiefdoms. Four (4) online discussions took place as the contents of the Draft IMP evolved, which involved top government officials: Ministry of Tourism and Cultural Affairs, Ministry of Environment and Climate Change, NPAA, NU, EFA, GRNP and the Paramount Chiefs. At the end of March 2023, the final version of the IMP was again circulated widely and physically verified by key stakeholders, including the local communities through meetings that were arranged by EFA. This IMP is thus taken to reflect the current collective philosophy and approach to the management of Tiwai by its key stakeholders.

C. TIWAI PURPOSE AND VALUES

C.1 Physical Environment

The 1,200 ha Tiwai Island (Figure C.1.1) is the smallest component of the larger Gola-Tiwai Complex (Figure C.1.2). The latter covers some 76,200-ha flanked by an additional 86,800 ha of buffer zone. Tiwai is 6.9 km long and 3.0 km wide, with a shoreline of approximately 21.9 km. It is generally low-lying, with an average elevation of about 120m asl (Conway 2013²⁵; Oates et al. 1990²⁶). Temperatures range from 21°C between December-January to 35°C (February-April). Climate is tropical, with an average annual rainfall of 2500-3000mm that is concentrated between May-October leaving December to March dry (Klop & Lindsell 2008)²⁷.

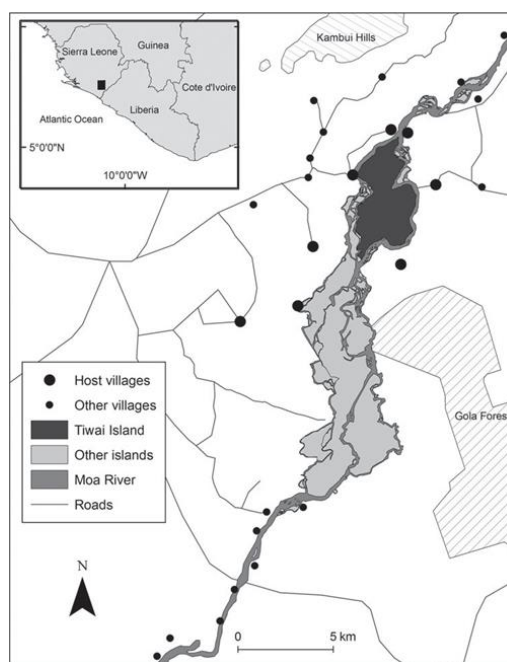


Figure C.1.1 Location of Tiwai Island Wildlife Sanctuary and the surrounding villages.
Adopted from Conway et al. 2015.²⁸

²⁵ Conway AL (2013). Conservation of the Pygmy Hippopotamus (*Choeropsis liberiensis*) in Sierra Leone, West Africa. University of Georgia, USA.

²⁶ Oates JF, Whitesides GH, Davies AG, Waterman PG, Green SM, Dasilva GL & Mole S (1990). Determinants of variation in tropical forest primate biomass: new evidence from West Africa. *Ecology*: 71(1), pp.328-343.

²⁷ Klop E, Lindsell JA & Siaka A (2008) Biodiversity of Gola Forest. RSPB and CSSL, Sierra Leone.

²⁸ Conway AL, Hernandez SM, Carroll G, Green T & Larson LR (2015). Local awareness of and attitudes toward the pygmy hippopotamus (*Choeropsis liberiensis*) in the Moa River Island Complex, Sierra Leone. *Oryx* 49(3): 550-558.

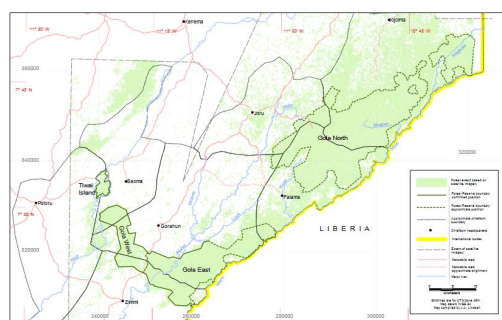


Figure 1.4 The Gola Forest reserves and Tiwai Island

Figure C.1.2 Map of Tiwai Island within the larger Gola-Tiwai landscape. Source?

There is a paucity of detailed information on the geomorphology of TIWS. However, as a component of the greater Gola landscape, it is described fairly abundantly in literature (see e.g., Klop & Lindsell 2008).²⁹ Underlying the Gola-Tiwai Complex expanse, are ancient crystalline rocks of the Precambrian period. The granite greenstone complex common in the area contains iron and magnesium-rich metamorphic rocks overlying a granitic basement rich in quartz (Wilson 1965)³⁰. The soils are mostly freely draining granitic sand and gravels with varying proportions of lateritic gravel (Iles et al. 1993)³¹ that are generally considered mineral deficient (Oates et al. 1990)³². TIWS is completely devoid of driver ants *Dorylus* sp. but heavily populated with termites *Zootermopsis* sp., which constantly clear organic matter from the soil surface (Molleman & Safia 2015)³³.

The bifurcating Moa River (**Figure C.1.3**) forms part of the scenically stunning features of the Island, which is connected to the greater Gola-Tiwai River drainage watershed complex. At its peak, it flows enormously around the TIWS, functionally splitting the terrestrial environs of the adjacent eight local communities from it. Thus, although the local villages are located fairly close to the TIWS, to access it during its high waters one must cross the river by boat, but at times the flow may be so powerful as to become impassable. During the dry season, however, the river-bed may become virtually bare so that one can relatively easily cross on foot at a few selected locations. Moa River, therefore, presents an important ecological interface functionally 'buffering' the 'core' of TIWS from village land and is formally recognized as such by the adjacent local communities³⁴.

²⁹ *Ibid.*

³⁰ Wilson NW (1965) Geology and mineral resources of part of the Gola Forest reserves, Sierra Leone. *Bulletin No. 4*, Geological Survey of Sierra Leone. Government of Sierra Leone

³¹ Iles M, Savill P & Koker G (1993) *Gola Forest reserves, Sierra Leone: interim management plan*. Unpublished manuscript, Forestry Division, Sierra Leone and RSPB, UK

³² *Ibid.*

³³ Molleman F & Safia S (2015) Predating on insects on Tiwai, Sierra Leone. *Entomologische Berichten* 75 (1): 15-21

³⁴ A formal agreement between Tiwai and the eight (8) surrounding local community villages has been reached for Moa River as a buffer zone for TIWS, meaning that the inner boundary of the buffer zone is the shoreline of the TIWS, regardless of water level, while the outer boundary is the bifurcating arms of the Moa River on opposite bank of TIWS.



Plate C.1.1 The Moa River divides the community land (left) from 'core' TIWS (right). Note the healthy riparian riverine forests which dominates both sides of the river.

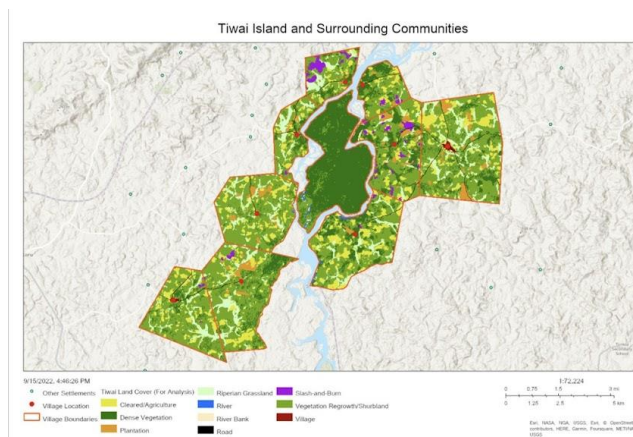


Figure C.1.3 TIWS sandwiched within the surrounding community land. Note that Moa River as it bifurcates the Island naturally buffering it from the local community lands

According to an existing formal agreement, mining is prohibited in the buffer zone, while subsistence fishing for local consumption is permissible. However, details on prescriptions on resource uses in the buffer zone awaits the preparation of a CMP. By its very nature, therefore, TIWS's integrity is strongly assured by its distinct, self-constrained configuration of low perimeter to surface ratio that is naturally isolated from immediate large-scale anthropogenic disturbances.

C.2 Vegetation

The historic vegetation cover on TIWS is a remnant of the Upper-Guinean Forest biodiversity hotspot (Beentje 1994),³⁵ which is considered a center for plant diversity and endemism (Bakarr et al. 2001)³⁶. The Upper Guinean Forest of West Africa is also one of the WWF's Global 200 Ecoregions (Olson & Dinerstein 1998)³⁷ and a BirdLife International designated Endemic Bird Area. Vegetation on TIWS is composed broadly of a homogeneous high canopy moist forest. However, finer vegetation elements also exist, which should be considered within the broader biodiversity management context. Over 700 plant species grow on TIWS of which 34 are globally threatened³⁸, pre-dominated by trees of the evergreen forest.



Plate C.2.1 TIWS is dominated by continuous high canopy evergreen forest

Characteristic tree species include *Heritiera utilis*, *Brachystegia leonensis*, *Calpocalyx aubrevillei* and *Sacoglottis gabonensis*. Along the edges of the island where it is more or less riparian forest, *Uapaca guinensis* and *Protomegabaria stapfiana* are common. Moist semi-deciduous forest also occurs in places dominated by species such as *Cynometra leonensis*, *Parinari excelsa*, *Parkia bicolor* and *Piptadeniastrum africanum*. There are also patches of freshwater swamp forests with *Raphia* palm and characteristic tree species such as *Uapaca* spp, *Nauclea diderrichii* and *Newtonia duparquetiana* present.

TIWS was characterized by a history of extensive farming during the 20th Century but this declined by 1928. By the 1980s, substantial forest regeneration had occurred in 30%

³⁵ Beentje HJ, Adams B & Davis SD (1994). Regional overview: Africa. Pp. 101-148 In: Davis SD, Heywood VH & Hamilton AC (eds.) *Centres of plant diversity: a guide and strategy for their conservation*, Vol. 1. IUCN, Cambridge

³⁶ Bakarr M, Bailey B, Byler D, Ham R, Olivieri S & Omland M Eds (2001) *From the Forest to the Sea: Biodiversity Connections from Guinea to Togo*. Conservation International, Washington, DC

³⁷ Olson DM & Dinerstein E (1998). The Global 200: a representation approach to conserving the Earth's most biologically valuable ecoregions. *Conservation Biology* 12: 502-515.

³⁸ Kumiko Y (Unpubl.) preliminary plant species inventory list compilation for TIWS and GRNP.

of the Islands area and 10% of its surface covered by *Raphia* swamps, while 60% was occupied by 15-25m high old-secondary forest (Oates et al. 1990)³⁹. Currently, this high canopy forest and the associated flora is all continuous but broken up in just a few areas. Recent assessment of forest cover on TIWS based on high resolution satellite imagery analysis,⁴⁰ indicate that apart from natural tree falls, forest cover has remained relatively stable for the years 2013 through 2020. This is in contrast to the surrounding community landscape which shows a dynamism of coppice regeneration.

C.3 Animals

TIWS is ecologically connected with the GRNP, to which it bears a strong taxonomic affinity of the biota. Unfortunately, decades of research there have concentrated on but a few species, taxa and ecological processes. There is thus a scarcity of published information on the general natural history of the area in the form of wider species lists. This is in contrast to the adjacent GRNP, where recent demands of biodiversity offsets, REDD+ and carbon credits have created a need for broad systematic species inventories.

However, the GTC landscape, of which TIWS is part, harbors some 158 mammal species of which 20 are globally threatened, and 452 bird species of which 11 are globally threatened. In addition, it is also habitat to 33 fish species Kumiko (Unpubl).⁴¹ The relative scarcity of species inventory data for TIWS precludes detailed assessments of its biodiversity significance over the longer term, thus presenting an apparent gap in knowledge that should be addressed in future. Nevertheless, TIWS harbors one of the densest primate populations on earth - comprising of 11 species. These include the western Chimpanzee *Pan troglodytes verus*, a critically endangered species, which by 2017, had suffered an 80% decline in population across its entire geographic range (Kühl et al. 2017)⁴². The IUCN red list status of these primate species is given in **Table C.3.1**.

Table C.3.1 IUCN Red list status for primate species inhabiting TIWS

Common Name	Species	IUCN Red List Status*
Western Chimpanzees	<i>Pan troglodytes verus</i>	CE
Diana Monkey	<i>Cercopithecus diana</i>	E
Red Colobus Monkey	<i>Procolobus badius</i>	V
Sooty Mangabey	<i>Cercocebus atys</i>	V
Black and White colobus Monkey	<i>Colobus polykomus</i>	NT
Campbell's Monkey	<i>Cercopithecus campbelli</i>	LC
Mona monkey	<i>Cercopithecus mona</i>	LC
Olive colobus Monkey	<i>Procolobus verus</i>	LC
Lesser Spot-nosed Monkey	<i>Cercopithecus petaurista</i>	LC

*CE=Critically Endangered, E=Endangered, V=Vulnerable, NT=Not Threatened, LC=Least Concern

³⁹ *Ibid*

⁴⁰ Environmental Resources (ERM) (Unpubl.)

⁴¹ *Ibid*.

⁴² Kühl HS, Sop T, Williamson EA, et al. (2017) The Critically Endangered western chimpanzee declines by 80%. *Am J Primatol*. <https://doi.org/10.1002/ajp.22681>

Unfortunately, there lacks firm density estimates for Chimpanzees specifically for TIWS. However, in an extensive review of 12 sites across West Africa, Ganas 1990⁴³ reported the density for GRNP (an ecological continuum of Tiwai) as 0.27 Individuals/Sq.km, which falls well within the West African regional range. The primate biomass at TIWS, has been estimated at between 1,229 and 1,529kg/km², one of the highest in the world (Oates et al. 1990)⁴⁴. A recent review by Binama (pers. Comm) found that this biomass is indeed still among the highest of known communities worldwide. Excluding chimpanzees, five (5) primate density studies have also been conducted on TIWS since the 1980s, including two before and three after the civil war, respectively, following a methodology of Whitesides et al. (1988). Based on these studies, Musa et al. (2020)⁴⁵ estimated the population trend of seven (7) primate species on TIWS for the years 1982-2018 (**Table C.3.2**). They reported a particularly sharp decline soon after the war, followed by a fairly rapid (decadal) recovery of the populations to baseline levels of the 1980's, at which point they were considered amongst the highest in the world Oates et al. (1990)⁴⁶

Table C.3.2 Group densities of seven primate species on TIWS from 1982-2018 (Musa et al. 2020)⁴⁷.

Species	Year				
	1982-84 ⁴⁸	1991 ⁴⁹	2004 ⁵⁰	2012 ⁵¹	2018 ⁵²
<i>Cercocebus atys</i>	1.1±0.23	1.55	0.27	1.3±0.18	0.99
<i>Cercopithecus campbelli</i>	2.8±0.33	3.25	0.06	2.0±0.33	1.03
<i>Cercopithecus diana</i>	2.4±0.23	1.60	0.58	4.4±0.36	1.38
<i>Cercopithecus petaurista</i>	4.0±0.57	1.75	0.30	3.1±0.23	2.19
<i>Colobus polykomos</i>	5.0±0.39	1.90	0.54	5.2±0.35	1.80
<i>Piliocolobus badius</i>	1.4±0.26	0.90	0.79	3.5±0.45	1.98
<i>Procolobus verus</i>	1.3±0.26	Nd ⁵³	Nd	1.1±0.11	0.18

TIWS also boasts of a wide taxonomic array of other wildlife species. These include the flagship endangered pygmy hippo *Choeropsis liberiensis*, which Conway et al. (2015)⁵⁴ found to be most concentrated around the TIWS following a comprehensive survey of the entire Sierra Leone. There are also 12 species of forest antelopes and bovines (McCollum

⁴³ Ganas (2009)

⁴⁴ Ibid.

⁴⁵ Musa J, Abu-Bakarr I, Wadsworth RA & Bakarr MI (2020) Changes in the abundance of diurnal primates in the Tiwai Island Wildlife Sanctuary, Sierra Leone. *African Journal of Ecology* (under review).

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Whitesides GH, Oates JF, Green SM, Kluberanz R (1988). Estimating primate densities from transect in West African rain forest. A comparison of techniques. *Journal of Animal Ecology* 57: 345-367.

⁴⁹ Fimbel C (1994) The relative use of abandoned farm clearings and old forest habitats by primates and forest antelopes at Tiwai, Sierra Leone. *West Africa Biological Conservation* 70: 277-286.

⁵⁰ Ibid.

⁵¹ Zepou IOF (2012) *Diurnal primate species abundance on Tiwai Island (Sierra Leone): A comparison of pre- and post-war data*. Unpublished MSc. Thesis. Durrell Institute of Conservation and Ecology, University of Kent, England.

⁵² Ibid.

⁵³ No groups seen

⁵⁴ Conway AL, Hernandez SM, Carroll JP, Green GT & Larson LR (2015) Local awareness of and attitudes toward the pygmy hippopotamus (*Choeropsis liberiensis*) in the Moa River Island Complex, Sierra Leone. *Oryx* 49 (3): 550-558

et al. 2018⁵⁵). Other flagship species include duikers and the red river hog (McCollum et al. 2017⁵⁶), spotted necked Otter *Lutra maculicollis* (Grubb et al. 1998⁵⁷) and the endangered white bellied pangolin *Phataginus tricuspis* (Davies 1987)⁵⁸. Bird diversity is also extremely high including scores of water birds, hornbills, Gola malimbe and Birds of prey (see e.g; Davies 1987)⁵⁹. TIWS is also equally rich in fish, reptile amphibian and invertebrate diversity.

C.4 Exceptional Resource Values (ERV)

ERVs are the biophysical features of a protected area that are considered especially important for maintaining its unique ecological character and functions, and which provide outstanding benefits (social, economic, and aesthetic) of local, national and international significance. A clear identification of TIWS's ERVs, therefore, provides a foundation for formulating its purpose statement, identifying management problems and opportunities, and generating effective management interventions in terms of clear strategies, objectives and targets. The ERVs for Tiwai are given in **Table C.4.1** below.



Plate C.4.1 TIWS is rich in primate species

Table C.4.1 ERVs of TIWS⁶⁰ by natural, scenic, social and cultural categories

Category	Exceptional Resource Value (ERV)
Natural	Primate population Floral diversity Self-regulating forest system functionally linked to Gola Rainforest National Park Rare, threatened and endangered species Migratory birds and their habitats Fish diversity
Scenic	Solitude and pristine Island environment

⁵⁵ McCollum KR, Belinfante E, Conway AL & Carroll JP (2018) Occupancy and habitat use by six species of forest ungulates on Tiwai Island, Sierra Leone. *Koedoe: African Protected Area Conservation and Science*, 60(1): 1-5.

⁵⁶ McCollum KR, Conway AL, Lee MB & Carroll JP (2017) Occupancy and demographics of red river hog *Potamochoerus porcus* on Tiwai Island, Sierra Leone. *African Journal of Ecology* 55(1): 47-55.

⁵⁷ Grubb P, Jones TS, Davies AG, Edberg E, Starin ED & Hill JE (1998) *The mammals of Ghana, Sierra Leone and the Gambia*. The Tendir Press, St. Ives.

⁵⁸ Davies AG (1987) *The Gola Forest Reserves, Sierra Leone conservation and forest management*. IUCN, Gland, Cambridge, UK. 1987. xx + 126 pp

⁵⁹ Davies AG 44 *Ibid*

⁶⁰ Identified during the co-management planning consultative process

	Moa river system functionally connecting with the greater Gola watershed system
Social	Direct economic benefits to local communities National economic revenues from tourism Catchment and fish source area for adjacent communities
Cultural	Traditional and cultural values and sites

C.5 Prioritization of Ecosystem components and Threats

TIWS management is envisaged to maintain all components and processes of a naturally evolving Island ecosystem. However, due to the inherent complexity of these natural systems and the limited resources available, it is not possible to monitor and manage each and every individual ecosystem component. In response, an ecosystem Conservation Action Planning (CAP) approach of The Nature Conservancy⁶¹ has been adopted to identify representative ecosystem components and prioritize strategic decisions regarding their conservation. This simple but proven approach is expected to ensure the optimal allocation of time and resources for implementing conservation strategies so as to protect and monitor the health and functions of the TIWS ecosystem over the longer term. The key features and outputs of this planning processes is described below.

C.6 Tiwai conservation Targets and Kea Ecological Attributes

In the context of this IMP, the Conservation Targets connotes the various spatial scales and levels of biological organization of the ecosystem values and functions - from ecological systems and processes to individual species. These are presented in **Table C.6.1** which in essence, are a subset of the ERVs presented in **Table C.4.1**. Together, they encapsulate the unique biodiversity of the TIWS ecosystem and the components that require special management actions. The underlying assumption behind establishing these conservation targets is that if they are truly representative, focusing efforts on their conservation will also ensure the conservation of all co-occurring ecosystem components and therefore the management of a healthy ecosystem. Stakeholder consultations during the planning process and available literature indicate that the conservation Targets of TIWS are so far in good condition and that to a larger extent, direct threats on them are minimal or non-existent. This means that on the whole, the state of conservation of Tiwai remains relatively intact as of now - which is good news. However, this seemingly positive conservation outlook is no reason for complacency on the part of TIWS management as its future remains uncertain - especially so, given the increasing anthropogenic pressures on its island restricted resources.

⁶¹ The Nature Conservancy (2007) *Conservation Action Planning Handbook: Developing Strategies, Taking Action and Measuring Success at any Scale*. The Nature Conservancy. Arlington, VA.

Table C.6.1 Conservation Targets of Tiwai

Target	Ecosystem level
1 Moa River	Ecosystem
2 Close canopy forest	Community
3 Riverine Forest	
4 Monkey population	
5 Chimpanzee	Species
6 Diana monkey	
7 Pygmy hippo	

The Key Ecological Attributes (KEA) are the factors that most clearly define or characterize the conservation targets. They include factors pertaining to conservation of the targets' biological composition, spatial distribution, biotic and abiotic interactions, and ecological connectivity. KEAs are sensitive to change and thus provide a good basis for monitoring of the overall health of their respective conservation targets. **Table C.6.2** gives the co-occurring subsidiary Targets and the KEAs alongside the seven conservation Targets.

Table C.6.2 Tiwai Key Ecological Attributes (KEAs)

Conservation Target	Subsidiary Target	Key Ecological Attribute (KEA)
1. Moa River	Fish population Fish composition	Water flow Water quality
2. Closed canopy forest	Invertebrate species	Cover
	Reptiles & amphibians	Structure
	Mammal species	Composition
	Flagship tree species	Tree falls
	Food plants for primates	Dead wood
3. Riverine forest	Invertebrate species	Cover
	Migratory birds	Composition, structure, cover, tree falls
	<i>Raffia</i> species	Structure Dead wood
4. Other monkeys		Suitable habitat Population size Population structure Genetic diversity
5. Chimpanzee		Population size Population structure
6. Diana monkey		Population size Population structure
7. Pygmy hippo	Edible water plants	Population size Population structure Suitable habitat (marshes)

C.7 Ecosystem Threats

For this IMP an ecosystem threat is defined as any direct or indirect factor resulting either directly or indirectly from human activities, that has the potential to destroy, degrade, or impair a Conservation Target in the next 10 years. The existing and potential myriad of conservation threats confronting TIWS stems from both its smaller size and the consequent mounting pressures of resources use by the burgeoning adjacent local community population. The removal of these threats or their effective control should allow for the sustainable maintenance of the ecosystem health of TIWS over the longer term (see **Section D**). **Table C.7.1** is a list of these threats together with a brief description of how they are likely to impact the TIWS conservation Targets. **Table C.7.2** gives an analysis of the magnitudes of such impacts.

Table C.7.1 Potential Impacts of identified Conservation Threats on the identified conservation Targets

Target	Threat	Impact Description
Moa River	Reduced water flow	Moa river is a major water supply source for the Island and a livelihood factor for adjacent communities. It is also a natural buffer zone for the Island. Although the water quality and flow dynamics data is not immediately available, the scarcity of water due to unsustainable land-use practices or climate change will severely affect the water regime of the ecosystem, the entire Gola-Tiwai landscape and the fishery which supports the local communities for food.
	Deterioration of water quality and aquatic biodiversity	Unsustainable upland use practices may lead to excessive soil erosion, siltation and influx of agricultural chemical effluents downstream into the Moa-river, severely affecting both aquatic (fish) life and terrestrial (birds) bio-dynamics within the Island and beyond. Use of poor fishing gears may also lead to overfishing or depletion of fish stocks thus disturbing the aquatic biodiversity dynamics of Moa River
	River bank erosion	Indiscriminate harvest of timber and forest products may expose the river banks to excessive erosion which may disturb the natural flow course of the river with disastrous environmental consequences
	Mining	Artisanal or commercial mining may involve use of heavy metals that may adversely interfere with the biodiversity values of the river.
	Poor waste disposal	Dredging negatively affects water quality to a far greater effect than agriculture. Environmental pollution of the Island including from tourism use may affect the feeding behaviour of especially the primate species as they freely access food waste. Waste water discharge into the Moa River may also disturb its aquatic ecology with far reaching consequences such as on the avifauna, and fish.

Target	Threat	Impact Description
	Climate change	Changed global climate patterns may adversely disturb the ecological and biodiversity dynamics on the Island, by making them prone to increased environmental vulnerabilities and risks such as excessive floods, forest fires and tree falls
Closed canopy forest	Deforestation	Deforestation of a sizable part of Tiwai has taken place in the past although forest regeneration has taken place after many years of fallow. Deforestation severely disturbs the structure, diversity and recruitment dynamics of the forest
	Wildfires	Wildfires are disastrous in forest ecosystems as they kill trees and the understory biodiversity
	Tree falls	At least two devastating storms have occurred in Tiwai over the previous 10 years, leading to far reaching forest structural damage and gaps., They have also substantially damaged the Island infrastructure. While tree falls are mostly natural events, their incidence may increase beyond sustainable levels as a result of climate change.
	Invasive species	There is potential for introduction of exotic invasives on the Island through dispersal of seeds from upland agricultural lands by Moa River. Also, accidental or deliberate animal releases on the island is a possibility
Riverine forest	Decline in <i>Raffia</i>	<i>Raffia</i> is one of the main non-timber products that is selectively harvested by the Communities for making handcrafts. Controlled harvests are needed to avoid their extinction
	Decline in hippo habitats	Pygmy hippos occupy rather specialized wetland habitats at Tiwai but also make use of habitats on the mainland where they invade and trample farms for search of pumpkin. and rice. There is potential, therefore, for human-wildlife conflicts.
	Decline in migratory birds	Migratory birds require specialized wetland conditions, which need to be safeguarded from destruction
	Wildfires ⁶²	Wildfire eruptions may instantly and irreversibly destroy larger proportions of biodiversity of especially the fragile forest ecosystem with disastrous consequences.
Monkeys	Poaching	Poaching reduces the population of monkeys and disturb recruitment patterns
Chimpanzee	Poaching	Poaching reduces the population of this critically endangered species and disturb recruitment patterns
	Diseases	At least two major eruptions of Ebola have erupted in the past 5 years plus a more recent COVID-19 pandemic. These diseases are a major public health concern with substantial negative effects on tourism visitations and revenue

⁶² See also explanations under *Moa River*

Target	Threat	Impact Description
		Primates are potentially susceptible to the especially zoonotic respiratory ailments affecting humans (such as pneumonia). The highly interactive researchers and tourists are a particularly vulnerable group
Diana monkey	Poaching	Poaching reduces the population of this endangered species and disturb its recruitment patterns
Pygmy hippo	Poaching	Poaching reduces the population of this endemic species and disturb its recruitment patterns
	Human-Wildlife Conflicts	Primates and other wildlife criss-crossing the Moa river-bed during low flows may raid crops in adjacent community land leading to retaliatory human-wildlife conflicts

Table C.7.2 Analysis of impacts of threats on specific targets at TIWS (for descriptions of severity and scope levels, see Table C.8). Overall Impact rating: (++++ Severe (+++ High (++) Medium (+) low

Conservation Target	Threat	Severity	Scope	Overall
Moa River	Reduced flow	+	+	+
	Deterioration of quality	+	+	+
	River bank erosion	+	+	+
	Mining	++++	++	++++
	Poor waste disposal	+	+	+
	Climate change	+	+	+
Closed canopy forest	Deforestation	++++	++++	++++
	Wildfire	+	+	+
	Invasive species	++	+	++
Riverine forest	Decline in <i>Raffia</i>	+	+	+
	Decline in Hippo habitats	+	+	+
	Decline in migratory birds	+	+	+
	Wildfire	++	++	++
Monkeys	Poaching	++++	+	++++
Chimpanzee	Poaching	++++	+	++++
	Diseases	++	+	++
Diana Monkey	Poaching	++++	+	+
Pygmy hippo	Poaching	++	++	++
	Human-Wildlife conflicts	+	+	+

It is obvious from **Table C.7.2** that some threats appear to affect more than one conservation Target. To simplify the visualization of this complexity of threat-target relationships, a threat analysis matrix has been developed (**Table C.7.3**), which indicates that poaching, deforestation and mining are by far the most potentially intense and pervasive cross-cutting threats likely to affect all the seven Conservation targets of Tiwai, the remainder being specific to particular targets at lower levels of severity and extent.

Table C.7.3 Threat Analysis Matrix for Tiwai

Targets Threats	Moa river	Canopy Forest	Riverine Forest	Monkeys	Chimpanzee	Diana Monkey	Pygmy Hippo
Water scarcity							
Water Pollution							
River bank erosion							
Mining							
Poor waste disposal							
Deforestation							
Fire							
Tree falls							
Alien species invasion							
Habitat decline							
Poaching							
Diseases							
Human-wildlife conflicts							
Land-use malpractices							
Climate change							

KEY

Threat level on Conservation Target	Severe	High	Medium	Low
Severity (damage)	Destroy or eliminate	Seriously degrade	Moderately degrade	Slightly impair
Scope (extent)	Pervasive	Widespread	Localized	Very localized

C.8 TIWS Purpose Statement

The Purpose Statement summarizes the importance of the protected area based on the Exceptional Resources it contains (see **Table C.4.1**), historical considerations and prevailing national and local policies. In this context, TIWS purpose statement explicitly recognizes the important role of Tiwai Island in the lives and livelihoods of neighboring communities, in addition to its national and international role, while reflecting the need to safeguard its social-ecological and cultural Exceptional Resource Values (see **Table C.4.1**).

Supplemental and complementary purposes of the TIWS are:

- ▶ To safeguard TIWS's ecosystem as an area of local, national, regional and international importance
- ▶ To optimize its long-term economic benefits to the nation through sustainable, low impact utilization that maintains the ecosystem's aesthetic beauty
- ▶ To promote and maintain an effective and mutually beneficial co-management partnership with neighboring local communities
- ▶ To promote all areas of historical and cultural importance and
- ▶ To maintain and promote its scientific research and educational functions

TIWS Purpose Statement

To sustainably preserve TIWS with its threatened and endemic primate assemblages, pristine forests and riverine systems as a global treasure within its wider ecological landscape, while sustaining the social-economic needs of the local communities and supporting the national economy.

The fulfilment of TIWS's purpose and the maintenance of its ERVs will be addressed in this IMP through the implementation of Management Strategic interventions focusing on the following four (4) areas as detailed in **Section D**.

- ▶ Ecosystem Management
- ▶ Tourism Management
- ▶ Community Outreach
- ▶ Operations Management

C.9 Zoning scheme

The TIWS Zoning scheme will be a necessary component that will need to be incorporated in the envisaged comprehensive management planning process. It will serve to provide a framework for achieving and reconciling the twin management needs of protecting the natural qualities and environment of TIWS and regulating and promoting visitor and other uses. Currently, there is an informal scheme comprising of three (3) zones: eco-tourism, research and wilderness. These will have to be reviewed during the preparation of the CMP in line with this IMP. The established zones will identify areas where similar types and levels of use and management emphases are applied, based on TIWS's purpose, its ERVs, and appropriate uses and management strategies described in detail in **Section D** below. For ease of reference, as much as possible, zone boundaries will be aligned to follow the existing physical landforms such as river or stream banks, forest lines, hills or forest trails.

D. STRATEGIC MANAGEMENT OPTIONS

STRATEGY D.1 ECOSYSTEM MANAGEMENT STRATEGY

TIWS is envisioned as a stakeholder-supported, naturally thriving and ecologically self-sustaining natural ecosystem that is integrated within the greater Gola-Tiwai landscape, able to support the local livelihoods and generate national socio-economic and cultural benefits. To realize this long-term ambition, which is reflected in its collective vision of TIWS stakeholders and partners, a set of four (4) strategic intervention areas have been formulated focusing on enhancing the management of: Ecosystem, Tourism, Community Outreach and Operations, respectively. These strategic options together with their respective Objectives and Targets ⁶³ are described below while the formulation of detailed operational phases of interventions (actions and activities) awaits a CMP.

The prioritized Conservation Targets of TIWS provide the foundation for both designing specific management interventions by either enhancing them or reducing their respective confronting threats. Such an approach also allows for setting out a clear monitoring framework for testing whether or not the deployed conservation efforts are indeed paying off. To strengthen ecosystem management at TIWS, therefore, two complementary objectives will be implemented (**Figure D.1.1**):

Ecosystem Management Strategy Purpose

TIWS's key ecological systems, communities and species monitored, assessed and appropriate management responses taken to mitigate human-mediated impacts and to ensure that its resource values are not impaired

Objective D.1.1 focuses on addressing the threats confronting the prioritized conservation Targets or, conversely, enhancing the respective Targets themselves.

In order to attain this 'dual' ecosystem management objective, a series of Management targets have been formulated (to address a grouping of prioritized threats), to be supported by respective detailed actions (that will be formulated later on). At the operational level, a three-year Action Plan will have to be prepared in future with a list of the necessary activities, input requirements, responsibilities and timeframe. Objective

D.1.2 involves monitoring of threats to the ecosystem health of Tiwai⁶⁴, based on the specific Key Ecological Attributes (KEA) of the identified conservation Targets⁶⁵.

TIWS vision statement

TIWS is a globally recognized self-sustaining natural conservation entity, supporting viable biodiversity and providing a combination of ecosystem services at the landscape level for the benefit of local human populations, the nation and the international community as a whole

⁶³ Exact wording for these Target statements may be modified during the preparation of a CMP

⁶⁴ See Table C.6 for details

⁶⁵ See Table C 49 *Ibis*

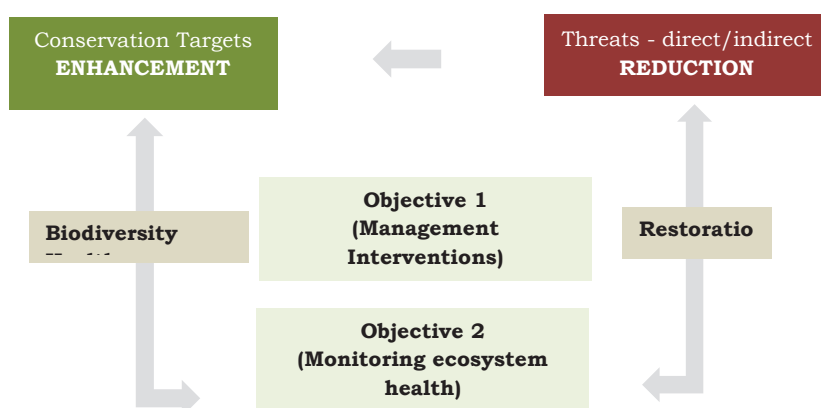


Figure D.1.1 Logical Framework for Implementing the Ecosystem Management Strategy

Objective D 1.1: The conservation status of Tiwai enhanced and threats reduced

It is desirable that the threats to the functioning of TIWS ecosystem are eliminated and that all conservation components and processes are enhanced or restored to their naturally evolving levels. The assumption here is that the removal of these threats will ensure maintenance of the conservation targets. In certain circumstances, however, it may be necessary to deploy ecosystem restoration strategies for those components impinged heavily by past or ongoing anthropogenic activities. It should be noted that the effective implementation of this objective relies heavily on direct field interventions, hence on the results of monitoring of targets outlined in objective **D.1.2** below. This means that although monitoring will be continuous, setting targets and carrying out interventions will in part be real-time. For instance, if it is determined through monitoring that the infestation level of invasive species has reached alarming proportions, it should be necessary to undertake direct and timely field interventions to control or eliminate them. Specific types of interventions will have to be planned and implemented, including for instance, capacity building, stakeholder engagement or formulation, review and/or application of proper policies or their preparation. In some cases, (such as fire or waste management) mini-technical plans will have to be formulated and implemented as part of this IMP (see **Item G Figure B.2.1**). The specific Targets under this Objectives are listed below:



Plate D.1.1.1 Black duiker (a) and Pygmy hippo (b) shot by camera traps at TIWS forest in mid-2022

- ▶ Current levels of deforestation of high canopy forest kept at zero by 2025
- ▶ Current levels of illegal harvests of riverine forest products minimized
- ▶ Mining incidences in Moa River maintained at the current zero level by 2025
- ▶ Densities of monkey species are kept at the 2018⁶⁶ or higher levels by 2025
- ▶ Rate of poaching reduced to zero by 2025
- ▶ Pygmy hippo population maintained at current level by 2025
- ▶ Water flow, quality and aquatic biodiversity of Moa River maintained at current levels by 2025
- ▶ Bank erosion of Moa River maintained at natural levels by 2025
- ▶ Incidences of wildfires on Tiwai kept to zero by 2025
- ▶ All incidences of zoonotic disease eruptions epidemics affecting primates contained by 2024
- ▶ Infestation by invasive species on TIWS controlled or eliminated by 2025
- ▶ Incidence response system implemented for 100% of disaster incidences by 2025
- ▶ 100% of solid waste and wastewater disposed of responsibly by 2025

Objective D.1.2: Management-oriented monitoring and research of key ecosystem values and processes strengthened

This objective seeks to gain long-term knowledge on the state of TIWS's ecosystem functioning, so as to properly inform management decisions (see **Objective D.1.1** above). This objective also builds on, and helps perpetuate TIWS's long-established reputation as a globally renowned research hub for tropical rainforest ecology and animal behavior.⁶⁷ While research on specific topics of interest to individual scientists and institutions will continue to be encouraged, particular focus will be placed on developing a standardized framework for monitoring the ecosystem health of TIWS - as a basis for development of a comprehensive ecological monitoring plan (i.e., Detailed Technical Plan - see **D.7**). As much as possible, such a monitoring framework will also address threats at a wider Gola-Tiwai landscape complex, in which TIWS is part.

The TIWS ecological monitoring plan will monitor both its ecosystem health as well as its respective threats confronting the conservation Targets. Subject to the availability of the necessary funding, baseline data will need to be first established, and SMART⁶⁸ indicators incorporated together with details on data collection methodologies i.e., how, when, where, and who will collect the data. Baseline data will not only serve for future comparisons but where appropriate, will also help set the Limits of Acceptable Change (LAC)⁶⁹ i.e., 'standards' that express levels of use that can be tolerated - with a key consideration in that conservation targets are dynamic in nature. Once the baseline and specific indicators are established, it should be possible to periodically analyze and integrate monitoring information into Tiwai's management decision-making process for

⁶⁶ See Table C.3

⁶⁷ International Research at TIWS commenced since the 1980s - see Table A.1.1

⁶⁸ SMART = Specific, Measurable, Attainable, Time-bound

⁶⁹ For details, see e.g., Thomas L & Middleton J (2003) Guidelines on Management Planning of protected areas: Best Practice Protected Area Guidelines Series No.10. IUCN. Gland Switzerland and Cambridge.UK.

enhanced ecosystem management. Within this context, and with regard to the preset conservation Targets and KEAs (see **Table C.6.2**), a monitoring framework will be formulated during the preparation of a CMP with details on baseline conditions as well as on indicators of change, methods of measurement, collection frequency, data sources and responsibilities.

STRATEGY D.2 TOURISM MANAGEMENT

Tourism Management Strategy Purpose

TIWS's tourism developed and managed in order to provide outstanding experience for both local and international visitors, attract optimal economic benefits to the nation, private partners and local communities while having minimal impacts on its resource values

Ideally, conservation in TIWS is expected to pay for itself through internal earnings, the main self-generating revenue stream. However, up until the end of the Sierra Leone Civil War (in 1991-2001) 'core funding' to support conservation and research activities was being externally sourced, mainly from two American Universities⁷⁰ but this has since ceased. Meanwhile, visitations by both tourists and foreign researchers and the corresponding revenues have remarkably declined. Regrettably, this undesirable financial hiccup has been exacerbated by other factors beyond administrative control: A protracted (1991-2001) civil war, the recurring ebola outbreaks (1990-1992 and 2001-2001) and most recently, the eruption of COVID-19 health pandemic. Average

visitations over the past five years (from 2018 to 2022) amounts to only 400-600, projected to reach 2000 according to CoMP 2020-2030. Tourists typically stay one or two nights on average, equivalent to some 1,000 visitor-nights per year. About 80% of visitors are foreigners who pay \$30 per person per night while the balance is made by the local visitor category, who pay a token \$10 per person per night.

Cumulative annual gross income from generated park fees from 2018-2021 totaled US\$ 14,395 of which US\$ 3,872 was distributed to local communities under the benefit sharing arrangement. Core spending, totaling US\$ 17,728 – including grant funding raised from other sources has been on environmental education, sustainable agriculture projects and infrastructure improvements in eight (8) surrounding villages. In any case this revenue base

contrasts sharply with the nature and scale of funding needed to support its daily (co-management) operations. Considerable expenditure is necessary to, for example, to ensure security for visitors, and installation,



**Plate D.2.1 Group of Tourists at
TIWS**

⁷⁰ See **Table A.1.1**

rehabilitation and maintenance of services, facilities or infrastructure as well as for supporting socio-economic needs of local communities.

It can be reasoned that the historical low funding profile has and will continue to reasonably sustain the management of Tiwai in the foreseeable future until a CMP is prepared. However, in view of addressing its full-fledged list of management targets as proposed in this IMP, more funding will be necessary. At present, visitor numbers are slowly growing, in parallel with increasing awareness on the Island's tourism significance and recovery of movement -post Ebola and CoVID, respectively. Importantly, however, is that almost all stakeholders consulted during the management planning process acknowledged the need to optimize and sustain the balance between ecotourism and conservation. This is critical in order not to irreversibly degrade the ecological condition of the island on which the very tourism depends. As such, the implementation of this Tourism Strategy will embrace the precautionary principle⁷¹ to conservation.

This Strategy seeks to develop and manage Tourism sustainably at TIWS in order to provide an outstanding experience for various visitor segments while generating the much-needed revenue optimally. In particular, it seeks to enhance, diversify and optimize well-spread visitation so as to continue maintaining the wilderness character of the Sanctuary and its tourism opportunities. This way, the economic returns of tourism will also be optimized for the nation and for a multiplicity of other beneficiaries including the local communities while maintaining the environmental tranquility of the Island. As such, this Strategy has also been formulated in close adherence to the relevant national tourism policies and guidelines as outlined in **Section A.3**.

All tourism facilities and activities will have to be compatible with TIWS's conservation objectives and be regularly monitored to ensure environmental sustainability. In this respect, only those types of tourism activities that contribute to the understanding and appreciation of the Sanctuary resources while minimizing impacts on it will be permitted. To ensure this, a set of principles have been considered including: diversification of visitor experiences, appropriate location of visitor facilities (based on the concept of Management Zoning Plan - MZP⁷²), learning experiences for visitors, and partnership and cooperation with stakeholders. To realize this strategy, the following three objectives have been formulated:

Objective D.2.1 Visitor access and use developed and enhanced in environmentally appropriate and sustainable ways⁷³

It is intended to have TIWS visitors to as much as possible enjoy the full spectrum of its attractions including wildlife and its beautiful variety of habitats in their secluded and

⁷¹ The Precautionary Principle states that where there are threats of a serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent the degradation – see IUCN (2008) 16 p.19 *Ibid*.

⁷² Management Zoning Plan refers to the application of a variety of different management objectives or practices in an organized manner in the same area. It provides a practical means of establishing the concept of LAC. Details at IUCN (2008) p.22 16 *Ibid*.

⁷³ Environmental sustainability will have to be ensured through formulation of Sanctuary-wide regulations such as Tourism use, impact regulations and Code of conduct for visitors. These will be formulated during the CMP.

full wilderness environs. To achieve this, two complementary targets areas have been formulated:

- ▶ Tourism-related disturbance incidences on wildlife populations maintained at the current lower levels by 2025
- ▶ 100% of attractions accessed by tourists in environmentally responsible ways by 2025.

Objective D.2.2 Visitor facilities improved in order to provide optimal tourism experience with minimal environmental impact

Development of visitor facilities is set to meet expectations of the different segments of visitors on TIWS, in terms of both space and quality. Facilities are thus expected to as much as possible be developed in accordance with zonal prescriptions⁷⁴, so as not to compromise the ecological or visual integrity of Tiwai. The two management targets to achieve this objective are:

- ▶ 100% of newly constructed visitor facilities comply with preset tourism quality standards and environmental safeguards by 2023
- ▶ 100% of operating tourism concession holders and guides comply with environmental safeguards standards

Objective D.2.3 Interpretation of Tiwai is of high quality

It is intended to manage visitors so that they easily access relevant and high-quality information so as to as much as possible enhance their understanding and appreciation of the Tiwai's resources. In this way, they will be clearly and appropriately guided on the appropriate behaviors expected of them as they enjoy the various attractions on the Island. The aim is to nurture their interest in supporting Tiwai as a sustainably conserved world-class tourism destination. To achieve this objective two management targets have been formulated:

- ▶ All newly constructed visitor interpretation facilities are built as per pre-set quality standards and located as per MZP by 2025
- ▶ All of visitor interpretative material are safe, informative and relevant to the visitors by 2025

Objective D.2.4: Tourism management improved collaboratively with tourism industry partners

The future state of TIWS is one where tourism is effectively managed, in close collaboration with the tourism industry as a whole, to provide outstanding visitor experience. To support and inform management actions, administrative systems should

⁷⁴ As per the MZP - to be developed during the preparation of the CMP

effectively coordinate bookings, collect revenue, and monitor environmental impacts of tourism use. This desired future state will be achieved through the following two management targets:

- ▶ TIWS integrated tourism management system fully computerized and functional by 2025.
- ▶ Communication mechanisms for collaboration with all key local and international tourism industry partners exist and fully functional by 2025.

STRATEGY D.3 COMMUNITY OUTREACH

TIWS is surrounded by eight local communities from the two Chiefdoms of Barri and Koya in the Pujehun and Kenema administrative Districts, respectively. These communities all speak *Mende* as their common language, and share the same culture and traditions. Currently, the village-specific and combined population of these communities is quite small, such that they are culturally cohesive, so that everybody seems to know everyone else living within their village premises. About 80% of their population comprises of the youth (< 25 years of age), implying an active-working evolving populace.

Community Outreach Strategy Purpose

The support and collaboration of the adjacent local communities in managing and safeguarding the values and integrity of TIWS is sought and consolidated



Plate D.3.1 Cocoa is a prime cash crop grown by local communities around TIWS

These communities are almost entirely agrarian, depending mostly on bush-fallow subsistence cultivation for their livelihood. During the stakeholder consultative process, it became apparent that all the representatives of the local communities were fully aware of the operations of TIAC and appreciative of its conservation work and that they were especially keen to continue co-managing it (see **Section A.2**). Despite lack of some clarity on its legal and administrative as well as governance details at the time by especially the youth section, they cherished TIWS's international reputation for wildlife conservation.

The stakeholder consultative process identified several outreach areas for strengthening TIWS's management in terms of enhancing an inclusive local stakeholder participation and collaboration. These include improving social services (especially education) and amenities, and provision of various types of capacity building, especially those related to socio-economic empowerment, taking advantage of the ecological and tourism potentials of TIWS. Sustainable harvesting of non-timber forest products and the use of traditional knowledge and skills to foster tourism on the Island are case examples. This strategy, therefore, seeks to enhance and

maintain the collaborative fabric of TIWS and the adjacent local communities in sustainably safeguarding the diversity and integrity of its values. This means adopting a people centered approach to conservation, by consolidating the already existing historical co-management approach for TIWS⁷⁵. Hinging on the relevant national policies and guidelines (see **A.3**), this strategy also incorporates a set of principles to guide its implementation: Co-management of TIWS, Good relations with local communities, Sustainable benefit sharing mechanisms, Conservation and environmental education, and community-based natural resources conservation. Its implementation will be based on the following two objectives:

Objective D.3.1 Neighboring community and local governments support for conservation strengthened

The desired future state of TIWS is one in which the neighboring communities and local governments are fully aware and supportive of the aims and objectives of Sanctuary. The following are the targets for achieving this desired state:

- ▶ All local community stakeholders adjacent TIWS are fully collaborating in its co-management as per existing guidelines by 2024
- ▶ Effective communication mechanisms exist for all prioritized TIWS conservation partners by 2025
- ▶ Conservation costs by local communities related to human-wildlife conflicts reduced by 25% by 2025
- ▶ Community benefits accrued from TIWS revenue increased by 10% from current levels by 2025
- ▶ Conservation education programs established and accessible to all of targeted local community groups

Objective D.3.2 Threats to Tiwai resource values reduced through improved community-based natural resource management in buffer areas and beyond

The desired future of TIWS is where its surrounding community areas are sustainably managed in a manner that supports maintenance of its biodiversity. The management targets to achieve this desired state are:

- ▶ Land use practices are fully compatible with sustainable conservation practices of TIWS in 40% of adjacent local community lands by 2025.
- ▶ All of land use practices in the Moa River buffer zone are fully compatible with the sustainable conservation of TIWS by 2025
- ▶ Relevant Traditional Knowledge and Skills (TKS) of the local communities are fully integrated into the co-management practices of TIWS by 2025

⁷⁵ See **section A.3** for details

STRATEGY D.4 OPERATIONS MANAGEMENT

The strategic interventions related to strengthening TIWS's operations concerns the

Operations Management Strategy Purpose

Efficiency and effectiveness of TIWS operations enhanced such that it becomes a role model nationally and internationally

enhancement of all day to-day running of the Island, including resources protection, finance and human resources administration and works (infrastructure and facilities). Here, the efficiency and effectiveness of administration and management of TIWS must be strengthened so that it becomes a role model in this regard, nationally and internationally. Tiwai Island is world-famous for its attractive natural resources, but it has also historically sustained some illegal

harvesting of its resources - especially through hunting and artisanal diamond mining practices, though these have almost ceased. Between 2017-2022, for instance, only two illegal hunter culprits were apprehended, down from five between 2011-2016 but it is not clear whether or not this is due to increased surveillance or deterrent anti-poaching efforts or that illegal activities have actually declined or a combination thereof. However, signs of illegal activities such as hunted carcasses, poacher camps, gunshots and gun shells within the property are almost non-existent today. Lucrative as it may look, such a conservation outlook is by no means reason enough for laxity. As per the 'precautionary principle', proper resource protection measures should continue to be taken and enhanced.

This strategy, therefore, seeks to strengthen the daily operations of the Island, in line with the expected scale and quality of both administrative, tourism and other requirements needed to safeguard its core values and enhance visitor experiences. For instance, it is imperative to improve the working environment for TIWS's staff to enable them deliver with morale and at the highest standards possible, despite the tough and at times risky remote working conditions. This is important so as to guarantee an on-job staff retention and maintain a culture of hard working,



Plate D.4.1 Research Centre Facility at TIWS

Over the years, there have been considerable investment in instalment and maintenance of TIWS's infrastructure and facilities, with forest trail maintenance being of particular priority. However, facility placing has generally been *ad hoc*, with no reference to any designated spatial planning system. Besides, these facilities and infrastructure have also been frequently devastated by the forces of nature - including tree falls and powerful hurricanes leading to significant financial losses. TIWS will thus endeavor to maintain

the existing infrastructure in good order and appropriately locate new ones, guided by the Management Zone process. Infrastructure to enhance security, anti-poaching patrols, tourism and management operations will also be diversified and strengthened. Furthermore, provision of water and electricity as well as telephone communications and internet services for visitors and staff will be prioritized. Due precaution will be observed, however, to ensure any existing and potential environmental impacts related to these developments are properly managed.

The Operations management strategy, therefore, strives to enhance the efficiency and effectiveness of TIWS's operations. In particular, it seeks to align the its infrastructure, services and management operations with its purpose, with due consideration to the relevant national policies and regulations related to this area (**see A.3**). Several principles have also been considered in this regard, including: Protection of resource use, visitor safety, staff motivation, maximization of Tiwai revenues and supplies, improved infrastructure and services, and working with partners. To facilitate implementation of this strategy, four objectives have been formulated:

Objective D.4.1 Natural resources values and human life and property are effectively and efficiently protected

This objective intends to protect TIWS's natural resources as well as sustain an improved safety of its visitors, personnel and their properties. This would definitely require a well-trained, coordinated and dedicated ranger force and other staff. Three management targets have been formulated to facilitate the implementation of this objective:

- ▶ Poaching incidences in all its forms are reduced by 90% from current levels by 2025
- ▶ 100% of safety threatening incidents for people and their properties are appropriately and effectively prevented or managed
- ▶ Collaborative networks established and fully functioning for 100% by prioritized key security partners by 2025

Objective D.4.2 Efficiency of TIWS's administrative operations strengthened

This objective relates to strengthening of the human resources component of TIWS's management. The expectation is to have an optimal and well trained and motivated personnel, who are performing their functions to high level standards and have the necessary finances, facilities and management systems in place to achieve this. Four management targets have been formulated:

- ▶ All staff are well motivated to perform their duties by 2025.
- ▶ All staff perform their duties professionally and with high degree of performance by 2025
- ▶ Staff recruitment level reaches 90% of the optimal requirements by 2025
- ▶ TIWS internally generates 80% of its budgetary requirements by 2025

Objective D.4.3 TIWS infrastructure and service standards improved

It is desirable to have appropriate and well-maintained infrastructure that will enable provision of standard services at TIWS. This way, tourism experience will be enhanced with a consequent optimization of both visitor numbers and revenue, without necessarily compromising the conservation status of the Island. To achieve this objective, the following targets have been formulated.

- ▶ Forest trail network is passable with ease 90% of the time by 2025
- ▶ All visitors and staff are served with reliable, adequate and quality water and electricity 90% of the time by 2025
- ▶ Internet connectivity of adequate strength is available on Tiwai 90% of the time by 2025

Objective D.4.4 Local, National and International collaboration in the long-term conservation of TIWS and of the wider ecosystem strengthened

Although TIWS is an isolated island, its operations will not remain secluded forever - especially so given the ever-burgeoning local community populace that continue to squeeze its boundary. Both neighbors in close proximity to TIWS and those beyond are somehow interested in its future. The Sanctuary will, therefore, seek to cooperate and collaborate with interested partners in order to understand their perspectives, expand its sphere of influence and ensure its survival. Its desired future, therefore, banks on ensuring that the full spectrum of its key stakeholders within the broader ecosystem is coordinated to strengthen its conservation and its broader landscape over the longer term, upon which it functions. One target has been formulated to support this objective:

- ▶ Collaborative mechanisms established and fully working for all prioritized ecosystem-wide and other conservation partners by 2025

E: MITIGATION OF ENVIRONMENTAL IMPACTS OF MANAGEMENT STRATEGIC INTERVENTIONS

In certain instances, the implementation of the four TIWS strategic management options described in sections **D.1-D.4** may likely generate environmental impacts of various nature and scales. The strategy-specific anticipated environmental impacts together with considerations on the appropriate mitigation measures will be fully addressed during the preparation of the CMP.

Appendix I: Phase I consultations with eight host communities⁷⁶

DEVELOPMENT OF A MANAGEMENT PLAN FOR TIWAI ISLAND:

Professor A.B. Karim*, Dr A. Okoni-Williams & Jimmy Squire
Department of Biological Sciences, Fourah Bay College, University Sierra Leone
*** Corresponding author**

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BACKGROUND

Tiwai Island is a large⁷⁷ (12 sq km) island in the Moa River. The river forms the boundary between the Eastern and Southern Provinces, Kenema and Pujehun Districts. There is no permanent settlement on the Island and ownership has been shared between two Chiefdoms; Barri (in Pujehun District) and Koya (in Kenema District) for many years. This sharing of control between Chiefdoms is believed to be unique in Sierra Leone. Eight communities (5 in Barri and 3 in Koya) are considered to be the “host” communities, the more southerly communities have access to the islands downstream of Tiwai that are also uninhabited but economically exploited.

The rich biodiversity of Tiwai Island was identified almost 40 years ago and the host communities have been encouraged and supported in preserving this by a variety of organisations and in a variety of ways. A very brief time-line is provided below:

Date	Activity
Mid -1970	The biodiversity value of Tiwai is identified by researchers based at Njala University. A very dense and diverse primate fauna was observed ⁷⁸ ; other West African endemics such as the pygmy hippo were also proved to be present.
Late - 1970s	Discussions start with the two Paramount Chiefs, especially V.K. Magona the VI th of Barri about reducing hunting and other exploitation on the Island
1987	Tiwai Island is given legal protection as a “Game Sanctuary”
Late- 1980s	The “golden age” of Tiwai Reserve, two American Universities, Hunter College and the University of Miami provide significant support to researchers on the Island (resulting in several ground-breaking papers led by Oates, Whitesides, Fimbel etc). A Research Centre is established by Njala University and a Tourist Camp established with American funds (although the number of tourists unknown).
1989	A draft management plan is written by a Peace Corp volunteer using the American style of zoning. The management plan envisages limited economic exploitation (farming, logging etc) under the control of a

⁷⁶ Adopted from Tiwai Co-Management Plan 2020-2030.

⁷⁷ Tiwai means “large” in the local Mende language.

⁷⁸ The diurnal primates are: Diana monkey (*Cercopithecus diana*), Black-and-white colobus (*Colobus polykomos*), Red colobus (*Procolobus badius*), Chimpanzee (*Pan troglodytes verus*), Olive colobus (*Procolobus verus*), Sooty mangabey (*Cercocebus atys*), Campbell’s monkey (*Cercopithecus campbelli*) and Spot-nosed monkey (*Cercopithecus petaurista buettikoferi*).

	“Supervisor”. The extent to which the full plan (~100 pages) was discussed with the communities is unclear, the plan was never formally adopted and fortunately farming and logging did not restart.
1980’s	Documentary “Island of Apes” produced for Anglia TV (UK)
1991-2001	Sierra Leone Civil War. Researchers and Peace Corp volunteers were evacuated very early on in the war as Tiwai is close to where the insurgency started. Very high levels of poaching occurred during this period. Minimal financial support was provided from outside the area through the Department of Forestry.
2000	First visit to Tiwai by staff from the Environmental Foundation for Africa (EFA).
2002	Re-establishment of TIAC (Tiwai Island Administrative Council) with input from line Ministries (Forestry, Tourism), Local Government (MP’s, District Councillors), Traditional Authorities (Paramount Chiefs), Academics (Njala University) and NGO’s (EFA).
2004	Work by Bakarr suggests primates such as Campbell’s monkey are now at 10% of their pre-war numbers.
2002-2006	Funds obtained from Critical Ecosystem Partnership Fund (CEPF), UNHCR and Irish Aid are used by EFA, partnering with Njala University, to reconstruct and restore the biological research and ecotourism facilities on the Island, provision of a boat etc. Pre-war funding bodies (i.e. Hunter College and Miami University) appear unable or unwilling to re-establish ties with Sierra Leone.
2006	Official re-launch of Tiwai as an ecotourism destination and site for research
2002-date	Numerous development initiatives are developed and implemented with varying degrees of success and not all are “branded” as being due to TIAC. Examples include; two of the culvert bridges on the road from Potoru – Kambama (funded by GTZ), the school at Kambama (funded from visitor income), Solar power for lighting and charging in all Tiwai Communities and the schools and clinics in their chieftdom headquarters Potoru and Boama (funded by EU). Agricultural development (e.g. Food Security and Economic Development – FoSED – funded by European Union, implemented by EFA and WHH). Eco-tourism development, employment of locals in guiding and supporting tourism, boatmen, construction and maintenance of facilities, cooking for visitors and assisting researchers, etc.
2013-2014	The need for a new management structure is identified; work is undertaken by Environmental Resources Management Foundation, UK on a “pro-bono” basis and an eco-tourism management plan is drafted by an EFA intern. Extensive discussions are undertaken internally and externally, but a number of serious issues remain unresolved.
2014-2015	Ebola crisis. Zero income from visitors. EFA and partners mobilise some resources for the communities (rice and cash).
~2015	By this time attendance and input from most members of TIAC has dwindled, to the extent that EFA and the two paramount Chiefs are the only active members.
2015-2016	Major storm on Tiwai Island causes extensive damage to building and various equipment including solar lighting at the visitor / ecotourism

	camp. EFA mobilises funds and works with local community to rebuild the structure and restore the services
2017	Major storm causes extensive damage to buildings at Field Research Station. A CDC grant enable Njala University to repair, refurbish and upgrade the facilities at the field research station.
2018-2019	Funds are obtained from USAID, through WABICC, RSPB and Gola National Park to commission consultants to prepare a new management plan Consultants appointed.

DESIGN OF THE CONSULTATIONS

The “call for expressions of interest” envisages a two-stage process of consultation:

- Consultation with the primary stakeholders, that is, the people in the eight host communities
- Consultation with the secondary stakeholders, some of whom have demonstrated a long-term commitment of resources to the Island, others are merely stakeholders “by assertion”.

This report highlights the process and findings from the first phase of community consultations and will feed into the development of a management plan for Tiwai Island.

HOST COMMUNITY CONSULTATIONS

Consultations were undertaken in August - September 2019. As this is the height of the rainy season, access to some communities was difficult but all communities were visited. Interviews and discussions were primarily undertaken in Mende (the local vernacular) and to a lesser extent in Krio (the *linga franca*). A small device was used to record all the conversations (with the consent of the respondents), however, these recordings have not been transcribed or translated and only small fragmentary quotes are available.

Consultations consisted of:

- Key informant interviews (40 people, five from each of the eight communities),
- Focus Group Discussions.

“Key informants” were defined as;

- The Town chief / section chief
- Women’s Leader/Chairlady
- Youth Leader
- An Elder
- Imam

Note that this definition of a “key informant” does not include the requirement to be knowledgeable about Tiwai or its recent history or to have benefited directly (eg being a guide) or indirectly (eg being given improved seeds through FOSED), or to have been specifically disobliged by any of the external actors over the last ~40 years.

The FGD were well attended and the numbers supplied below.

COMMUNITY	MALE	FEMALE	TOTAL
GEIMA	32	37	69
KAMBAMA	33	08	41
JENE	27	36	63
SARHUN	59	39	98
NIAHUN	52	53	105
MAPOMA	39	39	78
BOMA	24	31	55
SEGBEMA	05	01	06
TOTAL	271	244	515

At the start of the meeting, the consultant explained the purpose of the meeting which was geared towards the development of a management plan for the Tiwai Island Wildlife Sanctuary. Questions were asked by members of the team and later the audience in turn asked questions or made contributions, so that to a large extent the sessions were interactive.

FINDINGS FROM THE INTERVIEWS AND DISCUSSIONS IN THE VARIOUS COMMUNITIES

SECTION 1 - KNOWLEDGE AND AWARENESS OF ACTIVITIES AND OPERATION OF TIWAI ISLAND

Q1.1 Awareness about Tiwai Island Wildlife Sanctuary

There is a high level of general awareness about the existence and operation of the Tiwai Island Wildlife Sanctuary and the role TIAC is playing, but most of the communities expressed their concern over the perceived declining influence of TIAC in the running of Tiwai Island. There is a tendency to assume that TIAC is primarily Mr Tommy Garnet of EFA and so all the blame for things they perceive are not going well, are placed on him rather than on the non-attending members of TIAC. Most of the respondents indicated that they have known about the TIAC initiative since its inception in 2002. For those who were born after it started, they said that they had been aware of it since they were very young.

Most of the elderly people in the communities have visited the island, but they visited when the island was not under any management and was being used for various activities, particularly hunting and farming. Almost all respondents in the communities have visited the island because they wanted to know what was happening or because they were working there in one capacity or the other. Open meetings are held at least once per-year to explain what had happened and where the funds had been spent etc.

Response from the elders in all communities was that “informed prior consent” was obtained during the negotiations for the declaration of Tiwai Island as a Wildlife Sanctuary. As the Sanctuary was legally declared in 1987 many of the younger respondents were not yet born or were too young to take part in the negotiation. In general, there was consensus among communities that they were consulted about the Sanctuary prior to the intervention by government in 1987 and there was a general acceptability of this legal status as a Game Sanctuary, and the terms and conditions of its implementation. However, a significant proportion of the people expressed their

dissatisfaction over how activities were being handled, although some of their perceptions were observed to be based on limited or absence of personal gains rather than a fair reflection of the benefits to the communities as a whole.

Q1.2 Involvement in the activities on the island before and during the Tiwai island Programme

All respondents and communities admitted that before the 1980's the Island was used for farming, hunting, collecting NTFP, logging, fishing and some small-scale mining, but suggested that none of these are going on now in the island. Observation suggest that hunting (poaching) is still a problem and exploratory mining pits occur fairly regularly. Many of the youths said that they have been involved in activities on the Island one way or another; eg: cleaners, patrol guards, cooks, tour guiding, boat operators etc. Many also know other people within their communities who have also been involved and those who are still working on the Island.

Q1.3 Knowledge and perception about TIAC and its management of the island

Most of the respondents know about TIAC. There is a general feeling that TIAC was effective initially, but their operations have declined over the last five years.

A good number of community people reported that they have attended one or more of the meetings called by TIAC (or by Tommy Garnett as most people perceived), whenever there is issue of interest to the community and in a few instances for the purpose of distributing benefits to the communities. The number of meetings organised by TIAC for various purposes is perceived to have declined since the 2014-2015 Ebola crisis.

Most of the communities think TIAC's operations have been good for the island, but a vocal minority have negative perceptions. In two communities (Jene and Geima) there was unanimous agreement that TIAC's operation in the island has been good for the island. In other communities there were mixed opinions and perceptions about the impacts of activities on the island.

Q1.4 The impacts and benefits of the Tiwai Programme to local people and their communities

Most respondents think activities on Tiwai Island have not significantly improved their livelihoods, but some of them acknowledged that they have been directly or indirectly employed by TIAC and are obtaining alternative livelihood opportunities.

It was agreed by many respondents that community projects undertaken by the TIAC have brought benefits to their communities. Some of the community projects mentioned include construction of school classroom block, solar charging station (from which funds were raised for the community), the construction of water well in all communities and the construction of Guest Houses in five communities. However, a few people were disgruntled over the sustainability of some of these projects, because according to them, the solar charging station broke and none of the revenue had been saved for repairs, some water wells need rehabilitation, more schools should have been built by now and more scholarships given to their children.

For most of the respondents, their perception of indirect benefit was misconstrued and so could not give appropriate answers. Some of those who could appreciate what indirect benefits are indicated that the continued existence of the Tiwai Island forest as a result of the intervention of TIAC is good for them. The services that Tiwai Island is bringing to them includes tourism, the provision of seedlings (e.g. cacao) and seed rice through alternative for their farming and the construction of a jetty at Kambama which has enhanced transport to other villages in the Tiwai environs.

A good proportion of the people were positive about the impact of the programme on the state of the island, yet there were some who were dissatisfied about the current state of the island simply because they have limited access to the island. The dissatisfied suggest that more youths should be employed and there should be greater community representation in the management planning of the island through the Tiwai Communities Committee (TCC) and their local chiefs and elders.

Q1.5 Knowledge about the legal status of the Tiwai Island

The general response to the issue of legal protection of the island was that the communities know that it is a protected area under the jurisdiction of the government of Sierra Leone. None of the individual respondent or community consultation refuted or rejected the protected status of the island and they are willing to accept and continue with that arrangement.

FUTURE ENGAGEMENT FOR THE MANAGEMENT OF THE ISLAND

Q2.1 The future of Tiwai Island Advisory Committee

Most of the respondents are of the opinion that TIAC should be transformed or evolved into a more operational entity, mainly involving people within the local communities. Some of the reasons given for the need for transformation of TIAC are as follows:

- should be more inclusive,
- should share more information more regularly,
- should concentrate less on secondary stakeholders in Freetown and more on the local communities.
- Should include local businesses such as Carma Cola and their Tiwai Communities Committee.

Q2.2 Willingness to be involved in the management of the island

All respondents expressed a willingness to be involved in the management of the island; the elders would like to serve as Chairmen and advisors to the activities whilst the women and young people would like to be actively involved as representatives of their respective communities and gender groups.

Q2.3 What needs to be done to create effective management

Unclear.

Q2.4 Things that Tiwai programme needs to do differently to enhance the management of the island

- TIAC or its proposed new form should be inclusive of all interest groups within the communities and other peripheral stakeholders, such as Carma Cola and the TCC. This will ensure that community development could be handled collectively and the impact be spread over all communities.
- Provide more employment opportunities to the young people especially as tour guides, patrol guards and skilled works (masonry, carpentry etc.).
- Sustainable alternative livelihoods should be provided, as compensation for the loss of potential livelihood from the island from farming, hunting and mining.
- Funds meant for community development or any other benefits should be distributed to communities based on their proximity to the island, because some of these communities are not directly connected to Tiwai, such as Niahun and Sahun.
- Access to micro-finance and other opportunities should be part of the community development initiatives, especially for women.

Q2.5 How the communities think they can be involved in the Management of the Island.

- The community should be part and parcel of the management at all levels of the operations of the island, including the advisory community down to the operations committee.
- Community representatives should be at the entrance to the island to monitor and record numbers and payments made by visitors to the island in order to ensure transparency and accountability in the management of the funds.
- The local chiefs or elder should be the key means by which information can be transmitted to their respective communities.
- The communities should be allowed and facilitated to develop and enforce bye-laws to protect the island and deal with any encroachers

Q2.6 How the local community heads should be involved in the management of the island.

The response to this question was consistent across all communities visited. The key points are:

- The community heads would like to be member and/or chairmen of the management committee or subcommittees;
- They would like to be involved in the management of the funds raised from entry fees to the island or any externally funded projects, and decisions on how these funds are utilised.
- Be responsible for managing the funds for maintenance of facilities in and around the island and on setting and paying wages to local employees.
- As custodian of the customs and traditions of the people, the elders should be directly in the development and implementation of bye-laws for the effective protection of the biodiversity of the island.

Q2.7 How the youths of this community should be involved in the management of the island

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The youths would also like to be fully involved in the management and day-to-day running of the island because they are the potential law breakers. They want be employed as forest guards and wildlife rangers to be able to earn their livelihoods instead of being involved in illegal activities.

Q2.8 How the women should be involved in the management?

The women would like to be represented in the management committee of the island as a way of ensuring gender representation and that their concerns are addressed, as access to micro-credit facilities and skills training opportunities. The women admitted that they use to house poachers and so for them to be involved in the protection and management of the island they should be employed as cooks, cleaners and even tour-guiders.

Q2.9 How should Government be involved in the management of the island.

Respondents think that government officials, through the Forestry Division should be included in the management team with the key purpose of implementing and enforcing government policies on conservation of wildlife. However, there is a general perception that government officials should not be included in the day-to-day running of the affairs of Tiwai island. Also, government should provide armed security as a means of dissuading potential poachers and encroachers into the island.

Q2.10 The problems and challenges the communities think the TI management could have in future

- Poaching is still a threat to the island, according to most respondents, no matter the mechanisms put in place to protect the island.
- The ownership of the island could be a key problem in future because some communities wish to remove some of the other communities from the group.
- The potential chieftom dispute that may emerge from issues of ownership and rights to the island by people from the two chiefdoms of Barry and Koya.
- The potential problem posed by TCC for control of the management of Tiwai as a rivalry to TIAC.

Q2.11 How the communities think the problems and challenges could be addressed and what mechanism do you think should be followed.

- The local people should be given rights to arrest and prosecute poachers and encroaches with full support from the police.
- Permanent staff, mainly community people, paid by government as part of the forest and wildlife rangers assigned to the area.
- The issue of the ownership of the island should be resolved on the basis that each chiefdom agrees to work in collaboration with the other, with the primary objective of ensuring that the Tiwai island is conserved for their collective benefit and that of posterity.

GENERAL OBSERVATIONS AND COMMENTS

During the interviews, individual respondents and groups of people were willing to talk about the issues and expressed themselves freely.

It was clear that the people do not know the difference between TIAC and EFA (represented by Tommy Garnett). There is a general perception that Tommy Garnett controls TIAC and does things the way he wants, which may be due to lack of understanding of the roles and responsibilities of the other institutions and individuals that constitute TIAC, and often their non-appearance.

There seems to be some antagonism amongst the communities in the two chiefdoms, as there is still some silent dispute about ownership of the Island. According to some speakers, some of the elders of Barri chiefdom claimed that Tiwai Island lay entirely within Barri not Koya and only the more northerly communities of; Kambama, Niahun, Jene, Sarhun and Boma have rights to the Island. From the discussion it was observed that some of these people, especially local leaders may wrongly perceive that considerable outside influence and money might be flowing coming into Tiwai island management and so want to exclude the other communities from such benefits.

There is also some misgivings about EFA among the local communities. Before the rebel war, Tiwai benefited greatly from “core funding” provided externally, since then activities have been limited to the surplus from the paying visitors. The perception is that there were many more opportunities when core funding existed, and the economic realities of a sustainable self-supporting system are not clearly understood. There is a belief that Jene and Kambama benefit disproportionately from employment opportunities, and that EFA is not offering an equal voice to these other communities and they are excluded in the management structure.

One strong antagonist to the work of TIAC is the chairman and Leader of a newly formed group known as Tiwai Communities’ Committee (TCC). This particular antagonist wants the management of Tiwai to be entrusted to himself as leader of TCC, but much of his response were in variance from the facts on the ground. A general observation is that there was inconsistency in the responses by a number of respondents to questions relating to benefits and community participation.

Appendix II: Phase II consultations, Report of Focus Group Discussion

Prof A.B. Karim*, Dr A. Okoni-Williams & Jimmy Squire

*Corresponding Author

1.0 INTRODUCTION

This report describes the second phase of community consultations geared towards the development of a co-management plan for the Tiwai Island Game Sanctuary (TIGS), and therefore will be included as an addendum to the first report. The first phase was focussed at getting the perspective of each of the eight communities associated with the TIGS, during which individuals within these communities were interviewed followed by collective group consultations with key members at each of the communities. The report has been submitted to TIAC and subsequently to RSPB, the coordinators of the project.

This second phase of consultation was done at the chiefdom level. Two tiers of consultations were held with each of the composite representatives from each of the communities in the two chiefdoms of Koya and Barri, respectively. Firstly, focus group discussions were held for each of the following categories of representatives from each of the communities with chiefdom: (i) the community chiefs and leaders; (ii) the women and (iii) the youths and young people. This was then followed by a collective consultation with all members from all communities in the same chiefdom.

The general observation from these consultations was that the issues that emanated from the first phase of the individual community consultations were consistent with those from the second rounds of consultations. However, though there were a few agitated individuals who attempted to sway the discussions towards personal grievances, the rest of the community representatives were very cooperative and showed great willingness to participate and contribute to the discussion. The contributions were open and frank and effort was made by the consultant and facilitators to diffuse all potentially volatile arguments.

The consultations were held at two locations, respectively, for the following chiefdoms and communities:

Potoru Town: Barri Chiefdom – 23rd October, 2019.

Kambama Town: Koya Chiefdom – 24th October, 2019.

2.0 TIWAI ISLAND GAME SANCTUARY MANAGEMENT: LOCAL COMMUNITY'S PERSPECTIVE ABOUT THE PAST TO PRESENT.

2.1 Awareness of Tiwai Island Wildlife Sanctuary and Operations of TIAC

In each of the consultations with the individual groups and the communities there was a general awareness and acceptability about the operations of the TIWS in the area. There is however some discontent among some of the local people such as: (i) that the agreement that was made with their traditional leaders needs to be reviewed, taking into cognisance current economic situation and other potential players and investors in the running of the island; and (ii) that the island is to be protected against poachers and miners since the island used for wildlife purpose, because as alleged, people are coming from outside the area to poach and mine.

It was clear that every representative of the local communities was aware of the operations of TIAC. There is a general perception that TIAC as managers of the TIWS would have been able to perform well to the satisfaction of the local communities, but for the influence of EFA on TIAC team. From discussions only some individuals within the local communities share this view, which may have emanated from seeming lack of transparency on how resources and finance have been shared by EFA (representing TIAC). They cited the infrequency meetings in the last several years and that the two community representatives in TIAC were no longer invited to the meetings. According to the local people these two representatives were very instrumental in providing updates to the communities and operations of TIAC, including job availability, planning community engagement and participating in the distribution of resources and finance. Now that TIAC is hardly meeting and community representatives are no longer in touch with them, thus the general suspicion that TIAC, under the influence of EFA is not being transparent accountable in their operations.

There was also a semblance of disagreement among the traditional leaders about the operations of TIAC. Some alleged that TIAC has shifted its focus more to certain communities which has led to inequitable distribution of resources and attention in affected communities. However, the caretaker chief of Barri Chiefdom indicated that he has served as secretary to TIAC and so has been attending the meetings, although he admitted that it has been over five years now since meetings were held. The lack of meetings of TIAC, which should have included local leaders and the respective chiefdom representatives was the key issue raised by the communities over the operations of Committee.

2.2 How the Tiwai Island project affected the livelihood and activities of the communities.

The response from the different community groups to this question was mixed, but the nature of the answers was not diverse. Whilst there is common understanding that the TIWS has brought considerable benefit to their communities, they are still aggrieved about the lack of access to farming on the island and non-compliance with the original

promises that was made over compensations to the communities. Some of the benefits cited are as follows:

- provision of solar powered facilities (though now defunct) which was helpful to their children's study and was used to charge their mobile phones;
- Rehabilitation or construction of at least a school, guest house, mosques or palava huts in each of the eight communities, respectively;
- The provision of rice seedlings for some communities.
- Direct cash payments were made every year as proceeds from the tourism on the island, to address other community needs.

2.3 Community's Perception about the current state of Tiwai Island and the direct and indirect benefit of the conservation the island to them and posterity.

The majority of the chiefs, women and youths admitted the importance of conserving Tiwai Island and the ecosystem service and existential benefits it accords to the area and surrounding communities. They also admitted that without management of the island by TIAC, the island's ecosystem would have been decimated through farming, poaching and mining for diamonds and so the benefit being enjoyed by the local communities would have been lost. They believe that if the Tiwai Island Forest is properly conserved, their children, grandchildren yet unborn will be educated enough to handle the affairs of the project even after TIAC may have exited in future. Also, most of the women and youths believe that if the management of the island is left in their hands, they will enjoy more benefits. They look forward to the day when TIAC would hand over the affairs of the island to the local communities, but agreed that with a greater involvement of other stakeholders and investors, the potential for community development could be huge.

All the community focus groups were dissatisfied over the recent decline in the activities of TIAC on the island, which they said has led to the general feeling that TIAC is losing their influence on the island. However, they believe that a more inclusive version of TIAC would trigger greater acceptability and collaboration among local communities. This is because some sections of the community representative do recognise and support the work of other organisations that run programmes in the Tiwai communities, including Carma Cola and Tiwai Island Community Committee (TCC).

2.4 Knowledge and acceptability about the legal status of Tiwai Island among local communities

Tiwai island was made a WildLife Sanctuary in 1985 through facilitation by John Oates. According to the provision in the act the Tiwai Island wildlife or game sanctuary was declared through the consultation and agreement with the chiefdom council and local communities. However, most of the local people who were involved in the negotiations

and were signatories to the agreement are now deceased and the younger generation think that a review of that agreement is long overdue. The communities still recognise the legal protection of the island as given in the 1972, but would like to see greater protection with greater roles played by the local authorities and the people themselves. In fact, the youths and young men suggested that if government could engage and train wildlife rangers from members of the local communities, there would be greater effectiveness in the protection of wildlife in and around the island. The youths know the area better, including the entry and exit points better, can easily identify internal and invading poachers and so should be able to handle the situation more efficiently. In addition to government appointed rangers, local guides should be trained across all communities, to support the surveillance and monitoring mechanism for the protection of the wildlife on the island.

3.0 FUTURE ENGAGEMENT ON TIWAI ISLAND BY LOCAL COMMUNITIES

3.1 Community's perspective on how the Tiwai Island should be managed in the next 10years

The local leaders, women and the youths recognise the importance of the Tiwai Island as a place where variety of plant and animal species exist and are being conserved either for ecosystem services, tourism and research purposes. They therefore expect more robust ways of protecting the reserve and making it more attractive to visitors. Some even talk about expanding the potential of the island by the introduction of different species of animals that are not common in Sierra Leone; although this was said out of ignorance of the consequences it might have on the local ecology of the island, which none of the local people seems to understand.

The consultation also revealed that there is a wealth of local knowledge among each of the target categories in the focus group in terms of plant species and the wildlife of Tiwai Island. This knowledge base only requires some further training to enhance individuals within the local communities to engage in research and monitoring, and in tour guiding. Also, as it used to happen in the early days of the operations of the sanctuary, many community people were engaged in different forms of non-skilled labour on the island, including brushing of the trails. They believe that many more such opportunity exists on the island, especially after the construction of the research and dormitory facilities for which the local young people should be employed.

There was a unanimous affirmation of willingness by all community groups to be involved one way or the other on the management of the island. However, some of the women are not particularly enthusiastic about working on the island because of their traditional engagements, but would like to have a say on the decision making process on how the island is managed. It was clear from the discussion that the communities want to be involved in the following ways:

- The communities should be engaged in supporting the research and monitoring activities on the island and be involved in training opportunities for this purpose.

- Be engaged in the daily management activities for the island, including skilled labour (e.g. keeping the accounts books and tour guiding) and unskilled labour (e.g. cleaning of trails and keeping the dormitories).
- Some community youths should be appointed into government service by NPAA or Forestry Division to serve as rangers assigned to the Island.
- Inclusion in the management committee for the island, in whatever form it might take; particularly the chiefs and TCC to be recognised as important stakeholders within the new management arrangement.
- To establish a skills training scheme for youths in various fields of technical trade. It was clear that youths in the Tiwai Island communities are unemployed and untrained, and so the lack of training opportunities was a key concern during the discussions. Areas of training highlighted were carpentry, masonry, craft making, gara tying and dyeing, weaving, tailoring, solar light technicians, wildlife ranging and tour guiding. This will ensure the availability of local expertise whenever such employment opportunities arise at Tiwai Island. It will also create opportunities for self-employment for the youths and young people in these communities. In some of these trades, training should be followed by the provision of start-up kits.
- The women and the youths expect that the co-management arrangement will consider the establishment of a cooperative and micro-credit scheme, to enhance their livelihood base and improve the living standards for them and their children. They constitute the most active working population in these communities.
- TIAC or its new structure must have representatives from each community, other than the paramount chiefs. Alternatively, smaller committees should be established at community level, working in tandem with TIAC (or its new form) and contributing to decision making and running of the day-today affairs of the island.
- Included women in the management committee and engage them in programmes organised by Tiwai management, especially in the area of hospitality (reception, food provisioning and entertainment). For instance they were aggrieved that some other group of women who are not from the Tiwai communities had to cook and serve the food during the consultations, which they think could be better done by them.

3.2 Other groups or stakeholders the community wants to be involve in the management of the island

All community groups were interested in making input into the question of the involvement of other stakeholders in the management of the island. The enthusiasm shown in responding to the question was an indication of the willingness by the local community to have more players in the management network for the island. Their general perception is that having more players with a variety of roles and/or investment potentials will bring more benefits and job opportunities to the Tiwai communities. Whilst there is a common positive feeling and acceptance of the impacts made by TIAC and EFA, the recent decline in funding for community-based activities is being somewhat interpreted as fatigue on the side of TIAC/EFA to mobilise funding, therefore the need to encourage other potential stakeholders to sustain funding for the island and the surrounding communities. The following are the potential stakeholders proposed by the communities during the consultation:

- AFFA CARMA COLA – an NGO already operating in these communities and is supporting community development activities such as construction of schools and water wells, provision of scholarship for students, direct cash payments to communities and their leaders etc. This NGO buys cola nuts from the communities, which is used in the UK to produce coca cola drink that is effectively marketed sold at a higher cost in the UK because it carries a label indicating the profit goes towards community development around Tiwai Island. The communities people want Carma Cola to collaborate with EFA in an arrangement that would ensure that they continue to support development programmes in the communities, whilst operating as a significant stakeholder in the management of the island.
- TIWAI ISLAND COMMUNITY COMMITTEE (TCC) - The youths, women and some chiefs across the two chiefdoms perceive TCC as an alternative to TIAC. However, some sections of the community representatives admitted that TCC lacks the requisite skills and experience to be able to replace TIAC; otherwise, TCC could be incorporated into the management committee for the island as key partners representing the interest of the local communities.

3.3 Community expectations on the new management arrangement for the protection of Tiwai Island

The issues outlined below represent the collective perceptions of the various categories of representatives that were engaged in the chiefdom level consultations, on what additional things that should be done to ensure effective management of the island:

- Community bye-laws should be developed to compliment government legislation governing a game sanctuary. The implementation of government policy and the community bye-laws should be done across the board and there should be no sacred cows. Previously, only non-indigenes of the area were prosecuted for violating the laws governing the island. This time the community representatives

think that no one should be an exception the rules. According to the TCC Chairman, the youths are responsible for most of the problem that is going on in the Tiwai reserve. Therefore, if TCC is recognised by TIAC, they will make sure that there is effective law enforcement. In addition, members of TCC can be trained and supported with logistics to serve as a surveillance unit for the periphery of Tiwai Island.

- The local traditional heads should champion the development and implementation of bye laws and government policies governing the island. The local community heads (chiefs, headmen, mammy queens) are most respected in these communities and therefore when they make customary bye-laws, nobody will go against it and any defaulter will be punished.
- Punishment for poaching and encroachment should be made stronger and compensation paid to personnel who apprehend violators. For instance, the proposal to pay monetary compensation to people who apprehend any poacher caught with his weapon and presented to authorities, should be strongly considered. Accordingly, such mechanism will encourage intensive surveillance activities with the aim of discouraging poaching and encroachment on and around the island.
- Alternative livelihood programmes be provided, more especially for the youths such as sustainable agriculture, micro-credits.

Appendix III⁷⁹ - Consultations with other Stakeholders on Tiwai Island

Prof A.B. Karim*, Dr A. Okoni-Williams & Jimmy Squire

*Corresponding Author

DR MOHAMED IMAM BAKARR, ADJUNCT, SCHOOL OF NATURAL RESOURCES MANAGEMENT, NJALA UNIVERSITY

- Work started on Tiwai in the early 1980s by John Oates who fell in love with and was passionate about the Island. Initial focus was on the primates and not the people.
- John Oates later convinced the Chieftdom authorities to declare Tiwai a wildlife sanctuary.
- Tiwai was initially a destination for Primatologists, but interest in other taxa soon followed
- The involvement of the Peace Corps led to the involvement of people in ecotourism.
- Peace Corps did zonation for the ecotourism, also did a Management Plan for the island
- Research on Primates almost vanished since the last researcher left during the war
- The Academic partners (Miami, Hunter College, Njala) had their own focus
- EFA in its management tried to develop programs built around people
- Njala established a Functional Research Station
- Njala needs to have a dedicated research team to run Tiwai; they should have committed, and dedicated Field Technicians deployed to the island.
- Need to explore Research Grant mechanism for Tiwai

PROF RICHARD WADSWORTH, DEPARTMENT OF BIOLOGICAL SCIENCES, NJALA UNIVERSITY

- First Went to Tiwai for the 1st time in 2003 during the Mapping Land Cover Project which he was undertaking and has been going there since then
- His impression was that Tiwai is a good new story for Sierra Leone, although there was still problem with poaching but there was no logging.
- Forest has grown, no logging, once on a while there is mining for diamonds. There have been tests/trials pits mainly by outside people. The Primates population have improved substantially
- Though there have been some issues, the general trend is a steady improvement from conservation point of view. EFA has hung in despite challenges and badmouthing. Others came and left within a period but EFA weathered the

⁷⁹ Adopted from Tiwai Co-Management Plan 2020-2030.

storm. Accountability has been the key issue for many of the intending and operational groups.

- He is presently a member of staff of Njala University and is in charge of research and reviewing research proposals for Tiwai. Those that were not viable, such as one to habituate the monkeys, were rejected.
- In his estimation Tiwai receives over 700 visitors per year. The Money generated is used partly for the maintenance of the facilities and the surplus is being distributed to (many) communities. The key people want the money to be shared rather than used for community (local) development. They think mining and logging were more beneficial
- Several attempts to give alternative livelihoods to the communities but these alternative income generation were not viable; NGO intervention was fraught with lack commitment and deception from either the entrepreneurs or the committees.
- Cited attempts at Aquaculture training on fish pond construction and also the development of nursery by boat landing site, cocoa etc. the agriculture expert from India that was brought in for making charcoal using bamboo. The Communities not commercially minded
- Thomas Armitt first came to Tiwai to carry out research after which he came back to Tiwai and set up a private company. Carma Cola, which produced a special brand of Coca cola. The label on the Coke is that it is to support poor communities around Tiwai. The coke is sold for a much higher price than the normal coke.
- With respect to sustainable management of Tiwai, Carma Cola and other groups need to work through TIAC, at least on a polite approach to keep others out would not be a good concept.
- For sustainability, Tiwai needs projects. Most projects were short term. There has to be long term commitment from intending operators
- Intervention to be long term commitment e.g., oyster festival in Bonthe.
 - Farmers growing things they do not consume
 - Sponsor coffee and cocoa festival – Coffee tasting/drinking ceremony need to be organized- Open a booth at National/ regional festivals
- A review of funding to communities, motivation to teachers (Bonus) would be better and more effective approach instead of scholarships
- The John Oates factor has also negatively impacted Tiwai. He emphasizes his role in establishing Tiwai and emphasize the role of others. It is our resource not a community resource. Only land-owning families/communities should benefit.
- **For The way forward:**
 - An MOU signed between communities and anybody/ operating entity that want to work/operate around community. The MoU should spell out what their role is etc. it will not be prudent for an MoU to be signed between TIAC and Government as it may trigger political issues.

- Restructure TIAC. Theoretically fine but practically not functional. The Paramount Chiefs should no longer be chairman of TIAC
- New structure should have 3 representatives from each community, (men, women and youths); such a committee will be too big. Also, Tacugama and Gola Rain Forest to be members of the Committee
- The key management challenge is that for visitors – how to manage increased number of visitors without damaging the environment.
- Other issues to be considered
 - The RSPB factors
 - The Nagoya Protocol
 - The Biosphere Reserve concept
 - World Heritage site
 - Joining Tiwai with Gola
 - Access to Benefit Sharing
 - Developing of Medicinal gardens
 - Plant rattans, etc.; and non-Forest Tree products
 - The need to talk to Carma Cola - business strategy

STAFF OF THE CONSERVATION TRUST FUND (CTF)

- The CTF sees itself as playing a prominent role in the new co-management structure for Tiwai and as such, expect to be included as one of partners in the its members.
 - Tiwai is a valuable wildlife and conservation resource. The long-term sustainability of the resource there is a need to establish a Trust Fund.
 - Government should cater for the Tiwai Island in terms of providing the following:
 - deployment of rangers paid by government of Sierra Leone
 - covering some of the running and maintenance cost to the island, as part of the functions of the support PAs
 - The Conservation Trust Fund, according to the Act, should be responsible to finance projects in PAs, and so would wholeheartedly support the establishment of a trust fund for the island
 - NPAA should be involved in implementing projects and programmers, whilst Conservation Trust Fund would be involved in monitoring.
 - The CTF will provide expertise and support the development of proposals for resource mobilization and management of island's biodiversity resources.
 - The CTF would like to see promotion of investments in the area of the development of touristic facilities such as eco-lodges etc.
 - The CTF made the following key recommended inclusion in the co-management plan
-

- Inclusion of CTF in co-management structure to strengthen CTF's participation and contribution to the management of the island; so there is need to review the stakeholders' analysis to reflect the role of the CTF.
- Some ideas of what may happen if the co-management time frame expires or the management committee ceases to function;
- Mechanism that would ensure transparency and accountability in the course of implementation of the management plan.
- A trust fund must be set up and will be supported by the CTF.

EXECUTIVE DIRECTOR OF NATIONAL PROTECTED AREA AUTHORITY (NPAA)

- NPAA has a mandate for the protection of all PAs and Tiwai is one of them.
- The importance of Tiwai in terms of Biodiversity cannot be over-emphasized.
- Tourism is now in the forefront of Government's agenda and Tiwai is one of the main tourism destinations.
- The Ministry now requires all PAs to be sending quarterly reports, including report from Tiwai island, once the co-management plan starts operation.
- The Sherbro Estuary Management Plan calls for calls for a Supervisory team (NPAA), An Advisory Team (Paramount Chiefs, etc) and a management team which comprise support organisations. The Management Committee is bounded by a constitution. The NPAA would like to see a similar concept in operation at Tiwai, under the new co-management plan.
- The CTF should raise funds for NPAA and support Tiwai in terms of the employment of rangers, which ideally should be employed from the area.

DIRECTOR OF FORESTRY, MINISTRY OF AGRICULTURE, FORESTRY AND FOOD SECURITY

- Forestry has not been active on TIAC. Forestry has more commitment to show to the conservation of Tiwai and not interested in the material gains of becoming a member of TIAC
- Forestry Division is obligated to play a very important role in the management of Tiwai as the first Game Sanctuary and so happy to function are supporting partners.
- The Forestry Division supports the agreed with the proposed co-management structure, wherein the Division will serve as a secondary stakeholder, and the NPAA being a primary stakeholder.
- A good example worth citing is the Gola Forest co-management arrangement for the management of buffer zones around the national park, which for all intent and purpose is a success story. It is a 3-tier management.
- The Environmental NGOs are only coming in to help, as funding from Government is not forthcoming. Govt should be able to maintain the resources through working with and recognising the interventions by the NGOs and other partners.

- At Gola National Park, there is a tripartite arrangement as follows: (i) Government of Sierra Leone; (ii) Royal Society for the Protection of Birds (RSPB) & Conservation Society of Sierra Leone (CSSL); and (iii) the local communities represented by the Paramount Chiefs from all the seven Chiefdoms around the Gola NP. The Government is represented by the Minister of Agriculture and Food Security. They meet two every year and the meetings are chaired by CSSL; all major partners should be present for any major decision to be taken.
- The Gola also has a Board of Directors, which is responsible for the day to day running of the affairs of the park.
- There is a special account to which sale of carbon is deposited for the management of the Gola National Park and Loma, which is managed by a company limited by guarantee.
- The Gola National Park administration would be very happy to be involved in the co-management plan implementation at Tiwai Island.

7.BIV INTERIM MANAGEMENT PLAN FOR GOLA RAINFOREST NATIONAL PARK

THE GOLA REDD PROJECT



Project description following the Climate, Community and Biodiversity Alliance Standards (Second addition)

Prepared by: the RSPB on behalf of the Gola Rainforest Conservation LG (the project proponent)

Contact: **Richard Dixon**, Richard.dixon@rspb.org.uk

V3 April 2021 All updates in yellow highlights

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Abbreviations and Acronyms

AFOLU	Agriculture, Forestry and Other Land Use
ARTP	Across the River Trans-boundary Peace Park Project
BCP	Biodiversity Conservation Project
BSA	Benefit Sharing Agreement
CCBA	Climate, Community and Biodiversity Alliance
CD	Community Development
CLG	Company Limited by Guarantee
CSSL	Conservation Society of Sierra Leone
EPA	Environmental Protection Agency
FD	Forestry Division
FEC	Forest Edge Community
FG	Focal Group
FIC	Forest Industries
GCDC	Gola Community Development Committee
GFR	Gola Forest Reserve
GHG	Green House Gas
GoSL	Government of Sierra Leone
GRCLG	Gola Rainforest Conservation LG
GRNP	Gola Rainforest National Park
HCV	High Conservation Value
HH	Household
IVS	Inland Valley Swamp
LG	Limited by Guarantee
MAFFS	Ministry of Agriculture, Forestry and Food Security
METT	Management Effectiveness Tracking Tool
NBSAP	National Biodiversity Strategy and Action Plan
NPAA	National Protected Areas Authority
NTFP	Non-Timber Forest Product
O-KNP	Outamba-Kilimi National Park

PAM	Protected Area Manager
PC	Paramount Chiefs
PPP	Public-Private Partnership
REDD	Reducing Emissions from Deforestation and Degradation
RSPB	Royal Society for the Protection of Birds
SBIA	Social and Biodiversity Impact Assessment
SILETI	Sierra Leone Timber Industry and Plantation Company
SLIEPA	Sierra Leone Investment and Export Promotion Agency
TSC	Timed Species Counts
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
WHH	WeltHungerHilfe

Executive Summary

Gola REDD Project Vision

The Gola REDD project is a catalyst for peace, prosperity and national pride in Sierra Leone, ensuring that the globally important habitats, biodiversity and environmental services of the GRNP and wider Gola landscape are conserved and that neighbouring communities are active environmental stewards of the natural resource base that underpins and enhances their livelihoods

The Gola REDD project aims to conserve the forested areas of the Gola Rainforest National Park (GRNP). The GRNP and adjacent forests are Sierra Leone's largest remaining area of Upper Guinea Tropical Forest, a forest type recognised as a global biodiversity hotspot (Myers et al 2000). The area contains 60 threatened species, including 8 endangered and 1 critically endangered species (Klop et al. 2008). Conservation actions as a direct result of the Gola REDD project will protect these species, preserve 68,515 ha of tropical forest and conserve 4,986,671 tonnes of CO₂-e during the first 10 years of the project, as well as provide livelihood support to the 114 impoverished communities that surround the GRNP.

Although the Forestry Division within the Government of Sierra Leone's Ministry of Agriculture, Forestry and Food Security (MAFFS) is responsible for the management of the nation's forests, including GRNP, current funding levels results in a lack of capacity and finances to effectively manage forest areas protected by legislation. For example, in 2011, \$115,814 was allocated to the Forestry Division (GoSL budget 2009-2013;49) to manage all 48 Forest Reserves and National Parks.

Gola Rainforest Conservation LG, a not-for-profit company is being established to manage the Gola REDD project and act as the project proponent. The Company is founded by three partners: The Government of Sierra Leone represented by the Ministry of Agriculture, Forests and Food Security (MAFFS), The Royal Society for the Protection of Birds (RSPB) and The Conservation Society of Sierra Leone (CSSL). These three partners, under the banner of the Gola Forest Programme, have been working with the local communities of the 7 Chiefdoms surrounding the GRNP since 2002. The Gola REDD project seeks to sell credits validated by the Verified Carbon Standards (VCS) and the Climate, Community and Biodiversity Alliance (CCBA) to provide a stream of sustainable revenue sufficient to significantly reduce emissions from unplanned deforestation activities. Revenues from the sale of credits will be used to;

- i) improve the conservation strategy and enhance the management effectiveness of the GRNP
- ii) enable sustainable resource management throughout the project zone by engaging in a suite of livelihood improvement activities with local communities

iii) develop a monitoring program that provides robust information to underpin management decisions and a research program that allows GRNP to become recognized as an international centre of excellence and

iv) build a conservation trust fund that will provide a means of ensuring conservation actions last beyond the lifetime of the project.

The Gola REDD project recognizes both the moral and pragmatic necessity of actively involving local communities in all aspects of project development and implementation. Local stakeholders have been identified and involved in project development including Paramount Chiefs, section and village Chiefs, landowning families and Forest Edge Communities – communities in the leakage belt bordering the project area. These stakeholders and others will continue to be directly involved with the implementation of activities throughout the lifetime of the project. A comprehensive package of benefits to ensure the integrity of the project area and leakage belt has been agreed with local stakeholders. The package includes direct payments to landowning families and Paramount Chiefs, sustainable livelihood projects focused on land use planning and co-management, sustainable agriculture, saving and lending schemes, and a community development fund for villages beyond the project zone in each of the 7 Chiefdoms, as well as ecotourism opportunities, jobs within the Gola REDD project, and education scholarships.

The Gola REDD project is the first REDD project to be developed in Sierra Leone and aims to demonstrate that protecting forest resources can be both socially and environmentally beneficial. It is envisioned that it will pave the way for future projects of a similar nature that will provide Sierra Leone with a viable sustainable alternative to forest conversion and biodiversity loss.

General Section

G1. Original conditions in the project area

General Information

G1.1. Project location and basic physical parameters

The location of the project and basic physical parameters (e.g., soil, geology, climate)

Location

The Gola REDD project is located in the south east of Sierra Leone. The nearest entry point to the project area is 30km south-east of the district headquarter town of Kenema and 260 km east of Freetown, the nation's capital. The eastern area of the project lies adjacent to the Moro and Mano Rivers and the international border with Liberia. To the south, the area is bisected by the Kenema-Zimmi highway. The project lies within three districts: Kailahun and Kenema in Eastern Province and Pujehun in Southern Province (see Figure 1).

The forests within the project zone (the Gola Forests) are the largest area of lowland tropical forest remaining in Sierra Leone and form part of the Upper Guinea forest ecosystem which is classified as one of the 25 most important biodiversity hotspots in the world (Myers et al. 2000). The Gola forests are a key stronghold for a large number of endangered and threatened bird and mammal species and are also politically important as they form part of a larger 'trans-boundary peace park' envisioned by the Government of Sierra Leone and Liberia to assist in establishing permanent peace in a previously troubled cross-border region¹.

The project area is divided into 3 blocks; Gola North, Gola Central and Gola South.

¹ In 2009 the Presidents of Sierra Leone and Liberia made a joint declaration of their intention to create a transboundary peace park to conserve the Gola forests in Sierra Leone and Liberia



Figure 1. Location of the Gola REDD project within Sierra Leone

Hydrology

The Gola REDD project covers important catchment areas for the Moro, Mano, Mahoi and Moa Rivers which are the main water supplies for local villages and towns (see Figure 2).

The north eastern area of the project zone is drained by the Moro River which runs along the eastern boundary. The region is fairly well drained with elevated hilly terrain; only 8-9% of its area is under streams, swamps or poorly drained terraces.

The central area of the project zone is also drained by the Moro River running along the eastern boundary. This part of the project zone is intersected by a series of water courses and seasonally dry valleys. The most important water course to originate in this part of the project zone is the Mogbai River which flows east into the River Moro and has a catchment of approximately 52 km² and an area of swampy terrain.

As the Moro River flows south, it flows into the Mano River which runs along the eastern boundary of the southern area of the project zone. The eastern section of this area feeds the Mano River via a series of small rivers and streams that are no longer than 15 km, for example the Watuma, Wemango and Weadia, and as a result is fairly well drained. The central area in the south is drained by a network of small streams which feed into the Mahoi River. The western part of the southern area is poorly drained with up to 18% of the area classed as waterway, swamp or poorly drained land. Streams in this area feed into the adjoining Moa River.

The watershed services provided by the project zone are vital to local and regional economies which are based on subsistence and cash crops.

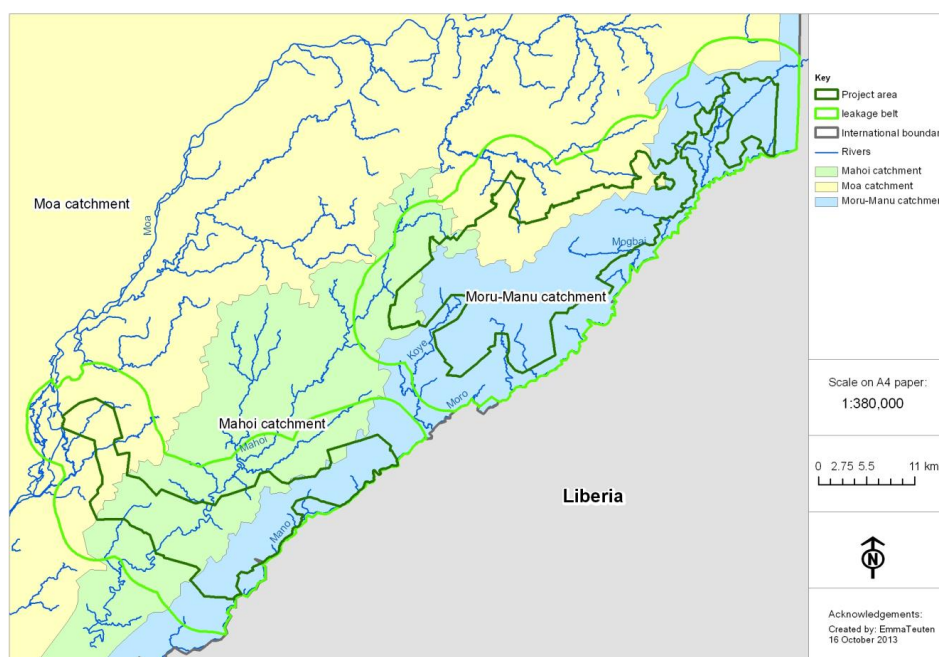


Figure 2. Watersheds of the project zone

Geology and Soils

The Gola REDD project zone is characterized by ancient crystalline rocks of the Archaen subdivision of the Precambrian period (Wilson, 1965). The granite greenstone complex, common in this area, contains iron and magnesium rich metamorphic rocks overlying a quartz-rich granite basement. Metamorphism gave rise to local occurrences of granulitic materials which are characteristic in parts of the project area. Most of the ores of chromium, gold and iron are located in the strips of metamorphic rocks that permeate the dominating granite (see Figure 3).

The soils in the project zone are mostly derived from granite. They are usually freely draining sands and gravels, with varying proportions of lateritic gravel. Four types of soil are recognized in the project area (Iles et al 1993):

1. Kulufaga. Rocky hill complex of moderate to high relief on Precambrian granite complex and local amphibolites; shallow sandy clay loams with locally deeper reddish clay loams;
2. Kailahun. Strongly dissected high level plains of low to very low relief and scattered isolated hills, on Precambrian granite complex and local granulites; moderately shallow to deep, sandy clay loams to clays often containing much gravel;

3. Blama. Dissected plains of extremely low relief with scattered small hills and terraces, on Precambrian granite complex and local granulites; moderately deep, very gravelly reddish clay loams to clays;

4. Sandaru. Variable dissected complex of plains and rocky hills of low to moderate relief, on Precambrian granite complex; moderately shallow to deep, sandy clay loams, gravelly on hilly terrain.

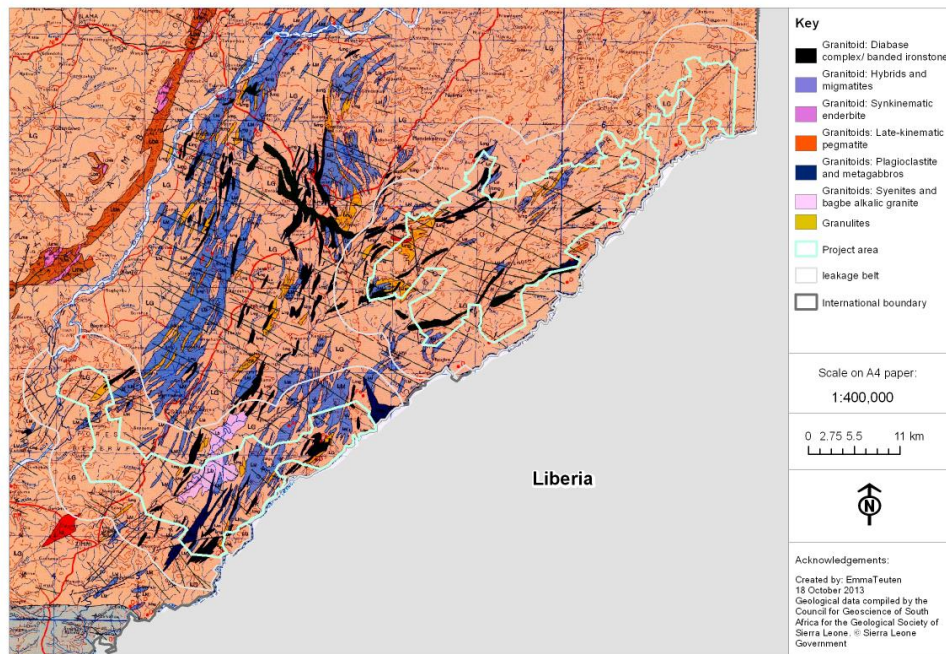


Figure 3. Geology of the project zone

Geomorphology

The central area of the project zone contains the most varied geomorphologic features (see Figure 4). Extensive rolling hills in this area give rise to form more rugged terrain and isolated rocky outcrops, some of which exceed 130m in length and 22% are over 330m in elevation. Over 9% of this area consists of steep slopes. The highest point, which reaches 427m, is known as Sangie Mountain. Slopes exceeding 27 degrees are common, and slopes of upto 45 degrees occur in the North and Eastern parts of this area.

The southern part of the project zone is lower than the central and northern area and becomes progressively lower and more uniform in slope from east to west. The highest point in this area is Bagla Hills at 330m in the east. The hilly terrain in this area is crossed by numerous watercourses which form steep sided water valleys.

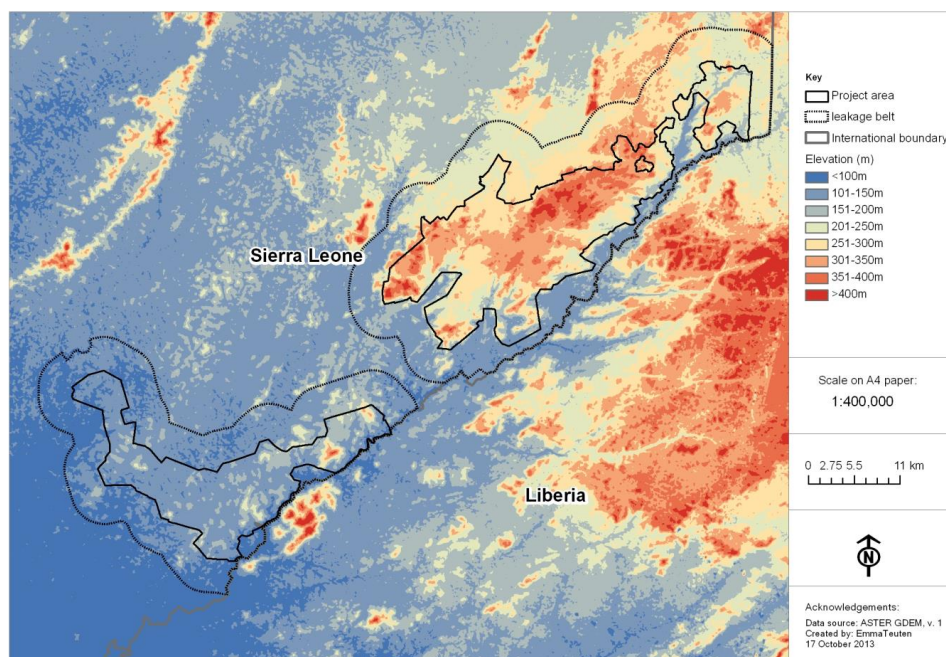


Figure 4. Geomorphology of the project zone

Climate

The project zone lies within the wet tropical climatic zone. Historical and recent precipitation data is available from towns and villages in the project and offsite zone. White (1972) reports mean annual rainfall values of 2576 mm at Daru, 2605 mm at Pendembu and 2770 mm at Kenema. Based on this data, mean annual rainfall is likely to be 2500-3000mm. In 2006 the total annual rainfall for Kenema was 2188 mm, which is lower than the historical average. During 2007 rainfall was measured within the forest of the project zone at 3 sites each month (Figure 5) and the mean annual total for the 3 sites was 3117mm (Klop et al 2008), slightly higher than the historical average. Rainfall was recorded in every month; there is a pronounced dry season from December to March during which rainfall was less than 50 mm per month. The wettest months are July and August when rainfall was over 550mm per month.

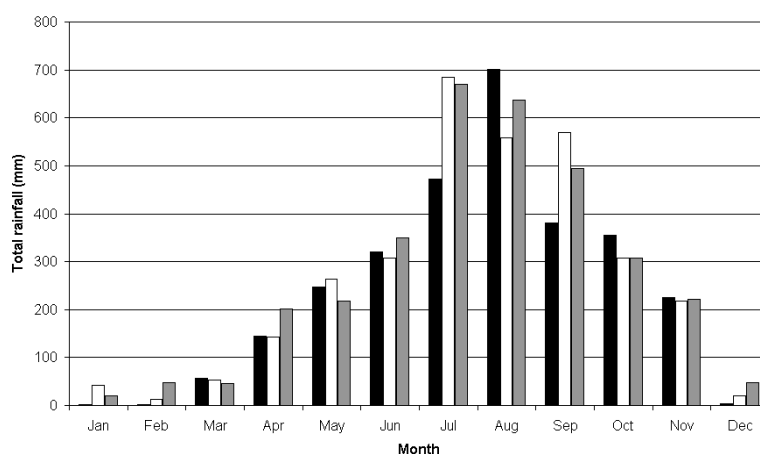


Figure 5. Annual rainfall data for the project zone

(based on 2007 data, from 3 stations in the project zone: Source Klop et al. 2008)

G1.2. Types and condition of project area vegetation

The types and condition of vegetation within the project area

All the forest of the project zone is part of a single forest type – the Western Guinean Forest. Extensive botanical surveys and ecological research characterises the project area into evergreen and moist semi-deciduous forest types but there is considerable overlap between these two classifications and they should be considered a continuum over a gradient (Klop et al 2008). This is also corresponds with Hall & Swaine (1976) who argued that the West African rainforest showed too much continuity of structure to define associations at this level of detail. Like species composition, the biomass (i.e. carbon) between these two forest types are similar, with no statistical difference (Lindsell and Klop 2012).

Vegetation Diversity

The Upper Guinean Forests are species diverse, with some 2800 species of vascular plants known to occur in these forests (Jongkind 2004), of which about 650 (23%) are endemic to the region. So far a total of 899 plant species have been identified in the project zone, mainly in the project area and of these plant species 232 species are trees (Klop et al. 2008).

Vegetation Condition

Prior to the initiation of conservation work, the project area was classified as a Production Forest Reserve and until the late 1980's two large scale timber companies conducted commercial logging in the Gola REDD project area: the Forest Industries Corporation (FIC) and The Sierra Leone Timber Industry and Plantation Company (SILETI). FIC worked in the accessible areas of the western section of Gola Central in 1961, 1978 and during the period 1984-1986. Some 19% of Gola Central was exploited during this period (Klop et al. 2008). Gola South was more extensively logged by both FIC and SILETI during the 1960's, 70's and

80's; operations finished in 1989. Some 43% of Gola South has been exploited, particularly the western and central sections (Iles et al. 1993), see Figure 10 for reference.

As a result of past management practices the southern block of the project area in particular is still regenerating and has not reached yet an equilibrium state, the central area was less impacted by logging and contains greater carbon stocks (Lindsell and Klop 2012) (see G1.4).

G1.3. Boundaries of the project area and project zone

The boundaries of the project area and project zone

The Gola REDD project consists of a project area covering 69,714 hectares of which 68,515 hectares is forested and a leakage belt containing 62,932 hectares of forest. Together the project area and leakage belt make up the project zone.

The project uses the following definitions to describe the different areas of the project (see Figure 6);

Project area – the area within the demarcated boundary of the GRNP, over which the Gola Rainforest Conservation LG, the project proponent, has management control. There are no communities living in this area. The project area consists of 3 separate blocks; a northern, central and southern block (see Figure 6). On the ground the boundaries have been cleared following protocols for demarcation (Marris et al. 2013), in coordination with the Forest Edge Communities living adjacent to the area. Boundaries are currently being planted with Yamane saplings to facilitate the detection of the boundary; 105km have been planted so far. The current land cover show that within the GRNP boundaries in 2011 there was 68,515ha of forest and 1,199ha of non-forest. The forested area is the carbon accounting area as per the VCS methodologies. The non-forest areas consist primarily of rivers and a number of rocky outcrops known as inselbergs. The 1,199ha of non-forest are physically part of the project area and will therefore be included in conservation management actions (i.e. biodiversity in these areas will be protected) but they areas are not included in carbon accounting as per the VCS methodologies.

Leakage belt – the forested and non-forested area that immediately surrounds the project area, extending for 4km around each block of the project area except on the eastern side where it is truncated by the Sierra Leone-Liberian border. The leakage belt was defined to meet the requirements of the VCS methodology VMD0007. The leakage belt contains 114 inhabited Forest Edge Communities² (see figure 6).

Project zone – the area covered by both the project area and the leakage belt (see figure 6).

Offsite zone – the area beyond the project zone and extending to the boundaries of the 7 Chiefdoms. It contains approximately 373 communities and 130,478 people (based on the population census of 2004) (see figure 6).

² A Forest Edge Community is defined as a community lying adjacent to the project area and within the leakage belt of the project zone. Many Forest Edge Communities (86 out of 114) also share a direct boundary with the project area. These are the communities that were identified as being potentially affected by the project through PRA.

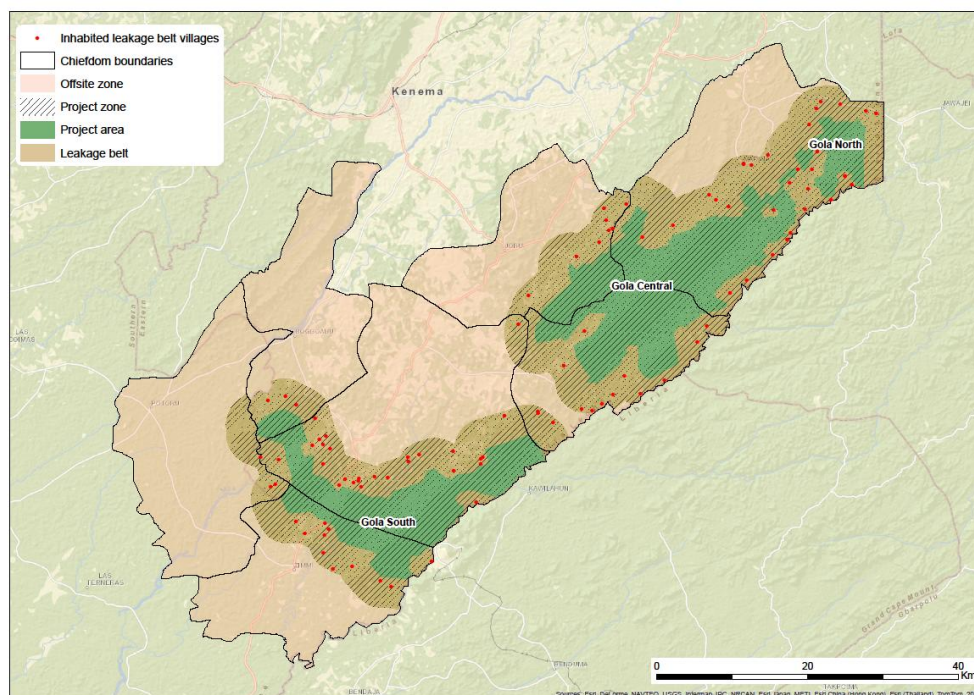


Figure 6. A map of the project area (with the 3 blocks named), the project zone (including leakage belt) and the offsite zone

CLIMATE INFORMATION

G1.4. Current carbon stocks in the project area

Current carbon stocks within the project area(s), using stratification by land-use or vegetation type and methods of carbon calculation (such as biomass plots, formulae, default values) from the Intergovernmental Panel on Climate Change's 2006 Guidelines for National GHG Inventories for Agriculture, Forestry and Other Land Use5 (IPCC 2006 GL for AFOLU) or a more robust and detailed methodology.

Carbon stocks in Gola comprise of above ground biomass, below ground biomass and soil carbon. In order to calculate carbon stocks in the Gola Forest, in 2006 trees were surveyed in 609 fixed area circular plots located throughout the entire project area, the methodologies used comply with the VCS REDD modules methodologies (VM0007), and specifically with VMD0001 (option 1, fixed area plots with allometric equation method) (Tatum-Hume et al 2013b). The data collected in 2006 is used for the baseline carbon stocks in the Gola North and Gola Central blocks. For the Gola South block, the trees were surveyed in fixed plots in 2012, following the VCS REDD modules methodologies (VM0007), and specifically with VMD0001 (option 1, fixed area plots with allometric equation method) (Tatum-Hume et al 2013b).

Biomass survey

Sample plots were positioned at 200m intervals along line transects that followed a systematic segmented grid design (Buckland et al. 2004), which ensured an even coverage of the entire forest (see Figure 7).

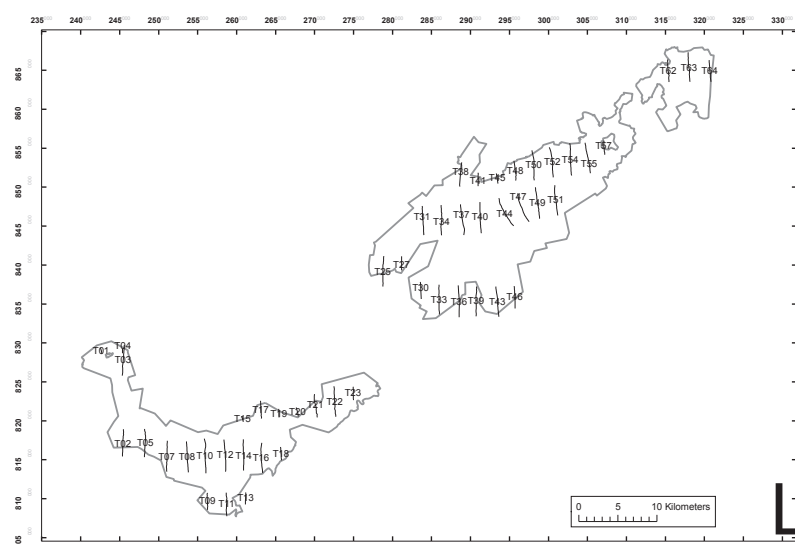


Figure 7. Transect locations throughout the project area

The tree measurements were carried out by trained teams consisting of experienced field staff and according to the 2006 and 2012 standard operating procedures on diameter measurements, tree labeling, tree height measurements, data recording and habitat measurements (Klop 2006, Winrock 2012). Soil carbon data was collected in 2012 from 47 randomly selected plots through out the project area (Tatum-Hume et al 2013b).

Stratification

The results of this extensive survey work showed that the forests across the project area were relatively homogenous in species composition (same forest type), however there were differences in carbon stocks between Gola South, and Gola Central/North. It was hypothesized that the difference between the stocks in the 2 areas was due to past management histories, the southern block having been more extensively logged than the central or northern blocks, thus resulting in a forest with lower carbon stocks but with potential for significant re-growth (Lindsell and Klop 2012). Because of the potential for re-growth enhancement of carbon in Gola South will be measured throughout the projects lifetime (Tatum-Hume et al 2013b), this is why a more recent baseline of carbon stocks was established in 2012 for Gola South.

Based on these results the Project Area was stratified into:

- 1) Gola Central & North, and
- 2) Gola South (where enhancements (forest growth) will be monitored).

Block	area (ha)
Gola Central/North	43,059
Gola South	25,455
Total	68,515

Table 1. Area of Gola REDD project strata.

Carbon stock calculations

Carbon stocks were estimated in the forest areas following the VCS, VM0007 Modules CP-AB and CP-S. Non-tree, litter and deadwood were excluded (Tatum-Hume et al 2013b). Above and below ground tree biomass and soil organic carbon was calculated for both forest strata (ibid). Carbon stocks were estimated for Strata 1 (GRNP Central/North) and Strata 2 (GRNP South). Uncertainty was calculated as a percentage of the mean at 95% confidence intervals following the VCS methodology VMD0017 (X-UNC).

Carbon Pool	Strata 1 (GRNP North Block)				Strata 2 (GRNP South Block)			
	Number of Plots	Mean Stock t CO ₂ e ha ⁻¹	95% CI	95% CI as % of mean	Number of Plots	Mean Stock t CO ₂ e ha ⁻¹	95% CI	95% CI as % of mean
C _{AB_Tree,i}	353	629	41.5	6.6%	49	578	74.9	13.0%
C _{BB_Tree,i}		151.0	10.0	6.6%		138.7	18.0	13.0%
C _{AB_nontree,i}								
C _{BB_nontree,i}								
C _{LI,i}								
C _{SOC,i}	18	253.9	30.6	12.1%	29	192.3	24.4	12.7%
C _{BSL}		1,034.26	26.4	8.4%		909.05	48.0	12.9%

Table 2. Project area carbon stocks

COMMUNITY INFORMATION

G1.5. Description of project zone communities

A description of communities located in the project zone, including basic socio-economic and cultural information that describes the social, economic and cultural

diversity within communities (wealth, gender, age, ethnicity etc.), identifies specific groups such as Indigenous Peoples and describes any community characteristics.

In its fifty-two years of independence, gained from the United Kingdom in 1961, Sierra Leone has struggled to develop despite being rich in natural resources such as fish, timber, oil, and minerals. The country has had over a dozen military coups and a brutal 11 year civil war; the legacies from which “dominate Sierra Leone’s prospects for a new beginning” (National Long Term Perspective Studies: 2000). More than 50,000 people died and almost half the population was displaced, (Internal Displacement Monitoring Center 2004) with the east and south of the country, where the Gola REDD project is located, most impacted. Sierra Leone is a low income country with a population of 5,997,486 (World Bank 2011) and a per capita GDP of \$734. The country’s Human Development Index places it 177 out of 187 countries (UNDP 2013) and with a poverty rate of 63% (UNDP 2011).

Seventy-three percent of all poverty in Sierra Leone is found in rural areas and 2 of the 3 districts where the project is based are recognised as the poorest districts in Sierra Leone (PSRP 2005:34). Life expectancy is 47 years, and under-5 mortality is 174 out of every 1000 children, the fourth worst rate in the world (UNICEF 2010). The adult literacy rate is estimated at 41% (UNICEF 2010). Sierra Leone had an “alarming” Global Hunger Index score³ of 25.2 and was ranked 71 out of 81 countries (IFPRI 2011); it qualifies as a Low Income Food Deficit Country per FAO criteria. Only 49% of the population uses improved drinking water sources (26% in rural areas) and only 13% use improved sanitation facilities (6% in rural areas) (UNICEF 2010). The underlying causes of poverty are attributed to wide-ranging factors including the lack of availability of social services (health, education, safe water and sanitation); lack of agricultural inputs, market access and low incomes from the sale of produce; weak infrastructure (bad road networks, lack of storage facilities); lack of economic and employment opportunities; devastation by the war; and social barriers such as large family size within the rural communities (PSRP 2005:38).

From baseline surveys and other consultation and information gathering exercises (Bulte et al 2013, Tatum-Hume et al 2013a), the findings of national surveys are a reflection of conditions in forest edge communities in the project zone. All forest edge communities described themselves as poor and the vast majority lack basic amenities and services such as latrines, clean water supply, healthcare and education. The war had a devastating impact on infrastructure (housing in particular) that remains widely apparent to date. The majority of forest edge communities are quite remote and located at some distance from motorable roads making market access difficult and restricting economic opportunity. For 90% of the population in forest edge communities, subsistence agriculture forms the basis for their livelihoods (Bulte et al. 2013).

Village size: The size of forest edge communities varies from small hamlets of as few as 10 individuals to large towns of up to 1200 people. 75% of villages have a larger proportion of women than men due to the impacts of the civil war on able-bodied men and greater male out-migration after the war (Bulte et al. 2013). In spite of this, the majority of households have

³ Designed to track global hunger, the index combines undernourishment, child mortality and children underweight.

male heads (85%) due to the widespread practice of polygyny.⁴ Despite the civil war, populations have grown by an average of 2% between 1990 and 2000 (Bulte et al. 2013). The current population of the project zone is estimated to be 23,500 individuals (Bulte et al. 2013), spread across 114 villages. It is estimated that over half the population is below the age of 18 (Bulte et al. 2013).

The majority (86%) of people residing in forest edge communities describe themselves as being 'Mende'; other ethnic groups are Gola, Fula, Mandingo, Vai, Kissi, Limba, Gbandi, and Temne. There are no obvious ethnic tensions between these groups. The primary religion found in the area is Islam (93.1% of people); the remaining inhabitants are largely Christian and religious groups in the region live in harmony. Within a village people are seen as either citizens (*tali*) or strangers (*hota*). Citizens belong to land owning families which can recognize a common founding ancestor and trace patrilineal descent (Bulte et al. 2013:10). Strangers are people that were not born in the Chiefdom; some may marry a citizen or be accepted as a community member by way of their profession.

Governance: Villages are led by a village chief, who is the traditional authority in a village. Chiefs can be men or women and play a key role in regulating daily activities and resolving any disputes. Other villagers that hold a degree of power and influence include the village speaker, the elders, members of secret societies and religious authorities. Whilst the village chief is the key representative of a forest edge community, day to day life in a village is organized in households. A household can be defined as the 'production unit' that makes a household farm which is used to feed the members of the household for the year. Usually the household activities are coordinated by a head, who is most often male (in approximately 85% of households; Bulte et al. 2013).

Villages are grouped into sections and then chiefdoms, governed by Section and Paramount Chiefs respectively. There are 7 Chiefdoms in the project zone: Malema, Gaura, Nomo, Tunkia, Koya, Barri and Makpele (see Figure 8). A dual system of local and traditional governance operates in the provinces of Sierra Leone further detail on both local and traditional governance systems can be found in the Gola REDD Project Context Report (Witkowski et al 2012c).

⁴ Polygyny is widely practised in Sierra Leone whereby a man is married concurrently to more than one woman.

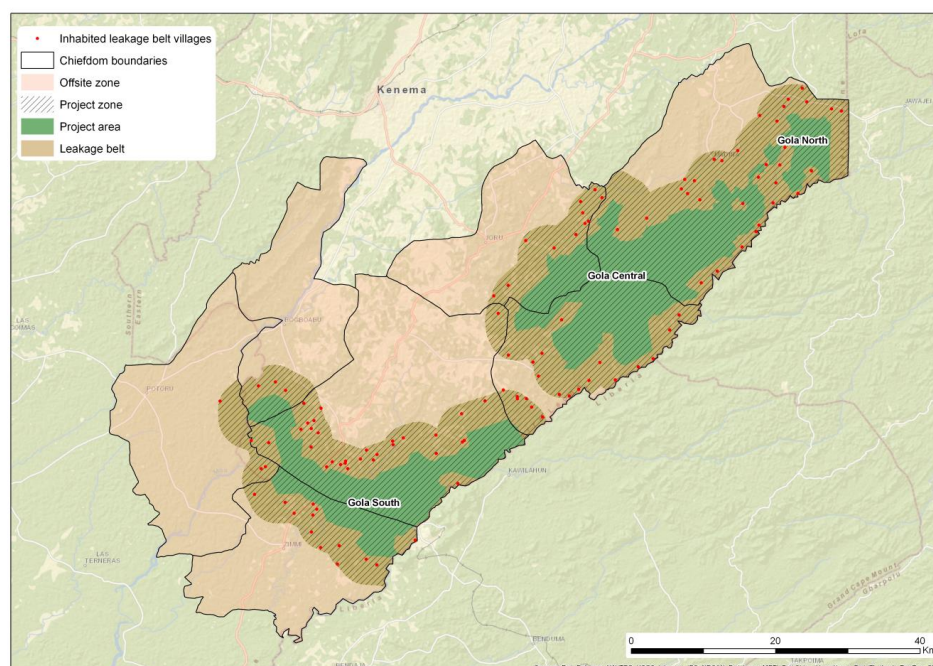


Figure 8. The 7 Chiefdoms of the offsite and project zone and the Forest Edge Communities

Wealth: All forest edge communities suffer from severe poverty and face many constraints to development. The majority of communities are located far from a motorable road (up to 8 hours walk) making access to key services such as markets, health centres and schools very difficult. Few villages contain even the most basic amenities such as public toilets, radios, cement drying floors or electricity (Bulte et al.2013). The majority of houses are made from local materials consisting of mud walls and a thatch roof. At the household level, it is likely that households with lower socio-economic status are stranger headed households or female-headed households as they generally have less land and civic rights. When villagers were asked directly who was the poorest, they all considered themselves to be poor and only upon further probing identified people that could not provide for themselves – namely the elderly, disabled, single mothers and widows - as being among the poorest (Witkowski et al. 2012a).

Education and Health: Across forest edge communities literacy levels are low, with approximately 29% of the adult population (over 18 years old) able to read and write, though this is unequal across the genders, with about 43% of males and only 13% of females being literate. Over half the forest edge community population has received no education at all (Bulte et al. 2013). The majority of forest edge communities do not have any educational facilities within the village so children either do not attend school, have to walk long distances to attend school or lodge with a relative in larger towns. The costs associated with attending school (books, uniforms, supplies and lodging) also create a barrier to attendance.

There is a lack of access to basic health services across forest edge communities leading to high disease rates and mortality. Malaria and dysentery are the primary causes of mortality

amongst children (Bulte et al. 2013). Most villages lack public latrines and sanitation facilities, the majority of villages do not have access to a clean water supply and lack knowledge of good health practices. Even in the schools and health care facilities that do exist, there are frequently shortages of staff, equipment and supplies.

Livelihoods: Agricultural production is the main source of income for households (approximately 90% of households in forest edge communities, Bulte et al. 2013). The main farming activity is rice cultivation, the majority of which is carried out in upland areas. Approximately half of land holdings are dedicated to upland farms. Rice production in inland valley swamp (IVS) areas and plantations (largely coffee and cocoa) each cover 25% of the remaining agricultural land.

Most villagers directly engage in rice farming, and on average 77% of households make a new farm each year; the average household upland farm size is about 3 acres (ranging from 0.5 to 15 acres) (Bulte et al. 2013).⁵ In upland areas, forest or “farm-bush” is cleared and farmed for one or two years. Rice is intercropped with yams, cassava, corn, beans and a variety of vegetables; these intercrops are worth approximately 25-50% of the total food value of the upland farm (Bulte et al. 2013). Intercrops in upland areas are largely the remit of women, as are the backyard gardens that supplement food supplies. Land is then left to fallow for an average period of 7 years in forest edge community villages but fallow periods vary depending on many factors from soil fertility to labour availability (Witkowski et al 2012a).

The heavy work of clearing and planting the upland farm is, where possible, undertaken by the members of a rotational labour-sharing group (Richards 1986, Bulte et al. 2013). Agriculture groups are the most common form of community institution found in about 61% of Forest edge communities (Bulte et al. 2013). Once the upland farm is planted the work of weeding and scaring animals falls to the female members of the households. Labour constraints are a challenge in many of the forest edge communities (Bulte et al. 2013).

On average, 70% of villagers farm swamps and average farm sizes are 2 acres (ranging 0.5 to 15 acres⁶) (Bulte et al. 2013). Women, strangers and young men are the main cultivators of swamp rice, as male heads of households focus on the cultivation of tree crops from which they receive better returns. Swamp farms, especially when properly developed, tend to yield more rice, but are more labour intensive to develop, do not allow for the production of intercrops and the variety of rice grown is less favoured for household consumption. The net return on swamp rice is thus “probably comparable to that from upland cultivation” (Bulte et al. 2013).

Forest edge communities report that the majority if not all of their residents experience a ‘hungry season’ during the wet season sometime between May and October when there are shortages of upland rice, their staple food (Witkowski et al, 2012b). This typically occurs from July to September when the prior year’s rice supplies have been exhausted (sold or eaten) and the current years are not yet ready to harvest. The actual length and severity of this period

⁵ Sierra Leonean rice farmers estimate the size of upland rice farms in terms of the bushels of rice seed the area will require. One bu. is c. 25 kg of husk rice, and this amount of seed will plant about one acre. 2.5 acres = 1.0 ha, but it is convenient to refer to farm sizes in terms of acres or bushels.

⁶ 2.5 acres = 1.0 ha

varies greatly depending on a variety of factors such as weather conditions, labour availability, crop damage, disposable income to buy rice, etc (Witkowski et al, 2012b).

Many (usually male) household heads also invest in small plantations, typically producing coffee, cocoa, bananas, palm oil, pineapple and kola nuts. Women are less likely to develop plantations due to their typically lower levels of capital and land rights which do not provide enough security to invest in such permanent crops (Bulte et al. 2013). Even so, some women do own plantation crops, often that they have inherited or been given by their spouses or parents. On average 86% of household heads cultivate a plantation. The average plantation size is 8 acres (ranging 0.5 to 282 acres) (Bulte et al. 2013). Plantations are still an important source of income, but production levels have declined over time as many areas have become overgrown for a variety of reasons including shortage of labour, the advancing age of some trees, use of poor varieties and techniques (Witkowski et al 2012b; pers. comm. Hans-Peter Mueller, WHH).

Natural resources are the basis for the livelihood activities communities conduct to complement agricultural activities. Complementary activities for both subsistence use and cash generation include logging, mining, gathering, hunting, fishing, and petty trade. Communities rely on numerous forest products in their everyday lives; this includes both timber and non-timber forest products such as honey, fruits, seeds, thatch, and rattan (Leach 1994). Wild plant foods add variety to diets and are critical supplement to food supplies during the hungry season (Leach 1994). Forest products serve as medicines, foods, construction and tying materials, as well as to make household items like mortars, utensils, and baskets; all of which can be used in the home or sold to generate income (Davies and Richards 1991). These natural resources are gathered primarily in bush-fallow areas and plantations but also in forests (Leach 1994, Davies and Richards 1991). High forests were reported to account for 57.9% of all medicinal plants used by villagers around the GRNP before the civil war (Davies and Richards 1991) and these plants remain central to Mende medicinal practices despite the availability of Western medicine (Leach 1994). 'Bush' areas are also important to the creation and maintenance of local society's traditional structures particularly local governance and secret societies (Leach 1994).

G1.6. Current land use, property rights and conflicts

A description of current land use and customary and legal property rights including community property in the project zone, identifying any ongoing or unresolved conflicts or disputes and identifying and describing any disputes over land tenure that were resolved during the last ten years (see also G5).

The project area

The Government of Sierra Leone obtained the legal right to manage the GRNP (the project area) upon the creation of the Gola forest Reserve, a process which began in the late 1920's. In late 2010, the Government upgraded the protection status of the project area from a Production Forest Reserve to a National Park. The legislation limiting land use in national parks and protected areas in Sierra Leone are the Forestry Act 1988, the Forest Regulations 1990 and the Wildlife Act 1992 (see G5 for further detail). The Government followed due process in the creation of the National Park, no disputes were raised over land tenure or land conflict in the creation of the National Park (Fofanah 2012). The boundaries of the National Park (project area) were demarcated on the ground in coordination with the Forest Edge

Communities that share a boundary with the Park during 2012 and 2013, several discrepancies were encountered during this process which are documented in the boundary demarcation report (Marris et al 2013) and in the grievance folder (available in the project office). All disputes over the project area were resolved and agreements have been made over the placement of the boundary with each community (ibid).

Whilst the Government has the legal authority to manage the project area, the 7 Chiefdoms and landowning families that surround what is now the national park are still recognized as the traditional owners of the land, though they no longer have any control rights and use rights are limited by the national laws mentioned above. This has been the case since the Gola Forest Reserves were created (Witkowski et al 2012c). The Paramount Chiefs facilitated by the Government and project staff have gone to great lengths to identify the heads of family of all the heirs of the traditional land owners of the project area within the 7 Chiefdoms and ensure that they were consulted in the project development process and receive a direct benefit from the project (Forestry Division 2013). All heads of land holding families have signed an agreement with the Government which acknowledges their support of the project and the transfer of any outstanding carbon rights to the Government in exchange for direct payments via the Benefit Sharing Agreement (ibid, Tatum-Hume et al 2013a, appendix E).

As is the case in all Forest Reserves in Sierra Leone, local people have the right to access the forest and collect non-timber forest products, other specific permitted activities vary for each protected area in Sierra Leone and are outlined in each areas published gazette, in the GRNP local communities retain the right to fish using legal and non-destructive methods for subsistence purposes (see 'laws and regulations for the GRNP' a reference to Fofanah 2012) All other land and resource uses, including agriculture, mining, logging, settlements, and hunting, are prohibited in National Parks, (as a Forest Reserve such activities were permitted only if a license was obtained from the Forestry Division) (Fofanah 2012).

There are no communities living inside the project area but as discussed later in section G1.8.5, prior to conservation activities, it was customary for the communities living nearby to the project area to periodically enter the reserves to carry out a variety of activities (both legally and illegally) to compliment farming activities and other livelihood activities occurring outside the reserve. This included farming in upland areas and inland valley swamps, logging, mining, hunting, fishing and collection of non-timber forest products (Witkowski et al 2012b).

The leakage belt

Land in the leakage belt of the project zone is under a different form of management to the project area. Here, similar to all provincial areas in Sierra Leone, land is governed primarily by customary law and is subject to family tenure under the Mende tribal system (Climate Focus 2011). Land is held by family lineages and administered by a family head whilst Paramount chiefs and chiefdom councils retain the right to regulate the way in which land is used in their Chiefdoms. The family head can trace their land rights in terms of patrilineal descent from those who first cleared the forest for farming. The traditional system is clear amongst local people; each family respects another's property rights and there are few disagreements as land boundaries are known and the knowledge passed down through the generations (Bulte et al. 2013). However, family tenure is not formally documented which can lead to problems if outsiders come to the area to make agreements to lease large areas of land for agriculture projects (Green Scenery 2011). Many villages have bylaws, but these most often relate to

social norms such as abusive language, sexual misconduct and obeying elders rather than land use (Bulte et al. 2013).

The leakage belt has a matrix of land uses depending on resource availability and other factors. There are 114 inhabited communities in this area with a total population of approximately 23,500 people. As described in G1.5, subsistence farming is the main livelihood activity of 90% of the villagers in the leakage belt and land dedicated to agriculture is divided between upland farming areas (usually making up around half of a village's agricultural land) where rice is intercropped with vegetables over a 1-2 year period before being left fallow for an average of 7 years (Witkowski et al 2012b), swamp farming (where only swamp rice varieties are grown) and plantations where cash crops such as cocoa, coffee and palm oil are grown. Other land uses include selective logging for valuable timber to be sold in national markets and artisanal mining for both gold and diamonds, both of which are legal activities if a license is obtained first from the relevant local authority. Other important livelihood activities in the leakage belt are hunting and fishing (using nets, baskets, and sometimes poison) which provide protein for local families as well as to sell in markets for income generation. Gathering of non-timber forest products such as rattan, poles, palm thatch, fibers, and traditional medicines also occurs.

Land disputes are not widely reported (Bulte et al. 2013) but when disputes do occur, they often involve encroachment when land is being brushed for farming, or a dispute over the timing of bush burning (e.g. when the wind changes and carries fire into a neighbouring farm). Sometimes a villager may be fined for clearing land for farming and then not using it (*lobai* – waste). Most conflicts are between co-villagers rather than inter-village disputes (Bulte et al. 2013). Where inter-village disputes arise it is purported to be where farmers clear bush on either side of a poorly-marked inter-communal boundary; this is most likely where land has not been used for many years and the local boundary markers have been neglected.

BIODIVERSITY INFORMATION

G1.7. Description of project zone biodiversity

Description of current biodiversity within the project zone and threats to biodiversity, using appropriate methodologies, sustained where possible with appropriate reference material

The project zone is extremely rich in biodiversity and harbours many species that are threatened or endemic to the Upper Guinea Forests. The flora and fauna of the project zone have been thoroughly surveyed, both before and after the civil war. The results of these surveys have been published in the scientific literature and in various unpublished reports (see GRNP 2013 for a list of published and unpublished reports); so far 60 threatened species have been found within the project zone. A brief description of the biodiversity in the project zone and the factors threatening it is given below.

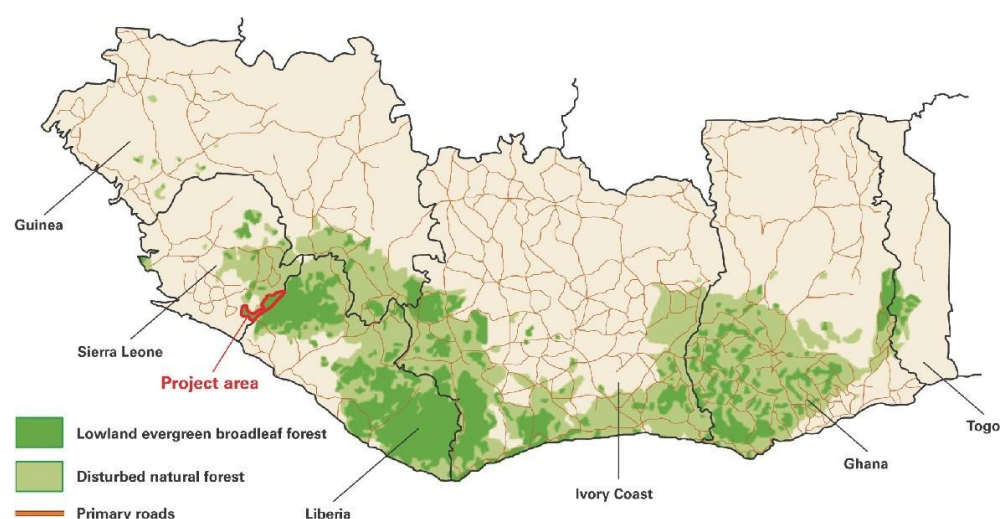


Figure 9. Location of the project area within the Upper Guinea Forest zone.

(source; Conservation International 1999)

Plants

Information on the vegetation types is described in section G1.2. 899 species of plant are known to occur in the project zone of which 232 are tree species; the most common family is identified as Leguminosae, with common species such as *Cynometra leonensis* and *Brachystegia leonensis*. However, the most dominant tree species is *Heritiera utilis* (Sterculiaceae) (Klop et al 2008).

IUCN classification for plants is incomplete. Nonetheless, at least 33 threatened species listed by IUCN have been recorded recently including two, *Tieghemella heckelii* and *Placodiscus pseudostipularis*, that are classified as Endangered and 31 classified as Vulnerable (IUCN 2012). Poorter et al. (2004) classified 278 woody plants in the Upper Guinea forests as rare

or threatened based on extent of distribution and threats from human exploitation. Of these, 67 have been recorded in the project zone. There are 599 forest species which are endemic to the Upper Guinea forests, of which 120 have been found in the project zone during surveys.

Of the 71 species of orchids identified in the project zone, seven are thought to be endemic to the Upper Guinea Forest (Klop et al 2008). According to Jongkind (2004), there are about 25 species of Orchidaceae endemic to the Upper Guinea Forest. Therefore, it can already be stated that the project zone contains almost 1/3 of the Upper Guinea endemics in this particular family.

Birds

The project area is listed as an Important Bird Area (Fishpool & Evans 2001) and holds a high proportion of the threatened and endemic species of the region and a good representation of Guinea-Congolian forest biome species. Many of these species are also present in the community forests of the project zone (Demey 2011). Recent bird surveys (Klop et al 2010, Demey 2011) recorded 294 species in the project zone bringing the total to 327, which is amongst the highest of the Upper Guinean Forests. The birds that occur in the project zone include flagship species such as White-necked *Picathartes*, Rufous Fishing-Owl, White-breasted Guinea fowl and Gola Malimbe. Besides the high species diversity, several threatened species occur in good numbers. The threatened species of birds that occur in the project zone are listed in Table 3.

English name	Scientific name	IUCN status
White-breasted Guinea fowl	<i>Agelastes meleagrides</i>	Vulnerable
Timneh Parrot	<i>Psittacus timneh</i>	Vulnerable
Rufous Fishing-owl	<i>Scotopelia ussheri</i>	Vulnerable
Brown-cheeked Hornbill	<i>Bycanistes cylindricus</i>	Vulnerable
Yellow-casqued Hornbill	<i>Ceratogymna elata</i>	Vulnerable
Western Wattled Cuckooshrike	<i>Campephaga lobata</i>	Vulnerable
Yellow-bearded Greenbul	<i>Criniger olivaceus</i>	Vulnerable
Nimba Flycatcher	<i>Melaenornis annamarulae</i>	Vulnerable
White-necked Picathartes	<i>Picathartes gymnocephalus</i>	Vulnerable
Gola Malimbe	<i>Malimbus ballmanni</i>	Endangered
Hooded Vulture	<i>Necrosyrtes monachus</i>	Endangered

Table 3. Threatened species of birds recorded in the project zone.

Status refers to the 2012 IUCN Red List Category; data available at <http://www.iucnredlist.org/search>).

Nearly 80 of the bird species in the project zone are mostly restricted to forest habitats, although some may occasionally occur at the ecotone of forest and more open habitats. Another approximately 100 species occur in forest but are also frequently found in other habitats such as forest edges or clearings inside the forest. Nine species appear to be restricted to primary forest: Lemon Dove, Black-collared Lovebird, Shelley's Eagle-owl, Brown-chested Alethe, Nimba Flycatcher, Dusky Crested Flycatcher, Yellow-bellied Wattle-eye, Lagden's Bush-shrike and Gola Malimbe. In addition, the Lyre-tailed Honeyguide was nearly restricted to primary forest, with only a few records from tall secondary forest. Most of

these species are rare or uncommon; only the honeyguide and the wattle-eye were more common. Evidently the conservation of these species depends entirely on the preservation of large tracts of undisturbed closed-canopy forest, and the project area can be considered essential to the survival of these species in Sierra Leone.

Although some of the true forest specialists are missing from the community lands in the buffer area of the project zone, the areas surrounding the project area hold good numbers and diversity of birds (Demey 2011). Many of these species are restricted to forest edges, open country and farmbush. Around 80 species of the project zone do not normally occur inside forest, although some were found in large clearings inside the forest. The species in the community lands comprise a gradient from 'forest-oriented' to 'farmbush-oriented' species. Species that are normally found close to, or sometimes in, forest are e.g. Violet-backed Hyliota, Dusky-blue Flycatcher, Capuchin Babbler and Splendid Starling. A number of species did not enter forest and were restricted to open farmbush. These species included Double-spurred Francolin, Common Bulbul and Pied Crow. Around 25 species were regularly recorded in all habitats. These habitat generalists include Palmnut vulture, Western nicator and Velvet-mantled drongo. Most of the farmbush species and habitat generalists are common and widespread throughout (West) Africa, and not currently threatened or likely to become so in the near future (information available at <http://www.iucnredlist.org/search>). The exception was Hooded Vulture which has recently been uplisted to Endangered.

Mammals

An overview of the mammals in the project zone is given by Lindsell et al (2011). 49 species of large mammal are known to occur, of which 9 species are currently considered to be threatened (Table 4). Four species are listed as Endangered and five species as Vulnerable. Several species of ungulates that are known to occur in the project zone are endemic to the Upper Guinea forests. These include Jentink's Duiker and Zebra Duiker, and Brooke's Duiker if this subspecies of Ogilby's Duiker is raised to full species status. Pygmy Hippopotamus is also endemic, (if the isolated population in Nigeria is extinct, as it is thought to be (IUCN 2011). Black Duiker and Maxwell's Duiker are both near-endemic to the Upper Guinea forests.

Despite 11 years of civil war in Sierra Leone, it appears that the mammal fauna of the project zone has survived relatively intact and that the project zone continues to be an important site for the conservation of threatened Upper Guinea forest wildlife, and the most important site for these species in Sierra Leone. No large mammal species was extirpated during the war and previously unrecorded species have been discovered in recent years. Some of the most threatened species continue to have healthy populations in the forest, especially primates, and showed little or no sign of reduced abundance. However, the population of African forest elephants has collapsed during the war, with only a few individuals remaining from approximately 110 in the mid-1980s (Lindsell et al 2011).

Species	Scientific name	Status	Endemic
Cercopithecidae			
Western pied colobus	<i>Colobus polykomos</i>	VU	Upper Guinea
Western red colobus	<i>Procolobus badius</i>	EN	Upper Guinea
Sooty mangabey	<i>Cercocebus atys</i>	VU	Upper Guinea
Diana monkey	<i>Cercopithecus Diana</i>	VU	Upper Guinea
Hominidae			
Western Chimpanzee	<i>Pan troglodytes verus</i>	EN	
Hippopotamidae			
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	EN	Upper Guinea
Bovidae			
Zebra duiker	<i>Cephalophus zebra</i>	VU	Upper Guinea
Jentink's duiker	<i>Cephalophus jentinki</i>	EN	Upper Guinea
Elephantidae			
African forest elephant	<i>Loxodonta cyclotis</i>	VU	

Table 4. Threatened mammal species recorded in the project zone.

(Based on Lindsell et al 2011. Status refers to the 2011 IUCN Red List Category, VU: Vulnerable, EN: Endangered, updated from www.iucnredlist.org).

Eleven primates are known to occur in the project zone, including one ape and three prosimians. The Endangered Western red colobus is common but is mostly restricted to the less disturbed areas of the central and northern parts of the project area. The Vulnerable Diana monkey, Sooty mangabey and Western pied colobus are abundant and widespread but the only Near-threatened primate, Olive colobus seems to be rare (Klop et al, 2008).

The Endangered Chimpanzee is relatively widespread throughout the project zone. Based on transect sampling of nest counts in 2009, an average population density of 0.27 chimps per km² was estimated (Ganas 2009), with highest densities occurring in the northern part of the project area. These figures compare favourably to other West African forests. When

extrapolated over the entire forest this density gives a total population of 303 in the project zone (Ganas 2009).

The Endangered Pygmy hippopotamus occurs in a many areas, most notably along the Mano/Moro River. This area consists of a mix of floodplains dominated by herbaceous vegetation and patches of riverine forest. There is very little information on the ecology of this species so it is hard to make inferences about likely population sizes. Most of the riverine forest is in the leakage belt of the project zone and so floodplain areas in the community forest may be essential for the conservation of this species in Sierra Leone (Hillers and Muana 2011).

Small mammals

A rapid assessment of small terrestrial mammals in Gola identified 26 species of shrews and rodents (Anadu 2008). Three of these species, *Crocidura juvenetae*, *Crocidura obscurior* and *Malacomys cansdalei*, are Upper Guinea endemics. Two species, Large-headed Forest Shrew (*Crocidura grandiceps*) and Buettikofer's Shrew (*C. buettikoferi*), are restricted to the Gulf of Guinea and are classified as Near-threatened (Mondajem 2011).

The project zone is also an important stronghold for bats; 34 species have been identified so far, 1 of which is Vulnerable (*Hipposideros marisae*) (Weber and Fahr 2009).

Reptiles and amphibians

Survey work by Hillers (2009) identified a total of 43 amphibian and 13 reptile species in the project zone. Most of the recorded frogs and reptiles were typical forest species that are restricted to the Upper Guinea Forest zone. One third of the encountered amphibians are listed as threatened or near threatened on the IUCN Red List, (Table 5; 1 CR, 2 EN, 2 VU). The majority of species were closely related to forest habitats (19 frog species, 44%; 9 reptile species, 69%). Additionally, 13 amphibian (30%) and one reptile (8%) species were also related to forests, but they are tolerant of farmbush habitats. The remaining 11 amphibians and three reptiles comprised of purely savanna, grassland and farmbush species. None of these species is currently considered to be threatened, although IUCN classification is incomplete.

Genetic analyses identified two specimens of the genus *Phrynobatrachus* as a cryptic species new to science. This species probably is endemic to the area and therefore is likely to be threatened based on its small distribution range. The spectacular finding of the Critically Endangered forest Tai toad *Amietophrynus taiensis*, that so far was thought to be endemic to the Tai National Park in Côte d'Ivoire, furthermore highlights the extremely high potential of the project zone for conservation (Hillers 2009). More research is likely to discover further surprises, including more species new to Sierra Leone or to science in general. Very high species richness, similar to the most diverse forests in south-western Côte d'Ivoire and south-eastern Guinea is not unlikely. The project area is therefore crucial in protecting its important forest habitat diversity and for guaranteeing the persistence of the regional biodiversity of the Upper Guinean forests.

The five reptile and amphibian species that are currently considered threatened are listed in Table 5.

Status refers to the 2011 IUCN Red List Category, updated from www.iucnredlist.org.

Species	IUCN status
<i>Amietophrynus taiensis</i>	Critically Endangered
<i>Conraua alleni</i>	Vulnerable
<i>Phrynobatrachus annulatus</i>	Endangered
<i>Hylarana occidentalis</i>	Endangered
<i>Osteolmaemus tetraspis</i>	Vulnerable

Table 5. Threatened reptile and amphibians recorded in Gola Forest by Hillers (2009).

Freshwater fish

The rivers of the project zone largely comprise the tributaries of the Moro, Mano, Mahoi and Moa Rivers within the Moro-Mano, Mahoi and Moa River basins. The waters of these basins are relatively demineralised, poorly buffered and hence vulnerable to change. Sampling in the Mahoi and Koye Rivers (Payne 2009) produced 31 fish species. With 35% of these species being regional endemics confined to the Sierra Leone/Liberia Upper Guinean ecoregion, the distinctiveness of the fish communities is remarkable. This further emphasises, in global terms, the distinctive nature of the Upper Guinean region of which the project zone is part. Many of the fish species found are scarcely known to science and must be regarded as data deficient or unevaluated in IUCN conservation terms. Of particular note are the headwater swamps and streams which have distinctive communities of smaller species.

Butterflies

The importance of the project zone in the overall butterfly biodiversity of Sierra Leone can hardly be overestimated. Recent surveys have indicated that the project zone holds an extremely high diversity of butterflies, probably well in excess of 600 species or 80% of all the 750 species known from Sierra Leone. A significant proportion of the rarest and most interesting species in Sierra Leone are almost limited to the project zone, the great majority of which are forest-dependent (Safian 2009), two recently encountered butterflies are new to science (Safian 2011). Because of the incomplete IUCN assessment of invertebrates, the conservation status of many of these species is not clear. An overview of noteworthy species is given by Larsen & Belcastro (2008) and Safian (2011). Four recent descriptions of species new to science are based, at least in part, on material collected in the project zone.

Dragonflies

One hundred and forty species of dragonflies and damselflies (Odonata) are known to occur in the project zone (Dijkstra 2011), representing 80% of the species found in all of Sierra Leone. Odonate species can be used as indicators of the quality of freshwater ecosystems and forest habitats (e.g. Catling 2005). This dependency can contribute to raising public awareness of the importance of conserving forests and aquatic habitats. Twenty-two species are considered regionally endemic or threatened, rare and insufficiently known (and thus potentially threatened) (Dijkstra 2011), *Agriocnemis angustirami* is listed as a vulnerable species by the IUCN. Six species found in the project zone in 2011 are new to science.

Threats

Biodiversity in the project zone is threatened by a number of activities that result in deforestation, degradation or disturbance of the forest or by hunting activities.

Deforestation and degradation

The primary driver of deforestation in the project zone is the conversion of forest into the bush-fallow cycle for subsistence agriculture. Forest degradation occurs in the leakage belt of the project zone via selective logging activities and artisanal mining (Witkowski 2012), but degradation from such activities in the project area has been successfully prevented since forest rangers began patrolling there in 2004. Deforestation in the project zone would reduce the size of the forest blocks and increase their isolation from one another. This would have a direct impact on plant biodiversity and an adverse impact on other taxa as many species are restricted to forest habitats and so are dependent on the availability of forest cover. Many threatened species have small ranges or are mostly restricted to undisturbed primary forest (e.g. the Endangered Gola Malimbe and Western red colobus and the Critically Endangered Tai toad) and so are highly vulnerable to deforestation (Davies 1987, Klop et al 2010). Established metapopulation theory (e.g. Hanski 1999, Akcakaya et al. 2007) predicts that reducing connectivity between forest areas would have a long term impact on the viability of isolated populations. Artisanal mining activities can contribute to forest degradation because small areas are cleared of vegetation to access the minerals found in the soils. Areas chosen for mining often coincide with river courses or swampy areas and as a result there can be a negative impact on water quality and aquatic organisms (Hilson and Nyame 2006).

Disturbance

Disturbance is defined here as increased human presence that may impact the behaviour of animals, leading to e.g. reduced population sizes or the abandonment of suitable sites. Disturbance represents a threat to biodiversity as many species are susceptible to even small levels of disturbance. The Vulnerable White-necked Picathartes, for example, a flagship bird species for the project zone, nests in colonies on large boulders in forest areas. Surveys of nest colonies inside the project area and in communal forests have indicated that colonies in the communal forests have a higher risk of abandonment because of human disturbance (Monticelli et al 2011). Forest elephants are a further example of a species prone to the threat of disturbance; their numbers crashed during the civil war period when people used the forest as a refuge from war atrocities. Only a few individuals remain in the central parts of the project area and the crash in the project zone population brings the elimination of the forest elephant from Sierra Leone closer; it was known from only two other sites in the country, Outamba-Kilimi and the Loma Mountains area, where these populations were small even in the 1980s and under heavy pressure from hunting (Blanc et al 2007). Another species, the Endangered pygmy hippopotamus is mostly found in floodplain areas in the leakage belt of the project zone. It is probably rare inside the forest in the project area (Hillers and Muana 2011). Disturbance and habitat conversion threaten what is probably the largest remaining population of this species in the country.

Bush meat hunting

In West and Central Africa, bushmeat hunting is known to be one of the most important threats to primate and duiker populations (Bowen-Jones et al 1999, Kümpel et al 2008, Greengrass 2011). Many of the primates and duikers in the project zone are targeted by hunters. In a recent survey on bushmeat markets in the wider Gola area, six species of high conservation concern were found including three Endangered species; Western red colobus, western Chimpanzee and the Pygmy hippo and three vulnerable species; the Sooty Mangabey, Diana Monkey and the Black and White Colobus monkey (Koroma 2012). Some of the bird species are also susceptible to hunting; the Vulnerable White-breasted guineafowl is a terrestrial species and is sometimes caught in snares. Some species are also kept as pets, for example Timneh (Grey) parrot.

G1.8. Project zone High Conservation Value evaluation

High conservation values in the project zone

As is clear from the biodiversity information described in the previous section, the project zone is extremely important for the conservation of threatened Upper Guinea flora and fauna. The project zone harbours several High Conservation Values (HCVs), including several endemic and threatened species and significant tracts of primary Upper Guinea rainforest. The project area has been nominated as a World Heritage site and is awaiting evaluation. An overview of the HCVs present in the project zone is given in below, following classification of HCVs in the CCB project standards.

G1.8.1. Significant concentrations of biodiversity values

Globally, regionally or nationally significant concentrations of biodiversity (HCV1)

The project zone constitutes the westernmost part of the Upper Guinea forest belt, which has been classified as one of the 25 most important biodiversity hotspots in the world (Myers et al 2000). The project zone is home to many species of plants and animals that do not occur anywhere outside of the Upper Guinea forests. For example, a total number of 2,800 species of vascular plants are known to occur in these forests, of which about 650 species (23%) are endemic to the region (Poorter et al. 2004). In addition, many species of mammals, birds and other taxa that are in the Upper Guinea forests occur nowhere else (see section G1.7). The populations of these species in the project zone are thus of global significance as local extinction may be detrimental to the survival of the entire species.

On the national level, the project zone contains the largest remaining tract of tropical lowland forest in Sierra Leone. For many species of regional and national significance the project zone has thus become the final habitat in Sierra Leone. An overview of the species found in the project zone that are threatened is given in tTable 6.

Species	Scientific name	IUCN status	Endemic
Mammals:			
Western pied colobus	<i>Colobus polykomos</i>	Vulnerable	Upper Guinea
Western red colobus	<i>Procolobus badius</i>	Endangered	Upper Guinea
Sooty mangabey	<i>Cercocebus atys</i>	Vulnerable	Upper Guinea
Diana monkey	<i>Cercopithecus diana</i>	Vulnerable	Upper Guinea
Western Chimpanzee	<i>Pan troglodytes verus</i>	Endangered	-
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	Endangered	Upper Guinea
Jentink's Duiker	<i>Cephalophus jentinki</i>	Endangered	Upper Guinea
Zebra duiker	<i>Cephalophus zebra</i>	Vulnerable	Upper Guinea
African forest elephant	<i>Loxodonta cyclotis</i>	Vulnerable	-
Birds:			
White-breasted Guineafowl	<i>Agelastes meleagrides</i>	Vulnerable	Upper Guinea
Rufous Fishing-Owl	<i>Scotopelia ussheri</i>	Vulnerable	Upper Guinea
Brown-cheeked Hornbill	<i>Bycanistes cylindricus</i>	Vulnerable	Upper Guinea
Yellow-casqued Hornbill	<i>Ceratogymna elata</i>	Vulnerable	
Timneh Parrot	<i>Psittacus timneh</i>	Vulnerable	Upper Guinea
Western Wattled Cuckoo-shrike	<i>Lobotos lobatus</i>	Vulnerable	Upper Guinea
Yellow-bearded Greenbul	<i>Criniger olivaceus</i>	Vulnerable	Upper Guinea
Nimba Flycatcher	<i>Melaenornis annamarulae</i>	Vulnerable	Upper Guinea
White-necked Picathartes	<i>Picathartes gymnocephalus</i>	Vulnerable	Upper Guinea
Gola Malimbe	<i>Malimbus ballmanni</i>	Endangered	Upper Guinea
Reptiles and amphibians:			
African dwarf crocodile	<i>Osteolaemus tetraspis</i>	Vulnerable	-
Tai toad,	<i>Amietophrynus taiensis</i>	Critically endangered	Upper Guinea
Allen's slippery frog,	<i>Conraua alleni</i>	Vulnerable	Upper Guinea
Ringed common frog,	<i>Phrynobatrachus annulatus</i>	Endangered	Upper Guinea
	<i>Hylarana occidentalis</i>	Endangered	Upper Guinea

Table 6. Threatened species recorded in the project zone.

Status refers to the 2011 IUCN Red List Category, updated from www.iucnredlist.org.

G1.8.2. Significant large landscape areas

Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance (HCV2)

The project zone is part of the Upper Guinea forests, which is a globally, regionally and nationally significant area of forest. Although it is not the only forest block on the African continent, the Upper Guinea forests are home to several species that are found nowhere else on the planet (Poorter et al 2004, Penner et al 2011, Brooks et al 2001). For many species of regional and national significance the project zone has become the last refuge in Sierra Leone. Nearly all lowland forest species found in Sierra Leone have their major stronghold in the project zone. This includes several species that are globally threatened. These endemics include:

- The frog *Phrynobatrachus* nov. sp. It is likely that the entire world population is restricted to the project zone and neighbouring forest in Liberia.
- The Critically Endangered Tai toad *Amietophrynus taiensis* (only known from Gola and Tai NP)
- The Endangered species pygmy hippopotamus, Western red colobus, Jentink's duiker and Gola Malimbe have their main (or sole in the case of Gola Malimbe) Sierra Leone strongholds in the project zone. Although the colobus is relatively common in the project area, both the hippo and the malimbe are very rare. The conservation of the project zone is essential to the survival of these species in the country and to the species as a whole.

Many species that are listed as threatened occur in the project zone (see Table 4.

- In addition to the threatened species, there are several non-threatened species that are restricted to primary forest and the project zone is of major importance for these species in the country. These include Green-tailed Bristlebill, Rufous-winged Illadopsis and Lagden's Bush-shrike.

The project zone is also important for other reasons. Firstly, for many taxa the IUCN lists are incomplete and the conservation status of many lesser-known taxa such as amphibians, fish and invertebrates has not been adequately assessed⁷. However, many of these species may be threatened, especially in sensitive groups such as amphibians. In addition, several species that are new to science have been recently discovered in the project zone (e.g. the *Phrynobatrachus* frog and four species of butterflies and six species of dragonfly). There may be many species waiting for discovery in these forests and it is likely that many of these will be endemic to this region. All these species occur naturally in this ecosystem type and exist in natural patterns of distribution and abundance.

⁷ see <http://www.iucnredlist.org/initiatives/amphibians/description/limitations>

G.1.8.3. Threatened or rare ecosystems

Threatened or rare ecosystems (HCV3)

The Upper Guinea forests are distributed in West Africa from Guinea in the west to Togo in the east and are separated from the main Guinea-Congolian forests of central Africa by the unforested 'Dahomey Gap' in Togo and Benin. They have been classified as one of the 25 most important biodiversity hotspots in the world (Myers et al. 2000) and have experienced severe loss of forest cover. Chatelain et al. (2004) estimate that between 20% and 50% of the forest cover that existed at the turn of the 19th century remains. Given the climatic conditions, more than half of Sierra Leone could be covered with rainforest, but actual forest cover is approximately 5% (NBSAP 2010). It is clear that the conservation of the project zone is crucial for the survival of this highly threatened ecosystem and its species in the country.

G1.8.4. Areas providing critical ecosystem services

Areas that provide critical ecosystem services (e.g., hydrological services, erosion control, fire control) (HCV4)

The project zone provides some critical ecosystem services and the forest acts as a natural resource base serves to underpin many of the livelihood options of the communities. The most important services are carbon sequestration and watershed protection but in addition, the forest also plays a role in erosion prevention, climate regulation and the supply of wild pollinators for growing coffee and other crops important for livelihoods. The importance of the project zone in terms of carbon sequestration is discussed in section CL1. The other critical ecosystem services provided by the project zone are discussed in more detail below.

Watershed protection

Forests provide hydrological control of both water supply and water quality. In general, stream flow from forested catchments is more consistent through the year, less likely to run dry, peaks at lower levels and is cleaner than stream flow from areas where the forest has been cleared. Both reduced flow and dirtier water can contribute to health problems.

Most streams from the project zone drain into the Moro/Mano River on the eastern border. Many settlements around the forest depend on streams that originate in the project area and local communities have commented on the importance of the forest for their water supplies (Witkowski et al 2012b). Very few Forest Edge Communities have piped or borehole supplies, and stream water is still used for a number of domestic activities as well as being important for agriculture (Bulte et al. 2013).

Other ecosystem services

Forest cover provides effective protection from erosion by rainfall and runoff (Morgan 2005, Bao & Laituri 2011). Soil loss, particularly on steep slopes, can be a leading cause of land degradation and can lead to danger from landslides in certain circumstances. The delivery of excess sediment downstream can be detrimental for aquatic ecosystems, for agriculture as well as problematic for domestic water supplies (e.g. Birkinshaw et al 2010).

A number of crops grown in the project zone depend on wild pollinators, notably coffee. Elsewhere, wild pollinators have been shown to make a substantial economic contribution to coffee and other agricultural yields (Klein et al 2003, Chaplin-Kramer et al 2011).

Forests are also a source of non-timber forest products (NTFPs) such as honey, fruits, seeds, thatch, and rattan which are collected in farm bush and forest areas (Leach 1994). Wild plant foods add variety to diets and are a supplement to food supplies during the hungry season (Leach 1994). Forest products serve as medicines, foods, construction and tying materials, as well as to make household items like mortars, utensils, and baskets; all of which can be used in the home or sold to generate income (Davies and Richards 1991).

Finally, any large block of forest is believed to play a role in stabilizing climate and hydrology. In particular, forests near the coast in West Africa are believed to be important in recycling moisture so as to maintain humidity levels and contribute to reliable rainfall in drier areas further inland, where water is often a limiting factor in terms of human survival (Popoola 2011). The maintenance of humidity levels is also important for the production of cocoa, an important cash crop for farmers in the project zone (per comm.. WHH).

G1.8.5. Areas fundamental for meeting the basic needs of local communities

Areas that are fundamental for meeting the basic needs of local communities (e.g., for essential food, fuel, fodder, medicines or building materials without readily available alternatives) HCV5

People living in Forest Edge Communities were identified as those who periodically entered the project area primarily to farm, hunt and gather NTFPs (See G3.8). Of the raw materials communities gather for household use building materials are the most important and in particular poles required for construction (Davies and Richards 1991). The vast majority of building materials used are accounted for by 10 species of tree all of which grow primarily in farm bush areas rather than forest and so are gathered primarily in the leakage belt areas not the forests of the project area (ibid). The most important forest foods are plant products particularly vegetables (e.g. leaves) but also fungi and roots and tubers. Like the building materials many of the species used grow in areas of farm bush and plantations (ibid). Of foods sourced from animals, fish and crustaceans are the most important category for consumption (ibid). As alternatives are available in the community managed areas of the leakage belt closer to dwelling areas, it is understood that the project area served as an additional source for meeting basic needs rather than a fundamental source, the project therefore does not meet HCV5. In addition the project has been designed to involve forest edge communities in the development of co-management zones in the project area (GRNP) and therefore have access to areas to sustainably extract NTFPs and fish to meet any additional requirements for basic needs as they have likely done in the past (see G3.1).

G1.8.6. Areas critical for traditional cultural identity

Areas that are critical for the traditional cultural identity of communities (e.g., areas of cultural, ecological, economic or religious significance identified in collaboration with the communities)

Secret society (*Sande* and *Poro*) is a central part of the Mende culture, as a person is not fully gendered until they have reached puberty and passed through an initiation process. As part of the initiation process, children are required to spend time in a special part of the bush isolated from members of the opposite sex (Leach 1996); the locations of these areas are only known to members of the societies and not to outsiders but they are understood to be largely within the bush areas of the leakage belt in the project zone rather than in the project area (Personal communication, GRNP Community Development staff and Green Africa staff).

Burial grounds are considered sacred areas and there are strict rules about respecting such areas (Bulte et al. 2013). Such sites have been encountered within the project area but these are found as biodiversity survey work is carried out rather than as a result of a deliberate effort to identify such areas. From interviews and discussions with Forest Edge Communities burial grounds and other sacred areas within the project area are not frequently visited (in key informant interviews less than 5% of people said that such sites were known about (Witkowski et al 2012a) and if they were visited the frequency of visit was once per year). Burial grounds are also present in the leakage belt. Such areas are not currently mapped but the location of sites will become clearer as the project develops Co-Management within the project area (see G3.1). It is therefore not considered that critical areas for the traditional cultural identity of communities exist within the project area. It should be noted that communities retain the right to access any sacred areas within the project area.

G2. Baseline Projections

G2.1. Most likely 'without project' land-use scenario

Describe the most likely land-use scenario in the absence of the project following IPCC 2006 GL for AFOLU or a more robust and detailed methodology, describing the range of potential land use scenarios and the associated drivers of GHG emissions and justifying why the land-use scenario selected is most likely.

The most likely alternative land-use scenario in the absence of the project, the range of potential land use scenarios and associated driver of emissions were identified and selected following the Verified Carbon Standards (VCS) tool 'VT0001 Tool for the Demonstration and Assessment of Additionality in Agriculture, Forestry and Other Land Use (AFOLU) project activities' and the baseline estimation of carbon stock changes followed VM0007 and the BL-UP (Baseline-Unplanned) methodology module, Version 3.0. The tool uses a step-wise approach to identify the most likely alternatively land use scenario, as is described below.

STEP 1 – IDENTIFICATION OF ALTERNATIVE SCENARIOS

Step 1a. Identify credible alternative land use scenarios to the proposed VCS AFOLU project activity Scenarios

The following 8 alternative scenarios were identified for the project;

1. Continuation of Forest Reserve designation and issuance and implementation of selective logging concessions

Historically the project area (GRNP) was designated by the government as a timber production area. Gola East and West reserves were gazetted as Forest Reserves in 1926 (now known as Gola South), Gola North in 1930 (now known as Gola Central) and extensions added in 1956 and 1963 (now known as Gola North) (See Figure 10). Two large scale timber companies worked in the Gola project area, the Forest Industries Corporation (FIC) and The Sierra Leone Timber Industry and Plantation Company (SILETI) (Illes et al 1993). FIC worked in the accessible areas in the western section of Gola Central in 1961, 1978 and during the period 1984-1986. Some 19% of Gola Central was exploited during this

period (Illes et al 1993). Gola South was more extensively logged by both FIC and SILETI during the 1960's, 70's and 80's, operations finishing in 1989 (Illes et al 1993).

Although the most accessible timber has been removed, Illes et al. (1993), estimated that 28,000 m³/year could be sustainably extracted. Currently there is ban on timber exports; only timber products with added value can currently be exported from Sierra Leone but a high tax levy on each container acts as a disincentive to commercial operators (Sheku Mansaray, Forestry Division pers. comm.). Currently any small scale logging or larger scale commercial logging operations are therefore selling wood to the National market. Although there are limitations, the project area still has the potential to be commercially logged as an alternative land use scenario.

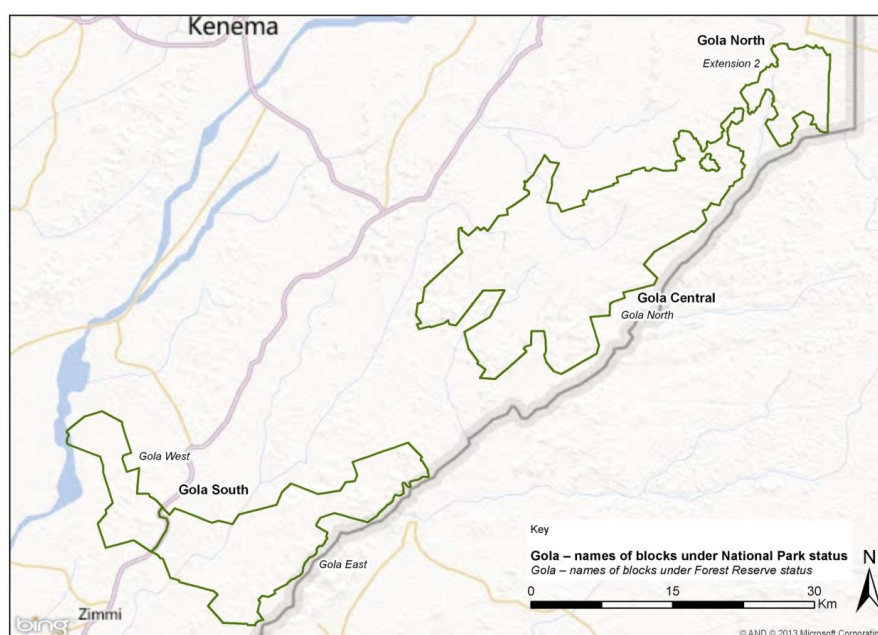


Figure 10. The GRNP with current and historical block names as a Forest Reserve and as a National Park

2. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of small-scale logging operations

Small scale logging operations remove selected trees from within the project area, causing localised degradation. Timber prices on the local market offer an attractive incentive for small-scale logging activities in a country where unemployment, especially among male youths is high (Peters et al 2010:6,7). Without the project small scale illegal timber extraction would take place, it is thought that such activities would be highest in areas where no community forests remain and areas which are most accessible and have good timber stocks (Witkowski 2012). Small scale logging operations therefore represent an alternative

land use scenario and such activities would result in degradation, paving the way for further degradation and deforestation processes.

3. Continuation of Forest Reserve designation with issuance and implementation of industrial mining concession operations in parts of the reserve

Before the civil war during the 1960's and 70's the mineral sector provided Sierra Leone with 70% of its foreign exchange earnings and of 20% of the GDP (National Recovery Strategy 2002:7). Minerals continue to be of key importance to the economy of Sierra Leone, as highlighted by the priority given to the sustainable development of the country's mineral wealth in the National Recovery Strategy (2002:55) and the Poverty Reduction Strategy Paper (2005:93). Mineral exports contributed to 54.3% of Sierra Leone's total exports in 2010 (ICMM 2012).

Mining concessions overlie the boundaries of other Forest Reserves; the Kangari Hills Forest Reserve for example is partly overlain by the Baomahun licence for Gold Mining where operations are owned and run by Cluff Gold (Cluff Gold report 2010: 8). Licenses for prospecting minerals have also been issued by the Ministry of Mines within the project zone in the past (see Figure 11). Subsequent investigations into the companies purporting to own the licences reveal that many are no longer operating and the Ministry of Mines reports that there are no active mining licences in the Gola Forests (pers. comm. Director of Mines Jonathan Sharkah on 22 January 2013). The only possible threat is therefore over known deposits of iron ore contained in the Bagla Hills in the Southern block of the project area. The Bagla Hills contain a viable large scale deposit of iron ore (SRK Consulting 2007) which would be extracted by open cast mining methods (SRK consulting 2007), if a licence was issued and would cause multiple direct and indirect impacts on the environment (MINEO 2000; 5, <http://www.african-minerals.com/operations/tonkolili-project-videos>).

Only the southern block of the project area therefore has the potential to be industrially mined as an alternative land use scenario.

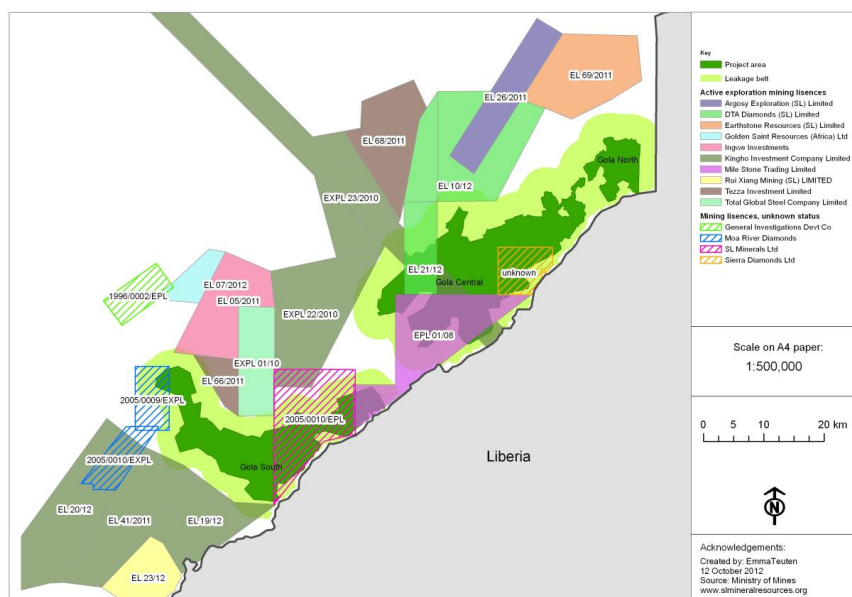


Figure 11. Mining licenses previously issued in the project zone

(source: Ministry of Mines website; www.slmineralresources.org)

4. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of artisanal miners

Mining activities carried out locally by artisanal miners looking for gold and diamonds have been reported from within and around the borders of the project area, (Witkowski 2012). In particular, the Chiefdom of Nomo experienced high levels of artisanal mining during 2011 when 70 miners were arrested from within the project area by the patrol teams (Witkowski 2012). There has been military involvement in these illegal activities and the Forest rangers have received threats from organised groups of artisanal miners. Artisanal mining is carried out in small, shallow pits (approximately 1m deep), using rudimentary tools and results in forest degradation rather than large scale deforestation (Witkowski 2012). Such activities represent a potential alternative land use scenario for small parts of the project area, where there are believed to be small accessible deposits of minerals.

5. Continuation of the Forest reserve lacking operational budget resulting in unplanned deforestation: small scale degradation and deforestation resulting in shifting cultivation by small holder agriculturalists

Smallholder agriculture is widely cited in the literature as a primary driver of deforestation in Sub-Saharan Africa (EC 2010, Union of Concerned Scientists 2011, Gibbs et al 2010). Although in some countries this may be an over-generalization (Ickowitz 2006), in Sierra Leone there is a strong case that the conversion of forest into the farm fallow cycle is one of the primary drivers of forest loss. Climatic conditions would allow Sierra Leone to support

forest cover in approximately 60% of its land area but current forest cover is estimated at only 5% (NBSAP 2010). Extensive loss of national forest has been driven primarily by the conversion of forest land into the bush fallow cycle; subsistence agriculture being the principal livelihood of 80% of the labour force in Sierra Leone (USAID 2007). The Ministry of Agriculture, Forestry and Food Security (MAFFS) also highlights the conversion of forest to agriculture as one of the key drivers of deforestation (MAFFS 2004, PRSP II 2008:144). Estimates that 600,000 hectares of forests have been cleared for shifting cultivation (National long term perspective studies 2004; 29); Sierra Leone received the world's lowest Environmental Performance Index rank in 2010 (163/163).⁸

A high proportion of the labour force in Sierra Leone is dependent on land for agricultural subsistence activities; 75% according to the National Poverty Reduction Paper (2005:33) and 90% of the farming population are small holder farmers according to the National Rice Development Strategy (National Rice Development Strategy 2009: 5). However, subsistence activities are highly inefficient (Goodman 2008), and fewer than 5% of farmers have access to fertilizers, insecticides and herbicides which could help boost productivity (National Rice Development Strategy 2009:7). Both biotic and abiotic factors such as disease, pests, low soil fertility and poor extension services limit farmers yields and factors such as poor crop management, inappropriate storage facilities and poor market access limit farmers' ability to sell produce (National Rice Development Strategy 2009:7). In the region of the project area agricultural yields were calculated to have a value of \$70 per hectare (Goodman 2008), which is very low compared to other West African countries such as Ghana at \$180 per hectare (Grieg-Gran 2008). Low productivity combined with an increasing population's demand for food - an average 2.8% pa growth rate was recorded for Sierra Leone by the World Bank between 2004 and 2010 (World Bank 2010), and 2% average growth rate in Forest Edge Communities around the project area (Bulte et al. 2013) - results in a need for more land to farm as cash poor rural households struggle to afford imported rice prices (National Rice Development Strategy 2009).

Deforestation as a result of farming activities has occurred in the past in the project area before conservation management activities began in 2004 (Witkowski 2012). Farming encroachment into the project area (then a forest reserve) occurred in many areas for various reasons. In some cases it occurred as farmers wanted to expand their farming activities and project boundaries were not clear. As there was no management presence on the ground there were little consequences felt by farmers for encroaching (Witkowski 2012). In other cases families wished to re-exert their historical right to farm inside the reserves (Davies and Richards 1991:29) and so created small plantations or farms inside the Forest Reserves, and in other cases new villages and farms were created within reserve boundaries either during the war when people were seeking a safe place to go, or pre-war by families looking for a new place to live and farm (Musa Swaray, town Chief and Forest

⁸ The EPI "ranks 25 performance indicators tracked across ten policy categories covering both environmental public health and ecosystem vitality. These indicators provide a gauge at a national government scale of how close countries are to established environmental policy goals." Emerson, J., D. C. Esty, M.A. Levy, C.H. Kim, V. Mara, A. de Sherbinin, and T. Srebotnjak. 2010. *2010 Environmental Performance Index*. New Haven: Yale Center for Environmental Law and Policy.

ranger, pers. comm., Witkowski 2012). The soils found in newly cleared areas of forest are widely perceived to have much higher fertility and therefore produce better yields which has driven the conversion of forest areas (Witkowski 2012:12, Davies and Richards 1991:27, 29), and whilst areas of primary forest are harder to clear without labour and equipment, without the project the degradation caused by small scale logging and mining activities would open up the area and more readily allow access for small holder agriculturalists. A similar pattern of agricultural encroachment is seen in the other Forest Reserves selected as the Reference Region for the project (Netzer and Walker 2013).

Without the project activities gradual encroachment into the project area is likely as well as the appearance of new communities inside the project area; smallholder agriculture is therefore an alternative land use scenario.

6. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of plantation agriculture

The GoSL is actively promoting agricultural investment opportunities for national and international investors. Cash crops such as rice and cocoa as well as the production of agrofuels such as sugar cane and palm oil are targeted as investment opportunities in rural areas. A newly created government agency, the Sierra Leone Investment and Promotion Agency (SLIEPA), assists investors and offers generous incentives (SLIEPA presentation). Large scale plantations (above 16,000 hectares) are in the process of being established in the Kailahun and Pujehun districts (two of the three districts in the project area). Socofin S.L. for example is making an investment of \$100 million for 12,000 hectare rubber and oil palm plantation in the Pujehun District (Green Scenery report 2011) and smaller scale investments are being made within the project zone (e.g. tropical farms who purportedly have a 1200ha concession for cocoa production per comm., tropical farms). Without the project, plantations would be a credible alternative land use scenario for the project area.

7. Continuation of the Forest Reserve designation lacking operation budget resulting in degradation due to charcoal and fuel wood collection

The majority of the population uses firewood and charcoal for cooking; over 80% of energy is derived from biomass and it is estimated that 4 million cubic meters of wood biomass is extracted annually to meet domestic energy requirements in Sierra Leone (UNDP 2007). According to the Assistant Director of Forestry, firewood collection and charcoal production are two of the drivers of forest degradation in Forest Reserves in Sierra Leone (Garnett 2012), though such activities are illegal unless the trees are already downed or dead. Species such as *Parinari excelsa* (Chrysobalanaceae) are used to make charcoal and this species is one of 10 most common trees found in the project area (Klop et al 2008). Neither fuel wood collection nor charcoal production were revealed as primary drivers of deforestation or degradation in the project area as there is ample farm bush closer to the communities for collection and wood collected in the forest is considered too wet (Witkowski et al 2012b). Small areas of forest may become degraded without the project in the project area but charcoal and fuel wood collection are not likely alternative land use of the project area.

8. Designation of area as National Park and committed long term financial resources allowing for protection of forest resources

In recognition of the importance of biodiversity, Sierra Leone has signed and ratified the Convention on Biodiversity and on numerous occasions the current President, Dr Ernest Bai Koroma, has publically committed to conserving the country's natural forest resources for the ecosystem services they provide (Koroma 2009, 2011). The GoSL could therefore have upgraded the project area into a National Park in the absence of the project. As discussed later in G2.2, steps two and three, the GoSL does not have the financial resources to protect the project area or the other gazetted areas of forest in Sierra Leone. The strategic priorities for investment of the Government of Sierra Leone revolve around consolidating peace and rebuilding the economy after the debilitating civil conflict (Poverty Reduction Strategy Paper II, 2008.); conservation is a low priority. The protection of Forest Reserves in Sierra Leone is not part of the Forestry Division's strategic plan (FD strategic Plan 2012-2014, Showers 2012:12), and therefore no budget is available from Central Government for activities relating to the management or protection of Forest Reserves or National Parks in Sierra Leone. In 2011, \$115,814 was allocated to the Forestry Division in the Government of Sierra Leone's budget to manage 48 Forest Reserves and National Parks covering over 300,000 hectares of forest. It is therefore highly unlikely that the Government would have proclaimed the area as a National Park, had the finances from a REDD project not been highlighted as the future source of funding (Eco-securities 2008) for the Park management (per comm.. Sheku Mansaray, McClanahan 2011).

The designation of the area as a National Park with committed financial resources cannot therefore be considered as a viable alternative scenario.

As a result of the above analysis, the credible land use scenarios are therefore;

- 1. Continuation of the Forest Reserve designation and issuance and implementation of selective logging concessions**
- 2. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of small scale logging activities**
- 3. Continuation of Forest Reserve and issuance and implementation of industrial mining concession and operations**
- 4. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of artisanal miners**
- 5. Continuation of Forest Reserve designation lacking operation budget resulting in influx of small holder agriculture**
- 6. Continuation of Forest Reserve designation lacking operation budget resulting in influx of Plantation agriculture**

Step 1b. – Consistency of land use with mandatory laws and regulations

The principal laws that legislate the Forest Reserves and protected areas of Sierra Leone are the Forestry Act 1988, the Forest Regulations 1990 and the Wildlife Act 1992.

1. Continuation of Forest Reserve designation and issuance and implementation of selective logging concessions

Without the project, the forests would be controlled by Forestry Act No.7 of 1988 and administered under the Forestry Regulations published as part of the Act in December 1990. The forests would be managed by the Forestry Division of the Ministry of Agriculture, Forestry and Food Security (MAFFS). Commercial logging would be consistent with the mandatory laws and regulations from the 1988 Forestry Act which grant the Forestry Division the power to issue commercial timber licences and concessions in Forest Reserves (Fofanah 2012:6,7). Even as a National Park, concessions can be authorized by the Chief Conservator of Forests (Fofanah 2012:5). Provided the company has a licence or concession, this land use would be consistent with laws and regulations for either a Forest Reserve or a National Park.

2. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of small scale logging activities

Although small scale logging is illegal unless licences are granted (Fofanah 2012), there is currently no enforcement of the existing laws and legislation in other Forest Reserves, nor would there be in the GRNP without the project (Showers 2012). A reserve without active management due to low capacity and lack of finances within the Forestry Division (Showers 2012) is therefore readily subject to degradation by small scale logging activities. Degradation resulting from small scale logging activities is widely reported as a land use occurring in other Forest Reserves in Sierra Leone (Cuni-Sanchez 2012b: 9, Showers 2012). Although it's not consistent with legislation unless loggers have a licence, it is common practice and therefore an alternative land use scenario.

3. Continuation of Forest Reserve and issuance and implementation of industrial mining concession and operations

Without the project the forests would be controlled by Forestry Act No.7 of 1988 and administered under the Forestry Regulations published as part of the Act in December 1990. According to section 3(a) and (b) of the Forestry Act, the Chief Conservator, under the direction of the Minister of MAFFS, is responsible for the efficient management and rational utilisation of the country's forest resources and their preservation. According to Section 28 (1) of the Forestry Act, no prospecting, exploration or mining may be carried out in national or community forest. Section 9 of the Forestry Act also states that in a national or community forest no one can "cut, burn, uproot, destroy...clear any land, remove any timber... take any earth, clay, sand, gravel or stone except pursuant to a concession agreement or licence confirmed usage right or other authority under this act" (Forestry Act 1988: 5, 20, 8). Furthermore, Section 21 of the 1994 Mines and Mineral Decree, which was in force when the licences outlined in step 1a were allocated, states that where an act is prohibited in

another law, nothing in the Mines Decree will be interpreted as authorising that action (Global Witness 2010).

However, the fact that mining licences have been allocated over several Forest Reserves (Annex 4) and are currently operational, as is the case in Kangari Hills Forest Reserve (Cluff Gold report 2010: 8) and in Farangbaia where a railway to extract mineral ore has divided the Forest Reserve in two (Showers 2012:10), demonstrates that legislation is not the only factor that should be considered in assessing alternative scenarios. Political will, development opportunities and finance must also be considered. Even as a National Park, a provision currently exists in the legislation allowing the President or the Chief Conservator of Forests to permit prohibited activities within National Parks if they are within National interests (Fofanah 2012: 5). Commercial mining could be granted within a Forest Reserve or within a National Park in Sierra Leone if approved by the Chief Conservator or by the President. This land use would therefore be consistent with laws and regulations.

4. Continuation of the Forest Reserve designation lacking operation budget resulting in an influx of artisanal miners

Although as described above, artisanal mining is illegal unless licences are granted, there is currently little enforcement of the existing laws and legislation due to the Ministry of Mine's lack of human and financial resources (Fofanah 2012). The price obtained for gold and diamonds offers an attractive incentive for artisanal activities. In a country where unemployment, especially amongst male youths, is high (Peters et al 2010:6,7), other Forest Reserves in Sierra Leone are experiencing degradation as a result of artisanal mining activities (Showers 2012 and Cuni-Sanchez 2012b). Although not necessarily consistent with legislation, artisanal mining has become common practice in reserves with no active management.

5. Continuation of Forest Reserve designation lacking operation budget resulting in influx of small holder agriculture

Whilst farming activities inside Forest Reserves would be considered illegal without any formal permission, farming inside other Forest Reserves where management is minimal or non-existent has become common practice, (Cuni-Sanchez 2012b and Showers 2012). Without additional external funding the Government of Sierra Leone does not have the resources to protect its forest estates, and protection is not seen as a strategic priority when there are many other more pressing development issues on the agenda (Showers 2012:12). Farming inside the project area was occurred before conservation management and law enforcement began in 2004 (Witkowski 2012). Encroachment by local communities for farming is therefore a commonplace activity inside Forest Reserves in Sierra Leone and consequently an alternative land use scenario that is consistent with common practice.

6. Continuation of Forest Reserve designation lacking operation budget resulting in influx of plantation agriculture

As with the issuance of logging and mining concessions described above, the Chief Conservator has the authority to issue a licence or a concession for a plantation within a Forest Reserve or a National Park, making this land use consistent with legislation.

Plausible alternative land use scenarios;

1. Continuation of Production Forest designation and issuance and implementation of selective logging concessions
2. Continuation of the forest reserve designation lacking operation budget resulting in an influx of small scale logging activities
3. Continuation of Forest Reserve and issuance and implementation of industrial mining concession and operations
4. Continuation of the forest reserve designation lacking operation budget resulting in an influx of artisanal miners
5. Continuation of Forest Reserve designation lacking operation budget resulting in influx of small holder agriculture
6. Continuation of Forest Reserve designation lacking operation budget resulting in influx of Plantation agriculture

Step 1c. Selection of the baseline scenario

The REDD project activity is identified using the following decision tree, as delineated in VM0007. The result of this decision tree demonstrates that the REDD project activity is Avoided Unplanned Deforestation. Thus it is concluded that the baseline scenario is avoided unplanned deforestation.

Is the Forest land expected to be converted to non-forest in the baseline case?			
Yes		No	
Is the land legally authorized and documented to be converted to non-forest?		Is the forest expected to degrade by fuelwood extraction or charcoal production, in the baseline case	
Yes	No	Yes	No
Avoided planned deforestation	Avoided unplanned deforestation	Avoided forest degradation	Proposed project is not VCS REDD activity currently covered by the module framework

The below potential land uses are deemed not the most likely land use due to the following characteristics:

1. Planned deforestation due to selective logging concessions

Selective logging concessions are **not** considered a land use in the baseline scenario for the project area as despite being consistent with legislation for a Forest Reserve, no concession licences have been granted within the project area in the last 10 years and are therefore an unlikely alternative land use.

2. Unplanned degradation due to small scale logging activities

Small scale logging activities result in localised degradation as typically only a few trees are removed from an area (Witkowski 2012). Commercial activities in the 1960s to the 1980's removed the most valuable and accessible timber (Illes et al 1993: 10, 29), but small scale activities involving local gangs and people to transport the wood are likely to feature in a baseline scenario as occurred pre conservation activities (Illes et al 1993: 34, Witkowski 2012). Degradation from small scale logging activities is **not** included in the baseline scenario as it would not result in deforestation; it will be monitored through the projects lifetime.

3. Planned deforestation due to Industrial mining concessions

Although industrial mining concessions for exploration have been issued within the project area in the last 10 years, no mining activities have ever been initiated and most of the companies that purportedly own the licences no longer operate. The only possible threat for industrial mining to occur is in the Southern block of the project area where there is a commercially viable deposit of iron ore in the Bagla Hills. It is a potential threat as several claims have recently been made by individuals and companies interested in mining there (Daily Mail 2012). However, the Government has repeatedly stated that mining will not be allowed to occur in the GRNP (e.g. State House Communications Unit 2011) and therefore planned deforestation from mining concessions is not an alternative baseline scenario.

4. Unplanned degradation due to artisanal mining

Artisanal mining results in forest degradation and small areas of deforestation as mining pits are made with rudimentary tools and are small and shallow (Witkowski 2012). Artisanal mining was seen as an activity to supplement agricultural incomes by Forest Edge Communities and not the primary livelihood activity (90% of communities in the project zone reported that agriculture was the main livelihood activity (Bulte et al. 2013). Although artisanal mining is expected to take place in some small areas within the project area without the presence of forest rangers, it is not the dominant driver of deforestation and is therefore **not** considered in the baseline scenario. It will be monitored throughout the lifetime of the project.

5. Unplanned deforestation: degradation and deforestation resulting in land use change from smallholder agriculture

Historical trends regarding land use in Sierra Leone in and around Forest Reserves indicate that the primary driver of deforestation in Forest Reserves which are not actively managed is from encroachment by small holder agriculturalists converting forests into the bush fallow cycle. This is the most widespread driver of deforestation in Sierra Leone and would result in a mosaic landscape containing fields at various stages along the crop-fallow cycle, from active cropland to fallow areas (See Netzer and Walker 2013).

6. Planned deforestation due to commercial plantations

Planned deforestation due to commercial plantations is not considered a likely alternative land use as currently there is no evidence of agriculture concessions being granted within the boundaries of the project area or other Forest Reserves in Sierra Leone.

As a result of step 1c, only one plausible land use scenario emerges, that of unplanned deforestation due to smallholder agriculture practices.

G2.2. Documentation of project ‘additionality’

Document that project benefits would not have occurred in the absence of the project, explaining how existing laws or regulations would likely affect land use and justifying that the benefits being claimed by the project are truly ‘additional’ and would be unlikely to occur without the project.

In order to prove the project is additional, and that the benefits to the climate, biodiversity and communities would not have occurred without the project, the VCS tool, (VT0001 Tool for the Demonstration and assessment of additionality in Agriculture, Forestry and Other Land Use (AFOLU) project activities), uses investment analysis to demonstrate that project activities are financially less attractive than at least one of the other scenarios.

Step 2 – INVESTMENT ANALYSIS

Here we apply a simple cost analysis to demonstrate the costs associated with the project and that the Gola project generates no financial benefit other than VCS related income.

Sub-step 2b

Detailed accounts of the costs incurred by the GRNP forest program to develop and operate the conservation management during the pilot phase of activities have been kept since 2008. The average yearly costs from the 4 years of activities plus the costs of implementing new activities in the Forest Edge Communities around the project area to mitigate leakage and provide net positive benefits have been summarized in the table below (more detailed records will be made available to the auditor upon request).

Budget Item	TOTAL
Management	80,902
Research & Monitoring	58,298
Administration & Finance & HR services	134,957
Park Operations	232,622
Travel & Transport	9,548
Equipment, Consumables & Running costs	169,965
Other services & fees (incl communication, finances & verification event)	43,845
Visibility & Outreach	28,693
Community Benefit Sharing Development & Implementation	268,965
Infrastructure (maintenance & development)	28,432
Total GRNP Core Operations Annual Budget (£)	1,056,226
<i>Core Ops Annual Budget USD (@1,59)</i>	1,686,117

Table 7. Annual costs for the REDD project; averaged into a yearly amount calculated over a 5 year period (2013-2018)

The only income over this period has been from visitors to the park, the revenue from which is summarized in the table below:

Year	Total Revenue	Revenue for Forestry Division	Revenue for Communities
2009	\$357	\$233	\$124
2010	\$1999	\$1258	\$741
2011	\$1427	\$757	\$670
2012	\$2791	\$1640	\$1151

Table 8. Income from ecotourism activities

The income generated by project tourism activities is given to the Forestry Division and to local communities involved in the tourism activities and is not kept by the project. The project activities therefore do not generate any income to offset the costs of the project.

Budget available from the Government of Sierra Leone

The strategic priorities of the Government of Sierra Leone revolve around consolidating peace and rebuilding the economy after the debilitating civil conflict (Poverty Reduction Strategy Paper II, 2008.), conservation is a low priority for the allocation of funds.

The protection of Forest Reserves in Sierra Leone are not part of the Forestry Division's strategic plan (Forestry Division strategic Plan 2012-2014 and Showers 2012), and therefore no budget is available from the Central Government for activities relating to the management or protection of Forest Reserves in Sierra Leone. Instead, the Forestry Division's strategy focuses on reforestation, the promotion of commercial activities and the legislative framework for forestry. The staff required in the districts to fulfil the requirements of the

Forestry Divisions strategic plan are paid directly by the Central Human Resources Department. In the 2012-2014 budget, a total of Le272,638 (\$63) was available per month for 3 FD staff in Pujehun District, Le1,311,924 (\$305) was available per month for 16 staff in the Kenema District and Le792,411 (\$18) per month for 1 staff in the Kailahun District. This amounts to an average of \$22 per person per month (below the widely accepted \$1 per day international poverty line). These 3 districts are responsible for 13 Forest Reserves, not just the project area (GRNP). Without the project, it is assumed that these amounts would still be available to pay Forestry Division staff in the 3 districts where the project is located⁹. However, there would be no budget available for them to implement any forest management or protection activities.

The project activities and budget available from Central Government clearly do not generate any significant income to offset the necessary conservation management costs. The project would therefore be entirely reliant on VCS income to create financial benefit.

Having demonstrated that the project does not generate any financial benefits other than VCS related income, the project is then required to show that the project activities are not common practice. In the interest of transparency and best practice, the project, in addition to common practice analysis, also presents a barrier analysis to highlight some of the difficulties in implementing conservation projects in Sierra Leone

STEP 3 - BARRIER ANALYSIS

Step 3a. Identify barriers that would prevent the implementation of a type of the proposed activity:

Investment barriers

Creating and implementing conservation projects and protected areas in developing countries is costly; in a post-conflict country such as Sierra Leone which lacks basic infrastructure and has multiple development needs, protecting forest resources is not seen as a priority area for expenditure especially when resources are so limited. The Forestry Division's strategic plan 2012-2014 does not include the protection of any Forest Reserves beyond the Western Area Peninsular Forest (FD strategic plan) and so no budget to implement any management actions on the ground is available from central sources beyond what the government allocates to salaries, which is part of its core costs (see sub-step 2b).

Finances to manage the conservation of the project area since 2004 have been raised from several donors:

⁹ The Gola REDD project employs 150 staff to manage the protected area and work with the local communities so even if all 20 FD staff were employed to work solely in protecting the GRNP without the project, management of the area would be severely understaffed.

Year	Donor Source	Total Amount
2003	GCF	\$25,000
2004-2006	GCF grant and Darwin grant	\$450,000 and £100,000
2007-2012	EU and FFEM	Euro 4.2 million

The RSPB, a member of Gola Rainforest Conservation LG, (the project proponent) took the lead in sourcing donor financing for the Gola forest program and as reported by the lead fundraiser, Alex Hipkiss, (Hipkiss 2012) the potential to find donor funding for the project has dried up; without REDD funding, the project will fall into the traditional boom and bust project cycle that has been experienced by many conservation projects around the world (IUCN 2006). The problem for accessing donor funds is that the focus for the funds is constantly changing as the priorities of governments and international development shift (IUCN 2006). Typical donor funding is available for 3-5 year periods which makes it extremely difficult for a project to develop long term programs and management strategies. This difficulty was identified very early during the early development of the Gola Forest Program and after a review of funding options in 2006 (Davies 2006), carbon markets were identified as a potential source of funding for the project and a feasibility study was undertaken by the Eco-Securities consultancy to investigate this possibility in 2008 (Eco-Securities report 2008). Once confirmed as a potential source of funding for the then Gola Forest Reserve, fundraising was initiated to develop the necessary documents to create carbon project documentation (ARTP 2010). Donor funds from the EU ended in July 2012 and despite extensive investigation and proposals the GRNP team has been unable to secure further funding via donor routes (Hipkiss 2012). For example the partners failed to secure funding from the German International Climate Initiative in 2011; funds from other large donors do not prioritize Sierra Leone; and those from smaller grant-making bodies would be insufficient to protect the project area (Hipkiss 2012).

Institutional barriers

Within the Government of Sierra Leone the most significant institutional barrier to implementing forest conservation projects is the lack of capacity within the Forestry Division, which is directly related to issues of under-funding and causes a multitude of subsidiary effects. The Forestry Division is significantly understaffed; no new staff have been recruited into the FD in the last 10 years and capacity is very low; only 10% of staff have a university degree or equivalent (FAO 2010).

Understaffing and low capacity result in a lack of coordination with District Councils¹⁰, leading to District Forestry Staff lacking credibility at the local level (Sierra Leone Forest

¹⁰ District Councils meet monthly and address a number of devolved functions from central government including the mobilization of finances and resources

Policy draft 2010). There have also been reports of ground staff actively deviating from their stated duties. Recent investigations in the 7 Gola chiefdoms found that forest officers, police officers, and other government officials have, rather than enforcing existing laws, been granting authorisations to logging operators to extract timber, despite no clear authority to do so (ENFORAC 2010) or had been selling confiscated timber on for personal profit. For example, in 2011 the District Forest Officer for Kenema, one of the districts in the project area, was indefinitely suspended for selling illegally cut timber (Sheku Mansaray, Acting Director of the Forestry Division pers. comm.). Furthermore there is a severe lack of coordination and conflicting mandates between the Forestry Division and other Ministries within the Government of Sierra Leone. For example, the Ministry of Mines and Mineral Resources is responsible for issuing licences for prospecting and mining, yet no formal procedures are in place for consultation with the Forestry Division before a licence is issued in a Forestry Reserve (Draft Forest Policy 2010). As a result between 2005 and 2007, the Ministry of Mines issued two licences for prospecting diamonds and iron ore in the project area, then a Forest Reserve (Global Witness 2010, Witkowski 2012).

Such institutional barriers contribute to the on going problem of deforestation in Sierra Leone and demonstrate that low capacity within Government offices is a significant barrier to the implementation of effective forest conservation activities. Significant external support is therefore currently a pre-requisite to the successful implementation of forest projects.

Step 3b. Show that the identified barriers would not prevent the implementation of at least one of the alternative land use scenarios (except the proposed project activity).

The identified barriers do not affect the alternative land use scenario (deforestation for smallholder agriculture) negatively; in fact they aid its occurrence. If the Forestry Division had adequate funding and capacity and were able to manage the country's Forest Reserves then smallholders would not have the opportunity to practice agriculture within the reserves. It is due to the barriers facing the project scenario that the alternative scenario is able to occur. Investment and institutional barriers to conservation aid the conversion of forest to farm land, as the Forestry Division does not have the capacity or funding to implement the laws governing Forest Reserves and few alternatives to agriculture exist for local communities to earn a living.

Step 4 – COMMON PRACTICE ANALYSIS

The Sierra Leonean Government is highly dependent on external financing. Since 2005 between 19 and 46% of Sierra Leones yearly revenue has come from foreign aid (EU report 2007;9, DFID 2012). As demonstrated in Step 2, the Government does not have internal funding to manage the country's Forest Reserves. In 2003 the National Biodiversity Strategy and Action Plan (NBSAP) reported a 95% dependency of the forestry sector on donor funding (NBSAP 2003). Financial dependency on short term and insecure donor funding sources creates a cycle of short term projects and does not allow for long term strategic planning and management or secure sharing of benefits with local stakeholders (IUCN 2006 Chapter 2 and 3). This is demonstrated in the only other National Park gazetted in 1995; Outamba-Kilimi, in the far north of the country. A 5-year World Bank project, the Biodiversity Conservation Project began in 2010 to improve the management of 3 protected areas in Sierra Leone, one of which

is the Outamba-Kilimi National Park. In a METT analysis (Management Effectiveness Tracking Tool) carried out by the Biodiversity Conservation Project team in 2011 on Outamba-Kilimi National Park, one of the principal issues identified was that no current budget was available for the protected area and that management was wholly reliant on outside or year by year funding (Koker 2011). This has resulted in a lack of effective management of the National Park and associated problems of encroachment, deforestation and hunting (Koker 2011). There is no strategy to secure funds for Outamba-Kilimi National Park beyond the lifetime of the Biodiversity Conservation Project which ends in 2015. The possibility of future funding from REDD or PES schemes is mentioned as a possible future finance mechanism in project documents but there is no project funding to develop the necessary documents to secure this finance (BCP project proposal 2009). As demonstrated, it is common practice for outside donors to periodically finance short-term conservation work in Sierra Leone but this does not secure the long term finances necessary to reduce deforestation.

The Forest Reserve closest to the capital city – the Western Area Peninsular Forest Reserve which in 2013 was upgraded to a National Park, is another Park experiencing high levels of deforestation. As the Government does not have the finances or capacity to manage this Park, an international NGO (WHH – WeltHungerHilfe) is working with the Forestry Division to investigate alternative financing mechanisms including PES and REDD (e.g. OBf WAPFOR REDD scoping study 2011). Again, since the Government does not have the finances to stop deforestation within Forest Reserves and Parks, other NGOs are therefore beginning to investigate new sources of financing to reduce deforestation, but this is far from common practice. The Western Area Peninsular National Park and the Gola project are separate projects in different geographical areas with very different alternative land-use scenarios.

Within the project area, the RSPB has taken the lead in sourcing funding from donors for the initiation of conservation management activities in the GRNP, but as can be seen from the 'Review of Gola Funding Potential' (Hipkiss 2012), securing financing from a limited pool of donors results in a boom and bust project cycle as reported above. The GRNP team has failed to secure funding from donor sources beyond July 2012, despite extensive research and investment into proposals (Hipkiss 2012). It has therefore been common practice since 2004 for the project area to be protected using short-term donor funding, but donor funding is no longer available as explained Step 3a (investment barriers) and without funding, the project area will become like any other Forest Reserve or National Park in Sierra Leone and suffer from significant deforestation and degradation.

Clearly it is not common practice in Sierra Leone for the State to be able to fund the management of its forest estates. Requests to donors have been the only alternative tried in Sierra Leone to fund the management of Forest Reserves, but these funding streams are subject to the priorities of external governments and donor objectives, and therefore do not enable effective long term management. Developing REDD projects in Sierra Leone is not currently common practice. The Government has clearly stated that it intends to seek financing via REDD to provide the income to manage the State's forests (NSADP 2009, NPAA Act 2012) and it is intended that the long term nature of such revenues will overcome the boom and bust project cycle commonly found in other Forest Reserves in Sierra Leone financed by donors and thus result in a significant reduction to deforestation in the project area.

Step 5 – IMPACT OF VCS REGISTRATION

A resource-strapped Government would not have upgraded a Production Forest Reserve with the potential for revenues from timber or other sources such as minerals into a National Park without the expectation of receiving financing from other sources (pers comm. Sheku Mansaray, Acting Director of the Forestry Division). In Sierra Leone, upgrading reserves to National Parks has proved an ineffective option to protecting reserves e.g. the upgrading of Outamba-Kilimi National Park – See step 4. Since the sustainable financing report (Davies 2006) and the first carbon feasibility report carried out in 2008 for the Gola Forest Reserves, the expectation has been for emerging markets such as the carbon market to fund the management and benefit sharing mechanisms that were set up in the initial stages of conservation work. With this in mind the RSPB together with Birdlife International applied for funding from the EU to develop carbon projects, amongst other objectives, for work in the Gola Forest Reserves in Sierra Leone and Liberia (ARTP 2010). Some of the funding to develop a REDD project for the GRNP has therefore come from this project, other funding has come from the Critical Ecosystem Partnership Fund and from the RSPB.

G2.3. Estimated carbon stock changes ‘without project’ reference scenario

Calculate the estimated carbon stock changes associated with the ‘without project’ reference scenario described above. This requires estimation of carbon stocks for each of the land-use classes of concern and a definition of the carbon pools included, among the classes defined in the IPCC 2006 GL for AFOLU.¹⁹ The timeframe for this analysis can be either the project lifetime (see G3) or the project GHG accounting period, whichever is more appropriate. Estimate the net change in the emissions of non-CO2 GHG emissions such as CH4 and N2O in the ‘without project’ scenario. Non-CO2 gases must be included if they are likely to account for more than 5% (in terms of CO2-equivalent) of the project’s overall GHG impact over each monitoring period. Projects whose activities are designed to avoid GHG emissions (such as those reducing emissions from deforestation and forest degradation (REDD), avoiding conversion of non-forest land, or certain improved forest management projects) must include an analysis of the relevant drivers and rates of deforestation and/or degradation and a description and justification of the approaches

The Gola REDD project has followed a Verified Carbon Standards (VCS) methodology in calculating the carbon stock changes in the without project scenario. The figures presented in G2.3 are for the lifetime of the project (i.e. 30 years).

The Gola REDD project followed VM0007 REDD Methodology Modules (REDD-MF) (v1.3) in estimating emissions from unplanned deforestation activities. This justification for the applicability of this methodology can be found in Table 9.

Table 9. Applicability of the methodology

Applicability Conditions	Demonstration and justification for the project to meet the conditions
a. All Activity types	
Land in the project area has qualified as forest at least 10 years before the project start date	In Sierra Leone, forest is defined as land areas of at least 1ha, 30% crown cover and 5m tree height (FAO 2010). Analysis of satellite imagery from 2001 based on data collected in ground truthing surveys shows that the project area has been forest from at least 2001 (i.e over 10 years (see Netzer and Walker 2013). Historical information indicates that the area has been forested for a much longer period; a report by Unwin in 1909 describes the region as a mosaic of forest and farmland and recommends the establishment of a forest reserve in the remaining areas of forest (Unwin 1909).
The project area can include forested wetlands (such as bottomland forests, floodplain forests, mangrove forests) as long as they do not grow on peat. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm ³ . If the project area includes a forested wetlands growing on peat (e.g. peat swamp forests), this methodology is not applicable	The VCS defines peat as an area with a layer of naturally accumulated organic material that meets an internationally accepted threshold for the depth of the peat layer and the percentage of organic material composition. The project adopted the FAOs definition of depth as; 1. 10 cm or more thick starting at the soil surface and immediately overlying ice, continuous rock, or fragmental materials, the interstices of which are filled with organic material; or 2. cumulatively within 100 cm of the soil surface either 60 cm or more thick if 75 percent (by volume) or more of the material consists of moss fibres or 40 cm or more thick in other materials and starting within 40 cm of the soil surface. The project adopted the FAOs definition of organic material composition as organic material that has one or both of the following; 1. 20 percent or more organic carbon in the fine earth (by mass); or 2. if saturated with water for 30 consecutive days or more in most years (unless drained), one or both of the following: a. $(12 + [\text{clay percentage of the mineral fraction} \times 0.1])$ percent or more organic carbon in the fine earth (by mass); or b. 18 percent or more organic carbon in the fine earth (by mass). Soils surveys sampled soils in Inland valley swamps – these are areas of poor drainage that were identified as the only areas that have the potential to contain organic or peat soils, defined by the FAO (2006/7). No peat was found in any soil samples (Cuni-Sanchez 2012c) and interviews with a leading soil scientist in Sierra Leone confirmed that peat has not been

	discovered in Sierra Leone (per comm.. Dr Alie Kamara).
Project proponents must be able to show control over the project area and ownership of carbon rights for the project area at the time of verification	The Ministry of Agriculture Forests and Food Security is mandated with the management of all forest areas in Sierra Leone, including the project area. This has been the case since the Gola forest reserves were created in 1926 (Fofanah 2012). As a National Park, the Ministry remains the institution responsible for the management of the project area (Fofanah 2012). Agreements between the project proponent (the Gola Rainforest Conservation LG) and the Government of Sierra Leone represented by the Ministry transfer both management and carbon rights from the Government to the project proponent (also see section 1.12.1) for the lifetime of the project.
Baseline deforestation and baseline forest degradation in the project area fall within one or more of the following categories: 1.Unplanned deforestation (VCS category AUDD) 2. Planned deforestation (VCS category APD); 3.Degradation through extraction of wood for fuel (fuelwood and charcoal production) (VCS category AUDD).	The project falls into 'unplanned deforestation' (VCS category AUDD).

Applicability Conditions	Demonstration and justification for the project to meet the conditions
b. Unplanned Deforestation	
Baselines shall be renewed every 10 years from the project start date	The project will revise and update the baseline following VCS procedures and methodologies every 10 years from the project start date (August 2012). Baselines will therefore need to be renewed in 2022 and 2032 to comply with VCS guidelines
All land areas registered under the CDM or under any other carbon trading scheme (both voluntary and compliance-orientated) must be transparently reported and excluded from the project area. The exclusion of land in the project area from any other carbon trading scheme shall be monitored over time and reported in the monitoring reports.	The project is not registering any other land areas for a carbon trading scheme. Meetings have been held with land holders and other stakeholders involved in land use schemes in the area and no other organizations are developing CDM or other carbon trading schemes that need to be excluded from the project area or leakage belt.

If land is not being converted to an alternative use but will be allowed to naturally regrow (i.e. temporarily unstocked), this framework shall not be used.	In the area surrounding the project, forested land is converted into the traditional crop-fallow cycle land use. The dominant crops are rice, maize, cassava, sorghum and millet. The landscape includes a mosaic of plots at different stages in this cycle. The average fallow period was found to be 7 years in areas close to the project boundary (Witkowski et al 2012a, Cuni-Sanchez 2012b). Since some locations deforested in the reference region used to estimate baseline deforestation rates may not be managed as the baseline scenario of a traditional crop-fallow cycle, the estimated deforestation rate excluded all areas that transitioned from forest to non-forest and back to forest within the historical reference period. This ensures a highly conservative rate of deforestation and eliminates that proportion of the landscape that is not under the baseline crop-fallow cycle.

Baseline emissions

(Please note this section is taken from the VCS project document, section 3.1)

The quantification of baseline emissions followed the VM0007 methodology modules BL-UP (part 4 estimation of carbon stock changes and GHG emissions), X-STR, C-AB, E-BB. Following the module BL-UP the baseline deforestation rate was calculated from the Reference Region for Deforestation (RRD). The rate of deforestation was applied to the Project Area and Leakage Belt using spatial modelling. **The population driver approach was not used.** The following section is a summary of the analysis and equations. The complete baseline report following BL-UP is found in Netzer and Walker (2013), found in the appendix folder.

1. Estimation of Annual Areas of Unplanned Deforestation (Part 2 in BL-UP)

1.1. Estimation of annual area of unplanned baseline deforestation (step 2.2 in BL-UP)

Annual area of unplanned baseline deforestation in the RRD

Following BL-UP the annual area of unplanned deforestation is determined from the RRD and then applied to the RRL which includes the Project Area and Leakage Belt.

Within the RRD, locations that are classified as transitioning from forest to non-forest to forest within the historical period are conservatively assumed to not be under the baseline scenario of a 7 year average crop-fallow cycle and therefore are excluded from the calculation of deforestation rate. This results in a lower, and thus more conservative, estimate of deforestation.

Following the methodology deviation presented in Section 2.6 of the PD, two deforestation rates were applied 1) within forest reserves (FR-RRD) applied to the PA, and 2) buffer area around forest reserves (BUFF-RRD) applied to the LB. All other methodology requirements were followed.

To calculate the annual area of deforestation in the RRD (both the FR-RRD and BUFF-RRD) ($A_{BSL,RRD,unplanned,t}$) the methodology provides three approaches: 1) historic average, 2) linear regression and 3) non-linear regression that can be used if there are more than 5 points in time. If the regression is significant ($p \leq 0.05$, $r^2 \geq 0.75$, and demonstrated free from bias based on selection of fit with the lowest residuals) than it must be used.

A significant regression was not able to be established and therefore a historic average was taken and the following equations were applied to estimate the projected annual area of unplanned baseline deforestation:

$$A_{BSL,FR-RRD,unplanned,t} = A_{FR-RRD,unplanned,hrp} / T_{hrp}$$

$$A_{BSL,BUFF-RRD,unplanned,t} = A_{BUFF-RRD,unplanned,hrp} / T_{hrp}$$

Where:

$A_{BSL,FR-RRD,unplanned,t}$ Projected area of unplanned baseline deforestation in the Forest Reserve RRD in year t; ha

$A_{FR-RRD,unplanned,t}$ Total area deforested during the historical reference period in the Forest Reserve RRD; ha

$A_{BSL,BUFF-RRD,unplanned,t}$ Projected area of unplanned baseline deforestation in the buffer area RRD in year t; ha

$A_{BUFF-RRD,unplanned,t}$ Total area deforested during the historical reference period in the buffer area RRD; ha

T_{hrp} Duration of the historical reference period in years; yr

t 1,23, ... t^* years elapsed since the projected start of the REDD project activity

Table 10. Deforestation during the historic reference period in the RRD

	Total area deforested during the historical reference period in the RRD	Duration of the historical reference period	Annual deforestation during the historic period in the RRD
	$Area_{RRD,unplanned,t}$	T_{hrp}	$Area_{BSL,RRD,unplanned,t}$
	Hectares	Years	Hectares
Total RRD area	31,150	10	3,115
FR-RRD	14,244	10	1,424
BUFF-RRD	16,907	10	1,691

1.2 Estimation of annual areas of unplanned baseline deforestation in the RRL (BL-UP step 2.3)

Following the methodological guidelines and the Methodology deviation the projected unplanned deforestation in the FR-RRD and BUFF-RRD is described below. Where P_{rri} is the proportion of forest area in the RRL's LB and PA at the start of the baseline period (2011) to the total area of the RRD's forest reserves and buffer areas, and $A_{BSL,RR,unplanned,t}$ is the area of unplanned baseline deforestation in the RRD in year t in the forest reserves and buffer areas. The projected area of unplanned deforestation is estimated using the following equation:

$$A_{BSL,RR,unplanned,t} = A_{BSL,RRD,unplanned,t} * P_{RRL}$$

Where:

$A_{BSL,RR,unplanned,t}$	Projected area of unplanned baseline deforestation in the reference region for location (<i>RRL</i>) in year t ; ha
$A_{BSL,RRD,unplanned,t}$	Projected area of unplanned baseline deforestation in <i>RRD</i> in year t ; ha
P_{RRL}	Ratio of forest area in the <i>RRL</i> at the start of the baseline period to the total area of the <i>RRD</i> ; dimensionless
t	1, 2, 3, ... t^* years elapsed since the projected start of the REDD project activity

Table 11. Estimation of annual areas of unplanned baseline deforestation in the RRL

	Annual deforestation during the historic period $Area_{BSL,RRD,unplanned,t}$ Hectares	Ratio of forest area in the RRL at the start of the baseline period to the total area of the RRD P_{RRL} %	Projected area of unplanned baseline deforestation in the reference region for location $ABSL,RR,unplanned,t$ Hectares
Total RRD area	3,115	0.81	2,517
FR-RRD	1,424	0.73	1,041
BUFF-RRD	1,692	0.91	1,544

This method of estimating the annual area of unplanned baseline deforestation was used because spatial modelling will be applied. Because the Gola REDD project is using a simple historic approach there is no analysis of any of the “alternate population driver” approach.

As per VMD0007, the Gola REDD project is identified as having a “Frontier Configuration” and therefore location analysis is required (i.e. modelling). Frontier deforestation is forest destruction that occurs along a discernible frontier, such as a new road cut into a forest. Mosaic deforestation, in contrast, occurs in patches across a forested area. The land surrounding the Gola REDD Project is a frontier configuration because, although patchy, deforestation is slowly progressing towards the frontier of the National Park.

The software used to model deforestation in the RRL is IDRISI Selva¹¹. Within IDRISI there are 2 models that are appropriate under VM0007 BL-UP for projecting deforestation, Land Change Modeller (LCM) and GEOMOD. Both of these models have similar setup and dataset requirements and therefore can be used interchangeably. Both of these models met all of the requirements set out in BL-UP (Netzer and Walker 2013). The modelling was run from 2011 to 2041. The area of deforestation in the Project Area ($FR-ABSL,RR,unplanned,t$) and the Leakage Belt ($BUFF-ABSL,RR,unplanned,t$) was deforested based on the final deforestation risk map (Netzer and Walker 2013). The resulting deforestation in the Project Area is shown in Table 12, and Leakage belt in Table 13.

Table 12. Projected area of deforestation in each stratum in the Project Area

¹¹ <http://www.clarklabs.org/products/idrisi.cfm>

		Gola Central & North (A _{unplanned,2,PA,t})	Gola South (A _{unplanned,1,PA,t})	Cumulative
t	year	Ha	ha	ha
1	2012	337	704	1,041
2	2013	413	628	2,082
3	2014	353	688	3,123
4	2015	446	595	4,164
5	2016	435	606	5,205
6	2017	487	554	6,246
7	2018	518	522	7,287
8	2019	534	507	8,328
9	2020	543	498	9,369
10	2021	552	489	10,410
11	2022	560	481	11,451
12	2023	558	483	12,492
13	2024	508	533	13,533
14	2025	514	527	14,574
15	2026	540	501	15,615
16	2027	553	488	16,656
17	2028	542	499	17,697
18	2029	528	513	18,738
19	2030	533	508	19,779
20	2031	529	512	20,820
21	2032	534	507	21,861
22	2033	548	493	22,902
23	2034	527	514	23,943
24	2035	543	498	24,984
25	2036	554	487	26,025
26	2037	579	462	27,066
27	2038	579	462	28,107
28	2039	581	460	29,148
29	2040	591	450	30,189
30	2041	629	412	31,230

Table 13. Projected area of deforestation in the Leakage belt

Leakage belt Cumulative ($A_{unplanned,1,PA,t}$)			
t	Year	ha	ha
1	2012	1,544	1,544
2	2013	1,544	3,087
3	2014	1,544	4,631
4	2015	1,544	6,175
5	2016	1,544	7,718
6	2017	1,544	9,262
7	2018	1,544	10,806
8	2019	1,544	12,350
9	2020	1,544	13,893
10	2021	1,544	15,437
11	2022	1,544	16,981
12	2023	1,544	18,524
13	2024	1,544	20,068
14	2025	1,544	21,612
15	2026	1,544	23,155
16	2027	1,544	24,699
17	2028	1,544	26,243
18	2029	1,544	27,787
19	2030	1,544	29,330
20	2031	1,544	30,874
21	2032	1,544	32,418
22	2033	1,544	33,961
23	2034	1,544	35,505
24	2035	1,544	37,049
25	2036	1,544	38,593
26	2037	1,544	40,136
27	2038	1,544	41,680
28	2039	1,544	43,224
29	2040	1,544	44,767
30	2041	1,544	46,311

As per VMD0007, the Gola REDD project is identified as “Frontier Configuration” and therefore location analysis is required (i.e. modeling). The software used to model deforestation in the RRL is IDRISI Selva¹². Within IDRISI there are 2 models that are appropriate under VM0007 BL-UP for projecting deforestation, Land Change Modeler (LCM) and GEOMOD. Both of these models were used to estimate the location of deforestation in the RRL (See Netzer and Walker (2013) Gola REDD baseline report).

¹² <http://www.clarklabs.org/products/idrisi.cfm>

2. Estimation of Carbon stock changes and greenhouse gas emissions

2.1 Stratification (Step 4.1 in BL-UP)

Pre-deforestation strata (forest strata)

Stratification for carbon stocks consists of grouping forest areas in homogeneous groups in terms of carbon stocks, using stratification factors (such as type of forest/vegetation, type of soil/geology, management). The project area and Leakage belt were stratified using VM0007 Module X-STR.

Prior to the development of this REDD project extensive ground measurements had established the forest carbon stock for the project area. The data was collected in 2006 and 2007 from 609 permanent plots (Klop 2012). The results of this extensive survey work showed that the forests across the project area were relatively homogenous in species composition (same forest type), however there were significant differences in carbon stocks between Gola South, and Central/North. It was hypothesized that the difference between the stocks in the 2 areas was due to past management histories, the southern block having been more extensively logged than the central or northern blocks, thus resulting in a forest with lower carbon stocks but with potential for significant re-growth (Lindsell and Klop 2012). Because of the potential for re-growth enhancement of carbon in Gola South will be measured throughout the projects lifetime (Tatum-Hume 2013b).

Based on these results the Project Area was stratified into:

- 1) Gola Central & North, and
- 2) Gola South (where enhancements (forest growth) will be monitored).

Table 14. Area of Gola REDD project strata.

Stratum	area (ha)
Gola Central/North	43,059
Gola South	25,455
Total	68,515

The Leakage Belt is the same forest type as the GRNP. Due to limited information on carbon stocks in the Leakage Belt forests it is conservatively assumed that the leakage belt forests have the same carbon stocks as Gola Central/North. This is conservative because Gola Central/North has the highest carbon stocks and is undoubtedly the least disturbed forest in the Reference Region.

Table 15. Area of Leakage belt

Block	area (ha)
Leakage belt	62,932

Post deforestation strata (non-forest strata)

Farming is the primary livelihood activity for the vast majority of communities in the region around the project area (Witkowski et al 2012a, Bulte et al 2013). These communities

engage in shifting cultivation converting natural forests in the farm-fallow cycle (Witkowski et al 2012a, Bulte et al 2013). Every person interviewed described using similar farming techniques. The farming process begins with brushing early in the year. Then the trees are felled, and the land is burned in March or April. (Witkowski et al 2012a, Bulte et al 2013). Traditional practices involve the clearing of forests to make way for 1-2 years of crop plantations followed by an average of 7.5 years fallow time in the reference region (Cuni-Sanchez 2012b), in the Leakage Belt the fallow period is also on average is 7 years (Witkowski et al. 2012a). Therefore the post deforestation strata is considered crop-fallow.

2.2 Carbon stocks and carbon stock changes per stratum (BL-UP step 4.2)

Pre deforestation carbon stocks (forest strata)

Carbon stocks were estimated in the forest areas following VM0007 Modules CP-AB and CP-S.

Non-tree, litter and deadwood were excluded (Tatum-Hume et al 2013b). Above and below ground tree biomass and soil organic carbon was calculated for both forest strata (Table 16). Carbon stocks were estimated for Strata 1 (GRNP Central/North) and Strata 2 (GRNP South). Uncertainty was calculated as a percentage of the mean at 95% confidence intervals following X-UNC.

Table 16. Pre deforestation carbon stocks

Carbon Pool	Strata 1 (GRNP North Block)				Strata 2 (GRNP South Block)			
	Number of Plots	Mean Stock t CO ₂ e ha ⁻¹	95% CI	95% CI as % of mean	Number of Plots	Mean Stock t CO ₂ e ha ⁻¹	95% CI	95% CI as % of mean
C _{AB_Tree,i}	353	629	41.5	6.6%	49	578	74.9	13.0%
C _{BB_Tree,i}		151.0	10.0	6.6%		138.7	18.0	13.0%
C _{AB_nontree,i}								
C _{BB_nontree,i}								
C _{LI,i}								
C _{SOC,i}	18	253.9	30.6	12.1%	29	192.3	24.4	12.7%
C _{BSL}		1,034.26	26.4	8.4%		909.05	48.0	12.9%

Post deforestation carbon stocks

Post-deforestation field measurements are the long term average carbon stocks of agricultural land from 0-10 years. This included the 1-2 year of planted crops through the

10 year fallow. As delineated in VMD0007, Section 4.2.2, Option 1- Simple approach was chosen and a time-weighted average was used to estimate the above ground biomass of post-deforestation carbon stocks (Tatum-Hume et al 2013b) (Table 17).

Modules CP-AB and CP-S were used to estimate carbon stocks (Tatum-Hume et al 2013b). Non-tree, litter and deadwood were excluded because they are less than 5% of the net carbon stocks and are therefore considered insignificant¹³ following T-SIG (Tatum-Hume et al 2013b). Total post-deforestation carbon stocks in all pools are hence calculated using Equation 17 of VMD0007 based on the above and below ground tree biomass and soil organic carbon (Tatum-Hume et al 2013b) (Table 17).

Table 17. Post-deforestation carbon stocks

Carbon Pool	Post Deforestation			
	Number of Plots	Mean Stock	95% CI	95% CI as % of mean
$C_{AB\_TreePost,i}$	99	127.0	19.8	12.8%
$C_{BB\_TreePost,i}$		34.3		
$C_{SOCPost,i}$		172.7		
$C_{BSL,post,i}$		334.0	19.8	12.8%

Estimation of carbon stocks in wood products per stratum

Wood products were calculated following CP-WP. Based on surveys around the project area 69% of respondents said they would do nothing with the wood as it was too far away from the village to carry, 20% of people reported using felled wood for construction (Witkowski et al 2012a). Based on these surveys the amount of wood products extracted during deforestation was estimated to be 20% (representing 20% of the farmers) and conservatively estimated that those farmers harvest 50% of the total above ground biomass. This resulted in a mean stock extraction shown in Table 18.

Table 18. Wood products extracted during deforestation

	Strata 1: GRNP North	Strata 2: GRNP South
AG Biomass	654.7	582.5
mean stock of extracted biomass carbon (CXB,i)	50.36	44.81

Following CP-WP, the remaining long lived wood products from the total biomass extracted is shown in Table 19.

Table 19. Carbon stocks entering the wood products pool

¹³ <http://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-04-v1.pdf>

		Strata 1: GRNP North	Strata 2: GRNP South
	Description	t CO ₂ ha ⁻¹	t CO ₂ ha ⁻¹
CWP _i	Carbon stock entering the wood products pool from stratum i	5.47	4.86
CWP100 _i	Carbon stock entering the wood products pool at the time of deforestation that is expected to be emitted over 100-years from stratum i	0.04	0.03

$$C_{XB,ty,i} = \frac{1}{A_i} * \sum_{j=1}^S (V_{ex,ty,j,i} * D_j * CF_j * \frac{44}{12}) \quad (1)$$

Where:

$C_{XB,ty,i}$	Mean stock of extracted biomass carbon by class of wood product ty from stratum i ; t CO ₂ -e ha ⁻¹
A_i	Total area of stratum i ; ha
$V_{ex,ty,j}$	Volume of timber extracted from within stratum i (does not include slash left onsite) by species j and wood product class ty ; m ³
D_j	Mean wood density of species j ; t d.m.m ⁻³
CF_j	Carbon fraction of biomass for tree species j ; t C t ⁻¹ d.m.
j	1, 2, 3, ... S tree species
ty	Wood product class – defined here as sawnwood (s), wood-based panels (w), other industrial roundwood (oir), paper and paper board (p), and other (o)
44/12	Ratio of molecular weight of CO ₂ to carbon, t CO ₂ -e t C ⁻¹

$$C_{WP,i} = \sum_{ty=s,w,oir,p,o} C_{XB,ty,i} * (1 - WW_{ty}) * (1 - SLF_{ty}) * (1 - OF_{ty}) \quad (2)$$

Where:

$C_{WP,i}$	Carbon stock in wood products pool (stock remaining in wood products after 100 years) from stratum i ; t CO ₂ -e ha ⁻¹
$C_{XB,ty,i}$	Mean stock of extracted biomass carbon by class of wood product ty from stratum i ; t CO ₂ -e ha ⁻¹
WW_{ty}	Wood waste. The fraction immediately emitted through mill inefficiency by class of wood product ty ; dimensionless

SLF_{ty}	Fraction of wood products that will be emitted to the atmosphere within 5 years of timber harvest by class of wood product ty ; dimensionless
OF_{ty}	Fraction of wood products that will be emitted to the atmosphere between 5 and 100 years of timber harvest by class of wood product ty ; dimensionless
ty	Wood product class – defined here as sawnwood (s), wood-based panels (w), other industrial roundwood (oir), paper and paper board (p), and other (o)
i	1, 2, 3, ... M strata

2.3 Estimation of carbon stock changes per stratum (BL-UP step 4.3)

As delineated in section 4.2.3 of VMD0007 and equations 16-22, stock changes in each pool are calculated by subtracting post-deforestation carbon stocks from forest carbon stocks (Table 20). Non-tree, litter and deadwood were excluded because they are less than 5% of the net carbon stocks and are therefore considered insignificant¹⁴ following T-SIG (Tatum-Hume et al 2013b).

Table 20. Carbon stock changes per stratum

Carbon Pool	Strata 1	Strata 2	Post deforestation	Wood product CWP, strata1	Wood product CWP, strata2	$\Delta C, \text{Strata 1}$	$\Delta C, \text{Strata 2}$
	Mean Stock t CO ₂						
$C_{AB\_Tree,i}$	629.3	127.0	127.0	5.3	4.8	497.1	446.2
$C_{BB\_Tree,i}$	151.0	34.3	34.3			116.7	104.4
$C_{AB\_nontree,i}$	x	x	x			x	x
$C_{BB\_nontree,i}$	x	x	x			x	x
$C_{LI,i}$	x	x	x			x	x
$C_{SOC,i}$	253.9	172.7	172.7			81.2	19.6
C_{BSL}	1034.3	334.0	334.0			695.0	570.2

Forest strata:

¹⁴ <http://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-04-v1.pdf>

$$C_{BSL,i} = C_{AB\_tree,i} + C_{BB\_tree,i} + C_{AB\_non-tree,i} + C_{BB\_non-tree,i} + C_{DW,i} + C_{LI,i} + C_{SOC,i} \quad (11)$$

Where:

$C_{BSL,i}$	Carbon stock in all carbon pools in forest stratum i ; t CO ₂ -e ha ⁻¹
$C_{AB\_tree,i}$	Carbon stock in aboveground tree biomass in stratum i ; t CO ₂ -e ha ⁻¹
$C_{BB\_tree,i}$	Carbon stock in belowground tree biomass in stratum i ; t CO ₂ -e ha ⁻¹
$C_{AB\_non-tree,i}$	Carbon stock in aboveground non-tree biomass in stratum i ; t CO ₂ -e ha ⁻¹
$C_{BB\_nontree,i}$	Carbon stock in belowground non-tree biomass in stratum i ; t CO ₂ -e ha ⁻¹
$C_{DW,i}$	Carbon stock in dead wood in stratum i ; t CO ₂ -e ha ⁻¹
$C_{LI,i}$	Carbon stock in litter in the forest stratum i ; t CO ₂ -e ha ⁻¹
$C_{SOC,i}$	Carbon stock in soil organic carbon in the forest stratum i ; t CO ₂ -e ha ⁻¹
i	1, 2, 3, ... M strata

2.4 Estimation of the sum of baseline greenhouse gas emissions (BL-UP step 4.4)

Emissions of CO₂ by combustion of fossil fuel

Fossil fuel combustion in all situations is an optional emission source. The Methodology Module E-FFC, states that project proponents may elect to include fossil fuel combustion if emissions are higher in the baseline than in the project case thus generating emission reductions through project activities. Where emissions from fossil fuel combustion are estimated in the baseline, monitoring and estimation must also occur in the with-project scenario.

As an option emission the Gola REDD project has elected **not** to estimate emissions from fossil fuel combustion.

Emissions of N₂O due to nitrogen application

The estimation of emission from nitrous oxide is required if leakage prevention activities include the increases in the use of fertilizers (See Module REDD-MF).

The Gola REDD Project will not use fertilizers as a leakage prevention activity, and therefore emissions from nitrous oxide are excluded

Emissions of other GHG by biomass burning

Subsistence crop-fallow farming is the vast majority of the reason for deforestation in the project area (Witkowski et al 2012a). Crop-fallow involves clearing and burning the vegetation (Witkowski 2012; USAID 2007b; Nasi et al. 2006). Therefore GHG emissions from biomass burning are expected to occur on all land deforested during site preparation.

Biomass assumed to be extracted for wood products is excluded from the estimation of biomass emission estimation. The emission from biomass burning was estimated following Module E-BB Table 21).

Table 21. Non-CO₂ emissions from biomass burning (for equations see Netzer and Walker 2013)

	Strata 1: GRNP North/Central	Strata 2: GRNP South	Description
AG Biomass	654.7	582.5	Ave aboveground biomass stock before deforestation t d.m./ha
B _{i,t}	604.3	537.7	Ave aboveground biomass stock, after logs removed, before burning, t d.m./ha
Emissions per hectare, CH ₄	39	35	CH ₄ Emission from biomass burning per hectare, t CO ₂ e/ha
Emissions per hectare, N ₂ O	17	15	N ₂ O Emission from biomass burning per hectare, t CO ₂ e/ha

2.5 Calculation of net emissions (BL-UP Step 4.5)

Stock changes in above ground biomass were emitted at the time of deforestation. Emissions from below ground biomass were emitted at a rate of 1/10 the stock for 10 years. Emissions from soil were emitted at 1/20 the stock for 20 years.

The sum of baseline carbon stock changes is estimated as follows:

$$\Delta C_{TOT} = C_{BSL} - C_{post} - C_{wp} \quad (13)$$

$$C_{BSL} = \sum_{t=1}^{t^*} \sum_{i=1}^M ((C_{BSL,i}) * A_{unplanned,i,t}) \quad (14)$$

$$C_{post} = \sum_{t=1}^t \sum_{i=1}^M (C_{post,i} * A_{unplanned,i,t}) \quad (15)$$

$$C_{wp} = \sum_{t=1}^t \sum_{i=1}^M (C_{WP,i} * A_{unplanned,i,t}) \quad (16)$$

Where:

ΔC_{TOT} Sum of the baseline carbon stock change in all pools up to time t^* ; t CO₂-e (calculated separately for the project area [PA] and the leakage belt [LB])

C_{BSL} Total forest carbon stock in areas deforested; t CO₂-e

C_{post} Total post-deforestation carbon stock in areas deforested; t CO₂-e

C_{wp} Total carbon stock in harvested wood products; t CO₂-e

$C_{BSL,i}$	Carbon stock in all carbon pools in the forest stratum i ; t CO ₂ -e ha ⁻¹
$A_{unplanned,i,t}$	Area of unplanned deforestation in forest stratum i at time t ; ha
$C_{post,i}$	Carbon stock in all carbon pools in the post-deforestation stratum i ; t CO ₂ -e ha ⁻¹
$A_{unplanned,i,t}$	Area of unplanned deforestation in post deforestation stratum i at time t ; ha
$C_{WP,i}$	Mean carbon stock in wood products pool (stock remaining in wood products after 100 years) from stratum i ; t CO ₂ -e ha ⁻¹
t	1, 2, 3, ... t years elapsed since the projected start of the REDD project activity
i	1, 2, 3, ... M strata

For calculation of carbon stock sequestered in wood products, see **CP-W**.

Total GHG emission were estimated for biomass burning. Nitrous oxide and emissions from fossil fuel combustion were excluded.

The GHG emissions in the baseline within the project boundary can be estimated as:

$$GHG_{BSL,E} = \sum_{t=1}^{t^*} \sum_{i=1}^M (E_{FC,i,t} + E_{BiomassBurn,i,t} + N_2O_{direct-N,i,t}) \quad (17)$$

Where:

$GHG_{BSL,E}$	Greenhouse gas emissions as a result of deforestation activities within the project boundary in the baseline; t CO ₂ -e
$E_{FC,i,t}$	CO ₂ emission from fossil fuel combustion in stratum i in year t ; t CO ₂ -e
$E_{BiomassBurn,i,t}$	Non-CO ₂ emissions due to biomass burning as part of deforestation activities in stratum i in year t ; t CO ₂ -e
$N_2O_{direct-N,i,t}$	Direct N ₂ O emission as a result of nitrogen application on the alternative land use within the project boundary in stratum i in year t ; t CO ₂ -e
t	1, 2, 3, ... t^* years elapsed since the projected start of the REDD project activity

For detailed information regarding the calculation of $E_{FC,i,t}$, $E_{BiomassBurn,i,t}$ and $N_2O_{direct-N,i,t}$ see **E-FFC**, **E-BB** and **E-NA**.

GHG emission sources excluded from the project boundary can be neglected, i.e. accounted as zero. For the determination which sources of emissions must be included in the calculations as a minimum use Table 1 in **REDD-MF** and tool **T-SIG**.

Following BL-UP net emissions were calculated for each strata in the project area and leakage belt (Table 22).

Table 22. Calculation of net emissions

t	y	BSLunplanned - Strata 1			BSLunplanned - Strata 2			BSLunplanned - Leakage belt			ΔCBSL,PA	ΔCBSL,LB
		ha	t CO ₂ e	t non-CO ₂ e (EBiomass Burn,i,t)	ha	t CO ₂	t non-CO ₂ (EBiomass Burn,i,t)	ha	t CO ₂ e	t non-CO ₂ (EBiomass Burn,i,t)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)
1	2012	337	172,744	18,035	704	322,179	34,620	1,544	791,586	82,643	547,578	874,229
2	2013	413	216,950	22,097	628	295,545	30,894	1,544	815,873	82,643	1,113,063	1,772,745
3	2014	353	192,799	18,897	688	330,026	33,828	1,544	840,207	82,648	1,688,614	2,695,600
4	2015	446	245,888	23,860	595	295,507	29,274	1,544	864,449	82,643	2,283,143	3,642,692
5	2016	435	247,408	23,287	606	307,167	29,796	1,544	888,737	82,643	2,890,802	4,614,072
6	2017	487	281,158	26,096	554	290,120	27,221	1,544	913,024	82,643	3,515,397	5,609,740
7	2018	518	304,749	27,758	522	282,194	25,690	1,544	937,358	82,648	4,155,789	6,629,746
8	2019	534	320,799	28,582	507	281,161	24,937	1,544	961,600	82,643	4,811,268	7,673,989
9	2020	543	333,998	29,083	498	282,630	24,473	1,544	985,888	82,643	5,481,452	8,742,520
10	2021	552	346,930	29,541	489	284,444	24,057	1,544	1,010,175	82,643	6,166,423	9,835,338
11	2022	560	355,878	29,979	481	278,891	23,649	1,544	1,016,441	82,643	6,854,821	10,934,423
12	2023	558	358,855	29,873	483	278,771	23,751	1,544	1,022,753	82,648	7,546,071	12,039,824
13	2024	508	337,946	27,204	533	299,878	26,198	1,544	1,028,973	82,643	8,237,298	13,151,440
14	2025	514	343,645	27,508	527	297,194	25,924	1,544	1,035,238	82,643	8,931,568	14,269,321
15	2026	540	359,850	28,886	501	285,069	24,654	1,544	1,041,504	82,643	9,630,027	15,393,469
16	2027	553	369,386	29,589	488	279,043	24,012	1,544	1,047,816	82,648	10,332,058	16,523,933

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t	y	BSLunplanned - Strata 1			BSLunplanned - Strata 2			BSLunplanned - Leakage belt			ΔCBSL,PA	ΔCBSL,LB
		ha	t CO ₂ e	t non-CO ₂ e (EBiomass Burn,i,t)	ha	t CO ₂	t non-CO ₂ (EBiomass Burn,i,t)	ha	t CO ₂ e	t non-CO ₂ (EBiomass Burn,i,t)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)
17	2028	542	366,537	29,016	499	284,025	24,535	1,544	1,054,036	82,643	11,036,170	17,660,613
18	2029	528	361,447	28,245	513	291,059	25,247	1,544	1,060,302	82,643	11,742,168	18,803,558
19	2030	533	366,129	28,529	508	289,256	24,981	1,544	1,066,568	82,643	12,451,064	19,952,769
20	2031	529	366,271	28,341	512	291,597	25,158	1,544	1,072,880	82,648	13,162,432	21,108,297
21	2032	534	369,003	28,582	507	289,629	24,933	1,544	1,072,835	82,643	13,874,579	22,263,775
22	2033	548	376,320	29,324	493	283,460	24,256	1,544	1,072,834	82,643	14,587,939	23,419,252
23	2034	527	366,774	28,197	514	292,452	25,287	1,544	1,072,833	82,643	15,300,648	24,574,729
24	2035	543	375,745	29,083	498	284,701	24,477	1,544	1,072,833	82,643	16,014,654	25,730,205
25	2036	554	381,535	29,637	487	279,780	23,964	1,544	1,072,880	82,648	16,729,570	26,885,733
26	2037	579	394,690	30,982	462	268,256	22,733	1,544	1,072,834	82,643	17,446,231	28,041,210
27	2038	579	395,548	31,001	462	267,608	22,711	1,544	1,072,833	82,643	18,163,099	29,196,687
28	2039	581	397,393	31,112	460	266,119	22,614	1,544	1,072,833	82,643	18,880,337	30,352,164
29	2040	591	403,002	31,622	450	261,173	22,140	1,544	1,072,880	82,648	19,598,275	31,507,692
30	2041	629	423,352	33,656	412	243,155	20,277	1,544	1,072,834	82,643	20,318,715	32,663,169

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G2.4. 'Without project' scenario effects on project zone communities

Describe how the 'without project' reference scenario would affect communities in the project zone, including the impact of likely changes in water, soil and other locally important ecosystem services.

Without the REDD project there would be no funding for the protection of the project area, the governance structures required to manage the project area would not exist, and none of the project activities described in the later sections G3 and CM1.1 would be carried out with any forest edge communities or offsite communities. Community members said that even though it would be illegal, without enforcement they would re-engage in the activities they had conducted in the area prior to 2004; firstly farming, but also hunting, logging, mining, fishing and gathering (Witkowski et al 2012a and b).

The number of settlements close to or within the project area would most likely increase as would the number of inhabitants within each village due to the lack of forest protection and the 'open access' potential to exploit the area. Whilst this may bring benefit to individuals e.g. Chiefs who have the resources to take advantage of the lack of forest management the wider community would not benefit and the end result would be a depletion of the natural resource base which underpins many livelihood options and a decline in ecosystem service provision such as clean water supplies and climate regulation to all communities in the area.

In consultations with forest edge communities and local district councils, the forest edge communities stated that in large part, the GRNP management team is the only organization with a sustained presence in the forest edge area, due to remoteness, difficulty of access to FECs and scarce resources (Kenema District Council 2012; Focal group report; Witkowski et al 2012b; Gola REDD project context report; Witkowski et al 2012c). Without livelihood activities supported by the REDD project, forest edge communities would continue to utilize the same farming practices and continue to depend on unreliable, ad hoc income generating opportunities such as logging and mining.

Lack of knowledge of sustainable farming practices and continued overreliance on subsistence farming with poor inputs and low access to capital implies that communities would remain food insecure with a yearly hunger season as is found throughout Sierra Leone. Productivity of farms, cited to be a key challenge in the area (Kenema District Council 2012) would continue to be low and challenges such as decreases in fertility and declining fallow periods that are linked to shifting cultivation "are likely to get worse in future" (WHH strategy: 9). In areas where farm bush is over-utilized, grass incursions would occur which would have an adverse effect on subsistence agriculture (Davies and Richards 1991).

Some communities noted that the stocks of valuable timbers in their areas are already gone while others noted that communities extensively involved in logging do not seem to be any better off. Others reported that there are already shortages of resources such as rattan and fish in some areas (Focal Group report; Witkowski et al 2012b), some communities therefore already recognize that there would be negative livelihood impacts should forest resources not be protected. Conflicts over land for farming and resources are also likely to increase both between and within villages as village numbers and inhabitants increase. Conflicts would increase due to the problem of insecure land tenure and only verbally known boundaries.

In the longer term, therefore deforestation would affect the important ecosystem services and livelihood options that underpin the communities agricultural and livelihood activities, including clean freshwater supplies, erosion control, soil fertility, carbon storage, NTFPs and supplies of animal protein. As Welthungerhilfe reports, “most authorities and regular citizens in Sierra Leone are not really aware of the connections between the environment and agricultural practices in their country. In many places, stocks of trees are being burnt, the cleared areas are being tilled, and conservation areas are being inhabited illegally and often because people are not aware of the borders or the importance of the conservation areas they are destroying” (Welthungerhilfe strategy 2010;23). This lack of knowledge poses a threat to the stability of natural resources in the area. The area around the GRNP has a specific micro-climate that is particularly suitable for coffee and cocoa production (pers. comm., Franz Moestel, Welthungerhilfe). In the absence of the project, increased deforestation would alter this micro-climate and have negative impacts on the cash-crop plantations on which communities depend for income generation.

Without the project forest edge communities would remain marginalized and unable to harness external support and lack the capacity and organization to help themselves. Any benefits would likely to accrue to a few individuals rather than the wider community. Constraints to development would therefore largely remain but with a depleted natural resource base on which to develop livelihoods. In the absence of the project, it is likely that natural capital will be reduced and this will have an increasingly detrimental effect on communities over time.

G2.5. ‘Without project’ scenario effects on project zone biodiversity

Describe how the ‘without project’ reference scenario would affect biodiversity in the project zone (e.g., habitat availability, landscape connectivity and threatened species).

The baseline projection of deforestation as described in G2.1 would have significant negative effects on the biodiversity of the project zone. These effects can be classified into habitat loss and fragmentation, disturbance and species loss.

Habitat loss and fragmentation resulting in loss of connectivity

In the absence of the Gola project, smallholder agriculturalists would be free to convert areas of forest into the farming cycle. This would likely begin with encroachment over the boundaries of the project area but small communities would also become established within the forest and trails would be opened up as has occurred in the past (Witkowski 2012) (see G2.1) and has occurred in other Forest Reserves in Sierra Leone (Showers 2012). This would result in habitat loss and fragmentation which would mean that connectivity (which is vital for the maintenance of viable populations of wildlife) within and between the forest blocks of the project area and the project area and forests in Liberia is lost. According to the baseline scenario, 1041 ha of forest would be lost per year from the project area. Forest loss is higher outside the project area (1544 ha/year in the leakage belt) and without the activities of the REDD project in the project zone this forest will eventually be converted into the farm bush cycle. One particularly important tract of fragmented forest lies between the southern and central parts of the project area. It is likely that this provides an important connection between the two largest blocks of the project area, especially for larger mammals; larger mammals such as chimpanzees, duiker species and other primates have been recorded in this area (Hillers 2013). A forested floodplain area that is possibly the main site in Sierra Leone for the

Endangered pygmy hippopotamus is also located in this area (Hillers and Muana 2011). Without project and leakage mitigation activities in these key areas, the distribution of forest dependent species and population numbers will decline as has been in the case for pygmy hippos (Hillers and Muana 2011). Although secondary forests may provide habitat to several species, populations of specialists and endemic or localized species are often missing from regenerating forests (De Walt et al. 2003).

Disturbance

In the absence of the project increased human presence in the project area as people enter to carry out farming and other activities will negatively impact on biodiversity. As described in section G1.7, the Vulnerable White-necked picathartes nests in colonies on large boulders in forest areas. This species is endemic to the Upper Guinea forests, and the population in the project zone is the largest in Sierra Leone and one of the largest in its global range (Monticelli et al. 2011). The picathartes is the symbol of the National Park and draws international birdwatchers to the area, thereby generating income to local communities. Many of the known colonies from the project zone are located in community land. Past studies have shown these colonies are highly susceptible to disturbance from logging and farming (Wotton and Morris 2006) and without the project the range and numbers of this species are likely to decline. Some communities in the leakage belt of the project zone have begun to protect nesting sites due to the potential for visits from tourists and the revenue that this brings.

Disturbance will also affect other shy and sensitive species like the endangered pygmy hippo, chimpanzees (Hillers and Muana 2011) and other large mammals such as the Forest Elephant whose numbers significantly declined during the period of civil conflict when the project area was used by both rebels and local people as a refuge (pers. Comm. GRNP research team). For such species the project zone is one of the last strongholds in the country. Increased disturbance levels in the absence of the project may bring the extinction of both species from the country.

Species loss

In the absence of the project there would be no funding for conservation activities to prevent hunting in the project area, which is carried out with shot guns, snares and traps. Species loss would occur due to increased hunting pressure, as well as the disturbance and loss of habitat outlined above.

Species that are especially targeted by local hunters are the duikers and primates (Koroma 2012). In West and Central Africa, bushmeat hunting is known to be one of the most important threats to primate populations (Bowen-Jones et al. 1999, Kümpel et al. 2008, Greengrass 2011). Sooty Mangabeys, Chimpanzees and the Endangered Western red colobus are suffering from the bushmeat trade, because their large size and conspicuous habits make these species a main target to local hunters (Koroma 2012). In addition to the primates, duikers are among the most heavily trapped species in the forests of West Africa and indeed the project zone (Greengrass 2011, Koroma 2012). While Maxwell's duiker appears to be common in the project zone, the Upper Guinea endemic Zebra duiker is listed by the IUCN as Vulnerable and Jentiks duiker is endangered. Their population sizes in the project zone are unknown. However, any increases in hunting pressure needs to be avoided. Terrestrial birds also get caught using snares, including the Vulnerable White-breasted guinea fowl.

Increasing forest loss in the absence of the project is expected to have a negative impact on several species, in particular those species that are restricted to primary forest. These species include the Endangered Gola malimbe, the Endangered Jentink's duiker, the Critically Endangered Tai toad and, again, Western red colobus and Western pied colobus.

Although the exact effects of the 'without-project' scenario are hard to quantify, it is clear that negative effects on forest cover, ecosystem integrity and the viability of threatened species are to be expected. Several studies have shown that especially taxa that are of conservation concern such as regional endemics are suffering most from habitat disturbance in tropical forests (e.g. Posa & Sodhi 2006, Scales & Marsden 2008). Larger mammals are likely to be the first to experience negative effects from the absence of conservation activities. This would include Forest elephant, Pygmy hippo and the threatened and endemic duiker and primates, including Chimpanzees that are very susceptible to hunting and are dependent on large tracts of undisturbed primary forest.

G3. Project design and goals

G3.1. Summary of project climate, community and biodiversity objectives

Provide a summary of the project's major climate, community and biodiversity objectives.

Project vision

The Gola REDD project is a catalyst for peace, prosperity and national pride in Sierra Leone, ensuring that the globally important habitats, biodiversity and environmental services of the GRNP and wider Gola landscape are conserved and that neighbouring communities are active environmental stewards of the natural resource base that underpins and enhances their livelihoods

Project purpose

To conserve the forests, biodiversity, ecological processes and services of the GRNP and wider landscape for the benefit of nature and people.

Goals

To facilitate the achievement of the project's vision and ensure that the project achieves net positive benefits for climate, communities and biodiversity, project activities will focus around three goals:

1. Conservation strategy and effective management for the GRNP

Goal: To strengthen the conservation strategy and effective management of the GRNP and enable the project to be a stimulus for building National policies and regulations as well as informing relevant regional and international platforms of conservation best practice.

2. Sustainable natural resource management

Goal: To enable local people to become environmental stewards of the natural resource base that underpins their livelihoods through education, capacity building, land use planning and activities that enhance the socio-economic benefits derived from the sustainable use of the project zone's forests and agricultural land.

3. Research and monitoring

Goal: To develop and maintain a comprehensive social and biodiversity database and monitoring system to ensure the availability of accurate, relevant and timely information to inform and enhance project management and the effective protection of the forest and delivery of anticipated social and biodiversity goals.

A further goal of the project is to build capital in a trust fund that can be used after the end of the carbon project to continue conservation management. This goal falls outside of the implementing team's management goals which are described above and instead is part of the strategy of the Gola Rainforest Conservation LG. A dedicated trust fund for GRNP post-project management will be established which will be capitalized during the project's lifetime by a percentage of 'excess' revenues from the sale of credits that remain after the costs of project implementation.

G3.2. Description of project activities

Describe each project activity with expected climate, community and biodiversity impacts and its relevance to achieving the project's objectives.

The three main project goals have been broken down in the following tables into objectives and activities. The rationale and relevance to achieving the project's purpose and vision is described. The management plan which is currently under development will breakdown each activity into actions. The management plan will be reviewed and revised every five years during the 30 year project cycle in consultation with project partners, staff and key community stakeholders.

Each year project management staff will develop an annual operations plan based on the five-year management plan and the results of the previous year's activities. In this way the project will continually evaluate its progress and risks and adapt its activities accordingly to ensure that the project is on target to meet its goals and objectives.

1. Conservation strategy and effective management for the GRNP

Goal: To strengthen the conservation strategy and effective management of the GRNP and enable the project to be a stimulus for building National policies and regulations as well as informing relevant regional and international platforms of best conservation practice

Objectives	Activities	Rationale and Relevance
1. Protect the integrity of the GRNP	1.1 Forest ranger teams to carry out regular forest patrols to deter, prevent and control illegal activities 1.2 Strategic patrol planning to optimise coverage of the protected area while targeting areas of high conservation value and ensuring a timely response to known and potential threats 1.3 Maintain clear and permanent boundary demarcation 1.4 Maintain and where necessary establish infrastructure such as forest ranger stations, road access and park headquarters 1.5 Develop robust communication channels with neighbouring communities and local authorities that enable threats and grievances to be efficiently and effectively addressed	National Park status on its own does not guarantee the long term survival of key species and habitats and the integrity of carbon stocks; many species require active management or protection measures and these must be based on sound information and enforcement of legislation through the control of illegal and damaging activities. These activities will need to be implemented through out the lifetime of the project and by preventing illegal activities that result in deforestation GHG emissions will be reduced.
2. Enable effective management through implementation of best practice administrative and financial systems and the provision of necessary staff training and equipment	2.1 Maintain robust procurement and accounting policies and procedures 2.2 Ensure financial planning and reporting is in compliance with company requirements 2.3 Ensure that recruitment follows Human Resource policy of equal opportunities and best practice	Effective project management must have all the mechanisms in place to assist and guide staff in carrying out their work and enable them to demonstrate that resources are being used in a cost-effective legal and transparent manner. Without such 'behind the scenes' management processes the project would be unable to efficiently function and reduce GHG emissions,

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Objectives	Activities	Rationale and Relevance
	2.4 Provide staff with training and professional development opportunities to ensure the project's capacity needs are met and that staff are able to progress in their careers. 2.5 Develop, implement, evaluate and report on annual operational plans 2.6 Provide a secure work environment for staff and visitors	such activities will be implemented through out the lifetime of the project.
3. Strengthen communications and actively promote the project with local, regional and national stakeholders (and wherever possible in international arenas)	3.1 Document and disseminate best management practices (through meetings, publications, workshops and the project website) 3.2 Advocate for the replication of the project to support wider conservation initiatives nationally and in the sub region 3.3 Establish and maintain strong links, dialogue and collaboration between the project and key local, provincial and national stakeholders 3.4 Establish the necessary legal framework for the implementation of co-management and other activities required by the project	Promoting the project's best practices and developing institutional coherence amongst Government and Non-Government agencies will create a positive environment for natural resource governance and the demonstration of effective REDD activities are essential for the development and implementation of national mechanisms and effective protected area management elsewhere in the country thus reducing GHG emissions for the project and wider landscape. These activities are to be implemented through out the lifetime of the project.

2. Sustainable natural resource management

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Goal: To create an enabling environment for neighbouring communities to act as committed environmental stewards of the natural resource base that underpins their livelihoods through activities that enhance, generate value from and materialize the benefits derived from the project zone's forests and sustainable land use practices.

Objective	Activities	Rationale and relevance
1. To improve productivity on existing crop fallow land	1.1 Assess current land use systems and design intervention strategies that are inclusive of the most vulnerable 1.2 Develop and implement training workshops for farmer field schools and provide inputs to establish and maintain farmer capacity for best practices in sustainable agriculture 1.3 Pilot innovations to increase productivity in demonstration plots 1.4 Research human-wildlife conflict (HWC) and pilot awareness mechanisms and measures to reduce impact (to link in with objective 2) 1.5 Provide comprehensive ongoing training and supervision of agriculture officers 1.6 Implement the monitoring plan and adapt activities according to results of evaluations	Improving the productivity on land that is already part of the traditional bush fallow cycle will reduce deforestation and benefit household food security and income, this is part of the project strategy to achieve a net positive impact for project zone communities. This activity will be implemented in all 114 villages of the leakage belt in the first 6 years of the project, after which time progress will be assessed and a new activity plan developed (see Tatum-Hume and Witkowski 2013 for further descriptions of the activity and the implementation plan).
2. To improve productivity and farmer income from cocoa production and other diversified sustainable income generating activities	2.1 Assess existing agricultural commodity value chains and identify gaps for agricultural products, Non-timber forest products, sustainable forest products and constraints for Forest edge communities 2.2 Provide training and inputs for the production/collection, post-harvest processing and marketing needs of the identified crop 2.3 Increase organization and capacity of small holders to enable increased trade and income e.g. through certification, and or cooperatives	Rehabilitating cocoa plantations will have the benefit of both increasing farmer income and maintaining forest cover thus ensuring that GHG are not emitted through the conversion of old plantations into other land uses. This activity will be implemented in all 114 villages of the leakage belt in the first 6 years of the project, after which time

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Objective	Activities	Rationale and relevance
	2.4 Develop and promote the Gola area as an eco-tourism destination that benefits and involves local communities 2.5 Implement the monitoring plan and adapt activities according to results of evaluations	progress will be assessed and a new activity plan developed. (see Tatum-Hume and Witkowski 2013 for further descriptions of the activity and the implementation plan).
3. To enable forest edge communities to achieve financial independence	3.1 Establish savings and internal lending group(s) within participating villages 3.2 Provide training, guidance and monitoring of each groups committee and activities 3.3 Train Private Service Providers within each group to establish further groups within each village 3.4 Implement the monitoring plan to monitor outputs, outcomes and impacts of activities as compared to the baseline scenario on livelihoods and wellbeing in accordance with the specific indicators detailed in the social monitoring plan and longitudinal and activity monitoring procedures documents. Adapt activity if barriers or issues are uncovered through monitoring (e.g. additional training)	Enabling villagers to have access to a pot of funds that can be used to finance alternative livelihoods or used in times of emergency will provide improved and diversified incomes thus reducing pressure on forest resources (and thereby reducing GHG emissions) whilst providing net positive benefits to forest edge communities. This activity will be implemented in all 114 villages of the leakage belt in the first 6 years of the project, after which time progress will be assessed and a new activity plan developed. (See Tatum-Hume and Witkowski 2013 for further descriptions of the activity and the implementation plan).
4. To provide an enabling environment and capacity for forest edge communities to	4.1 Capacity building and awareness raising of importance of Natural Resource Management in villages in the project zone (to link in with objective 5)	Effective CBNRM will mitigate leakage in the project zone and preserve habitat connectivity between the forest blocks and

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Objective	Activities	Rationale and relevance
sustainably manage forest areas	4.2 Identification, prioritization and engagement of cluster forest edge communities for CBNRM work 4.3 Review and update in a participatory manner existing by-laws on traditional land use practices 4.4 Establish co-management areas inside project area (GRNP) with resource use agreements and at community request, in the leakage belt (to link in with objective 2, activity 1) 4.5 Identify and promote the strengthening of traditional governance systems to enable communities to participate more effectively in the protection and of the GRNP and enforcement of its laws and regulations.	forests in Liberia thus contributing to both climate and biodiversity objectives. From a community perspective land use planning will ensure that natural resources which underpin many livelihood activities are available in perpetuity. Tenure security in the form of use rights and access will be enhanced inside the park through the designation of community use zones and co-management agreements. This activity will be developed over the lifetime of the project with the forest edge communities in the leakage belt.
5. To enhance environmental awareness and promote community participation in the management of the GRNP	5.1 Develop and implement an education strategy with modules dedicated to targeted topics and audiences 5.2 Establish and maintain a network of school nature clubs 5.3 Develop a GRNP volunteer program in forest edge communities for unemployed youth 5.4 Identify and support environmental stewards in neighbouring communities 5.5 Conduct annual awareness raising and educational roadshows and other events to reach remote forest edge communities	Promoting understanding and knowledge of the values of the GRNP and forests is a necessary pre-requisite for enabling the emergence of environmental stewardship in local communities. If communities value and preserve forests this will reduce emissions of GHG, educational activities will be implemented through out the lifetime of the project.

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Objective	Activities	Rationale and relevance
	5.6 Monitor the success of the educational programme following the monitoring plan and selected indicators, adapt as required	
6. Implement and monitor mechanisms that equitably compensate stakeholders and promote incentives for conservation practices in the project zone and offsite zone	6.1 Implement the distribution of funds and activities outlined in the Benefit Sharing Agreement (BSA) 6.2 Develop structures and monitoring procedures to ensure effective and transparent distribution of funds and in-kind benefits 6.3 Support Gola Community Development Committees (GCDC) in develop procedures and criteria to select development projects for funding 6.4 Provide advice and capacity building to GCDCs 6.5 Oversee the fair election of GCDCs 6.6 Support the Government in updating the GRNP landowner register 6.7 Assess pupil access and participation in secondary schools. Develop criteria for scholarship selection and provide scholarship package to community selected students 6.8 Assess and implement where possible other strategies for providing educational support to remote forest edge communities which fall outside the current school coverage	The development and maintenance of an agreement and mechanisms that reward and incentivise stakeholders to reduce deforestation and compensate others for foregone rights in an equitable, effective and transparent manner is essential to prevent elite capture and to foster support for the project. The Benefit sharing agreement will be periodically renewed through out the project.

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3. Research and monitoring

Goal: To develop and maintain a comprehensive social and biodiversity database and monitoring system to ensure the availability of accurate, relevant and timely information to inform and enhance project management and the effective protection of the forest and delivery of anticipated social and biodiversity goals.

Objectives	Activities	Rationale and relevance
1. To carry out specific studies to fill critical gaps in information on biodiversity, ecological processes and social-ecological systems	1.1 Carry out ecological research into key species and recommend management interventions if required 1.2 Develop conservation action plans for key species and habitats 1.3 Carry out socio-economic research to understand community dynamics 1.4 Promote national and international research involvement in the project zone	This objective will provide the necessary scientific information to guide the project's management and protection measures
2. Establish and maintain a biophysical and socio-economic database	2.1 Design, implement and maintain a database to capture all data collected 2.2 Analyse and report on data	Ensure that the project maintains a robust dataset upon which management can rely to make informed decisions
3. To carry out monitoring of key species, habitats, ecological processes and socio-economics to determine and evaluate the project's progress and impacts	3.1 Carry out regular monitoring of pre-identified and agreed sets of indicators for climate change, forest cover, biodiversity and community development 3.2 Carry out regular analysis and report on available data 3.3 Disseminate reports and results to stakeholders and the scientific community	This objective will ensure that the implemented management actions are creating the predicted and desired changes and enables the project to adapt the management strategy accordingly

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Objectives	Activities	Rationale and relevance
4. To promote GRNP as a centre for national and international research on tropical rainforest ecosystems and integrated conservation and development approaches to protected area management	4.1 Set up the required infrastructure for national and international research to be held in the project zone 4.2 Develop and implement an education program for schools and visitors to the centre to build environmental awareness 4.3 Establish collaborative partnerships on agreed research questions 4.4 Facilitate independent research projects within the project zone, the results of which must be shared with local communities through the CDRO-FEC meetings, workshops and be published on the project website 4.5 Promote and advocate research results	This objective will secure and enhance the recognition of GRNP's high Conservation values, fill gaps in scientific knowledge and understanding, as well as build the capacity and reputation for national research thus creating the impetus to protect Gola during and beyond the project cycle at a national and international level.

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G3.3. Project boundaries and location of project activities

G3.3. Provide a map identifying the project location and boundaries of the project area(s), where the project activities will occur, of the project zone and of additional surrounding locations that are predicted to be impacted by project activities (e.g. through leakage).

Project activities relating to conserving and strengthening the management of the project area (goal 1, described in G3.2), will occur within the project area (the three forest blocks of the GRNP). Project activities involving the forest edge communities that are directed towards sustainable natural resource management (goal 2, objectives 1 to 6, described in G3.2) will take place in the 114 communities of the leakage belt of the project zone, goal 2, objective 6 will occur in both the project zone and offsite zone. Project activities relating to research and monitoring (goal 3, described in G3.2), will take place throughout the project zone and in some parts of the offsite zone.

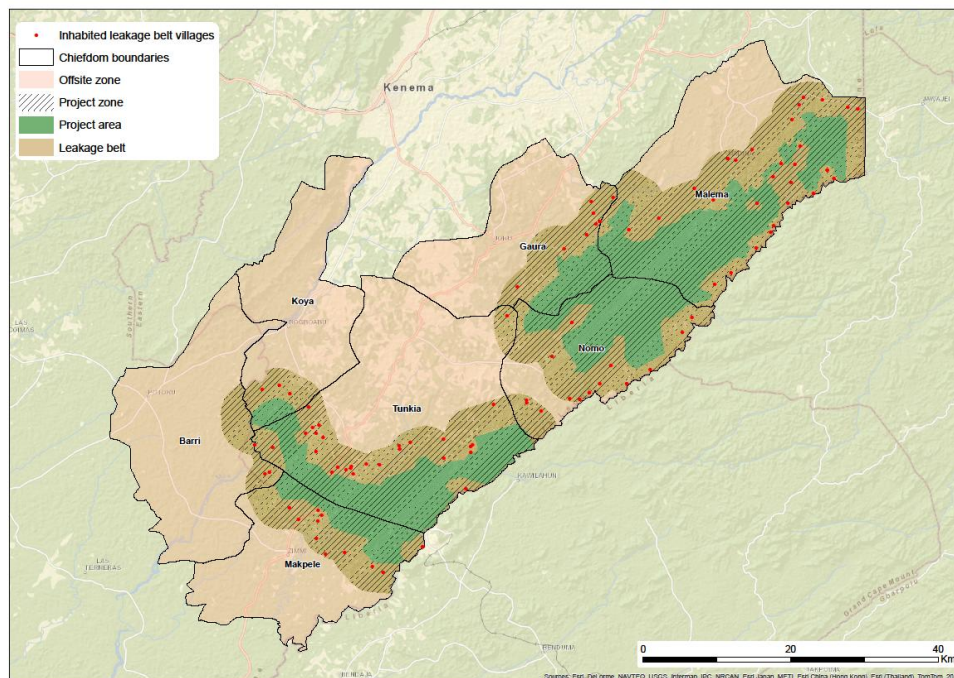


Figure 12. Map of the location of project activities

G3.4. Project lifetime, accounting period and implementation schedule

Define the project lifetime and GHG accounting period and explain and justify any differences between them. Define an implementation schedule, indicating key dates and milestones in the project's development.

Project lifetime and GHG accounting period

The Gola REDD project lifetime is 30 years, starting on 1st August 2012 when donor funding ended and so would all conservation work had the RSPB not provided temporary bridging finance and ending on 31st July 2042. This is the same as the GHG accounting period.

As per G3.1 the project proponents propose to use a trust fund to accumulate a percentage of any excess finances from the sale of carbon credits to be used after the project ends to continue conservation work.

Table 23: Implementation schedule of key dates in project development

Date	Milestone
2008	Conclusion of 1 st feasibility study; a REDD project is the most viable funding option for Gola
2009	Dissemination of results study to stakeholders; Meetings with partners, Chiefs and civil society to discuss the way forward
2011	Launch of National Park by President Ernest Bai Koroma; Due process followed to upgrade the Gola Production forest reserves to a National Park (see Fofanah 2012)
2012 – 2103	Project start date (August 2012) Beginning of community consultation process for project design and development; Meetings with Paramount Chiefs to launch the process (see G3.8 for details on stakeholder engagement) Collection and analysis and report writing of all baseline data
2013	Project validation to VCS and CCB standards
2014	VCS Monitoring event and report generated Project verification to VCS standards Dissemination of verified monitoring report
2017	Social, Biodiversity and Climate/VCS monitoring events and reports generated Project verification to VCS and CCB standards Dissemination of verified monitoring report
2018	Management Plan update

Date	Milestone
2020	Social, Biodiversity and Climate/VCS monitoring events and reports generated Project verification to VCS and CCB standards Dissemination of verified monitoring report
2022	Social, Biodiversity and Climate/VCS monitoring events and reports generated Project verification to VCS and CCB standards Dissemination of verified monitoring report Baseline revision process for VCS Management Plan update

G3.5. Risks to expected climate, community and biodiversity benefits

Identify likely natural and human-induced risks to the expected climate, community and biodiversity benefits during the project lifetime and outline measures adopted to mitigate these risks.

The Gola project has used the risk assessment tool created by the VCS to assess the risk and determine the appropriate risk rating for the project. Through applying the tool, the project scored a risk rating of 9. However, following the guidelines the minimum risk rating a project can have is 10, the Gola REDD project has therefore applied a risk rating of 10 in determining the number of VCS credits that will be deposited into the AFOLU pooled buffer account (VCS non-permanence risk report).

Risks were assessed by type and included both internal risks; project management, financial viability, opportunity cost, project longevity and external risks; land ownership, community engagement and natural risks. Mitigation measures are in place for any identified risks as explained below.

Internal Risks

Project Management;

The project will be overseen by a company (the Gola Rainforest Conservation LG) established by 3 partners who have been working together to conserve the integrity of the project area for wildlife and for people since agreements were signed in 2001. The 3 partners are the Ministry of Agriculture, Forestry and Food Security, represented by the Forestry Division of the Government of Sierra Leone, the Conservation Society of Sierra Leone (CSSL) and the Royal Society for the Protection of Birds (RSPB). The RSPB has taken the technical lead in developing the Gola REDD project on behalf of the partners.

The RSPB is a UK based conservation organization which currently oversees a portfolio of hundreds of conservation projects in 52 countries in Africa, Asia and Europe in partnership with local birdlife partners, national governments, universities, other non-governmental organizations and committed individuals to promote wildlife conservation based on scientific research. The RSPB considers human induced climate change to be the biggest long term threat to biodiversity and supports policies and measures that reduce anthropogenic emissions. The RSPB has a long history of involvement in the international climate change debate and works with BirdLife International Partners to pilot projects, which aim to reduce emissions from deforestation in developing countries.

The day to day management of the project is carried out by a team of 150 local and international RSPB staff (the vast majority being local staff) with a wealth of conservation and development education, training and experience within Sierra Leone and elsewhere. The project will follow a 5 year management plan that is developed through consultation with local communities and Chiefs. An annual operations plan based on the Management Plan is developed by the project staff and outlines the yearly activities, project risks and monitoring strategies. Progress will be evaluated every quarter to ensure any problems are detected at an early stage and activities adapted together with project staff.

The implementation of leakage mitigation activities (livelihood projects) will be carried out by a combination of project staff and Welt-Hunger Hilfe staff depending on the activity and timing of its implementation (Tatum-Hume and Witkowski 2013). Agricultural interventions have been designed by Welt-Hunger Hilfe, an organization with significant experience in developing farmer capacity and increasing agricultural productivity in Sierra Leone. There is a risk that communities may fail to benefit from the designed activities if there are any human induced barriers that prevent the activity being adopted that were not anticipated during the design phase of the activity or if the sustainable farming practices that are introduced do not result in an anticipated increase in yield and income. Thus the satisfaction and the uptake of new techniques and changes in productivity by community members are included in monitoring plans of the project activities (outputs and outcome monitoring procedures document). Potential barriers considered and mitigated for during the design phase included for example; elite capture (the activities are open to everyone in the community to avoid this issue); landless households may not be involved in earlier rounds of agricultural activities as they were found to be poorer households and risk adverse to trialing new agricultural techniques (landless households are provided with improved varieties of seed if they are unable to take part in the first round of activities to try to help increase productivity), female headed households and farmers may not be able to join farmer field school groups (female farmers are actively sort to join the groups and field schools aim for a minimum of 20% female participants¹⁵). Where any agricultural interventions or other activities are seen to be at risk to community benefits the activities will be adapted accordingly. The technical capacity of the project staff and adaptive management process put in place for the project justify a low risk category associated with the management of the project (VCS non-permanence risk report and appendices).

¹⁵ A higher percentage was not targeted as women do not traditionally farm all crops types or cocoa

Financial Viability

The project partners and staff have successfully managed private and donor funds during pearly conservation work and in the development of the REDD project. Revenues from the sale of carbon credits are expected to be sufficient to cover the costs of implementing the project and any excess revenues will be held in trust funds to be used to manage the GRNP beyond the lifetime of the project. One of the project partners, the RSPB, has provided bridging finance until carbon revenues are available resulting in a minimal financial viability risk to the project (financial analysis available to auditor).

Opportunity cost

The most profitable alternative land use is identified as the mining of the Bagla Hills area in the southern block of the project area for iron ore. This activity is likely to be 100% more profitable for any commercial mining company than conservation activities, although the impact on neighbouring communities is hard to assess. The risk of mining occurring however is very low as: 1. the project area is a National Park and legislation does not readily permit such activities to take place inside a National Park, 2. the Ministry of Mines has publically declared that no mining will take place in the project area 3. the project proponent (the Gola Rainforest Conservation LG) has entered into a public-private partnership agreement with the Government of Sierra Leone further securing the management of the project area for conservation purposes.

Project longevity

A legal agreement is in place for the project proponent to manage the project area for the lifetime of the carbon project i.e. the next 30 years. As a National Park the regulations are in place to protect the area beyond the lifetime of the project, but regulations alone are not enough to prevent deforestation. The partners will therefore create a trust fund to build capital over the lifetime of the project that will then be used to continue the conservation management once carbon financing ends. The risk of project activities not being maintained is therefore low (legal agreements available to auditor).

External risks

Land ownership and resource rights

The Government of Sierra Leone represented by the Ministry of Agriculture, Forestry and Food Security owns the carbon rights and management rights to the project area. These rights will be legally transferred to the project proponent by way of a public-private partnership agreement to enable the sale of credits. Families within the 7 Chiefdoms are recognized as traditional landowners to the project area and have been consulted to secure outstanding carbon rights and will be paid compensation via the REDD benefit sharing agreement. There are therefore no risks associated with land ownership or management for the project.

Community Engagement

The VCS considers the project to be at risk if it has not adequately consulted with households reliant on the resources of the project area. Within the leakage belt of the project zone there are 114 communities. Consultations with communities in both the project zone and the offsite zone revealed that households in these communities were not reliant on the project area but

used it periodically for farming, hunting, logging, mining, fishing and gathering NTFPs. Consultations to develop the project activities were undertaken with the project zone communities and project staff have visited all the Forest Edge Communities in the leakage belt to describe the project and gain consent for the project and for the activities that will be implemented with them over the projects lifetime. Household and focal group surveys to inform the development of project and leakage mitigation activities have been carried out with 30% of villages within the project zone. All communities visited have endorsed the REDD project (MoUs available to auditor).

Any negative impacts of conservation activities on local communities will be mitigated via compensation mechanisms set up by the project that include a range of direct payments and livelihood activities with both project zone and offsite communities. These are described in section CM1.1.

Political risk

The VCS rates political risk by the governance scores determined by the World Bank indicators. Sierra Leone achieves a high political risk rating. The project considers that this risk is mitigated by the fact that the Government is an active partner in the project and has demonstrated its long term commitment towards reducing anthropogenic GHG emissions through participation in international climate change negotiations, public declarations made by the President Dr Ernest Bai Koroma and the recent steps towards developing a National REDD mechanism. The Forestry Division has recently been awarded an EU grant to develop REDD technical capacity within the division and is committed to updating policy and building institutional capacity to meet UNFCCC requirements.

Natural Risks

Analysis of natural risks including fire, extreme weather, pests and disease and geological activity revealed that the project zone is under very low risk from natural disasters. To mitigate any possible risk the project will actively monitor fire outbreaks using the MODIS satellite early warning system, patrol teams will be sent out to investigate any outbreak and react accordingly. In Sierra Leone wild fires are a more common occurrence in the North of the country where there are areas of extensive grassland. Natural risks that may affect the leakage mitigation activities (livelihood projects) introduced to the Forest Edge Communities include the impacts of climate change and crop raiding by wild animals. Agricultural techniques that are being introduced to communities to increase productivity are designed to be 'climate proof' and to increase the resilience of communities and households to climate change for example short-duration rice varieties and agro-forestry systems both enhance the resilience of the farming system (see GL1). Through land use planning the project will encourage the protection of water catchments and inland valley swamps which will contribute to reforestation and improved water availability in the swamps. Protection of the project area itself and the maintenance of connectivity between the forest blocks will also help community resilience by ensuring the long term availability of ecosystem-services including provisional services (food stuff and materials) and regulating services (water quality and availability and micro-climatic conditions). Human wildlife conflict mitigation measures will be trialed with communities based on the results of wildlife conflict research before the most effective measures are scaled up and introduced to all forest edge communities. Both natural risks to

leakage mitigation activities will be monitoring during the lifetime of the project and further mitigation measures introduced should any further risks be identified.

The project therefore has a low natural risk for conservation and livelihood activities.

G3.6. Project design and High Conservation Values

Demonstrate that the project design includes specific measures to ensure the maintenance or enhancement of the high conservation value attributes identified in G1 consistent with the precautionary principle.

The project zone harbours a number of HCV attributes as described in G1; many of the HCV attributes described are dependent on large areas of contiguous forest. The project vision is to protect and enhance natural resources within the project zone and all project goals and objectives are channeled towards achieving the vision. If the forest is protected the forest dependent HCVs will be maintained and in many cases enhanced (see section B1.1 and B1.2).

The first major step to ensuring that the HCVs are maintained was achieved at the end of 2011 when the status of the Gola Production Forest Reserve was upgraded to a National Park. Although this occurred before the official project start date it was part of the process to align management practice with policy to enable a REDD project (see G3.4 for timeline of key events). As a production forest reserve the primary objective for the area was timber production. By upgrading the status of the reserves into a National Park, the highest level of legal protection possible in Sierra Leone was given to the project area. Strengthening the protection strategy and effective management of the Park is one of the three main goals of the project. This will be partly achieved through regular patrolling the project area but also through involving neighbouring communities in the co-management of areas of the Park and developing sustainable land use plans and practices for the leakage belt, which is part of the second goal of the project - sustainable natural resource management throughout the project zone.

The integration of conservation and development goals as described in section 3.2 will ensure that HCVs are maintained and enhanced in the project zone which consists of the GRNP and the wider landscape of the Forest Edge Communities in the leakage belt (also see section B1.1 and B1.2). As HCV areas have been identified by past research work, the project will prioritize these areas for patrolling efforts within the GRNP and for community activities in the leakage belt, ensuring communities are aware of and feel pride for the HCV attributes in their area.

G3.7. Project benefits beyond the project lifetime

Describe the measures that will be taken to maintain and enhance the climate, community and biodiversity benefits beyond the project lifetime.

As explained in section G3.6, the establishment of the National Park early in the project planning process created the necessary legal framework for maintaining and enhancing the benefits of the project beyond its lifetime and the Government of Sierra Leone is committed to the long term vision of the project, as evidenced by Presidential declarations for example at the launch of the GRNP in 2011 (Koroma 2011). Further to this, the project has a number of

related strategies to ensure that climate, biodiversity and community benefits extend far beyond the 30 year life of the project. Firstly the partners are setting up a dedicated trust fund which will be capitalized during the project lifetime and be used to continue conservation management in the project zone after the project ends (Project agreements are available to the auditor upon request). Secondly, the project will work with the Forestry Division of Sierra Leone, one of the project partners, and other government agencies (e.g. the Environmental Protection Agency and the NPAA) to ensure that the project is grandfathered into any future national mechanism and that social and biodiversity safeguards are incorporated. Thirdly, the project will work to empower local communities to become active environmental stewards of the project zone through environmental awareness raising, co-management and enhancing their ability to obtain both financial and in-kind benefits from the forest. As a result, natural resource governance will become embedded into community values and sustainable management will extend beyond the lifetime of the project.

G3.8. Stakeholder identification and involvement

Document and defend how communities and other stakeholders potentially affected by the project activities have been identified and have been involved in project design through effective consultation, particularly with a view to optimizing community and stakeholder benefits, respecting local customs and values and maintaining high conservation values. Project developers must document stakeholder dialogues and indicate if and how the project proposal was revised based on such input. A plan must be developed to continue communication and consultation between project managers and all community groups about the project and its impacts to facilitate adaptive management throughout the life of the project.

To identify the stakeholders around the project area that can potentially be affected by REDD project activities a stakeholder analysis profile matrix was completed. This was complemented by a rainbow stakeholder analysis which clarified not only which stakeholders can potentially be affected by project activities, but also which stakeholders might affect project activities, as recommended by Reed et al (2009) (see Figure 13). The aim of the rainbow analysis was to highlight the nature of each group's impact to and from the project so that plans can be included in the project design to mitigate negative impacts and pinpoint with whom the project must engage to ensure long term protection of the project area. Information was used from the stakeholder analysis profile matrix, the Gola Project Context Report (Witkowski et al 2012c), the threats Report (Witkowski 2012) as well as the perspectives of various stakeholders (NGO, government and community actors) to determine who and/or what has the ability to affect the success of the project. In addition, a rights holder analysis was carried out to identify all those stakeholders with rights to the land and resources in the project area (See Gola Project Context Report; Witkowski et al 2012c). All of these analyses were validated through consultation (see Table 24).

Table 24. Stakeholder analysis, carried out at the beginning of the project design process 2012

Stakeholder Analysis Profile Matrix			
Stakeholder or Stakeholder sub-group	Interest in the project	Effect of project on their interests	Capacity/ Motivation to Participate
GoSL - regional representatives	Political leaders of region where project is being implemented - This includes MPs (constituency level) and Permanent Secretary (regional level), and District Council and Councilors (district level)	Project will impact their constituencies and provide positive benefits for constituents.	Low
National and International Development organizations (both non and for profit)	Some are already working in the Gola area and may be engaged to help with livelihood activities designed as part of the REDD project. These organizations include CRS, PAGE, WHH, GOAL, and Tropical Forest Farms, among others	Positive - some of project's community development activities may be implemented by them	Medium
Regional Traditional Leaders	This includes Paramount Chiefs, Chieftom speakers, Section chiefs and Town chiefs. The Paramount Chief is the highest traditional leader and head of chieftom. There are 7 Chieftoms around GRNP, and some of each Paramount Chief's villages are forest edge communities, others are offsite; buy in is critical.	Project will affect people in their constituency, which includes both the project zone and offsite communities	High
Traditional Landowning families of the Gola Forest	Families recognized by customary law as the land owners of the Gola Forest before the existence of the Reserve or National Park. The head of the family receives annual payments under the benefit sharing agreement to compensate them for loss of use and royalty payments	Positive; the project will ensure that their traditional rights are recognized and provide direct financial benefits	Medium
Gola Community Development Committees	Responsible for implementation of the Community Development Fund. One exists in each chieftom - members are elected and include a teacher, farmer, women's leader, youth, hunter, logger, and forest edge community representative. There are also several permanent members, including representatives for the Paramount Chief, MP, and District Councilor	Project will provide the funds for the chieftom development fund that all communities can apply to for support for development projects	High
Offsite communities	Communities within the 7 Chieftoms around the project zone; potential agents of deforestation within the leakage belt	Positive - these communities will receive benefits under the benefit sharing agreement in the form of the community development fund, scholarships etc.	Medium
Forest edge communities	Communities living closest around the edge of GRNP; most likely agents of deforestation	Project will affect them and the activities they can do in the GRNP, project will need to engage with these communities to develop project activities	High

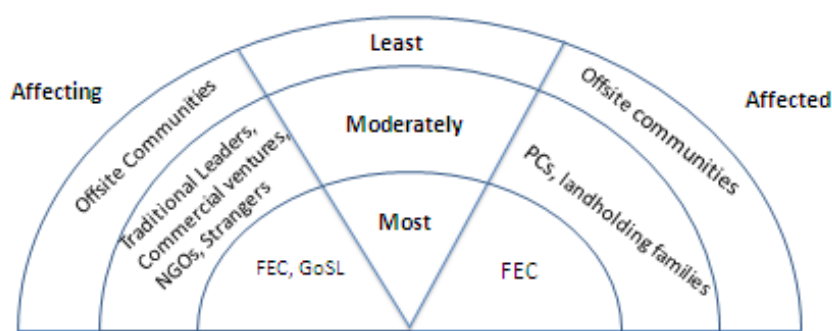


Figure 13. Rainbow stakeholder diagram of Gola project stakeholders who may affect and be affected by project activities

The analysis showed that in order to mitigate the potential threats the project will need to engage with a broader range of stakeholders than just the affected rights holders and most impacted group to gain political support at both local and national levels. There is a need to address wider natural resource governance issues in the region and within the Government to ensure the long term success and sustainability of the Gola project.

The critical groups of legal, customary and ethical local rights-holders to engage with for the purposes of the development of the REDD project, as they can both affect it and be affected by it, are therefore the:

1. **Paramount Chiefs** - The seven paramount chiefs are the traditional custodians of the land and leaders of the people. They therefore have great influence over land use patterns in their respective Chieftdoms and under legislation would have been entitled to receive logging royalties had the project area remained a production forest reserve.
2. **Heirs of the original landowners of GRNP** (project area) – The members of this group consist of the families represented by the family heads registered in the GRNP landowner register (2013). The family heads represent their respective family units and are recognised as the traditional land owners of the area within the National Park by the project, the Government and by other local stakeholders. The traditional landowning families, whilst important stakeholders in the project are not seen as the primary threat to the project or as most impacted by project activities as they passed their management rights to the Government in the 1920's when the majority of the reserve was first created and have therefore not had user rights or customary rights to the land in nearly 100 years. Like the Paramount Chiefs they were entitled to royalties had the project area remained a production forest reserve (although they did not receive any royalties from the timber companies that had concessions in Gola when it was a production forest reserve).
3. **Forest Edge Communities** – These communities either have a direct physical boundary to the GRNP or are within the leakage belt. Because of customary resource use and permission patterns, the current and potential impacts of the project on their livelihoods and the threats they pose to the project zone, these stakeholders are considered to be the key group with whom to engage. Some of the family units associated with landowning families of the project area are living in the forest edge communities.

Identification of and engagement with rights holders

Paramount Chiefs: These seven individuals are clearly identified in the seven chiefdoms. At present however, two chiefdoms – Makpele and Gaura - are without Paramount Chiefs as they recently passed away and the chiefdoms are being led by Regent (temporary) Chiefs. Elections for new permanent paramount chiefs are anticipated to occur sometime during 2013.

To ensure adequate consultation was held with the paramount chiefs to seek their input into the carbon project and achieve their consent to move forward, a series of meetings were held with the group of Paramount Chiefs in Kenema. These meetings started in February 2012 (see Table 25), meetings are the traditional method of consultation with and between Paramount Chiefs, predating any conservation work, which is why this method has been adopted by the project as the best form for REDD project discussions. This was followed up by a series of three additional Paramount Chief meetings, (see Table 25). In order to ensure a community perspective in high level decision making about the project, the Paramount Chiefs created a GRNP Paramount Chief Council to facilitate meetings with project staff and to enable better discussions between Paramount Chiefs on land management issues within their chiefdoms and to foster a necessary sense of collective ownership and cooperation among the 7 chiefdoms with the project. A representative of this council was officially elected by all paramount chiefs to attend meetings of the project partners (the Forestry Division of the Government, CSSL, RSPB) as well as other additional meetings which require the presence of the Paramount Chiefs. Additional meetings attended by the Paramount Chief representative are not reported here but include four partner meetings held during 2012 and 2 in early 2013 which discussed carbon project development and management arrangements.

Landowners: An effort was made by the Forestry Division and the Eastern and Southern Provincial Secretaries with support from the GRNP management team to identify all the landowners in 2008 to enable landowner payments to be made under a benefit sharing agreement made in 2008.

During the carbon sensitization meetings in the seven Gola chiefdom headquarter towns with the Paramount, Section and Town Chiefs in 2012, it was requested that the existing landowner register be updated due to omissions and changes since 2008 when the first landowners registration took place. This updating process has helped ensure that the right landowning families are being compensated for loss of usage and royalty rights to the land in the GRNP, to present the Gola REDD project and concepts of REDD and to arrange the transfer of any residual carbon rights in return for compensation. A series of two meetings with landowners were held in each chiefdom during August and September 2012. In addition, many of the family units of the landowning families are still residing in forest edge communities and are therefore also engaged in project development and implementation through forest edge community outreach activities described below.

Forest edge communities: As discussions with stakeholders took place during 2012, it was determined that the most accurate criterion for forest edge communities is those lying adjacent to the park with a direct boundary with GRNP. A small number of villages that lie within the leakage belt but do not share a direct boundary with the project will also be classified as forest

edge communities due to their proximity to the project area¹⁶. During community sensitization meetings about the carbon project held by the project in March/April 2012 initial lists of forest edge communities were drawn up. Input on these lists was then sought from project staff who spend substantial amounts of time on the ground, many of whom grew up in the chiefdoms. This was followed by confirmation of the lists with the Paramount Chiefs at a meeting in late June 2012. The lists were further triangulated through ground-truthing during household surveys and focus group exercises (described below). They were also verified at every opportunity possible during June-October 2012 by members of GRNP's community development team during visits to the project zone and with as many stakeholders as possible during meetings or at GRNP's office (i.e.: section chiefs, town chiefs, ward development committee representatives, FMC members, etc.). To finalize the list, two processes were used. One was the signing of a boundary agreement between forest edge communities and the GRNP as the boundary was demarcated. The second validation occurred in October 2012 when the lists were presented at chiefdom level meetings in which the Paramount Chief, Gola Community Development Committees, Section Chiefs, and forest edge community chiefs participated.

Communication about the Gola REDD project started with meetings that included forest edge community village and section chiefs in March and April 2012. Subsequently, visits to 13 randomly selected known forest edge communities in June and July 2012 were made to discuss the ideas of climate change and a carbon project and conduct household surveys. The surveys were to collect information on what activities the forest edge communities were doing in the reserve area before the regulations were more stringently enforced, the impact of conservation enforcement, challenges the communities face, and what ideas people had about what might be done to reduce deforestation pressures and support livelihoods. Information into village organizations, governance, and resource use was also solicited.

Next, 11 focus groups which included 22 different villages were held. Both small and large communities were included in meetings which were carried out during August and September 2012 to discuss the carbon project, seek insight into the 'with' and 'without' project scenarios, focal issues, and desired activities to support livelihoods whilst reducing deforestation pressure.

The GRNP community development team also took advantage of the boundary demarcation process and other outreach activities to ensure that all communities bordering the reserve were informed of the project and had the opportunity to provide feedback and ask questions. Forest edge communities which had not been part of any other REDD development activities (i.e. the HH surveys and focus groups) were visited later in 2012 to introduce the concepts of climate change and carbon projects, discuss the potential impacts, and seek community consent to move forward with the design of the REDD project.

After information and feedback from communities was compiled and project design progressed, a meeting was held in each chiefdom headquarters during October 2012 with the Paramount chiefs, section chiefs, and all forest edge community chiefs. During these

¹⁶ There are 114 forest edge communities, 86 of them share a direct boundary with the park, 28 lie within the leakage belt of the project zone but do not share a direct boundary.

meetings, an update on progress of the carbon project was given as was an overview of findings from the consultations and how the project plans to work with the forest edge communities. Participants were asked to validate the information summarized and provide input to the project goals and the benefit sharing agreement.

In 2013 a 'roadshow' involving various activities from drama and dance to videos and presentations was developed as part of the process of cementing an understanding of the Gola project and key conservation and sustainable development messages. It was then trialed in May and June 2013 in 10 forest edge communities. Between 150 and 300 villagers attended each roadshow which were very well received. In late 2013 and 2014 presentations of the project will be given in all forest edge communities as part of the public comment period and the implementation plan for the first 6 years of activities will be discussed and the community and the GRNP management team will enter into an informal agreement to define their roles in the Gola REDD project.

Further socio-economic surveys will be carried out in early 2014 to gather any missing baseline data from forest edge communities that will be required as baseline information, against which the impacts of REDD livelihood projects can in part be measured. This work will be led by the University of Cambridge and Wageningen University. A Community Development Relations Officer for each chiefdom who works in the chiefdom they hail from is tasked with continual visits to the communities there to open communication channels, raise awareness, and monitor project implementation (activities and impact), with a particular focus on the forest edge communities in collaboration with Gola Community Development Committees.¹⁷

Offsite Communities: All villages in the seven chiefdoms that are not classified as forest edge communities will be considered as part of the offsite zone. There are approximately 380 villages in this zone. As representatives of offsite communities, all section chiefs were invited to sensitization meetings on the carbon project in March and April 2012 and asked to pass on the information to the communities in their sections. These offsite communities are also represented by the Gola Community Development Committees, who are in continual contact with the GRNP. In May-July of 2012 elections were held to elect new Gola community development committee representatives as the previous representatives had been in place for almost four years. The newly elected representatives received training on climate change and the carbon project, and also accompanied the GRNP community development relation officers during their sensitization visits to villages when possible. Communication with these communities will be maintained through discussions with the Gola community development committees and the traditional governance system (town, section, and paramount chiefs). In

¹⁷One Gola Community development committee exists in each of the 7 Chiefdoms, and its members have multiple responsibilities, including serving as a liaison between the communities and the GRNP, and assisting with the implementation of the community development fund which is part of the Benefit Sharing Agreement. Members are elected every three years and include a teacher, farmer, women's leader, youth leader, hunter, logger, and a forest edge community representative. There are also seats for the local MP, District Council Representative and paramount chief representative. Each village nominated representatives, who were then voted on at the section level, and finally the chiefdom level.

addition, these communities will continue to be compensated through the community development fund in the new Benefit Sharing Agreement, which will be improved to ensure greater impact, transparency, and more equitable distribution of benefits. The distribution of funds from the community development fund for example will now be carried out in accordance with the Gola community development fund guidance manual that sets out criteria for the selection of projects and for monitoring the dispersal of funds and the implementation of the projects (GRNP GCDC 2012). Section chiefs and Gola community development committee representatives attended meetings in October 2012 regarding the carbon project and the benefit sharing agreement, and members of the community development team conducted small sensitizations when they were in offsite communities. Finally, surveys were carried out in October 2012 with 40 of these villages to understand the impacts of conservation measures on offsite communities.

NGOs and Local Government: Several steps were taken to ensure that the broader set of stakeholders is informed and has the opportunity to participate in or provide feedback on the design and implementation of the Gola REDD project. These stakeholders include local government officials and other NGOs. Several stakeholders were invited to a workshop and training in January 2012 to kick-off the carbon project design stage. Additionally a GRNP Forum is held at least once per year which includes private sector and NGO stakeholders working in the seven Gola Chiefdoms. This enables the project to keep other stakeholders up to date on project progress and seek their feedback. Informal consultations and communication with these stakeholders also took place through meetings, workshops and joint participation in other events, and this will continue during the lifetime of the project.

Table 25. Consultation and stakeholder engagement activities that took place over 2012 and 2013 with local stakeholders.

A more detailed description can be found in the Gola Stakeholder Engagement 2013 Report (Tatum-Hume et al 2013a).

Date	Consultation Format	Stakeholders Present	Topics discussed	Outcome
21-Feb 2012	Meeting	Paramount chiefs, paramount chief representatives and Chiefdoms Councilors of the 7 Gola Chiefdoms	Overview of climate change and carbon projects, idea of carbon project in GRNP, steps needed to make it happen (including assigning carbon rights to government), BSA, landholder register, development of grievance procedure, thoughts on what would happen without the GRNP, ideas for how to consult communities	Obtained endorsement of traditional leaders to pursue carbon project development and move ahead with consultation and participation process in the seven chiefdoms.
March – April 2012	Meetings in each Chiefdom	Section Chiefs, village chiefs, Paramount Chiefs, Chiefdom Councilors, forest edge community representatives, Gola Community Development Committee members	Overview of climate change and carbon projects, idea of carbon project in GRNP, steps needed to make it happen (including assigning carbon rights to government), Gola community development committee elections, Benefit sharing agreement, update of landholder register, development of grievance procedure, importance of community participation in project design, using focus groups for consultation concentrating on forest edge communities, grievance mechanism, development of preliminary list of forest edge communities	Sought and received consent to pursue consultations and project development, preliminary list of forest edge communities developed
June-July 2012	HH surveys in FECs	Forest edge community members from 13 villages in 6 chiefdoms (excluding Nomo due to insecurity over mining issues at the time)	All present and interested were invited to listen to an overview of climate change, carbon project, grievance mechanism, and to ask any questions they had. Afterwards, 10 members of each community were targeted for a survey to collect data for the Social Impact Assessment.	All communities agreed to participate and gave support for development of project; they expressed concern over the impacts of animal conflict and a lack of engagement in the past. Animal conflict was therefore noted as a potential future activity to be researched and mitigation options to be tested. (See Witkowski et al 2012a)

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Date	Consultation Format	Stakeholders Present	Topics discussed	Outcome
June-August 2012	Meetings/elections in section towns	All communities in the 7 chiefdoms	Gola Community Development Committee elections to elect new members (see stakeholder engagement report for more detail)	7 new Gola Community Development Committee members elected in every chiefdom who will be responsible for coordinating the funds from the benefit sharing agreement and serving as a liaison between the project and the communities. Feedback was obtained on the past benefit sharing agreement to inform the development of the new one
28-Jun	Meeting	Paramount chiefs, Local government and police/military representatives	Benefit sharing agreement, climate change, carbon project, forest edge community definition, grievance mechanism	Continued approval to move forward; establishment of paramount chief council, agreement on definition of forest edge communities
July – March 2012-2013	Consultation and negotiations	Forest edge community chiefs, landowner representatives, project staff – Community and boundary team	Boundary demarcation process; as part of process have a small meeting to explain the carbon project and discuss the boundary issues and forest protection	Clarification and finalization of boundary for GRNP; there was disagreement in some areas – these were carefully documented and a thorough process was used to resolve issues.
10-Aug 2012	Meeting	MAFFS, section chiefs, paramount chiefs, MPs, journalists, Gola community development committee, NGOs	Brief discussion of carbon project, memo on carbon project update given to the Minister; threats to Protected areas in Sierra Leone discussed	Answered questions; no dissent to moving forward
August – Sept 2012	Focus groups in forest edge communities	9 community members from each of 22 communities in all 7 chiefdoms	Climate change, carbon project, grievance mechanism, participatory collection of information on with and without project scenarios for social impact assessment, current challenges in communities, potential livelihood support options	All communities indicated support for development of carbon project; information for social impact assessment and development of strategy for sustainably improving livelihoods in forest edge communities (see Witkowski et al 2012b)

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Date	Consultation Format	Stakeholders Present	Topics discussed	Outcome
July – August 2012	Meetings in forest edge communities	numerous community members from 34 forest edge communities	Sensitizations by the community development team in forest edge communities; discussion of climate change and carbon project, free prior and informed consent and consultation, grievance mechanism, ground truthing of abandoned villages	Received feedback from communities and consent to move forward with carbon project; some expressed discontent with not having previously received direct benefits from the GRNP but were happy that they were now being consulted and that there would be activities introduced in their villages
August 2012	Meetings (one meeting in each chiefdom HQ town)	old and new Gola community development committee members	1st Quarterly meeting of Gola Community development committee; induction training on roles and responsibilities; overview of carbon project + consultation to date, presented grievance mechanism; scholarship criteria	Received feedback from the Gola Community development committee members, answered many questions, all agreed for the project to move forward and that they would communicate the carbon project and sensitize their chiefdoms
26-Aug - 5 Sept 2012	one full-day meeting in each chiefdom HQ	landholders, Forestry Division, Provincial Secretary, District Officers, Paramount Chiefs, Section chiefs, GRNP	Landowner re-registration, concepts of climate change, carbon projects and their potential impacts, and carbon rights, grievance mechanism, ideas on how best to consult with the heirs of landowners since some may have moved to new areas, if the landowners consent to move forward with the REDD project; description of agreement to transfer any carbon rights to the government	Agreement on process, preliminary list of landholder families developed; approval obtained on process; Landowners agreed to speak to family members about the carbon project and the carbon rights agreement before the next meeting. In each of the meetings the landowners were asked how payments should be structured (based on the size of land owned by each Chiefdom within the GRNP, equal payments per chiefdom, equal payments to all landowning families, etc). As there was no consensus, landowners recommended that this decision be made by the Paramount Chiefs.
Sept 2012	2 meetings in each Chiefdom	landholders, Forestry Division, Provincial Secretary, District Officers, Paramount Chiefs, Section chiefs, GRNP staff	Landowner re-registration, carbon project, carbon rights	Landholder register finalized, payments distributed. There were a number of disagreements over the register which were resolved by the Paramount Chiefs in

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Date	Consultation Format	Stakeholders Present	Topics discussed	Outcome
				coordination with the Provincial Secretary (see Forestry Division 2013).
Sept-Oct 2012	planning meetings in each Chiefdom	New Gola Community Development Committee members	Guidelines for selection of projects, how to identify and monitor projects; how to organize meetings and write reports, scholarship policy, carbon project update, review of grievance mechanism	Committee members briefed on improved guidelines for various aspects of the benefit sharing agreement (scholarships and community development funds) and their feedback obtained. Members brought up to date on the carbon project so they can continue to help sensitize all communities in their chiefdoms.
20-Sep 2012	Meeting	Paramount chiefs, Permanent secretary, District officer, paramount chiefs, District forest officer	Review of current benefit sharing agreement, carbon project update, summary of data collected from consultations, target groups for benefit provision, feedback and input on information presented; discussion of next steps to be taken	As agreement was not reached in the landowner meetings on how landowner payments should be structured, the paramount chiefs present were asked to discuss. The paramount chiefs agreed that payments should continue to be equal between landowners as they thought this was fairest. They requested for the section chiefs to be included for payments and for a further meeting to be held so that absent paramount chiefs could be involved. The paramount chiefs present validated the consultation information and agreed the next steps
1-Oct 2012	Meeting	Paramount chiefs, Permanent secretary, District officer, paramount chiefs, District forest officer	Current benefit sharing agreement and potential changes, carbon project update, summary of data collected from consultations, target groups for benefit provision, feedback and input on information presented; discussion of next steps to be taken	All agreed that section chiefs should receive \$500 per chiefdom to support the selection and identification of the community development projects as part of the benefit sharing agreement and that payments to the landowners should be equal between Chiefdoms and not based on the size of land a Chiefdom has inside the GRNP or by the number of landowner families

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Date	Consultation Format	Stakeholders Present	Topics discussed	Outcome
Oct 2012	Surveys	members of 40 offsite communities	Historical usage of reserve; impact of conservation efforts	Improved understanding of offsite community usage of project area and impact of conservation efforts on offsite communities
Oct-Nov 2012	Meetings in section towns	Gola Community Development Committee chairperson + secretary, principals of secondary schools and community reps	Scholarship selection process	Pupils to receive scholarships identified
–various dates	radio shows	Radio Wanjeh - (Barri, Makpele), Radio Moa - (Makpele, Koya, Gaura, Malema, Nomo), SLBC - (Malema, Koya, Gaura) Gola Radio – Kenema	Project objectives, benefits, legal + illegal activities, climate change and global warming, who will buy credits, benefits to communities). Open session for callers to ask questions	Receive feedback from callers; discussion and publicization of carbon project and grievance mechanism
Oct 16 – 25 2012	Meetings - one in each Chiefdom headquarters	Paramount chief, section chief, forest edge community chiefs, District officer, Gola Community Development Committee members,	Benefit sharing agreement, definition of forest edge community, discussion of rights, proposed compensation, summary of forest edge community consultation results, boundary demarcation, grievance mechanism, confirmation of forest edge community lists and what support community receives, next steps	Validation of information from consultations, agreement on benefit sharing agreement, confirmation of forest edge community list, list of support received by communities (government and NGO) continued approval to move forward with carbon project. The most frequent recommendation was to increase the amounts of all support.
Dec-Jan 2012 - 2013	Informal Consultations Interviews and discussions	EFA, Green Africa, WHH, GOAL, PAGE, CRS, District Councils, local government officials, etc.	Different aspects of the carbon project, particularly the project goals and community development components were continually discussed with others working in the area; other NGO work in forest edge communities, perception of priorities, and if/how they might be involved in implementation of the proposed project	Feedback and input from a variety of interested stakeholders.

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Date	Consultation Format	Stakeholders Present	Topics discussed	Outcome
4 th -5 th March 2013	Teacher training for nature clubs	34 school teachers that lead the schools nature club	Importance of conservation, Climate change, environment and habitat of animals.	Functioning nature clubs spreading information of the value of nature and the environment to school children in the project zone.
21 st May 2013	Meeting and presentation	GRNP local Government forum (Permanent secretary, senior district officers, MAFFS, district forest officers, Paramount Chiefs, Chiefdom Councillors, MPs.	Update on GRNP activities (Partners, landowners registration, formation of PC councils, Roles and responsibilities of the Gola Community Development Committee and Carbon presentation)	Increased awareness of GRNP activities and REDD+ carbon projects. Better coordination and links between local government and the projects activities.
May-Oct 2013	Gola REDD project roadshows in Forest edge communities	Members of 11 forest edge communities, Nature clubs and teachers (upto 300 people in each event)	Dissemination of information on climate change, carbon trade, the grievance mechanism and the project objectives and plans with the forest edge communities through video, picture presentations, drama, songs and competitions.	Communities better informed of the importance of the project from a local and global perspective and thus more supportive of the activities.
August, 4-10 Sept, 13 th -19 th Sept, 23-27 th Sept, 16-17 th Oct, 18 th -22 nd Nov 2013	Gola REDD project presentations and MoU presentation to FECs	Village Chiefs, community elders, women leaders, youth leaders and community members from all FECs	Overview of the Gola REDD project provide through a presentation to all FECs to elicit there comments and feedback. MoU outlining roles and responsibilities of the GRNP and FECs in implementing the project	Forest edge communities broadly in agreement with the project and the activities to be implement. Some concerns raised about human wildlife conflict which the project will try to address through research and livelihood activities. Queries also raised on how the project will improve market access for isolated communities on the eastern side of the project zone, this will be addressed as the livelihood activities develop.
13-19 th Sept 2013	Presentations and meetings in each of the 3 District council offices	3-District council chairmen, ward Councillors, Chief Administrators	Gola REDD project presentation, discussion on community development fund and guideline and on consultations and work with the forest edge communities and how this fits in to district development strategies	District councils are in agreement for the project to move forwards and approve of the livelihood activities planned with the forest edge communities.

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G3.9. CCB public comment period

Describe what specific steps have been taken, and communications methods used, to publicize the CCBA public comment period to communities and other stakeholders and to facilitate their submission of comments to CCBA. Project proponents must play an active role in distributing key project documents to affected communities and stakeholders and hold widely publicized information meetings in relevant local or regional languages.

Community roadshows played an innovative and key role in communicating the project to Forest Edge Communities. As the majority of forest edge community members are illiterate, roadshows were conducted in Mende, the local language and disseminated information on climate change, carbon trade, the grievance mechanism and the project objectives and livelihood activities with the forest edge communities through video, picture presentations, drama, songs and competitions. Between May and December 2013, the 114 forest edge communities were visited by the community development team to explain the project using some of the roadshow techniques and to elicit any comments as part of the outreach for the public comment period.

Community notice boards located in each of the 39 section towns have a summary of the Gola project and a diagram of the grievance mechanism to orientate community members on the project and methods of providing comments. As the local language Mende is not a written language, all notices are in English which is the official language of Sierra Leone.

Meetings will be held during the public comment period in each Chiefdom with the Paramount Chiefs, Section Chiefs and village Chiefs to communicate the project goals, objectives and activities and the plan for implementation, comments and feedback are noted in the grievance log.

Radio shows on various local radio stations have already and will during the public comment period communicate the projects goals, objectives and activities and an open session for questions and comments will be held after each show.

The project documents are available in the project office for review and comments and a member of staff is always available to answer questions.

G3.10. Grievances and conflict resolution

Formalize a clear process for handling unresolved conflicts and grievances that arise during project planning and implementation. The project design must include a process for hearing, responding to and resolving community and other stakeholder grievances within a reasonable time period. This grievance process must be publicized to communities and other stakeholders and must be managed by a third party or mediator to prevent any conflict of interest. Project management must attempt to resolve all reasonable grievances raised, and provide a written response to grievances within 30 days. Grievances and project responses must be documented.

At the start of the REDD project design process (2012), a comprehensive grievance mechanism was developed and put in place to ensure that a clear, standardized process for addressing major unresolved conflicts and grievances existed during project development and it will continue to function throughout the lifetime of the project. This process has an independent third party option (managed by the Network for Movement for Justice and

Development – NMJD), ensures responses are provided in appropriate time frames, and guarantees that all grievances are adequately addressed and documented. The proposed process was discussed and revised with local government officials, Paramount, section, and town chiefs, and forest edge communities to ensure its suitability and adequacy before being implemented. Once amended as per feedback received, it was well publicized amongst the communities and other stakeholders through all the meetings and events described in G3.8. In order to ensure that all Forest Edge Communities are fully aware of how to use the mechanism, the Grievance mechanism is one of the key messages of the FEC communication strategy delivered by the Community Development Relations Officers to the Forest Edge Communities. A formal meeting is held with each FEC at least every 6 months by the FECs designated CDRO. The meetings include 4 areas of discussion¹⁸, one of which is the grievance mechanism. Discussions about the grievance mechanism include how the mechanism works and who community members can make a grievance to (highlighting the third party option) and a cross check of what grievances have been made by any community members both via the traditional mechanism or Gola Community Development Fund member (option 1) and via Gola or NMJD staff (option 2 or 3). Regular formal meetings along with other communications media (via the radio, other staff members etc will help establish the grievance mechanism and other key project messages. NMJD is a suitable third party mediator as they are a respected local development organization that is independent of the Gola REDD project. They have extensive experience in conflict mediation and core to their work is the provision of community support to strengthen governance through their community integrity program with a focus on women and youth.

Additionally the GRNP office in Kenema holds an open door policy, and information on the REDD project and climate change is available to any visitors. All GRNP staff have attended trainings in climate change and REDD project development given by the Carbon Coordinator throughout 2012 (see G4.3) and a staff project reference manual has been created for orientation. Also many of the GRNP staff, particularly the community development team and Forest rangers are in continual contact with local communities and so are key conduits of information to and from the GRNP office. They respond to the questions they are able to in the field, and more serious issues are brought back to headquarters to be resolved. Finally, the seven Gola Community Development Committees were trained in carbon project concepts by the community development team and serve as additional communication conduits and liaisons between the communities and the GRNP.

A notebook with all grievances received, responses offered and actions taken is publicly available in the GRNP office. (See Tatum-Hume et al 2013a for the mechanism and further details). The technical advisor for Park Operations is responsible for overseeing the implementation of the mechanism.

¹⁸ See the CDRO communication strategy with FECs document in the Ongoing FEC communications folder which is an annex to Tatum-Hume et al 2013a

G3.11. Project financing

Demonstrate that financial mechanisms adopted, including projected revenues from emissions reductions and other sources, are likely to provide an adequate flow of funds for project implementation and to achieve the anticipated climate, community and biodiversity benefits.

Financing was secured from the EU to develop the Gola REDD project and the additional funds required to develop the project and sustain conservation work until carbon revenues are available is provided by one of the project partners (the RSPB). The partners are currently in negotiations to sell the credits that will be generated by the project and are confident that sales will cover the required core annual budget (\$1,686,117 (see G2.2)) with excess revenues being placed in a trust fund to ensure that the project area is protected beyond the lifetime of the project. (A financial model is available to the auditor upon request).

G4. Management capacity and best practices

G4.1. Project proponents and governance structure

Identify a single project proponent which is responsible for the project's design and implementation. If multiple organizations or individuals are involved in the project's development and implementation the governance structure, roles and responsibilities of each of the organizations or individuals involved must also be described.

The project proponent is the 'Gola Rainforest Conservation LG', a not-for-profit company limited by guarantee being set up by the 3 project partners (the GoSL, CSSL, RSPB) to effectively and transparently manage the Gola REDD project. An overview of the structure of the company and agreements is in Figure 14. The RSPB (one of the project partners) is designated as the technical lead for developing the project. During project development a number of organizations have partnered with the project and will continue to do so during implementation; a summary of these organizations and individuals can be found in Table 26 along with a description of the roles and responsibilities of the members of the Gola Rainforest Conservation LG.

The project will be implemented by the 'GRNP management' department of Gola Rainforest Conservation LG. An organogram for GRNP management and the roles and responsibilities of key staff members is outlined in G4.2.

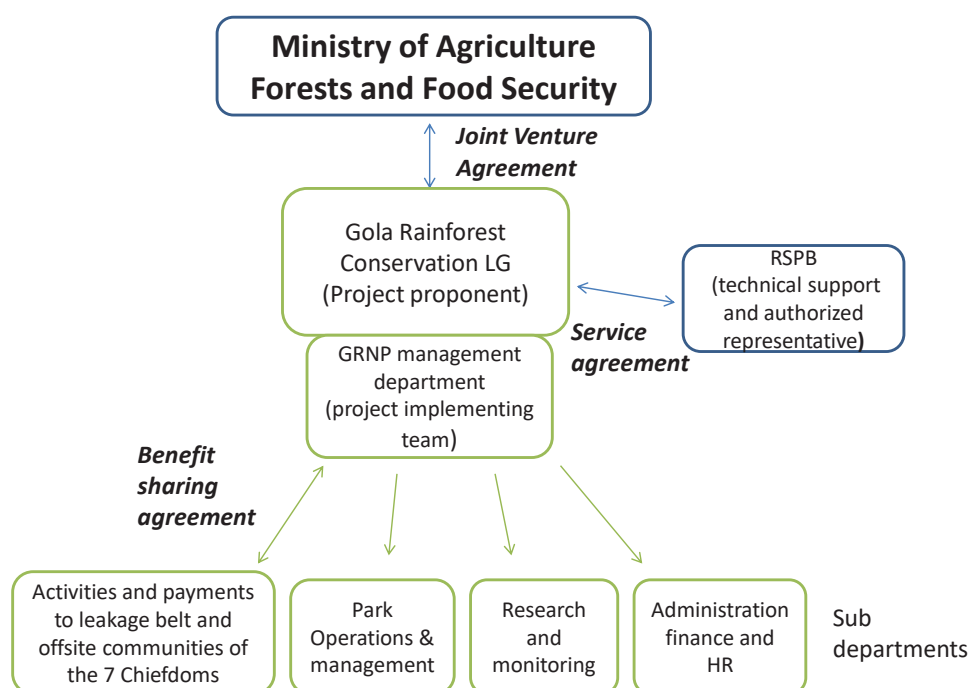


Figure 14. Structure of Gola Rainforest Conservation LG

Table 26. Summary of the organizations and individuals involved in project development and implementation

Members and Directors of the Gola Rainforest Conservation LG	Description	Role and Responsibilities
The Forestry Division of the Ministry of Agriculture, Forestry and Food Security of the Government of Sierra Leone (GoSL) Contact; Kate Garnett, Assistant Director, Biodiversity and Wildlife Ministry of Agriculture, Forestry and Food Security, Ground Floor, Youyi Building, Brookfields, Freetown Telephone; 00 32 076627320 Email; majelarnett@yahoo.co.uk	The Ministry of Agriculture, Forests and Food Security is the Government of Sierra Leone's lead institution in the management and protection of the country's forest resources. Under the professional wing of the Ministry, there are three technical divisions; Crops, Livestock and Forestry. The Forestry Division is responsible for the management of the forests and is led by the Director of Forestry, a Deputy Director and an Assistant Director support the Director. The Forestry Division is divided into three areas of work; commercial forestry, conservation and wildlife management and community forestry. District Forest Officers (DFOs) represent the FD within each of the 13 districts of Sierra Leone.	- Member of the Gola Rainforest Conservation LG and representative sits on the board of directors - Advocate the project with Government stakeholders - Take measures to ensure that the Government does not take any actions that are likely to compromise the project - Undertake periodic reviews of the landowners registry - Support any enforcement activities (shared role)
The Royal Society for the Protection of Birds (RSPB) Contact; Tropical Forest Unit, Emma Tatum-Hume The Lodge, Sandy, Bedfordshire, SG19 2DL Telephone; 00 44 (0)1767 680551 Email; emma.tatum-hume@rspb.org.uk	The RSPB is a UK based conservation organization which currently oversees a portfolio of hundreds of conservation projects in 52 countries in Africa, Asia and Europe in partnership with local birdlife partners, national governments, universities, other non-governmental organizations and committed individuals to promote wildlife conservation based on scientific research.	- Member of the Gola Rainforest Conservation LG and representative sits and on the board of directors - Act as authorized representative on behalf of the Gola Rainforest Conservation LG - Lead in the development of the documentation required to validate and verify the project under VCS and CCB standards - Market and negotiate the sale of any project credits - Provide technical and management assistance to the project implementers

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Conservation Society of Sierra Leone (CSSL) Contact; Director, Dr Sama Monde 4C Main Motor Road, Tengbeh town, Freetown, Sierra Leone Telephone; 00 232-30 522 579	CSSL is a Sierra Leone's foremost national conservation NGO and was founded in 1986. Their mission is to promote the wise use and management of Sierra Leone's Natural Resources through Education, Advocacy, Research and Site Action. CSSL is a birdlife partner and was a founding partner to conservation work in Gola.	- Member of the Gola Rainforest Conservation LG and representative sits and on the board of directors - Support the implementation of community environmental awareness program and other areas to be defined
Paramount Chief Representative (Traditional Authorities) Contact; Chief Alameen Kanneh Email; PKKanneh05@yahoo.com	The paramount chiefs are the traditional authorities in the provinces, and serve a governance and administrative role over their subjects within a Chieftdom. Whilst the project works with more stakeholder groups than just the paramount chiefs, a representative from this group, elected by the 7 paramount chiefs of the project area represents the interests of the communities in all high level decision making and management relating to the project.	- One of the board of directors - Provide an enabling environment for the project amongst villages - Disseminate project information in a transparent and timely fashion (shared role) - Enforcement activities (shared role) - Monitoring activities (shared role)
Partners during project development and implementation (entities either contracted or with a Memorandum of Understanding to work with the project)		
Organization	Description	Role and Responsibilities
Winrock International Contact; Program Associate, Michael Netzer 2121 Crystal Drive, Suite 500 Arlington Virginia 22202-3706 USA Telephone; 001 8056167903 Email; mnetzer@winrock.org	WI is a leading voice and active participant in the global environment and climate change arena. For over a decade, Winrock has been the organization trusted worldwide to bring the most cutting edge, proven information and services for greenhouse gas assessment in agriculture, forestry, and other land uses.	- Provide technical support during project development, particularly in the development of the mapping and modeling components of the project

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Cambridge-Wageningen Research Group Contact; Dr Maarten Voors University of Cambridge, Department of Land Economy, 19 Silver Street, Cambridge, CB3 UK Email; marten.voors@wur.nl	9EP Members of the research group have over 40 years of experience working on social science research in Sierra Leone and thus have a thorough understanding of the socio-economic context that exists in the project area. The research group has been working in the project region since 2010, carrying out extensive household and village surveys to inform a variety of socio-economic questions.	- Provide support in developing the community consultations phase of project development - Provide support in developing the surveys and standard operating procedures for monitoring of the impacts on communities in the project zone
Climate Focus Contact; Legal Counsel, Darragh Conway Sarphatikade 13, 1017 WV, Amsterdam, The Netherlands Telephone; 0031 207601261 Email; d.conway@climatefocus.com	Climate Focus is an independent expert in international and national climate law, policies, project design and finance. They have been pioneering carbon markets ever since their inception. They aim to find a creative and unique solution for every single client, ranging from the development of policies to protect the rainforest to structuring greenhouse gas mitigation projects in the energy sector. Their advice is rooted in a profound knowledge of climate change policies, emission trading schemes and project development. Local Sierra Leonean council was sort for the development of all legal agreements from a former Chief Justice of Sierra Leone, Ade Renner-Thomas.	- Provide support in analyzing the legal context of the project -Provide support developing the legal structure for the project
Green Africa Contact; Moses Zombo 1 Show field Road Kenema	Green Africa is a local development NGO, its mission is to defeat poverty and hunger in a sustainable manner. They engage with environmental, agriculture and education issues with rural populations, especially women and youth.	- Provide support during the community consultations for the project -

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Email; greenafrika.kenema@yahoo.com Network for movement for justice and development (NMJD) Contact; Dennis Lansana Bo Highway, Kenema, Sierra Leone Phone; 00232 76 76 51 69	NMJD is a Sierra Leone National NGO originating from the Eastern Part of the country with roots in Kenema. Their core business is advocacy and supporting communities to build their strength for better governance through their community integrity program.	- Act as third party for the project grievance mechanism
Welthungerhilfe (WHH) Contact; Project Manager, Dr Hans-Peter Mueller 137 Bo-Kenema Highway, Bo, Sierra Leone Phone; 00232 78 77 56 66 Email; hans-peter.mueller@welthungerhilfe.de	WeltHungerHilfe works to promote human rights, sustainable development, food security and the preservation of the environment. In Sierra Leone they are particularly active in rural development and in promoting alternative livelihood strategies such as cocoa.	- Support in developing and implementing livelihood projects in forest edge communities, particularly covering objective 1 and 2 of goal 2 (agriculture and cocoa work)

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G4.2. Key technical skills for project implementation

Document key technical skills that will be required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills. Document the management team's expertise and prior experience implementing land management projects at the scale of this project. If relevant experience is lacking, the proponents must either demonstrate how other organizations will be partnered with to support the project or have a recruitment strategy to fill the gaps.

The Gola Rainforest Conservation LG will oversee the overall management of the project and the 3 partners of the company bring a variety of technical skills to the project that will provide support to the 'GRNP management' department which is responsible for the day to day management and implementation of the project. The Forestry Division will provide the technical knowledge of policy and legislation required to implement project, for example the co-management activity, CSSL will provide support in developing the environmental awareness raising required to empower local communities to become effective environmental stewards and the RSPB will provide the technical backstopping for a range of activities from research to financial management.

The GRNP management team is divided in five sub-departments: Finance, Administration, Park Operations, Research & Monitoring and Community Development. Each department is headed by a Superintendent who all report to the protected area manager. The protected area manager is supported by an international chief technical advisor and other international specialist advisors who have specific fields of expertise and support, assist and enhance each department's capacity, working side by side with the relevant Superintendent(s). The GRNP management team oversees the work of 150 employees who are spread across the five departments (100+ of which come from communities in the 7 Gola Chiefdoms). The protected area manager oversees the development and implementation of the annual operations plan developed by senior staff in coordination with the directors of Gola Rainforest Conservation LG and community stakeholders, as well as for transparently and effectively managing the project's budget. The roles and responsibilities of key positions are shown in Table 27.

Many GRNP management team staff have extensive experience in their respective areas as they have been involved in conservation and development activities within the Gola Forest Reserves since conservation initiatives began on the ground in 2004/05. Individuals in post have grown into their current respective roles with many climbing their way up in the GRNP management structure thanks to their experience, dedication and leadership skills. The capacity of the management team is further justified in appendix 1 of the VCS non-permanence risk report which is an appendix to the project document.

A wide range of technical skills will be required to implement the project successfully, covering aspects of financial management, natural resources management and agricultural practices so the list below is not exhaustive and the project's management will need to be receptive and responsive to any further technical skills that are identified during the lifetime of the project.

Community Development

The community development team has established a long working relationship with the local communities in the seven Gola chiefdoms surrounding the project area. One community development staff is assigned to cover each chiefdom, and that staff member is from that same chiefdom. As a result the team has an extensive understanding of the community context and the individuals have developed a wide range of skills to engage local stakeholders. This team will oversee the implementation of activities with communities in the project zone and offsite zone.

Since 2007, the community development team has been responsible for a wide range of livelihood interventions, ranging from infrastructure development, to seed provision and agricultural processing improvements. Some of the activities that will be introduced in the forest edge communities require specialist knowledge and experience, particularly in agriculture and finance and whilst some of the community development team have agricultural degrees, strategic partnerships have been sought with organizations with more extensive local experience.

An agreement has been signed with WeltHungerHilfe, (WHH) a German agricultural development organization, to secure their involvement and the resourcing of interventions. Additionally an intern programme has been developed with WHH so the team's staff can build its own capacity and benefit from the partners' expertise. The team has also strongly benefited from close collaboration with a wide range of partners in addition to WHH, including Green Africa, who supported the team with community survey work, and the Cambridge-Wageningen team of social scientists. The Cambridge team carried out extensive baseline surveys of the forest edge communities (in 2010) and collaborated with the community development team in developing the community engagement plans and methodologies and in the development of future monitoring activities (see G4.1), as well as training the community development team in survey work and monitoring and evaluation.

Land use mapping with forest edge communities in the leakage belt and co-management areas represent significant pieces of work for the project and whilst the team has the skills to engage with the communities, additional technical skills are required for land use mapping and co-management. As such an international technical advisor will be recruited to provide and transfer these additional skills and the team will work with WHH to trial methodologies.

Carbon and Biodiversity research and monitoring

The research team has developed considerable expertise in biodiversity assessments, carbon measurement and monitoring. The team is provided with technical guidance from an international Technical Advisor based in country and with support from the Conservation Science Department of the RSPB. Together the team has a long track record of publishing in peer reviewed journals, see GRNP (2013) for a full list. The interpretation of satellite images required for monitoring deforestation in the project zone will be carried out by the RSPB's data unit.

Table 27. Roles and responsibilities of key GRNP management staff

Title	Number of staff	Role & Responsibilities
Protected Area Manager	1	Planning, implementation, coordination and supervision of the project. Ensures that each sub-department delivers activities and meet specific objectives on time and within budget. Represents the project with stakeholders and actively engages with government at regional and national levels. With the Chief Technical Advisor, staff and stakeholders the protected area manager develops the annual operating plans and budget and the 5 year management plan
Chief Technical Advisor	1	Provides technical advice and support to the protected area manager on a range of issues to ensure that all activities are in line with objectives and targets and to assist in the development of monitoring and reporting activities and outcomes to the Gola Rainforest Conservation LG Directors. The CTA has financial responsibility to the Directors for the appropriate use of funds for the implementation of activities and ensures that all technical advisors to the project deliver activities on time and within budget.
Technical Advisor Co-management, Livelihoods & Agriculture	1	Provides technical advice and support on co-management, land use planning and community work including agriculture and environmental education to the community development team, working closely with the Community Development Superintendent. Gives particular attention to the monitoring and evaluation of all livelihood activities as per objectives time lines and budget set and oversees the implementation of partners activities
Technical Advisor Research (Conservation Scientist)	1	Provides technical advice and support to the Research and Monitoring team on biodiversity and carbon research and monitoring, working closely with the Superintendent of this department. Responsible for ensuring that the biodiversity monitoring plan is implemented and the data collected and stored in a timely and accurate manner.
Technical Advisor Protected Areas	1	Provides technical advice and support on co-management inside the project area, ranger deployments, boundary demarcation and maintenance as well as the related data management with a particular focus on remote sensing. Works closely with Park Operations and Administration to provide support to the superintendents of each sub-department.
Finance Superintendent	1	Establishes, implements and ensures that the project complies with and delivers on internal and external financial requirements. Provides monthly as well as more extensive quarterly expense reports to project management. Responsible for the financial report to be provided annually to the Directors of the Gola Rainforest Conservation LG and to Government authorities.

Title	Number of staff	Role & Responsibilities
Administration Superintendent	1	Establishes, implements and ensures that the project complies with and delivers on all internal procedures, processes and policies for the effective implementation and monitoring of the project. Responsible for the purchase and maintenance of project assets, ranging from the project's fleet of vehicles to office running costs.
Park Operations Superintendent	1	Establish, implement and supervise the patrolling of the national park, assuring it is effective and complies with all procedures and policies. Works with the technical advisor of park operations to ensure the NP's boundary is maintained/demarcated and to deliver activities in an efficient and timely manner within the designated budget.
Research & Monitoring Superintendent (biodiversity)	1	Establish, implement and supervise the biological research and monitoring activities of the research and monitoring team. Ensuring that activities are aligned with the annual operating plans and objectives of the project and are delivered effectively and efficiently within the allocated budget.
Community Development Superintendent	1	Establish, coordinate, implement and supervise the community development activities, assuring they deliver all project requirements on time and within budget. This ranges from the management of the Community Development Fund to the improvement of agricultural practices.
GIS and database manager	1	Mapping, data processing and management. Reports to the Park Operations Superintendent.
Human resource manager	1	Oversees all human resource issues and ensures the project complies with legislation, policies and welfare as outlined in the Gola staff manual. Reports to the Administration Superintendent. Focuses on project staff's welfare as well as health and safety.
Communications Officer	1	Coordination and implementation of communication activities, ranging from writing press releases to delivering radio shows. Responsible for maintaining a coherent and targeted message to all stakeholders related to the project. Responsible for maintaining a database of all related inputs, with a particular focus on photo imagery and footage.
Tourism Officer	1	Development of community ecotourism activities to ensure consistent packages are offered to visitors. Guide and assist visitors but also promote the project zone as an ecotourism destination at a national level. Ensure that all funds generated from visitors are effectively distributed to the communities and Government.
Community Development Relations Officer	8	Implement and monitor community/livelihood activities. Allocated a specific Chiefdom where based permanently. Serve as a permanent and first point of contact between local

Title	Number of staff	Role & Responsibilities
		communities and the project. Reports to the Community Development Superintendent.
Research Technicians	6	Implement research & monitoring activities inside the NP as well as in the leakage belt. Reports to the Research & Monitoring Superintendent.
Forest Rangers	50	Patrol the National Park and monitor illegal activities. If required, arrest perpetrators of any illegal activities inside the NP. The team is divided into units that patrols, units that carry out monitoring activities and units that maintain the boundary.

G4.3. Capacity building and project training

Include a plan to provide orientation and training for the project's employees and relevant people from the communities with an objective of building locally useful skills and knowledge to increase local participation in project implementation. These capacity building efforts should target a wide range of people in the communities, including minority and underrepresented groups. Identify how training will be passed on to new workers when there is staff turnover, so that local capacity will not be lost.

New employees partake in an induction period during which they are provided the necessary orientation and training for their new role (see documents in HR folder). Annually the Human Resources manager compiles capacity assessments of project staff to ascertain the training requirements. Training is provided in-house, by project partners or by external organizations. Last financial year (2011-2012) for example, staff and key community stakeholders were involved in the following training activities;

i) Community training

Date	Duration	Type of Training	Trainer	No of Trainees
2011	10 days	Conflict Resolution - GCDC members	Eastern Polytech	28
2011	6 days	Conflict Sensitive Conservation workshop (community leaders, local government stakeholders)	UNEP	27
2012	3 Days	Livestock husbandry training	MAFFS	75

ii) Staff training

Date	Duration	Type of Training	Trainer/Institution	Number of trainees
2011	2 weeks	Biodiversity conservation, wildlife management and ecotourism (short course) - research technicians and CD staff	Njala University SL	10

Date	Duration	Type of Training	Trainer/Institution	Number of trainees
2011	3 days	Methodology training for research technicians e.g. radio Telemetry and research methodologies	ARTP / University of Georgia USA/GRNP	7
2011	3 days	First aid Training	Sierra Leone Red cross society	23
2011	5days	Practical Financial Management	Mango	1
2011	5 days	Conflict & security Management (Staff)	Institute of Public Admin and Management (IPAM)	2
2011	2 days	Reducing Emissions from Deforestation & Degradation	WINROCK / RSPB	22
2011	6 days	Conflict Sensitive Conservation	UNEP	15
2011	1 year	Higher National Diploma in Procurement	Freetown College of Management and Accountancy (FCMA)	1
2011	1 year	Higher National Diploma in Human Resources Development	FCMA	1
2011	3 days	First Aid	SL Red Cross (SLRC)	all staff
2011	1 day	HIV	Gov't Hosp, SLRC,HIV/AIDS SEC	all staff
2011	1 day	Human Rights	Human Rights Commission /UNHCR	50
2011	3 days	Methodology training for research technicians e.g. radio Telemetry and dung sampling	ARTP / University of Georgia USA, Chester University and St Andrews UK/GRNP	7
2011	10 days	Radio telemetry for research	ARTP / University of Georgia USA	1
2011	1 week	Quick Books	Institute of Public Admin and Management (IPAM)	1
2011	1 yr	Secretarial studies	Catholic Centre for Computer Studies	1
2011	1 yr	Diploma, Office Mgt	Freetown College of Management and Accountancy (FCMA)	1
2011	1 yr	Dip, Purchasing ,marketing and supplies	Freetown College of Management and Accountancy (FCMA)	2
2011	4-6 weeks	Butterfly and bat survey techniques for research technicians	ARTP / international experts	2
2012	2 weeks	Reducing Emissions from Deforestation & Degradation (project design, data	Winrock / RSPB	22

Date	Duration	Type of Training	Trainer/Institution	Number of trainees
		collection, methodologies, baseline scenarios etc.)		
2012	3 months	Computer Training	Eastern Polytech	25
2012	4 months	Ongoing informal training to research team in field survey techniques for biomass inventories	RSPB	4
2012	3 days	Security Guard Refresher Training	SL Police / Human Rights Commission/GRNP	24
2012	7 days	Forest Guard Recharge Training	SL Police / GRNP	53
2012	3 weeks	Biodiversity conservation and natural resource management (short course) - research technicians and CD staff	Njala University / US Fish and Wildlife Service	8
2012	3 months	Cambridge Conservation Initiative training of FGs in ranger based data collection and navigation	CCI volunteers	20
2012	½ day (3 times)	Climate change and REDD project development, grievance mechanism	RSPB	115
2012	5 months	Ongoing informal training to the Community Development Team on the carbon project, climate change, communication with communities, consultation strategy, methods, and techniques	RSPB	6
2012	2 weeks	International Seminar on Protected Area Management – USA	University of Montana / Conservation International / RSPB	2

In addition, lectures are given from project staff to local universities and internships are provided by the project on a wide range of topics including research methodologies, species identification, survey and monitoring techniques. This involves 5-12 students each year.

An environmental awareness roadshow to be shown in forest edge communities was developed in early 2013 which aims to cement an understanding of the Gola project and key conservation and sustainable development messages with project zone communities. Capacity building on a range of issues will be provided to communities through project activities including training in improved farming techniques (production and post-production), land use mapping and co-management (see section CM1).

The Gola management team have developed a project reference guide to provide a basic overview of the project to new employees (Gola Rainforest National Park reference guide) and

an induction process is in place to ensure that there is a handover of knowledge between old and new employees and that new staff receive necessary training which is identified through 3 month and 6 month reviews (see Gola Employee Handbook 2013).

Local Community capacity building

Capacity building with local communities to increase local participation in the implementation of the project takes place in a number of ways outlined in Table 28 and below;

1. Through livelihood activities which aim to build the capacity of farmers living in Forest Edge Communities to engage in sustainable agricultural practices and financial management that will address the key focal issues (poverty and food security) whilst maintaining the natural resource base. Training in improved agricultural practices is introduced via Farmer Field schools in both cocoa production and crop production. Training in financial management is introduced via savings and lending schemes (see Table 28). Cocoa farmer field schools for example include 4 areas of training during the first year of activity implementation a. in nursery training which includes seed selection and growing seedlings, b. in farm management which includes rehabilitation of land and how to prune properly, c. in out-planting and tree husbandry and d. production/ processing, marketing and certification. Follow on trainings will be provided to Master farmers and to farmers interested in achieving certification for the cocoa farm (see Tatum-Hume and Witkowski 2013). Livelihood activity trainings will be introduced in all 114 forest edge communities during the first 6 years of the project. Livelihood projects are aimed primarily at farmers as this is the group affected most by conservation management activities. Farmers from non-landowning families who have time constraints and are not able to participate in the initial round of capacity building will be involved through seed sharing schemes, and once there are proven benefits within the community will be involved through follow on livelihood activity training. Training is provided by WHH during the first 2 years of the project and will then be provided in house.

2. Through the training of Gola Community Development Committees. For the wider population living in the 7 Gola Chiefdoms (the offsite zone), the Community Development Funds are the primary way that they can access benefits from the Gola REDD project. The Gola Community Development Committees are responsible for equitably distributing these funds to projects that meet the set criteria. Building the capacity of these committees so that they can transparently distribute the funds and communicate with the wider population about the fund is therefore important for the project and regular training and evaluation of the committees is part of the in-house training provided to communities.

Table 28. Examples of community training that will be introduced via the Gola REDD project to build capacity and involvement with the project

Project activity	Training provided	Link with the Gola REDD project
With Forest Edge Communities (Leakage belt of the project zone)		
Cocoa rehabilitation	Nursery training, farm management, out-planting, processing, marketing and certification	Capacity building amongst cocoa farmers will help rehabilitate cocoa farms that were abandoned during the civil war thereby increasing cocoa productivity and farmer income whilst maintaining forest cover and biodiversity.
Crop production	Seed selection and vegetable establishment, field preparation and planting out, crop and pest management and weed control, processing, marketing and storage	Building the capacity of farmers to produce and store food crops will improve the key focal issues (food security and poverty) and decrease the amount of forest converted into farm bush
Savings and Lending schemes	Financial management; numeracy skills, book keeping, policies and procedures	Lack of finances were identified by communities as a barrier to more sustainable activities. This activity will build financial assets, particularly amongst women and enable greater involvement other project activities.
Environmental roadshows	Carbon, climate change, the Gola REDD project, the role of forests in the provision of ecosystem services, project activities	This activity aims to promote a collective understanding of the ethos of the project and share the idea that protecting the forest provides local as well as global benefits in order to gain a united effort to prevent deforestation.
With Communities in the Offsite and Project Zone		
The 7 Gola Community Development Committees	Proposal development, financial management, monitoring and evaluation	The committees are responsible for the equitable disbursement of the Gola Community Development funds which comprise of a proportion of revenues from the sale of carbon credits to provide finances for sustainable development projects in the 7 Chiefdoms

G4.4. Recruitment policy

Show that people from the communities will be given an equal opportunity to fill all employment positions (including management) if the job requirements are met. Project proponents must explain how employees will be selected for positions and where relevant, must indicate how local community members, including women and other potentially underrepresented groups, will be given a fair chance to fill positions for which they can be trained.

The Gola REDD project is committed to providing equal opportunities for community members and in ensuring that no employee, or applicant for a job, receives less favourable treatment on the grounds of age, colour, disability, ethnic origin, gender, illness, marital status, political opinion, race, religion or belief" (Gola employment policy). This commitment is demonstrated through our employee handbook and through practice which both ensure that, for example, recruitment, access to training, promotion opportunities, pay, benefits, terms and conditions of employment, disciplinary and redundancy procedures all reflect the equal opportunities policy. Preferences for employment are given to applicants from the seven Gola chiefdoms, for example if applicants score equally in the interview process and one applicant is from the communities and one is not, the employment preference is given to the applicant from the communities. If a man and woman are ranked equally in the interview process and both come from the 7 chiefdoms, the woman will be given employment preference. (Gola Employees Handbook 2013 p9). All community development relations officers are from the 7 Chiefdoms and all forest rangers are from forest edge communities. Sub-station caretakers are also always from the local community.

There are currently 150 Gola staff employed from the 7 Gola Chiefdoms, mainly comprising the Community Development team and forest rangers. The project also utilizes a significant amount of casual labour for various small projects and activities from local communities, in 2011 to 2012, this amounted to over 9,000 casual labour man days.

G4.5. Laws and regulations governing workers rights

Submit a list of all relevant laws and regulations covering worker's rights in the host country. Describe how the project will inform workers about their rights. Provide assurance that the project meets or exceeds all applicable laws and/or regulations covering worker rights and, where relevant, demonstrate how compliance is achieved.

The Regulation of Wages and Industrial Relations Act 1971 sets out the basic framework of employment regulation in Sierra Leone. This is supported by collective agreements between trades unions and certain industrial sectors. The Gola REDD project is subject to the regulations agreed by the Agriculture Trade Union Group Negotiating Council on 11 April 1985 and published in the Sierra Leone Gazette on 13 June 1986. The industry groups covered by this agreement include Agriculture, Plantation and Forestry workers. The regulations are updated and published in the Sierra Leone Gazette approximately every three years, the most recent being 2011. The 1985 Regulations, with the 2011 update, cover all aspects of employment including:

- Contracts of Employment
- Working hours
- Pay, overtime and time off in lieu

- Annual leave and public holidays, compassionate leave
- Sick leave
- Maternity leave
- Medical facilities & allowances
- Redundancy, Disciplinary and Grievance procedures
- Health & safety, protective clothing etc.
- Casual & temporary workers

In addition The Workers Compensation Act 1971, which specifies levels of compensation for workers injured at work, The Anti-corruption Act 2008, The Minimum Wages Act 1971, the current Tax and safety regulations, the 1991 Constitution of Sierra Leone and the National Social Security and Insurance trust Act, No. 5. also apply.

A summary of how the project meets all applicable laws is found in Table 29.

The Gola project complies with all of the above legislation and workers are informed of the legislation and their rights by the Gola Employees Handbook. The handbook is available in a written format but also in audio format for any employees that are illiterate. The legislation is due to be updated in 2013/2014 at which time the project will review the new legislation and update its employees handbook as appropriate.

Table 29. Legislation, requirements and project compliance

Legislation	Article/Section	Requirement	Gola Compliance	Evidence of Compliance
The Regulation of Wages and Industrial Relations Act 1971 is the primary legislation affecting employment in Sierra Leone. The detailed requirements are set out in the ' Notice of Terms and Conditions of Employment agreed by the Agriculture Trade Group Negotiating Council 1986 ', and subsequent amendments. The most recent amendment was in 2011. The Agriculture Trade Group specifically applies to Plantation and Forest workers.	1 (5 in 2011 revision)	Working Hours: Maximum working week to be 40 hours Monday to Friday 7.5 hours per day, Sat 4.5, max Variable by written agreement	Implemented. Maximum working week is 40 hours, Monday – Friday 8 – 4.30 with 30 minutes for lunch	Staff Handbook Section 2 & Contract of Employment
Ditto	1 (5d in 2011 revision)	Working hours for Security Guards – maximum is 12 hrs per day, 5 days per week	Implemented. Maximum working week for Security Guards is 12 hours per day, 5 days pw	Staff Handbook, Section 2 & Contract of Employment
Ditto		Temporary & Casual Workers must be automatically absorbed into permanent staff after 12 months service. Are eligible for redundancy after 6 months continuous service.	Will be implemented Q4 2013	Staff Handbook, section 2

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Legislation	Article/Section	Requirement	Gola Compliance	Evidence of Compliance
Ditto	6	Public Holidays (usually 9) & gazetted holidays must be paid	Implemented. All 9 public holidays and additional gazetted holidays are paid	Staff Handbook, section 4 & Contract of Employment
Ditto	7	Overtime. Any period of time worked in excess of normal working hours , and work on Sundays & Public holidays to be treated as overtime when work authorised by employer	Will be Implemented Q4 2013.	Staff Handbook, section 3
Ditto	8 (6 in 2011 revision)	Probationary period. All workers serve a 6-month probationary period on appointment, which may be extended for not more than another 3 months. Employment may be terminated by either party. If satisfactory, must be incorporated into permanent staff & confirmed in writing.	Implemented. All workers serve a 6 month probationary period which can be extended for another 3 months if necessary.	Staff Handbook section 2
Ditto	9 & 10 (18 in 2011 revision)	Urgent Private Affairs leave staff Up to 7 days additional paid 'family' leave, deducted from next year's allowance, after 12 months service. If less than 12 month's service, 48 hours emergency leave, of which 24 paid	Implemented. 7 days paid additional leave or 1 paid & 1 unpaid is less than 12 month's service	Staff Handbook section 4, & Contract of Employment

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
Ditto	11 (10 in 2011 revision)	Annual Leave Allowances 1-3 years' service = 21 days 3-5 years' service = 26 days 5+ years' service = 32 working days	Implemented. Annual leave allowance as per regulations	Staff Handbook, section 4 & Contract of Employment
Ditto	11	Payment of outstanding annual leave on termination. Entitled to proportionate leave if leaving through no fault of their own	Implemented, Outstanding leave paid pro rata on termination	Staff Handbook section 4 & Contract of Employment
Ditto	13	Entitlement to Paid Sick leave 1-5 years service – 6 weeks full pay, followed by 6 weeks half pay 5-10 years service - 7 weeks full pay, 7 weeks half pay Over 10 years' service 8 weeks full pay 8 weeks half pay Subject to medical certificate	Implemented, as per regulations	Staff Handbook section 4 & Contract of Employment
Ditto	14	Paid Maternity leave After 1 year of service, entitled to 10 weeks paid maternity leave, which may be extended on recommendation	Implemented. 10 weeks paid maternity leave, extendable on recommendation of doctor or deducted	Staff Handbook section 4 & Contract of Employment

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
		of a doctor or deducted from annual leave allowance	from following year leave allowance	
Ditto	16	Medical Allowance. Staff accrue medical allowance for every day they work, which can be used for medical expenses for themselves & immediate family.	Implemented, medical allowance introduced in 2012 for medical expenses for employee, partners, offspring, parents and siblings.	Staff Handbook section 5 & Contract of Employment
Ditto	53	HIV/AIDs Discrimination forbidden. Awareness training provided in keeping with National Policy	Implemented Awareness training provided in 2011, to be repeated in 2014	Staff Handbook section 13
Ditto	17 (30 in 2011 Revision)	Protective clothing Employer to provide protective clothing as required by Risk assessment	Implemented. Uniforms, waterproofs and other protected clothing provided as necessary.	Staff Handbook section 6
Ditto	22 (34 in 2011 revision)	Disabled employees Employer to try to find alternative employment if employee disabled at work	Implemented. GRNP undertake to continue to employ disabled employees if at all possible.	Staff Handbook section 6

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
Ditto	23 (27in 2011 Revision)	Technical training. Training to be encouraged and aided by employer	Partially Implemented. Full implementation Q4 2013	Staff Handbook section 8
Ditto	24	Redundancy. Staff to be redeployed whenever possible, must use fair system for selection for redundancy. Redundancy compensation to be calculated as follows: 1-5 years service – 16 days pay for each complete year 5-10 years service – 20 days pay over 10 years service – 25 days pay plus outstanding annual leave & medical allowance, + End of Service Gratuity	Implemented Redundancy arrangement meet all the requirements of the regulations	Staff Handbook section 10
Ditto	26	End of Service Gratuity. On leaving GRNP, staff receive a gratuity as follows: 2-5 years - 18 working days pay for each complete year of service 5-10 years service - 20 working days	Implemented. Staff who leave GRNP receive end of service gratuity as set out in the regulations.	Staff Handbook section 10

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
		Over 10 years service - 25 working day		
Ditto	52 in 2011 revision	Death in Service. If a staff member dies while in service all their outstanding benefits shall be paid to their next of kin	Implemented. Next of kin receive all outstanding benefits	Staff Handbook section 10
Ditto	30	Disciplinary procedure Disciplinary procedures to follow set process	Implemented. GRNP Disciplinary procedure meets & exceeds requirements	Staff Handbook section 11 & Contract of Employment
Ditto	33	Grievance Procedure Grievance procedures to follow set process	Implemented. GRNP grievance procedure meets requirements of regulations	Staff Handbook section 12 & contract of employment
Ditto	38	Acting appointments. Staff who temporarily act up into more senior positions are to be paid the rate for the senior post	Full implementation Q4 2013	Staff Handbook section 3
Ditto	45	Certificate of service. Staff who leave to be provided with certificate giving basic details of employment	Implemented. Certificate of service includes name position date of birth and period of employment.	Staff Handbook section 11

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
Ditto	29 of 2011 Revision	Personal Safety & Health Hazards. Employers to provide suitable protective clothing	GRNP has developed a system of Hazard identification, risk reduction and risk assessment which exceeds the legal requirements. Full implementation Q4 2013	Health & safety policy, Hazard Register, Risk Assessments & Staff Handbook section 6
Ditto	41	Pay Increase. Legislation specifies increase, when revised – but this may not keep up with inflation. GRNP's policy is to give annual cost of living increases unless there is a shortage of funding. there is also an objective fair pay system based using a Job Evaluation system	Implemented. GRNP's pay policy implemented in 2012	Staff Handbook section 3
Ditto	57 in 2011 revision	Advance of salary Up to 4 months advance to be repaid over 12 months, provided total amount is less than end service benefit	Implemented. GRNP has well established staff loan policy.	Staff Handbook section 3

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
Ditto/ Workman's Compensation Act 1971		Industrial Accident compensation	Implementation. In case of death or injury to an employee, compensation will be paid according to the detailed arrangements in the Act	Staff Handbook section 6
Anti-Corruption Act 2008		GRNP fits the definition of a 'Public Body' under the act.	GRNP employment and financial procedures help to prevent corruption by its staff and by those in positions of responsibility for the organisation.	Staff Handbook (all sections)
UK Employment Law, including Employment Rights Act 1996, Employment Act 2010, Health & Safety at Work Act 1974, Bribery Act 2010, Equality Act 2010, Immigration, Asylum & Nationality Act 2006, etc		All expatriate workers are employed by RSPB on UK-compliant contracts of employment. All employees receive a copy of the 'Employee Handbook' on appointment and amendments are posted on the intranet, which can be accessed in Gola.	Fully Implemented	Contract of Employment and RSPB Employee Handbook
1991 Constitution of Sierra Leone and the National Social	Section 8, Subsection 3(f)	Retirement benefit The project contributes 10% of each staff member wages into NASSIT every month (5% is	Fully implemented	Contract of employment, staff handbook and GRNP financial report (in

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Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
Security and Insurance trust Act, No. 5.		contributed by the staff member). Payment is stopped if the staff member leaves.		confidential financial analysis folder)

G4.6. Occupational risk and worker safety

Comprehensively assess situations and occupations that pose a substantial risk to worker safety. A plan must be in place to inform workers of risks and to explain how to minimize such risks. Where worker safety cannot be guaranteed, project proponents must show how the risks will be minimized using best work practices.

The Gola Employee Handbook includes a dedicated section on 'Health and Safety' which covers 'Protective clothing and equipment' and 'Accidents at work'. It explicitly states "GRNP's safety procedures are based on risk assessments for particular tasks, and in some cases, jobs. Risk assessments are currently carried out for the following positions which involve field work and are therefore the occupations within the implementation team that pose the greatest risk: Forest Rangers and Research & Monitoring Technicians, as these positions involve field work (see Gola risk assessment templates). Field teams are required to take safety equipment into the field including first aid kits, communications equipment (phones, radios, etc.). Whilst in the field employees are required to take appropriate precautions such as not travelling at night, filling out detailed work and travel plans before field work commences, using seat belts in all vehicles and protective clothing on bikes or when using machinery.

The Gola Employee Handbook states: "GRNP is committed to ensuring, as far as is reasonably practical, the health, safety and welfare of its employees, volunteers and visitors by working positively to prevent work-related injury and ill-health, and promoting healthy and safe working practices. The nature of the projects work means it is not possible to eliminate all risk and we aim to reach a reasonable balance between safety, conservation, education and access" (Gola staff handbook p23).

Additionally the project provides each member of staff with a health & safety card which provides all emergency contact details and an emergency plan is in place should a serious incident arise. All information concerning risk and risk mitigation measures are available in audio format as well as written format for any illiterate staff members.

Staff that work as park rangers under take a week long refresher training every year which includes sessions on engagement and health and safety to ensure front line staff are following project guidelines and minimizing risks especially when engaging with armed encroachers (see Sinclair, 2014, Ranger refresher training handbook).

G4.7. Financial health of implementing organization

Document the financial health of the implementing organization(s) to demonstrate that financial resources budgeted will be adequate to implement the project.

The project will be implemented by the GRNP Management department of the Gola Rainforest Conservation LG. The financial staff have a robust track record in financial management (audit reports from earlier conservation work available to audit team upon request). Though the experience of meeting specific requirements for donors, when operating as the Gola Forest Programme, the team has ample experience of managing, implementing and reporting the finances for a large conservation project. A financial analysis of project viability is available to the auditor.

G5. Legal status and property rights

G5.1. Laws and regulations governing property rights

Submit a list of all relevant national and local laws and regulations in the host country and all applicable international treaties and agreements. Provide assurance that the project will comply with these and, where relevant, demonstrate how compliance is achieved.

National and local laws relevant to project implementation are:

National Forest Laws

The Forestry Division within the Ministry of Agriculture, Forestry and Food Security (MAFFS) is responsible for the management of forest areas in Sierra Leone including forest reserves and national parks. The principal policies and laws relevant to the management of forest areas are the Wildlife Conservation Act of 1972, the Forestry Act of 1988 and the Forestry Act Regulations in 1990 and the recently passed National Protected Areas Authority Act 2013.

The Wildlife Conservation Act of 1972 established significant provisions for the conservation of wildlife ranging from the constitution of strict nature reserves, game reserves, and national parks, to prohibition of hunting of animals generally except with license and permit. It also contains enforcement and penalty provisions. The Wildlife Conservation Act of 1972 stipulates in Part 2 Section 5 the constitution of national parks. The purpose of a National Park in Sierra Leone is 'propagating conserving and managing wild animal life and wild vegetation, and protecting sites, landscapes or geological formations of scientific or aesthetic value for the benefit and enjoyment of the public'. The first goal of the project (see G3.1 and G3.2) is to implement effective protection measures of the National Park to ensure that the forest is conserved and that biodiversity is protected, thus demonstrating that the project is aligned with the Wildlife Conservation Act.

The Forestry Act of 1988 and its Regulations for 1990 established provisions for the administration and management of the Forest Reserves, Community forests and National Parks. It also established fees for licenses and law enforcement provisions. The project has established a register of landowning families of the National Park and has entered into a benefit sharing agreement with the families and other local stakeholders to provide compensation for lost royalties and rights in the project area and is therefore aligned to the Forestry Act of 1988.

As a National Park, the objective is *inter alia* to conserve wildlife and vegetation, and activities such as farming, logging and mining are prohibited. Since the project intends to conserve the forest and wildlife, and all Management Plans will be reviewed by the National Protected Areas Authority (NPAA)¹⁹ the project is aligned with National Forest Laws. The Forestry Division followed regulations in upgrading the forest reserves to National Park status (Fofanah 2012)

¹⁹ The National Protected Areas Authority Act (2013), establishes an authority to exercise control over National Parks and protected areas designated for conservation purposes, to coordinate wildlife management and biodiversity conservation, research and education

REDD regulations

The Government currently does not have any guidelines or regulations in place for REDD projects. A legal analysis carried out by Climate Focus (see G4.1 for details on Climate Focus) which reviewed the legal regulations surrounding the implementation of carbon projects in the Gola area concluded that specific legislation was not required to develop a REDD project in the project area.

The project works directly with the Government of Sierra Leone and the Ministries and agencies that will be involved in the development of any national framework and will comply with any future REDD regulations.

Environmental Protection Agency Act

This act established the Environmental Protection Agency (EPA) to 'provide for the effective protection of the Environment and for other related matters'.

Under the act, projects that make 'substantial changes in renewable resource use (e.g. conversion of land to agricultural production, forestry or to pasture land, rural development, timber production)' are required to carry out an Environmental Impact Assessment (EIA). As the project has not made any substantial changes to the renewable resources of the area, and will not have any negative impacts on renewable resources an EIA was not required.

National Protected Area Authority Act

A recent act enacted in 2012, provided for the establishment of a National Protected Area Authority (NPAA) and Conservation trust fund to 'promote biodiversity conservation, wildlife management, research, to provide the sale of ecosystem services in National Protected Areas and to provide for other related matters. Although the NPAA has yet to be constituted, in the future the project will work closely with this body to ensure that project activities are aligned with Government policy as the authority's main function will be to 'exercise oversight authority over National Parks and Protected Areas designated for conservation purposes' (part III, 12 (1)) and has responsibility to 'promote REDD projects in Sierra Leone' (part III, 12 (2)f), and evaluate and approve National Protected Areas annual operation plans and budgets (part III, 12 2 p(v)) amongst other objectives. It is written into the legal agreements between the project and the Government that the project will comply with all relevant legislation and will work with the MAFFS and the NPAA to ensure that the project is aligned with Government strategy.

Local Bylaws

Chiefdoms and communities surrounding the project area have a host of local laws and bylaws that may affect various aspects of project implementation as some are related to land use. The project has always consulted with and requested permission from local communities and traditional authorities before initiating any meeting or activity to ensure compliance with, and respect for, traditional systems.

International treaties and agreements

The Gola REDD project will comply with the following international treaties which Sierra Leone is party to:

- The Convention on Biological Diversity (party to, not signed)
- The African Convention on the Conservation of Nature and Natural Resources (signed but not ratified)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora
- The Convention Concerning the Protection of the World Culture and National Heritage
- RAMSAR convention
- Convention on the Conservation of Migratory Species of Wild Animals (signed on MoU for the West Africa Elephant)
- New York Convention on Climatic change
- The Vienna Convention for the Protection of the Ozone layer
- Montreal Protocol on substances that deplete the ozone layer
- The United Nations Framework for Climate Change Convention
- The Rio Declaration on Environment and Development

The Gola Rainforest Conservation LG is entering into a public-private partnership with the Ministry of Agriculture, Forestry and Food Security which outlines the terms of the relationship between the Gola Rainforest Conservation LG (project proponent) and the central government. Under the terms of the agreement the company must comply with all relevant laws and to ensure this happens, the Government closely observes the management activities of the company.

G5.2. Documentation of project approval

Document that the project has approval from the appropriate authorities, including the established formal and/or traditional authorities customarily required by the communities.

Government approval

The Forestry Division of the Ministry of Agriculture, Forestry and Food Security of the Government is one of the members of the Gola Rainforest Conservation LG (the project proponent), the company being created to manage the project. In addition the Company will sign a public-private partnership agreement with the Ministry of Agriculture, Forestry and Food Security (MAFFS) of the Government of Sierra Leone, (the Ministry responsible for the management of national parks and protected areas), to manage the project area as a REDD project for the lifetime of the project, the agreement includes the transfer of carbon rights to enable the sale of carbon credits (Joint venture agreement and deeds available to auditor). Agreement to enter into both the company and the joint venture agreement is in the process of being approved by Cabinet and will therefore have full approval from Government to be implemented.

Traditional Authority Approval

The traditional authorities are the Chiefs of the 7 Chiefdoms surrounding the project area. The Paramount Chief is the ultimate authority in each Chiefdom where they serve as the custodians of land in the chiefdom, amongst other functions (Witkowski et al 2013c). As described in Section G3.8, regular meetings are held between the Gola paramount chief council and the project staff regarding the development of the carbon project and other activities and approval has been gained throughout the project development process for various key components to the project design. This included initial approval to develop the project and begin the community consultation process with section and village chiefs and wider community members (February 2012), for the REDD Benefit Sharing Agreement and Forest Edge Community activities (May, September, and October 2012), for the landowner carbon rights agreements (August 2012).

Approval for the location and clearing of the project boundary was obtained from Forest Edge Communities through the boundary demarcation process (see Marris et al 2013) and for the development of the REDD project through Forest Edge Community sensitization meetings and the stakeholder consultation process (see G3.8 and Tatum-Hume et al 2013a). Approval from the heads of the traditional landowners for the project and the transfer of any outstanding carbon rights was gained through meetings and the signing of the landowner agreements. Approval for the implementation of project activities with the forest edge communities was gained through informal agreements with the 114 forest edge communities in 2013.

G5.3. Documentation of project property rights

Demonstrate with documented consultations and agreements that the project will not encroach uninvited on private property, community property, or government property and has obtained the free, prior, and informed consent of those whose rights will be affected by the project.

Management rights to the project area have been held by the Government of Sierra Leone since the Gola Forest Reserves were gazette, a process which began in the 1920s. A change in management practice from that of a Forest Reserve with production objectives to a reserve with conservation objectives was negotiated and agreed to during 2001-2003 through a series of meetings and agreements between the project partners and local communities (see Witkowski et al 2012c for the rights holder analysis and for the description of consultations that occurred during early conservation work). Customary rights to use the land within the reserves for farming and other purposes were altered when the agreed conservation measures were put into practice. The proclamation of the National Park in December 2011 in anticipation of the REDD project did not alter the management rights regime that had been previously agreed to and established with the onset conservation activities. The project proponent, Gola Rainforest Conservation LG, will through a public-private partnership agreement obtain the management and carbon rights to the project area for the lifetime of the project from the Government of Sierra Leone (public-private partnership agreement available to project auditors upon request) and is therefore not encroaching on Government, community or private property.

The project adopted 5 key principles of free, prior and informed consent to guide community engagement activities at the beginning of project development in 2012. To work towards free, prior and informed consent the project has undergone a series of consultations with each of the identified stakeholder groups (see G3.8). Extensive efforts were made to consult with the

traditional leaders, landowning families, and forest edge communities in the leakage belt during each of the key design phases of the project in order to obtain free, prior and informed consent from local stakeholders with customary rights to develop a REDD project, secure any outstanding carbon rights, establish an agreement to distribute project benefits, as well as in the design and implementation of project activities. To date, all major groups of customary rights holders as well as other stakeholder groups have actively participated in consultations and have given consent to the development and implementation of the Gola REDD project. Since the National Park was established early in the project planning process and prior to the development of project documents, the team was unable to secure prior consent for its establishment from all stakeholder groups but the Forestry Division followed due process in establishing the Park which included a community consultation and comment period, the details of which are outlined in the Government of Sierra Leone regulation report (Fofanah 2012).

Moving forward, the Gola project will work with local stakeholders to maintain consent during project implementation. All project activities conducted in the leakage belt will be fully discussed and agreed upon with each individual community before any implementation takes place in that community. The Gola project intends to strengthen its relationship with the forest edge communities to ensure that community members feel ownership not only over the livelihood support efforts, but also over co-management for the community use zones of the national park.

G5.4. Involuntary relocation

Demonstrate that the project does not require the involuntary relocation of people or of the activities important for the livelihoods and culture of the communities. If any relocation of habitation or activities is undertaken within the terms of an agreement, the project proponents must demonstrate that the agreement was made with the free, prior, and informed consent of those concerned and includes provisions for just and fair compensation.

Relocation of people

When the development of the Gola project began in 2012, there were no people residing within the boundaries of the National Park. Two communities, Wagikor and Ngendema, are located on land which has been excised from the boundaries of the National Park. Wagikor is currently inhabited and is a forest edge community and therefore will receive the forest edge community livelihood activities but the residents of Ngendema no longer live there; the project does not require the involuntary relocation of people.

Relocation of activities

The deployment of forest rangers mid-2004 began the enforcement of conservation measures that were agreed to in 2001-2003 and prevented local people from carrying out any illegal use of the forest. The baseline scenario of agricultural encroachment was prevented from occurring from 2004 and it was therefore at this point that conservation work required forest edge communities to relocate farming or other activities they had inside the reserve boundaries. As described in G5.3 (and in greater detail in the Witkowski et al 2012c), local stakeholders were consulted prior to the implementation of conservation activities, granted permission for the change in management regime and were compensated for any relocation

of activities via the benefit sharing agreement of 2007, although forest edge communities were not provided any direct compensation under this agreement.

In the early stages of REDD project development it became apparent that the gazette boundary for the National Park was not clearly demarcated on the ground and that there were likely to be a number of communities that had established farming activities within the gazette boundary. The team therefore developed a set of protocols to determine the location of the entire boundary in consultation with each community along the border. As a result of this extensive exercise 86 villages were found to share a direct boundary with the Park and meetings were held in each village between the project team, the farmers and village elders to establish the project boundary (see boundary demarcation report, Marris et al 2013). In 12 villages farming activities were found to be occurring within the gazette area of the National Park. To avoid relocating livelihood activities the team moved the location of the boundary to a new, agreed location resulting in a reduction in size of the National Park (ibid). All 86 forest edge communities with joint boundaries have signed agreements over the location of the National Park (project area) and the newly agreed boundary will be re-gazette as the actual boundary for the National Park. The project therefore has a conflict-free, mutually agreed boundary with all boundary communities.

G5.5. Illegal activities in the project zone

Identify any illegal activities that could affect the project's climate, community or biodiversity impacts (e.g., logging) taking place in the project zone and describe how the project will help to reduce these activities so that project benefits are not derived from illegal activities.

Smallholder agriculture is the most widespread activity in the project zone and is the principal threat to project impacts through encroachment into the project area or an increase in agriculture activities in the project zone as a result of leakage. To defuse the threat of encroachment and avoid leakage a two-pronged approach will be used. Firstly forest rangers will continue to be deployed throughout the project area to patrol the forest blocks and ensure the integrity of the forest. Secondly the team in coordination with the forest edge communities has developed a number of livelihood activities designed to increase the productivity and income of the forest edge communities whilst maintaining forest cover. These activities are described in detail in section CM1 and will be implemented with all the forest edge communities.

Other illegal activities that are occurring some areas of the project zone include mining and selective logging. Artisanal mining and small scale logging may affect the climate goals as these activities result in forest degradation, they also may attract migrants to the area in search of economic opportunities. The project team will work with forest edge communities to promote environmental awareness and land use planning in the project zone in order to develop a long term strategic approach to natural resource management and encourage the communities to understand the trade offs between conservation and unsustainable development (see CM1).

G5.6. Title to carbon rights

Demonstrate that the project proponents have clear, uncontested title to the carbon rights, or provide legal documentation demonstrating that the project is undertaken on

behalf of the carbon owners with their full consent. Where local or national conditions preclude clear title to the carbon rights at the time of validation against the Standards, the project proponents must provide evidence that their ownership of carbon rights is likely to be established before they enter into any transactions concerning the project's carbon assets.

A legal analysis of carbon rights was undertaken by Climate Focus, an independent expert in international and national climate law and policies. The report concluded that through the various stages of the project area being established as a reserve and later as a National Park, the Government had developed a strong claim to the carbon credits within the project area (Climate Focus 2011, section 3). However, there was some uncertainty as to whether all rights had been obtained and so following legal advice, the project consulted with Paramount Chiefs and the landowners registered on the GRNP landowner register to explain the project and request an agreement to be signed between the Government and each head of a landowning family landowners to transfer any outstanding carbon rights to the government in exchange for an annual payment outlined in the REDD benefit sharing agreement (Forestry Division 2013). In total, 234 agreements have been signed with all 234 heads of landowning families listed in the landowner register providing the government with legal documentation that they have uncontested title to the carbon rights.

The project proponent (the Gola Rainforest Conservation LG) is entering into a public-private partnership agreement with the Government which details the transfer of management rights and carbon rights to the project proponent for the lifetime of the project. A deed will also be signed to secure the transfer of carbon rights which will be registered in Sierra Leone.

Climate Section

CL1. Net Positive climate impacts

CL1.1. Estimate of net changes in carbon stocks due to project activities

Estimate the net change in carbon stocks due to the project activities using the methods of calculation, formulae and default values of the IPCC 2006 GL for AFOLU or using a more robust and detailed methodology. The net change is equal to carbon stock changes with the project minus carbon stock changes without the project (the latter having been estimated in G2). This estimate must be based on clearly defined and defensible assumptions about how project activities will alter GHG emissions or carbon stocks over the duration of the project or the project GHG accounting period.

The Gola REDD project will prevent the deforestation of carbon stocks in the project area through the activities outlined in G3.2.

The Gola REDD project has used approved methodology VM0007 of the Verified Carbon Standards to estimate the net change in carbon stocks due to project activities. Under this methodology, baseline emissions are estimated ex ante. The methodology includes steps for estimating ex ante emissions under the project scenario. In addition, the methodology provides clear steps for ex post estimation of project emissions.

Project Emissions

(Please note this section is taken from section 3.2 of the VCS PD)

Following VM0007 Methodology Module M-MON the sum of GHG emissions in the project case is equal to the sum of changes from deforestation, degradation, GHG emissions from project activities, minus any forest carbon stock enhancements.

$$\Delta C_P = \sum_{t=1}^{t^*} \sum_{i=1}^M (\Delta C_{P,DefPA,i,t} + \Delta C_{P,Deg,i,t} + GHG_{P-E,i,t} - \Delta C_{P,Enh,i,t}) \quad (1)$$

Where:

ΔC_P	Net greenhouse gas emissions within the project area under the project scenario ; t CO ₂ -e
$\Delta C_{P,DefPA,i,t}$	Net carbon stock change as a result of deforestation in the project area in the project case in stratum <i>i</i> at time <i>t</i> ; t CO ₂ -e
$\Delta C_{P,Deg,i,t}$	Net carbon stock change as a result of degradation in the project area in the project case in stratum <i>i</i> at time <i>t</i> ; t CO ₂ -e
$GHG_{P-E,i,t}$	Greenhouse gas emissions as a result of deforestation and degradation activities within the project area in the project case in stratum <i>i</i> in year <i>t</i> ; t CO ₂ -e

$\Delta C_{P,Enh,i,t}$	Net carbon stock change as a result of forest growth and sequestration during the project in areas projected to be deforested in the baseline ²⁰ in stratum i at time t ; t CO ₂ -e
i	1, 2, 3 ... M strata
t	1, 2, 3, ... t^* years elapsed since the start of the REDD project activity

For a with project scenario there are anticipated to be no changes in carbon stocks as a result of deforestation or degradation in the project area due to the project activities that will protect the GRNP through enforcement and leakage prevention activities (see G3.1,3.2 and CL2).

GHG emissions will be zero because the Project will not use fertilizers as a leakage prevention activity, and therefore emissions from nitrous oxide are excluded, and emission from fossil fuel combustion is ignored in the baseline and there for can be ignored in the project case²¹.

Non-CO₂ emission from fire related to forest clearance is considered relevant for all areas deforested and will be included for any areas found to be deforested in the project case. These emissions will be calculated following Module E-BB.

$$E_{BiomassBurn,i,t} = \sum_{g=1}^G \left((A_{burn,i,t} * B_{i,t} * COMF_i * G_{g,i}) * 10^{-3} \right) * GWP_g \quad (1)$$

Where:

$E_{BiomassBurn,t}$	Greenhouse emissions due to biomass burning as part of deforestation activities in stratum i in year t ; tCO ₂ -e of each GHG (CO ₂ , CH ₄ , N ₂ O)
$A_{burn,i,t}$	Area burnt for stratum i at time t ; ha
$B_{i,t}$	Average aboveground biomass stock before burning stratum i , time t ; tonnes d. m. ha ⁻¹
$COMF_i$	Combustion factor for stratum i ; dimensionless (see annex 1 for default values as derived from Table 2.6 of IPCC, 2006)
$G_{g,i}$	Emission factor for stratum i for gas g ; kg t ⁻¹ dry matter burnt (see section III and annex 2 for default values as derived from Table 2.5 of IPCC, 2006)
GWP_g	Global warming potential for gas g ; t CO ₂ /t gas g (default values from IPCC SAR: CO ₂ = 1; CH ₄ = 21; N ₂ O = 310)

²⁰ For areas with a degradation baseline (i.e. using **BL-DFW**) this parameter shall be set to zero, for areas with baseline set by **BL-UP** and **BL-PL** this parameter may be conservatively set to zero.

²¹ VMD0014, E-FFC: "Fossil fuel combustion in all situations is an optional emission source."

g	1, 2, 3 ... G greenhouse gases (to include carbon dioxide ²² , methane and nitrous oxide)
i	1, 2, 3 ... M strata
t	1, 2, 3, ... t^* years elapsed since the start of the REDD project activity

Forest carbon stock enhancements will be measured in the project scenario following M-MON. As outlined in G2.3 and Netzer and Walker 2013. Gola South was stratified using Module X-STR for areas assumed to be accumulating carbon. In Gola South ground measurements will be used to monitor the changes in carbon stocks through time as specified in the carbon pool modules. For Gola Central and North it will conservatively assumed that no carbon stock enhancement is occurring.

If Gola South is subject to degradation activities (as described in Section 4 and Module M-MON Step 2) the emissions from these activities will be estimated and deducted from the amount sequestered.

Enhancements will be estimated following M-MON:

$$\Delta C_{P,Enh,i,t} = \sum_{t=1}^t \sum_{i=1}^M ((C_{P,i,t} - C_{BSL,i}) * A_{Enh,PL,i,t}) \quad (8)$$

Where:

$\Delta C_{P,Enh,i,t}$	Net carbon stock changes as a result of forest carbon stock enhancement in stratum i in the project area at time t ; t CO ₂ -e
$C_{P,i,t}$	Carbon stock in all pools in the project case in stratum i at time t ; t CO ₂ -e
$C_{BSL,i}$	Carbon stock in all pools in the baseline in stratum i ; t CO ₂ -e ha ⁻¹
$A_{Enh,PL,i,t}$	Project area in stratum i in which carbon stocks are accumulating but that would have undergone planned deforestation in the baseline scenario at time t ; ha
i	1, 2, 3 ... M strata
t	1, 2, 3, ... t^* years elapsed since the start of the REDD project activity

The eligible area is determined from the area due to be deforested in each year of the baseline (Netzer and Walker 2013)

²² Carbon dioxide may be omitted where carbon dioxide emissions are calculated in an alternate module through stock change

$$A_{Enh,UP,i,t} = A_{BSL,PA,unplanned,t} \quad (11)$$

Where:

$A_{Enh,UP,i,t}$	Project area in stratum i in which carbon stocks are accumulating but that would have undergone unplanned deforestation in the baseline scenario at time t ; ha
$A_{BSL,PA,unplanned,t}$	Annual area of unplanned baseline deforestation in the project area at time t ; ha yr ⁻¹
i	1, 2, 3 ... M strata
t	1, 2, 3, ... t^* years elapsed since the start of the REDD project activity

The net change is then equal to the carbon stock changes as a result of the project minus the carbon stock changes without the project (see section G2.3).

Table 30. Ex ante net changes in carbon stocks as a result of project activities

t	y	BSLunplanned - Strata 1		BSLunplanned - Strata 2		Total Baseline Carbon emissions	Total Project Carbon emissions	Ex ante net change in carbon stocks as result of project
		ha	t CO ₂ e	ha	t CO ₂ e	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)
1	2012	337	172,744	704	322,179	494,923	0	494,923
2	2013	413	216,950	628	295,545	1,007,417	0	1,007,417
3	2014	353	192,799	688	330,026	1,530,243	0	1,530,243
4	2015	446	245,888	595	295,507	2,071,638	0	2,071,638
5	2016	435	247,408	606	307,167	2,626,214	0	2,626,214
6	2017	487	281,158	554	290,120	3,197,492	0	3,197,492
7	2018	518	304,749	522	282,194	3,784,436	0	3,784,436
8	2019	534	320,799	507	281,161	4,386,396	0	4,386,396
9	2020	543	333,998	498	282,630	5,003,024	0	5,003,024
10	2021	552	346,930	489	284,444	5,634,398	0	5,634,398
11	2022	560	355,878	481	278,891	6,269,167	0	6,269,167
12	2023	558	358,855	483	278,771	6,906,793	0	6,906,793
13	2024	508	337,946	533	299,878	7,544,617	0	7,544,617
14	2025	514	343,645	527	297,194	8,185,456	0	8,185,456

		BSLunplanned - Strata 1		BSLunplanned - Strata 2		Total Baseline Carbon emissions	Total Project Carbon emissions	Ex ante net change in carbon stocks as result of project
t	y	ha	t CO ₂ e	ha	t CO ₂ e	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)
15	2026	540	359,850	501	285,069	8,830,374	0	8,830,374
16	2027	553	369,386	488	279,043	9,478,804	0	9,478,804
17	2028	542	366,537	499	284,025	10,129,366	0	10,129,366
18	2029	528	361,447	513	291,059	10,781,872	0	10,781,872
19	2030	533	366,129	508	289,256	11,437,257	0	11,437,257
20	2031	529	366,271	512	291,597	12,095,126	0	12,095,126
21	2032	534	369,003	507	289,629	12,753,757	0	12,753,757
22	2033	548	376,320	493	283,460	13,413,538	0	13,413,538
23	2034	527	366,774	514	292,452	14,072,764	0	14,072,764
24	2035	543	375,745	498	284,701	14,733,210	0	14,733,210
25	2036	554	381,535	487	279,780	15,394,524	0	15,394,524
26	2037	579	394,690	462	268,256	16,057,470	0	16,057,470
27	2038	579	395,548	462	267,608	16,720,626	0	16,720,626
28	2039	581	397,393	460	266,119	17,384,139	0	17,384,139
29	2040	591	403,002	450	261,173	18,048,314	0	18,048,314
30	2041	629	423,352	412	243,155	18,714,821	0	18,714,821

CL1.2. Estimate of net changes in emissions of non-CO₂ gases

Estimate the net change in the emissions of non-CO₂ GHG emissions such as CH₄ and N₂O in the with and without project scenarios if those gases are likely to account for more than a 5% increase or decrease (in terms of CO₂-equivalent) of the projects overall GHG emissions reductions or removals over each monitoring period.

Under the baseline scenario, any emissions from fossil fuels and nitrogen application are ignored. Therefore, the only non-CO₂ emissions accounted for is from biomass burning following deforestation during site preparation for the post-deforestation land use.

Subsistence crop-fallow farming is the vast majority of the reason for deforestation in the project area (Witkowski et al 2012a). Crop-fallow involves clearing and burning the vegetation (Witkowski 2012; USAID 2007b; Nasi et al. 2006). Therefore GHG emissions from biomass burning is expected to occur on all land deforested during site preparation. Biomass assumed to be extracted for wood products is excluded from the estimation of biomass emission estimation.. The emission from biomass burning was estimated following Module E-BB (Table 31).

Table 31. Non-CO2 emissions from biomass burning (for equations see Netzer and Walker 2013)

	Strata 1: GRNP North	Strata 2: GRNP South	Description
AG Biomass	629.3	578.0	Ave aboveground biomass stock before deforestation t d.m./ha
$B_{i,t}$	580.9	533.5	Ave aboveground biomass stock, after logs removed, before burning, t d.m./ha
Emissions per hectare, CH4	37	34	CH4 Emission from biomass burning per hectare, t CO2e/ha
Emissions per hectare, N2O	16	15	N2O Emission from biomass burning per hectare, t CO2e/ha

CL1.3. Estimate of other emissions resulting from project activities

Estimate any other GHG emissions resulting from project activities. Emissions sources include but are not limited to, emissions from biomass burning during site preparation, emissions from fossil fuel combustion, direct emissions from the use of synthetic fertilizers, and emissions from the decomposition of N-fixing species.

No fertilizers will be used during leakage prevention activities. Therefore, the only project non-CO₂ emissions would be the result of deforestation taking place inside the project boundaries. Emissions from any biomass burning following deforestation will be calculated using module E-BB of VM0007.

$$E_{BiomassBurn,i,t} = \sum_{g=1}^G \left(\left(A_{burn,i,t} * B_{i,t} * COMF_i * G_{g,i} \right) * 10^{-3} \right) * GWP_g \quad (1)$$

Where:

$E_{BiomassBurn,t}$	Greenhouse emissions due to biomass burning as part of deforestation activities in stratum i in year t ; tCO ₂ -e of each GHG (CO ₂ , CH ₄ , N ₂ O)
$A_{burn,i,t}$	Area burnt for stratum i at time t ; ha
$B_{i,t}$	Average aboveground biomass stock before burning stratum i , time t ; tonnes d. m. ha ⁻¹
$COMF_i$	Combustion factor for stratum i ; dimensionless (see annex 1 for default values as derived from Table 2.6 of IPCC, 2006)
$G_{g,i}$	Emission factor for stratum i for gas g ; kg t ⁻¹ dry matter burnt (see section III and annex 2 for default values as derived from Table 2.5 of IPCC, 2006)
GWP_g	Global warming potential for gas g ; t CO ₂ /t gas g (default values from IPCC SAR: CO ₂ = 1; CH ₄ = 21; N ₂ O = 310)

<i>g</i>	1, 2, 3 ... <i>G</i> greenhouse gases (to include carbon dioxide ²³ , methane and nitrous oxide)
<i>i</i>	1, 2, 3 ... <i>M</i> strata
<i>t</i>	1, 2, 3, ... <i>t</i> * years elapsed since the start of the REDD project activity

CL 1.4. Demonstration of net positive climate impacts

Demonstrate that the net climate impact of the project is positive. The net climate impact of the project is the net change in carbon stocks plus net change in non-CO₂ GHGs where appropriate minus any other GHG emissions resulting from project activities minus any other project-related unmitigated negative offsite climate change impacts (see CL 2.3)

(Please note this section is taken from section 3.4 of the VCS project document)

The total net GHG reductions for the REDD Project are calculated as follows:

$$CREDD,t = \Delta CBSL - \Delta CP - \Delta CLK$$

Where,

$CREDD,t$ = Total GHG emission reduction

$\Delta CBSL$ = Net emissions under baseline

ΔCP = Net emissions under project scenario

ΔCLK = Net emissions by leakage

The net baseline emissions in the project area have been calculated following Module BL-UP, and are shown in G2.3 and Netzer and Walker 2013. The net baseline emissions in the project area are calculated to be 6,338,819t CO₂e over the first 10 years of the project.

The net emissions under the project scenario will be monitored ex-post following M-MON.

Emissions due to leakage inside and outside the leakage belt have been calculated following Module LK-ASU, and are shown in CL2. The estimated net emissions from leakage are calculated to be 1,310,622t CO₂e over the first 10 years of the project.

Calculation of VCS buffer

The number of credits to be held in a permanent risk buffer is determined as a percentage of the difference between total emission from unplanned deforestation in the baseline ($\Delta CBSL$) and with project scenario (ΔCP). Leakage emissions do not factor into the buffer calculations.

²³ Carbon dioxide may be omitted where carbon dioxide emissions are calculated in an alternate module through stock change

The retention rate is determined according to the risk classification of the project, using the VCS tool for AFOLU of Risk of Non Permanence. According to the calculations, it has a total percentage of 10% buffer (See VCS non-permanence risk report).

$$Buffer_{UNPLANNED} = \left(\left(\Delta C_{BSL,unplanned} - \sum_{t=1}^{t^*} \sum_{i=1}^M (E_{FC,i,t} + N_2O_{direct,i,t}) \right) - \left(\Delta C_{P,(Unplanned\ Deforestation\ Areas)} - \sum_{t=1}^{t^*} \sum_{i=1}^M (E_{FC,i,t} + N_2O_{direct,i,t}) \right) \right) * (Buffer\%)$$

Uncertainty Analysis

The analysis of uncertainty of carbon stocks was developed according to the Module X-UNC. The purpose of X-UNC is for calculating ex-ante and ex-post a precision level and any deduction in credits for lack of precision following project implementation and monitoring. The module assesses uncertainty in baseline estimations and in estimations of with-project sequestration, emissions and leakage.

A precision target of a 95% confidence interval equal to or less than 15% of the recorded value shall be targeted.

As per X-UNC, Part 1 – Uncertainty in Baseline Estimate:

Step 1: Assess uncertainty in projection of baseline rate of deforestation or degradation. In this case the UncertaintyBSL,RATE = 0 where the baseline rate is long term (i.e. historic) average.

Step 2: Assess uncertainty of emissions and removals in project area. Uncertainty should be expressed as the 95% confidence interval as a percentage of the mean. The uncertainty from dead-wood, litter, non-tree, were not analyzed as they are not included in baseline calculations. Fossil fuel combustion and N2O emissions from nitrogen application, were also not analyzed as they are not included in baseline calculations.

Uncertainty in the emissions from biomass burning is captured in the uncertainty of above ground biomass (CAB_Tree, I UncertaintyBSL,SS,i).

Uncertainty in the wood products pool is considered undisputedly conservative and therefore Uncertainty = 0.

Table 32. Assess uncertainty of emissions and removals in project area

Carbon Pool	Strata 1 (GRNP North Block) 95% CI as % of mean	Strata 2 (GRNP South Block) 95% CI as % of mean	Post Deforestation 95% CI as % of mean
CAB_Tree,I (Uncertainty _{BSL,SS,i, pool#})	6.6%	13.0%	12.8%
CBB_Tree,I (Uncertainty _{BSL,SS,i, pool#})	6.6%	13.0%	12.8%
CAB_nontree,I (Uncertainty _{BSL,SS,i, pool#})			
CBB_nontree,I (Uncertainty _{BSL,SS,i, pool#})			
CLI,I (Uncertainty _{BSL,SS,i, pool#})			
CSOC,I (Uncertainty _{BSL,SS,i, pool#})	12.1%	12.7%	
CBSL (Uncertainty _{BSL,SS,i})	4.7%	8.0%	12.8%

Uncertainty ex-post will be updated based on the uncertainty associated with field measurements for carbon stock enhancements.

The allowable uncertainty under this methodology is +/- 15% of CREDD,_t at the 95% confidence level. Where this precision level is met then no deduction should result for uncertainty. Therefore no deductions are associated with the GRNP Project, and the Adjusted_CREDD, $t = \text{CREDD}, t$.

Calculation of Verified Carbon Units

To estimate the number of Verified Carbon Units (VCUs) for the monitoring period $T = t_2 - t_1$, this methodology uses the following equation:

$$VCU_{t=(Adjusted\_CREDD,t_2 - Adjusted\_CREDD-t_1) - Buffer_{TOTAL}}$$

Where:

VCU_t	Number of Verified Carbon Units at time $T = t_2 - t_1$; VCU
$Adjusted\_CREDD,t_2$	Cumulative total net GHG emissions reductions at time t_2 adjusted to account for uncertainty; t CO ₂ -e
$Adjusted\_CREDD,t_1$	Cumulative total net GHG emissions reductions at time t_1 ; t CO ₂ -e
$Buffer_{total}$	Total permanence risk buffer withholding; t CO ₂ -e

Table 33. Verified carbon units in the first 10 years of the project

t years	Estimated baseline or removals $\Delta C_{BSL,PA}$	Estimated project or removals ΔC_P	Estimated leakage or removals ΔC_{LK}	Estimated GHG or removals $C_{REDD,i}$	Buffer _{unplanned}	VCU
	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	(cumulative)
1 2012	547,578	0	169,827	377,751	54,758	322,993
2 2013	1,113,063	0	345,207	767,856	111,306	656,549
3 2014	1,688,614	0	493,959	1,194,654	168,861	1,025,793
4 2015	2,283,143	0	647,616	1,635,527	228,314	1,407,213
5 2016	2,890,802	0	741,847	2,148,955	289,080	1,859,875
6 2017	3,515,397	0	838,703	2,676,694	351,540	2,325,154
7 2018	4,155,789	0	938,009	3,217,779	415,579	2,802,201
8 2019	4,811,268	0	1,039,655	3,771,613	481,127	3,290,486
9 2020	5,481,452	0	1,108,939	4,372,513	548,145	3,824,368
10 2021	6,166,423	0	1,179,752	4,986,671	616,642	4,370,029

* The project start date is August 2012 and all years are therefore based on an August to August calendar i.e. year 1 is August 2012 to August 2013 etc.

CL1.5. Avoiding double counting of emission reductions

Specify how double counting of GHG emission reductions or removals will be avoided, particularly for offsets sold on the voluntary market and generated in a country with an emissions cap

The Government of Sierra Leone has clear and uncontested rights to manage the project area and is the exclusive owner of carbon rights to the project area (see section G5.6). The Government of Sierra Leone is entering into a public-private partnership with the project proponent to transfer these rights to enable the project to sell the credits generated by the project activities. The public-private partnership agreement stipulates that the Government will not directly market, sell or otherwise deal with the Gola carbon credits or enter into any similar agreement with another party of the Gola project area. Therefore, there is no risk the credits will be sold by another entity.

The Gola REDD project is also seeking validation with the VCS with the objective of generating voluntary carbon credits (VCUs). The project will be registered on the VCS project database and on a dedicated registry system which will check other GHG programs to ensure that the same offset has not been registered elsewhere.

An internal registry will also be created and maintained by the project proponent which contains information on each sale of VCU's made throughout the projects lifetime. This will enable the proponents to transparently demonstrate to the Government and other stakeholders the transactions made by the project.

CL2. Offsite climate impacts ("leakage")

CL2.1. Leakage assessment and estimate

Determine the types of leakage that are expected and estimate the potential offsite increases in GHGs (increases in emissions or decreases in sequestration) due to project activities. Where relevant, define and justify where leakage is most likely to take place.

(Please note this section has been taken from the VCS PD section 3.3)

Leakage was determined following VM0007 Module LK-ASU.

Various independent studies have established the primary driver of deforestation in Sierra Leone is from small scale agriculturalists (BCP project proposal 2009, MAFFS 2004:8). The National Poverty Reduction Paper (2005:33) cited small scale agriculture to make-up around 75% of Sierra Leone's labour force. This is particularly true for the rural population living in and around the Project Area and Leakage Belt, where nearly the entire population engages in subsistence agriculture (Witkowski 2012a, Showers 2012, Bulte et al 2013). There are other threats from logging, mining and industrial agriculture (e.g. palm oil or coffee plantations), but none of these threats are "planned²⁴" and surveys indicated that in the

²⁴ According the VM0007 planned deforestation is the Conversion of forest lands to a deforested that is legally permitted. Also Documentation must be available to clearly

Project Area and Leakage Belt villagers do not engage in such activities without the participation of immigrants who bring with them the skills, capital and equipment (Witkowski 2012a). Without protection of the Project Area, local deforestation agents would continue to convert forest into the bush fallow cycle, resulting in deforestation inside the project boundary.

Such deforestation would occur inside the Project Area (Netzer and Walker 2013) in the absence of the Gola REDD project but could be displaced to outside the Project Area as a consequence of the REDD project, resulting in leakage. Protection of the project area may also reduce immigration into the area as economic opportunities to exploit the project area for mining or logging area prevented (Witkowski 2012a, Cuni-Sanchez 2012b), however, such deforestation agents are conservatively ignored in the baseline scenario.

The Gola REDD project will reduce the threat of deforestation through continued protection of the Project Area and will reduce leakage in the Leakage Belt through community livelihood activities which consist of 6 different elements:

- 1) Capacity building for crop production; to improve productivity on existing crop fallow land in order to increase yields and reduce the need to convert forest into the farm bush cycle
- 2) Capacity building for cocoa production; to improve productivity and farmer income from cocoa production and other diversified sustainable income generating activities that maintain forest cover
- 3) Savings and Internal Lending Schemes; to enable Forest edge communities to achieve financial independence
- 4) Co-management and land-use planning activities; to improve the well-being and resource governance capacity of FECs whilst maintaining a biodiverse forest through co-management and land-use planning activities in the project area and leakage belt
- 5) Environmental awareness raising; develop and implement an education program to enhance environmental awareness and promote community participation in the management of the GRNP
- 6) Benefit sharing agreement and distribution; implement and monitor mechanisms that equitably compensate stakeholders and promote incentives for conservation practices in the project zone and offsite zone

Activities one and two (agriculture and cocoa) are predicted to have the greatest immediate effect on leakage mitigation as they are designed to improve both farmers productivity and post-harvesting storage and processing thereby increasing yields and sales and reducing deforestation pressures.

demonstrate with credible evidence and documentation that indeed the land would have been converted to non-forest use if not for the REDD project.

For detailed information on the community livelihoods work see SIA Synthesis report (Tatum-Hume and Witkowski 2013).

Nevertheless, leakage due to the avoided unplanned deforestation in the project area is expected and an ex-ante estimate was calculated following the steps established in the approved methodology. It is important to mention that leakage prevention activities were not fully operational at the start of the project (1st August 2012). Therefore leakage may be higher in the initial months and years of the project as leakage prevention activities become fully operational. However, any such leakage will be monitored as delineated in VMD0015.

Step 1. Estimation of baseline carbon stock changes and greenhouse gas emissions in the Leakage Belt

The baseline for the Leakage Belt was developed following the BL-UP Module. The same criteria used to estimate the carbon stock changes in the Project Area were used in this step:

Forest strata: Due to limited information on carbon stocks in the Leakage Belt it is conservatively assumed that the Leakage Belt forests have the same carbon stocks as Gola Central/North. This is conservative because Gola Central/North has the highest carbon stocks and is undoubtedly the least disturbed forest in the Reference Region (See G2.3, Pre deforestation strata).

Post deforestation strata: Farming is the primary livelihood activity for the vast majority of community members all of whom engage in agriculture in a crop fallow cycle (See G2.3, Post deforestation strata; Witkowski et al 2012a; Bulte et al 2013).

Carbon stocks and emissions: Carbon stocks for forests and post deforestation land cover were determined in Section G2.3 (Table 16 and Table 17). Emissions from carbon stock changes, wood products and biomass burning were also calculated in G2.3 (Table 18, Table 19, Table 21). Net emission in the Leakage Belt are calculated in CL2, and shown below in Table 34 (See Netzer and Walker 2013 for more information).

Table 34. Estimation of baseline carbon stocks changes and GHG emissions in the Leakage Belt for the first 10 years of the project.

t y		AreaBSLunplanned - Leakage belt			Total carbon stock change in baseline in LB $\Delta\text{CBSL,LK,unplanned}$
		ha	t CO ₂	t non-CO ₂ e (EBiomassBurn)	t CO ₂ e (cumulative)
1	2012	1,544	791,586	82,643	874,229
2	2013	1,544	815,873	82,643	1,772,745
3	2014	1,544	840,207	82,648	2,695,600
4	2015	1,544	864,449	82,643	3,642,692
5	2016	1,544	888,737	82,643	4,614,072
6	2017	1,544	913,024	82,643	5,609,740
7	2018	1,544	937,358	82,648	6,629,746
8	2019	1,544	961,600	82,643	7,673,989
9	2020	1,544	985,888	82,643	8,742,520
10	2021	1,544	1,010,175	82,643	9,835,338

Step 2. Estimation of the proportions of area deforested by immigrant and local deforestation agents in the baseline

In order to calculate the proportion of deforestation by immigrants in and around the project area ten percent of communities within two kilometers of the park boundary were visited²⁵; out of the 125 villages within that radius, 13 were randomly selected. Results from the survey (Witkowski 2012a) are quoted below.

“Only one village, Tigbema, maintained a register of inhabitants, so questions regarding migration and population were asked to four key informants in each of the other villages except for Jajei, which was not included as it is currently uninhabited. Interviewees report

²⁵ All communities within 4km of the park boundaries are known as forest edge communities and lie between the PA boundary and the edge of the LB i.e. within the leakage belt, this meets with the LK-ASU (VMD0010) criteria for sampling communities within 2km of the boundaries of the LB and the PA.

that the villages do not experience high influxes of immigrants²⁶ especially when there are no mining or logging activities in the area; on average, residents that have recently arrived (within the past 5 years) represent only 3.9% of the population. Where there are migrants, all respondents indicated that the migrants undertake activities in the same way as the villagers do; i.e.: the farming practices they use are the same. According to 83% of respondents, strangers were doing subsistence activities, primarily farming, in both swamp and upland areas. 17% of respondents indicate that the migrants undertake commercial activities in addition to the subsistence activities. All respondents indicated that the farm size of migrants is the same (60%) or smaller (40%) than those of villagers. Most people reported that villagers do the same amount or more of activities that cause deforestation than migrants do.²⁷ No strangers were reported to be farming inside the park (Witkowski 2012a)."

"Activities such as logging and mining tend to attract immigrants to the villages and it appears that villagers do not engage in such activities without the participation of at least a small number of migrants. Through discussions with community members, it was found that the sampled villages (FEC) themselves tend not to be involved in small scale commercial logging as in most cases the required skills, capital and equipment for mining and logging activities comes from outside the villages (Witkowski 2012a)."

From this information the proportion deforested by residents and immigrants in and around the Leakage Belt is:

Residents ($PROP_{RES}$) = 97.1%

Immigrants ($PROP_{IMM}$) = 3.9%

Step 3. Estimation of unplanned deforestation displaced from the Project Area to the Leakage Belt

Ex ante assessment

According to the module, the estimated carbon stock changes and the GHG emitted in the Leakage belt should be multiplied by a factor less than 1, which represents the percentage of deforestation that would be displaced in the Leakage Belt.

The effectiveness of the proposed Gola REDD project in managing leakage relies on REDD financing for the initiation and implementation of effective leakage prevention programs that

²⁶ When asking about migrants, the question was phrased as "people who have moved to the village since the last election and have stayed or will stay in village". The last election was 5 years ago (and thus aligns with the BL-UP definition of migrant as those having lived in the area <5 years), but we found we had to add a reference event as it was difficult for people to identify 5 years. We had to add "have or will stay in the village" as without that people were unclear if they should report the number of visitors. We then asked how many were villagers returning after the war and the difference is the number of migrants reported.

²⁷ 94% of respondents reported villagers doing more or the same amount of farming as migrants. For logging, plantations, and mining, the percentage of respondents reporting villagers were doing more were 82%, 66%, and 57% respectively.

increase social wellbeing, reduce the pressures for deforestation, education, alternative livelihoods, and other social development programs (See Tatum-Hume and Witkowski 2013).

The leakage prevention activities will be implemented in a phased approach until 2019, an evaluation will then be carried out of the effectiveness of leakage prevention activities and the next phase of activities will be planned for based on the results. Between now and 2019 activities are expected to address the vast majority actors involved in deforestation (See Tatum-Hume and Witkowski 2013). While the project aims to be 100% effective through implementation of the leakage prevention activity plan it is acknowledge that leakage will occur as these activities become operational, therefore a staggered rate is considered reasonable and conservative.

The effectiveness of the proposed Gola REDD project has therefore been estimated on a biennial basis based on the implementation of leakage prevention activities. It is thought that this approach is more conservative and more accurate than providing an average figure because the project will become more effective as more leakage prevention activities are established and communities increasingly see the benefits.

The calculation of the phased leakage rate is based on;

2012-2013; Project starts; Forest edge communities are involved in the selection and development of activities aimed to mitigate leakage and provide positive livelihood benefits but activities do not begin. Buy in to the project is high but activities do not begin therefore we conservatively put a high leakage figure in as 30% leakage

2014-2015: During 2014, 75% of villages in the leakage belt will begin receiving either the cocoa or agricultural activity as part of round 1 of activity implementation. The other 25% of villages will receive livelihood activities but with no anticipated direct impact on deforestation rates. We therefore use this as a justification to project ex-ante that leakage mitigation activities will be 75% effective i.e. 25% leakage.

2016 and 2017; Round 2 of leakage activities are implemented; Forest edge communities that have not yet received either the cocoa or the agriculture activity will now receive it. Therefore 100% of forest edge communities will have either the cocoa or the agriculture activity (or both). We believe it is conservative to assume ex-ante that leakage mitigation activities will be 85% effective i.e. 15% leakage

2018 and 2019: Round 3 of leakage activities are implemented; at the end of this round all forest edge communities will have received the agriculture activity, the cocoa activity and the savings and lending scheme activity. All forest edge communities will have received multiple road show events and the yearly education scholarships. Leakage will therefore be low and is conservatively estimated as 15%

2020 onwards; An evaluation of effectiveness of leakage prevention activities from both a leakage mitigation and livelihoods perspective will have been carried out and new phase of leakage mitigation activities developed following the results. Projecting leakage beyond 5 years from the development of this analysis (2014) is highly speculative. Goals for the project would see leakage mitigation activities at 90% effective i.e. leakage 10%

The implementation plan for leakage mitigation activities in the 114 FECs can be found in Tatum-Hume and Witkowski 2013.

Table 35. Estimation of unplanned deforestation displaced from the Project Area to the Leakage Belt.

		Area _{BSLunplanned} - Leakage belt			Total carbon stock change in baseline in LB $\Delta C_{BSL,LK,unplanned}$	deforestation expected to be displaced into the Leakage Belt	Net CO ₂ e emissions due to leakage $\Delta CLK-ASU-LB$
t	y	ha	t CO ₂	t non-CO ₂ e (EBiomassBur n)	t CO ₂ e (cumulative)	%	t CO ₂ e (cumulative)
1	2012	1,544	791,586	82,643	874,229	0.3	164,273
2	2013	1,544	815,873	82,643	1,772,745	0.3	333,919
3	2014	1,544	840,207	82,648	2,695,600	0.25	477,807
4	2015	1,544	864,449	82,643	3,642,692	0.25	626,439
5	2016	1,544	888,737	82,643	4,614,072	0.15	717,588
6	2017	1,544	913,024	82,643	5,609,740	0.15	811,277
7	2018	1,544	937,358	82,648	6,629,746	0.15	907,336
8	2019	1,544	961,600	82,643	7,673,989	0.15	1,005,658
9	2020	1,544	985,888	82,643	8,742,520	0.1	1,072,676
10	2021	1,544	1,010,175	82,643	9,835,338	0.1	1,141,173

Ex post assessment

Ex post leakage will be assessed following Module M-MON at the first validation event. Leakage in the Leakage Belt will be estimated following LK-ASU.

$$\Delta C_{LK-ASU-LB} = \Delta C_{P,LB} - \Delta C_{BSL,LK,unplanned} \quad (1)$$

Where:

$\Delta C_{LK-ASU-LB}$	Net CO ₂ emissions due to unplanned deforestation displaced from the project area to the Leakage Belt; t CO ₂ -e
$\Delta C_{BSL,LK,unplanned}$	Net CO ₂ emissions in the baseline from unplanned deforestation in the leakage belt; t CO ₂ -e
$\Delta C_{P,LB}$	Net greenhouse gas emissions within the leakage belt in the project case t CO ₂ -e

If $\Delta C_{LK-ASU-LB}$ as calculated is <0 then $\Delta C_{LK-ASU-LB}$ shall be set equal to 0 (to prevent positive leakage).

STEP 4. Estimation of unplanned deforestation displaced from the project area to outside the Leakage Belt

To assess leakage outside the Leakage Belt the project followed steps a-e in the LK-ASU Module.

Define the total available national forest area (*TOTFOR*).

MODIS land cover for 2012 was analyzed for forest area within 5km of all roads and major rivers. Based on current knowledge of Sierra Leona there are no known fully protected forest reserves and national parks (Cuni-Sanchez 2012b; Witkowski 2012; Netzer and Walker 2013 in Section 1.1.1.1). Forest areas under active management were calculated for existing forest reserves (**Table 36**).

Table 36. Calculation of total available National forest area.

ID	Description	value
AVFOR	Total available national forest area for unplanned deforestation; ha	1,783,800
TOTFOR	Total available national forest area; ha	1,958,350
PROTFOR	Total area of fully protected forests nationally; ha	0
MANFOR	Total area of forests under active management nationally; ha	174,550

$$AVFOR = TOTFOR - PROTFOR - MANFOR \quad (2)$$

Where:

AVFOR Total available national forest area for unplanned deforestation; ha

TOTFOR Total available national forest area; ha

PROTFOR Total area of fully protected forests nationally; ha

MANFOR Total area of forests under active management nationally; ha

Calculate the area of forest in the Leakage Belt as a proportion of the total available national forest area.

Following LK-ASU the proportion of forest available in the leakage belt for unplanned deforestation compared with total national forest is 3.5% (Table 37).

Table 37. The proportional area of forest in the Leakage Belt compared to the total National forest available.

ID	Description	value
PROPLB	Area of forest available in the Leakage Belt for unplanned deforestation as a proportion of the total national forest area available for unplanned deforestation; proportion	3.5%
LBFOR	Total available forest area for unplanned deforestation in the Leakage Belt; ha (calculated from the Leakage Belt Forest Cover Benchmark Map)	62,932
AVFOR	Total available national forest area for unplanned deforestation; ha	1,783,800

$$PROP_{LB} = LBFOR / AVFOR \quad (3)$$

Where:

PROP_{LB} Area of forest available in the Leakage Belt for unplanned deforestation as a proportion of the total national forest area available for unplanned deforestation; proportion

LBFOR Total available forest area for unplanned deforestation in the Leakage Belt; ha (calculated from the *Leakage Belt Forest Cover Benchmark Map*)

AVFOR Total available national forest area for unplanned deforestation; ha

Stratify Total available national forest area for unplanned deforestation (AVFOR) by carbon stock.

According to the methodology, the stratification of AVFOR by carbon stock has to be made. However there is very limited information on carbon stocks in other parts of Sierra Leone. Therefore an assessment of current published literature on biomass stocks for the region was conducted. The assessment showed that carbon stocks for leakage belt are slightly higher than the IPCC and EC default values, and lower than one report for Upper Guinea forest by Lewis et al. (2009) (Table 38).

Table 38. Comparison with other published literature for Upper Guinea region of West Africa.

Description	Mg C ha ⁻¹	t CO ₂ e ha ⁻¹	Source
West tropical forest IPCC default value	155	568	Penman et al (2003)
Moist tropical forest IPCC default value	130	477	Penman et al (2003)
Tropical rainforest in Africa > 30% canopy cover EC default value	204	748	European Commission (2010)
Tropical moist deciduous forest EC default value	156	572	European Commission (2010)
Mean of 833 x 1 km ² cells overlapping Gola forest extracted from GIS dataset	122.3	448	Baccini et al. (2008)
Mean of 33 plots in undisturbed Upper Guinea forest	195.3	716	Lewis et al. (2009)
Average	160	588	

The report by Lewis et al. (2009) was for forest areas to the south of the project area in Liberia where conditions are increasingly wet and tropical. The vast majority of forests in Sierra Leone are north of the Project Area where conditions are dryer. Based on a biomass map from Saatchi et al. (2011) the biomass of forest areas appears to decrease north of the project area (Figure 15).

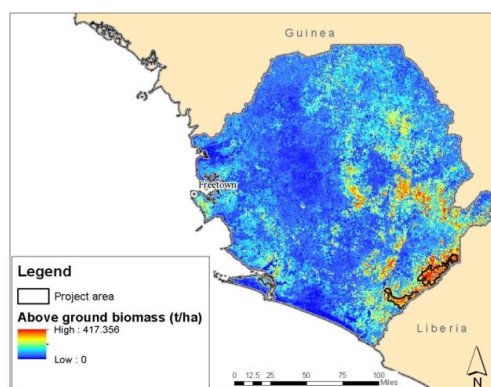


Figure 15. Above ground biomass in Sierra Leone from Saatchi et al. (2011)²⁸

²⁸ Saatchi, Sassan S., et al. "Benchmark map of forest carbon stocks in tropical regions across three continents." *Proceedings of the National Academy of Sciences* 108.24 (2011): 9899-9904.

This suggests that the forest in the GRNP contains some of the highest biomass forest in Sierra Leone because of its southerly location. Based on this analysis it was thought to be conservative to assume to average biomass from all published literature, 588t CO₂e ha⁻¹ (Table 39).

Table 39. Calculation of the proportion difference in carbon stocks between forests in the Leakage Belt and outside the Leakage Belt in Sierra Leone.

ID	Description	value
PROPCS	The proportional difference in carbon stocks between areas of forest available for unplanned deforestation both inside and outside the Leakage Belt; proportion	89.9%
COLB	Area weighted average aboveground tree carbon stock for forests available for unplanned deforestation outside the Leakage Belt; t CO ₂ -e ha ⁻¹	588
CLB	Area weighted average aboveground tree carbon stock for forests available for unplanned deforestation inside the Leakage Belt; t CO ₂ -e ha ⁻¹	654.7

$$PROP_{CS} = C_{OLB} / C_{LB} \quad (4)$$

Where:

$PROP_{CS}$ The proportional difference in carbon stocks between areas of forest available for unplanned deforestation both inside and outside the Leakage Belt; proportion

C_{OLB} Area weighted average aboveground tree carbon stock for forests available for unplanned deforestation outside the Leakage Belt; t CO₂-e ha⁻¹

C_{LB} Area weighted average aboveground tree carbon stock for forests available for unplanned deforestation inside the Leakage Belt; t CO₂-e ha⁻¹

The proportion of leakage from immigrant population is equal to the immigrating proportion multiplied by the proportion of available national forest area outside the Leakage Belt multiplied by the proportional difference in stocks between forests inside and outside the Leakage Belt (Table 40).

Table 40. The proportion of leakage for areas with immigrant populations

ID	Description	value
LKPROP	Proportional leakage for areas with immigrating populations; proportion	3.4%
PROPIMM	Estimated proportion of baseline deforestation caused by immigrating population; proportion	3.9%
PROPLB	Area of forest available for unplanned deforestation as a proportion of the total national forest area available for unplanned deforestation; proportion	3.5%
PROPCS	The proportional difference in stocks between areas of forest available for unplanned deforestation both inside and outside the Leakage Belt; proportion	89.9%

$$LK_{PROP} = PROP_{IMM} * (1 - PROP_{LB}) * PROP_{CS} \quad (5)$$

Where:

LK_{PROP} Proportional leakage for areas with immigrating populations; proportion

$PROP_{IMM}$ Estimated proportion of baseline deforestation caused by immigrating population; proportion

$PROP_{LB}$ Area of forest available for unplanned deforestation as a proportion of the total national forest area available for unplanned deforestation; proportion

$PROP_{CS}$ The proportional difference in stocks between areas of forest available for unplanned deforestation both inside and outside the Leakage Belt; proportion

Ex-ante leakage from immigrant deforestation agents

Leakage due to the proportion of the baseline deforestation actors who are displaced to areas outside the Leakage Belt is equal to the change in stocks in the baseline scenario minus the change in stocks in the project scenario multiplied by the proportional leakage factor for areas with immigrating populations.

The leakage caused by deforestation actors that will be displaced outside the Leakage Belt is equal to the equation below. The results for the baseline period are presented in Table 41.

$$\Delta CLK-ASU, OLB = (\Delta CLK-ASU, OLB - \Delta CP, LB) * LKPROP$$

Table 41. Net cumulative CO₂ emissions due to unplanned deforestation displaced outside the Leakage Belt

		Area _{BSLunplanned} - Leakage belt			Total carbon stock change in baseline in LB $\Delta C_{BSL,LK,unplanned}$	Net CO ₂ e emissions due to leakage $\Delta C_{LK-ASU-LB}$	Net CO ₂ e emissions due to displaced unplanned deforestation on outside LB $\Delta C_{LK-ASU,OLB}$
t	y	ha	t CO ₂ e (cumulative)	t non-CO ₂ e (EBiomass Burn)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)
1	2012	1,544	791,586	82,643	874,229	164,273	5,553
2	2013	1,544	815,873	82,643	1,772,745	333,919	11,288
3	2014	1,544	840,207	82,648	2,695,600	477,807	16,153
4	2015	1,544	864,449	82,643	3,642,692	626,439	21,177
5	2016	1,544	888,737	82,643	4,614,072	717,588	24,259
6	2017	1,544	913,024	82,643	5,609,740	811,277	27,426
7	2018	1,544	937,358	82,648	6,629,746	907,336	30,673
8	2019	1,544	961,600	82,643	7,673,989	1,005,658	33,997
9	2020	1,544	985,888	82,643	8,742,520	1,072,676	36,263
10	2021	1,544	1,010,175	82,643	9,835,338	1,141,173	38,578

$$\Delta C_{LK-ASU,OLB} = (\Delta C_{BSL,LK,unplanned} - \Delta C_{P,LB}) * LK_{PROP} \quad (6)$$

Where:

$\Delta C_{LK-ASU,OLB}$ Net CO₂ emissions due to unplanned deforestation displaced outside the Leakage Belt ; t CO₂-e

$\Delta C_{BSL,LK,unplanned}$ Net CO₂ equivalent emissions in the baseline from unplanned deforestation in the leakage belt; t CO₂-e

$\Delta C_{P,LB}$ Net CO₂ equivalent emissions within the leakage belt in the project case; t CO₂-e

LK_{PROP} Proportional leakage for areas with immigrating populations; proportion

In each monitoring period the area deforested in the Project Area and Leakage Belt will be assessed as per Module M-MON following sub-steps f-g of LK-ASU.

Step 5. Emissions from leakage prevention activities

Leakage prevention activities are not expected to have emissions from biomass burning or fertilizer use. Where they are use these emission will be accounted for.

$$GHGLK,E = 0$$

Step 6. Estimation of total leakage due to the displacement of unplanned deforestation

The total GHG emissions due to leakage are finally calculated with the following equation:

$$\Delta CLK-AS,unplanned = \Delta CLK-ASU-LB + \Delta CLK-ASU,OLB + GHGLK,E$$

The results for the baseline period are presented in Table 42.

Table 42. Total leakage due to displacement of unplanned deforestation

t y		Area _{BSLunplanned} - Leakage belt			Total carbon stock change in baseline in LB $\Delta C_{BSL,LK,unplanned}$	Net CO ₂ e emissions due to leakage $\Delta C_{LK-ASU-LB}$	Net CO ₂ e emissions due to displaced unplanned deforestation outside LB $\Delta C_{LK-ASU,OLB}$
		ha	t CO ₂ e (cumulative)	t non-CO ₂ e (EBiomassBurn)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)	t CO ₂ e (cumulative)
1	2012	1,544	791,586	82,643	874,229	164,273	5,553
2	2013	1,544	815,873	82,643	1,772,745	333,919	11,288
3	2014	1,544	840,207	82,648	2,695,600	477,807	16,153
4	2015	1,544	864,449	82,643	3,642,692	626,439	21,177
5	2016	1,544	888,737	82,643	4,614,072	717,588	24,259
6	2017	1,544	913,024	82,643	5,609,740	811,277	27,426
7	2018	1,544	937,358	82,648	6,629,746	907,336	30,673
8	2019	1,544	961,600	82,643	7,673,989	1,005,658	33,997
9	2020	1,544	985,888	82,643	8,742,520	1,072,676	36,263
10	2021	1,544	1,010,175	82,643	9,835,338	1,141,173	38,578

CL2.2. Leakage mitigation

Document how any leakage will be mitigated and estimate the extent to which such impacts will be reduced by these mitigation activities.

The Gola REDD project will reduce the threat of deforestation through continued protection of the project area and will reduce leakage in the leakage belt through community livelihood activities which consist of 6 different elements (as outlined in CM1.1):

- 1) Capacity building for crop production; to improve productivity on existing crop fallow land in order to increase yields and reduce the need to convert forest into the farm bush cycle
- 2) Capacity building for cocoa production; to improve productivity and farmer income from cocoa production and other diversified sustainable income generating activities that maintain forest cover
- 3) Savings and Internal Lending Schemes; to enable forest edge communities to achieve financial independence
- 4) Co-management and land-use planning activities; to improve the well-being and resource governance capacity of forest edge communities whilst maintaining a biodiverse forest through co-management and land-use planning activities in the project area and leakage belt
- 5) Environmental awareness raising; develop and implement an education program to enhance environmental awareness and promote community participation in the management of the GRNP
- 6) Benefit sharing agreement and distribution; implement and monitor mechanisms that equitably compensate stakeholders and promote incentives for conservation practices in the project zone and offsite zone

Activities one and two (agriculture and cocoa) are predicted to have the greatest immediate effect on leakage mitigation as they are designed to improve both farmers productivity and post-harvesting storage and processing thereby increasing yields and sales and reducing deforestation pressures.

For detailed information on the community livelihoods work see SIA Synthesis report (Tatum-Hume and Witkowski 2013).

Nevertheless, leakage due to the avoided unplanned deforestation in the project area is expected and an ex-ante estimate was calculated following the steps established in the approved methodology. It is important to mention that leakage prevention activities were not fully operational at the start of the project (1st August 2012). Therefore leakage may be higher in the initial months and years of the project as leakage prevention activities become fully operational which is why a staggered leakage rate has been applied. However, any such leakage will be monitored as delineated in VMD0015.

CL2.3. Net leakage impacts and leakage buffer

Subtract any likely project-related unmitigated negative offsite climate impacts from the climate benefits being claimed by the project and demonstrate that this has been included in the evaluation of net climate impact of the project (as calculated in CL1.4)

The unmitigated negative offsite climate impacts are found in Table 41, these negative offsite impacts were then added into the total leakage figures found in Table 42. In the calculations shown in CL1.4, (Table 33), the total leakage figures from Table 42 were deducted from the final evaluation of climate impact.

CL2.4 Leakage and non-CO₂ gases

Non-CO₂ gases must be included if they are likely to account for more than a 5% increase or decrease (in terms of CO₂-equivalent) of the net change calculations (above) of the project's overall off-site GHG emissions reductions or removals over each monitoring period

Fertilizers will not be used as a leakage mitigation activity. Therefore, no non-CO₂ gases are expected to take place as a result of project activities in the off-site area. Potential emissions resulting from biomass burning in the leakage belt as a result of displacement area are accounted for according to EM-BB in VM0007 and are presented in Table 34.

CL3. Climate impact monitoring

CL3.1. Initial climate monitoring plan

Develop an initial plan for selecting carbon pools and non-CO₂ GHGs to be monitored, and determine the frequency of monitoring. Potential pools include aboveground biomass, litter, dead wood, belowground biomass, wood products, soil carbon and peat. Pools to monitor must include any pools expected to decrease as a result of project activities, including those in the region outside the project boundaries resulting from all types of leakage identified in CL2. A plan must be in place to continue leakage monitoring for at least five years after all activity displacement or other leakage causing activity has taken place. Individual GHG sources may be considered 'insignificant' and do not have to be accounted for if together such omitted decreases in carbon pools and increases in GHG emissions amount to less than 5% of the total CO₂-equivalent benefits generated by the project. Non-CO₂ gases must be included if they are likely to account for more than 5% (in terms of CO₂-equivalent) of the project's overall GHG impact over each monitoring period. Direct field measurements using scientifically robust sampling must be used to measure more significant elements of the project's carbon stocks. Other data must be suitable to the project site and specific forest type.

Description of the monitoring plan

Revision of the baseline

The Baseline will be reassessed every ten years (when the project baseline must be revisited) or every five years where conditions trigger²⁹ more frequent baseline renewal based on the methods written in the Methodology Module VMD0007:

²⁹ This trigger will be based on changes in conditions on the ground that are considered potentially significant to forest carbon stocks. Such as major changes in policy that relate to

- Calculate the area of each land cover category (i.e. forest and non-forest) within the project area and, where required, the leakage belt.
- Update the Forest Cover Benchmark Maps for the reference region, project area and leakage belt.
- Estimate the total area deforested during the historical reference period in the reference region for rate - *RRD (ARRD,unplanned,hrp)*.

Monitoring project activities

The project activities that are described in G3.2 will make up the management plan for the project. The Management Plan will be reviewed and where appropriate revised every 5 years. The implementation of the activities occurs through the development of Annual Operating plans. Each activity is devolved to the relevant sub-department and the superintendents of each sub-department are responsible for developing, implementing and monitoring the work plans for members of staff to carry out the activities. The work is supported by the technical advisors for each sub-department. For example, the activities of the Park rangers, (which deliver the objectives of Gola 1 in table 4 section 1.8), are overseen by the Superintendent of Park Operations and supported by the technical advisor for Park Operations. The Park operations team uses the software MIST (Management Information system), which is a database management system designed for conservation management needs, to collate information gathered by Park rangers on which areas of the project area they visited, which dates and what threats were encountered etc. This ensures effective and efficient monitoring of Park Operations and activities. The Community Development team is responsible for implementing all of the activities described in goal 2 of G3.2 that involve local stakeholders. A Community Monitoring Plan has been developed to monitor all the chosen indicators of this component of the project (Henman 2013) and surveys and standard operating procedures that will be used to gather information throughout the lifetime of the project are currently being developed. The third area of activities (goal 3 of G3.2), surrounds the research work that will be carried out for measuring and enhancing biodiversity in and around the project area. A monitoring plan has been developed (Hillers and Tatum-Hume 2013) and the methodologies and protocols to collect the required data are under development and will be available to the auditor for review.

Organizational structure, responsibilities, and competencies

Data generation, storage, and reporting

Generation, recording, storing, aggregating, collating and reporting of data will be conducted by the team responsible for each aspect of the monitoring activities as described above. All data that is gathered is stored into the relevant files on a central database in the project office in Kenema. The database is backed up every week on to external hard drives. The database is shared and stored in the UK offices of the RSPB (who provides technical support to the management team) as a backup. It is the Superintendents and the Technical Advisors of each sub-department who are responsible for ensuring that their teams data is

the project area, major natural disturbance, a new influx of immigrants due to unforeseen events like refugees.

correctly entered and stored in the data base and that reports are produced at the required time intervals. Field data and survey responses are also stored as paper versions in the Kenema office and where appropriate are electronically scanned and stored on the central database.

Figure 16. Data generation, storage and reporting

Data Generation	Storage	Archiving and reporting
Park Ops Forest Rangers & Technical advisor	Field data - Surveys and GPS - MIST database at project office	Monthly progress reports to mgment, bi-annual synthesis reports
Social monitoring CD team & technical annual Advisor	Field data - Activity and longitudinal surveys, activity data - Excel databases at project office	Monthly progress reports to mgment, bi- annual synthesis reports
Biodiversity monitoring Research team & technical Advisor	Field data - Surveys - Excel databases at project office	Monthly progress reports to mgment, bi-annual synthesis reports
GIS information RSPB and field support From research team & Data management staff	- Geo-databases Analysis of imagery etc - Arc view, MODIS etc databases held by RSPB and shared with office	Annual reports



END USES AND USERS OF INFORMATION

Information will be compiled into different formats for reporting to;

- GRCLG Directors and Members
- Local stakeholders (dissemination to local communities, regional and local Government, NGO forums, research groups)
- For verification reports
- For forestry division/MAFFS/NPAA
- Publication

Monitoring greenhouse gas emissions and removals

In order to calculate the net greenhouse gas emissions in the project case in the project area and the leakage belt a 3 step procedure will be applied (as per M-MON).

STEP 1. Selection and analyses of sources of land-use and land-cover (LU/LC) change data

Medium resolution remotely sensed spatial data shall be used (30m x 30m resolution or less, such as Landsat, Resourcesat-1 or Spot sensor data). In general, the same source of remotely sensed data and data analysis techniques must be used within the period for which the baseline is fixed. If remotely sensed data have become available from new and higher resolution sources (e.g. from a different sensor system) during this period then it is possible to change the source of the remotely sensed data. Equally if the same source is no longer available (e.g. due to satellites or sensors going out of service) an alternate source may be used. A change in source data may only occur if the images based on interpretation of the new data overlap the images based on interpretation of the old data by at least 1 year and they cross calibrate to acceptable levels based on commonly used methods in the remote sensing community.

Monitoring of the Project Area and Leakage Belt will be conducted using the same methods and sensors as was used in the development of the baseline to create land cover maps with forest non-forest classification $\geq 90\%$ accuracy (See BL-UP Part 2 and Mitchard 2012). This includes Landsat (or most similar dataset to Landsat) and ALOS PALSAR if available at the time of verification. It will be carried out by the RSPBs conservation data management team by a GIS analyst. If for any reason the sensors that were used for the baseline are not available the most similar sensor type will be used to replace it. This is unlikely to be the cases as Landsat 8 was launched in 2013 (3 months from the writing of the Project Document). The ALOS PALSAR (radar data) may not be available. In this case the project proponent may select another commercially available radar sensor, or if no suitable radar is available only use Landsat imagery

For the calculation of each category of land use change:

- The area of each category within the project area will be calculated in the project area and leakage belt
- The forest cover maps of reference for the project area and leakage belt will be updated.
- The remaining forest area within the project zone will be updated.

Following M-MON the data will be collected for the entire reference region and will be no more or less than 1 year from the data of baseline renewal. The entire Project Area and Leakage Belt will be available for the year that monitoring and verification occurs.

Processing LU/LC Change Data

All remote sensed data will be prepared for analysis using geometric correction and geo-referencing and cloud and shadow detection and removal that are scientifically approved methods (i.e. following guidance from GOLFC-GOLD). Processing should follow the same methods used in the development of the baseline (Mitchard 2012)

Post-processing and accuracy assessment

Post processing will follow M-MON guidance and strict scientifically approved methods. This will include mapping areas of change and calculating the area of each category in both the Project Area and Leakage Belt following the same or similar methods used to establish the baseline (See Mitchard 2012). This will enable the updating of the forest cover benchmark maps and updating the remaining area of forest in the RRL.

To avoid issues of cloud cover obscuring the image, we will use multi-date images for the remote sensing analysis to ensure less than 10% cloud cover as was done in the initial analysis (See Mitchard 2012).

To reduce small isolated areas from being classified as deforested a 5x5 majority rule filter will be applied to the final land cover map (See Mitchard 2012).

A detailed accuracy assessment will be conducted and all efforts will be made to achieve the required 90% accuracy of the overall classification.

Change detection

To assess land cover change a “combined” (i.e. cross-tabulation) should be used to create a single map where each pixel represented a unique combination of class over the entire period. The maps that are combined will be classified into 3 classes forest, non-forest and water. All pixels that are classified as “water” at any of the time points should be reclassified into a single water class to avoid accounting for deforestation as the conversion of forest to water.

Step 2 Interpretation and Analysis

Monitoring deforestation

Monitoring of emission resulting from deforestation that occurs in the Project Area and Leakage Belt will be conducted following common good practice in the remote sensing field, and every effort will be made to follow the same methods as were used in the baseline (See BL-UP Part 4 and Mitchard 2012). Following from Step 1 “Selection and analyses of sources of land-use and land-cover (LU/LC) change data” will produce an estimate of the emissions resulting from any deforestation that occurs within the project area and leakage belt ($\Delta C_P, \text{Def}, i, t$).

The calculation of net carbon stock change as a result of deforestation will follow M-MON and any other referenced VM0007 Modules (e.g. CP-W).

Monitoring degradation

Monitoring Degradation through of trees for illegal timber of fuelwood and charcoal

Emissions due to extraction of trees will be monitored and emissions estimated. Due to the anticipated high deforestation rate in the leakage belt modules BF-DFW and LK-DFW may need to be used in the future once the baseline is reassessed. A Participatory Rural Appraisal (PRA) will be conducted in order to determine whether degradation occurs. In this sense, these steps will be followed:

- A PRA will be conducted every 2 years by the Community Development team. If the results indicate that the project area has no pressure from this type of degradation, then it will be assumed that: $\Delta C_P, \text{Deg}, i, t = 0$.
- If the results of the PRA indicate that there is potential for degradation, then the team will:

- Obtain a “penetration distance” in the PRA (distance that the degradation agents can enter from the nearest access points).
- Identify the most important access points to the vulnerable area.
- From said points, draw the distances and create a Buffer Area with a width equal to length.
- Establish transects to evaluate the buffer zone. The assessed area should not be lesser than 1% of the buffer area.
- If stumps are not found (harvested trees), then it is assumed that $\Delta C_{p,Deg,i,t} = 0$ and the assessment is repeated every 2 years.
- If stumps are found, then a systematic assessment will be carried out. For this, plots are distributed systematically, being the area to assess $\geq 3\%$ of the buffer area.
- Take into account the diameter of the stumps, which will be assumed as their DBH. If they were very large (e.g. due to buttresses), then the species of the stump is identified and standing trees of the same species are located. Afterwards, their DBH and stump diameter are measured and a ratio between DBH/stump diameter is calculated. With this ratio, the DBH from the stump diameter of the cleared individuals that were found is estimated.
- With the DBH data, the carbon stock of the harvested trees is calculated, using the allometric equation that was employed for the estimation of the tree carbon stocks in the baseline (Chavé Equation).
- It will be assumed that all stock will be lost to the atmosphere.
- This assessment must be repeated every 5 years.

Monitoring degradation due to selective logging

Selective logging is not expected to occur in the project area. However, if such activities are initiated, methods delineated in M-MON will be followed.

Monitoring areas undergoing natural disturbance

Disturbance in the project area, such as tectonic activity (earthquake, landslide, volcano), extreme weather (hurricane), pest, drought, or fire will be monitored on an annual basis, using a variety of remote sensing data types and in on the ground knowledge. Tectonic activity and landslides are rare in the Project Area, but it will be monitored on an annual basis through the United States Geologic Society (USGS) and Incorporated Research Institute for Seismology (IRIS) Seismic Monitor³⁰. Any earthquakes will also be monitored through reports on the ground. All the data will be downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring. If an event has occurred that could have affected carbon stocks in the Project Area or Leakage Belt the

³⁰ <http://www.iris.edu/dms/seismon.htm>

project will investigate the extent of the damage through satellite imagery. Landsat satellite imagery will be downloaded and every effort to accurately delineate and forest loss will be implemented. If Landsat is not available or sufficient, other remote sensing data will be investigated. Any event will also be investigated on the ground by field crews. Field crews will assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes will follow M-MON.

Landslides are not a major natural risk in the project area³¹. However, monitoring of these events will be done annually through visual interpretation of Landsat imagery and information obtained on the ground from field crews during the frequent patrols of the project area. All the data will be downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring.

Extreme weather and drought, will also be monitored on an annual basis through National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center, International Best Track Archive for Climate Stewardship (IBTrACS)³². Any extreme weather events and drought will also be monitored through reports on the ground. All the data will be downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring. If an event has occurred that could have effected carbon stocks in the Project Area or Leakage Belt the project will investigate the extent of the damage through satellite imagery. Landsat satellite imagery will be downloaded and every effort to accurately delineate and forest loss will be implemented. If Landsat is not available or sufficient, other remote sensing data will be investigated. Any event will also be investigated on the ground by field crews. Field crews will assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes will follow M-MON.

Pests, are unknown to cause major forest die-back in the Project Area, however every effort will be made to monitor it. There are no current monitoring methods in Sierra Leone for pests. The GRNP project staff will make every effort to monitor this on the ground. If an event has occurred that could have effected carbon stocks in the Project Area or Leakage Belt the project will investigate the extent of the damage through satellite imagery. Landsat satellite imagery will be downloaded and every effort to accurately delineate and forest loss will be implemented. If Landsat is not available or sufficient, other remote sensing data will be investigated. Any event will also be investigated on the ground by field crews. Field crews will assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes will follow M-MON.

Fire will be monitored on an annual basis through assessments of MODIS Active Fire and Burned Area Product³³. Because the MODIS data can be very sensitive to even small controlled burns from slash and burn agriculture this data will be cross referenced with visual inspection of burned areas in Landsat imagery for every year. Fire will also be monitored

³¹ Columbia University Center for International Earth Science Information Network (CIESIN). <http://sedac.ciesin.columbia.edu/theme/hazards/data/sets/browse>

³² <http://www.ncdc.noaa.gov/oa/ibtracs/index.php?name=ibtracs-data>

through reports on the ground. All the data will be downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring. If an event has occurred that could have affected carbon stocks in the Project Area or Leakage Belt the project will investigate the extent of the damage through satellite imagery. Landsat satellite imagery will be used to accurately delineate the area of forest loss. If Landsat is not available or sufficient, other remote sensing data will be investigated. Any event will also be investigated on the ground by field crews. Field crews will assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes will follow M-MON.

Monitoring areas undergoing carbon stock enhancement

The Gola REDD Project intends to monitor forest carbon stock enhancement in the stratum Gola South.

It is not anticipated that any of Gola South will be subject to degradation. However PRA will be conducted to ensure this is not occurring (See Monitoring Degradation).

Carbon stock enhancements will be measured based on permanent plots established in 2006 and revisited in 2012 (Tatum-Hume et al 2013b). Enhancements will be monitored following M-MON. All the plots will be re-measured following Standard Operating Procedures for Carbon Stock Enhancement (See appendices folder).

Monitoring project emissions

Emissions from non-CO₂ due to biomass burning is conservatively expected to occur in all areas of deforestation during the project's life. These non-CO₂ emissions have also been accounted for in the baseline.

Emissions from N₂O as a result of nitrogen application is not expected to occur in the project case as fertilizers will not be used as part of the agricultural project activities (increases in production focus on cultivation and post-production techniques). No monitoring will therefore be required. If any N₂O is applied in the project case these will be accounted and monitored.

Emission from fossil fuel combustion is not accounted for in the baseline and therefore is not required to be accounted for in the project case. Also emission from fossil fuel combustion, a result of using project vehicles for project activities, is not significant as it results in less than 5% of net anthropogenic removals by sinks, whichever is lower.

Step 3 - Documentation

A consistent time-series analysis of land-use change and the associated emission will be monitored following M-MON steps 1-2. The procedures for steps 1-2 will be documented including:

- a. Data sources and pre-processing: Type, resolution, source and acquisition date of the remotely sensed data (and other data) used; geometric, radiometric and other corrections performed, if any; spectral bands and indexes used (such as NDVI); projection and parameters used to geo-reference the images; error estimate of the geometric correction; software and software version used to perform tasks; etc.
- b. Data classification: Definition of the classes and categories; classification approach and classification algorithms; coordinates and description of the ground-truth data collected for training purposes; ancillary data used in the classification, if any; software and software version used to perform the classification; additional spatial data and analysis used for post-classification analysis, including class subdivisions using non-spectral criteria, if any; etc.
- c. Classification accuracy assessment: Accuracy assessment technique used; coordinates and description of the ground-truth data collected for classification accuracy assessment; and final classification accuracy assessment.
- d. Changes in Data sources and pre-processing / Data classification: If in subsequent periods changes will be made to the original data or use of data:
 - Each change and its justification must be explained and recorded; and
 - When data from new satellites are used documentation must follow a) to c) above

Monitoring leakage

As per step 4 of Module LK-ASU “Estimation of unplanned deforestation displaced from the project area to outside the Leakage Belt” the area deforested in the leakage belt will be monitored in each monitoring period ($A_{DefLB,i,t}$). The same methods for monitoring deforestation in the project area will be used for the leakage belt.

The leakage belt will be monitored each time the project area is monitored ($A_{DefPA,i,t}$), which will be at least every 5 years or if verification occurs on a frequency of less than every 5 years examination must occur prior to any verification event.

The data and parameters measured in for the leakage belt at each monitoring period include:

MANFOR: Total area of forests under active management nationally

PROPRES: Estimated proportion of baseline deforestation caused by population that has been resident for ≥ 5 years

PROTFOR: Total area of fully protected forests nationally

TOTFOR: Total available national forest area

CL3.2. Development of a comprehensive monitoring plan

Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this

plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

A full monitoring plan has been developed (see CL3.1). The results of monitoring and verification will be made publically available on the project website and disseminated to communities and stakeholders through radio shows, meetings and notice boards, amongst other methods.

Community Section

CM1. Net Positive community impacts

CM1.1. Estimate of impact of project activities on communities

Use appropriate methodologies to estimate the impacts on communities, including all constituent socio-economic or cultural groups such as indigenous peoples (defined in G1), resulting from planned project activities. A credible estimate of impacts must include changes in community well-being due to project activities and an evaluation of the impacts by the affected groups. This estimate must be based on clearly defined and defensible assumptions about how project activities will alter social and economic well-being, including potential impacts of changes in natural resources and ecosystem services identified as important by the communities (including water and soil resources), over the duration of the project. The 'with project' scenario must then be compared with the 'without project' scenario of social and economic well-being in the absence of the project (completed in G2). The difference (i.e., the community benefit) must be positive for all community groups.

The project used the methodologies outlined in the Social and Biodiversity Impact Assessment (SBIA) manual for REDD+ projects (Richards and Panfil 2011) to estimate project impacts through the theory of change approach (Tatum-Hume and Witkowski 2013).

A net positive impact is expected for all community groups over the lifetime of the project based on the beneficial impact that the implementation of project activities will have on local livelihoods and the resources on which those livelihood activities are based, compared to the without project scenario (G2.4).

The community groups identified by the stakeholder analysis in section G3.8 that will be impacted by project activities are; Paramount Chiefs, Landowning families and forest edge communities and are discussed below. Offsite Communities are discussed in CM2.1.

Paramount Chiefs

Had the project area remained a production Forest Reserve, Paramount Chiefs would have been entitled to receive benefits from any commercial logging activities taking place in the reserves (Witkowski et al 2012c, Forestry Act 1988). Although in practice, the Paramount Chiefs report that this did not occur, the entitlement existed and therefore the project has impacted this potential without project benefit. By making direct payments to Paramount Chiefs via the Benefit Sharing Agreement³⁴ (currently set at \$1000 per year for each of the 7 Paramount Chiefs), the project aims to ensure that Paramount Chiefs will not be negatively impacted by conservation management actions and thus receive a net positive financial benefit from the project.

Amongst other responsibilities, Paramount Chiefs serve as agents of development and are the custodians of land in their Chiefdoms (Gola project context report Witkowski et al 2012c). The Chiefdoms of the Gola area were a rebel stronghold during the period of civil conflict;

³⁴ This amount is currently set at \$1000 per year for each of the 7 Paramount Chiefs. The amounts outlined in the Benefit Sharing Agreement are not fixed and may fluctuate in line with the revenues generated from the sale of credits and with re-negotiation of the agreement

infrastructure, housing and livelihoods were devastated by the impacts of the war and these areas have received very little support from the Government or from development agencies to help communities recover (ibid). Through the financial³⁵ and in-kind benefits provided to the communities of the Chiefdoms outlined in this section and in CM2 the project will provide long term support to these impoverished and neglected Chiefdoms, supporting the Paramount Chief and District Councils in their development objectives.

Landowning families

The Chiefdoms surrounding the GRNP are recognized as the owners of the land within the project area, however no register of landowning families was made at the time the reserves were created (a process which began in the 1920's). A report written in 1908 about the Gola Forests, describes the forests to be largely intact with a closed canopy and the presence of three villages in the area (Unwin 1909; 24); it is therefore not known if any families were actually moved off their land at the time the reserves were created. In the provinces of Sierra Leone no formal written title exists for landowners. Rather, as described in the Gola context report (Witkowski et al 2012c), a customary system of land tenure exists in which the Paramount Chief is the ultimate custodian of the land, but family lineages hold certain areas that their ancestors first farmed and members of the family continue to hold these areas today.

The Forestry Act stipulates that like the Paramount Chiefs, land owning families are also under law entitled to receive payments from the profits of commercial logging activities (Gola Project Context report Witkowski et al 2012c, Forestry Act 1988). In reality, whilst the project area was managed as a production Forest Reserve, no payments were ever made despite commercial activities having occurred for over 30 years. When the partners negotiated with the local communities to manage the Gola Forests in 2001-2003 for conservation objectives, part of the agreement was to make payments to the heirs of the original landowners in recognition of their rights. The first landowner register was completed in 2008 by the Forestry Division of the Government of Sierra Leone to enable landowners to receive payments via a Benefit Sharing Agreement developed by the Gola Forest Programme. These payments will continue under the Gola REDD project and are made in lieu of potential royalties and for complying with the terms of the landowners agreement³⁶. The register currently contains the names of 1141 landowner families, each family is represented by a principle family head (there are 234 principal family heads) who are the heirs of the areas their ancestors purportedly owned land in Gola before it was made into a Forest Reserve³⁷.

³⁵ This amount is currently set at \$9,500 per year for each of the 7 Chiefdoms. The amounts outlined in the Benefit Sharing Agreement are not fixed and may fluctuate in line with the revenues generated from the sale of credits and re-negotiation of the agreement

³⁶ This amount is currently set at \$28,000 to be equally divided between the heirs of the original landowners identified in the landowner register. The amounts outlined in the Benefit Sharing Agreement are not fixed and may fluctuate in line with the revenues generated from the sale of credits and re-negotiation of the agreement

³⁷ It should be noted that it is thought many more families are in the register than ever owned land in Gola, particularly in one of the Chiefdoms, but the register has been publically created

27% of the principal family heads of the landowning families currently live in forest edge communities and a similar or slightly higher percentage of families are likely to live in forest edge communities; they will therefore also be party to the project activities in the Forest Edge Communities described below.

As landowning families were not moved from the project area, have never received any form of benefit from the Gola forest from commercial logging and many (nearly $\frac{3}{4}$ of principal family heads) live far from the project area and are therefore not likely to have been accessing it for livelihood benefits the project will provide a net positive benefit to this stakeholder group. Landowning families that live close to the Park and may have been accessing the Park for livelihood activities will also be part of the forest edge community livelihood program described below and are the project will therefore not negatively impact these families.

Forest edge communities

Negative impacts of the with project scenario

The primary impact of the project on forest edge communities will be the continued enforcement of conservation measures to prevent illegal activities in the National Park which have largely been in place since 2004; this will prevent forest edge communities from accessing the project area to farm, hunt, log or mine as they have reported doing in the past.

As discussed in G1.8.5, the project area, (the only part of the project zone from which all illegal activities are now prevented), was not fundamental³⁸ for meeting local community's basic needs but it was non-the-less important as an additional source of resources for livelihood activities.

As is the pattern in the leakage belt, the most important activity occurring in the project area for forest edge communities prior to the implementation of conservation measures in 2004 was farming (Witkowski et al 2012b). Farming was carried out in both upland areas and inland valley swamps and served primarily to supplement food grown in farms near the villages and provide an early harvest before the main harvest was due. When questioned, communities could not say whether farming activities in the project area were carried out by a specific subset of villagers e.g. those with poor access to land within the village, instead they claimed that farming was undertaken by which ever households wanted to or had the resources to do so in a particular year. Hunting, fishing, and gathering were widely reported to have been carried out by some members of all forest edge communities; hunting was carried out by men, fishing was primarily carried out by women and gathering by both men and women. There activities occurred as a supplement to activities in farmbush areas in the leakage belt and occurred in an ad hoc manner. Only a few forest edge communities reported to have been involved in illegal logging and mining activities which were either carried out directly by

and verified by the Section and Paramount Chiefs and so is as accurate as can possibly be made, given the one hundred plus years that have passed since some of the parts of the reserve were created

³⁸ Fundamental is defined as an area which is forming or serving as an essential component of local communities basic needs.

villagers or by outsiders who provided rent to communities in exchange for access to the reserve (Richards 2012).

As farming forms the main livelihood of 90% of forest edge community members (Bulte et al. 2013), a second impact on forest edge communities will be the damage to crops caused by wildlife from the project area. Communities report that wildlife conflict existed in the past but has increased since the war. Although the protection of the project area is widely cited as the cause of the problem, it is far more likely that the ban on fire arms which was put in place in 2002 after the civil war has prevented farmers from scaring (or killing) larger animals away from their crops has had a more significant impact on communities³⁹. Communities also acknowledge that human-wildlife conflict was a problem that pre-dated conservation activities, again demonstrating that conservation management is unlikely to be the primary cause of human-wildlife conflict. Communities report that larger species cause damage to crops; Chimpanzees cause problems in cocoa plantations but as a threatened species they are illegal to hunt with or without the Gola REDD project.

A third potential impact is that of increased land conflict within and between villages in the leakage belt and offsite communities as access to farming areas becomes restricted due to increasing populations and land pressures. Currently communities report that land conflicts are not common in the area (Bulte et al. 2013, Witkowski et al 2012a,b, Offsite report, Zombo et al 2012) but this will be monitored throughout the project and the land use planning work described below will assist communities in planning for their future needs and result in clearer land tenure.

Positive Impacts of the with project scenario

The first goal of the project (see G3.1) is to strengthen the protection strategy and effective management of the GRNP. In the absence of the project this would not occur and resources would become depleted through activities that cause deforestation and degradation (see G2.4 and G2.5). The activities carried out under this project objective will ensure that the ecosystem services described in G1.8.4 are preserved and the forest which acts as a natural resource base to underpin many of the livelihood options of the communities is available for future generations, providing a positive benefit to forest edge communities and communities of the greater Gola area.

The second goal of the project (see G3.1) is to create an enabling environment for neighbouring communities to act as committed environmental stewards of the natural resource base through activities that enhance, generate value from and materialize the benefits derived from the project zone's forests and sustainable land use practices'. To accomplish this, the Gola REDD project will implement various activities focused on achieving five objectives described below⁴⁰. The sustainable livelihood improvement projects were developed in consultation with forest edge communities and are expected to help address the major focal

³⁹ The fire arms ban was lifted in 2012 and people are now able to own and use a firearm if they have a licence to do so.

⁴⁰ Please note that there are 6 objectives to the second goal of the project but the sixth objective is centred around the implementation and monitoring of the benefit sharing agreement and so is not described in this section of the PD.

issues as determined by the communities themselves (Tatum-Hume and Witkowski 2013). As the vast majority of villagers living in forest edge communities are subsistence farmers, the key to development has been identified both by the SIA work and by other studies (e.g. WFP report 2008) as improving agriculture production, processing and market access. The overall impact of the Gola REDD project expected to benefit communities is the reduction of poverty and the safeguarding of natural resources in the project zone enabling natural capital to continue to contribute to the livelihoods of nearby villages. The associated theory of change, describing how this impact will be achieved is: *If we build capacity to maintain, improve and capitalize on natural resources and agricultural activities then food security and income will increase resulting in a reduction in poverty and an enabling environment for communities to become environmental stewards and actively participate in sustainable land use planning and resource management* (see Tatum-Hume and Witkowski 2013 for more detail on how the project applied the theory of change).

Objectives of the livelihood program;

1. Establish sustainable farming practices in forest edge communities that improve productivity on existing crop fallow land

The aim of this objective is to increase the productivity of farms in the forest edge communities in the leakage belt of the project zone through training in improved farm practices and the provision of inputs to encourage more sustainable farming techniques and in the long term, reduce the hunger gap frequently reported by villages. Supporting farmers to intensify farming activities in their farm bush areas will reduce pressure to clear new areas of forest within the leakage belt and in the National Park and therefore will reduce leakage. This activity will bring both social and biological benefits and therefore fits with the multiple objectives of the Gola REDD project (see Tatum-Hume and Witkowski 2013 for activity results chain). Although the main crop produced on farms is rice as this is the staple food crop of villages, a variety of vegetables for consumption and/or sale are also grown.

Farmer field schools and demonstration fields will offer villages improved practices for growing and increasing yields of a variety of crops including upland/lowland rice, vegetables (such as sweet and hot pepper, okra, eggplant and bitter ball), groundnuts and cassava. The activity is principally implemented over a 2 year period. After the initial 2 years, the villages will continue to be monitored and reviewed every 2 years to assess whether follow-up training or inputs are required. Whether such additional and tailored training and/or inputs are required will depend on the outcome of the monitoring.

During the first year the activity is focused around Farmer Field Schools and is divided into dry and wet season Farmer Field Schools. From December to May the Farmer Field Schools will focus on vegetable growing as this is the season it takes place. From June to November the Farmer Field Schools will focus on upland/lowland rice, cassava and groundnut growing as this is the season these crops are grown (one wet season crop is chosen by each forest edge community Farmer Field Schools). So over a one year cycle farmers will be taught how to improve yields on at least one dry season and one wet season crop.

In the second year Master Farmers are selected from the participants of the first year Farmer Field Schools to receive further training and be focal points of their village to spread the

knowledge acquired and enable the improved techniques to continue without the resources of the project.

Welthungerhilfe (WHH) will be implementing this activity with project staff during the first year of the activity. During this time staff will be trained by WHH with a view to continuing the implementation of the activity after the 1 year of training. GRNP staff capacities to implement the project will be assessed at the end of year one and a decision made as to how the activity continues to be implemented.

WHH was identified as a project partner as it has been implementing the Food Security and Economic Development (FoSED) project since 2009 in the Bo, Kenema and Pujehun Districts through an EU-funded project and with Sierra Leonean partners. The Food Security and Economic Development project works in 55 village communities, 20 of which are leakage belt communities but the EU funding for the project ends in August 2014. A major part of Food Security and Economic Development project involves the development of sustainable farming systems and a variety of methods have been tried and tested by WHH since 2009. From the lessons learned WHH is further developing farmer field schools as these are proving more successful than other methods. As such WHH is in a good position to assist the Gola REDD project with the best methods for developing Farmer Field Schools with increased crop production in the villages. Four project field officers will be trained by one WHH field officer for undertaking Farmer Field Schools trainings and providing the on-going support that farmers, particularly Master Farmers require, through learning by doing (see Tatum-Hume and Witkowski 2013 for further detail and implementation plan).

2. To improve productivity and farmer income from cocoa production and other diversified sustainable income generating activities

During the 10 year period of civil conflict in Sierra Leone, many people left their villages in the Gola area, migrating to temporary refugee camps, towns and cities or even to neighbouring countries. As cocoa is typically shade-grown, and planted in mixed poly-cultures which retain native trees, if a plantation is not managed the natural advantage cocoa has of being grown within a forest canopy (e.g. resistance to drought and improved pollination) is traded as productivity declines with too much shade as less pods are produced and more losses occur through pests and disease. As a result of farmers moving out of their villages during the civil conflict, plantations became overgrown and are unproductive and farmers have struggled to carry out any rehabilitation since their return to their villages after the conflict ended. Farmers are very interested in the rehabilitating and improving the management of their cocoa plantations, but do not have adequate know-how to replace trees that are too old or diseased or improve productivity (Witkowski et al 2012b).

Despite cocoa having been an important source of income for farmers in the pre-war period, production and quality throughout Sierra Leone is currently very low. As a result the exported product is currently realizing a low price on the world market which means that farmers are also receiving a low price. Redevelopment of the cocoa sector represents an opportunity for the country which the government has recognised and recently prioritised with the development of a National Sustainable Agricultural Development Plan which includes a Smallholder Commercialization Program (NSADP 2009). The Government of Sierra Leone has identified the cocoa sector as one of the pillars for growth and is aiming to bring Sierra Leonean cocoa back to the global market. The Sierra Leone Investment and Export Promotion

Agency (SLIEPA) was created in 2007, with the goal of facilitating investment. The Government has a target of producing 25,000 tonnes by 2015. The Government is keen to develop the cocoa processing sector to add further value into the supply chain since cocoa from Sierra Leone is currently shipped as beans for processing elsewhere. The Government has given tree crops a “tax holiday for 10 years” (up to 2020).

This project activity therefore not only fits in with the ambitions of cocoa farmers in the leakage belt but also with National agricultural strategies.

The aim is to build on the national momentum for cocoa by re-habilitating shade-grown cocoa plantations to provide farmers with an increase in productivity and therefore an increased, diversified source of income which will help reduce poverty in the villages of the leakage belt. Maintaining shade grown plantations may also help enhance habitat connectivity within the matrix of agriculture and forest landscape that exists between the blocks of the GRNP (the project area) in the leakage belt. Promoting land-use practices that are favourable to both wildlife and people and which maintain carbon stocks will be beneficial to the multiple objectives of the Gola project.

In the medium term, the objective of the activity is for leakage belt farmers who wish to achieve certified cocoa standards such as Fairtrade and the Rainforest Alliance can do so as these standards have a consumer-facing brand and strong marketing teams in Europe which can help strengthen the price achieved for the villages cocoa.

The activity follows a farmer field school approach with a one year dedicated to the training of Master Farmers. Immediately after receiving each training the Master Farmers will go back to their villages and train the rest of the farmer group in the techniques they have learnt at the Farmer Field School. In year 2, the progress of the farmers will be monitored by a field officer and refresher and dedicated trainings tailored to the needs of the Farmer Field school groups will be provided by the field officer. During years 3 to 6 the farmers progress will continue to be monitored and refresher training provided as required. Farmers that wish to achieve certification for their farms will be supported during this period to do so – the details of this are currently being developed (see Tatum-Hume and Witkowski 2013 for further details on the activity and implementation plan)

3. To enable forest edge communities to achieve financial independence

Forest edge communities frequently identified during PRA exercises that access to cash to develop alternative livelihood activities or support agricultural development was a constraint to development. Households in forest edge communities have scarce financial resources and no means to secure small loans or access to any secure method of saving money. If money is lent to farmers by for example traders who buy the farmers products it is often with high rates of interest usually in the form of a large proportion of the product being produced. During PRA exercises women in particular expressed a need to access micro-credit as they would use it to engage in the petty trade of items that are not available in forest edge communities e.g. salt, seasoning, batteries, clothing etc as well to fund agricultural activities including for example paying for farm labour or for the marketing of produce. Loans can also be useful to enable households to meet their immediate needs without having to sell their crop when it is still in the field or to middlemen, meaning they can sell their product by weight once it has been harvested and processed, thus achieving a higher price. Villagers reported that any

additional income made from these activities would be invested into a number of areas depending on the need of the household from education and improved housing to food and health issues. Supporting forest edge communities in the creation and training of sustainable savings and lending groups will therefore provide community members, and in particular women (as this group expressed a greater interest in micro-finance), with the means to access credit and generate their own sources of diversified income.

Investigations into possible mechanisms to support communities to develop internal, self sustaining systems for savings and lending led to the SILC programme run by Catholic Relief Services in Sierra Leone and other parts of Africa. The aim of the 'Savings and Internal Lending Communities' (SILC) scheme is to empower farmers, and often, female headed households to increase their financial assets as well as providing them with the knowledge and skills to better manage their own scarce financial resources. In addition to providing a safe place to save and lend to group members, the SILC methodology also builds cohesive groups that work together to solve individual, group and community problems. Group management skills such as organizing meetings, keeping basic financial records and initiating basic business planning are also strengthened. There is also a special fund, known as the 'social fund' which every member contributes a fixed amount to, to help at special times like illness, death, marriage, etc. SILC groups form an important basis for what is known as 'Integral Human Development' (IHD) as it builds up individual and community financial assets through savings and internal lending; human assets by facilitating skill development in numeracy, bookkeeping and following policies and procedures; social assets through electing a committee and drafting a constitution; solidarity through supporting the poorest members of the community and building group cohesion and self-reliance through the SILC meetings; political assets by their ability to speak up as a community; and physical assets by investing their loans into income generating activities (SILC, a basis for Integral Human Development, CRS Publication, November 2006)

The aim is to enable forest edge communities to achieve financial independence through establishing a secure means of saving money and procuring small loans that can be used for petty trading or for investments into agricultural activities. Savings and the social fund will provide members with a financial safety net should any shocks occur. By creating internal savings and lending groups villagers will either be able to generate alternative incomes or invest in their farming activities. The additional income generated from new or expanded income generating activities will in the long term help reduce poverty.

The activity is implemented over a 2 year period, with the SILC groups receiving training and support throughout the 2 years. In the last 6 months of the 2 years, a 'Private Service Provider' is chosen from each group by its members to act as the future supervisor of their group. This person is also trained to support the setting up of new groups within their village (or elsewhere).

4. To improve the well-being and resource governance capacity of forest edge communities whilst maintaining a biodiverse forest

Forest Edge Communities have traditionally accessed areas of the GRNP to extract NTFPs including medicinal plants and to fish; such activities have supplemented the main livelihood activities carried out around their villages. Areas important to secret societies and linked to old burial sites are also thought to exist within the GRNP, although such information is not

accessible to outsiders. Forest edge communities are still permitted to enter the GRNP and extract NTFPs but the PRA exercises carried out during Gola REDD project development revealed that many villagers do not understand their rights and believe that the forest rangers will prevent their access to the Park. Weak governance in other Forest Reserves in Sierra Leone has led to encroachment into the reserves of agricultural activities. This would also occur in the baseline scenario for the project area. Forest edge communities have stated that they will act as guardians of the forest if they are involved in its management (Witkowski et al 2012b) developing co-management agreements will therefore result in better governance of the National Park through the long term support of the forest edge communities in enforcing regulations.

This activity will consult with the forest edge communities to negotiate the development management plans for community use zones in the National Park. The management plans will enable the community use zones to be sustainable, well-managed areas generating products of commercial value which can be used to increase the income generating activities of the forest edge communities. They will also secure the support of the forest edge communities in protecting the National Park from illegal activities. The long term objective is to improve the well-being of people now and in the future while supporting a diverse population of animals and plants.

Outside of the National Park in the forest edge communities, the activity will develop land use mapping and planning within each forest edge community to enable communities to plan the sustainable use of their resources for current and future generations. Communities will be encouraged to develop by-laws around the use of forest resources, where these do not currently exist. The objective of this activity is to reduce unplanned deforestation in the leakage belt.

The project will work with forest edge communities to map areas that were used in the past for resources and cultural activities within the GRNP. The work will be led by the community development under the guidance of a co-management supervisor. The maps will be used to establish community use zones within the National Park that will be jointly managed and monitored by the communities. The participatory mapping will begin with a rough map drawn in the dirt or on paper with village members outlining where resources are in relation to recognizable geographical features, these areas are then walked and plotted with a GPS to make them identifiable in the GIS map for the community to see. Rules will be developed and jointly agreed between forest edge communities and local authorities about who can do what when, how and utilize how much of a resource in the zones to ensure sustainable use of the resources. The agreements will also outline the roles and responsibilities of all the parties including monitoring resource collection. The agreements will strengthen local resource rights and empower local communities to manage forested areas for improved conservation outcomes.

Forest edge community land-use maps will also be developed for their land outside the park for planning purposes, in the same way as the maps of the community use zones are established. What can be done on this land is different to that inside the Park so different rules may be applied by the community (logging for example is allowed outside the Park if a license is obtained which may form part of a land use plan). The involvement of the local authorities may also be different due to the different rules applying to land-use outside the Park. Different by-laws may also apply between forest edge communities. How planning is undertaken

following the (participatory) land-use mapping will need to be assessed on a case by case basis but a current land-use map in itself will be an extremely useful tool to see what is being done where and what potential future changes may be needed to ensure the land is sustainably used.

The direct benefits for the forest edge communities include: the sustainable utilisation of NTFPs and fish inside park ensuring resources for future generations; the creation of clear unambiguous rules about who can do what where, when, how and utilise how much (this will also regulate what outsiders can do, if anything); organised and reliable support from the local authorities (particularly the District Forestry Office and police) and GRNP to assist communities with enforcement of rules; and shared decision making and accountability for resource use inside the park increasing a sense of ownership in conservation outcomes. It will also provide clear land-use maps for current uses outside the Park in the leakage belt which can be used for sustainable use planning purposes in this area.

The development of the co-management approach for the Gola REDD project will begin with a pilot with 2 clusters of forest edge communities to test the methodologies and assess the overall approach and villages' willingness and capacity to engage with the process. Once trialed and adapted the activity will be implemented in further forest edge communities (see Tatum-Hume and Witkowski 2013 for further details)

5. To enhance environmental awareness and promote community participation in the management of the GRNP

Increased capacity building and awareness raising efforts will be carried out in the forest edge communities focusing on the importance of a healthy environment, its contributions to human well-being and the value of standing forests and natural resource management. Raising awareness on a range of environmental issues from climate change, to endangered species and co-management to sustainable land use planning is part of the process to empower forest edge communities with the knowledge and skills to engage in project activities. Aiding community members to identify and understand the non-financial benefits, ecosystem services, and ways in which the forest and natural resources serve as the foundation for local livelihood strategies will facilitate the development of environmental stewards in this generation and the next.

A number of activities aimed at different audiences will be implemented in order to achieve this objective. Roadshows have proven to be an effective way of engaging forest edge communities, particularly adults, with environmental concepts and these will be continued. In secondary schools nature clubs are promoted by the Government, (The Environmental Protection Agency), to engage pupils with environmental issues and nature clubs will be reactivated and supplied with educational materials and ideas by the project. For youths, a volunteer scheme has been developed and promoted through which youths selected by their communities will under take short turns volunteering with the project. They will be engaged with activities such as boundary brushing, biodiversity monitoring, trail cutting, tour guiding, and patrolling with the forest rangers. They will receive basic training on park management and research, in addition to a small stipend and be encouraged to apply for vacant positions within the project team.

All of the above strategies to achieve net positive impacts for the project's local stakeholder groups have been formalized in a consent based agreement between the project and the 7 Chiefdoms, the 2012 Benefit Sharing Agreement (BSA). The benefit sharing agreement will

be signed by the 7 Paramount Chiefs and has been publicized in open meetings and via radio chat shows and after the sections relevant to specific stakeholder such as landowning families and forest edge communities had been discussed in focal groups and landholder meetings (see section G3.8). The effective and transparent implementation of the benefit sharing agreement is a further objective of the project outlined in G3.1, goal 2, objective 6.

Conclusion

With the project, the project zone will be a well-managed area, able to provide significant benefits for local communities. Net positive benefits will be experienced as the project will ensure the maintenance of critical ecosystem services, including provision of freshwater, prevention of erosion, and maintenance of the micro-climate critical for the region's most important economic crops. Secondly, the project will enhance the existing primary livelihood activity in the area, farming, as well as provide community members with viable livelihood alternatives to the overuse and unsustainable extraction of natural resources. This will aid them in avoiding the illegal activities they sometimes engage in within the park boundaries and decrease logging and mining activities that produce unreliable benefits while degrading the natural resource base. Improved knowledge of sustainable farming practices, inputs and increased access to capital will improve productivity of land already integrated within the crop-fallow system and thus increased income and food security. The land use planning and co-management encouraged by the project, coupled with the support leveraged from other development organizations will also be critical in providing a net positive benefit to communities. Together, these activities will help communities avoid the degradation of natural resources, which is critical as if this occurs, those resources will be unable to support the livelihoods of the communities to the extent that they do today, thus communities will increasingly have to rely on cash to buy their basic needs. In order to obtain the necessary funds, they would have to intensify land use, further degrading the land and resources. With the knowledge and tools provided through the Gola REDD project, communities will be able to avoid this. The communities will become environmental stewards of the natural resource base that underpins their livelihoods through the project's activities that enhance, generate value from and help ensure that increased benefits from the project zone's forests and sustainable land use practices materialize for the communities.

CM1.2. Impact of project activities on High Conservation Values

Demonstrate that no High Conservation Values identified in G1.4.8.4-6 will be negatively affected by the project.

Section G1.8, recognized that areas of HCVs 1 to 4 were located throughout the project zone. Areas falling under HCV 5 that are 'fundamental for meeting the basic needs of local people' were identified as being located primarily in the leakage belt area of the project zone rather than the project area; the project area was used only to supplement livelihood activities occurring in the leakage belt. In order to ensure that HCV 5 is not negatively affected by the project, community management zones will be created in the project area to enable forest edge communities access to NTFPs and fishing areas that have been traditionally accessed in the past. The activities to increase agricultural production in bush fallow areas of the leakage belt (see CM1.1) will enable forest edge communities to increase yields within their community lands instead of using the project area. As the project aims to support communities in conserving and maintaining access to areas of high conservation value throughout the

project zone, as per G3.1, and as the project area will be managed for conservation objectives there will be no negative impacts to any HCVs.

CM2. Offsite stakeholder impacts

CM2.1. Potential negative offsite stakeholders

Identify any potential negative offsite stakeholder impacts that the project activities are likely to cause.

Offsite villages are defined as those beyond the project zone but within the boundaries of the 7 Chiefdoms of the Greater Gola area. There are approximately 372 communities in this area. From offsite community surveys, there are 2 potential negative impacts on offsite villages that may arise from project activities. The first is due to restrictions on access to the project area for illegal activities such as hunting, logging, mining and farming. As revealed by the survey work (Zombo et al 2012) and confirmed by earlier work carried out by independent social scientists (Bulte et al. 2013), offsite communities did occasionally access Gola obtain resources to complement those obtained within their community lands but to far lesser extent than forest edge communities (Davies and Richards 1991). If populations continue to increase over the project's lifetime and increase pressure on land availability, a second potential impact may arise from conflicts over land use with forest edge communities in the project zone (Sierra Leone's population growth rate is reported to be 2.3% [UN statistics 2010] but is often lower in the most rural areas.) The species of wildlife that Forest Edge Communities in the project zone report as damaging their crops include primarily large mammal species such as Chimpanzees and buffalo. Such species are forest dependent species that are restricted to areas with large areas of continuous forest tract – as are found in the project area and some parts of the project zone. It is highly unlikely that such species would stray beyond the project zone which stretches 4 km around the project area and into the offsite area. Wildlife conflict from the project area is therefore not considered a negative impact for offsite communities.

CM2.2. Mitigation of negative offsite stakeholder impacts

Describe how the project plans to mitigate these negative offsite social and economic impacts.

No pattern emerged over which offsite communities were accessing the project area (e.g. communities closer to the project zone or with less community forest) or over whether there was a sub-set of offsite community members using the reserve more than others e.g. women or landless households (Zombo et al 2012). Communities reported that the people using the reserve varied each year. It is therefore not possible to target communities or individuals with mitigation activities for the loss of access to the project area. Instead, the project will provide each of the 7 Chiefdoms with an annual community development fund which is to be used by communities for implementing sustainable development projects; the amount each Chiefdom will receive is currently set at \$9,500, as per the benefit sharing agreement. Potential project ideas will be developed by the offsite communities, selected and evaluated by Gola community development committees (GCDCs) consisting of elected offsite community members and implemented by offsite communities where projects are approved (see GRNP 2013). The impacts of these projects will be monitored by the committees. A formal community development fund scheme was trialed by the Gola Forest Program between 2008 and 2012

and the lessons learnt are being used to develop the new Community Development Fund mechanism for the Gola REDD project.

If land conflicts arise as a result of project activities they are more likely to occur in the areas where land from the forest edge communities meets the land of offsite villages that lie closest to the project zone. The few land conflicts that were reported in the surveys were on the whole as a result of poor knowledge of boundaries and accidental incursions onto another villages' land. In order to mitigate for this potential impact, land use mapping and planning activities will be developed based on natural clusters of villages and include offsite villages bordering with the project zone. By mapping family claims to land, tenure will be clearer and planning future land uses will ensure greater awareness of farming and fallow areas.

In addition to the above activities the project will provide other benefits to offsite communities through project activities that raise awareness of environmental protection such as school nature clubs and the Gola road show, through education scholarships, employment to the project as permanent or casual staff and capacity building exercises.

The project will monitor for both positive and negative impacts in offsite villages through out the projects lifetime; if negative impacts attributable to the project are found then further activities will be planned to mitigate any effects.

CM2.3. Net impacts on other stakeholder groups

Demonstrate that the project is not likely to result in net negative impacts on the well-being of other stakeholder groups.

All stakeholder groups were identified in G3.8 and the impacts of the project on these groups was evaluated in CM2.1 and CM2.2, there are no further groups of stakeholders whose well-being will be affected by the project.

CM3. Community impact monitoring

CM3.1. Preliminary community monitoring plan

Develop an initial plan for selecting community variables to be monitored and the frequency of monitoring and reporting to ensure that monitoring variables are directly linked to the project's community development objectives and to anticipated impacts (positive and negative).

The monitoring plan has been developed following guidance from the CCBA Social and Biodiversity Impact Assessment Manual for REDD+ Projects (Richards & Panfil, 2011), which recommends the *theory of change* approach as an appropriate and cost-effective impact assessment approach for community monitoring of REDD+ projects.

The theory of change approach allows project developers to identify causal chains from project activities, to short-term outputs, from outputs to outcomes, and from outcomes to impacts through applying anticipated cause-and-effect sequences. Such an approach is not only cost-effective and a useful framework for developing a logical project design, but is useful to help projects overcome the challenge of substantiating impacts which will be achieved in the long term. This can be achieved through the monitoring of tangible outcomes to demonstrate that

the casual chain is being followed, which in turn can provide confidence that the impacts will be achieved.

Figure 17. Causal chains underlying the theory of change



The Gola REDD project started in 2012 and is therefore at an early stage of development. The emphasis of the community monitoring plan is therefore on the project level short and medium term output and outcomes of the casual chain. Medium and long-term impact monitoring may be revised for later verifications taking into account changes in project implementation and other factors outside of the project that could be contributing to the impacts identified through the theory of change process.

The Gola REDD Project Monitoring Plan will be a “living” document in the sense that it will be adjusted over time in response to feedback and adaptive management to ensure continual improvement and relevance. If it is found that there are unanticipated issues in collecting identified indicators, a more appropriate indicator will be identified and incorporated in to the monitoring plan. Similarly if new activities are incorporated or unanticipated effects of the project are observed new monitoring protocols will be developed to address them.

The plan has drawn on the ‘Synthesis Report on the social impact assessment for the Gola REDD project’. The 10 areas which will be monitored include the five community development activities that focus on the Forest Edge Communities, any negative impacts to forest edge communities due to wildlife, offsite communities, worker rights, the grievance mechanism and governance (see Table 43).

Table 43. Areas of activity to be monitored

Category Number	Areas to be monitored	Focal Issue being addressed/issue
1	Crop intensification and increased production activity	Poverty Reduction
2	Improved cocoa production and post-production	Poverty Reduction
3	Saving and internal lending communities (SILC)	Poverty Reduction
4	Co-management of community use zones in the GRNP and land use mapping and planning in the leakage belt	Poverty Reduction Improved Governance
5	Education	Poverty Reduction Improved Governance

Category Number	Areas to be monitored	Focal Issue being addressed/issue
6	Crop Raiding by Wildlife	Monitoring identified possible negative impact
7	Chieftom development fund	Poverty Reduction
8	Workers Rights and Employment Scheme	Worker rights
9	Communication and grievance procedures	Improved governance
10	Government capacity building	Improved governance

The theory of change, an analysis of anticipated cause and effect sequences from project activities through to outcomes and eventual long-term impacts, has been applied to the project's different community related activities and has served as a guide to develop appropriate indicators and monitoring requirements in line with the CCBS. All selected indicators can be found in the monitoring plan along with the theory of change to justify their selection, a small selection of indicators is found in Table 44.

Whilst the monitoring plan has been designed around the activities themselves some of the outcome and impact indicators overlap as they are targeted at the same overall impact, for example increasing farmer incomes, which in turn should help to reduce poverty. Short term output indicators will be measured as the activities are being implemented and will therefore be reported on to management from 2014. The majority of medium term, outcome indicators will be measured at the end of the implementation of an activity (i.e. at year 2 after implementation), through activity survey the first such results will therefore be available from 2016. The impact indicators are measured through longitudinal surveys that are carried out every 5 years (the baseline longitudinal survey is being undertaken in January and February 2014, the subsequent survey will therefore be carried out in January and February 2019).

Table 44. A small selection of indicators for community monitoring

Area of activity	Output indicator	Outcome indicator	Impact indicator
Crop intensification and increased production activity	Number of Farmer Field Schools implemented	Number of hectares of intensified crops planted	Farmers better able to meet basic food needs with reduced hunger gap
	Number of trained Master Farmers	Yield of harvested crop	
	Number of farmers trained by Master Farmers		
Improved cocoa production and post-production	Number of Master Farmer field schools established and meetings held	Cocoa yield per ha Improved quality of cocoa harvested	Farmers increased ability to meet basic needs from increased income

Area of activity	Output indicator	Outcome indicator	Impact indicator
	No. of participants at farmer field schools No. of fermentation boxes supplied		
Saving and internal lending communities (SILC)	No. of SILCs established, size and location Value of the savings	Number and value of loans taken Number of new groups set up by PSPs	Reduced short term crises as a result of support from social fund of SILC group
Co-management of community use zones in the GRNP and land use mapping and planning in the leakage belt	Number of Community Use Zones mapped Number of Land use plans under development	New by-laws drafted and adopted Active forest edge community engagement in protection of project zone	Improved participatory governance structure for the decision making and management of the GRNP
Education	Number of secondary school scholarships provided to forest edge communities Number of people attending roadshows	Number of years of secondary school education completed by FEC children Improved education on natural resource management by forest edge communities	Communities supporting the protection of the Park
Crop Raiding by Wildlife	Source and scale of crop raiding evaluated Farmers trained in mitigation measures	Less cropland is damaged by wildlife Farmers adopt mitigation measures	Farmer perception of wildlife conflict Change in species composition in project zone
Chiefdom development fund	Number of project proposals implemented Number of communities directly benefitting from CDF projects Money distributed	Improvement in core areas of development selected in activity plans	Increased income, health, food security
Workers Rights and Employment Scheme	Number of resignations Number of women employed	Low staff accident level/ improved safety record in the workplace Job satisfaction	Example of good employment and workers rights model in Sierra Leone
Communication and grievance procedures	Register of grievances recorded	Grievances resolved by community management	Good relations between communities and project

Area of activity	Output indicator	Outcome indicator	Impact indicator
	Report on how grievances have been handled		
Government capacity building	Government staff on secondment with the project Contribution to national level policies, law review processes, strategies, PAM guidelines	Government implementing best practices learnt from working with project in other protected areas	Government has capacity and resources to manage GRNP with minimal international support

CM3.2. Preliminary High Conservation Values monitoring plan

Develop an initial plan for how they will assess the effectiveness of measures used to maintain or enhance High Conservation Values related to community well-being (G1.4.8.4-6) present in the project zone.

HCV 5

As previously established, the project area is not fundamental to meeting the basic needs of local communities. It is understood that the project area serves as an additional source for meeting basic needs rather than a fundamental source. The project has been designed to involve forest edge communities in the development of co-management zones in the project area (GRNP) and therefore have access to areas to sustainably extract NTFPs and fish to meet any additional requirements for basic needs as they have likely done in the past. The establishment of co-management zones will be monitored through those indicators presented in Activity 4.

HCV 6

As previously established, the project zone does comprise areas which meet HCV 6. This is because they provide for two critical traditional cultural activities:

Secret society (Sande and Poro)

Secret Societies are a central part of the Mende culture. As part of the initiation process, children are required to spend time in a special part of the bush isolated from members of the opposite sex (Leach 1996); the locations of these areas are only known to members of the societies and not to outsiders but they are understood to be largely within the bush areas of the leakage belt in the project zone rather than in the project area (Personal communication, GRNP Community Development staff and Green Africa staff).

Burial grounds

Burial grounds and graves are considered sacred areas and there are strict rules about respecting such areas (Bulte et al. 2013; 24). Such sites have been encountered within the project area but these are found as biodiversity survey work is carried out rather than as a

result of a deliberate effort to identify such areas. Burial grounds are also present in the leakage belt.

Monitoring HCV 6

Secret Societies: given the areas used by secret societies are secret it is not possible to map or preserve and particular areas for this activity. However, given the overall objective of the project is to preserve forest, it seems the project activities would be well aligned to meeting the needs of secret society for forested lands to carry out their meetings.

Burial grounds and graves: these areas are not currently mapped but the location of sites will become clearer as the project develops Co-Management within the project area. Monitoring of these activities is covered in Activity 4 and its indicators.

CM3.3. Development of comprehensive community monitoring plan

Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

Please see the CCB social monitoring plan (Henman 2013) for details of the full monitoring plan, the protocols and surveys required to implement the plan are currently under development and will be available to the auditor upon request. Once finalized these documents will be made available on the Gola projects website and the plans as well as the results as they are established through the project reports will be communicated to stakeholders via the appropriate mechanisms identified for each group.

Biodiversity Section

B1. Net positive biodiversity impacts

B1.1. Estimate of impact of project activities on biodiversity

Use appropriate methodologies to estimate changes in biodiversity as a result of the project in the project zone and in the project lifetime. This estimate must be based on clearly defined and defensible assumptions. The 'with project' scenario should then be compared with the baseline 'without project' biodiversity scenario completed in G2. The difference (i.e., the net biodiversity benefit) must be positive.

The project will bring multiple benefits for biodiversity resulting in the following net positive impacts for biodiversity.

Habitat loss and fragmentation

As described in previous sections, it is estimated that between 10% and 30% of the Upper Guinea forest cover that existed at the turn of the 19th century remains ((Poorter et al. 2004). Reducing deforestation and degradation in the project zone is one of the main goals of the project activities which will reduce habitat loss and fragmentation. Since many of the threatened species in the project zone are forest-dependent (see G1.7 and G1.8), preventing forest loss is of major importance to these species. The impacts of the project activities can be summarized as follows:

- Conversion of forest to agriculture is reduced through leakage prevention activities that increase production in existing farm bush areas of the leakage belt in the project zone, following the theory that land sparing in which high yield farming is combined with protecting natural habitats from conversion to agriculture, will have a positive effect on biodiversity (Phalan et al 2011). In the project area forest patrols will prevent deforestation and so there will be minimal loss of habitat throughout the project zone. This will benefit all forest dependent species in the project zone.
- There will be reduced deforestation in the project area from agriculture and other illegal activities so the quality and amount of this habitat and the species that are confined to it will positively benefit, especially the true primary forest specialists such as Jentink's duiker, Western red colobus and several species of birds and amphibians will benefit.
- In the leakage belt of the project zone, project land use planning activities developed with Forest Edge Communities will ensure that key corridor areas for wildlife populations are maintained thereby reducing forest fragmentation so species can move between different parts of the forest, enhancing the viability of small populations, especially species with large home ranges (e.g. forest elephant) will benefit.

Disturbance

- Small-scale mining and logging activities can result in disturbance and opening up the forest by making trails and access roads. Project activities will ensure that no illegal activities will take place inside the project area. This will benefit many species that are shy or sensitive to disturbance, including forest elephant, chimpanzees, pygmy hippo, ungulates, or nesting birds. Water pollution from mining will be minimised which will be of direct benefit to aquatic biodiversity.

- In the leakage belt of the project zone, sustainable resource use will be promoted and key areas of importance for wildlife will be set aside through the development of land use maps and plans, thus reducing disturbance to shy and sensitive species.

Species loss

The project activities are expected to have net positive impacts on biodiversity by minimizing species loss.

- One of the most obvious and direct effects of the project activities is reduced hunting pressure in the project area (see G2.5). Species that are especially targeted by local hunters are the primates and duikers. Among the primates, especially the Vulnerable Sooty Mangabey and colobines are susceptible to hunting. This includes the Endangered Western red colobus, which is reported to be easily affected by hunting, because of their large size, conspicuous habits and relatively slow movements (Davies 1987). Besides primates, duikers are a popular source of bushmeat. They are mostly hunted using snares, and by using spotlights at night to blind them before being shot. The most common species is Maxwell's duiker and this species is also commonly hunted. Terrestrial birds also get caught using snares, including the Vulnerable White-breasted guinea fowl. In the leakage belt of the project zone communities will be involved in capacity building and information sharing events about threatened species to reduce the threats to these species from hunting activities.
- Besides the direct effects of hunting, species loss is minimized as a result of the project activities because of reduced levels of disturbance and habitat loss. These factors have been described above.

Loss of connectivity

A net positive impact of the Gola REDD project will be to enhance the long-term connectivity of the Upper Guinea forests by maintaining the connections between the three forest blocks and by linking the project area in Sierra Leone with the Gola National Forest of Liberia (see Figure 9), through community land use mapping and planning. This will greatly increase the long term viability of this globally important forest area and the threatened species it contains. Such connectivity is particularly important to enable species to maintain genetically viable populations, to facilitate species that have very large home ranges (e.g. forest elephant, leopard), and to allow migration of some species.

As described in G2, without the project there are no positive benefits for biodiversity as the forest would be gradually cut down and as a result forest dependent species (the threatened species in need of protection) would decline in numbers and be hunted. A summary of the impacts of the project activities is given in **Table 45**. Overall, it is clear that the net impacts on biodiversity will be positive.

Table 45. Threats, management actions and the impact of project activities on biodiversity.

Threats	Management actions	Net positive impacts
Habitat loss and fragmentation	- Protecting the project area to reduce deforestation and degradation (goal 1, G3.1) - Patrols by forest rangers in the project area (goal 1, G3.1) - Education and awareness campaigns in the project zone and wider Chiefdoms (goal 2, G3.1) - Sustainable livelihood projects (goal 2, G3.1) - Land use mapping and planning with Forest Edge Communities (goal 2, G3.1)	- Maintenance of forest cover - No reduction or possibly even an increase of populations of primary forest specialists
Disturbance	- Patrols by forest rangers in the project area (goal 1, G3.1) - Education and awareness campaigns in the project zone and wider Chiefdoms (goal 2, G3.1) - Land use mapping and planning with Forest Edge Communities (goal 2, G3.1)	Maintenance or Increase in populations of sensitive species (e.g. White necked Picathartes)
Species loss (hunting)	- Patrols by forest rangers in the project area (goal 1, G3.1) - Education and awareness campaigns (goal 2, G3.1)	- Reduced net species loss; increase of populations of sensitive species - Reduction in hunting threats (snares, number of poachers)
Pollution from mining or forest damage from logging	- Patrols by forest rangers in the project area (goal 1, G3.1) - Education and awareness campaigns in the project zone and wider Chiefdoms (goal 2, G3.1) - Land use mapping and planning with Forest Edge Communities (goal 2, G3.1)	- Healthy riverine systems - Intact forest canopy and understorey
Loss of connectivity	- Development of sustainable management plans with Forest Edge communities in key areas between project areas and the Liberian border (goal 2, G3.1) - Agriculture project to increase productivity in land that is already within the bush-fallow cycle (goal 2, G3.1) - Rehabilitation of cocoa farms in shade grown plantations to maintain forest cover between blocks (goal 2, G3.1)	Connectivity between large forest patches and other areas of conservation interest across the border in Liberia allowing for transnational gene flow and the maintenance of viable populations in the face of climate change

B1.2. Impact of project activities on High Conservation Values

Demonstrate that no High Conservation Values identified in G1.4.8.1-3 will be negatively affected by the project.

Since many of the HCVs identified in section G1.8 depend on the availability of large areas of contiguous forest, the project activities to maintain and enhance the forests of the Project Zone are expected to have a significant positive impact on HCVs. The conservation of these HCVs along with all forest-dependent biodiversity is one of the main goals of the Gola REDD project.

As significant concentrations of biodiversity in the project zone are forest-dependent they will benefit from the presence of the project. Several of the threatened and endemic species only occur in pristine lowland rainforest and are susceptible to disturbance such as hunting, forest degradation etc. Examples are the Endangered Jentink's duiker, Gola malimbe and Western red colobus. Project activities such as forest patrols to check for illegal deforestation, hunting etc. are essential to ensure the survival of these species. In addition to the individual HCV species, the entire landscape unit of Gola Forest including threatened or rare ecosystems benefit from these project activities.

No negative impacts on HCVs are expected as a result of the project activities. The project activities do not entail any form of forest degradation or other negative impact on the forest. Some project activities may give minor disturbance, such as forest guard patrols or research activities. However these impacts are temporary and probably negligible, certainly in comparison by the disturbance that would be caused by illegal logging, mining or hunting.

Offsite negative impacts to HCVs are not anticipated as the offsite zone has a low biodiversity value (see B2.1).

Table 46. A summary of the HCVs and management actions to ensure their protection

HCV criteria	Relevance to the project	Management actions to protect HCV	Target
HCV 1 Globally, regionally or nationally significant concentrations of biodiversity values	The project zone contains many threatened species in significant concentrations that meet the HCV1 criteria (see Table 6)	Patrols by forest rangers to reduce deforestation and hunting activities in the project area Community environmental awareness raising activities land use mapping and planning in the leakage belt Ecotourism Livelihood activities to increase crop productivity and maintain forest cover	Stable or increasing populations, stable or increasing species distribution, decreasing threat encounter rate
HCV 2 Globally, regionally, nationally significant large landscape –level areas where viable populations of natural populations occur in natural distribution and abundance	The project zone is a globally and nationally significant area and contains viable populations of naturally occurring species many of which are threatened	Patrols by forest rangers to reduce deforestation and hunting activities in the project area Community environmental awareness raising activities land use mapping and planning in the leakage belt to create wildlife corridors between the blocks of the project area	Diversity and distribution of species is maintained, forest ecosystem remains fully functioning, forest cover maintained or increases in the project area, trees showing growth
HCV 3 Threatened or rare ecosystems	The project area is a nationally significant landscape and globally recognized biodiversity hotspot	Patrols by forest rangers land use mapping and planning	Forest cover maintained or increases within and between blocks of the project area and trees are growing to full potential

B1.3. Project activities and invasive species

Identify all species to be used by the project and show that no known invasive species will be introduced into any area affected by the project and that the population of any invasive species will not increase as a result of the project.

The management of the project area will try to counter the spread of any invasive species, such as the shrub *Chromolaena odorata* or grasses such as *Imperata cylindrica* that have been introduced to the region by others. The following management actions with respect to invasive and non-native species are identified for the project area:

- Invasive plants. If any site is identified where there are significant numbers of exotic plant species, a simple monitoring system will be put in place to determine whether the exotic species are extending in area or receding over time. In case the exotics are found to be extending, appropriate control or eradication measures will be undertaken.
- Tree crops. Small plantations of tree crops, including oil palm, cacao and some fruit trees, have been found within the project area. These areas were farmed by local communities before the period of civil conflict but were subsequently abandoned during the war and have overgrown. These trees will be allowed to die out naturally as a result of competition with native vegetation. The situation will be monitored after five years to determine whether any further action is required.

In the leakage belt of the project zone, where livelihood activities will be implemented with the forest edge communities, the project will not use any invasive species to improve crop productivity.

B1.4. Project activities and non-invasive species

Describe possible adverse effects of non-native species used by the project on the region's environment, including impacts on native species and disease introduction or facilitation. Project proponents must justify any use of non-native species over native species.

The species that will be used in the agricultural components of the project activities will be both native and non-native species. Any non-native species that will be used in the project activities will have been tried and tested by our project partner WHH in agricultural projects in Sierra Leone to improve productivity before used in the forest edge communities (Per comm., WHH)

B1.5. Project activities and GMOs

Guarantee that no GMOs will be used to generate GHG emissions reductions or removals.

The Gola REDD project will not use any GMOs in the project activities.

B2. Offsite biodiversity impacts

B2.1. Potential negative offsite biodiversity impacts

Identify potential negative offsite biodiversity impacts that the project is likely to cause.

From analysis of ratios of forest to non-forest at increasing distance from the project area it is apparent that the areas of forest beyond the project zone are restricted to small patches of remnant forest, any other forest having become incorporated into the bush-fallow system (see Figure 19).

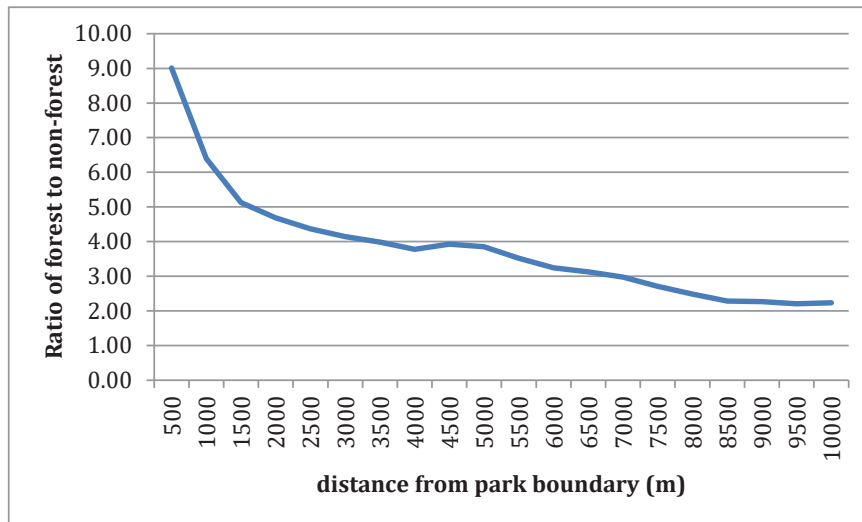


Figure 18. Forest to non-forest ratios with distance from the project area

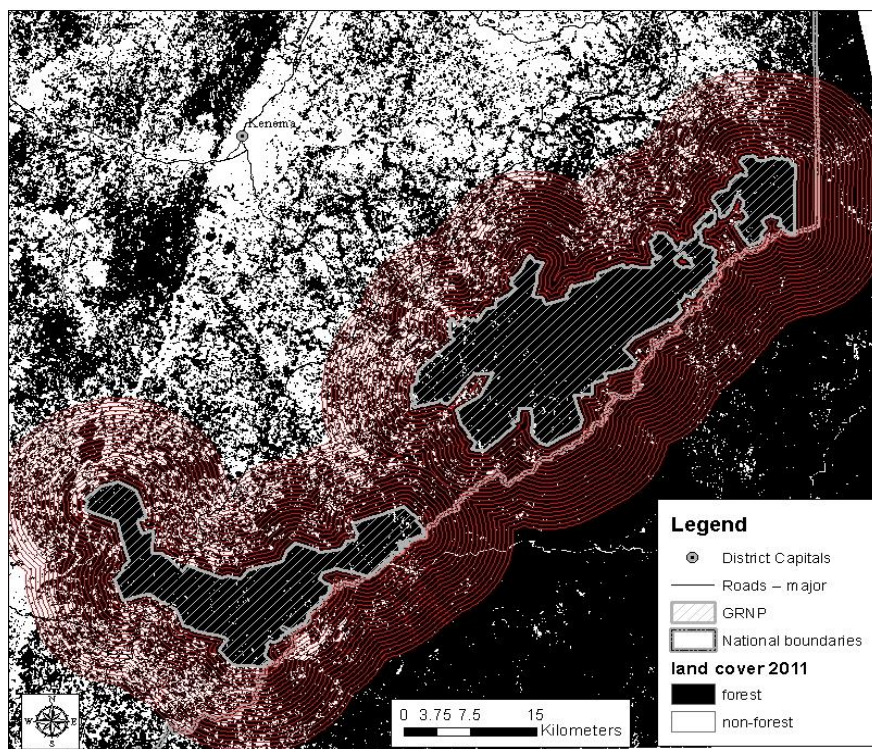


Figure 19. Forest cover in the vicinity of the project area

(red lines are at 500m intervals)

As explained in section G2.5 forest loss and fragmentation has an adverse effect on biodiversity and as a result, biodiversity in the offsite zone is already low; endangered and threatened species having long since been absent from such areas (Ganas 2009), (this is confirmed in a recent study carried out by Hillers and Mauana 2011 which looked at Pygmy hippos; offsite villages where pygmy hippos were reported to have been encountered in the past and where signs of pygmy hippos are found today has dramatically declined).

Potentially negative offsite biodiversity impacts as a result of the project could include a relocation in hunting pressure or activities that result in degradation or deforestation to the offsite zone but as any remaining forest is already significantly degraded, harvestable timber species and larger primates i.e. species with a high biodiversity value having been removed some time ago any impacts will be on species that are not threatened.

As very few people living in communities in the offsite zone were using the project area to farm in pre-conservation work (see section CM2 and Zombo et al 2012), farming activities will not be displaced to the offsite zone.

B2.2. Mitigation of negative offsite biodiversity impacts

Document how the project plans to mitigate these negative offsite biodiversity impacts.

Impacts on biodiversity in the offsite zone are expected to be minimal but in spite of the minimal risk to biodiversity in the offsite zone the project will engage with offsite villages for a number of activities that aim to foster support for biodiversity conservation and increase awareness of the importance of forests and biodiversity.

Discussing how the natural resource base underpins many communities' livelihoods with offsite communities via awareness raising campaigns will be a first step towards encouraging offsite villages to place a value on the preservation of forest remnants. This will be followed by the setting up of nature clubs in schools and a youth volunteer program in the offsite area (and project zone) to ensure that future generations also understand the links between forests and wellbeing.

In order to foster political support for the conservation activities the project will also continue to support community selected sustainable development projects via the community development fund that is administered by community elected committees in each of the seven Chiefdoms. Such projects can include reforestation, rehabilitation of plantations, agriculture enhancement projects or other projects that aim to enhance livelihoods in a sustainable manner thus mitigating further impacts on biodiversity.

B2.3. Demonstration of net positive biodiversity impacts

Evaluate likely unmitigated negative offsite biodiversity impacts against the biodiversity benefits of the project within the project boundaries. Justify and demonstrate that the net effect of the project on biodiversity is positive.

Even without mitigation activities, offsite biodiversity impacts are expected to be minimal. With mitigation activities, there should not be any negative biodiversity impacts in offsite villages and monitoring over the lifetime of the project will reveal if in fact the project is able to improve the biodiversity in the offsite zone. A comparison of potential negative offsite biodiversity impacts in the offsite zone and biodiversity benefits in the project zone was made in Table 47 the overall impact on biodiversity is believed to be positive.

Table 47. Comparison of offsite biodiversity impacts against biodiversity benefits in the project area

Biodiversity impacts in the offsite zone	Biodiversity benefits in the project area	Net Positive Benefit
Possible relocation of hunting pressure (thought to have a low impact as HCV species are largely absent from the offsite zone)	No reduction and possible increase in numbers of forest specialist species as hunting threat is reduced	There is a net positive benefit to wildlife populations that are typically hunted as such species will be protected in the project area
Possible relocation of deforestation and degradation activities to the offsite zone	Maintenance of forest cover in the project area and re-growth in areas that have previously been logged	Maintaining the project area which has high species diversity provides a net positive benefit as it will preserve species that no longer exist in the offsite zone
	Maintenance or increase in wildlife populations sensitive to disturbance	The project area will be managed to maintain a full compliment of species that are naturally found in an Upper Guinean rainforest ecosystem
	Healthy riverine systems	Maintaining forest cover will also help to regulate water flow and quality and thereby the biodiversity found within riverine systems

B3. Biodiversity impact monitoring**B3.1. Preliminary biodiversity monitoring plan**

Develop an initial plan for selecting biodiversity variables to be monitored and the frequency of monitoring and reporting to ensure that monitoring variables are directly linked to the project's biodiversity objectives and to anticipated impacts (positive and negative).

The biodiversity goals of the project are focused around maintaining and where possible improving forest cover and condition through out the project zone in order to maintain or increase habitat availability and connectivity for all species but in particular high conservation value forest dependent species. As described in G1.7 and G1.8, the project zone meets 3 of

the criteria for high biodiversity conservation value at the species, ecosystem and landscape scales⁴¹.

The biodiversity monitoring plan therefore has been devised to monitor the progress of the project in maintaining and improving the conservation value of the project zone at the species, ecosystem and landscape scale and project activities are designed to create positive biodiversity impacts against the without project scenario (see B1). The impacts will be measured at two levels; the species level and the ecosystem and landscape level.

The selection of indicators for monitoring the outputs-outcomes and impacts of the project followed a theory of change approach, using a causal model to predict the changes attributable to the project and thereby the most relevant indicators for monitoring progress (see Hillers and Tatum-Hume 2013). Given the species richness of the area, for some aspects of monitoring certain species have been chosen as indicators of overall biodiversity wellbeing, the indicators were selected as they reflect the overall health of the habitat or area of monitoring interest based on many years of prior conservation assessment (e.g. Klop et al 2008, Hillers 2013), see Table 48 for biodiversity indicators.

The overall impact of the project on biodiversity is intricately linked to the management and community livelihood activities of the project. The activities that will result in impacts on biodiversity are management and community related activities from the operational work of the forest rangers to the implementation of the community livelihoods programme (see Hillers and Tatum-Hume 2013).

Ecosystem and Landscape scale

The project will monitor changes in forest cover and condition as a result of project activities through out the project zone through the interpretation of satellite imagery and through ground work that monitors degradation and threats to biodiversity. A two-pronged approach will be used as remote sensing methods alone may not pick up on the finer spatial scale activities caused by degradation. Forest cover changes will be monitored through the interpretation of satellite imagery. The project will follow VCS methodologies and the approach is outlined in the VCS PD and in the VCS emissions monitoring plan. Threats to the condition of the forest will be monitored through the analysis of threat surveys that are completed by the forest rangers as they carry out their patrolling activities. The threat surveys collect data on a range of variables from visible signs of forest degradation such as tree stumps to freshly cut trails, encounters of gun cartridges, snares or mining pits. As described below the work for monitoring species will also be used as an indicator of the health of the forest at the ecosystem scale.

Species scale

Species have long been used as indicators of the health of a habitat. Species that are particularly susceptible to environmental or human disturbance, are present in the area at the beginning of the project activities and are relatively easy to encounter are those that make the most suitable indicators to monitor project attributable changes. The taxa, species and

⁴¹ The monitoring of HCV 5 and 6 can be found in CM3.2 and in the social monitoring plan for the CCB

methodologies selected to monitor changes in the different habitats of the project reflect nearly 25 years of conservation research in the area carried out by the past conservation work. A diversity of species and taxa have been chosen in order to provide a broad understanding of the impact of the project on biodiversity. For example as different species will manifest changes at different rates, some species may change in distribution and abundance faster than others and may act as indicators of the beginnings of an uphill or downhill trend, this is especially true of the large bushmeat species such as Chimpanzees and pygmy hippos or those that are sensitive to disturbance such as the White necked Picathartes. Other species occupy different habitats within the forest and so by choosing a range of species we can monitor the impacts across the wider landscape e.g. pygmy hippos tend to be found along the forested margins of streams and rivers whilst Chimpanzees are found in undisturbed areas of near primary forest. As it is vital for the project management team to understand whether the operational and livelihood activities being implemented are having the desired biodiversity impacts, monitoring a wide range of species that provide indications of impact for different forest habitats or timescales are very useful and will enable management to adapt actions as appropriate (see Table 48).

Methodologies to measure longitudinal change in population status and range through out the project zone are based on best scientific practice and follow standardised protocols for data collection and analysis. Methodologies include bird surveys and point counts, camera trap surveys, mammal transects and nest surveys and are detailed in the methodology section.

Table 48. Species indicators and justification for their inclusion

Species	Group	Justification	Methodology
All terrestrial bird and mammal species, in particular HCV species including Western Chimpanzee, Sooty Mangabey, Jentinks Duiker, Zebra Duiker, Pygmy hippopotamus, Forest elephant, White breasted Guineafowl	Birds and Mammals	These species are all HCV species and are all forest dependent species. The presence/absence and abundance of these species will provide a measure of the pressure that biodiversity is under, the health of the forest and monitor the success of protection efforts	Camera traps through out the project zone following a grid based methodology
Western red Colobus, Western pied Colobus, Diana monkey	Primates	These monkeys are not only indicators for the status of the forest habitat and for the pressure from hunting. They are also very important seed dispersers thus playing an important role in forest ecology. Furthermore, they are a diverse group with some species being dependent on relatively undisturbed forest, making them valuable indicators of forest conditions.	Primate surveys in the project area following line transect methodologies
Western Chimpanzee	Primate	This is an endangered species (HCV) under pressure from hunting and requiring large areas of suitable habitat. It is a good indicator of forest quality and disturbance	Line transect Nest surveys through out the project zone
Pygmy Hippopotamus	Mammal	This is an endangered species under threat from habitat loss and hunting. It is an indicator of disturbance and hunting pressure	Surveys, camera traps and dung sampling through out project zone and in offsite zone
White-necked Picathartes	Bird	Endemic and vulnerable species (HCV). Indicator of disturbance and changes to habitat.	Nest surveys in the project zone and offsite zone
Tai toad and other species	Amphibian	Amphibians are widely recognized as excellent indicators of the health status of a forest habitat and the Tai toad is an HCV species and therefore important to monitor	Plot sampling through out the project zone

B3.2. Preliminary High Conservation Values monitoring plan

Develop an initial plan for assessing the effectiveness of measures used to maintain or enhance High Conservation Values related to globally, regionally or nationally significant biodiversity (G1.4.8.1-3) present in the project zone.

As the project zone, and the project area in particular is a biodiversity hotspot and meets HCV1-3, indicators to monitor the effectiveness of measures to maintain or enhance HCV biodiversity are a central component of the biodiversity monitoring plan (see Table 49).

Table 49. Monitoring summary for HCV components of the Gola REDD project

HCV criteria	Parameter to be measured	Variable	Monitoring activities and measurement frequency	Indicators	Target
HCV 1 Globally, regionally or nationally significant concentrations of biodiversity values - threatened and endemic species	1. Species composition	1. Diversity of forest dependent bird community	Bird point counts (every 4-5 years)	Abundance and diversity of species encountered	Stable or increasing populations, stable or increasing species distribution, decreasing threat encounter rate
	2. Population structure of species	2. a. Distribution of key species 2.b Abundance of key species	Camera traps, transect and plots surveys, nest surveys (every 1-5 years)	Abundance and diversity of species encountered	
	3. Species threat	3. Threat encounters	Threat encounter surveys (ongoing, monitored by the Operations team)	Number of cartridges and snares found in project area	
HCV 2 Globally, regionally, nationally significant large landscape –level areas where viable populations of natural populations occur in natural distribution and abundance	Ecosystem condition	Diversity and distribution of forest dependent birds and mammals	Camera traps, bird point counts, primate surveys (every 2-5 years)	Abundance and distribution of species encountered (reflecting the health of the forest)	Stable or increasing populations, stable or increasing distribution of species

HCV criteria	Parameter to be measured	Variable	Monitoring activities and measurement frequency	Indicators	Target
HCV 3 Threatened or rare ecosystems	Ecosystem integrity	1. Forest cover 2. Forest enhancement	1. Interpretation of satellite images (before every verification event) 2. Vegetation surveys (before every verification event)	Change in forest cover and connectivity between forest blocks of the project area Changes in above ground biomass	Forest cover maintained or increases within and between blocks of the project area and trees are growing to full potential

B3.3. Development of comprehensive biodiversity monitoring plan

Commit to developing a full monitoring plan within six months of the project start date or within twelve months of validation against the Standards and to disseminate this plan and the results of monitoring, ensuring that they are made publicly available on the internet and are communicated to the communities and other stakeholders.

A full biodiversity monitoring plan has been developed (Hillers and Tatum-Hume 2013) and standard operating procedures are under development and will be available upon request to the auditing team. Once finalized, the plan and the monitoring results as they are gathered will be placed on the projects website (www.golarainforest.org) and disseminated to stakeholder groups via relevant meetings and forums. The Community Development Relations Officers will be responsible for disseminating the monitoring plan to FECs (especially highlighting when and why monitoring is carried out within the leakage belt) and the results of the field monitoring as it develops (see the Communication strategy for CDROs with FECs in the FEC communications folder in the appendices of Tatum-Hume et al 2013). The monitoring plan will be finalised within 12 months of project validation and be disseminated as described to stakeholders also within 12 months of validation, the results of monitoring will be communicated with stakeholders throughout the lifetime of the project.

GL1. Climate change and adaption benefits

GL1.1. Anticipated local climate change scenario

Identify likely regional climate change and climate variability scenarios and impacts, using available studies, and identify potential changes in the local land-use scenario due to these climate change scenarios in the absence of the project.

Climate Scenarios for Sierra Leone

According to the National Adaptation Plan of Action (NAPA) for Sierra Leone, the most likely climate change scenario for the country is an increase in average temperature of 6-9% by 2100, a reduction in rainfall, changes to rainfall patterns and an increase in extreme weather events including drought, strong winds, thunderstorms, landslides, heat waves, floods, and intense seasonal rainfall, amongst others (NAPA 2008). This is confirmed also in more recent modeling work reported in the second National Communication on Climate Change to the UNFCCC (2012) which used climate data from 1961 to 1990 to construct climate change scenarios for the country based on GCM, HADCM, UKTR, ECHAM modeling.

During discussions with local residents around the GRNP to understand communities perceptions of changes in weather and it's impacts on their livelihoods many villages reported that the seasons have been changing and they are experiencing more rain in the dry season and more erratic weather patterns overall (Witkowski et al 2012b). Unpredictable changes in rainfall patterns and the onset of the rainy season affects a farmers ability to clear land to farm, to predict when the best time is to plant seed and harvest seed as well as the growth of the crop; effects can be both positive and negative but between 2007 and 2009, more negative shocks than positive were reported by surveyed forest edge communities (Bulte et al 2013).

Potential impacts of future scenarios

Sierra Leone is ranked 177 out of 187 countries on the Human Development Index (UNDP 2013). Since gaining independence in 1961 it has struggled to achieve socio-economic stability; the decade long period of internal conflict from 1992-2002 destroyed much of the country's economic and physical infrastructure in addition to affecting the nation's human capital. Sierra Leone is likely to experience multiple impacts from climate change in different sectors of the economy and sections of society and in the Climate Change Vulnerability Index (that analyses climate change vulnerability down to 25km² worldwide), is ranked in the top 10 countries at 'extreme risk' (Maplecroft 2011).

Changes in climate are expected to affect both the quantity and quality of water, land and soil resources. Ecosystem services are critical for Sierra Leone as agriculture is the largest sector of the economy and provides employment for over 65% of the labour force (National Communication on Climate Change 2012). As rice is the staple food crop in Sierra Leone grown by small scale farmers under rain-fed conditions, changes in rainfall patterns, intensity or amount will have significant impacts on agricultural productivity and livelihoods and indeed impacts are already being experienced (National Communication on Climate Change 2012). In addition, changes in the length of the growing season or in the range of pests could prove devastating for crops and negatively impact production stability. If agricultural yields decline, there will be a significant resultant impact on food security, income and health for small holder farmers in Sierra Leone. Resultant fluctuations in food prices and trade will also impact small holder farmers. Combined, these impacts will serve to exacerbate poverty (National Communication on Climate Change 2012; p157).

Despite the abundant water resources, access to safe drinking water is very limited as a result of unavailable or limited functional infrastructure for water supply. Today only about 32% of the rural population has access to a reliable water supply.

Changes in rainfall patterns and intensity will also have an impact on water supply as despite the country having fairly abundant water resources, access to safe drinking water is very limited due to the lack of functional infrastructure; only about 32% of the rural population has access to a reliable water supply (National Communication on Climate Change 2012; p159). Shortages in water availability for consumption as well as productivity are likely resulting in outbreaks of pests and disease whilst heavy rain and strong winds may cause damage to crops and standing forests.

Increases in temperature and a drying climate are also likely to cause shifts in the range and composition of species, which will affect both biodiversity and carbon stocks (Faucet et al 2012).

The anticipated biophysical and socio-economic impacts combined with very low levels of human (information, knowledge, health), physical (technology, infrastructure), social (policies, institutions) and financial capital to mitigate or respond to those impacts make Sierra Leone highly vulnerable to climate change.

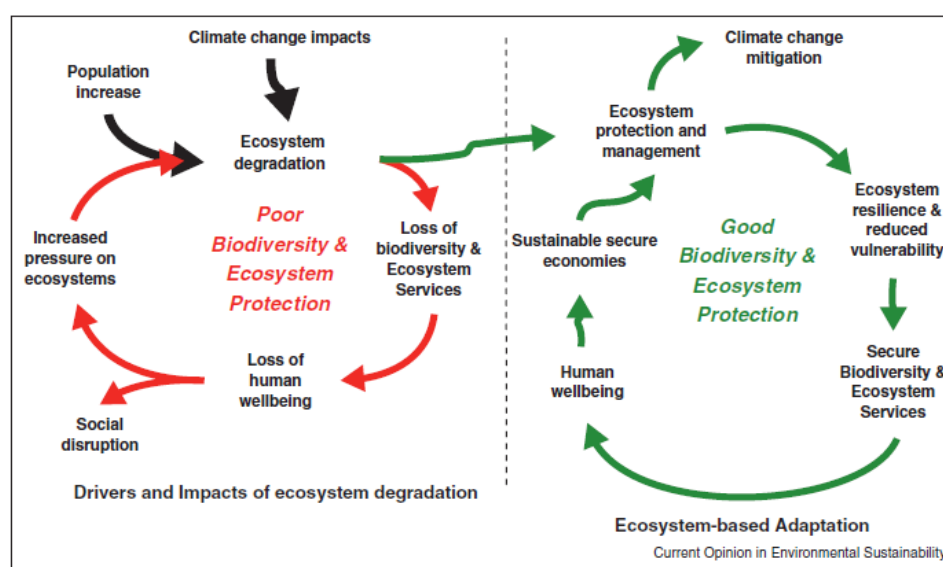
Potential changes in local land use scenarios

Ninety percent of people in forest edge communities depend on subsistence agriculture. As discussed above, this sector is highly vulnerable to climate change as it is based on rain-fed farming (NAPA 2008) and the ecosystem services that underpin food production (Munang 2013). Without the project, there will be no action towards conserving forest resources and

ecosystem services in the project area, no capacity building in sustainable agricultural practices and environmental awareness with forest edge communities and no land use planning in the project zone leading to the continued uncontrolled conversion of forests to the farm bush cycle and extensive ecosystem degradation. Ecosystem degradation undermines food production and results in ecosystems becoming less stable and less able to withstand shocks and pressures and consequently declines in the delivery of key ecosystem services are experienced (Munang et al 2013b). This would undermine food production, the availability of clean water, and soil fertility, amongst other services, thereby threatening human health and livelihoods. Farmers in forest edge communities rely on soil micro-organisms to maintain soil fertility and on wild species for crop pollination; such services are often undervalued (TEEB 2010). Unpredictable changes in rainfall patterns will result in a disruption to the farming calendar causing lower productivity and yields. As farming is the main source of income, farmers may clear more forests to farm or try to further exploit forest resources such as timber and minerals to gain cash income; both scenarios would result in further loss of forest. Fragmented and degraded forests are more susceptible to impact from fire as they are drier and carry higher fuel loads (Laurence 2003) and so a cycle of ecosystem degradation will ensure - similar to that seen in the left of .

Figure 20.

Figure 20. Impacts with and without ecosystem-based adaptation



(source; Munang 2013)

GL1.2. Community and biodiversity impacts of local climate change

Identify any risks to the project's climate, community and biodiversity benefits resulting from likely climate change and climate variability impacts and explain how these risks will be mitigated.

Climate change is not believed to be a risk to project benefits as the management activities that will be introduced by the project in the project area and leakage belt focus on effective conservation management of forest resources and ecosystem services, and sustainable land use planning and agricultural practices respectively (see G3.1) which will help maintain forest cover in the project area and increase connectivity between all the forested areas in the project zone and between the project zone and the forests across the border in Liberia. These activities are designed to reduce climate exposure and sensitivity as they will improve the management of natural resources while protecting the biodiversity values and ecosystem services that contribute to communities' livelihoods and ensuring that habitat connectivity is maintained.

Climate

As a result of a drying climate, a possible risk for the climatic benefits of the project could result from an increase in fire disturbance leading to carbon flux. The project will therefore be mitigating such risk firstly by maintaining maximum forest cover in the project area which will help maintain moisture in the forest system thereby reducing fire risk. Secondly, through using an early warning system to alert the management team to fires in or close to the project zone and thirdly by raising awareness with forest edge communities about strategies to reduce fire risks and by maintaining corridors between forest blocks to reduce the risk of fragmentation and therefore susceptibility to fire (Cochrane 2001).

Community

The risk for the communities in the project zone is if the climate change impacts lead to the socio-ecological system becoming locked in to the left-hand part of the cycle displayed in .

Figure 20 will ensue. As local people have a strong reliance on the services the forest provides (hydrological regulation, soil quality) and reliance on rain-fed agriculture the project intends to incorporate the principles of an ecosystem-based approach for adaptation (Andrade et al 2011) to conserving forest because healthy ecosystems are more resilient. Maintaining healthy forest ecosystems will help maintain hydrological regulation during extreme events, help maintain the regulation of micro-climates vital for coffee and cocoa production, and ensure the continued provision of alternative food sources and NTFPs. Project objectives that result in sustainable natural resource management in the project area and project zone via co-management and land-use planning activities will therefore strengthen community knowledge and governance over forest resources that underpin their adaptive capacity and mitigate community risk to climate change.

As agriculture is the primary livelihood activity in forest edge communities, project activities will enhance food security, income generation and soil fertility through increased technical assistance to improve cultivation techniques in both staples and cash crop agriculture and post-production storage.

Biodiversity

For biodiversity benefits, the risk is that climate change will impact on the diversity of species able to live in the project zone if a drying climate or temperature increases contract the range that some species, particularly amphibians are able to survive in. Already the project zone contains species that are endangered and meet vulnerability and irreplaceability criteria (see GL3.1 and GL3.2), the risk for these species is therefore that their habitat ranges may become so limited that viable populations cannot be maintained. To minimize this risk project activities focus on maintaining large areas of forest and in maintaining and enhancing the connectivity between forest which will enable species to find different micro-climates and altitudinal gradients that will enable the site to serve as a refuge for migrating and permanent species.

Incorporating the principles of an ecosystem-based adaptation approach will enable the project to harness 'the capacity of nature to buffer human communities against the adverse impacts of climate change' (Munang et al. 2013:2) and create an ecosystem resilient to climatic impacts (Munang 2012). The Gola REDD project activities will therefore stabilize and mediate predicted climate change impacts by conserving and enhancing the biodiversity and ecosystem services that underpin local livelihoods.

GL1.3. Identification and mitigation of risks to community and biodiversity benefits

Demonstrate that current or anticipated climate changes are having or are likely to have an impact on the well-being of communities and/or the conservation status of biodiversity in the project zone and surrounding regions.

Forest edge communities already face multiple constraints to development (see G1.5). Climate change will exacerbate these existing rural development challenges, particularly as rural communities do not have the resources to switch to alternative livelihood strategies. Likewise, the project zone remains the last stronghold for a number of endangered species in Sierra Leone (see GL3.1 and GL3.2) and climate change will negatively impact on the conservation status of these species. Bioclimatic envelope models highlight the importance of the project area as a site for maintaining viable populations of species (Hole et al. 2011) in the face of climate change. The anticipated impacts of climate change are summarized in Table 50.

Table 50. Summary of anticipated climate change impacts on Communities and Biodiversity

Anticipated Biophysical Climate Change Impacts	Impact on Community (CO) and Biodiversity (BD)
Changes in micro-climate especially rainfall and temperature	• Disruption of agricultural calendar, disruption of production stability, and lower yields of staple food crops such as rice, resulting in an impact on food security. Lower productivity will also mean households have less produce to sell resulting in a lower income, both factors are likely to result in malnutrition and therefore affect health (CO) • Shifting pattern in the distribution of trees and wildlife populations (BD) • Altered prevalence or spatial distribution of some infectious disease vectors (CO) • Changes in the range and distribution of agricultural pests and diseases (CO) • Negative impact on coffee and cocoa production resulting in reduction in income (CO)
Erosion from increased and heavier rainfall	• Sedimentation of streams and water supply leading to a loss in fish biodiversity and availability affecting protein availability for local people (BD, CO) • Nutrient leaching and loss of soil fertility affecting crop productivity (CO)
Increased frequency and severity of extreme weather events e.g. storms and droughts	• Increase in disease and deaths (CO) • Increase in economic damage (through crop failures or destruction) (CO)
Ecosystem degradation	• Changes in the quantity and quality of land, water and soil resources (CO) • Loss of suitable habitat resulting in biodiversity loss (BD)

GL1.4. Project activities that assist local communities to adapt to climate change

Demonstrate that the project activities will assist communities and/or biodiversity to adapt to the probable impacts of climate change.

Forests provide a rich source of natural capital for local communities; in essence they provide essential 'life support systems' i.e. ecosystem services, that people depend on. Healthy, fully functioning ecosystems are more resilient to climate change stresses and therefore enhance resilience to climate change impacts (Munang et al 2013). As mentioned, project activities are designed to reduce climate exposure and sensitivity as they will protect the natural resources, biodiversity values and ecosystem services that underpin communities' livelihoods ensuring that habitat connectivity is maintained.

Assessment of FEC vulnerability to climate change has been through informal discussions with community members to date, future activities will therefore include a more formal participatory approach and awareness raising to assist communities in understanding future

impacts and to encourage the adoption of activities to mitigate those impacts. Activities such as the promotion of Savings and Internal Lending Communities (to increase financial capital within forest edge communities for alternative economic activities), implementation of sustainable and conservation agriculture techniques (to improve food security and soil fertility), environmental awareness building and co-management (to create local resource ownership and resilient institutions), can reduce the sensitivity and/or enhance the adaptive capacity of communities; a summary of how the project activities will assist both biodiversity and communities to adapt is found in Table 51.

Table 51. Summary of how project activities will assist communities and biodiversity to adapt to climate change

Anticipated Climate Change	Impact on Climate (CL), Community (CO) and Biodiversity (BD)	Impact of project activities	Result
Changes in micro-climate especially rainfall and temperature	• Disruption of agricultural calendar and lower productivity in staple food crops such as rice (CO) • Negative impact on coffee and cocoa production resulting in reduction in income (CO) • Shifting pattern in the distribution of trees and wildlife populations (BD) • Changes in the range and distribution of agricultural pests and diseases (CO)	• Awareness raising of climate change and adaptive agricultural techniques • Broaden income generating options available to forest edge communities so not dependent solely on sustainable agriculture • Maintenance of corridors between forest blocks to allow species to migrate as climate changes • Improved agricultural techniques and integrated pest management reduce impact of agricultural pests	• Enhanced resilience to effects of climate change • Reduced vulnerability to climate change through increased adaptive capacity, decreased sensitivity, and reduced exposure • Improved adaptation to predicted impacts of climate change
Erosion from increased and heavier rainfall	• Sedimentation of streams and water supply (BD, CO) • Loss of soil fertility (CO)	• Land use planning to avoid the conversion of inappropriate areas for agriculture • Promotion of methods to improve soil fertility (e.g. use of legumes, maintaining canopy to reduce run-off, maintaining root systems to divert and encourage infiltration etc)	
Increased frequency and severity of extreme weather events e.g. storms and droughts	• Increase in disease and deaths (CO) • Increase in economic damage (through crop failures or destruction) (CO)	• Increased incomes enable families to access health care • Improved agricultural techniques and livelihood diversification reduce vulnerability and enhance resilience	
Ecosystem degradation	• Changes in the quantity and quality of land, water and soil resources (CO) • Loss of suitable habitat resulting in biodiversity loss (BD)	• Enhanced agricultural techniques, institutions and knowledge help people maintain quality and compensate for changes in quantity of resources • Maintenance of corridors between forest blocks to allow species to migrate as climate changes • Research and monitoring efforts allow for adaptive management of GRNP	

GL2. Exceptional community benefits

GL2.1. Human Development ranking

Demonstrate that the project zone is in a low human development country OR in an administrative area of a medium or high human development country in which at least 50% of the population of that area is below the national poverty line.

The project zone is located in Sierra Leone, which in 2020 was ranked 182 out of 189 countries on the Human Development Index (UNDP 2013).

GL2.2. Project benefits to the lowest 50% of households

Demonstrate that at least 50% of households within the lowest category of well-being (e.g., poorest quartile) of the community are likely to benefit substantially from the project.

This project was not Validated at the Gold Level in the original 2015 version. This was for the following reasons:

- Firstly, from the PRA work at project design stages (Witkowski et al 2012) it was noted that there is great reluctance amongst community members to rank themselves in terms of well-being; they all consider themselves to be poor and want to be involved in the project activities (and introducing a targeted activity that is not approved by the community was not considered a viable option).
- Secondly it was considered that poorer households tend to be more risk adverse in their livelihood strategies and would therefore be unwilling to adopt any new techniques introduced by the project activities until they have been tried and tested by other community members. Poorer households, identified as being 'strangers' or female headed households are therefore likely to benefit in the medium term as new farming techniques, training and VSLA groups expand and are taken up by the wider community, although as described in Barriers to Benefits (GL2.3), some special measures have been incorporated into livelihood activities.

However, we believe that the above and the resulting approach taken by the project now justifies its qualification for Gold Level for the following two reasons:

Reasons 1. The Gola Forest Edge Communities represent the poorest in the country:

This CCB Project Description notes that 'All forest edge communities suffer from severe poverty and face many constraints to development'. See section G1.5. Description of project zone communities.

Going into more detail Witkowski et al 2012 (Household Survey and KII report) notes that:

- Many of the FEC are remote villages that do not lie on motorable roads and are more difficult to access. They thus receive little external support from both the government and NGOs. As the Senior District Officer of Kenema stated, "the Kenema District is one of the least developed areas – it lacks basic facilities and you see poverty in many of the chiefdoms, including Nomo, Tunkia, Gaura, and Koya. The Gola chiefdoms are the worst off – the war devastated these areas more than others. When development organizations first came they worked in secured areas – the safer and accessible areas - for initial interventions during the recovery stage. Chiefdoms around Gola were not supported even though they were the worst hit because it was the rebel stronghold. This plays out during this reporting period if you

consider the range of chiefdom development projects that have been delivered since project inception (MIR 2021)

- Most of these communities lack basic amenities, e.g. community center/barri, health center/post, schools, safe drinking water, good roads, communication (mobile phone connectivity), etc, and as such they face a lot of difficulty in their day-to-day lives. The sick and women in labour have to be conveyed long distances to medical centres and children are often sent to relations in big towns to be educated even at the primary level. It was observed that many of the dwelling houses are in disrepair. The project is directly addressing these issues as noted above and summarised in
- Wealth: When asked who the poorest and most vulnerable people in the community are, the most common answer was “all of us”, which reflects the high levels of poverty found in Sierra Leone, particularly in the rural areas. When pressed, the majority of people reported that the elderly and frail who cannot care for themselves (and are usually past the elder stage) are the most vulnerable and poor. Other groups mentioned include the disabled and sick, and among women, the single mothers, widows, and women-headed households were thought to be most vulnerable.

The longitudinal survey (Kontoleon et al 2015) notes that it would not be feasible to further differentiate as the communities are already some of the poorest in the country and also due to the fact that: The research team found that it is very difficult to determine “categories” of people that are poorer or better off. A wealth ranking exercise for each community was considered to determine factors including ability to farm, access to labour, level of power and authority possessed, and family lineage. However, this was not implemented for the following reasons: most villages have very small populations with very little significant variation in the wealth, therefore, to differentiate between recipients for project support would cause resentment and conflict.

Reason 2 – deeper focus on the FECs, the poorest quartile.

Prior to the refocus of the community benefits scheme onto these Forest Edge Communities in the Leakage belt, most of the project funding was going to each of the chiefdom headquarters, in many cases too far from the forest or the leakage belt to be relevant. This in itself is a refocus on the poorest communities in this already poor area and integral to the design of the project. In Witkowski et al 2012 (Gola REDD Project Context Report)

In addition to the critical refocusing of the project from the wider 7 chiefdoms to the 122 forest edge communities, the project also goes one step further to focus on some of the most marginalised groups. Noting the third bullet point above the poorest in these already poorest communities can be clustered into two groups. 1). Elderly and Frail, Disabled, Sick, and 2) Single mothers, Widows, Women headed households. The project also has a focus on youth. Specifically:

- GALS Programme. The project has developed a specific Gender programme (GALS) and a specific programme for families engaged in agricultural work to support families when members become ill.
- Savings and Loans programme – to support needy groups and the sick that are part of the cocoa programme
- Gender balance (including youth engagement) in the cocoa programme
- Gender balance in the scholarship scheme with almost 1000 children (500 girls) receiving school scholarships.

- GRCLG staff assists with the establishment of resource groups that include members from various social classes (e.g. men and women, youth and elders, landowners and non-landowners).

In addition

- The benefit sharing agreements are relevant here and that through these agreements communities can create their own development projects in each chiefdom.
- The scholarship programme to improve education to secondary level for children from the FECs.
- Employment from communities are a priority for the GRC organisation.
- There are also mechanisms in place for communities to have greater involvement in decision making through the Gola Community Development Committees (GCDC) and Paramount Chief representation on the GRC Board of Directors.
- We are developing a network of Eco guards and Species Champions, i.e. training community members in patrolling and providing information to Park Rangers AND training about key species that need greater protection – the aim is to increase ownership and stewardship of the GRNP by communities.

Therefore, considering the above and that the Forest Edge Communities represent the poorest of the poor in the country and that the long-term programme of community benefits was refocussed in this CCB Project Description on these very communities, we believe that this project already delivers exceptional community benefits, in the broad range of community impacts as described above in this report. The project disaggregates much of its work to focus on women, youth and the elderly/sick.

We will continue to refine our M and E and specifically indicators to draw out further evidence of delivery

The Gola REDD project is not seeking a gold level in community benefits. The project activities are not targeted to the poorest quartile of a community for a number of reasons. Firstly, from the PRA work, it was noted that there is great reluctance amongst community members to rank themselves in terms of well-being, they all consider themselves to be poor and want to be involved in the project activities (and introducing a targeted activity that is not approved by the community was not considered a viable option). Secondly it is considered that poorer households tend to be more risk adverse in their livelihood strategies and would therefore be unwilling to adopt any new techniques introduced by the project activities until they have been tried and tested by other community members. Poorer households, identified as being 'strangers' or female headed households are therefore likely to benefit in the medium term as new farming techniques, training and SILC groups expand and are taken up by the wider community, although as described in GL2.3 some special measures have been incorporated into livelihood activities.

GL2.3. Barriers to project benefits reaching the poorer households

Demonstrate that any barriers or risks that might prevent benefits going to poorer households have been identified and addressed in order to increase the probable flow of benefits to poorer households.

Project activities have taken into account the fact that poorer households tend to be more risk adverse and have time constraints to their involvement in livelihood activities. Special measures have therefore been introduced into the farming activities (crops and cocoa) to include poorer households in the short term (see activity descriptions in Tatum-Hume and Witkowski 2013). As described above **it was** anticipated that poorer households will uptake on activities once they have been tested by other households. **This is now the case.**

GL2.4. Identification and mitigation of negative impacts from project to poorer households

Demonstrate that measures have been taken to identify any poorer and more vulnerable households and individuals whose well-being or poverty may be negatively affected by the project, and that the project design includes measures to avoid any such impacts. Where negative impacts are unavoidable, demonstrate that they will be effectively mitigated.

As outlined in G1.5, the poorer households in forest edge communities are more likely to be either stranger-headed households or female-headed households as they have less ability to access good areas of land for farming. PRA did not identify these same households as more frequently accessing the project area to farm. Livelihood activities have been designed to ensure that these poorer households are involved in the livelihood activity, for example in the agricultural activity, through the provision of seed inputs to 2 poorer households from each forest edge community (one female headed and one male headed where possible).

An agreement will be developed between the landless farmer and the landowner he rents land from to ensure the farmer has access to a piece of land to grow the rice seed. Once the rice has been harvested the landless farmers will pass the same amount of seed to another landless farmer within the village with a similar agreement in place. (NB It is not considered appropriate to directly target these households for their involvement in Farmer Field Schools due to the time constraints these families often have).

GL2.5. Effectiveness of community impact monitoring with focus on poorer households and women

Demonstrate that community impact monitoring will be able to identify positive and negative impacts on poorer and more vulnerable groups. The social impact monitoring must take a differentiated approach that can identify positive and negative impacts on poorer households and individuals and other disadvantaged groups, including women.

The community impact monitoring will include households with both stranger-headed and female-headed households to monitor the long-term impact of the project on these groups.

GL3. Exceptional biodiversity benefits concept

GL3.1. Vulnerability

Vulnerability Regular occurrence of a globally threatened species (according to the IUCN Red List) at the site.

GL3.1.1. Critically endangered and endangered species

Critically Endangered (CR) and Endangered (EN) species – presence of at least a single individual

1 Critically endangered species and 8 endangered species are present within the project site. More than 1 individual of each species are present (Table 52).

Table 52. Endangered and critically endangered species present in the project site

Gola Malimbe	<i>Malimbus ballmanni</i>	Endangered
Hooded Vulture	<i>Necrosyrtes monachus</i>	Endangered
Western red colobus	<i>Procolobus badius</i>	Endangered
Western chimpanzee	<i>Pan troglodytes verus</i>	Endangered
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	Endangered
Jentink's duiker	<i>Cephalophus jentinki</i>	Endangered
	<i>Phrynobatrachus annulatus</i>	Endangered
	<i>Hylarana occidentalis</i>	Endangered
Tai toad	<i>Amietophrynus taiensis</i>	Critically endangered

G3.1.2. Vulnerable species

Vulnerable species (VU) - presence of at least 30 individuals or 10 pairs.

The Gola REDD Project believes it can achieve the criteria laid out in the optional criteria GL3 'Exceptional Biodiversity Benefits' to achieve Gold Level status, on the basis of meeting the criteria for "vulnerability" as described. In addition, the criteria for "irreplaceability" are also met. The project zone is home to several threatened species, some of which occur in good numbers. This makes the project zone a key site for the conservation of these species.

Vulnerability

The project zone is listed as an Important Bird Area (Fishpool & Evans 2001) and is part of the Upper Guinea Forest biodiversity hotspot defined by Conservation International (Myers et al 2001). Based on these criteria, the project zone is classified as a Key Biodiversity Area (KBA) (Langhammer et al. 2007).

Mammals

Over 40 species of large mammal are known to occur in the project zone (Lindsell et al. 2011), of which four species are listed as Endangered and five species as Vulnerable. The three primates that are considered Vulnerable are all widespread and common within Gola. The numbers of Zebra and Jentink's duiker are currently unknown as this is a very furtive species that is difficult to survey, but work using camera traps will help overcome this problem during

future monitoring activities. African forest elephant is now very rare in Gola and probably does not meet the threshold of 30 individuals. Approximate numbers of Pygmy hippos are thought to be between 100 and 150 individuals (pers.comm. Annika Hillers). The project therefore meets the vulnerability criteria for endangered and vulnerable mammal species.

Table 53. Threatened mammals recorded in the project zone

Based on Lindsell et al. (2011). Status refers to the 2011 IUCN Red List Category, updated from www.iucnredlist.org.

English name	Scientific name	IUCN status	Numbers in PZ
Western pied colobus	<i>Colobus polykomos</i>	Vulnerable	5000 – 8000
Western red colobus	<i>Piliocolobus badius</i>	Endangered	10,000 – 20,000
Sooty mangabey	<i>Cercocebus atys</i>	Vulnerable	2000 – 15,000
Diana monkey	<i>Cercopithecus diana</i>	Vulnerable	15,000 – 45,000
Chimpanzee	<i>Pan troglodytes verus</i>	Endangered	<500
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	Endangered	Est 100-150
Jentink's duiker	<i>Cephalophus jentinki</i>	Endangered	To be confirmed
Zebra duiker	<i>Cephalophus zebra</i>	Vulnerable	To be confirmed
African forest elephant	<i>Loxodonta cyclotis</i>	Vulnerable	<50

Birds

As described in section G1.7, the project zone is listed as an Important Bird Area (Fishpool & Evans 2001) and holds a high proportion of the threatened and endemic species of the region. In Table 54 all threatened bird species that occur in Gola are listed. One species is listed as Endangered, i.e. Gola malimbe. This species seems to be extremely localized within the Central block of the project area. In addition, six species are listed as Vulnerable. Of these species, White-breasted guineafowl, Rufous fishing-owl, Yellow-bearded greenbul and White-necked picathartes have a wide distribution within the project zone, although not necessarily in high densities. The guineafowl, greenbul and picathartes certainly meet the threshold of 30 individuals or 10 pairs; for the fishing-owl this is also likely but its numbers are difficult to assess. Although the Western wattled cuckoo-shrike and Nimba flycatcher seem to be very rare in Gola and may not meet the abovementioned thresholds, overall the project meets the vulnerability criteria for endangered and vulnerable bird species.

Table 54. Threatened birds recorded in Gola Forest.

Status refers to the 2011 IUCN Red List Category; data are from BirdLife International (2011), updated from www.birdlife.org/datazone/species/index.html. The threshold refers to the GL3.1 threshold of at least 30 individuals or 10 pairs.

English name	Scientific name	IUCN status	Population above threshold?
White-breasted Guineafowl	<i>Agelastes meleagrides</i>	Vulnerable	Yes
Rufous Fishing-Owl	<i>Scotopelia ussheri</i>	Vulnerable	Yes
Western Wattled Cuckoo-shrike	<i>Lobotos lobatus</i>	Vulnerable	No
Yellow-bearded Greenbul	<i>Criniger olivaceus</i>	Vulnerable	Yes
Nimba Flycatcher	<i>Melaenornis annamarulae</i>	Vulnerable	No
White-necked Picathartes	<i>Picathartes gymnocephalus</i>	Vulnerable	Yes
Gola Malimbe	<i>Malimbus ballmanni</i>	Endangered	n/a

Amphibians and reptiles

Gola Forest is home to over 40 species of amphibians (Hillers 2009), of which four species are currently considered threatened (Table 55). In addition, one reptile (African dwarf crocodile *Osteolaemus tetraspis*) is listed as Vulnerable.

Table 55. Threatened amphibians recorded in Gola Forest.

By Hillers (2009). Status refers to the 2011 IUCN Red List Category, updated from www.iucnredlist.org.

Species	IUCN status	Population above threshold?
<i>Amietophrynus taiensis</i>	Critically endangered	n/a
<i>Conraua alleni</i>	Vulnerable	n/a
<i>Phrynobatrachus annulatus</i>	Endangered	n/a
<i>Hylarana occidentalis</i>	Endangered	n/a

GL3.2. Irreplaceability

Irreplaceability. A minimum proportion of a species' global population present at the site at any stage of the species' lifecycle according to the following thresholds:

GL3.2.1. Restricted range species

Restricted-range species - species with a global range less than 50,000 km² and 5% of global population at the site; or

Globally significant source populations - 1% of the global population at the site

Irreplaceability

Besides the “vulnerability” criteria, the Gola REDD Project also meets the criteria for “irreplaceability”. As described above, several species found in the project zone have an extremely localized global distribution. Although exact population sizes of many species are unknown, *at least* the following species are believed to meet several of the “irreplaceability” criteria.

Table 56. Species meeting the ‘irreplaceability’ criteria

Species	Irreplaceability criteria	References
Pygmy hippopotamus	2.4, possibly 2.1	Lindsell et al (2011), Hillers & Muana (2011) http://www.iucnredlist.org/details/10032/0
White-breasted Guineafowl	2.1, 2.4	Klop et al (2010), http://www.birdlife.org/datazone/speciesfactsheet.php?id=306
Rufous Fishing-Owl	2.1, 2.4	Klop et al (2010), http://www.birdlife.org/datazone/speciesfactsheet.php?id=2234
White-necked Picathartes	2.1, 2.4	Monticelli et al (2011), http://www.birdlife.org/datazone/speciesfactsheet.php?id=6263
Gola Malimbe	2.1, 2.4	Klop et al (2010), http://www.birdlife.org/datazone/speciesfactsheet.php?id=8560
<i>Phrynobatrachus nov. sp.</i>	2.1, 2.4	Hillers (2009)
<i>Amietophrynus taiensis</i>	2.1, 2.4	Hillers (2009)

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Annexes

Annex 1. List of project reports (supplied to the auditor as appendices)

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Winrock. 2013. Carbon monitoring report

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Witkowski, Kelly, Kanneh, Fomba, Tatum-Hume, Emma. 2012c. Gola REDD project context report

Zombo, Joseph, Abdulai, Bob, Witkowski, Kelly. 2012. Offsite Village survey report

Other files

Baseline Carbon Calculations – Excel file

GRNP. 2013. List of published and unpublished ecological research from the project zone

Project boundaries - KMZ file

Reference region calculations – Excel file

Financial Analysis (confidential file)

Project Agreements (confidential file)

Project HR files (staff handbook, employment policy, templates etc)

Standard operating procedures for measuring carbon stock enhancement



GOLA RAINFOREST NATIONAL PARK

MANAGEMENT PLAN 2024 - 2029



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GOLA RAINFOREST NATIONAL PARK MANAGEMENT PLAN 2024 - 2029



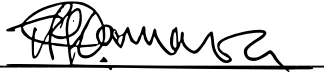
Management Plan prepared by and for the Gola Rainforest Conservation LG



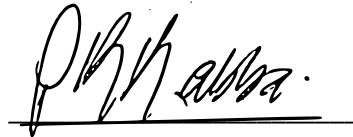
August 2024

Approval Page

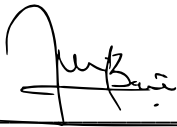
The implementation of this management plan for Gola Rainforest National Park has been approved by the management of GRC-LG and the following stakeholders:



Thomas Fayia Kamara,
Executive Director,
National Protected Area Authority



Patrick Kanneh Kabba,
Paramount Chief, Nomo,
PC Rep. GRC-LG Board of Directors



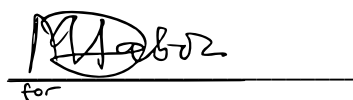
Hon. Momoh Bockarie,
Member of Parliament,
Koya and Gaura Chiefdoms



Tiangay Palmer,
Acting Chairman,
Pujehun District Council



Moses Melvin Kanneh,
Chairman Representative,
Kailahun District Council



Frances Jambawai,
Chairperson,
Kenema District Council



Charles Showers,
President,
Conservation Society of Sierra Leone



Richard Dixon,
Head of the Greater Gola Landscape,
Royal Society for the Protection of Birds

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Acronyms

AOP	Annual Operational Plan
ARTP	Across the River Transboundary Peace Park Project
BSA	Benefit Sharing Agreement
CCB	Climate, Community and Biodiversity
CD	Community Development
GRC-LG	Gola Rainforest Conservation Limited by Guarantee
CSSL	Conservation Society of Sierra Leone
CRS	Catholic Relief Service
EPA	Environmental Protection Agency
GOAL	Irish NGO
GRNP	Gola Rainforest National Park
GCDC	Gola Community Development Committee
FD	Forestry Division
FEC	Forest Edge Communities
FG	Focal Group
GoSL	Government of Sierra Leone
HCV	High Conservation Value
MoECC	Ministry of Environment and Climate Change
NGO	Non-Governmental Organisation
NPAA	National Protected Areas Authority
NTFP	Non-Timber Forest Product
PC	Paramount Chief
REDD	Reducing Emissions from Deforestation and Degradation
RSPB	Royal Society for the Protection of Birds
SILETI	Sierra Leone Timber Industry and Plantation Company
VCS	Verified Carbon Standard
VCU	Verified Carbon Credits
WHH	Welt Hunger Hilfe

Acknowledgements

The Gola Rainforest National Park Management Plan 2024-2029 was prepared in close consultation with the management of GRC-LG as well as other stakeholders including administration of District Governments in the GRNP area and political leaders including Members of Parliament and Paramount Chiefs representing the seven Gola Chiefdoms.

The effective protection and management of the GRNP is assured by the National Protected Area Authority of Sierra Leone, which has delegated the day-to-day management of the sites to the not-for-profit Gola Rainforest Conservation company (GRC-LG). GRC-LG was created and legally registered adhering to the relevant National Laws. This joint venture solidified the partnership between the Government of Sierra Leone, Conservation Society of Sierra Leone (CSSL), and the Royal Society for the Protection of Birds (RSPB).

GRC-LG was established to act as project proponent for the Gola REDD project and enable the sale of carbon credits validated by the Verified Carbon Standards (VCS) and by the Climate Community and Biodiversity Alliance (CCBA) to provide a stream of sustainable revenue sufficient to significantly reduce emissions from unplanned deforestation activities through effective forest protection and sustainable management of natural resources. The Gola REDD project is the primary source of funding for implementing the activities of the Gola Rainforest National Park Management Plan. The GRNP Management Plan is developed with full recognition and primary goal for the Gola REDD¹ project to meet the Verified Carbon Standard (VCS) and Climate, Community and Biodiversity Standard (CCB).

The revision of the Management Plan for 2024 – 2029 was supported by the European Union through the Support Programme for the Preservation of Forest Ecosystems in West Africa (PAPFor)

¹ Reducing Emissions from Deforestation and Forest Degradation.

EXECUTIVE SUMMARY

VISION AND PURPOSE

The **vision** of the Gola Rainforest National Park is to act as a catalyst for peace, prosperity and national pride in Sierra Leone, supported by the Gola REDD project to be a successful model for replication in other landscapes in Sierra Leone and a model for Africa.

The **purpose** of the Gola REDD project is to conserve the forests, biodiversity, ecological processes and services of the GRNP and wider landscape in perpetuity through effective participatory management, sustained funding and ongoing benefits for the local communities.

PURPOSE OF THE MANAGEMENT PLAN

This management plan builds on the work carried out under the Gola Rainforest Protected Area Management Plan 2014 – 2018 and integrates the activities planned under the Gola REDD Project for the next 5 years. The plan has been produced to provide the Gola Rainforest Conservation LG and stakeholders with strategies and prescriptions that give guidance to achieve set goals. The plan aims to protect the conservation integrity of the GRNP and surrounding area by strengthening the practical and technical capacity of GRNP staff and local community members, establishing effective management systems, and operating procedures, and developing sustainable sources of income for management and livelihoods that enables the GRNP to function in an efficient and effective manner.

The plan covers the following areas:

- The **Protected area** which is the three blocks of the Gola Rainforest National Park (GRNP);
- The **Leakage Belt** which is the area immediately surrounding the three blocks and extending approximately 4km from the National Park boundaries, except for in the east where it is truncated by the Liberian border.
- The **Offsite Zone** which extends from the edge of the leakage belt to the edge of each of the seven chiefdom boundaries.

The management plan provides:

- an updated review of the information relating to the forest in terms of its physical, biological and cultural aspects, and recent management.
- identifies the key values of the site – environmental, biological, and socio-economic - and the threats facing them; and
- presents a series of objectives and activities required for high quality and sustainable management of the area. These objectives and activities are achievable and realistic and are widely accepted as constituting good management practice.

CONSULTATION PROCESS

The management plan is based on the project documents for the Gola REDD project. An extensive consultation process was carried out during the development of the project with the 3 identified primary stakeholder groups (Paramount Chiefs, Landowning families, and Forest Edge Communities) as well as with secondary stakeholders to the project; this process is fully documented in the CCB PD.

Full support is given to the Gola REDD project and thereby the contents of the Management Plan from both primary and secondary stakeholders.

Management Consultation has also been extended to larger Stakeholder process including the GRC LG Board of Directors, Administration of District Governments in the GRNP Area and Political Leaders including Members of Parliament representing the Gola Chiefdoms. Partnership development and stakeholder relationship has grown and will continue to be maintained to recognise policy and administrative interactions to ensure commitment and inclusiveness in decision making and institutional collaboration.

VALUES AND THREATS

The key values of the GRNP and wider landscape (the Gola Rainforest) and the principal threats affecting them are summarised below.

Key Values

The Gola Rainforest has representative values in all six categories of the internationally recognised High Conservation Value (HCV) classification:

HCV 1 Areas containing globally, regionally, or nationally significant concentrations of biodiversity values e.g. the Gola Rainforest constitutes the westernmost part of the Upper Guinea forest belt, which has been classified as one of the 34 most important biodiversity hotspots in the world. The area is also part of WWF's Western Guinean Lowland Forest Ecoregion and BirdLife International's Upper Guinea forests Endemic Bird Area and Gola Forest Important Bird and Biodiversity Area. The area contains at least 60 species which are globally threatened and many species which are either site- or regional endemics.

HCV 2 Globally, regionally, or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance e.g. the Gola Rainforest is widely recognised as one of the best remaining fragments of the Upper Guinea forest type in West Africa, supporting many species of plants and animals that do not occur outside of the Upper Guinea forests. The populations of these species are of global significance as local extinction would be detrimental to the survival of entire species. At the national level, the Gola Rainforest contains the largest remaining tract of tropical lowland forest in Sierra Leone.

HCV 3 Threatened or rare ecosystems e.g. the Upper Guinea forests, distributed from Guinea to Togo, have suffered an estimated 50 - 80% loss of forest cover since the beginning of the 19th century. The conservation of the Gola Rainforest is crucial for the survival of this highly threatened habitat and its associated species in Sierra Leone.

HCV 4 Areas that provide basic ecosystem services in critical situations e.g. the Gola Rainforest provides several critical ecosystem services including carbon sequestration, watershed protection, erosion prevention, climate regulation and the supply of wild pollinators for commercial crops.

HCV 5 Areas fundamental to meeting basic needs of local communities e.g. although the available information suggests that the protected area serves more as an additional source for meeting some basic needs rather than being a fundamental source, the project is designed to ensure that Forest

Edge Communities (FECs) will be involved in the co-management of the GRNP and are able to sustainably extract NTFPs and fish as they have done in the past.

HCV 6 Areas critical to local communities' traditional cultural identity e.g. there are sites within the Gola Rainforest that are important for initiation rights and there are also sacred burial grounds.

Other Values

Effective management of the forest and its associated wildlife also has the potential for generating modest levels of income for local communities and the forestry and wildlife sector in Sierra Leone through the **development of nature-based tourism/ecotourism**.

The richness and conservation importance of the area presents many opportunities for **research** which would add significantly to the scientific baseline for West Africa and establish the GRNP as a centre for international research excellence.

As the first REDD project to be developed in Sierra Leone, the innovative approach to planning, financing, and managing the Gola Rainforest being adopted by the partners has the potential to **demonstrate** that protecting forest resources can be both socially and environmentally beneficial. It is envisioned that it will pave the way for future projects of a similar nature that will provide Sierra Leone with a viable sustainable alternative to forest conversion and biodiversity loss.

Key Threats

The main threats facing the area are:

Deforestation and degradation e.g. conversion of forest to the bush-fallow cycle for subsistence agriculture, illegal selective logging and artisanal mining. Deforestation in the Gola Rainforest would reduce the size of the forest blocks and increase their isolation from one another. This would have a direct impact on plant biodiversity and an adverse impact on other taxa as many species are restricted to forest habitats and so are dependent on the availability of forest cover. Mining activities would open the forest to other damaging activities through access roads and the possible use of toxic chemicals. Deforestation would also release significant amounts of CO₂ into the atmosphere which is contrary to the aims of the Gola REDD project.

Disturbance e.g. this represents a threat to biodiversity as many species are susceptible to even small levels of disturbance. Species particularly at risk include the Vulnerable White-necked Picathartes, Critically Endangered Forest Elephant, and the Endangered Pygmy Hippopotamus.

Bush meat hunting e.g. this is known to be one of the most important threats to primate and duiker populations and many of the primates and duikers in the Gola Rainforest are targeted by hunters. A survey in 2012 (Koroma 2012) of bush meat markets found six species of high conservation concern including the Critically Endangered Western Chimpanzee, three Endangered species - Western Red Colobus, Diana Monkey and Black and White Colobus and Pygmy Hippopotamus - and two Vulnerable species - Sooty Mangabey, Olive Colobus. Bushmeat consumption and trade is still high in urban centres.

Active bushmeat market still operate in Eastern City capital – Kenema till date. Several bird species are also susceptible to hunting for food or as pets such as the Endangered Timneh Parrot.

MANAGEMENT PROGRAMMES

To protect the key values of the Gola Rainforest and to address the threats, four management programmes have been developed. The objectives and key activities of each programme are given below.

1. Park Protection Programme

Strengthen the protection strategy and effective management of the GRNP to maintain and enhance its full range of functioning ecological processes and enable the project to be a catalyst for building national policies and regulations for conservation and natural resource management as well as informing relevant regional and international platforms.

- Patrolling
- Effective communication with all stakeholders
- Maintenance of boundaries
- Transboundary coordination and collaboration
- Dissemination of best practice
- Advocacy.

2. Community Partnership and Sustainable Development Programme

Create an enabling environment for neighbouring communities to act as committed environmental stewards of the natural resource base that underpins their livelihoods through activities that enhance, generate value from and materialise the benefits derived from the Gola Rainforest's forests and sustainable land use practices.

- Increase productivity of existing and novel agricultural crops, both commercial and food crops
- Reduce human-wildlife conflicts.
- Implementation of effective Community Based Natural Resource Management practices, including co-management of areas.
- Improved organisation and capacity of small holders
- Development of small-scale ecotourism
- Improved access of local communities to health, education and financial services and opportunities
- Benefit Sharing Agreements.
- Promote environmental education and awareness.

3. Research and Monitoring Programme

Develop and maintain a comprehensive socio-economic and biodiversity database and associated monitoring system to ensure the availability of accurate, relevant, and timely information to inform and enhance project management and the effective delivery of outcomes.

- Research and monitoring of key species, habitats, environmental and socio-economic factors to inform future management.
- Development of Conservation Action Plans

- Maintenance of a research database
- Dissemination of research results
- Develop the GRNP as an international centre of excellence for tropical forest research and management as well as a research ground for socioeconomic and anthropological studies.

4. Operational Effectiveness Programme

Enable effective management through the implementation of best practice administrative and financial systems and the provision of necessary staff training, resourcing, and equipment.

- Robust and transparent financial and staff management procedures
- Provision of infrastructure, equipment, and training
- Culture of teamwork, respect, and excellence

PLAN IMPLEMENTATION

A management plan is a tool, not an end, and should be viewed as a practical, working document. Additionally, management planning is an ongoing process, and the management plan should form part of a constantly evolving and developing system which adapts to changing situations, experience gained, successes and failures but always directs activities towards the long-term conservation and sustainable management of the site. Day to day management of the site will be through the implementation of Annual Operational Plans and the effectiveness of operations should be reviewed at least annually.

A comprehensive review of the entire plan should be carried out after 5 years and new objectives and activities developed for the next 5-year period.

WIDER CONTEXT

Sierra Leone has ratified several international conventions related to protecting and conserving the natural environment, including the Convention on Biological Diversity, the Climate Change Convention, the Ramsar Convention, CITES and the World Heritage Convention. Successful implementation of the Gola REDD project and as part of it this management plan will make a significant contribution to fulfilling the Government's commitments under these conventions.

PART ONE: INTRODUCTION AND BACKGROUND INFORMATION

A. INTRODUCTION

Between 1961 and 1989, some 28% of Gola Forest was subject to commercial logging (Iles et al. 1993). Logging took place at varying intensities, ranging from less than 1m³ ha⁻¹ to over 30 m³ ha⁻¹. The southern parts of Gola are more accessible and so were more intensively logged (42.5% of the area) than the more rugged northern parts (19% of the area).

The Gola Forest Reserves and the Kambui Hills Reserves constituted most of the Kenema Sawmill Series supply area. Multiple small private contractors in the Kenema area had also initiated plans to harvest timber in “salvage” areas outside Forest Reserves, but only two have been implicated in economic exploitation within the Reserves: Forest Industries Corporation (FIC), a Sierra Leonean company acting under the Ministry of Trade and Industry, and Sierra Leone Timber Industries (SILETI), an Italian-Sierra Leonean company. Despite a 25-year concession agreement, SILETI operated from 1976 to 1993. FIC, on the other hand, has been operating in Gola North (current Gola Central) since the 1960s, and Gola East and West (current Gola South) were added to their concession when SILETI left in 1984 (Davies 1987).

When commercial logging in Gola failed (for a variety of reasons) there appeared to be an opportunity to promote the conservation of the rainforest. Starting in the 1980s with the work of Dr. Glyn Davies (Davies 1987), a range of actors including the RSPB (Royal Society for the Protection of Birds) and CSSL (Conservation Society of Sierra Leone) worked together with the national government of Sierra Leone to establish a conservation programme in the Gola Rainforest.

The GRNP was declared a National Park on 24 November 2010 by statutory instrument number 15-2010. The limits of the National Park were published in the Sierra Leonean Gazette on 16 December 2010². A detailed description of the original designation of the Gola Forest Reserves and previous management is provided in the Gola REDD project documents and is summarised in table 1 below.

TABLE 1. KEY DATES IN THE HISTORY AND MANAGEMENT OF GOLA RAINFOREST NATIONAL PARK

Date	Brief details
1926 – 1930	Gola Forest Reserves designated – 58,923.40 ha.
1956-1963	Extensions to Gola North designated – 15,979.65 ha. Total reserve area increased to 74,903.05 ha
Late 1980s to date	Collaborative research and conservation work carried out by RSPB, CSSL and the Government of Sierra Leone.
2002	Gola Conservation Concession Framework officially established to develop a multi-stakeholder approach to the conservation and management of the Gola Forest Reserves.

² The boundaries of the national park were demarcated on the ground during project development in coordination with the villages neighbouring the Park and have subsequently changed from those which were published in the gazette. The formal process for updating the boundary schedule will be carried out as one of the activities of the project.

2003	Local communities' cooperation agreement signed.
2004	First Forest rangers begin patrols on the ground
2006	Scoping study carried out to investigate long term financing strategies for protected areas in Sierra Leone concludes that REDD financing has potential
2007	Cooperation and Benefit Sharing Agreement between the local communities. And partners (National Commission on the Environment and Forestry – NaCEF, RSPB, CSSL and the seven Chiefdoms) signed
2008	First REDD feasibility study carried out for Gola forests by Eco-securities concludes that REDD could create sustainable funding for the management of the GRNP
2009	First comprehensive management plan finalised (2007-2012)
2010	Gola Rainforest National Park declared on 25 November – see appendix 1.
2011	Second REDD feasibility study and preparations begin to develop a REDD project
2012	1 st August, Gola REDD Project start date
2012-2013	Agreements signed between landowner representatives and the Government to exchange carbon rights for project benefits. National Park boundaries are demarcated on the ground in agreement in the 86 Forest Edge Communities sharing a direct border. Numerous meetings and dialogue held with Forest Edge Communities and other stakeholders to develop the Gola REDD project activities with the FPIC of those involved
2013	Gola Rainforest National Park on Sierra Leone's tentative list for World Heritage Site Nomination
2014	Gola Rainforest Conservation LG established to act as project proponent for the Gola REDD project and enable the sale of carbon credits validated by the Verified Carbon Standards (VCS) and by the Climate Community and Biodiversity Alliance (CCBA) to provide a stream of sustainable revenue sufficient to significantly reduce emissions from unplanned deforestation activities through effective forest protection and sustainable management of natural resources. REDD Benefit sharing agreement signed by GRC LG and the 7 Chiefdoms
2015 -2018	Gola Rainforest National Park carried out the first verification process based on REDD+ and earn the first set of carbon credits
2019 – 2022	Gola Rainforest National Park REDD+ Programme due to prepare another REDD+ Verification process to earn more credit for sustainable financing of GRNP Forest Protection and support to integrated agriculture and livelihoods support for Gola communities. Benefit Sharing Agreement revised, and its scope widened to enhance community benefits from the REDD+ Funds
2023	Gola Rainforest National Park joined in the preparation of dossier for the Tiwai-Gola Forest complex submission to the World Heritage Commission
2024	Gola Rainforest National Park commenced the processes for submission of its third verification for carbon credits

B. DESCRIPTION OF THE GOLA RAINFOREST NATIONAL PARK

1. SITE INFORMATION

1.1 Location

The Gola Rainforest National Park is in the southern part of Sierra Leone, 30km south-east of the district headquarter town of Kenema and 260 km east of Freetown, the nation's capital. The eastern section of the protected area lies adjacent to the River Moro and Mano and the international border with Liberia. To the south the area is bisected by the Kenema-Zimmi highway. The National Park lies within three districts: Kailahun, Kenema and Pujehun (see Figure 1)

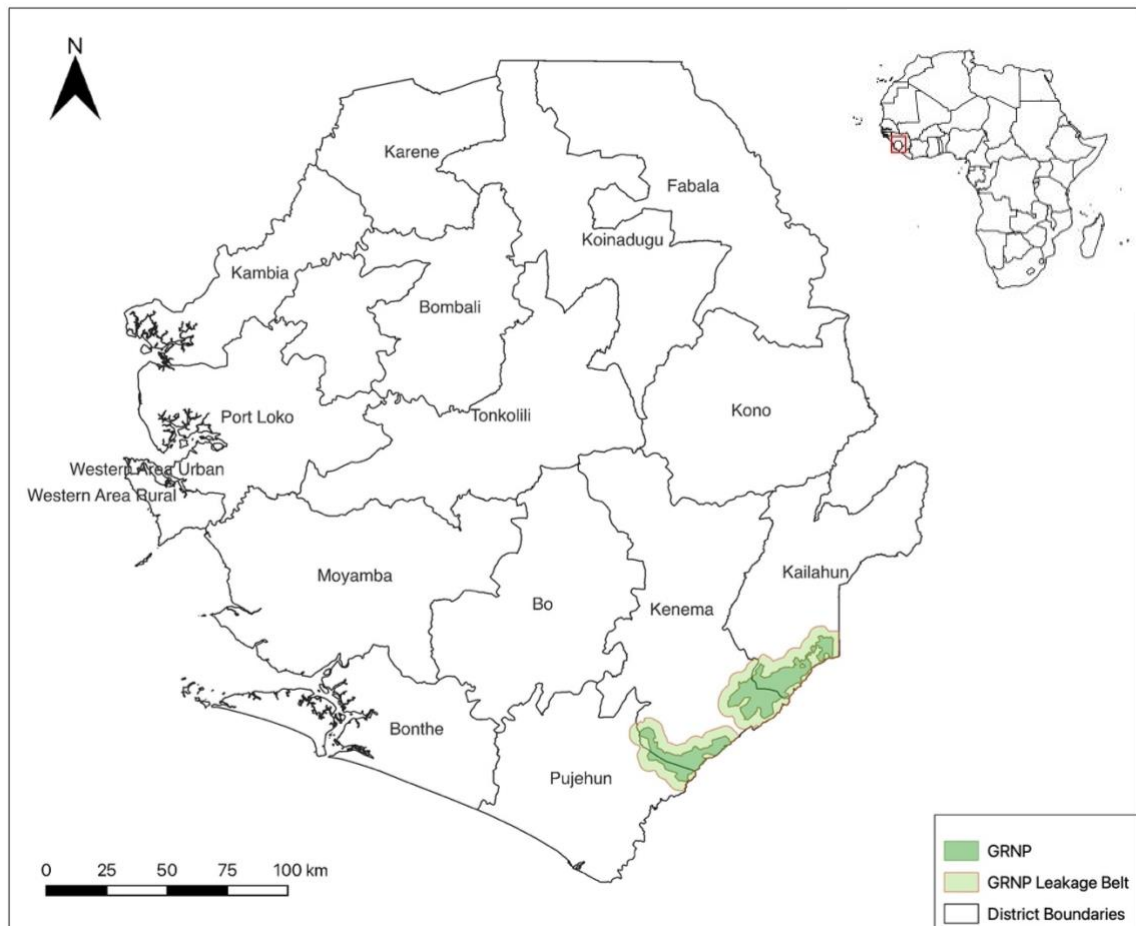


FIGURE 1. NATIONAL AND ADMINISTRATIVE SETTING OF THE GOLA RAINFOREST NATIONAL PARK

The Gola forests are the largest area of tropical forest remaining in Sierra Leone and form part of the Upper Guinea forest system which is classified as one of the 34 most important biodiversity hotspots in the world (Myers et al. 2000, Conservation International website, 2013). The Gola forests are a key biodiversity stronghold for many endangered and threatened bird and mammal species and are also politically important as they form part of a larger trans-boundary peace area designed to assist in establishing permanent peace in a previously troubled cross-border region.

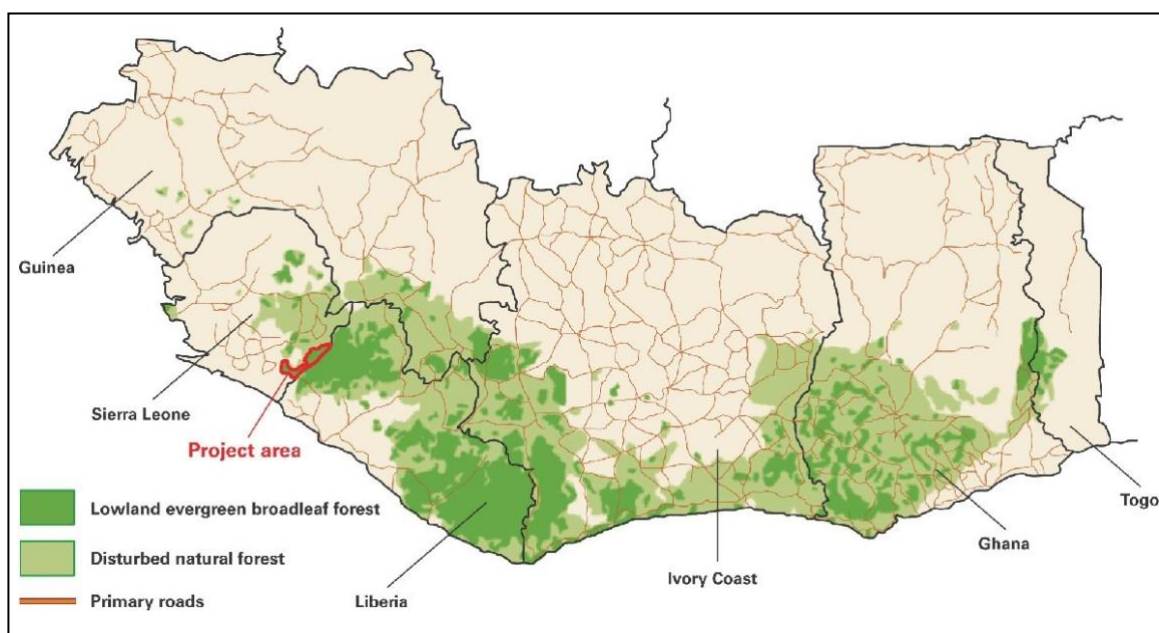


FIGURE 2. LOCATION OF THE NATIONAL PARK WITHIN THE UPPER GUINEA FOREST ZONE

1.2 Area and Extent

As mentioned in the Definition of the Management Planning Area, this Plan uses the following definitions to describe the different parts of the operational area (see Figure 3):

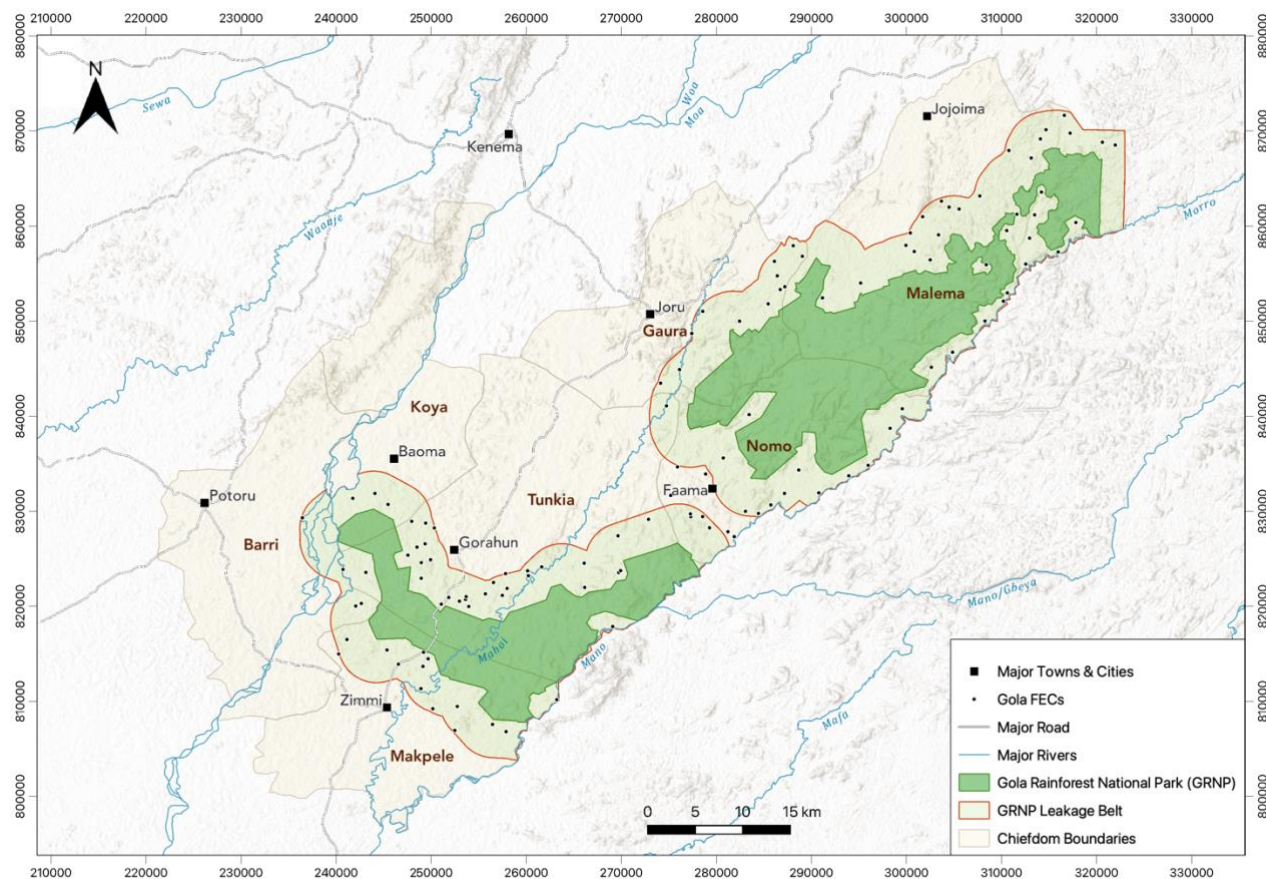


FIGURE 3. BOUNDARIES OF THE GOLA RAINFOREST NATIONAL PARK, LEAKAGE BELT AND SEVEN GOLA CHIEFDOMS

National Park – the demarcated boundary of the GRNP consists of three separate blocks; Gola North (53.7 km²), Gola Central (385.8 km²) and Gola South (260.1 km²). These are also the boundaries of the “project area” of the Gola REDD carbon project and over which the Gola Rainforest Conservation LG³, the project proponent, has management control. This area is 69,174 ha, 68,515 ha of which is forested⁴. There exists one enclave in the Park – Wagikoh – in the Gola central section of the National Park. It is mapped and a limit of land use (30.5 ha) is clearly agreed and set aside for Wagikoh.

Leakage belt –the forested and non-forested area that immediately surrounds the National Park, extending for 4km around each block of the protected area except on the eastern side where it is truncated by the Sierra Leone-Liberian border. The leakage belt was defined to meet the requirements of the VCS methodology VMD0007 and together with the National Park comprise the “project zone” definition for the Gola REDD project. However, it also functions as a buffer zone including both forested and non-forested land totaling 90,864 ha. The leakage belt contains 122 inhabited Forest Edge Communities⁵ including the Wagikoh enclave located in the North-western part of Gola Central.

Offsite zone –the area beyond the leakage belt and extending to the boundaries of the seven Chiefdoms, it contains approximately 468 communities and 254,831 people.

1.3 Administrative Authority

The Gola Rainforest lies mostly in the Eastern Region of Sierra Leone but extends marginally into the Southern (Bo) Region. It lies in three districts – Kenema, Kailahun and Pujehun (see Figure 1).

There are seven Chiefdoms covering the GRNP: Malema, Gaura, Nomo, Tunkia, Koya, Barri, and Makpele (see Figure 3 and Table 2). A dual system of governance operates in the provinces of Sierra Leone; land is governed by customary rules and areas are divided into Chiefdoms, overseen by Paramount Chiefs and other traditional authorities. These Chiefdoms are the landowners of the forest, but the legislative and administrative authority lies with the National Protected Area Authority of the Ministry of Environment and Climate Change.

TABLE 2. ADMINISTRATIVE AUTHORITIES OF THE GOLA RAINFOREST NATIONAL PARK

	Forest areas	Host Chiefdom	Host District
1	Gola North (former Gola North extensions*)	Tunkia, Gaura, Nomo, Malema	Kenema, Kailahun
2	Gola Central (former Gola North*)	Tunkia, Gaura, Nomo, Malema	Kenema, Kailahun
3	Gola South (former Gola East and Gola West*)	Tunkia, Barri, Makpele, Koya	Kenema, Pujehun

* prior to National Park designation in 2010 when the site was a production Forest Reserve

³ The official title of the managing authority is the Gola Rainforest Conservation Company Limited by Guarantee but when written this is reduced to Gola Rainforest Conservation LG.

⁴ The newly demarcated National Park or protected area is considerably smaller than the area originally gazetted as a production forest reserve. The reasons for this are fully described in Marris et al 2013.

⁵ A Forest Edge Community is defined as a community lying adjacent to the protected area and within the leakage belt of the Gola Rainforest. Many Forest Edge Communities (86 out of 122) also share a direct boundary with the protected area.

1.4 Access

The GRNP is accessible by laterite roads from Kenema. Gola Central is accessible by two main routes; one runs due north, the other south from Kenema. The northern half of Gola North is accessible by a paved road that passes through Daru and Jojoima. This road leads to the forest-edge villages of Teyama, Jidda, Madina and Fobu which represent the farthest motorable points to the National Park from where footpaths lead into the forest. The southern route follows the Kenema-Zimmi highway from which there are two branching points, Joru and Perri Junction. From Joru, Lalehun, a village very close to the far west of the National Park, can be reached by a laterite road. This road provided the main access for timber extraction by the Forest Industries Corporation in the 1960s and 1980s. The southern part of Gola North is accessed by a laterite road originating from Perri Junction on the Kenema-Zimmi highway. This road leads to two forest-edge villages, Belebu and Faama. Footpaths lead from these villages to the forest.

Gola South is accessible via the Kenema-Zimmi highway which bisects this forest block between Nemahugoima and Pewaa villages. The far west of the GRNP is accessible by a paved road running from Bo to Zimmi.

However, much of the GRNP has difficult or poor access routes, particularly to areas in the east and along the Liberian border. Old logging tracks run through the centres of both Gola Central and Gola South, including approximately 13 km of track from Lalehun to the old Koyai river camp, and 9km of track from the former Sierra Leone Timber Industry and Plantation Company (SILETI) sub-station to the Mahoi Bridge. Much of these are overgrown and will not be reopened, as ease of access can encourage illegal activities. Footpaths occur throughout the GRNP used by both staff of GRC-LG and communities to access villages on the far side of the National Park.

2. BIOPHYSICAL DESCRIPTION

2.1 Climate

The Gola Rainforest lies within the wet tropical climatic zone. Historical and recent precipitation data is available from towns and villages in the project and offsite zone. White (1972) reports mean annual rainfall values of 2576 mm at Daru, 2605 mm at Pendembu and 2770 mm at Kenema. Cole (1993) reports 2630 mm for Zimmi, 2739 mm for Kenema and 2747 mm for Daru. Based on this data mean annual rainfall is likely to be 2500-3000mm. In 2006 the total annual rainfall for Kenema was 2188 mm, which is lower than the historical average. During 2007 rainfall was measured within the forest of the Gola Rainforest at three sites each month – see figure 4 - and the mean annual total for the three sites was 3117mm, slightly higher than the historical average. Rain was recorded every month; there is a pronounced dry season from December to March during which rainfall was less than 50 mm per month. The wettest months are July and August when rainfall was over 550mm per month.

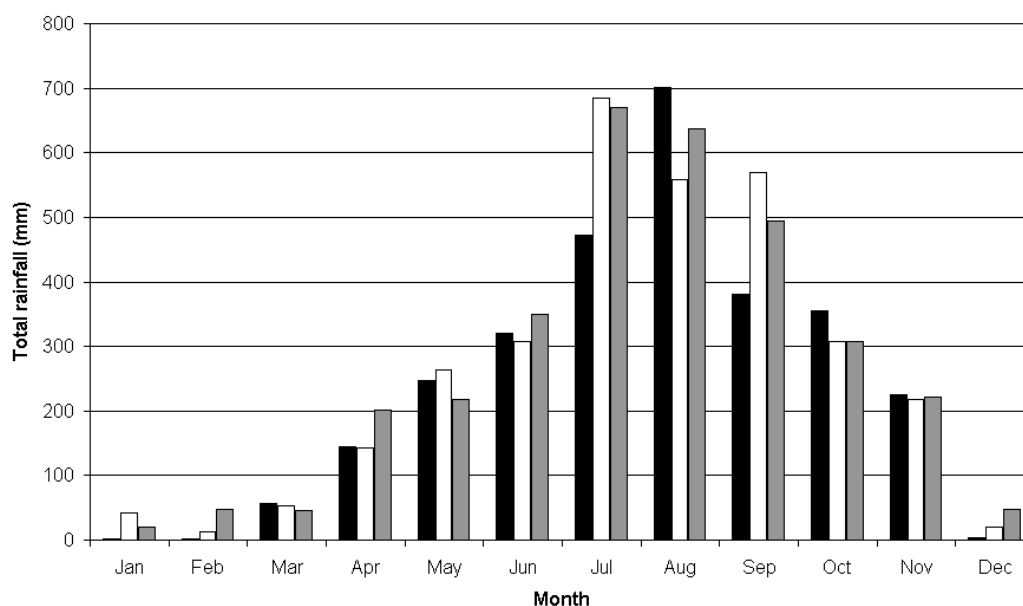


FIGURE 4. ANNUAL RAINFALL DATA FROM 3 RECORDING STATIONS WITHIN THE GOLA RAINFOREST IN 2007

2.2 Geology and Soils

2.2.1 Soils

The Gola Rainforest is characterised by ancient crystalline rocks of the Archaen subdivision of the Precambrian period (Wilson, 1965). The granite greenstone complex, common in this area, contains iron- and magnesium-rich metamorphic rocks overlying a quartz-rich granite basement.

Metamorphism gave rise to local occurrences of granulitic materials which are characteristic in parts of the protected area. Most of the ores of chromium, gold and iron are located in the strips of metamorphic rocks that permeate the dominating granite (see map 4).

The soils in the Gola Rainforest are mostly derived from granite. They are usually freely draining sands and gravels, with varying proportions of lateritic gravel. Four types of soil are recognized in the protected area (Illes et al 1993):

1. Kalufaga. Rocky hill complex of moderate to high relief on Precambrian granite complex and local amphibolites; shallow sandy clay loams with locally deeper reddish clay loams;
2. Kailahun. Strongly dissected high level plains of low to very low relief and scattered isolated hills, on Precambrian granite complex and local granulite's; moderately shallow to deep, sandy clay loams to clays often containing much gravel;
3. Blama. Dissected plains of extremely low relief with scattered small hills and terraces, on Precambrian granite complex and local granulite's; moderately deep, very gravelly reddish clay loams to clays;
4. Sandaru. Variable dissected complex of plains and rocky hills of low to moderate relief, on Precambrian granite complex; moderately shallow to deep, sandy clay loams, gravelly on hilly terrain.

Soils found in valley bottoms and terraces are the deepest and most fertile.

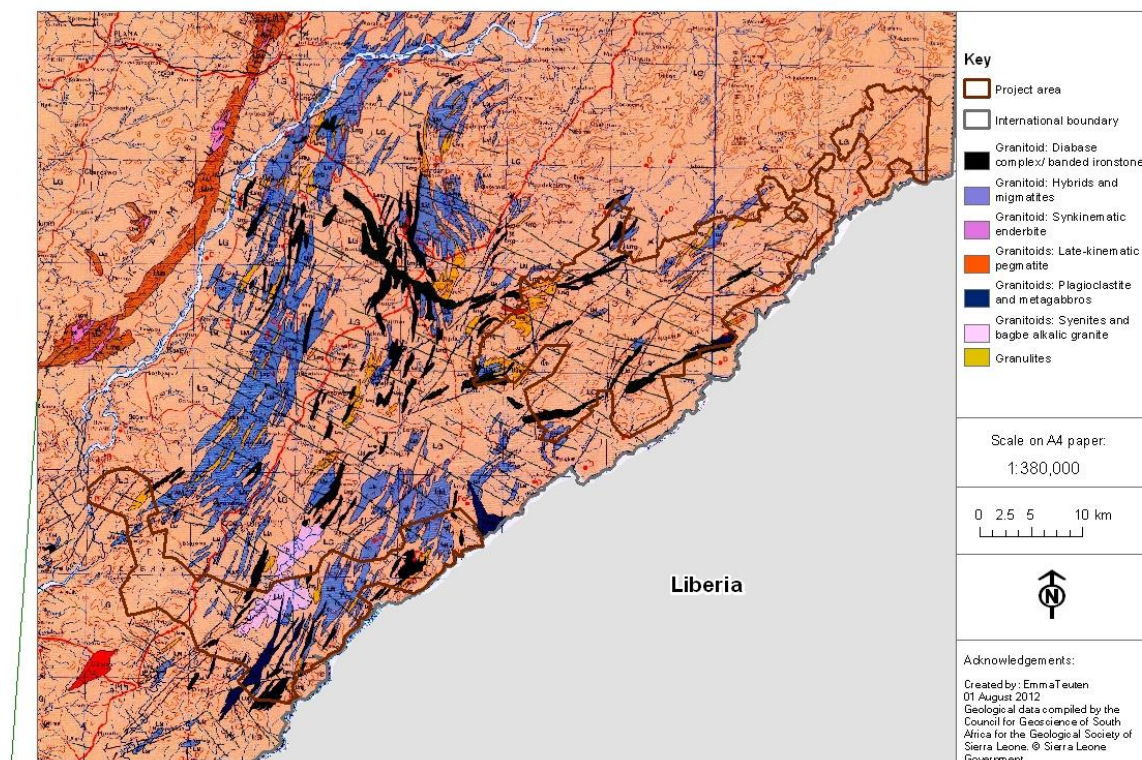


FIGURE 5. GEOLOGY OF THE GOLA RAINFOREST

2.2.2 Geomorphology

The central area of the Gola Rainforest contains the most varied geomorphologic features (see map 5). Extensive rolling hills in this area form more rugged terrain and isolated rocky outcrops, some of which exceed 130m in length and 22% are over 330m in elevation. Over 9% of this area consists of steep slopes. The highest point, 427m, is known as Sangie Mountain. Slopes exceeding 27 degrees are common, and slopes of up to 45 degrees occur in the north and eastern parts of this area.

The southern part of the Gola Rainforest is lower than the central and northern areas and becomes progressively lower and more uniform in slope from east to west. The highest point in this area is Bagra Hills at 330m in the east. The hilly terrain in this area is crossed by numerous water courses which form steep sided valleys.

The combination of richer soils and easier access in the low-lying sections of the protected area mean that these areas have been the most heavily exploited in terms of both logging and agriculture.

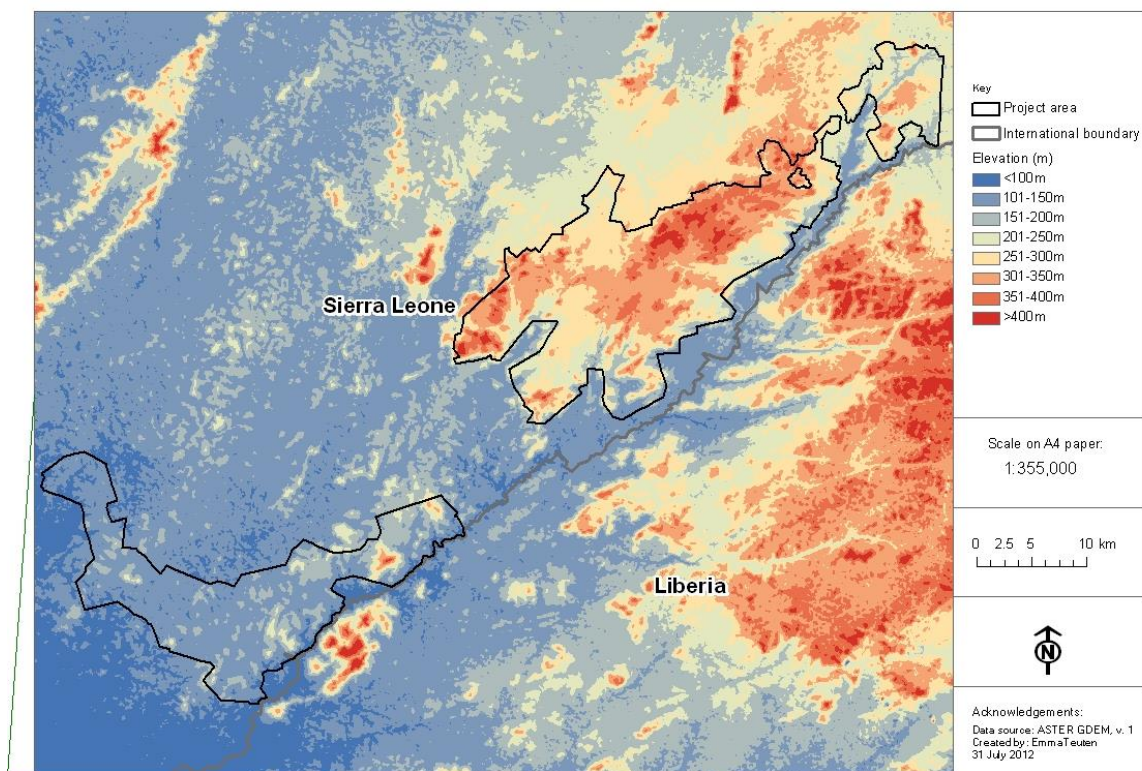


FIGURE 6. GEOMORPHOLOGY OF THE GOLA RAINFOREST

2.3 Hydrology

The Gola Rainforest covers important catchment areas for the Moro, Mahoi, Mano and Moa Rivers which are the main water supplies for local villages and towns (see map 6).

The north-eastern area of the Gola Rainforest is drained by the Moro River which runs along the eastern boundary. The region is well drained with elevated hilly terrain; only 8-9% of its area is under streams, swamps or poorly drained terraces.

The central area of the Gola Rainforest is also drained by the Moro River running along the eastern boundary. This part of the Gola Rainforest is intersected by a series of water courses and seasonally dry valleys. The most important water course to originate in this part of the Gola Rainforest is the Mogbai River which flows east into the River Moro and has a catchment of approximately 52 km² and an area of swampy terrain.

As the Moro River flows south, it flows into the Mano River which runs along the eastern boundary of the southern area of the Gola Rainforest. The eastern section of this area feeds the Mano River via a series of small rivers and streams that are no longer than 15 km, for example the Watuma, Wemango and Weadia, and as a result is well drained. The central area in the south is drained by a network of small streams which feed into the Mahoi River. The western part of the southern area is poorly drained with up to 18% of the area classed as waterway, swamp or poorly drained land. Streams in this area feed into the adjoining Moa River.

The watershed services provided by the Gola Rainforest are vital to local and regional economies which are based on subsistence and cash crops.

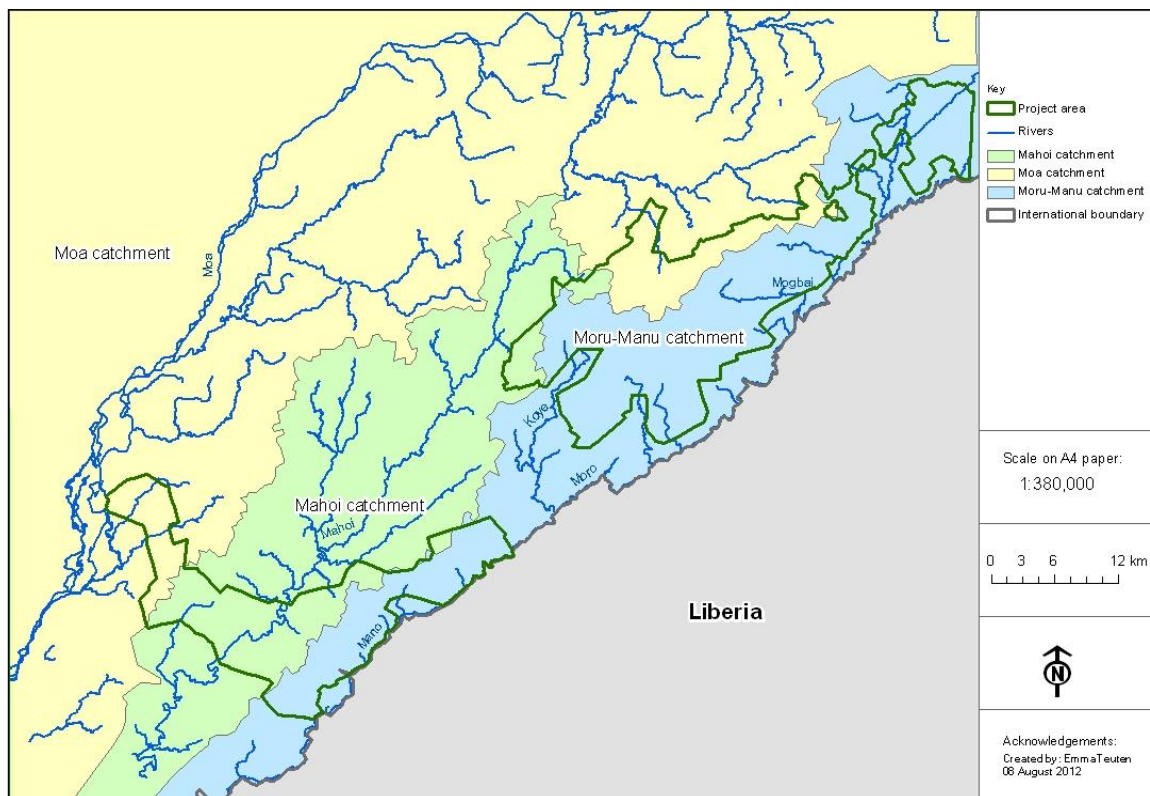


FIGURE 7. WATERSHEDS AND CATCHMENTS OF THE GOLA RAINFOREST

2.4 Biodiversity

The Gola Rainforest is extremely rich in biodiversity and harbours many species that are threatened or endemic to the Upper Guinea Forests (see map 7). The flora and fauna of the Gola Rainforest have been thoroughly surveyed, both before and after the civil war. The results of these surveys have been published in the scientific literature and in various unpublished reports (see references for the Gola REDD project documents). A brief description of the biodiversity in the Gola Rainforest and the factors threatening it is given below.

2.4.1 Vegetation Types

From analysis of satellite images, rainfall, temperature and tree species composition, the forest is best classified as evergreen moist forest (White 1972), with an overall forest cover within the protected area of 68,515 hectares. From Cole's (1993) classification and baseline surveys carried out in 2005 – 2007 (Klop et al. 2008) the main vegetation types in the protected area can be characterised as follows:

- **Evergreen forest:** Characteristic species include *Heritiera utilis*, *Brachystegia leonensis*, *Calpocalyx aubrevillei* and *Sacoglottis gabonensis*. In wet areas *Uapaca guineensis* and *Protomegabaria stapfiana* are common. This forest type is most common in the central and northern parts of the protected area, where *H. utilis* is the dominant tree species.
- **Moist semi-deciduous forest:** Dominated by species such as *Cynometra leonensis*, *Parinari excelsa*, *Parkia bicolor* and *Piptadeniastrum africanum*. These species are common on moist soils at lower altitudes, whereas the steep rocky slopes are characterised by *Erythrophleum ivorense* and *Nesogordonia papaverifera*. This forest type is found mostly in the southern parts of the protected area.
- **Freshwater inland swamp forest:** This forest type predominates on poorly drained soils of inland valleys and seasonally flooded forest along rivers, in both evergreen and semi-deciduous forest. *Raphia* palms may be dominant, whereas characteristic tree species include *Uapaca* spp., *Nauclea diderrichii* and *Newtonia duparquetiana*
- **Forest regrowth and secondary forest:** Intensively logged and previously farmed areas in the protected area support tree species like *Carapa procera*, *Macaranga barteri* and *Musanga cecropioides*.

2.4.2 Plant Diversity

The Upper Guinea Forests are species diverse, with some 2800 species of vascular plants known to occur in these forests (Jongkind 2004), of which about 650 (23%) are endemic to the region.

More than 1,000 species of plant are known to occur in the Gola Rainforest of which 232 are tree species; the most common family is Leguminosae, with common species such as *Cynometra leonensis* and *Brachystegia leonensis*. However, the dominant tree species is *Heritiera utilis* (Sterculiaceae) (Klop et al 2008). The understory is dominated by *Diospyros* spp., especially *D. heudelotii* (Klop et al. 2008).

IUCN Red List assessments for plants are incomplete, nonetheless at least 33 globally threatened species have been recorded in recent years including two, *Tieghemella heckelii* and *Placodiscus pseudostipularis*, that are classified as Endangered and 31 classified as Vulnerable (www.iucnredlist.org, 2012). A further six Vulnerable species are known from previous surveys. Poorter et al. (2004) classified 278 woody plants in the Upper Guinea forests as rare or threatened based on extent of distribution and threats from human exploitation. Of these, 67 have been

recorded in the Gola Rainforest in recent surveys and a further two are known from previous surveys. 599 forest species are endemic to the Upper Guinea forests, of which 120 have been found during surveys.

Of the 71 species of orchids identified in the Gola Rainforest, seven are thought to be endemic to the Upper Guinea Forest (Klop et al., 2008). According to Jongkind (2004), there are about 25 species of Orchidaceae endemic to the Upper Guinea Forest. Therefore, the Gola Rainforest contains almost 1/3 of the Upper Guinea endemics in this family.

Plant species of conservation concern are listed in Table 3 below.

TABLE 3. GLOBALLY THREATENED PLANTS IN THE GOLA RAINFOREST

Species	IUCN status
Plants	
From previous surveys but also recorded in 2006 survey by Prof. Ake Assi	
<i>Albizia ferruginea</i>	Vulnerable
<i>Entandrophragma angolense</i>	Vulnerable
<i>Entandrophragma cylindricum</i>	Vulnerable
<i>Homalium letestui</i>	Vulnerable
<i>Lovoa trichilioides</i>	Vulnerable
<i>Tieghemella heckelii</i>	Vulnerable
Trees	
From project survey plots	
<i>Afzelia africana</i>	Vulnerable
<i>Anopyxis klaineana</i>	Vulnerable
<i>Copaifera salikounda</i>	Vulnerable; rare in Upper Guinea
<i>Cordia platythyrsa</i>	Vulnerable
<i>Cryptosepalum tetraphyllum</i>	Vulnerable; rare in Upper Guinea
<i>Entandrophragma utile</i>	Vulnerable
<i>Heritiera utilis</i>	Vulnerable; rare in Upper Guinea
<i>Homalium letestui</i>	Status Uncertain; West Africa Endemic
<i>Irvingia gabonensis</i>	Near threatened
<i>Lophira alata</i>	Vulnerable
<i>Nauclea diderrichii</i>	Vulnerable
<i>Terminalia ivorensis</i>	Vulnerable

2.4.3 Vegetation Condition

Prior to the initiation of a conservation project, the Gola Forest Reserves were classified as Production Forests and until the late 1980s two large scale timber companies conducted commercial logging in the protected area, the Forest Industries Corporation (FIC) and The Sierra Leone Timber

Industry and Plantation Company (SILETI). FIC worked in the accessible areas of the western section of Gola Central in 1961, 1978 and during the period 1984-1986. Some 19% of Gola Central was exploited during this period. Gola South was more extensively logged by both FIC and SILETI during the 1960s, 70s and 80s; operations finished in 1989. Some 43% of Gola South has been exploited, particularly the western and central sections (Iles et al. 1993).

As a result of past management practices, the southern block of the protected area in particular is still regenerating and has not yet reached an equilibrium state, the central area was less impacted by logging and contains greater carbon stocks (Lindsell and Klop, 2012).

2.4.4 Fauna

2.4.4.1 Birds

The protected area is listed as an Important Bird Area (Fishpool and Evans 2001) and holds a high proportion of the threatened and endemic species of the region and a good representation of Guinea-Congolian forest biome species. Many of these species are also present in the community forests around the Gola Rainforest (Demey 2011). Recent bird surveys (Klop et al. 2010) recorded 294 species in the Gola Rainforest bringing the total known from the area to 327, which is amongst the highest of the Upper Guinea Forests. Several of these species can be considered as flagship species for the conservation of Upper Guinea Forest and include White-necked Picathartes, Rufous Fishing-Owl, White-breasted Guinea fowl and Gola Malimbe. Besides the high species diversity, several threatened species occur in good numbers. Ten globally threatened species have been recorded – see table 4.

TABLE 4. GLOBALLY THREATENED BIRD SPECIES IN THE GOLA RAINFOREST

Species	Scientific name	IUCN status
White-breasted Guinea fowl	<i>Agelastes meleagrides</i>	VU
Timneh Parrot	<i>Psittacus timneh</i>	EN
Rufous Fishing-Owl	<i>Scotopelia ussheri</i>	VU
Brown-cheeked Hornbill	<i>Bycanistes cylindricus</i>	VU
Yellow-casqued Hornbill	<i>Ceratogymna elata</i>	VU
Western Wattled Cuckoo-shrike	<i>Lobotos lobatus</i>	VU
Yellow-bearded Greenbul	<i>Criniger olivaceus</i>	VU
Nimba Flycatcher	<i>Melaenornis annamarulae</i>	VU
White-necked Picathartes	<i>Picathartes gymnocephalus</i>	VU
Hooded Vulture	<i>Necrosyrtes monachus</i>	CR

Nearly 80 of the bird species in the Gola Rainforest are largely restricted to forest habitats, although some may occasionally occur at the ecotone of forest and more open habitats. Another approximately 100 species occur in forest but are also frequently found in other habitats such as forest edges or clearings inside the forest. Nine species appear to be restricted to primary forest: Lemon Dove, Black-collared Lovebird, Shelley's Eagle-Owl, Brown-chested Alethe, Nimba Flycatcher, Dusky-crested Flycatcher, Yellow-bellied Wattle-eye, Lagden's Bush-shrike and Gola Malimbe. In addition, Lyre-tailed Honeyguide is largely restricted to primary forest, with only a few records from tall secondary forest. With the exception of Lyre-tailed Honeyguide and Yellow-bellied Wattle-eye, most of these species are rare or uncommon. The conservation of these species depends entirely on

the preservation of large tracts of undisturbed closed-canopy forest, and the protected area can be considered essential to the survival of these species in Sierra Leone.

Although some of the true forest specialists are missing from the community lands in the buffer area of the Gola Rainforest, the areas surrounding the protected area hold good numbers and diversity of birds (Demey, 2011). Many of these species are restricted to forest edges, open country and farm bush. Around 80 species found in the Gola Rainforest do not normally occur inside forest, although some were found in large clearings inside the forest. The species in the community lands comprise a gradient from 'forest-oriented' to 'farm bush-oriented' species. Species that are normally found close to, or sometimes in, forest include Violet-backed Hyliota, Dusky-blue Flycatcher, Capuchin Babbler and Splendid Starling. A number of species do not enter forest and are restricted to open farm bush. These include Double-spurred Francolin, Common Bulbul and Pied Crow. Around 25 species are regularly recorded in all habitats and include Palm nut Vulture, Western Nicator and Velvet-mantled Drongo. Most of the farm bush species and habitat generalists are common and widespread throughout (West) Africa, and none of these species is currently threatened or likely to become so in the near future. The exception is Hooded Vulture which has recently been up listed to Endangered.

2.4.4.2 Mammals

An overview of the mammals in the Gola Rainforest is given by Lindsell et al. (2011). 49 species of large mammal are known to occur, of which nine species are currently considered to be threatened or endangered - see table 5. Two species are listed as Critically Endangered, seven species as Endangered and five as Vulnerable. Several species of ungulates that are known to occur in the Gola Rainforest are endemic to the Upper Guinea forests. This includes Jentink's Duiker and Zebra Duiker, and Brooke's Duiker. Pygmy Hippopotamus is also endemic. Black Duiker and Maxwell's Duiker are both near-endemic to the Upper Guinea forests.

Despite 11 years of civil war in Sierra Leone, it appears that the mammal fauna of the Gola Rainforest has survived relatively intact and that the Gola Rainforest continues to be an important site for the conservation of threatened Upper Guinea forest wildlife, and the most important site for these species in Sierra Leone. No large mammal species was extirpated during the war and previously unrecorded species have been discovered in recent years. Some of the most threatened species continue to have healthy populations in the forest, especially primates, and have shown little or no sign of reduced abundance. However, the population of African Forest Elephants collapsed during the war, with only a few individuals remaining from approximately 110 in the mid-1980s (Lindsell et al. 2011).

TABLE 5. THREATENED MAMMAL SPECIES RECORDED IN THE GOLA RAINFOREST, BASED ON LINDSELL ET AL. (2011).

Species	Scientific name	IUCN status	Endemic to
Cercopithecidae			
Western Pied Colobus	<i>Colobus polykomos</i>	EN	Upper Guinea
Western Red Colobus	<i>Procolobus badius</i>	EN	Upper Guinea
Olive Colobus	<i>Procolobus verus</i>	VU	Upper Guinea
Sooty Mangabey	<i>Cercocebus atys</i>	VU	Upper Guinea
Diana Monkey	<i>Cercopithecus diana</i>	EN	Upper Guinea
Hominidae			
Western Chimpanzee	<i>Pan troglodytes verus</i>	CR	
Hippopotamidae			
Pygmy Hippopotamus	<i>Choeropsis liberiensis</i>	EN	West Africa
Bovidae			

Zebra Duiker	<i>Cephalophus zebra</i>	VU	Upper Guinea
Jentink's Duiker	<i>Cephalophus jentinki</i>	EN	Upper Guinea
Elephantidae			
African Forest Elephant	<i>Loxodonta cyclotis</i>	CR	West Africa
Felidae			
Leopard	<i>Panthera pardus</i>	VU	
Manidae			
White-bellied Pangolin	<i>Phataginus tricuspis</i>	EN	
Black-bellied Pangolin	<i>Phataginus tetradactyla</i>	VU	
Giant Pangolin	<i>Smutsia gigantea</i>	EN	

Eleven primates are known to occur in the Gola Rainforest, including one ape and three prosimians. The Endangered Western Red Colobus is common but is mostly restricted to the less disturbed areas of the central and northern parts of the protected area. In 2019 Diana Monkeys and Western Pied Colobus were assessed as Endangered on the IUCN Red List, when previously they were listed as Vulnerable, and are similarly forest dependent. The Vulnerable Sooty Managabey is also abundant within GRNP. However, the only other Vulnerable primate, the Olive Colobus, seems to be more rare.

The Critically Endangered Western Chimpanzee is relatively widespread throughout the Gola Rainforest. Based on transect sampling of nest counts in 2009, an average population density of 0.27 chimpanzees per km² was estimated (Ganas 2009), with highest densities occurring in the northern part of the protected area. These figures compare favourably to other West African forests. When extrapolated over the entire forest this density results in a total population of 303 chimpanzees in the Gola Rainforest (Ganas, 2009). More recent surveys indicate the chimpanzee population in Gola has remained largely stable.

The Endangered Pygmy Hippopotamus occurs in many areas, most notably along the Mano/Moro River. This area consists of a mix of floodplains dominated by herbaceous vegetation and patches of riverine forest. There is very little information on the ecology of this species, so it is difficult to make inferences about likely population sizes, but it seems probable that several tens of animals survive in the Gola Rainforest. Most of the riverine forest is in the leakage belt of the Gola Rainforest and so floodplain areas in the community forest may be essential for the conservation of this species in Sierra Leone (Hillers and Muana 2011).

A rapid assessment of small terrestrial mammals in Gola Rainforest identified 26 species of shrews and rodents (Anadu 2008). Three of these species, *Crociodura juvenetae*, *C. obscurior* and *Malacomys cansdalei*, are Upper Guinea endemics. Two species, large-headed Forest Shrew *Crociodura grandiceps* and Buettikofer's Shrew *C. buettikoferi*, are restricted to the Gulf of Guinea and are classified as Near Threatened (Mondajem 2011).

The Gola Rainforest is also an important stronghold for bats - 34 species have been identified to date in the area, one of which is of conservation importance *Hipposideros marisae* - VU (Weber and Fahr 2009).

2.4.4.3 Reptiles and amphibians

Survey work by Hillers (2009) identified a total of 43 amphibian and 13 reptile species in the Gola Rainforest. Most of the frogs and reptiles recorded were typical forest species that are restricted to the Upper Guinea Forest zone. One third of the amphibians recorded are listed as globally threatened by IUCN (www.iucnredlist.org 2012) – see table 6. Most species are closely related to forest habitats (19 frog species, 44%; 9 reptile species, 69%). Additionally, 13 amphibians (30%) and

one reptile (8%) species are also associated with forests but are tolerant of farm bush habitats. The remaining 11 amphibians and three reptiles comprised of purely savanna, grassland, and farm bush species. None of these species is currently considered to be threatened, although IUCN classification is incomplete.

Genetic analyses identified two specimens of the genus *Phrynobatrachus* - a cryptic species new to science. This species is probably endemic to the area and therefore is likely to be threatened based on its small distribution range. The spectacular finding of the Critically Endangered Tai Toad *Amietophrynus taiensis* that was previously thought to be endemic to the Tai National Park in Côte d'Ivoire, further highlights the extremely high potential of the Gola Rainforest for conservation (Hillers 2009). More research is likely to uncover further surprises, including more species new to Sierra Leone or to science in general. Very high species richness, similar to the most diverse forests in south-western Côte d'Ivoire and south-eastern Guinea is not unlikely. The protected area is therefore crucial in protecting its important forest habitat diversity and for guaranteeing the persistence of the regional biodiversity of the Upper Guinean forests.

The two amphibians and two reptile species that are currently considered threatened are listed in table 6.

TABLE 6. GLOBALLY THREATENED AMPHIBIANS AND REPTILES RECORDED IN THE GOLA RAINFOREST

Species	Scientific name	IUCN status
Tai Toad	<i>Amietophrynus taiensis</i>	CR
Allen's Slippery Frog	<i>Conraua alleni</i>	VU
African Dwarf Crocodile	<i>Osteolaemus tetraspis</i>	VU
Slender-snouted Crocodile	<i>Mecistops cataphractus</i>	EN

Note – an additional 10 species are listed as Near Threatened

2.4.4.4 Freshwater fish

The rivers of the Gola Rainforest largely comprise the tributaries of the Moro, Mano, Mahoi and Moa Rivers within the Moro-Mano, Mahoi and Moa River basins. The waters of these basins are relatively demineralised, poorly buffered and hence vulnerable to change. Sampling in the Mahoi and Koye in March (Payne et al. 2009) recorded 31 fish species. With 35% of these species being regional endemics confined to the Sierra Leone/Liberia Upper Guinean ecoregion, the distinctiveness of the fish communities is remarkable. This further emphasises, in global terms, the distinctive nature of the Upper Guinean region of which the Gola Rainforest is part. Many of the fish species found are scarcely known to science and must be regarded as data deficient or unevaluated in IUCN conservation terms. Of particular note are the headwater swamps and streams which have distinctive communities of smaller species.

2.4.4.5 Invertebrates

Butterflies

The importance of the Gola Rainforest in the overall butterfly biodiversity of Sierra Leone can hardly be overestimated. Recent surveys have indicated that the Gola Rainforest holds an extremely high diversity of butterflies, probably well more than 600 species or 80% of all the 750-species known from Sierra Leone. A significant proportion of the rarest and most interesting species in Sierra Leone are almost restricted to the Gola Rainforest, the great majority of which are forest-dependent (Safian 2009) and two recently encountered butterflies are new to science (Safian 2011). Because of the

incomplete IUCN assessment of invertebrates, the conservation status of many of these species is not clear. An overview of noteworthy species is given by Larsen and Belcastro (2008) and Safian (2011). Four recent descriptions of species new to science are based, at least in part, on material collected in the Gola Rainforest.

Dragonflies

One hundred and forty species of dragonflies and damselflies (Odonata) are known to occur in the Gola Rainforest (Dijkstra 2011), representing 80% of the species found in all of Sierra Leone. Odonate species can be used as indicators of the quality of freshwater ecosystems and forest habitats (Catling 2005). This dependency can contribute to raising public awareness of the importance of conserving forests and aquatic habitats. Twenty-two species are considered regionally endemic or threatened, rare and insufficiently known (and thus potentially threatened) (Dijkstra 2011). *Agriocnemis angustirami* is listed as Vulnerable by IUCN. Six species found in the Gola Rainforest in 2011 are new to science.

2.5 Ecological processes and services

The Gola Rainforest provides several critical ecosystem services, most importantly carbon sequestration and watershed protection. In addition, the forest plays a role in erosion prevention, climate regulation and the supply of wild pollinators for growing coffee and other crops important for livelihoods.

2.5.1 Carbon sequestration

Carbon storage or sequestration is the process of capture and long-term storage of atmospheric carbon dioxide (CO₂). A variety of natural and engineered methods can be used for this but in relation to GRNP, the most important are regeneration of previously logged areas of forest and protection of existing forest. Regeneration of trees converts carbon from atmospheric CO₂ into biomass and protection of existing forest prevents the release of CO₂ into the atmosphere which occurs when forest is cleared and burnt.

Carbon stocks in the protected area comprise of above ground biomass, below ground biomass and soil carbon. To calculate carbon stocks in the GRNP, in 2006 trees were surveyed in 609 fixed area circular plots located throughout the entire protected area, the methodologies used comply with the VCS REDD modules methodologies (VM0007). Non-tree, litter and deadwood were excluded (Tatum-Hume et al 2013b). Above and below ground tree biomass and soil organic carbon was calculated separately for GRNP Central/North and GRNP South. Uncertainty was calculated as a percentage of the mean at 95% confidence intervals following the VCS methodology. The results are presented in table 7.

TABLE 7. PROTECTED AREA CARBON STOCKS - 2006 BASELINE

Carbon pool	GRNP Central/North				GRNP South			
	No. sample plots	Mean stock	95% CI tonnes CO ₂ /ha	95% CI as % of mean	No. sample plots	Mean stock	95% CI tonnes CO ₂ /ha	95% CI as % of mean
Above ground C	353	654.7	48.4	7.5	49	582.5	76.6	13.2
Below ground C		157.1	11.6	7.4		139.8	18.4	13.2

Soil C	18	253.9	30.6	12.1	29	192.3	24.4	12.7
Total C		1065.7	31	5.5		914.6	49	9.0

2.5.2 Watershed protection

Forests provide hydrological control of both water supply and water quality. In general, stream flow from forested catchments is more consistent through the year, less likely to run dry, peaks at lower levels and is cleaner than stream flow from areas where the forest has been cleared. Both reduced flow and dirtier water can contribute to health problems.

Most streams from the Gola Rainforest drain into the Moro/Mano River on the eastern border, the Mahoi, the Moa River on the western side or flow northwards to the Moa. Many settlements around the forest depend on streams that originate in the protected area, and local communities have commented on the importance of the forest for their water supplies (Witkowski et al. 2012a). Very few forest edge communities have piped or borehole supplies, and stream water is still used for a few domestic activities as well as being important for agriculture (Bulte et al. 2013).

2.5.3 Erosion prevention

Forest cover provides effective protection from erosion by rainfall and runoff (Morgan 2005, Bao and Laituri 2011). Soil loss, particularly on steep slopes, can be a leading cause of land degradation and can lead to danger from landslides in certain circumstances. The delivery of excess sediment downstream can be detrimental for aquatic ecosystems, for agriculture as well as problematic for domestic water supplies (Birkinshaw et al. 2010).

2.5.4 Wild pollinators

From studies elsewhere in Africa, wild pollinators have been shown to make a substantial economic contribution to coffee and other agricultural yields (Klein et al. 2003, Chaplin-Kramer et al. 2011). Therefore, it is likely that wild pollinators will play a similar significant role for a few crops grown in the Gola Rainforest.

2.5.5 Non-timber forest products (NTFPs)

Non-timber forest products such as honey, fruits, seeds, thatch, and rattan are collected from farm bush and forest areas (Leach 1994). Wild plant foods add variety to diets and are a supplement to food supplies during the hungry season (Leach 1994). They also serve as medicines, foods, construction, and binding materials, and are used to make household items such as mortars, utensils, and baskets. These can be used in the home or sold to generate income (Davies and Richards 1991).

2.5.6 Climate regulation

Any large block of forest is believed to play a role in stabilising climate and hydrology. Forests near the coast in West Africa are believed to be important in recycling moisture so as to maintain humidity levels and contribute to reliable rainfall in drier areas further inland, where water is often a limiting factor in terms of human survival.

3. SOCIO-ECONOMIC DESCRIPTION

3.1 National Context

Seventy-three percent of all poverty in Sierra Leone is found in rural areas (PRSP 2005) and two of the three districts where the project is based are recognised as the poorest districts in Sierra Leone (PSRP 2005). Life expectancy has increased from 47% in 2011 to 56.27 in 2023. and under-5 mortality is 100.3 out of every 1000 children. The adult literacy rate is estimated at 47% in 2010 (UNICEF, 2010) but is now 48.64 in 2021. (UNICEF 2021). Basic statistics are given in table 8.

TABLE 8. BASIC SOCIO-ECONOMIC STATISTICS FOR SIERRA LEONE

Socio-economic factor	Value	Comments
Population	8,141,000	From World Bank, 2022
Gross Domestic Product (GDP)	US \$ 3,81 0m	2023
Human Development Index	0.477 (2011)	Ranked 181th out of 187 countries globally
Poverty rate	59.2%	From UNDP, 2022
Life expectancy	56.27 years	United Nations 2023
Under 5 mortality	100.8 in 1000	4 th worst rate globally (UNICEF, 2003)
Adult literacy	48.64	World Bank (2021)
Global Hunger Index score	31.3	Ranked 116 TH out of 125 countries globally (www.globalhungerindex.com)
Access to improved drinking water	57%	UNICEF(2017)
Access to improved sanitation	16%	Only 6% in rural areas (UNICEF, 2017)

In 2010/11, Sierra Leone had an alarming Global Hunger Index score of 25.2⁶ and was ranked 71 out of 81 countries (IFPRI, 2011), it qualifies as a Low Food Deficit Country per FAO criteria As at 2023, Global Hunder Index is 31.3 ranked 116th out of 125 countries globally. 57% of the population uses improved drinking water sources (UNICEF 2017) and only 16 % use improved sanitation facilities (6% in rural areas) (UNICEF, 2017). The underlying causes of poverty are attributed to wide-ranging factors including the lack of availability of social services (health, education, safe water and sanitation); lack of agricultural inputs, market access and low incomes from the sale of produce; weak infrastructure (bad road networks, lack of storage facilities); lack of economic and employment opportunities; devastation by the 11 year civil war; and social barriers such as large family size within the rural communities (PSRP 2005).

3.2 Forest Edge Communities (FECs)

From baseline surveys and other consultation and information gathering exercises (Bulte et al. 2010, Tatum-Hume et al. 2013b), the findings of national surveys are a reflection of conditions in FECs. All FECs described themselves as poor and the clear majority lack basic amenities and services such as latrines, clean water supply, healthcare and education. The civil war had a devastating impact on infrastructure (houses in particular) that remains apparent to date. The majority of FECs are remote

⁶ Designed to track global hunger, the index combines undernourishment, child mortality and children underweight.

and located some distance from motorable roads making market access difficult and restricting economic opportunity. For 90% of the population in FECs, subsistence agriculture forms the basis for their livelihoods (Bulte et al 2013).

3.2.1 Village size

The size of FECs varies from small hamlets of as few as 10 individuals to large towns of up to 1200 people. 75% of villages have a larger proportion of women than men because of the civil war on able-bodied men and greater male out-migration after the war (Bulte et al. 2013). Despite this, the majority of households have male heads (85%) due to the widespread practice of polygyny.⁷ Despite the civil war, populations have grown by an average of 2% between 1990 and 2000 (Bulte et al 2013). The most recent figures for the population of the Leakage Belt estimated around 23,500 individuals (Bulte et al 2013), spread across 122 villages. It is estimated that over half the population is below the age of 18 (Bulte et al 2013).

The majority (86%) of people residing in FECs describe themselves as being 'Mende'; other ethnic groups are Fula, Mandingo, Vai, Kissi, Limba, Gbandi, Temne, and the eponymous Gola. There are no obvious ethnic tensions between these groups and none would be described as 'indigenous' with the exception of the Gola people. There are, however, only a handful of villages comprised of majority Gola and the Gola language is seldom spoken outside these areas. The primary religion found in the area is Islam (93.1% of people); the remaining inhabitants are largely Christian and religious groups in the region live in harmony. Within a village people are seen as either citizens (*tali*) or strangers (*hota*). Citizens belong to land owning families, such families can recognize a common founding ancestor and trace patrilineal descent (Bulte et al. 2013). Strangers are people that were not born in the Chiefdom; some may marry a citizen or be accepted as a community member by way of their profession.

3.2.2 Governance

Villages are led by a village chief, who is the traditional authority in a village. Chiefs can be men or women and are key to the regulation of daily activities and the resolution of disputes. Other villagers that hold a degree of power and influence include the village speaker, the elders, members of secret societies and religious authorities. Whilst the town chief is the key representative of a FEC, day to day life in a village is organised in households. A household can be defined as the 'production unit' that makes up a household farm which is used to feed the members of the household for the year. Usually the household activities are coordinated by a head, who is most often male (approximately 85% of households; Bulte et al. 2013). Villages are grouped into sections and then chiefdoms, governed by Section and Paramount Chiefs respectively. More detail on both local and traditional governance systems can be found in Witkowski et al. (2012c).

3.2.3 Wealth

All FECs suffer from severe poverty and face many constraints to development. The majority of communities are located far from a motorable road (up to 8 hours walk) making access to key services such as markets, health centres and schools very difficult. Few villages contain even the most basic amenities such as public toilets, radios, cement drying floors or electricity (Bulte et al. 2013). Most houses are made from local materials consisting of mud walls and a thatch roof. At the household level, it is likely that households with lower socio-economic status are stranger headed

⁷ Polygyny is widely practised in Sierra Leone whereby a man is married concurrently to more than one woman.

households or female-headed households as they generally have less land and civic rights. When villagers were asked directly who was the poorest, they all considered themselves to be poor and only upon further probing identified people that could not provide for themselves – namely the elderly, disabled, single mothers and widows as being among the poorest (Witkowski et al 2012a).

3.2.4 Education

Across FECs literacy levels are low, with approximately 29% of the adult population (over 18 years of age) able to read and write, though this is unequal across the genders, with approximately 43% of males and only 13% of females being literate. Over half the FEC population has received no education at all (Bulte et al 2013). The majority of FECs do not have educational facilities within the village and so children either have to walk long distances to attend school or lodge with a relative in larger towns. The costs associated with attending school (books, uniforms, supplies, and lodging) also create a barrier to attendance.

The situation on Education and Educational facilities have changed tremendously based on the activities of the REDD+ Project implementation in the GRNP FECs and the Seven Chiefdoms of the Gola Landscape. There is an increase in the number of Primary and Secondary Schools. The Gola REDD+ Scholarship scheme has been expanded to Junior- Secondary and Senior-Secondary Schools. The University Education Scholarship was introduced in 2024.

3.2.5 Health

There is a lack of access to basic health services across FECs leading to high disease rates and mortality - malaria and dysentery are the primary causes of mortality amongst children (Bulte et al. 2013). Most villages lack public latrines and sanitation facilities, the majority of villages do not have access to a clean water supply and lack knowledge of good health practices. Even in the schools and health care facilities that do exist, there are frequently shortages of staff, equipment and supplies.

The implementation of REDD+ Project has changed the narrative in most of the communities. The number of Health Centres have increased and sanitation facilities have been provided in most FECs and some of the offsite communities as a result of the efforts of the Benefit Sharing Agreement and the Chiefdom Development Fund

3.2.5 Land use and livelihoods

Within the GRNP, the primary land use is nature conservation though local community members are allowed to collect NTFPs. Outside the GRNP's boundaries, agricultural production is the main activity and source of income for households (approximately 90% of households in FECs, Bulte et al. 2013). The main activity is rice cultivation, the majority of which is carried out in upland areas and approximately half of land holdings are dedicated to upland farms. Rice production in inland valley swamp areas and plantations (largely coffee and cocoa) each cover 25% of the remaining agricultural land.

Most villagers directly engage in rice farming, and on average 77% of households make a new farm each year; the average household upland farm size is approximately 1.2 ha (ranging from 0.2 to 6.0 ha)⁸. In upland areas, forest or "farm-bush" is cleared and farmed for one or two years. Rice is inter-cropped with yams, cassava, corn, beans and a variety of vegetables; these inter-crops are worth

⁸ Sierra Leonean rice farmers estimate the size of upland rice farms in terms of the bushels of rice seed the area will require. One bu. is c. 25 kg of husk rice, and this amount of seed will plant approximately 0.4 ha.

approximately 25-50% of the total food value of the upland farm. Inter-crops in upland areas are largely the remit of women, as are the backyard gardens that supplement food supplies. Land is then left to fallow for an average period of 7 years but fallow periods vary depending on many factors from soil fertility to labour availability (Witkowski et al. 2012a).

The heavy work of clearing and planting the upland farm is, where possible, undertaken by the members of a rotational labour-sharing group (Richards 1986, Bulte et al. 2013). Agriculture groups are the most common form of community institution found in about 61% of FECs (Bulte et al. 2013). Once the upland farm is planted the work of weeding and scaring animals falls to the female members of the households. Labour constraints are a challenge in many of the FECs (Bulte et al. 2013).

On average, 70% of villager's farm swamps and average farm sizes are 0.8 ha (ranging 0.2 to 8.5 ha) (Bulte et al. 2013). Women, strangers and young men are the main cultivators of swamp rice, as male heads of households focus on the cultivation of tree crops from which they receive better returns. Swamp farms, especially when properly developed, tend to yield more rice, but are more labour intensive to develop, do not allow for the production of inter-crops and the variety of rice grown is less favoured for household consumption. The net return on swamp rice is thus probably comparable to that from upland cultivation (Bulte et al. 2013).

Many (male) household heads also invest in small plantations, typically producing coffee, cocoa, bananas, oil palm, pineapple and kola nuts. Women are less likely to develop plantations due as their typically lower levels of capital and land rights do not provide enough security to invest in such permanent crops (Bulte et al. 2013). Even so, some women do own plantation crops, often that they have inherited or been given by their spouses or parents. On average 86% of household heads cultivate a plantation. The average plantation size is 3.2 ha (ranging 0.2 to 114.1 ha) (Bulte et al. 2013). Plantations are still an important source of income, but production levels have declined over time as many areas have become overgrown for a variety of reasons including shortage of labour, the advancing age of some trees, use of poor varieties and techniques (Witkowski et al. 2012b, H-P Mueller pers.com).

Natural resources are the basis for the livelihood activities communities conduct to complement agricultural activities. Complementary activities for both subsistence use and cash generation include logging, mining, gathering, hunting, fishing and petty trade. Communities rely on numerous forest products in their everyday lives; this includes both timber and non-timber forest products such as honey, fruit, seeds, thatch and rattan (Leach, 1994). These natural resources are gathered primarily in bush-fallow areas and plantations but also in forests (Leach, 1994). High forests provide 57.9% of all medicinal plants used by villagers around Gola (Davies and Richards 1991) and these plants remain central to Mende medicinal practices despite the availability of Western medicine (Leach 1994). 'Bush' areas are also important for the creation and maintenance of local society's traditional structures particularly local governance and secret society (Leach 1994).

FECs report the majority if not all of their residents experience a 'hungry season' during the wet season sometime between May and October when there are shortages of rice, their staple food (Witkowski et al. 2012b). This typically occurs from July-September when the previous year's rice supplies have been exhausted (sold or eaten) and the current years are not yet ready to harvest. The actual length and severity of this period varies greatly depending on a variety of factors such as weather conditions, labour availability, crop damage, disposable income to buy rice etc (Witkowski et al. 2012b).

3.4 Land Ownership and Tenure

Since the designation of the area as Forest Reserves in the 1920s, the only rights retained by local communities are for access and the collection of NTFPs. The original legislation was revised in 1988 (Forestry Act), 1990 (Forest Regulations) and 1992 (Wildlife Act).

With the establishment of the National Park, the Government of Sierra Leone has the legal responsibility to manage the protected area, the seven Chiefdoms and landholding families that surround what is now the National Park are still recognised as the owners of the land, though they no longer have any control rights and use rights are limited by the national laws mentioned. The Management Plan of the GRNP supported the implementation of legal framework and traditional land rights. The REDD+ Programme provides for the long term sustainable financing platform for the protection of GRNPs biodiversity, support all elements of community participation and governance through the REDD+ Benefit Sharing Agreement and promote all efforts aimed at supporting sustainable management of resources in and around the National Park.

There are no communities living inside the protected area, with the exception of the earlier described Wagikoh enclave, but during the process of 'brushing' the park boundary to clearly define it on the ground a small number of disputed sections were identified. The Park Management has a conflict management procedure and a grievance register is open for all forms of dispute resolution on park management and the REDD+ project implementation

Land in the Leakage Belt is under a different form of tenure to the protected area. As in all provincial areas in Sierra Leone, land is governed primarily by customary law and is subject to family tenure under the Mende tribal system (Climate Focus 2011). Land is held by family lineages and administered by a family head whilst Paramount Chiefs and chiefdom councils retain the right to regulate the way in which land is used in their Chiefdoms. The family heads can trace their land rights in terms of patrilineal descent from those who first cleared the forest for farming. The local system is clear amongst local people; each family respects another's property rights and there are few disagreements as land boundaries are known and the knowledge is passed down through the generations (Bulte et al 2013). However, family tenure is not formally documented which can lead to problems if outsiders come to the area to make agreements to lease large areas of land for agriculture projects (Green Scenery, 2011). Many villages have bylaws but these most often relate to social norms such as abusive language, sexual misconduct and obeying elders rather than land use (Bulte et al. 2013).

Land conflicts are not widely reported (Bulte et al. 2013) but where they have occurred can involve encroachment when land is being brushed for farming, or a dispute over the timing of bush burning e.g. when the wind changes and carries fire into a neighbouring farm. Sometimes a villager may be fined for clearing land for farming and then not using it. Most conflicts are between co-villagers rather than inter-village disputes (Bulte et al. 2013). Where inter-village disputes arise, it is purported to be where farmers clear bush on either side of a poorly-marked inter-communal boundary. This is most likely where land has not been used for many years, and the local boundary markers have been neglected rather than because of pressures on land availability.

3.5 Stakeholders

To identify the stakeholders around the protected area that can potentially be affected by the Gola REDD project activities a stakeholder analysis profile matrix was completed. This was complemented by a rainbow stakeholder analysis which clarified not only which stakeholders can potentially be

affected by project activities, but also which stakeholders might affect project activities, as recommended by Reed et al (2009) (see figure 2). The aim of the rainbow analysis was to highlight the nature of each group's impact to and from the project so that plans can be included in the project design to mitigate negative impacts and pinpoint with whom the project must engage to ensure long term protection of the GRNP. Information was used from the stakeholder analysis profile matrix, the Gola Project Context Report (Witkowski et al 2012c), the threats Report (Witkowski 2012) as well as the perspectives of various stakeholders (NGO, government and community actors) to determine who and/or what has the ability to affect the success of the project. In addition, a rights holder analysis was carried out to identify all those stakeholders with rights to the land and resources in the protected area (See Gola Project Context Report; Witkowski et al 2012c). All of these analyses were validated through consultation (see table 9).

TABLE 9. STAKEHOLDER ANALYSIS, CARRIED OUT AT THE BEGINNING OF THE PROJECT DESIGN PROCESS (2012)

STAKEHOLDER ANALYSIS PROFILE MATRIX			
Stakeholder or stakeholder sub-group	Interest in the project	Effect of project on their interests	Capacity/ Motivation to Participate
GoSL - regional representatives	Political leaders of region where project is being implemented - This includes MPs (constituency level) and Permanent Secretary (regional level), and District Council and Councillors (district level)	Project will impact their constituencies and provide positive benefits for constituents.	Low
National and international development organizations (both non- and for profit)	Some are already working in the Gola area and may be engaged to help with livelihood activities designed as part of the REDD project. These organizations include CRS, PAGE, WHH, GOAL, and Tropical Forest Farms, among others	Positive - some of project's community development activities may be implemented by them	Medium
Regional traditional leaders	This includes Paramount Chiefs, Chieftdom speakers, Section chiefs and Town chiefs. The Paramount Chief is the highest traditional leader and head of chieftdom. There are 7 Chieftdoms around GRNP, and some of each Paramount Chief's villages are forest edge communities, others are offsite; buy in is critical.	Project will affect people in their constituency, which includes both the Leakage Belt and offsite communities	High
Traditional landowning families of the gola forest	Families recognized by customary law as the land owners of the Gola Forest before the existence of the Reserve or National Park. The head of the family receives annual payments under the benefit sharing agreement to compensate them for loss of use and royalty payments	Positive; the project will ensure that their traditional rights are recognized and provide direct financial benefits	Medium

Gola community development committees	Responsible for implementation of the Community Development Fund. One exists in each chiefdom - members are elected and include a teacher, farmer, women's leader, youth, hunter, logger, and forest edge community representative. There are also several permanent members, including representatives for the Paramount Chiefs, MPs, and District Councillors.	Project will provide the funds for the chiefdom development fund that all communities can apply to for support for development projects	High
Offsite communities	Communities within the 7 Chiefdoms around the Gola Rainforest; potential agents of deforestation within the leakage belt	Positive - these communities will receive benefits under the benefit sharing agreement in the form of the community development fund, scholarships etc.	Medium
Forest edge communities	Communities living closest around the edge of GRNP; most likely agents of deforestation	Project will affect them and the activities they can do in the GRNP, project will need to engage with these communities to develop project activities	High

The analysis showed that in order to mitigate the potential threats the project will need to engage with a broader range of stakeholders than just the affected rights holders and most impacted group to gain political support at both local and national levels. There is a need to address wider natural resource governance issues in the region and within the Government to ensure the long-term success and sustainability of the Gola Rainforest National Park.

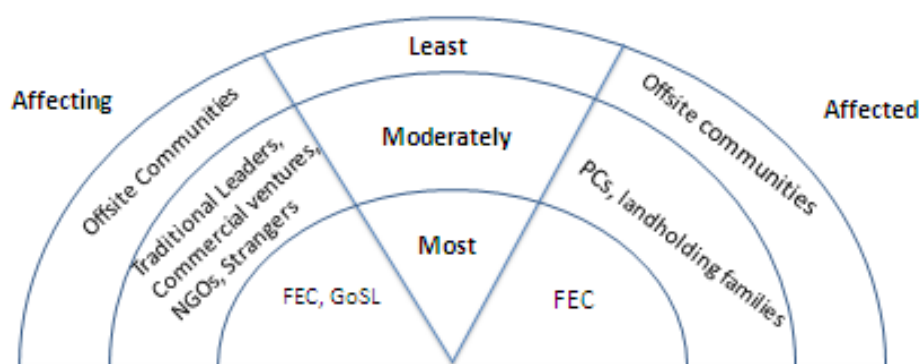


FIGURE 8. RAINBOW STAKEHOLDER DIAGRAM OF GOLA PROJECT STAKEHOLDERS WHO MAY AFFECT AND BE AFFECTED BY PROJECT ACTIVITIES

The primary group of legal, customary and ethical local rights-holders to engage with for the purposes of the development of the REDD project, as they can both affect it and be affected by it, are therefore the Gola Paramount Chiefs, the heirs of the original landowners of the GRNP and the Forest Edge Communities. A detailed description of both primary and secondary stakeholder engagement in the development of the Gola REDD project can be found in the CCB PD and Tatum-Hume et al 2013a.

The Management of the GRNP has continued to make use of these analysis and baseline reports as guidelines and principles for governance and management of natural resources.

3.6 Relevant National Laws, Statutes and Other Regulatory Frameworks

3.6.1 National Forest Laws

The Forestry Division within the Ministry of Environment and Climate Change (MoECC) is responsible for the management of forest areas in Sierra Leone. The principal policies and laws relevant to the management of forest areas are the Wildlife Conservation Act of 1972, the Forestry Act of 1988 and the Forestry Act Regulations in 1990 and the recently passed National Protected Areas Authority Act 2013. As the Gola Rainforest National Park is a national protected area, it falls under the management authority of the National Protected Area Authority (NPAA).

The Wildlife Conservation Act of 1972 established significant provisions for the conservation of wildlife ranging from the constitution of strict nature reserves, game reserves, and national parks, to prohibition of hunting of animals generally except with licence and permit. It also contains enforcement and penalty provisions. The Wildlife Conservation Act of 1972 stipulates in Part 2 Section 5 the constitution of national parks. The purpose of a National Park in Sierra Leone is 'propagating conserving and managing wild animal life and wild vegetation, and protecting sites, landscapes or geological formations of scientific or aesthetic value for the benefit and enjoyment of the public'. The first goal of this plan is to implement effective protection measures of the National Park to ensure that the forest is conserved and that biodiversity is protected, thus demonstrating that the National Park is aligned with the Wildlife Conservation Act.

The Forestry Act of 1988 and its Regulations for 1990 established provisions for the administration and management of the Forest Reserves, Community forests and National Parks. It also established fees for licences and law enforcement provisions. The Gola REDD project has established a register of landowning families of the National Park and has entered into a benefit sharing agreement with the families and other local stakeholders to provide compensation for lost royalties and rights in the project area and is therefore aligned to the Forestry Act of 1988.

As a National Park, the objective is inter alia to conserve wildlife and vegetation, and activities such as farming, logging and mining are prohibited. All Management Plans will be reviewed by the National Protected Areas Authority (NPAA), to ensure proper alignment with National Forest Laws and other statutes and regulations.

3.6.2 REDD Regulations

The Government currently does not have any guidelines or regulations in place for REDD projects. A legal analysis carried out by Climate Focus (Climate Focus 2011) which reviewed the legal regulations surrounding the implementation of carbon projects in the Gola area concluded that specific legislation was not required to develop a REDD project in the GRNP.

3.6.3 Environmental Protection Agency Act

This act established the Environmental Protection Agency (EPA) to 'provide for the effective protection of the Environment and for other related matters'.

Under the act, projects that make 'substantial changes in renewable resource use (e.g. conversion of land to agricultural production, forestry or to pasture land, rural development, timber production)' are required to carry out an Environmental Impact Assessment (EIA). As the Gola REDD project has not made any substantial changes to the renewable resources of the area, and will not have any negative impacts on renewable resources or the environment as a whole an EIA was not required.

3.6.4 National Protected Area Authority Act

The 2013 Protected Areas Authority Act provided for the establishment of a National Protected Area Authority (NPAA) and Conservation Trust Fund to 'promote biodiversity conservation, wildlife management, research, to provide the sale of ecosystem services in National Protected Areas and to provide for other related matters. GRC-LG will work closely with the NPAA to ensure that all activities are aligned with Government policy as the authority's main function will be to 'exercise oversight authority over National Parks and Protected Areas designated for conservation purposes' (part III, 12 (1)) and has responsibility to 'promote REDD projects in Sierra Leone' (part III, 12 (2)f), and evaluate and approve National Protected Areas annual operation plans and budgets (part III, 12 2 p(v)) amongst other objectives. It is written into the legal agreements between the Gola REDD project and the Government that the project will comply with all relevant legislation and will work with the MoECC and the NPAA to ensure that the project is aligned with Government strategy.

4. RESOURCES AND VALUES

The Gola Rainforest contains elements fulfilling the criteria of all six High Conservation Values (HCVs) – see www.hcvnetwork.org for more details. These include endemic and threatened species and habitats, ecosystem services and important socio-economic resources. Brief details are given below, classified according to CCB project standards.

4.1 Natural values

The Gola Rainforest is extremely important for the conservation of threatened Upper Guinea flora and fauna.

HVC 1: Areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia)

The Gola Rainforest constitutes the westernmost part of the Upper Guinea forest belt, which has been classified as one of the 34 most important biodiversity hotspots in the world (Myers et al. 2000). The importance of the area is also highlighted by WWF (WWF Western Guinean Lowland Forest Ecoregion) and BirdLife International (BirdLife Upper Guinea forests Endemic Bird Area and Gola Forest Important Bird and Biodiversity Area).

Species of particular importance are:

- The Endangered Pygmy Hippopotamus, Western Red Colobus, Jentink's Duiker and Gola Malimbe - all have their main Sierra Leone strongholds in the Gola Rainforest.
- The Critically Endangered Tai Toad *Amietophrynus taiensis* - only known from Gola and Tai National Park in Cote d'Ivoire and the frog *Phrynobatrachus nov. sp.* - the entire world population of which is thought to be restricted to the Gola Rainforest and neighbouring forest in Liberia.
- An additional thirteen species of bird, mammal, amphibian and reptile and sixteen species of plant and tree listed as Vulnerable also occur in the Gola Rainforest – see Tables 3 to 6.
- In addition to the threatened species, there are several non-threatened species that are restricted to primary forest and the Gola Rainforest is of major importance for these species in Sierra Leone. These include Black-collared Lovebird, Shelley's Eagle-Owl and Nimba Flycatcher.

It should be noted that the importance of the Gola Rainforest is not limited to threatened species. For many taxa the IUCN red lists are incomplete and the conservation status of many lesser-known taxa such as amphibians, fish and invertebrates has not been adequately assessed⁹. Many of these species may be threatened, especially in sensitive groups such as amphibians. In addition, several species new to science have been recently discovered in the Gola Rainforest e.g. the *Phrynobatrachus* frog, at least three species of butterfly and six species of dragonfly. There may be many species waiting for discovery in these forests and it is likely that many of these will be endemic to the region.

⁹ see <http://www.iucnredlist.org/initiatives/amphibians/description/limitations>

HCV 2: Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance

The Gola Rainforest is widely recognised as one of the best remaining fragments of the Upper Guinea forest type in West Africa, supporting many species of plants and animals that do not occur outside of the Upper Guinea forests. The populations of these species are of global significance as local extinction would be detrimental to the survival of entire species.

At the national level, the Gola Rainforest contains the largest remaining tract of tropical lowland forest in Sierra Leone.

HCV 3: Threatened or rare ecosystems

The Upper Guinea forests are distributed in West Africa from Guinea in the west to Togo in the east and are separated from the main Guinea-Congolian forests of central Africa by the unforested 'Dahomey Gap' in Togo and Benin – see map 7. They have been classified as one of the 34 most important biodiversity hotspots in the world (Myers et al. 2000) and have experienced severe loss of forest cover. Chatelain et al. (2004) estimate that only between 20% and 50% of the forest cover that existed at the beginning of the 19th century remains. In Liberia, forest cover was reduced by 22% in the period 1990 – 2005 (FAO Global Forest Resource Assessment, 2005). Given the climatic conditions, more than half of Sierra Leone could be covered with rainforest, but actual forest cover may be no more than 5%. The conservation of the Gola Rainforest is crucial for the survival of this highly threatened habitat and its associated species in Sierra Leone.

4.2 Socio-economic values

HCV 4: Areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control)

The Gola Rainforest provides several critical ecosystem services including carbon sequestration, watershed protection, erosion prevention, climate regulation and the supply of wild pollinators for commercial crops – see section 2.5 for more details.

HCV 5: Areas fundamental to meeting basic needs of local communities (e.g. subsistence, health)

The precise importance of the forest for FECs, defined as those who periodically enter the protected area primarily to farm, hunt and gather NTFPs, is difficult to determine as, since 2004 when forest guards began enforcing conservation legislation, farming and hunting within the park boundaries have been illegal. The available information suggests that the protected area serves more as an additional source for meeting some basic needs rather than being a fundamental source, though several species of medicinal plants found in High Forest areas remain central to Mende medicinal practices. The project is designed to ensure that FECs will be involved in the co-management of zones of the GRNP and are able to sustainably extract NTFPs and fish as they have done in the past.

HCV 6: Areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities)

Secret societies (Sande/Bundu and Poro) are a central part of the Mende culture, as a person is not fully gendered until they have reached puberty and passed through an initiation process. As part of the initiation process, children are required to spend time in a special part of the bush isolated from members of the opposite sex (Leach 1996); the locations of these areas are known only to members

of the societies, but they are understood to be largely within the bush areas of the leakage belt rather than in the protected area (Community Development staff pers comm.).

Burial grounds are considered sacred areas and there are strict rules about respecting such areas (Bulte et al 2013). Such sites have been encountered within the National Park during biodiversity survey work rather than as a result of a deliberate effort to identify such areas. Burial grounds are also present in the leakage belt.

In addition to the site's High Conservation Values, effective management of the forest and its associated wildlife has the potential for generating modest levels of income for local communities through the development of nature-based tourism.

4.3 Other values

4.3.1 Research and Knowledge Systems

The Gola Rainforest has been used for a wide range of biodiversity and socio-economic research purposes over the years. The richness and conservation importance of the area presents many opportunities for further research which would add significantly to the scientific baseline for West Africa and establish the GRNP as a centre for international research excellence.

4.3.2 Education and awareness-raising

Increased education and awareness raising efforts with the FECs, focusing on the importance of a healthy environment, its contributions to human well-being and the value of standing forests and natural resource management. The value of forests for human wellbeing, education and research, provision of ecosystem services and support to livelihoods and local economy through NTFPs and community forestry practices continued to play major role in management principles and which entail practical involvement of communities. Activities such as Sensitization meetings, roadshows and radio talks will continue to be used to sustain high level awareness and participation of citizens on forest-based living and economy.

4.3.3 Demonstration and advocacy

As the first REDD project to be developed in Sierra Leone, the innovative approach to planning, financing, and managing the Gola Rainforest being adopted by the GRNP has the potential to demonstrate that protecting forest resources can be both socially and environmentally beneficial.

Gola REDD+ has matured over the years to provide a knowledge development hub and a model for replication in other parts of the Guinea Forest Biome of West Africa. The first 10 Years of REDD+ in and around the GRNP has passed the development phase and moved towards the consolidation phase and it is becoming popular as a positive and viable example for long term financing of forest conservation and development in Sierra Leone and West Africa.

4.3.4 Employment and Empowerment (see GRNP staff handbook)

The GRNP has as policy to recruit staff on a competitive, open and transparent basis, with preference always being given to members of the local communities. Additionally, training and capacity development is an integral part of staff and National Protected Area Authority (NPAA) development to eventually manage the GRNP independently. Training opportunities are to be provided to the local communities, both in terms of improving livelihoods and development of skills to improve prospects in the limited and competitive job market.

4.4.4 Visitation and Tourism

This is small-scale at present, but the GRNP has a Tourism Officer whose role includes the development of community ecotourism activities to ensure consistent packages are offered to visitors and to promote the Gola Rainforest as an ecotourism destination at a national level. A key element of the role is to ensure that all funds generated from visitors are effectively distributed to the communities and Government.

Tourism and Visitor reception activities have been carried out since inception and has continued to be a major part of the efforts to promote nature-based income and socio-cultural activities in and around the National Park.

5. REGIONAL SETTING

5.1 Greater Gola Landscape

Sierra Leone's GRNP and the Lofa-Mano Forest in Liberia represent a significant continuous portion of the Upper Guinea Forest ecosystem. There is a real need to establish a strategy for cross border conservation, building capacity and implementing a trans-boundary protected area initiative (peace park) to protect the biodiversity and ecological values of these two important forests.

The impacts of conservation efforts and community outreach work will be more effective if conservation efforts in the GRNP are coordinated with and/or accompanied by similar efforts in the Lofa-Mano National Forest Reserve in Liberia. The proposed trans-boundary conservation area was classified as the highest priority conservation area in the Upper Guinea Forest conservation strategy published in 1999 by Conservation International. The potential boundaries of the trans-boundary park are shown on map 8.

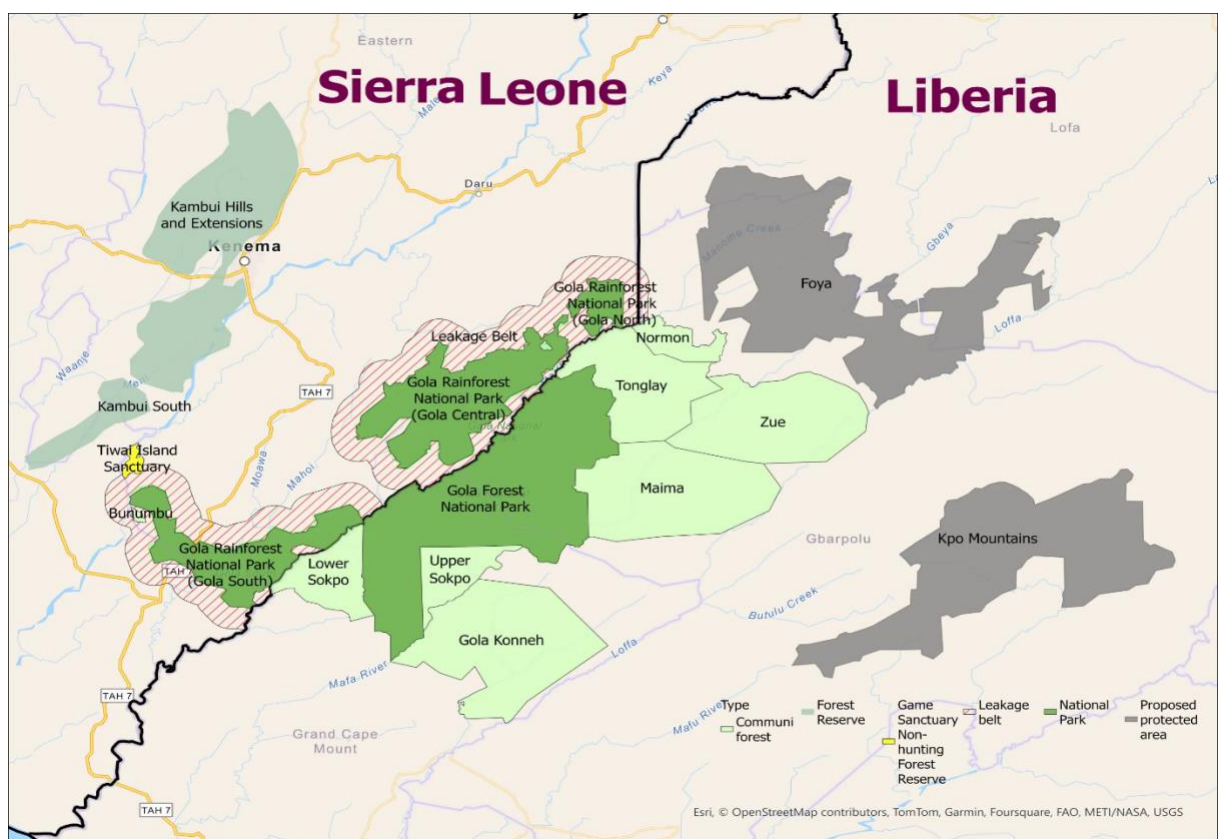


FIGURE 9. MAP OF THE GREATER GOLA LANDSCAPE OF LIBERIA AND SIERRA LEONE

PART TWO: THE PLAN

C. VISION AND PURPOSE

The **vision** of the Gola Rainforest National Park is to promote the ecosystem integrity of the Tropical Rainforest in Sierra Leone through the protection of forest resources, its watershed and its biodiversity and to harness its importance as a the local, national and global asset for nature conservation and development.

The Gola REDD Project is supportive to the establishment of the National Park and its long term financing as well as contributing to the National priorities for nature conservation, biodiversity protection and socio-economic development in Sierra through participatory action and for the benefits of the local communities in the Gola Chiefdoms of Eastern Sierra Leone.

D. THREATS AND ISSUES

1. Analysis of Issues and Threats

Biodiversity in the Gola Rainforest – species and habitats - is threatened by a number of activities that result in deforestation, degradation or disturbance of the forest or by hunting activities.

1.1 Deforestation and degradation

The primary driver of deforestation in the area is the conversion of forest to the bush-fallow cycle for subsistence agriculture. Deforestation in the Gola Rainforest would reduce the size of the forest blocks and increase their isolation from one another (in reference to the Winrock International's modelling/projection work). This would have a direct impact on plant biodiversity and an adverse impact on other taxa as many species are restricted to forest habitats and so are dependent on the availability of forest cover. Many threatened species have small ranges or are predominantly restricted to undisturbed primary forest e.g. the Endangered Western Red Colobus and Diana Monkey, and the Critically Endangered Tai Toad and so are highly vulnerable to deforestation (Davies 1987, Klop et al. 2010). Established meta-population theory e.g. Hanski 1999, Akcakaya et al. 2007 predicts that reducing connectivity between forest areas would have a long-term impact on the viability of isolated populations.

Degradation occurs as the result of selective logging and artisanal mining (Witkowski et al. 2012a). Mining activities further contribute to degradation by opening up the forest to other damaging activities through access roads and the possible use of toxic chemicals that can have a very negative impact on water quality and aquatic organisms (Witkowski et al. 2012a).

The protected area has deposits of several minerals that have high potential for exploitation including gold, diamonds and iron ore. Between 2005 and 2007, two mining licenses for diamond and iron ore prospecting were issued within the protected area (Global Witness 2010, Witkowski et al. 2012a). All of the previous mining licenses issued in the Gola Rainforest are shown on map 9. It is estimated that iron ore mining in the Bagra Hills area would be the most profitable enterprise. A study was carried out on small scale artisanal mining in 2013 in the leakage belt which provided a snap shot of the social dynamics involved; it also produced a series of recommendation to management. It should however be emphasized that large scale mining is not considered a current threat as the Legal Framework supporting the National Park itemize zero Mining as major component

of the Law. The endorsement of the REDD+ Project by the Government of Sierra Leone further reinforces the enforcement of zero mining in the National Park.

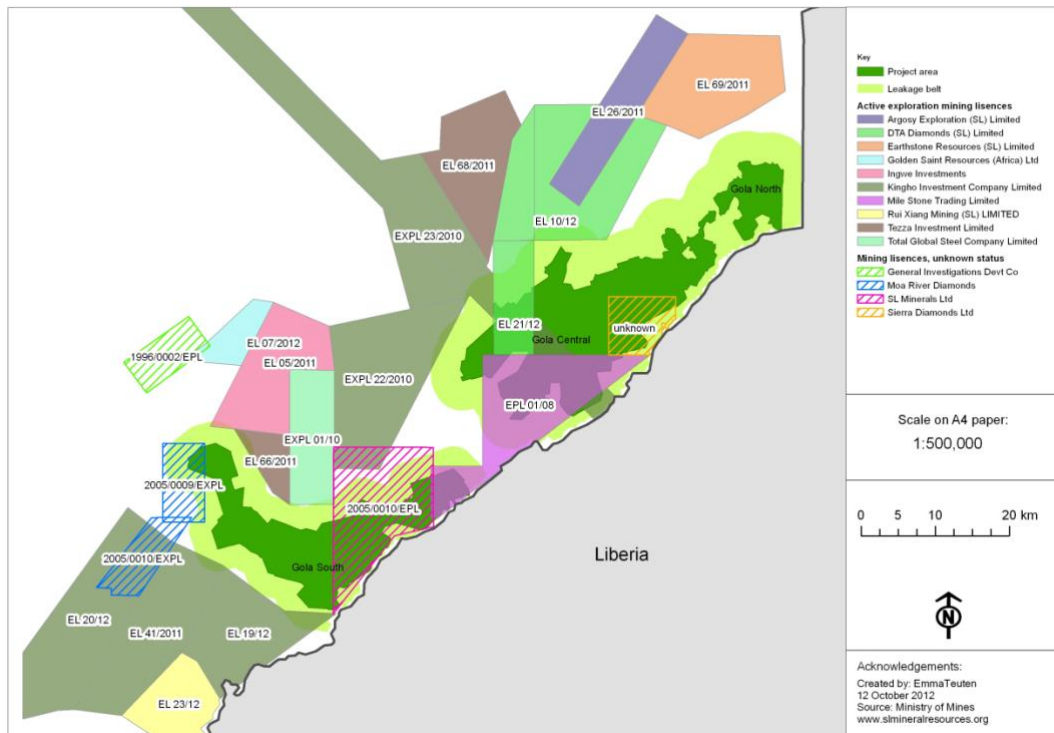


FIGURE 10. PREVIOUS MINING LICENCES ISSUED IN THE GOLA RAINFOREST. SOURCE: MINISTRY OF MINES WEBSITE; WWW.SLMINERALRESOURCES.ORG

1.2 Disturbance

Disturbance is defined here as increased human presence that may impact the behaviour of animals, leading to e.g. reduced population sizes or the abandonment of suitable sites. Disturbance represents a threat to biodiversity as many species are susceptible to even small levels of disturbance. For example, the Vulnerable White-necked Picathartes, a flagship species for the Gola Rainforest, nests in colonies on large boulders in forest areas. Surveys of nest colonies inside the protected area and in communal forests have indicated that colonies in the communal forests have a higher risk of abandonment because of human disturbance (Monticelli et al. 2011). Forest Elephants are also prone to the threat of disturbance; their numbers declined markedly during the civil war period when people used the forest as a refuge from war atrocities. Only a few individuals remain in the central parts of the protected area and any decline in the Gola Rainforest population brings the elimination of the Forest Elephant from Sierra Leone closer. It is known from only two other sites in the country, Outamba-Kilimi and Loma Mountains area, where populations were small even in the 1980s and are under heavy pressure from hunting (Blanc et al. 2007). The Endangered Pygmy Hippopotamus is also at high risk from disturbance. It is mostly found in floodplain areas in the buffer area community forest of the Gola Rainforest and is probably rare inside the forest in the protected area (Hillers and Muana 2011). Disturbance and habitat conversion threaten what is probably the largest remaining population of this species in Sierra Leone.

1.3 Bush meat hunting

In West and Central Africa, bushmeat hunting is known to be one of the most important threats to primate and duiker populations (Bowen-Jones et al. 1999, Kümpel et al. 2008, Greengrass 2011). Many of the primates and duikers in the Gola Rainforest are targeted by hunters. In a recent survey of bushmeat markets in Greater Gola, six species of high conservation concern were found including three Endangered species - Western Red Colobus, Western Chimpanzee and Pygmy Hippopotamus - and three Vulnerable species - Sooty Managabey, Diana Monkey and Black and White Colobus (Koroma 2012). Several bird species are also susceptible to hunting e.g. the Vulnerable White-breasted Guinea fowl which is sometimes caught in snares. Several species are also kept as pets e.g. Timneh Parrot.

The impact of the above threats on the site's HCVs is summarised in table 10.

TABLE 10. THREATS AND IMPACTS ON HIGH CONSERVATION VALUES AND POTENTIAL MANAGEMENT ACTIONS FOR GRNP

HVC	Species or habitat impacted	Threat	Management action	Management benefit
HVC 1	Primates and ungulates, especially Pygmy Hippopotamus, Western Red Colobus and Jentink's Duiker	Hunting Deforestation and/or forest degradation Disturbance	Patrols by GRNP Rangers. Community awareness raising activities. Land use mapping and planning. Community volunteer programme. Development of sustainable livelihood projects. Biomonitoring	Maintenance of forest cover. No reduction or possibly even an increase of populations of primary forest specialists and sensitive species e.g. forest elephant. Reduction in hunting threats (snares, number of poachers).
	White-breasted Guinea fowl	Hunting	Patrols by forest guards. Community awareness raising activities.	No reduction or possibly even an increase in numbers. Reduction in hunting threats (snares, number of poachers).
	White-necked Picathartes	Disturbance	Education and awareness raising. Patrols by forest guards. Land use mapping and planning. Monitoring of nest colonies	No reduction or possibly even an increase in numbers.
	Other threatened birds, especially Gola Malimbe	Deforestation and/or forest degradation	Patrols by forest guards. Land use mapping and planning.	Maintenance of forest cover. No reduction or possibly even an increase of populations of primary forest specialists

	Reptiles and amphibians, especially Tai Toad and <i>Phrynobatrachus</i> sp	Deforestation and/or forest degradation	Patrols by forest guards. Land use mapping and planning.	Maintenance of forest cover. No reduction or possibly even an increase of populations of primary forest specialists
HCV 2	Forested floodplains (habitat for Pygmy Hippopotamus)	Disturbance by fishermen Pollution of watercourses	Patrols by forest guards. Land use mapping and planning. Education and awareness raising activities.	No reduction or possibly even an increase of populations of forest floodplain species. Healthy riverine systems. Intact forest canopy and understory.
HCV 4	Intact forest for watershed protection, climate regulation and protection from erosion	Deforestation/Forest degradation	Patrols by forest guards Land use mapping and planning	Maintenance of forest cover. No reduction or possibly even an increase of populations of primary forest specialists
HCV 2 HCV 3 HCV 4	Primary rainforest	Deforestation and/or forest degradation	Patrols by forest guards.	Maintenance of forest cover. No reduction or possibly even an increase of populations of primary forest specialists
HCV 1 HCV 2 HCV 3 HCV 4	Loss of connectivity	Deforestation	Patrols by forest guards. Development of sustainable management plans with Forest Edge communities in key areas between protected areas and the Liberian border. Agriculture project to increase productivity in land that is already within the bush-fallow cycle.	Maintenance of forest cover. No reduction or possibly even an increase of populations of primary forest specialists. Connectivity between large forest patches and other areas of conservation interest across the border in Liberia allowing for transnational gene flow and the maintenance of viable populations in the face of climate change.

E. MANAGEMENT PROGRAMMES AND ACTIONS

All future work in the Gola Rainforest is directed towards achieving the four main programmes given in the Statement of Purpose at the start of this management plan. Achievement of the goals will be through the implementation of a series of 5 yearly management plans of which this is the first. Within each 5-year period, specific objectives and associated actions will be agreed between all stakeholders. The effectiveness of management plan implementation will be monitored on an ongoing basis, with major annual reviews. Based on the results of this monitoring, actions will be adapted and/or rescheduled in the light of actual progress and circumstances 'on the ground'. Through this adaptive management approach, the use of resources – staff, time, and financial – will be maximised.

Management Objectives

The proposed work for each goal during the period 2024 to 2028 is outlined below, together with 'lead' and 'supporting' individuals/organisations and proposed time scales for implementation. More detailed descriptions of the actions will be elaborated in Annual Operational Plans (AOPs).

In the tables, the following abbreviations have been used to indicate those responsible for the implementation of actions:

GRNP management team:

HoG – Head of Gola

CPM – Country Programme Manager

PO – Park Operations Team

CD – Community Development Team

CED – Conservation Enterprise Team

R&M- Research and Monitoring Team

FA – Finance Team

AD – Administration Team

HR – Human Resource Team

M&E – Monitoring and Evaluation Team

1. Park Protection Programme

Goal: To strengthen the protection strategy and effective management of the GRNP to maintain and enhance its full range of functioning ecological processes and enable the project to be a catalyst for building national policies and regulations for conservation and natural resource management as well as informing relevant regional and international platforms.

Objective 1.1 The integrity of the Gola Rainforest National Park, its habitats and key species, is maintained.

Rationale: National Park status on its own does not guarantee the long-term survival of key species and habitats and the integrity of carbon stocks; many species require active management or protection measures, and these must be based on sound information and enforcement of legislation through the control of illegal and damaging activities.

Activity 1.1.1 Conduct regular forest patrols to improve law enforcement presence in the National Park. Patrol types include normal Ranger Patrols, Joint Security Patrols and Transboundary Border Patrols

Activity 1.1.2 Establish and maintain a central patrol database to enable strategic patrol planning incorporating known data, information, and threat analysis to improve patrol coordination and coverage.

Activity 1.1.3 Provide comprehensive and on-going training and supervision of Park Rangers to improve the capacity of rangers to conduct effective patrols and collect data on illegal activities.

Activity 1.1.4 Maintain robust communication channels with forest edge communities and local authorities enable grievances to be efficiently and effectively addressed.

Activity 1.1.5 Maintain clear and permanent boundaries reducing the potential for boundary disputes and encroachment.

Activity 1.1.6 Rehabilitate artisanal mining sites and other degraded areas within the park to restore forest habitats.

Management Actions:

No	Actions	Lead	Partners	Timing	Priority
1.1.1.1	Regular patrols of GRNP by Rangers	PO	AIG (needs basis only)	Monthly	High
1.1.1.2	Joint Security Patrols	PO	SLAF SLPF	Quarterly	High
1.1.1.3	Joint Transboundary Patrols	PO	NPAA, FDA, MRU	Annually	High
1.1.2.1	SMART Patrol Database maintained	PO	RSPB	Monthly	High
1.1.2.2	Detailed GIS analysis of patrol routes and effort, with records of illegal activities and of key species	PO, R&M	RSPB	Monthly	High
1.1.3.1	Law Enforcement Training for Rangers	PO	RSPB South Africa Wildlife College	Once every 3 Years	High
1.1.4.1	Resolve boundary disputes	PO		Year 1-5	High

	with local communities				
1.1.4.2	Maintain active grievances register	HR		Year 1-5	High
1.1.5.1	Re-brushing park boundaries	PO		Annually	High
1.1.5.2	Permanently mark and maintain boundary pillars	PO		Year 1-2	High
1.1.6.1	Identify degraded sites within park boundaries and replant with native seedlings	PO		Year 1-5	Medium

Objective 1.2 Transboundary partnerships and collaboration between civil society, government, and communities enhance the protection of the Greater Gola Peace Park.

Rationale: This is part of a broader move away from viewing the GRNP and GFNP as distinct protected areas and towards a more holistic, landscape-scale approach. Increased coordination and collaboration with partners in Liberia will help to safeguard GRNP against transboundary threats.

Activity 1.2.1 Support the development of transboundary patrol protocols and conduct training for rangers on transboundary issues.

Activity 1.2.2 Facilitate ranger exchanges between GRNP and GFNP.

Activity 1.2.3 Participate in regular Gola Bilateral Committee and Transboundary Technical sub-committee meetings.

Activity 1.2.4 Promote awareness and education on the importance of transboundary collaboration and peace on the management of natural resources in the Greater Gola Landscape

Management Actions

No	Actions	Lead	Partners	Timing	Priority
1.2.1.1	Support the development of transboundary patrol protocols	HoG, CPM	NPAA, FDA, MRU	Year 1-3	High
1.2.1.2	Conduct joint training for rangers on transboundary issues	PO	NPAA, FDA	Year 2-5	Medium
1.2.2.1	Facilitate ranger exchanges and joint training between GRNP and GFNP	HoG, CPM	MoECC	Year 1-5	Medium
1.2.3.1	Participate in regular Gola Bilateral Committee Meetings	HoG, CPM	SCNL, CSSL, FDA, NPAA, MRU	Year 1-5	High
1.2.3.2	Participate in regular Transboundary Technical sub-committee meetings	HoG, CPM	SCNL, CSSL, FDA, NPAA, MRU	Year 1-5	High

Objective 1.3 GRNP is promoted as an example of best practice in rainforest management at national and international levels

Rationale: Promoting the project's best practices and developing institutional coherence amongst Government and Non-Government agencies will create a positive environment for natural resource governance and the demonstration of effective REDD activities is essential for the development and implementation of national mechanisms and effective protected area management elsewhere in the country.

Activity 1.3.1 Document and disseminate best management practices.

Activity 1.3.2 Advocate for the replication of the project to support wider conservation initiatives nationally and in the sub-region.

Activity 1.3.3 Establish and maintain strong links, dialogue and collaboration between the project and key local, provincial and national stakeholders

Activity 1.3.4 Establish the necessary legal framework for the implementation of co-management and other activities required by the project

Activity 1.3.5 Secure World Heritage Site status.

Management Actions

No	Actions	Lead	Partners	Timing	Priority
1.3.1.1	Disseminate information from previous and ongoing programmes and projects	HoG, CPM	CSSL	Year 1-5	High
1.3.1.2	Provide expert advice where opportune or requested	HoG, CPM	RSPB	Year 1-5	Medium
1.3.3.1	Organise site visits by decision makers and representatives to illustrate successful management	HoG, CPM	MoECC	Annually	Low
1.3.4.1	Review existing wildlife and related legislation and identify issues	HoG, CPM	RSPB	Year 2-3	High
1.3.4.2	Establish a task team to develop recommendations for co-management	HoG, CPM	RSPB	Year 3-4	Medium
1.3.4.3	Advocate for the adoption of new/amended legislation	HoG, CPM	CSSL	Year 3-5	Medium
1.3.5.1	Conclude World Heritage Nomination process	HoG, CPM	TIWS	Year 1	High

2. Community Partnership and Sustainable Development Programme

Goal: To create an enabling environment for neighbouring communities to act as committed environmental stewards of the natural resource base that underpins their livelihoods through activities that enhance, generate value from and materialise the benefits derived from the Gola Rainforest's forests and sustainable land use practices.

Objective 2.1 **Agriculture and farming practices in the project zone communities are well managed to boost productivity, improve fallow and nutrient recycling systems, and promote sustainable intensification**

Rationale: Improving the productivity on land that is already part of the traditional bush-fallow cycle will reduce deforestation and benefit household food security and income. This is part of the project strategy to achieve a net positive impact for Gola Rainforest communities.

Activity 2.1.1 Assess current land use systems and design intervention strategies that are inclusive of the most vulnerable (wealth ranking) in a participatory manner.

Activity 2.1.2 Research human-wildlife conflict and pilot awareness mechanisms and mitigation measures to reduce impact.

Activity 2.1.3 Develop training modules for farmer field schools and provide inputs to establish and maintain farmers capacity for best practices in sustainable agriculture.

Activity 2.1.4 Pilot innovative agroforestry systems in the landscape to develop locally appropriate models which maximise livelihood, biodiversity, and carbon benefits.

Management Actions

No	Actions	Lead	Partners	Timing	Priority
2.1.1.1	Develop framework and criteria to ensure participation of vulnerable groups in programme activities.	CD, CED, M&E		Year 1	High
2.1.2.1	Collect and analyse data on human-wildlife conflicts	CD, R&M, M&E		Year 1-5	High
2.1.2.2	Provide training and advice on wildlife damage reduction techniques	CD		Year 2-5	Medium
2.1.3.1	Source knowledge & best practice in improved agricultural practices.	CD		Year 1-5	High
2.1.3.2	Master the Farmer Field School approach to demonstrate and disseminate best practices.	CD			Medium
2.1.4.1	Pilot mixed agroforestry systems. Develop best practices fit for local context.	CD, CED	JOA	Year 1-5	High

Objective 2.2 Connectivity between forest blocks is maintained through improved land use planning and community forest management.

Rationale: Effective Community Based Natural Resource Management (CBNRM) will mitigate leakage from the Gola Rainforest and preserve habitat connectivity between the forest blocks and forests in Liberia thus contributing to both climate and biodiversity objectives. From a community perspective land use planning will ensure that natural resources which underpin many livelihood activities are available in perpetuity.

Activity 2.2.1 Capacity building and awareness raising of the importance of NRM in villages in the Gola Rainforest.

Activity 2.2.2 Identification and prioritisation of clusters of FECs for participatory land use mapping and co-management.

Activity 2.2.3 Review and update in a participatory manner existing by-laws on traditional land use practices.

Activity 2.2.4 Promote the strengthening of traditional governance systems to enable communities to participate more effectively in the protection and management of the GRNP and enforcement of its laws and regulations.

Activity 2.2.5 Establish an enabling framework for co-management areas and zones inside the protected area (GRNP) including accessibility plans and specific resource use agreements.

Activity 2.2.6 Support communities to identify viable forest ecosystem services and products and develop mechanism to enable community forest use and land use zones.

Management Actions

No	Actions	Lead	Partners	Timing	Priority
2.2.1.1	Hold regular meetings with local communities and Forest Management Committees	CD		Year 1-5	Medium
2.2.2.1	Identify and categorise priority areas for conservation in community forests around National Park.	CD	CSSL, RSPB	Year 1-5	High
2.2.2.2	Develop land use plans in participation with forest edge communities in priority areas for conservation.	CD	CSSL, RSPB	Year 1-5	High
2.2.3.1	Document existing bylaws on traditional land-use practices in FECs and offsite communities	CD	CSSL	Year 1-5	Medium
2.2.4.1	Establish and support resource use groups to develop democratic	CD, CPM	CSSL	Year 1-5	Medium

	processes for NRM and participation in decision making.				
2.2.5.1	Review existing laws and policies in relation to community use zones (CUZs) and NTFP utilisation in the National Park.	HoG, CPM	CSSL, NPAA	Year 1-2	Medium
2.2.6.1	Develop a mechanism for co-management and resource use plans for access, utilisation and management of selected natural resources from identified management zones within GRNP.	CD, CPM		Year 3-5	Medium

Objective 2.3 Forest edge communities are supported to achieve greater financial independence and develop diversified income streams with an emphasis on nature-based and forest-friendly enterprise.

Rationale: Income generation schemes that diversify and increase the financial and non-financial benefits available from forest resources will place a shared value on standing forests and provide an alternative to unsustainable resource use thus reducing deforestation in the leakage belt whilst providing net positive benefits to communities. Coupled with improved financial literacy and management systems through savings and lending schemes, this will support the development of small and medium enterprise in forest edge communities.

Activity 2.3.1 Assess existing agricultural commodity value chains and identify gaps for agricultural products, NTFPs and SFPs and constraints for FECs.

Activity 2.3.2 Identify, support and provide inputs for production/collection, post-harvest processing and marketing needs based on gap analyses.

Activity 2.3.3 Increase the organisation and capacity of small holders cooperatives to enable increased trade and income from commodities.

Activity 2.3.4 Support the establishment and maintenance of village savings and lending schemes, including an assessment of the feasibility of targeting it towards women, using Saving and Internal Lending Communities (SILC) methods.

Activity 2.3.5 Develop and implement an eco-tourism strategy that promotes GRNP as a high-value destination for visitors that benefits and involves local communities.

Management Actions

No	Actions	Lead	Partners	Timing	Priority
2.3.1.1	Conduct localised surveys of NTFP use and perceptions on shortages or abundance	CD, CED		Year 2-5	High

2.3.1.2	Develop and implement practical monitoring of NTFP use within CFs	CD, M&E		Year 3-5	Medium
2.3.1.3	Conduct assessment on markets and value chain systems for agricultural products, NTFPs and SFPs.	CED		Year 1-2	High
2.3.2.1	Develop cocoa certification and commercialisation strategy	CED		Year 1-2	High
2.3.2.2	Apply for and achieve organic certification for Gola cocoa	CED		Year 1-2	High
2.3.2.3	Re-introduce and promote training on bee farming with target on promoting honey production as alternative source of income for community members.	CED		Year 2-5	Medium
2.3.3.1	Training and direct engagement on process management and essential registration to enable Gola Farmers access to global market	CED		Year 1-5	Medium
2.3.4.1	Monitor established village savings and loans (VSLA) groups and collate results from end of cycle evaluations	CD		Year 1-2	High
2.3.4.2	Extend the network of VSLA groups through trained Private Service Providers (PSPs) from successful groups	CD		Year 2-5	Medium
2.3.5.1	Develop ecotourism strategy targeting human resources, infrastructure development, product branding, market linkages and partnership with relevant stakeholders.	CED, CPM		Year 2	High
2.3.5.2	Implement GRNP ecotourism strategy	CED		Year 2-5	High

Objective 2.4 Awareness and understanding about the National Park and ecosystem values are enhanced at the local and national level.

Rationale: Promoting understanding and knowledge of the values of the GRNP and forests is a necessary pre-requisite for enabling the emergence of environmental stewardship in local communities.

Activity 2.4.1 Develop and implement an environmental education strategy with materials and modules dedicated to targeted topics and audiences.

Activity 2.4.2 Maintain a network of school nature clubs and support field visits to the National Park for local communities.

Activity 2.4.3 Assess pupil access and participation in secondary schools. Develop criteria for scholarship selection and provide scholarship packages to community selected students.

Activity 2.4.4 Assess, and implement where possible, other strategies for providing educational support to remote FECs which fall outside the current school coverage.

Activity 2.4.5 Develop and implement a GRNP conservation volunteer programme in FECs for unemployed youth.

Activity 2.4.6 Conduct annual awareness raising and educational road shows and other conservation awareness events to reach remote FECs.

Activity 2.4.7 Improve media visibility and public outreach of GRNP through symposium, open public lectures, roundtables and presentations at regional and international conferences and workshops.

Management Actions

No	Actions	Lead	Partners	Timing	Priority
2.4.1.1	Develop and implement an environmental education strategy with associated materials and modules dedicated to targeted topics and audiences.	CD	CSSL	Year 1-2	High
2.4.2.1	Organise training workshops for teachers and other role models to lead nature clubs	CD	CSSL	Year 1-5	Medium
2.4.2.2	Conduct fieldtrips to GRNP with local school children	CD	CSSL	Year 1-5	High
2.4.3.1	Assess pupil access and participation in secondary schools	CD		Year 1-2	High
2.4.3.2	Assess progression of pupils receiving education support from GRC-IG	CD		Year 1-2	High
2.4.3.3	Introduce scholarship scheme to support university students from the Landscape	CD		Year 1-5	High
2.4.4.1	Assess other strategies for providing educational support to remote FECs which fall outside the current school coverage	CD		Year 1-2	High
2.4.5.1	Extend network of Species Champions for Pygmy Hippos and Picathartes to promote species conservation	R&M		Year 1-5	Medium

2.4.5.2	Explore potential for additional Species Champion programmes to support other HCV species e.g. Timneh Parrot	R&M		Year 3-5	Medium
2.4.6.1	Conduct regular Environmental Roadshows at section and chiefdom levels	CD	CSSL	Year 1-5	High
2.4.6.2	Hold promotional events e.g. World Wildlife Day, World Environment Day	CD	CSSL	Year 1-5	Medium
2.4.6.3	Organise School debates, art and essay competition on conservation	CD	CSSL	Year 2-5	Low
2.4.6.4	Hold regular radio programmes on nature and conservation talks	CD		Year 1-5	Medium
2.4.7.1	Give presentations to Senior Schools and higher institutions	CD, R&M		Year 1-5	Medium
2.4.7.2	Improve visibility through presentations at regional and international conferences and workshops	HoG, CPM		Year 2-5	Medium

Objective 2.5 Communities in the Leakage Belt and Offsite zone around the GRNP are provided with equitably shared incentives for community infrastructure and human development.

Rationale: The development and maintenance of an agreement and mechanisms that reward and incentivise stakeholders to reduce deforestation and compensate others for foregone rights in an equitable, effective and transparent manner is essential to prevent elite capture and to foster support for the project.

Activity 2.5.1 Implement the distribution of funds and activities outlined in the Benefit Sharing Agreement (BSA).

Activity 2.5.2 Develop structures and monitoring procedures to ensure effective and transparent distribution of funds and in-kind benefits.

Activity 2.5.3 Assess development needs of FECs especially in relation to health, water, sanitation, access and generate list of target villages.

Activity 2.5.4 Support Gola Community Development Committees (GCDCs) in developing procedures and criteria to select development projects for funding.

Activity 2.5.5 Support the Government in updating the GRNP landowner register.

Management Actions

No	Actions	Lead	Partners	Timing	Priority
2.5.1.1	Implement the distribution of funds and activities outlined in the Benefit Sharing Agreement (BSA)	CD, FA		Year 1-5	High
2.5.1.2	Review BSA at regular intervals	HoG, CPM	GRC-LG	Year 2	High

	in consultation with relevant stakeholders		Directors		
2.5.1.3	Create and maintain effective feedback mechanism for communities on their roles and benefits sharing opportunities as supported by the BSA	CD, HoG		Year 2-5	High
2.5.2.1	Implement monitoring mechanisms to evaluate the Effectiveness and transparency of development initiatives	M&E		Year 1-5	High
2.5.3.1	Develop framework for Chiefdom and village profiling to establish development needs	CD, M&E		Year 2-5	High
2.5.4.1	Oversee the fair election of GDCs	CD		Year 1-5	High
2.5.4.2	Provide advice and capacity building to GDCs to develop robust procedures for the selection and implementation of development projects	CD		Year 1-5	High
2.5.5.1	Support the Government in updating the GRNP landowner register	CD, M&E, HoG		Year 1-5	High

3. Research and Monitoring Programme

Goal: To develop and maintain a comprehensive social and biodiversity database and associated monitoring system to ensure the availability of accurate, relevant and timely information to inform and enhance project management and the effective delivery of outcomes.

Objective 3.1 Programme progress and impacts on biodiversity are effectively evaluated through regular monitoring of key species, habitats and ecological processes.

Rationale: Monitoring of agreed, measurable outputs, using standardised methodologies, will ensure that the implemented management actions are delivering the predicted and desired changes and enables the project to adapt its management strategy accordingly. Periodic research activities and surveys are organised based on specific taxa and spatial research needs. The REDD+ programme will provide consistent assessment of the climate related data collection, monitoring of biodiversity index including species and land use systems.

Activity 3.1.1 Carry out regular monitoring of pre-identified and agreed sets of indicators for climate change, forest cover, biodiversity, and community variables.

Activity 3.1.2 Carry out regular analysis and report on available data.

Activity 3.1.3 Disseminate reports and results of monitoring to stakeholders and the scientific community.

Management Actions

No	Actions	Responsible	Partners	Timing	Priority
3.1.1.1	Complete primate transect surveys	R&M	RSPB	Year 1	High
3.1.1.2	Complete carbon stock enhancement surveys	R&M	RSPB	Year 1	High
3.1.1.3	Complete degradation surveys	R&M	RSPB	Year 1-2 & Year 3-4	High
3.1.1.4	Complete camera trap surveys for large mammals	R&M	RSPB	Year 1 & Year 4	High
3.1.1.5	Complete chimpanzee nest survey	R&M	RSPB	Year 2	High
3.1.1.6	Complete Picathartes colony survey	R&M	RSPB	Year 2	High
3.1.1.7	Complete Pygmy Hippo survey	R&M	RSPB	Year 2-3	High
3.1.1.8	Complete Bird Point Count survey	R&M	RSPB	Year 3-4	Medium
3.1.2.1	Complete End of Survey reports for all completed surveys	R&M	RSPB	Year 1-5	Medium
3.1.2.2	Analyse data from completed surveys and report against agreed indicators	R&M, RSPB TAs	RSPB ConSci	Year 1-5	High

3.1.3.1	Translate results into key messages to local stakeholders	R&M	RSPB	Year 1-5	Medium
3.1.3.2	Publish results in peer-reviewed journals	RSPB	RSPB ConSci	Year 3-5	Medium

Objective 3.2 Robust data and information support an adaptive approach to protected area management

Rationale: The planning and implementation of management and protection measures needs to be based on robust scientific information. To be of maximum value to inform management decisions, information collected by the project needs to be accurate, stored securely, readily accessible to project staff and updated on a regular basis.

Activity 3.2.1 Maintain a secure database to capture and store all data collected.

Activity 3.2.2 Conduct thorough checks on current and historical data to ensure accuracy and reliability.

Activity 3.2.3 Train all research and monitoring staff on data management and online database tools.

Management Actions

No	Actions	Responsible	Partners	Timing	Priority
3.2.1.1	Establish secure online database for all Gola data	RSPB	RSPB CDMU	Year 1	High
3.2.1.2	Update database with new survey data	R&M	RSPB	Year 1-5	High
3.2.2.1	Check and clean datasets	R&M	RSPB	Year 1-5	High
3.2.3.1	Train all research staff on data management and processing	RSPB TAs		Year 1-5	High
3.2.3.2	Train all research staff on online databases and data management tools	R&M	RSPB	Year 2-5	High

Objective 3.3 Critical gaps in information on biodiversity, ecological processes and socioeconomics are identified and addressed.

Rationale: Knowledge gaps hinder effective conservation action to address the drivers of changes which impact on biodiversity. Advances in technologies, tools, and understandings can help to improve monitoring and lead to improvements in interventions and thus conservation outcomes.

Activity 3.3.1 Review current biomonitoring plan and identify information and knowledge gaps.

Activity 3.3.2 Pilot emerging biomonitoring technologies to evaluate their potential applications and complementarity.

Activity 3.3.3 Develop and implement conservation action plans for key priority species.

Activity 3.3.4 Carry out socio-economic research to understand community dynamics and gather baseline information to guide community activities.

Management Actions

No	Actions	Responsible	Partners	Timing	Priority
3.3.1.1	Complete Gola Biomonitoring Review	RSPB	RSPB ConSci	Year 1	High
3.3.1.2	Priority research areas identified	RSPB	RSPB ConSci	Year 2-5	High
3.3.2.1	Pilot eDNA sampling as innovative monitoring method	R&M	RSPB	Year 1-2	Low
3.3.2.2	Pilot bioacoustics monitoring methodology	R&M	RSPB	Year 1-2	Low
3.3.2.3	Pilot use of SMART and other digital data collection tools	R&M	RSPB	Year 1-2	Medium
3.3.3.1	Develop species action plan for pygmy hippo	RSPB	RSPB ConSci	Year 1	High
3.3.3.2	Develop species action plan for white-necked picathartes	RSPB	RSPB ConSci	Year 1	High
3.3.3.3	Develop species action plan for Timneh Parrot	RSPB	RSPB ConSci	Year 1	High
3.3.4.1	Develop comprehensive socioeconomic research and monitoring plan	M&E	RSPB	Year 2-3	High
3.3.4.2	Implement socioeconomic monitoring plan	M&E	RSPB	Year 3-5	High
3.3.5.1	Identify potential national and international research partners to address knowledge gaps	HoG, R&M	RSPB	Year 1-3	Medium

Objective 3.4 GRNP is promoted as a centre for national and international research on tropical rainforest ecosystems.

Rationale: Promotion of the innovative approaches being taken towards sustainable, participatory management and the diverse opportunities for biodiversity and socio-economic research will secure and enhance the recognition of GRNP's High Conservation Values, fill gaps in scientific knowledge and understanding, as well as building the capacity and reputation for national research thus demonstrating the value and benefits of the forests in the Gola Rainforest nationally and internationally.

Activity 3.4.1 Establish the required infrastructure for national and international research to be carried out in the Gola Rainforest.

Activity 3.4.2 Identify and establish collaborative partnerships on agreed research topics.

Activity 3.4.3 Facilitate independent research projects within the Gola Rainforest aligned with priority research areas.

Activity 3.4.4 Promote and advocate the results of research.

Management Actions

No	Actions	Responsible	Partners	Timing	Priority
3.4.1.1	Complete review of external researcher process	R&M	RSPB, ETU, Njala	Year 1-2	High
3.4.1.2	Establish Research Centres at GRNP substations.	R&M, HoG	RSPB	Year 2-3	Medium
3.4.2.1	Identify potential national and international research partners to address knowledge gaps	HoG, R&M	RSPB	Year 1-3	Medium
3.4.2.2	Establish working relationships and MoUs with research partners	HoG, R&M	RSPB	Year 2-3	Medium
3.4.3.1	Facilitate independent research projects aligned with priority areas	R&M	RSPB, ETU, Njala	Year 2-5	Medium
3.4.4.1	Present results of independent research to local stakeholders	R&M	RSPB, ETU, Njala	Year 2-5	High

4. Operational Effectiveness Programme

Goal: To enable effective management through the implementation of best practice administrative and financial systems and the provision of necessary staff training, resourcing, and equipment.

Objective 4.1. Staff welfare and performance are measurably improved.

Rationale: The future desired state for the GRNP is one where staff morale is high, and staff are effective and efficient in performance of their duties. There are currently challenges that hinder the realisation of this desired state. For instance, some departments and units are operating below necessary capacity, and park facilities are inadequate.

Activity 4.1.1 Review and revise operational policies and organisational staff handbook.

Activity 4.1.2 Provide a secure work environment for staff and visitors.

Activity 4.1.3 Promote a culture of teamwork, respect, and excellence.

Activity 4.1.4 Ensure that recruitment follows HR policy of equal opportunities and best practice.

Activity 4.1.5 Based on a needs assessment and training and development plans ensure the efficiency and job satisfaction of staff.

Activity 4.1.6 Upgrade, maintain and, where necessary, establish infrastructure such as forest guard stations, road access and park headquarters.

Management Actions

No	Actions	Responsible	Partners Involved	Timing	Priority
4.1.1.1	Review and update GRC Staff Handbook to align with current realities and national policies	HR		Year 1	High
4.1.1.2	Review and update organisational policies	HR		Every 2 years	High
4.1.5.1	Conduct organisational capacity assessment	HR	RSPB	Year 1	High
4.1.5.2	Develop training and development plans to address capacity shortfalls	HR	RSPB	Year 2	Medium

Objective 4.2 Management infrastructure is enhanced to ensure effective and transparent management.

Rationale: Effective project management must have all the mechanisms in place to assist and guide staff in carrying out their work and enable them to demonstrate that resources are being used in a cost-effective legal and transparent manner.

Activity 4.2.1 Implement organisational re-structuring plan to achieve target operating model.

Activity 4.2.2 Maintain robust procurement and accounting policies and procedures.

Activity 4.2.3 Improve Financial transparency and traceability through enhanced financial planning and reporting tools

Activity 4.2.4 Establish an internal budgetary review committee to guide the development of annual and quarterly budgets.

Activity 4.2.5 Develop, implement, evaluate and report on annual operational plans.

Management Actions:

No	Actions	Responsible	Partners Involved	Timing	Priority
4.2.1.1	Implement organisational re-structuring plan	HoG, CPM, HR	GRC-LG Directors	Year 1	High
4.2.2.1	Develop and implement a competitive, transparent procurement procedure which fulfils government and REDD+ project requirements	AD	n/a	Year 1-5	High
4.2.3.1	Establish and maintain proper accounting policies and procedures to ensure the correct and efficient use of funds	FA	RSPB	Year 1-5	High
4.2.4.1	Establish internal budgetary review committee to guide budget development and ensure adherence.	FA	RSPB	Year 2	Medium
4.2.4.2	Develop robust annual operating budgets	FA, HoG, CPM	Senior Managers, RSPB Technical Advisors	Year 1-5	High
4.2.4.3	Approval of annual operating budgets	GRC-LG Directors		Year 1-5	High
4.2.5.1	Develop annual operational plans (AOPs)	HoG, CPM	Senior Managers, RSPB Technical Advisors	Year 1-5	High
4.2.5.2	Approval of Annual Operations Plan	GRC-LG Directors		Year 1-5	High

Objective 4.3 Protected area management programmes are delivered more effectively and efficiently.

Rationale: There is a lack of capacity in some key areas that is impacting on the ability of GRC to deliver its programme of work in a timely, effective, and impactful way. Addressing these challenges from an organisational point of view will increase the possibility of developing a driven culture of improvement within the team that will have wider implications across the organisation. It will also help ensure that there is a focus not just on measuring outputs as is the case operationally day to day within the organisation but also on outcomes and impact.

Activity 4.3.1 Establish an Operational Effectiveness Team

Activity 4.3.2 Monitor the effectiveness of programme delivery and identify efficiencies in resourcing – staff, time, financial – to improve cost effectiveness.

Activity 4.3.3 Liaise with relevant departmental heads to streamline programme delivery.

Activity 4.3.4 Improve internal communications and intra-organisational collaboration

Management Actions:

No	Actions	Responsible	Partners Involved	Timing	Priority
4.3.1.1	Establish Operational Effectiveness Team	HoG, CPM, HR	GRC-LG Directors	Year 1	High
4.3.2.1	Monitor the effectiveness of programme delivery in terms of staff, time, and finances	M&E, FA, AD		Year 1-5	High
4.3.2.2	Where possible and appropriate implement cost saving measures	HoG, CPM		Year 1-5	High
4.3.3.1	Consult with relevant departmental heads to improve strategic programme delivery	M&E, HoG, CPM	RSPB	Year 1-5	High
4.2.4.1	Establish and maintain organisational email domains and create shared online workspaces	AD, HoG, HR	RSPB	Year 2-5	Medium
4.2.5.1	Upgrade IT services and network computers and printers	AD, HR		Year 2-5	Medium

PART THREE: REFERENCE MATERIALS

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APPENDICES

TIWAI ISLAND CO-MANAGEMENT PLAN 2020-2030



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Citation

The Co-Management Plan of Tiwai Island Wildlife Sanctuary – 2020-2030

Professor A.B. Karim,* Dr A. Okoni-Williams & Mr J. Squire

Department of Biological Sciences, Fourah Bay College, University Sierra Leone

* Lead Consultant

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Front page photo: *A group of local community people at Kambama village posed for a picture with a number of tourists to the Tiwai island Wildlife Sanctuary*

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ACRONYMS

CEPF	Critical Ecosystem Partnership Fund
CR	Critically Endangered
CSO	Civil Society Organisation
CTF	Conservation Trust Fund (NPAA)
DSA	Daily Sustenance Allowance
EFA	Environmental Foundation for Africa
EN	Endangered
EPA-SL	Environmental Protection Agency, Sierra Leone
EVD	Ebola Virus Disease
GTZ	German Technical Corporation
FD	Forestry Division
FoSED	Food Security and Economic Development
LC	Least Concern
MDAs	Ministries, Departments and Agencies
M&E	Monitoring and Evaluation
MoU	Memorandum of Understanding
MRU	Mano River Union
NGO	Non-Governmental Organization
NPAA	National Protected Areas Authority
NT	Near Threatened
NTFP	Non-timber Forest Products
NU	Njala University
PA	Protected Areas
RSPB	Royal Society of the Protection of Birds
SWOT	Strengths, Weaknesses, Opportunities and Threats
TCC	Tiwai Community Committee
TIAC	Tiwai Island Administrative Committee
UK	United Kingdom
USAID	United States Agency for International Development
VU	Vulnerable
WABiCC	West African Biodiversity and Climate Change

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- ❖ Members of the Tiwai Island Administrative Council (TIAC), particularly the Environmental Foundation for Africa (EFA), Njala University (NU), for providing logistic and technical support at every stage of the process.
- ❖ Royal Society for the Protection of Birds (RSPB) for coordination of the funding.
- ❖ West Africa Biodiversity and Climate Change Project for providing the funds required for the preparation of this management plan.

EXECUTIVE SUMMARY

Tiwai Island is the longest running community led conservation initiative in Sierra Leone. Until the Sierra Leone Civil War (1991-2001) “core funding” for conservation and research was provided by two American Universities; there has been no core funding since then. In 2002, the Critical Ecosystem Partnership Fund, administered by Conservation International and financed by the Global Environment Facility and other donors, provided a medium-sized grant to reconstruct the research and ecotourism facilities on Tiwai Island. The visitor centre constructed through support from the CEPF, was formally reopened in April 2006 and has hosted 400-600 visitors per year. Nearly three hundred million Leones, has been distributed to host communities, in the last 14 years. Visitor fees were just sufficient to cover running costs and maintenance cost for facilities and staff. Small grants from a variety of sources have allowed the gradual development of facilities and the recovery from unforeseen events. The twin event of the sub-regional EVD in 2014 and a destructive storm in 2015 cause the closure to visitors and researchers and so EFA had to cover much of the cost for facilities and staff maintenance. Visitors only returned to the island in late 2015 after major rehabilitation, allowing the generation of badly needed income to sustain the Sanctuary, provide some employment and financial benefits to the communities.

Most families in the eight communities depend on subsistence farming, whilst the forests on the mainland provide opportunities for hunting, harvesting NTFP, and the production of timber planks. As population pressure grows on the “mainland” the resources on the Island are becoming increasingly vulnerable to exploitation. The presence of diamonds is suspected and trial pits are regularly dug, fortunately there have been no major finds so far. Tiwai Island provides one of the few paid employment opportunities in the area; employing forest guides, boatmen, cooks and labour for the maintenance of trails etc. Other programs have included; encouragement of handcrafts, improved husbandry and processing of cocoa, a lucrative trade selling cola nuts to Carma Cola, building bridges, guest houses and schools, installation of solar lighting and phone charging centers and so on. Currently management is conducted through TIAC, but attendance to meetings by many of the government and non-governmental stakeholders is irregular due to logistical constraints. Consequently, the burden of administration has largely been borne by EFA, the two Paramount Chiefs of Barri and Koya Chiefdoms and the Department of Biological Sciences, Njala University.

In 2013, the Tiwai Island Wildlife Sanctuary was one of four sites, included on the “*tentative list*” of World Heritage Sites, following applications by; Sierra Leone’s Monuments and Relics Commission, the Gola Rainforest National Park and the Environmental Foundation for Africa. Recognising the potential of a successful joint application by the Gola Forest NP and Tiwai Island Wildlife Sanctuary, EFA and the GFNP Management agreed in 2014, to submit a joint application to the World Heritage Commission for full Heritage status. One of the requirements for full status is that there is an agreed and sustainable management plan. As a result, EFA obtained funds in April 2019, from WABICC (West African Biodiversity and Climate Change project) and RSPB

(Royal Society for the Protection of Birds) to commission a consultation process with the Tiwai host communities, that would ultimately lead to the development of sustainable and fit-for-purpose management plan. Full details of the three consultation activities (communities, chiefdom and stakeholder) and the full synthesis report and recommendations are attached as annexes to this executive summary.

The over-reliance on the core members of TIAC is unsustainable, judged as being a monopoly or oligopoly by a few people and being less participatory than it could be, justifying the need for a restructuring of the management system. Key recommendations are: (i) A successor to the current TIAC needs to develop detailed MoUs with the communities and secondary stakeholders, respectively, clearly outlining roles and responsibilities of all parties involved; (ii) A comprehensive biodiversity assessment of the Island is undertaken, with particular emphasis on the heterogeneity of the forest.

SECTION I - BACKGROUD INFORMATION

1.1 What is co-management in the context of the Tiwai Island

1.1.1 Definition and concepts

‘Co-management’ (also called: participatory management, collaborative management, joint management, mixed, multi-party or roundtable management) – is a process in which two or more social actors (resource users) negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given area or set of natural resources (Borrini-Feyerabend et al. 2007). It guarantees *specific rights and responsibilities relating to information and decision-making*. Co-management can also be seen as a pluralist approach to managing natural resources, incorporating a variety of partners in a variety of roles, generally to the end goals of environmental conservation, sustainable use of natural resources and the equitable sharing of resource-related benefits and responsibilities. In the loose sense, the present Tiwai Island Administrative Committee (TIAC), which works through a Secretariat based in Freetown, and includes representatives of the local community (there are eight host communities surrounding Tiwai Island), Sierra Leonean Government, other stakeholder organizations and the institutions managing the Tiwai Island’s ecotourism and research facilities Environmental Foundation for Africa (EFA) and the then Njala University (NU) already has the essential elements of Co-management.

1.1.2 Background on Tiwai Island prior to the co-management plan

Tiwai Island is the longest running community led conservation initiative in Sierra Leone. Until the Sierra Leone Civil War (1991-2001) “core funding” for conservation and research was provided by two American Universities; there has been no core funding since then. In 2002, the Critical Ecosystem Partnership Fund, administered by Conservation International and financed by the Global Environment Facility and other donors, provided a medium-sized grant to reconstruct the research and ecotourism facilities on Tiwai Island. The visitor centre was formally reopened in April 2006 and since then, there has been an average of between 400-600 visitors per year typically staying one or two nights. Nearly three hundred million Leones (about \$30,000) has been distributed to the host communities, representing approximately 20% of gross revenue, in the last 14 years. Visitor fees (\$30 international, \$15 national visitors) were just sufficient to cover running costs of maintenance (buildings, boats, trails, etc.) and payment of local staff; the surplus is distributed annually to eight surrounding communities. Small grants from a variety of sources have allowed the gradual development of facilities and the recovery from unforeseen events.

In June 2014, the island was closed to visitors and researchers for 15 months, due to the national and regional health emergency caused by the Ebola virus disease. With zero income from tourism

or research, maintenance of the facilities and financial support for Tiwai staff was subsidised by EFA. In October 2015, one month after reopening the island to visitors, there was a major storm that destroyed nearly all the buildings at the visitor centre. It took another year for the facilities to be restored, so that visitors could once more return to the island, and help generate the badly needed income to sustain the Sanctuary, provide some employment for the local people and financial benefits to the communities.

Most families in the eight communities depend on subsistence farming, with some plantations of cocoa and oil palm. The forests on the mainland provide opportunities for hunting, harvesting NTFP (non-timber forest products), and the production of timber planks. As population pressure grows on the “mainland” the resources on the Island are becoming increasingly vulnerable to exploitation. The presence of diamonds is suspected and trial pits are regularly dug, fortunately there have been no major finds so far. Tiwai Island provides one of the few paid employment opportunities in the area; employing forest guides, boatmen, cooks and labour for the maintenance of trails etc. These opportunities are limited by the seasonal nature of tourism and because total visitor numbers are low. Indirectly Tiwai has attracted a wide range of development partners but these development activities are not always “branded” as being a result of TIAC activities. Programs have included; encouragement of handcrafts, improved husbandry and processing of cocoa, a lucrative trade selling cola nuts to Carma Cola, building bridges, guest houses and schools, installation of solar lighting and phone charging centers and so on.

Over the last four decades the needs of the communities and the pressure on biodiversity have increased, at the same time the key stakeholders and the relationships between them have changed. Currently management is conducted through TIAC (Tiwai Island Administrative Council), unfortunately, attendance by many of the official members from national and government bodies is irregular due to logistical constraints. As a result, the burden of administration, especially of the tourism, has largely fallen onto a single NGO (the Environmental Foundation for Africa), the two Paramount Chiefs of Barri and Koya Chiefdoms and the Department of Biological Sciences, Njala University which is responsible for coordinating all research activities on the island.

1.1.3 Why engage in co-management at Tiwai?

Co-management ensures a wild and inclusive participation in natural resources management. There is partial devolution of the responsibility for the management of natural resources to local communities, who are not only the rightful owners, but whose lives and livelihood depend on maintaining the proper functioning of the ecosystem. Traditionally, local communities rely and live on the resources surrounding them, in terms of food (agricultural and wild), medicinal resources, biomass energy and other ecosystem services. In a country like Sierra Leone, which has a low human development index, low income levels and high unemployment rates particularly

among rural population, it is very necessary that the local population is accorded the opportunity to be involved in the management of their natural resources.

Full participation by the local people will ensure ownership and understanding of the benefit of sustainable management and protection of natural resources. This has implications for natural resource use and the maintenance of the optimum ecosystem conditions for the benefit of current and future generations. As long as the local communities are aware of the immediate and continued provision of resources upon which their lives depend, they will collaborate in any attempt to conserve such resources. In the case of the surrounding communities of the Tiwai Island, there are clear indications of the willingness among the traditional leaders and their subjects to be engaged in the management of the island. These communities are already accruing benefits from proceeds of the ecotourism programme on Tiwai Island, although they are expecting more, which is normal under the prevailing circumstances.

1.1.4 Experiences and lessons from co-management arrangements in Sierra Leone

There are many successful co-management experiences from different parts of the world and even in West Africa. However, it would be good to mention a few on-going co-management arrangements in Sierra Leone, which have proven success that are worth mentioning. It would also be prudent to learn from the successes and challenges of these existing co-management systems mentioned as follows:

- The Gola Forest co-management arrangement with communities on the utilization of the resources within the buffer zones. The local communities' benefit from direct cash payments and the provision of scholarship for children and social amenities such as court barry, water wells, small bridges, particularly through funds generated from ecotourism.
- Mamunta-Mayosso Wildlife Sanctuary is being managed through a collaboration between the officers and rangers from the NPAA and the local communities. Seeds and farm tools are being provided to the local farmers using proceeds derived from ecotourism
- In the Sierra Leone River Estuary, various levels of cooperation was established with different local community clusters for the management and control of resources in their respective local areas. The benefits to the communities include the protection from environmental disaster such as flooding and other ecosystem services, whilst mangrove cover is gradually increasing in many locations.

1.2 The Historic Management Context of Tiwai Island

The Tiwai Island Wildlife Sanctuary came to existence as a result of the recognition of its importance to wildlife and general biodiversity conservation nationally and regionally. The following outlines the key steps that led to the establishment of and operations of the sanctuary spearheaded by the TIAC.

DATE	ACTIVITY
Mid -1970	The biodiversity value of Tiwai is identified by researchers based at Njala University. A very dense and diverse primate fauna was observed; other West African endemics such as the pygmy hippo were also proved to be present.
Late -1970s	Discussions start with the two Paramount Chiefs, especially V.K. Magona the VI th of Barri about reducing hunting and other exploitation on the Island.
1987	Tiwai Island is given legal protection as a “Game Sanctuary”
Late- 1980s	The “golden age” of Tiwai Reserve, two American Universities, Hunter College and the University of Miami provide significant support to researchers on the Island (resulting in several ground-breaking papers led by Oates, Whitesides, Fimbel etc.). A Research Centre is established by Njala University and a Tourist Camp established with American funds (although the number of tourists unknown).
1989	A draft management plan is written by a Peace Corp volunteer using the American style of zoning. The management plan envisages limited economic exploitation (farming, logging etc) under the control of a “Supervisor”. The extent to which the full plan (~100 pages) was discussed with the communities is unclear, the plan was never formally adopted and fortunately farming and logging did not restart.
1980's	Documentary “Island of Apes” produced for Anglia TV (UK)
1991-2001	Sierra Leone Civil War. Researchers and Peace Corp volunteers were evacuated very early on in the war as Tiwai is close to where the insurgency started. Very high levels of poaching occurred during this period. Minimal financial support was provided from overseas and distributed through the Department of Forestry.
2000	First visit to Tiwai by staff from the Environmental Foundation for Africa (EFA).
2002	Re-establishment of TIAC (Tiwai Island Administrative Council) with input from line Ministries (Forestry, Tourism), Local Government (MP's, District Councillors), Traditional Authorities (Paramount Chiefs), Academics (Njala University) and NGO's (EFA).
2004	Work by Ibrahim Bakarr suggests some primates such as Campbell's monkey are now at 10% of their pre-war numbers.
2002-2006	Funds obtained from the Critical Ecosystem Partnership Fund (CEPF), UNHCR and Irish Aid are used by EFA, partnering with Njala University, to reconstruct and restore the biological research and ecotourism facilities on the Island, provision of a boat etc. Pre-war funding bodies (i.e. Hunter College and Miami University) appear unable or unwilling to re-establish ties with Sierra Leone.
2006	Official re-launch of Tiwai as an ecotourism destination and site for research
2002-date	Numerous development initiatives are implemented with varying degrees of success and not all are “branded” as being due to the conservation of Tiwai Island under the leadership of TIAC. Examples include; two of the culvert bridges on the road from Potoru – Kambama (funded by GTZ through EFA), the school at Kambama (funded from visitor income), Solar power for lighting and charging in all Tiwai Communities and the schools and clinics in their chiefdom headquarters Potoru and Boama (funded by the EU and implemented by EFA). Agricultural development (e.g. Food Security and Economic Development – FoSED – funded by European Union, implemented by EFA and the international NGO Welt Hunger Hilfe). Eco-tourism development, employment of locals in guiding and supporting tourism, boatmen, construction and maintenance of facilities, cooking for visitors and assisting researchers, etc.
2013	The Tiwai Island Wildlife Sanctuary was one of four sites, included on the “tentative list” of World Heritage Sites, following applications by; Sierra Leone's Monuments and Relics

	Commission, the Gola Rainforest National Park and the Environmental Foundation for Africa.
2013-2014	The need for a new management structure is identified; work is undertaken by Environmental Resources Management Foundation, UK on a “pro-bono” basis and an eco-tourism management plan is drafted by an EFA intern. Extensive discussions are undertaken internally and externally, but a number of serious issues remain unresolved.
2014-2015	Ebola crisis. Zero income from visitors. EFA and partners mobilise some resources for the communities (rice and cash).
~2015	By this time attendance and input from most members of TIAC has dwindled, to the extent that EFA and the two paramount Chiefs are the only active members.
2015-2016	Major storm on Tiwai Island causes extensive damage to buildings and various equipment including solar lighting at the visitor / ecotourism camp. EFA mobilises funds and works with local community to rebuild the structure and restore the services
2017	Major storm causes extensive damage to buildings at Field Research Station. A CDC grant enabled Njala University to repair, refurbish and upgrade the facilities at the field research station.
2018-2019	Funds are obtained from USAID, through WABICC, RSPB and Gola National Park to commission consultants to prepare a new management plan Consultants appointed.



Men and boys of various age groups from the local communities after the re-opening of the sanctuary at the end civil conflict of 1991-2002.



SECTION II - BIOPHYSICAL CHARACTERISTICS

2.1 Topography, geology and soils

There has been no particular study done on the geography and geomorphology of the Tiwai Island. However, the island is considered as part of the Gola biogeographic complex and has similar biophysical characteristics. Much of the description given below has been extracted from the information obtained for the Gola forest based on Klop et al. (2008).

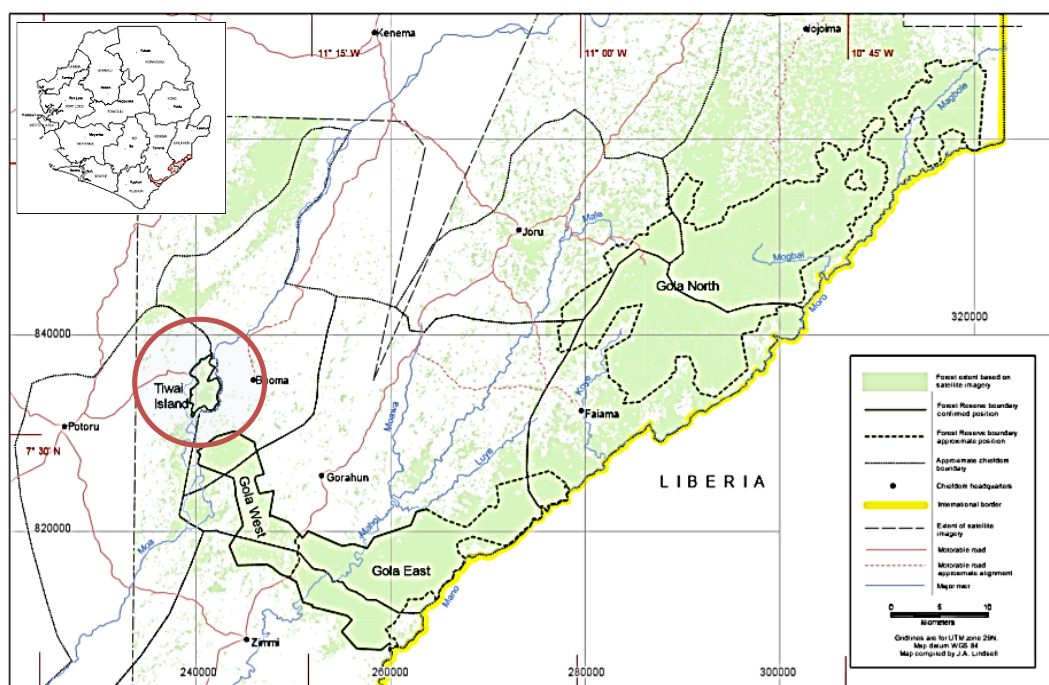


Figure 1 – Map of the Gola-Tiwai Island complex. Tiwai Island is circled in red on the left of the map.

The Tiwai Island is proximal to the western edge of Gola West, which is characterized by gentle slopes generally below 5° in Gola West (and below 10° in the western and central parts of Gola East. Generally, the Gola Forest is characterized by ancient crystalline rocks of the Precambrian period. The granite greenstone complex, which is common in the area, contains iron and magnesium-rich metamorphic rocks overlying a granitic basement rich in quartz (Wilson 1965). The soils in Gola are mostly derived from granite. They are usually freely draining sand and gravels, with varying proportions of lateritic gravel (Iles et al. 1993).

2.2 Climate and weather patterns

Rainfall in and around the Tiwai Island is consistent with that in the tropical forest zone in Sierra Leone. The only empirical data available for Tiwai Island rainfall is provided by Oates et al. (1990) of an estimated mean annual rainfall of 2708 mm. Values for Gola forest range between 2500 and 3000 annually, based on a number of independent records in different locations 1972 and 1993 (see Klop et al., 2008).

2.3 Biodiversity

2.3.1 Vegetation types and floral diversity and distribution

The nature of the vegetation on Tiwai Island is a microcosm of that in Gola. Although the historic vegetation cover is assumed to be closed evergreen forest, because of human activities mainly from farming, some modification has taken place and so there is a mixture of vegetation types on the island now. There are over 700 plant species on the island, with trees constituting the largest proportion of growth forms. The dominant type is evergreen forest, with characteristic species including *Heritiera utilis*, *Brachystegia leonensis*, *Calpocalyx aubrevillei* and *Sacoglottis gabonensis*. Along the edges of the island where the vegetation is more or less riparian forest, *Uapacca guinensis* and *Protomegabaria stapfiana* are common. Moist semi-deciduous forest also occurs in places and is dominated by species such as *Cynometra leonensis*, *Parinari excelsa*, *Parkia bicolor* and *Piptadeniastrum africanum*. There are patches of freshwater swamp forest with *Raphia* palm present and characteristic tree species are *Uapaca* spp, *Nauclea diderrichii* and *Newtonia duparquetiana*. Areas that have experienced some farming and logging and have been left to regrow are Forest regrowth and secondary forest and the dominant tree species are *Carapa procera*, *Macaranga barteri* and *Musanga cecropioides*.

2.3.2 Diversity and status of fauna

Tiwai Island holds 11 primate species and is known to have one of the highest densities of anywhere in Africa. Primates include Western Chimpanzee *Pan troglodytes verus* (CR), Diana Monkey *Cercopithecus diana* (EN), Red Colobus Monkey *Procolobus badius* (VU), Sooty Mangabey *Cercocebus atys* (VU) Black-and-White Colobus Monkey *Colobus polykomus* (NT), Campbell's Monkey *Cercopithecus campbelli* (LC), Mona Monkey *Cercopithecus mona* (LC), Callithrix Monkey *Cercopithecus sabaues* (LC), Olive Colobus Monkey *Procolobus verus* (LC), Lesser Spot-nosed Monkey *Cercopithecus petaurista*. As indicated in parenthesis 5 species are listed as threatened by IUCN Red List (2019) [1 Critically endangered (CR), 1 Endangered (EN), 2 Vulnerable (VU), 1 Near threatened (NT)]. The rest are of low conservation interest - Least Concern (LC).



Top – Diana Monkey *Cercopithecus Diana* (EN); Black-and-White Colobus *Colobus polykomus* (VU)
 Bottom – Campbell's Monkey *Cercopithecus campbelli* (LC); Western Chimpanzee *Pan troglodytes verus* (CR)

2.4 Unique biophysical features and potential for sustainable non-extractive investment

Tiwai Island is the biggest of the islands within the Moa River, and one of the few islands within the river systems in Sierra Leone with a close canopy moist forest. The following are biophysical features that make the island a unique place to people of diverse interests:

- Its isolation as a forested island makes it remote and pristine for a variety of research and leisure activities.
- Good forest canopy, providing optimum ecosystem services to surrounding communities and maintaining and stabilizing local environmental conditions.
- High diversity and density of primates and a variety of other mammalian, avian and other vertebrates that can be easily encountered.

SECTION III - POLICY, LEGISLATIVE AND MANAGEMENT FRAMEWORK

3.1 Gazettement of the Tiwai Island Game Reserve

The Tiwai Island was declared a Game Sanctuary by a Government Gazette Notice No, 342 of 1987. The gazette notice was signed by the then Minister of Agriculture, Natural Resources and Forestry.

The legal provision for the protection of the Tiwai island is supported in retrospect by the 1972 Wildlife Conservation Act, which spells out the regulations that apply to a Game Reserve (the legal equivalent of a Game Sanctuary) most of which are consistent with that in a National Park and Strict Nature Reserve. These regulations include the following, among other things:

No person shall in any National park, Strict Nature Reserve or Game Reserve, ***unless otherwise authorized to do so*** under this Act or by Regulations made hereunder:

- a. Hunt or take possession of any wild animal;
- b. Take any forest produce as defined in the Forestry Act;
- c. Uproot, burn, strip the bark or leaves from, or otherwise damage any tree;
- d. Set fire to any grass or herbage or kindle a fire without taking due precaution to prevent its spreading;
- e. Do any act connected with forestry, agriculture or mining, excavate or prospect, drill or level the ground or construct or perform any work involving the alteration of the configuration of the soil or the character of the vegetation;
- f. Fish or attempt to kill fish;
- g. Set any snare, net, trap or other instrument for the purpose of catching or killing animals, or likely to catch, kill or injure any animals;
- h. Introduce any species of fauna and flora, whether indigenous or imported, wild or domesticated;
- i. Construct any form of dam or weir across any river or streams or otherwise obstruct the channel of any river or stream;

3.2 Other Policy and Legislative Provisions

3.2.1 The Forestry Policy 2010 and Wildlife Conservation Policy of 2010

This policy makes provision for collaboration with local communities for the management of forests and wetlands ecosystem.

Policy Statement 2: ***Support the development of collaborative partnership with rural communities and other relevant stakeholders for the sustainable management of reserve forests, to ensure sustainable stream of economic, social and environmental benefits.***

The key strategic actions:

- Develop forest management and co-management plans in cooperation with partners and/or relevant stakeholders for all Forest Reserve forestlands.
- Develop co-management agreements between partners which define roles, rights, responsibilities, benefit sharing arrangements and mechanisms for accountability.
- Develop legislative support for the recognition of collaborative forest management arrangements between lead government agencies, community-based forest management organisations, communities, the private sector, and CSO, which clarifies decision-making and enforcement responsibilities, and provides a legal basis for access rights and benefit sharing from timber and non-timber forest products.

The Conservation and Wildlife Policy 2010 has a relevant policy statement consistent with the that applies to the Tiwai island as follows:

Policy Statement 1: ***Maintain viable populations of indigenous species of flora and fauna in their natural habitats.***

The key strategic actions:

- Seek support in assessment of national status of critical species including terrestrial and aquatic flora and fauna, based on International Union for the Conservation of Nature (IUCN) Red Lists for globally threatened species and national or regional threat, endemism, range and migratory issues.
- Where such critical species are identified, apply the appropriate range of measures in this policy to monitor and improve their conservation status.

3.2.2 The Environmental Protection Agency Act of 2008 and amendments of 2012.

The functions of the Environmental Protected Agency Sierra Leone (EPA-SL) in relation to the Tiwai can be found in relevant sections of Part III Section 12 of the Act as follows:

- ***12(a). advice the Minister on the formulation of policies on all aspects of the environment and in particular make recommendations for the protection of the environment;***
- ***12(l) promote studies, research, surveys and analyses for the improvement and protection of the environment and the maintenance of a sound ecological system;***
- ***12(m) initiate and pursue formal and non-formal education programmes for the creation of public awareness of the environment and its importance to the economic and social life of Sierra Leone;***

- **12(n) *promote effective planning in the management of the environment.***

3.2.3 The National Protected Areas Authority (NPAA) and Conservation Trust Fund (CTF) Act

The National Protected Areas Authority (NPAA) and Conservation Trust Fund (CTF) Act of 2012, was a relevant step by government in bringing together the administrative and operational functions of all protected areas (PA) under a single supervisory agency. According to Part III section 12(1) of the NPAA Act of 2012 states the overall function, as follows:

The object for which the Authority is established is to exercise oversight authority over National Parks and Protected Areas designated for conservation purposes so as to protect the fauna and flora in its natural state, promote sustainable land use practices and environmental management

The paragraphs that follows outline specific activities that the Authority is required to perform in order to achieve its goals. These activities include among others, consistent with the co-management planning for Tiwai Island, as given in the following relevant paragraphs:

- p(x). developing policies and strategies for adapting the National Protected Areas system to the impacts of climate change; and***
- p(xi). promoting policies for enabling by local forest edge communities to participate and co-manage national resources inside and outside National Protected Areas.***

In 2019, the Government of Sierra Leone established the Ministry of Environment, which in principle, will take up the responsibility of supervising and coordinating all related environment and biodiversity issues in the country. This new Ministry may absorb the Forestry Division (FD) and NPAA (in the Ministry of Agriculture, Forestry and Food Security), both of which deal with issues pertaining to conservation and the environment. Implicitly, this will eventually put Tiwai Island under the purview of the Ministry of Environment.

3.2.4 The Local Government Act

The Local Government Act of 2004 and its 2007 amendments brought into existence the Kenema and Pujehun District Councils, which have administrative jurisdiction over all local areas within these districts. In Part V, Section 20 of the Act, it states as follows:

A local council shall be the highest political authority in the locality and shall have legislative and executive powers to be exercised in accordance with this Act or any other enactment, and shall be responsible generally for promoting the development of the locality and the welfare of the people in the locality, with the resources at its disposal and with such resources and capacity as it can mobilise from the central government and its agencies, national and international organisations and the private sector.

Specifically, the Act provides for local councils in carrying out their functions, in the following

paragraphs:

- 2(a). *mobilise the human and material resources necessary for the overall development and welfare of the people of that locality;***
- 2(b). *be responsible for the development, improvement and management of human resources and the environment in the locality.***

With regards to the use of land, the Act in Section 20 paragraph 28 stipulates that local council shall cooperate with the chiefdom council to:

- 28(c) *making and enforcing bye-laws; and***
- 28(d) *holding land in trust for the people of the chiefdoms.***

3.3 Conclusions on policy and legislations

It is clear from the legislations that Tiwai Island Wildlife Game Sanctuary is an officially recognised and gazetted protected area, which is being protected through various policies and regulatory mechanisms and instrument pioneered by the Government of Sierra Leone. The gazette notice declaring Tiwai Island a Wildlife Sanctuary was signed in 1987. However, provision was already made in the 1972 Wildlife Conservation Act specifying the prohibited activities in a game sanctuary (an equivalent of a wildlife sanctuary). The 2010 Conservation and Wildlife Policy 2010 also strengthened government position on wildlife conservation by emphasizing the maintenance viable populations of indigenous species of flora and fauna in their natural habitats.

Policies and legislation also strongly support the establishment of co-management arrangements with local communities for biodiversity resources management at various organisational and administrative levels, especially for community forests. The 1988 Forestry Act specifies co-management in the establishment of community forests, which is reflected in the Policy Statement 2 of the 2010 Forestry Policy. The 2004 Local Government Act, the 2008 EPA Act and the 2012 NPAA Act provides for action by these agencies to support and promote sustainable, people-oriented approaches in managing the resources of protected area, of which Tiwai island is vital.



The visit and re-opening of the Tiwai island for research and ecotourism in 2006 by the former Vice President of the Republic of Sierra Leone, Hon. Solomon Ekuma Berewa (of blessed memory), an indication of government's commitment to the conservation of the sanctuary

SECTION IV - ANALYSIS OF STAKEHOLDERS

4.1 Register of Stakeholders

The list of stakeholder given here has been categorised into three levels as given below. The descriptions of these categories are also given.

1. **The Key or Primary stakeholders.** These are the most important groups of stakeholders whose activities or policies directly impact the island. They have voting rights on critical decisions affecting the management of the island. They may also form the core membership of the future management committee
 - a. The Tiwai Island Communities – the Paramount Chiefs and local community representatives
 - b. National Protected Areas Authority (NPAA).
 - c. Pujehun District Council
 - d. Kenema District Council
 - e. Environmental Foundation for Africa (EFA)
 - f. Njala University
2. **Secondary stakeholders** – this group of stakeholders have policies and undertake activities that could affect the island, but they do not play direct roles in the management and administration of the island.
 - a. The Environment Protection Agency (Ministry of Environment)
 - b. Forestry Division, Ministry of Agriculture and Forestry
 - c. Ministry of Local Government
 - d. Tiwai Community Committee
 - e. Conservation Trust Fund (CTF) (NPAA)
 - f. The Member of Parliament Barry Chiefdom (Pujehun District)
 - g. The Member of Parliament Koya Chiefdom (Kenema District)
3. **Prospective or potential stakeholders** – this group of stakeholders are those who have been identified as potential important in augmenting the operations and investment potentials of the island. They may be co-opted into the island's management committee either as permanent members or on a rotational basis as and when required.
 - a. Carma Cola
 - b. Ministry of Tourism
 - c. The Gola Forest National Park
 - d. Any NGO working in the area

4.2 Key Roles and Responsibilities of Stakeholders

GOVERNMENT:

Government is generally the lead entity tasked with the responsibility of protecting the environment and resource management. It creates policies, laws and legislation, and legal security of the resource. It coordinates and foster corporation among stakeholders, including the universities and local communities. It has the responsibility of enhancing interaction between institutions and individuals in planning, development, support, conflict management, local participation and involvement. The entire system of tourism and environmental activities should be efficiently interconnected in order to achieve sustainable development.

NON-GOVERNMENT ORGANISATIONS (NGOS):

They have a major influence in the conservation efforts of Protected Areas. The NGOs (EFA and others) and private sector partners, promote ecotourism, attract visitors to Tiwai Island and create environmental awareness within and outside the Tiwai Communities.

POTENTIAL INVESTORS:

These groups of stakeholders include any individual or group whose operations cover a range of activities relating to tourism, tour guiding and non-exploitative community development initiatives. They attract visitors to the island and provide the enabling facilities for visitors. Their activities stimulate local spending from visitors, provide opportunity for tourism initiatives to involve local communities and provide tangible benefits in order to reduce the dependency on the natural resources. They are potentially very important in providing mechanisms for mobilizing sustainable means of income to the Tiwai programme and surrounding communities.

LOCAL COMMUNITIES:

Support all protection and conservation efforts for the sustainable development of the Island. Create the necessary activities to attract tourists to the Island. Support and complement the effort of government and other partners (NGOs etc.) to develop the Island and develop initiatives that promote sustainable conservation and livelihoods for the communities.

ACADEMIA (Njala University – may incorporate other institution when necessary):

Carry out research (scientific, ecological, social, sociocultural, anthropologic, impacts etc.) in the Island. Produce educational materials both for the general public and academic communities. Create the enabling environment for research. Attract researchers to the Island.

LOCAL AUTHORITIES

Complement the efforts of government and other stakeholders in assuring the security and maintaining the sanctity of the Island. They develop bye-laws and ensure the communities are visitor-friendly. They also provide strategic oversight that entails regular monitoring and supervision. They should also have the legal frame work that would support the review of the NGO's activities and also to participate in the recruitment of the NGOs/Investors with specified clauses.

4.3 Analysis of the stakeholder engagement in the Tiwai Island management

Stakeholders	Engagement methods and activities	Level of engagement	Responsible (from project team)	Description of past engagement (methods, results achieved etc.)	Potential engagement in co-management	Evidence of engagement
Environmental Foundation of Africa (EFA)	Organizes meetings, implementation of activities, management of the island, member of TIAC	Multiple levels of engagement-information, consultation, collaboration and service delivery	EFA, TIAC, Tiwai Management, Njala University	Being involved since post war rehabilitation and management of the Island	Facilitate the development of projects and programmes and solicit funding	Reports including meeting minutes, donor reports etc
Njala University	involved through meetings, coordination of research, personal	multiple levels of engagement-information, consultation, collaboration and service delivery	Njala University, Head of Department, Biological Sciences Dept.	Being involved in pre and post war setting up, rehabilitation, research and management of the island	Carry out further research and surveys. Facilitate research by other institution	Reports including meeting minutes, donor reports and papers
Tiwai Island Administrative Committee (TIAC) or its new form	Involved through Meetings, management of the island	Multiple levels of engagement-information, consultation, collaboration	TIAC Chairman, Paramount Chiefs	Designed to work with EFA and Njala University as members with other stakeholders to manage the Island	Provide oversight in the administration and management of the Tiwai Island, including projects, programmes and funds.	Reports including meeting minutes
Forestry Division, Ministry of Agriculture and Forestry	Involved through Meetings, management of the island, member of TIAC	Multiple levels of engagement-information, consultation, collaboration and service delivery	Director of Forestry	Previously managed the Island before the War with Hunter College in New York		Reports including meeting minutes

The Environment Protection Agency (Ministry of Environment)	Meetings, and as a member of TIAC	Multiple levels of engagement-information, consultation, collaboration	Through EPA-SL	Was previously involved as the Ministry of Lands, Housing and the Environment	Could be more involved through in fund raising and marketing of the island	
Ministry of Local Government	Meetings, and as a member of TIAC	Multiple levels of engagement-information, consultation, collaboration	Through District Councils	Was involved for occasional meetings as deemed fit	To be more involved to enhance sustainability and through incorporation into Council programs	
District/Local Councils	Meetings, emails, updates and as a member of TIAC	Multiple levels of engagement-information, consultation, collaboration	Through District and Local Councils	Was involved for occasional meetings as deemed fit	Councilors in the two Chiefdoms of the host communities to be more involved in sensitization and bringing potential project activities to their communities	
CSOs and Local NGOs	Meetings, and through Umbrella organization				Through umbrella organization be involved in the board for transparency and accountability. Will also potentially bring funding and raise awareness	

4.4 Opportunities and Potential Support from Stakeholders towards Tiwai Island Management

Agencies or Bodies	Opportunities and potential support
<u>GOVERNMENT</u> Ministry of Tourism Forestry Division (MAFFS) EPA-SL NPAA (MAFFS) EPA (Min. of Environment) Ministry of Local Government	• Human Resources staff/personnel • Various legislations (Forestry Act, Wildlife Act, EPA Act etc) • Community mobilization (community respect for Government and local authorities) • Some trained and experienced staff (Professionals, technicians and auxiliaries) • International conservation NGOs support • Community participates in forest management • Increased environmental awareness of the local communities • Community willing to work with staff of the various MDAs • Capacity building of some staff by partners • World Heritage Status is possible Memoranda of understanding with NGOs and other partners • Increased opportunities for tourism • Co-Management agreements with stakeholders. • Tiwai being part of the wider Gola trans-boundary landscape. • Existence of the MRU strategic plan and signed MoU with Liberia
<u>NGOs</u> EFA RSPB Other local and international NGOs	• Some trained and experienced staff • Resource mobilisation • Provide some funding of the salaries for staff. • Provide other supporting resources (vehicles etc) • International conservation NGOs support • Community willing to work with staff Capacity building of some staff by partners • Memoranda of understanding with local community, government agencies and other private sector actors
<u>ACADEMIA</u> Njala University Fourah Bay College International Research bodies and universities	• Local and international partner institutions • Research funds and research facility maintenance • International conservation NGOs research support • Community participation in research and articulation of traditional knowledge
<u>LOCAL COMMUNITY</u> Community Based Organisations Traditional Authorities Tiwai Community Committee	• Knowledge about the resources • Good local support • Common language and common culture • Employment

	• Community development • Improved socio-economic status • Infrastructure • Recreational and leisure facilities • Skills training • Development of cultural heritage attraction (traditional markets, handicrafts, and cultural events)
<u>POTENTIAL INVESTORS</u> Carma Kola Tour Operators Other businesses	• Community investment • Resources, some personnel • Increased opportunities for tourism • Community willing to work with investors • Increased income to local communities leading to enhanced livelihoods

SECTION V - THE STRATEGIC DIRECTION OF THE CO-MANAGEMENT PLAN

5.1 The Vision

The Tiwai Island is a well-managed conservation entity, supporting viable populations of wildlife and other biodiversity and providing sustainable ecosystem services for the benefit of its local communities, the nation and the global environment in general.

5.2 The Objectives of the Plan

1. To establish a mechanism that would ensure a holistic management of the resources and programs of the Tiwai Island, with strong participation by all stakeholders.
2. To harness the potentials and opportunities that the Tiwai Island offers to its local communities, the people of Sierra Leone and visitors alike.
3. To formulate mechanisms and actions that would ensure a sustainable management of the biodiversity of the island and provide sustainable benefits to the local communities.

5.3 Strategic Outputs and Indicators

Output 1. By 2030, the Tiwai Island becomes a viable model for wildlife conservation that is nationally and internationally recognized.

Indicators

- The number enquiries on the Tiwai Island web site increased by at least 50%.
- The Tiwai Island is cited in many references for its effective management of biodiversity, resulting from various referenced study visits to the island.
- Tiwai Island is accepted and listed as a biosphere reserve by the World Heritage Commission, as part of the Gola National Park complex, following completion of the on-going application process.

Output 2. By 2030, the Tiwai Island would have attracted over 100% its current visitor's number, and is an internationally well-known destination for ecotourism.

Indicators

- Tourist numbers to the Tiwai Island increased by at least 30% year on year for the next 10 years. Information leaflets and tourism bulletins produced list Tiwai Island among the best destination for tourism in Sierra Leone
- At least five national and international tour companies list Tiwai Island as a key destination for their clients in and outside Sierra Leone.

- One or more additional facilities for visitors (on or off island) built through internally generated and/or external funding.

Output 3 By 2030, the Tiwai Island would have become a self-sustaining entity through the generation of adequate funds from its various programmes and projects.

Indicators

- A 50% increase in revenue generated on an annual basis from various services offered on the Island
- A viable mechanism for sustaining funding on the island is established and has attracted at least two major investments. One possibility could be a trust fund established or a major financial investment made (e.g. fixed deposit, bearer bond etc.) as a mechanism to provide a healthy reserve to sustain the operations of the island.

Output 4 The people living in the local communities are well educated about the benefits from the management of the Tiwai Island and are willingly providing the relevant support to sustain its operations beyond 2030.

Indicators

- At least 40% of the employees working in the Tiwai Island conservation initiatives are from the local communities;
- At least two community development initiatives (educational, recreational or commercial) established and bringing benefit to the local people.

Output 5 By 2030, strong and effective collaboration among key stakeholders and investors, would have led to the establishment of viable community-driven initiatives for sustainable biodiversity conservation and livelihoods.

Indicators

- Tiwai Island is managed by all-inclusive committee with strong community representation and involvement.
- At least two private investments for Tiwai Island and/or local communities established and are generating sustainable financing mechanisms for the benefit of biodiversity and the local people.
- Memoranda of Understanding or cooperation agreements signed between all stakeholders and the local communities as partners for biodiversity and local development projects.

SECTION VI - MANAGEMENT OPTIONS FOR BIODIVERSITY CONSERVATION

6.1 Biodiversity Research

The long-term management effectiveness of Tiwai Island depends on a sustained effort to promote research and generate knowledge for biodiversity conservation. Two major components are proposed to address this need: species surveys and habitat assessments, and ecological and behavioral research.

6.1.1. Species Surveys and Habitat Assessment

Knowledge of the biodiversity and their current status is vital to the effective implementation of a management plan. From previous studies, the island is known to hold a diverse array of flora and fauna, including 11 species of primates, the pygmy hippo and a good list of avifauna some of which are threatened. However, the information is outdated because most of the data was generated 20 to 30 years ago. At the moment, no updated data is available on the biodiversity of the island except *ad hoc* surveys done on specific biodiversity issues and list produced by some tourists who have visited the island.

Actions required

Biodiversity assessment is required for indicator species such as the following:

- The diversity, structure and distribution of the vegetation
- Large mammals – especially all primates and pygmy hippo and their distribution across the island;
- Birds – all species and their distribution across the island;
- General plant list – especially the distribution of threatened species;
- Lower plants – particularly orchids and grasses in wet environments.

6.1.2. Ecological and Behavioral Research

Tiwai Island is already known globally as an important site for research on tropical rainforest ecology and animal behavior. The diurnal primates and the pygmy hippo are among the most studied wildlife to-date. The foundation for this recognition was laid down during the “golden age” of Tiwai Island, when a dedicated Field Research Station and a 50 km trail system were established for research on primate ecology and behavior. The research station has been fully refurbished and upgraded, thanks to a generous support from the US Centers for Disease Control through Njala University. However, while the trail systems still exist, it is no longer in adequate

use and is poorly maintained. In order to attract researchers, there is a need to re-open and maintain the trail systems.

Actions Required

- To re-establish and strengthen ecological and behavioral research, the following action is required
- Clear all trails and ensure the grid system labels are appropriately restored
- Recruit and designate full-time caretaker(s) for the Field Research Station
- Update and widely publicize the Field Research Station Rules and Regulations for Researchers
- Explore the possibility of retrieving data from expatriates who did research on Tiwai
- Explore long-term research partnerships with various institutions around the world

6.2 Identifying Biodiversity Management Units

The Tiwai Island vegetation is broadly homogeneous, mainly comprising close canopy moist forest. However, the island has other minor vegetation elements that must be considered within a broader biodiversity management, because these potentially contain flora and fauna that have not been recorded in previous surveys because their habitats have been overlooked. Data from surveys in other sites in Sierra Leone shows that new species of flora and fauna are still being discovered (Weber et al., 2019; Monadjem, 2011; Cheek and Lebbie, 2018). Such new records for the country justify the need for surveys and conservation work in these apparently less studied zones, especially for an island ecosystem.

Zonation is an option that would allow specific management objectives to be implemented to enhance the conservation needs of a variety of habitats and species that may not be easily recognized either because they are being overlooked or that no proper scientific assessment has been done to ascertain their content and diversity. For the purpose of ensuring that this co-management plan holistically addresses the conservation needs of species and ecosystems, a number of steps outlined below should be implemented during the period of this co-management plan.

Actions required

- Identify and demarcate areas distinct habitats based on different vegetation types and/or topographic features. These habitats may include, but not limited to:
 - Raphia swamps;
 - Flooded grasslands;
 - Riparian habitats
- Conduct surveys in the delineated areas to document flora and fauna.
- Based on survey data and assessment of the conditions of specific vegetation or habitat types, design the appropriate conservation actions for such vegetation or habitat.

SECTION VII - MANAGEMENT OPTIONS FOR INVESTMENT AND SOCIO-ECONOMIC ENHANCEMENT

7.1 Current Livelihood Resources and Uses Analysis

Historic and current economic base of the Tiwai Island is primarily agrarian based, as a large proportion of the local communities depend on subsistent bush-fallow cultivation for their livelihood. The key agricultural products are rice, cassava, cocoa, oil palm and cola nuts. Much of the rice and cassava are consumed locally, whilst the cocoa is dried and preserved for sale to local agents and business people who collect for export.

Cola nuts *Cola nitida* is harvested from the community forest and sold to local business people. Some of the cola nuts are also sold to Carma Cola (a UK based company), who use the cola nut extract to produce a Cola drink that is sold at a high price in the UK and some proportion of the profit is distributed to the Tiwai Community Committee (TCC) The returns from Carma Cola's investment and the impact it is creating in the lives of the local people, through direct cash payment is significant. However, there is still a need to establish how the influence of Carma Cola on the lives of the people can be translated into tangible and sustainable conservation benefit for Tiwai Island and for people who are not part of the TCC.

A good number of the local residents were hunters, but after the declaration of the island as a Game Sanctuary (where hunting is strictly prohibited) and with the general ban on gun ownership, hunting activity has declined considerably. There are reports of gun shots on the Island and shotgun cartridges are found from time-to-time. Some hunting is blamed on marauding hunters purportedly from outside the area, but this is mainly done under cover, because of the recognition by the communities of the regulations that exist and the consequences of being caught.

Some local prospecting for diamonds is on-going at a small scale along the river, some of which occur in close proximity to Tiwai Island. However, due to strong enforcement of the regulations governing the sanctuary, the threat from mining has been kept at a comparatively minimal scale. It should be noted that mining around the island is based on trial and error, implicitly not economically viable and so many people have been discouraged from involving in the activity.

7.2 Current and potential alternative sources of livelihood

Apart from the economic resources from the natural environment, there are virtually no alternative sources of livelihood for the local communities. Employment opportunities are few and far between. The only source of employment is that provided by TIAC, but only a few local people are actually employed as workers in various departments at the sanctuary's eco-tourism facilities. Income from the few employment opportunities available is augmented by direct cash payments from two main sources:

- (i) TIAC, through the distribution of the surplus (profit) generated by the visitors
- (ii) TIAC through donations and funds obtained from charitable organizations;
- (iii) Carma Cola, from profit accrued through the sale of the special Coca Cola product made from cola nuts.

Potential sources, based on interviews and direct observations include the following:

- (i) Marketing and sale of product brands of Carma Cola (coco cola drink) and cocoa products (chocolate and chocolate drinks), if the required technology is introduced and developed.
- (ii) The use of rattan and raffia palms to create crafts and traditional implements could be further developed.
- (iii) Production of non-timber products such as mushrooms and medicinal herbs in a sustainable way on Tiwai Island by local communities.

7.3 Value Chain Analysis and Options

Value chain processes are vital in enhancing the local economy. Value change refers to the full range of activities that are required to bring a product (or a service) from conception through the different phase of production to delivery, to the final stage consumer and disposal after final use (Porter, 1985). This is consistent with the general notion that if raw materials are converted into finished products, the economic gains usually multiply. There are many examples of value chain processes in natural resources management that have proven profitability and local development potential in many developing economies. The conversion of cola nuts by Carma Cola into a desirable coco cola drink is a typical example of how a simple and easily raw material from the forest can bring significant economic benefit, if transformed into a valuable product. The following steps can be taken to implement a value chain process for the benefit of the Tiwai Island and surrounding communities:

- Conduct a value chain mapping, which will make obvious the flow of certain products from conception to end consumer through various actors;
- Identify the different chain actors involved in the value change system and understand their roles and linkages;
- Identify what resources can potentially be subjected to value chain and value addition processes and what their potential uses and target consumers could be;
- Identify the missing links in the value chain and assess how such missing links could be addressed;
- Assess the technological and innovative inputs required to improve the value of products, which will potentially attract more consumers;
- Assess how addressing the missing links and the technological and innovative inputs could improve the marketability of products and enhance the local economy.

Below are few value chain potentials in and around the Tiwai Island that can be harnessed to enhance the local economy:

- Craft work using rattan that can be harvested from the upland and gallery forests along the river. If well-made and well-fashioned, these craft works (chairs, tables and general furniture), are capable of attracting much higher prices.
- Carma Cola should embark on promoting their products to other western countries and even in Sierra Leone and West Africa.
- Cacao and coffee can be processed locally (the technological requirement not too expensive) to produce Tiwai Island varieties for sale to visitors and to other customers in Sierra Leone.
- Oil palm production can be improved upon through investment of intermediate technology into the production process. A manually operated technology introduced by USAID in Liberia has a proven 100% increase in productivity per unit quantity of input compared to the archaic traditional pit method being used at present. This technology or its equivalent is already being used in Sierra Leone and so can easily be accessed and utilized.

7.4 Sustainable use mechanisms and options

Sustainability in resource use is vital to the implementation and success of the co-management plan. The primary purpose of the co-management plan is to protect the Tiwai Island forest, its wildlife and landscape through collaborative action between local communities and other key stakeholders. The island's genetic resources cannot be exploited because of the legislative provision and regulations that applies to a Wildlife Sanctuary in the 1972 Wildlife Conservation Act. However, there are optional resources (including non-timber forest products) within and around the island which can be exploited without jeopardizing the ecological integrity of the island. These resources include the following:

- Rattan and raffia– used for the manufacture of crafts and furniture
- Fish – a necessary source of protein for the local communities, sourced from the river and potentially from aquaculture mechanisms (fish farms).
- Edible mushrooms – these can be identified and commercial production experimented.
- Honey production – through beekeeping ventures, Tiwai honey can be produced, branded and sold to tourists and supermarkets in the major cities in the country.

7.5 Traditional knowledge and intellectual property

The potential for the use of traditional knowledge remains pretty much untapped in and around the environs of Tiwai Island area. No published information exists on traditional knowledge on Tiwai, although there may be some data arising from *ad hoc* research by Njala University. The consultations revealed that there is a wealth of local knowledge among each of the target

categories in the focus group in terms of plant species and the wildlife of Tiwai Island. This knowledge base only requires some further training to enhance individuals within the local communities to engage in research, monitoring, and in tour guiding.

Seeking, documenting and applying traditional knowledge is consistent with Article 12 (Traditional Knowledge associated with Genetic Resources) of the Nagoya Protocol (Access and Benefit Sharing), to which Sierra Leone is a member. There is a good potential for intellectual property from genetic resources, especially in the area of plant and animal products (parts and extracts) used in traditional medicine, but a more systematic approach should be adopted to get the best out of it.

Actions required

- Document all traditional knowledge on historic and current resource use among the Tiwai Island communities.
- Establish collaboration with scientific institutions to identify and tap potential substances that may be useful for medicine and other purposes.
- Identify which traditional resource use is of socio-economic benefit to the local communities;
- Identify and assess which of the beneficial socio-economic activities can be harnessed and improved upon to enhance business and livelihoods in the area.

7.6 Land tenure and customary rights in relation to resource access, benefits and conservation

Land tenure at Tiwai Island and environs is based on the common and widely known system that applies to the provinces of Sierra Leone. According to Renner-Thomas (2010), land in the provinces is owned by the people and kept in trust by the traditional leaders (the chiefs). However, areas of sensitive conservation interest can be handed over the government to be managed as a reserve, through consultations and agreement signed with the traditional leaders. As a Wildlife Sanctuary, Tiwai Island is prohibited from any form of exploitation in accordance with the legal and policy framework outlined in Subsection III. However, as per legal provision, certain activities not inimical to the ecological integrity of the sanctuary may be allowed, especially if there have scientific and economic benefits to biodiversity and the local communities, respectively.

Information obtained from the consultations indicate that most of the current young generation do not know about what is contained in the agreement that was signed with the traditional leaders that led to the declaration of Tiwai Island as a Wildlife Sanctuary. In fact, because of their ignorance about the legal status of the Tiwai, some sections of the people threatened to willfully encroach

into the island for agriculture, hunting and mining if their concerns are not addressed. In order to enhance the effective implementation of the co-management plan in the midst of the concerns by the local communities, actions must capture a range of issues outlined in the box below.

Actions required

- Revisit the agreements for the establishment of the sanctuary with the aim of improving on the protection status of the island.
- Hold a training and sensitization workshop for young people in the local communities to help them understand the agreement that was signed by their predecessors, which was geared towards the conservation of the biodiversity of the island.
- Raise awareness through community meetings, radio announcements, signposts and posters about the legal status of the Tiwai Island Wildlife Sanctuary.
- Identify pro-conservation cultural rights of the local communities, which they use the Island for and how these can be incorporated into the management of the Island.

7.7 Ecotourism and Visitor Management

Ecotourism is the key driver of sustainable management of the Tiwai Island Wildlife Sanctuary. According to TIAC records, visitor numbers are increasing gradually, as national and international awareness about the island tourism attraction increases. Contrary to what obtained a generation ago, many tourists visiting tropical countries nowadays are attracted to the nature (biophysical features and wildlife), rather than hotel and beach tourism. Thus, in recent times many tourists are inclined to visit sites with unique and attractive wildlife and enjoy the natural landscape. These include enthusiastic birdwatchers, general wildlife chasers and nature lovers. There is also a possible rising trend of tourism to the island, especially for the fact that the Tiwai Island has recently been documented as one of the places in Sierra Leone with high touristic potentials, thus increasing the profile of the island and the chances for more visitors to the island.

Tiwai Island is known to have a running ecotourism programme, but there is much potential for improvement, based on anecdotal information from many tourists to the island, local wildlife enthusiasts, local scientists, local communities and information from interviews with key informants. The key issues that must be considered in any quest to develop the ecotourism potential of the island is the need to create an optimum balance between commerce and preservation aspect of ecotourism. It would make no conservation sense if the ecotourism investment would cause a degradation of the ecological condition of the island. Therefore, implementing management objectives for ecotourism, care must be taken to ensure that development in the sector does not adversely affect the biodiversity and ecological integrity of the island. Ecotourism management options should include, but not limited to activities outlined below that would enhance income, but at the same time, maintain the ecological health and ecosystem services of the island.

Actions required.

- Clearly demarcate locations in and around the island where tourists can visit. Measures should be put in place to ensure that these locations are safe and conducive for ecotourism activities.
- The transects (trails) system is maintained and closed sections re-opened. The nature trail improved and extended.
- Construct hides and platforms in locations where shy and delicate species use and ensure that these facilities are always maintained in good condition, by the use of labour within local communities.
- Construct additional facilities on the island to cater for increasing visitors number to the island in the next couple of years
- In order to guard against the effect of increased tourism activities into the island, the management should seek for potential investors or project ventures into off-island hotel and guest house facilities equivalent to the standard within the island.
- Carry out proper training of local community youths as tour guides, house keepers, chefs and cooks to be able to effectively offer standard international services to tourists.
- Redevelop tourism-related activities that were undertaken before the war, such as swimming competition. Other innovative programs can be introduced such as boating.

SECTION VIII - DEVELOPING AND MAINTAINING PROPER AND FUNCTIONAL COMMUNITY RELATION IN THE MANAGEMENT OF TIWAI ISLAND

8.1 The Tiwai Island Communities

The Tiwai Island Wildlife Sanctuary is surrounded by eight communities from two chiefdoms Barri and Koya in the Pujehun and Kenema Districts respectively, as given in the box below. These communities all speak a common language, which is *Mende* and practice the same culture and traditions and so they understand each other well with a common means of communications. The communities have manageable population sizes and coupled with common language, there is high level of cohesiveness as virtually everybody seems to know everyone else in these communities. The population is relatively young and most of the people are below 25 years of age, meaning that they are within the actively working age category.

The main source of income and livelihood is agriculture and employment from other sectors is virtually non-existent, except for a couple of forest or wildlife guards posted to the area by the Forestry Division. Employment from tourism operations on Tiwai Island is dependent on need. This implies that the formal employment rate is very low in these communities and apart from agriculture livelihood resources are few and far between. This implies that all programmes and projects within the Tiwai Island and surrounding communities must have components that focus on community development and livelihood enhancement.

8.2 Analysis of Issues from the Consultations with the Communities

It was clear from the consultations that all the representatives of the local communities were aware of the operations of TIAC. They were also appreciative of the effort of TIAC to maintain the status of Tiwai Island and the international profile that has been built around the island. The local communities recognised the importance of conserving Tiwai Island and the ecosystem service and existential benefits it accords to the area and surrounding communities. They admitted that without management of the island by TIAC, the island's ecosystem would have been degraded or even decimated through farming, poaching and mining for diamonds and so the benefit being enjoyed by the local communities would have been lost. However, the grievances and discontent they expressed were mainly about the seeming inadequate transparency and accountability in the operations of TIAC, which could be addressed through the following recommendations:

- The operations of TIAC should be inclusive with strong community participation and should be characterized by level of transparency, accountability and trust among the local communities.
- There should be more frequent meetings, to which all members and partners should be given enough prior notice, including the community representatives. The presence of local

community representative in meetings is very important in disseminating information and updates to the communities on the operations of TIAC, including job availability, planning community engagements and the distribution of resources and finance.

- The communities recognise the legal protection of the island as a Wildlife Sanctuary as declared in 1985 and do anticipate greater protection with greater roles played by the local authorities and the people themselves.
- Government should engage and train the youths and young men from the local communities, in to serve as ranger, in order to ensure greater effectiveness in the protection of wildlife in and around the island.
- Engage local community people in different forms of non-skilled labour on the island, including brushing of the trails. Many more such opportunities may exist on the island, especially after the construction of the research and dormitory facilities for which the local young people want to be involved.
- The composition of the future management structure of the Island should be more inclusive in terms of community representation and other influential stakeholders.

8.3 Involvement of the Local Communities in Administration and Management of the Island

One key issue that emanated from the consultations is the ineffective representation of the communities on the administration and management of the Tiwai Island. According to TIAC, this came about as a result of decline in the activities of the Committee in the past five to ten years due mainly to funding constraints. When adequate funds were available, TIAC was very effective and meetings were held regularly with full involvement of the local community representatives, including the paramount chiefs.

The SWOT Analysis given under Subsection IV of this co-management plan outlines potentials within the local communities that can be harnessed and developed to enhance conservation and livelihoods, but also gives areas that should be addressed such that the gains to be made are not jeopardized. There are clear indications that the skills level within the local communities to implement the co-management plan is low and requires serious inputs in terms of training at various levels. The level of academic education within the local communities is also observed to be low as there are only few secondary and tertiary education graduates, few primary schools, but no secondary schools. Children who may not be able to travel to other places to attend secondary school tend to drop out of school. Some intervention through the provision of scholarship by TIAC and Carma Cola is helping the situation, but this is inadequate and some strategic steps are required to roll out more education opportunities to children and youths from the area.

From the consultations, it was clear that the young people want to be trained in various skills as a means of enhancing their participation in the Tiwai Island management and tapping on the inherent potential for livelihood enhancement in the area. There are many possible areas of training that can be rolled out to the young people in the communities that would translate into

tangible effect on the conservation of the island's biodiversity directly and indirectly. If the relevant training is implemented, it would improve the capacity of the local communities and in effect enhance their chances for gainful employment and reduced the pressure on the resources from the natural environment.

Actions required

- Conduct a current capacity assessment of all local communities associated with the Tiwai Management;
- Carry out a capacity needs assessment of the local communities and draw up a capacity development plan;
- Facilitate the establishment of at least two more primary schools and improve on the education delivery in schools, particularly the two secondary schools in the local communities
- Establish an adult literacy and skills training programme specifically targeting the Tiwai communities.
- Operate an inclusive, transparent and accountable payment and finance system for tourism activities on the island based on a signed MoU with local communities.
- Seek funding for the training in and development of locally-based tourism-related enterprises such as craft, gara cloth production and vegetable gardening.
- The interest and participation of local women should be prioritized where appropriate, whenever a project/programme/activity relating to the management of Tiwai Island is being organized or implemented.
- Based on the 2008 Local Content Policy of Government:
 - Ensure that all unskilled labour required for the operation of the Tiwai Island be tapped from the local communities.
 - The first choice for skilled labour should be offered to qualified local applicants; except in situation where the requisite qualification could not be found among the local people.

8.4 Proposed New Management Committee

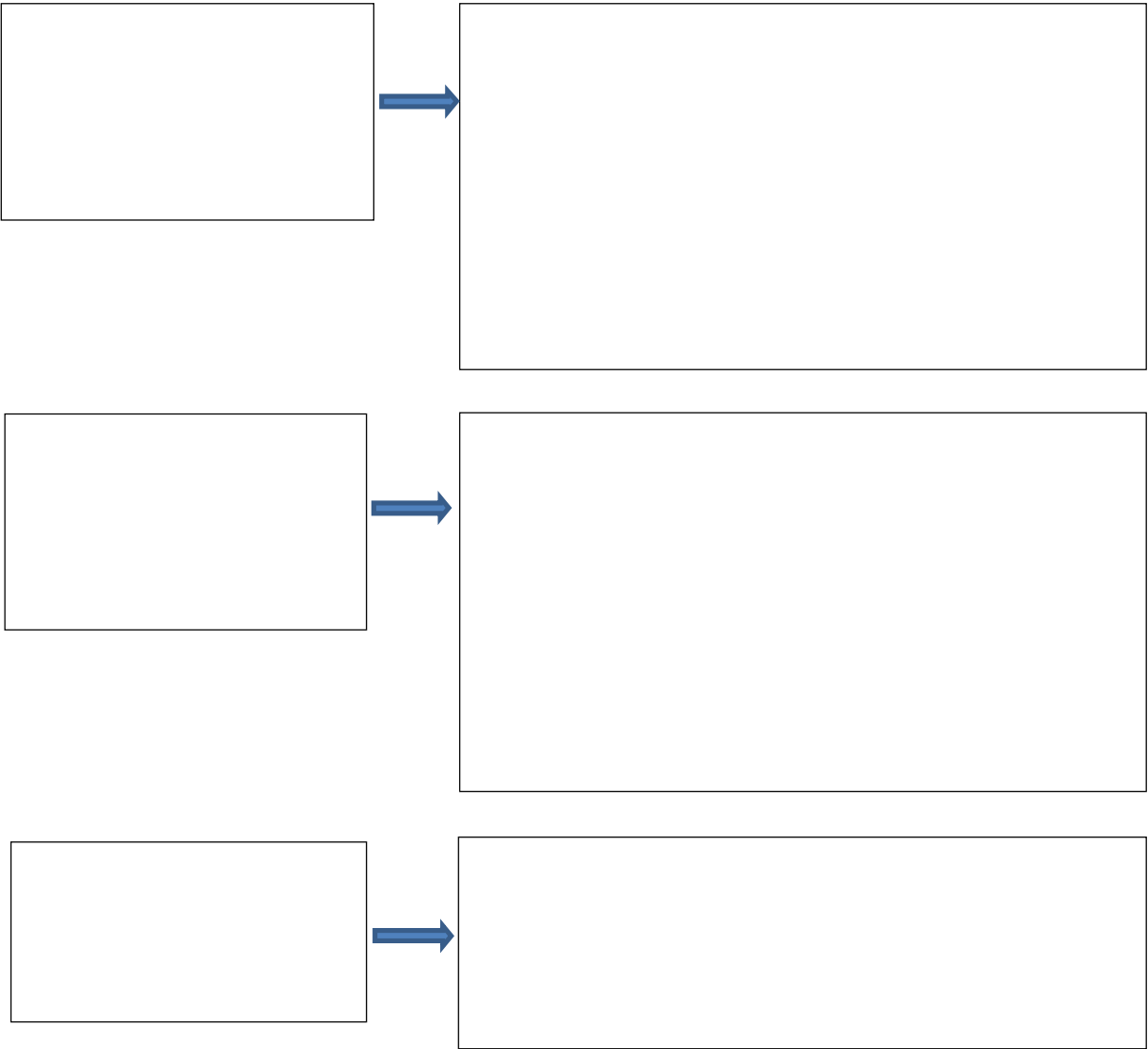
From analyses of stakeholders' current and potential roles in the management of the Tiwai Island Wildlife Sanctuary, and the views expressed during the wide-range of consultations, the future management committee need not be radically different from TIAC, but down-sized, robust and functional. It could possibly adopt a different structure and nomenclature. The main reasons are:

1. Two key members on TIAC i.e. EFA and Njala University (the main drivers) are the most experienced and committed partners who have been largely responsible for mobilizing the financial and technical resources, as well as championing the efforts to revamp biological research and ecotourism on the Island since 2000. Tiwai Island is now one of the most popular and liked destinations for community-led ecotourism in Sierra Leone, thanks to

EFA’s and Njala University’s continued support for and promotion of biodiversity conservation on the Island.

- 2. EFA and Njala University have over the years, partnered with the local communities, international organizations and relevant government agencies, to ensure that the sanctuary thrives and its host communities benefit from the investments and interventions of the various overseas partners, including private sector entities and educational institutions.

The proposed new committee has therefore been proffered and structured in a manner that reflects the level of stakeholders’ potential inputs and impacts on the management of the island. The list provided in the boxes below represents an inclusive, but more result-oriented structure that would effectively promote the primary goal of the co-management plan and the overall purpose of the Tiwai Island Wildlife Sanctuary. Two categories of stakeholders have been identified as follows:



- (i) **The primary stakeholders** – they will form the core of the management committee, should always attend meetings and have equal voting rights on policies and decision-making issues. The running of day-to-day management affairs of the island should be the core function of the primary stakeholders. Details of such core functions will be decided at the meetings of the management committee. The meeting of the Committee will be chaired by the PC of
- (ii) **The secondary stakeholders** – these are not core members of the management committee, but can be co-opted or invited to meetings as and when necessary). They do not have any voting rights, but are important in providing policy direction and strategic oversight to the management of the island.

The proposed concept is to ensure that activities of the committee are primarily geared towards achieving the objectives of the management plan and to ensure proper management of funds and other resources and avoid wastage. The primary stakeholders form the core management team, whose nomenclature would be determined at the inaugural meeting of the co-management committee. All secondary stakeholders should have access to all relevant reports, including project and programmes narrative and financial reports, annual activity reports and audit reports. As indicated in the Register of Stakeholders (Subsection 4.1), other prospective or potential stakeholders may be invited to meetings as and when necessary. They could also be given the opportunity to access specific reports for specific purposes that are of strategic interest to the management of Tiwai Island.

SECTION IX - CROSS-CUTTING THEMES

9.1 Monitoring and Evaluation

The monitoring and evaluation (M&E) process is very important if the implementation of the Tiwai Island Co-Management Plan is to be successful. This M&E process could be implemented at two levels; (i) at the level of the administrative and management level and (ii) at the ecological level. This justifies the need for the development of a Monitoring and Evaluation Plan which should contain easily comprehensible and applicable, but robust indicators that can be monitored to assess whether or not the objectives of the co-management plan are being achieved. The data generated during the monitoring process can then be used to evaluate progress in the implementation of the plan, the result of which will inform implementers and stakeholders (particularly the new management committee) about progress, identify challenges and take the necessary action to address those challenges.

Monitoring at the administrative and management levels should entail regular records and updates on activities undertaken by the management committee and how these activities are fulfilling the objectives of the co-management plan. The ecological monitoring, which requires a lot of inputs both human and material, should be undertaken on a regular (2 to 3 years) or ad hoc basis, depending on the need and should be consistent with any research that the stakeholders or any outsider may want to undertake. It should also be a policy to incorporate Sierra Leone scientists and local people in any research or surveys outsiders may intend to undertake in the Tiwai Island. This is to ensure that all data generated from surveys or research, remain in-country and local content is considered in any benefits and intellectual property emanating from such research. The M&E process will also ensure that there is compliance to national and international policies and regulatory mechanisms that pertain to the conservation of the biodiversity of Tiwai Island.

- A Monitoring Plan should be developed through facilitation by the core committee members at the start of the implementation of the co-management plan.
- A monitoring schedule must be agreed among key stakeholder and monitoring sheets formulated.
- Monitoring should be carried out on a regular basis and report produced at least once every quarter.
- Progress in the implementation of the co-management plan should be evaluated once a year, based on the quarterly monitoring reports and annual reports produced and widely distributed.
- A regular annual auditing of the financial transactions of Tiwai Island management should be done as a component of the M&E system.
- A Tiwai Island Project or Programme Officer should be appointed with an assistant from among the local communities who will lead the M&E process and be responsible for producing the reports.

- The evaluation process should be participatory and transparent so that all parties are accountable to the outcomes.
- Discussion on the observations and results of the monitoring and evaluation process must constitute a vital component of the internal meetings and monthly meetings.
- A holistic M&E report should be produced at the end of the operational calendar, incorporating all component of the monitoring process.

9.2 Internal Monitoring of the Administration of the Co-management Plan

Internal meetings are necessary to provide regular update on the status and progress in the implementation of the co-management plan. The following meetings are recommended:

- On-site meetings should be held once every month between the Project or Programme Manager and the management committee to review daily progress, financial intake and work plans.
- Meetings of the management committee should be held once every quarter and should include all major stakeholders; minor stakeholders could be invited to the meeting based on their relevance and availability.
- A periodic programme or project review meeting for the implementation of the co-management plan should be held every three years. It should entail the cataloguing of the successes, lessons learnt and challenges of the implementation process and could also include a re-engineering of some components of the plan, if the challenges would jeopardise the progress in the implementation.
- In internal financial auditing mechanism should be set up and issues of financial management and reporting should form an important agenda item in each of the meetings recommended.

9.3 Ecological and Environmental Monitoring

Ecological monitoring should focus mainly on indicator flora and fauna, because it would be impossible to cover all taxa. The key issue for ecological monitoring is the cost associated with personnel and other resources required to carry out a thorough process. Therefore, it is necessary for the management committee to encourage ad hoc surveys or research by people who may be interested in any species, taxa or ecological themes. It would definitely be necessary that the management committee seeks funding for more thorough ecological monitoring at least once every two to three years, which will be useful to inform the three-year periodic review of the implementation of the co-management plan.

9.4 Grievance Redress Mechanism

Grievances would always occur as long as there is interaction among people for a common interest, especially people whose way of life are driven by certain culture and traditions. The issue of grievance over one thing or the other from the local communities on things relating to the management of Tiwai Island was very prominent during the community consultations. Based on responses from the local people, some of their grievances date back to very day the Tiwai Island was declared as a wildlife sanctuary. This grievance redress mechanism should ensure that the co-management has an open channel to listen to complaints and find amicable solutions to them.

Complaints can come in any form and from any person or groups of persons. Two main sources of complaints are the local communities and the workers. Complaints can directly be addressed by the intervention of the management committee or at the level of the local authorities, especially those that relate to issues of resource exploitation and use. The mechanism through which such complaints can be channeled would depend on the nature of the complaints, the location of the incidence and the urgency of the expected response.

Key actions to effectively address complaints and community relations:

- A hierarchical channel of complaints should be published and distributed to relevant stakeholders and followed in the event of a complaint.
- Complaint forms should be distributed to every town/village chief.
- The complaint form should be filled by the complainant and submitted to the Project / Programme Officer.
- Once received, all complaints will be channeled through Project / Programme Officer, to the Management Committee.
- A complaint register should be kept by the Project or Programme Manager and updated as events happen.
- As far as practicable, all complaints must be investigated by the management committee or a small committee chosen by the management committee.
- A report on the incidence being reported by the complainant produced with recommendation on possible redress mechanism.
- A record of the mechanisms through which complaints are addressed must be kept and updated in order to learn from the experiences and lessons of the process.
- Where complaint redress mechanism involves some sort of compensation or the other, these should be published internally and be transparent.
- The procedure for investigating complaints and responding will be explained to the complainant at the time the complaint is filed.
- The complainant will be informed within a week of the outcome of the investigations and other action taken as regards the investigation.
- The internal redress mechanism shall not be used as a means of evading local or national legal mechanisms, if a perpetrator is heavily culpable.

- Where a complaint has to do with criminal offences, such complaint shall be referred to the police, if the internal redress mechanism is not practicable.

9.5 Employment Opportunities and Gender Issues

The project operations are likely to create pressure from the local communities and possibly migrant workers seeking job opportunities. This pressure has been seen to lead to discontent and conflicts in other projects around the country. Women have demonstrated a proportionate degree of effectiveness any friendly work environment. Premium must be given to equal employment opportunities for all, irrespective of gender, but where relevant, women should be given preference.

Key actions

- i) Employment opportunities on the Tiwai Island should take into consideration the Local Content Policy of the Government of Sierra Leone, but not jeopardizing qualification and experience as the key requirements for technical/professional jobs.
- ii) Preference must be given to people from the local communities for job opportunities; except in situations where no suitably qualified and experienced local person is available.
- iii) Opportunities will be created for the employment of more community female workers.
- iv) In the area of job opportunities for desk assignments, preference should be given to the female community applicants except in a case where community-based applicants are not qualified for the job.

9.6 Recommendations

The current over-reliance of the Tiwai Island Administrative Committee on EFA and the two Paramount Chiefs, and the Department of Biological Science of Njala University, is unsustainable and a revised management structure is required. Recommendations are grouped under ***“management and finances”*** and ***“biodiversity and conservation”***.

Management and Finances

The demand for transport and DSA by nominated representatives of local councils and national government [ministries, agencies and departments] is a major reason for their low level of attendance and participation in TIAC meetings in recent years; providing resources from the tourist income would mean that there would be no surplus to distribute to the surrounding communities. The main concerns raised by the local communities, are about what money is raised and what happens to it; this means that a revitalised or reinvigorated TIAC requires much more

local participation and this in turn means training local representatives in skills such as book-keeping so that they can validate and audit income and expenditure.

Based on our assessment and the various consultations, we recommend the following:

- A successor to the current TIAC should develop a detailed MoU (memorandum of understanding) with the communities clearly outlining roles and responsibilities of all parties involved.
- A successor to TIAC should develop a detailed MoU with each of the secondary stakeholders (including members of TIAC) as to their specific roles and responsibilities.
- A successor to TIAC should maintain closer relationships and lines-of-communication with traditional authorities.
- Undertake a training needs assessment and designing schemes to
 - (a) Train at least 2 people in each community (one male and one female) on basic book-keeping so that they can understand what happens to the visitor income
 - (b) Train at least 2 people in each community (one male and one female) in providing basic hospitality services to help communities understand the needs of the visitors
- The business plan should include a detailed;
 - (a) Market assessment
 - (b) Plan to increase visitor numbers
 - (c) Plan to increase the diversity of visitor experiences
 - (d) Plan to develop associated livelihood activities such as;
 - (i) Crafts (need to be small and high value)
 - (ii) Off-Island accommodation and activities
 - (iii) Food, e.g. sale of local coffee and honey

Biodiversity and Conservation

The local communities fully recognised the importance of conserving Tiwai Island and the ecosystem service it provides. They admitted that without the protection of the island the ecosystem would have been degraded through farming, poaching and mining for diamonds. There is no active management of the vegetation on the Island. In the long term it may be necessary to interfere with natural processes in order to protect particularly vulnerable species, but our knowledge of the ecology of the Island is too under-developed to undertake active management at the moment.

Based on our consultations, we recommend that;

- a) Two people in each community (one male and one female) are trained in basic biodiversity and conservation management for forest and wildlife rangers.
- b) Better communication is encouraged between researchers and TIAC
- c) A comprehensive biodiversity assessment of the Island is undertaken, with particular emphasis on the heterogeneity of the forest.

Sustainable financing mechanism

The issue of sustainability in the operations of the Tiwai Island has been discussed lengthily in various fora and during the consultations. The inability by the islands management to obtain adequate funding to sustain the operations of the sanctuary during crises periods has been a key challenge. It is obvious that a mechanism be set up to raise funds that would be used to cater for basic functions and maintenance cost whenever the island is affected by a decline or complete cessation of visits, which is the main source of finance. The core management committee in consultation with other stakeholders should assess various options that have been recommended during the consultation, including (i) A Trust Fund; (ii) An Endowment Fund; and (iii) A Bank Deposit such as Fixed Deposit or Treasury Bond or Bearer Bond.

The CTF set up by the Government of Sierra Leone is charged with the responsibility of raising funds for conservation of protected areas. During the consultations, the CTF indicated its commitment to support the establishment of a Trust Fund for the Tiwai Island as it deems it as a responsibility of the Agency. The core management committee should consult with the CTF on the options that can potentially be explored to achieve such a venture. Also, one key preoccupation of the core management team is fundraising through various national and international channels that would culminate into establishing a sustainable financing mechanism for the Tiwai Island.

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APPENDIX I - PHASE 1, CONSULTATIONS WITH THE EIGHT HOST COMMUNITIES

DEVELOPMENT OF A MANAGEMENT PLAN FOR TIWAI ISLAND:

Professor A.B. Karim*, Dr A. Okoni-Williams & Jimmy Squire
Department of Biological Sciences, Fourah Bay College, University Sierra Leone

* Corresponding author

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BACKGROUND

Tiwai Island is a large¹ (12 sq km) island in the Moa River. The river forms the boundary between the Eastern and Southern Provinces, Kenema and Pujehun Districts. There is no permanent settlement on the Island and ownership has been shared between two Chiefdoms; Barri (in Pujehun District) and Koya (in Kenema District) for many years. This sharing of control between Chiefdoms is believed to be unique in Sierra Leone. Eight communities (5 in Barri and 3 in Koya) are considered to be the “host” communities, the more southerly communities have access to the islands downstream of Tiwai that are also uninhabited but economically exploited.

The rich biodiversity of Tiwai Island was identified almost 40 years ago and the host communities have been encouraged and supported in preserving this by a variety of organisations and in a variety of ways. A very brief timeline is provided below:

Date	Activity
Mid -1970	The biodiversity value of Tiwai is identified by researchers based at Njala University. A very dense and diverse primate fauna was observed ² ; other West African endemics such as the pygmy hippo were also proved to be present.
Late -1970s	Discussions start with the two Paramount Chiefs, especially V.K. Magona the VI th of Barri about reducing hunting and other exploitation on the Island
1987	Tiwai Island is given legal protection as a “Game Sanctuary”
Late- 1980s	The “golden age” of Tiwai Reserve, two American Universities, Hunter College and the University of Miami provide significant support to researchers on the Island (resulting in several ground-breaking papers led by Oates, Whitesides, Fimbel etc). A Research Centre is established by Njala University and a Tourist Camp established with American funds (although the number of tourists unknown).
1989	A draft management plan is written by a Peace Corp volunteer using the American style of zoning. The management plan envisages limited economic exploitation (farming, logging etc) under the control of a “Supervisor”. The extent to which the full plan (~100 pages) was discussed with the communities is unclear, the plan was never formally adopted and fortunately farming and logging did not restart.
1980’s	Documentary “Island of Apes” produced for Anglia TV (UK)
1991-2001	Sierra Leone Civil War. Researchers and Peace Corp volunteers were evacuated very early on in the war as Tiwai is close to where the insurgency started. Very high levels of poaching occurred during this period. Minimal financial support was provided from outside the area through the Department of Forestry.
2000	First visit to Tiwai by staff from the Environmental Foundation for Africa (EFA).
2002	Re-establishment of TIAC (Tiwai Island Administrative Council) with input from line Ministries (Forestry, Tourism), Local Government (MP’s, District Councillors), Traditional

¹ Tiwai means “large” in the local Mende language.

² The diurnal primates are: Diana monkey (*Cercopithecus diana*), Black-and-white colobus (*Colobus polykomos*), Red colobus (*Procolobus badius*), Chimpanzee (*Pan troglodytes verus*), Olive colobus (*Procolobus verus*), Sooty mangabey (*Cercocebus atys*), Campbell’s monkey (*Cercopithecus campbelli*) and Spot-nosed monkey (*Cercopithecus petauristabuettikoferi*).

	Authorities (Paramount Chiefs), Academics (Njala University) and NGO's (EFA).
2004	Work by Bakarr suggests primates such as Campbell's monkey are now at 10% of their pre-war numbers.
2002-2006	Funds obtained from Critical Ecosystem Partnership Fund (CEPF), UNHCR and Irish Aid are used by EFA, partnering with Njala University, to reconstruct and restore the biological research and ecotourism facilities on the Island, provision of a boat etc. Pre-war funding bodies (i.e. Hunter College and Miami University) appear unable or unwilling to re-establish ties with Sierra Leone.
2006	Official re-launch of Tiwai as an ecotourism destination and site for research
2002-date	Numerous development initiatives are developed and implemented with varying degrees of success and not all are "branded" as being due to TIAC. Examples include; two of the culvert bridges on the road from Potoru – Kambama (funded by GTZ), the school at Kambama (funded from visitor income), Solar power for lighting and charging in all Tiwai Communities and the schools and clinics in their chiefdom headquarters Potoru and Boama (funded by EU). Agricultural development (e.g. Food Security and Economic Development – FoSED – funded by European Union, implemented by EFA and WHH). Eco-tourism development, employment of locals in guiding and supporting tourism, boatmen, construction and maintenance of facilities, cooking for visitors and assisting researchers, etc.
2013-2014	The need for a new management structure is identified; work is undertaken by Environmental Resources Management Foundation, UK on a "pro-bono" basis and an eco-tourism management plan is drafted by an EFA intern. Extensive discussions are undertaken internally and externally, but a number of serious issues remain unresolved.
2014-2015	Ebola crisis. Zero income from visitors. EFA and partners mobilise some resources for the communities (rice and cash).
~2015	By this time attendance and input from most members of TIAC has dwindled, to the extent that EFA and the two paramount Chiefs are the only active members.
2015-2016	Major storm on Tiwai Island causes extensive damage to building and various equipment including solar lighting at the visitor / ecotourism camp. EFA mobilises funds and works with local community to rebuild the structure and restore the services
2017	Major storm causes extensive damage to buildings at Field Research Station. A CDC grant enable Njala University to repair, refurbish and upgrade the facilities at the field research station.
2018-2019	Funds are obtained from USAID, through WABICC, RSPB and Gola National Park to commission consultants to prepare a new management plan Consultants appointed.

DESIGN OF THE CONSULTATIONS

The "call for expressions of interest" envisages a two-stage process of consultation:

- Consultation with the primary stakeholders, that is, the people in the eight host communities
- Consultation with the secondary stakeholders, some of whom have demonstrated a long-term commitment of resources to the Island, others are merely stakeholders "by assertion".

This report highlights the process and findings from the first phase of community consultations and will feed into the development of a management plan for Tiwai Island.

HOST COMMUNITY CONSULTATIONS

Consultations were undertaken in August - September 2019. As this is the height of the rainy season, access to some communities was difficult but all communities were visited. Interviews and discussions were primarily undertaken in Mende (the local vernacular) and to a lesser extent in Krio (the *linga franca*). A small device was used to record all the conversations (with the consent of the respondents), however, these recordings have not been transcribed or translated and only small fragmentary quotes are available.

Consultations consisted of:

- Key informant interviews (40 people, five from each of the eight communities),
- Focus Group Discussions.

“Key informants” were defined as;

- The Town chief / section chief
- Women’s Leader/Chairlady
- Youth Leader
- An Elder
- Imam

Note that this definition of a “key informant” does not include the requirement to be knowledgeable about Tiwai or its recent history or to have benefited directly (eg being a guide) or indirectly (eg being given improved seeds through FOSED), or to have been specifically disobliged by any of the external actors over the last ~40 years.

The FGD were well attended and the numbers supplied below.

COMMUNITY	MALE	FEMALE	TOTAL
GEIMA	32	37	69
KAMBAMA	33	08	41
JENE	27	36	63
SARHUN	59	39	98
NIAHUN	52	53	105
MAPOMA	39	39	78
BOMA	24	31	55
SEGBEMA	05	01	06
TOTAL	271	244	515

At the start of the meeting, the consultant explained the purpose of the meeting which was geared towards the development of a management plan for the Tiwai Island Wildlife Sanctuary. Questions were asked by members of the team and later the audience in turn asked questions or made contributions, so that to a large extent the sessions were interactive.

FINDINGS FROM THE INTERVIEWS AND DISCUSSIONS IN THE VARIOUS COMMUNITIES

SECTION 1 - KNOWLEDGE AND AWARENESS OF ACTIVITIES AND OPERATION OF TIWAI ISLAND

Q1.1 Awareness about Tiwai Island Wildlife Sanctuary

There is a high level of general awareness about the existence and operation of the Tiwai Island Wildlife Sanctuary and the role TIAC is playing, but most of the communities expressed their concern over the perceived declining influence of TIAC in the running of Tiwai Island. There is a tendency to assume that TIAC is primarily Mr Tommy Garnet of EFA and so all the blame for things they perceive are not going well, are placed on him rather than on the non-attending members of TIAC. Most of the respondents indicated that they have known about the TIAC initiative since its inception in 2002. For those who were born after it started, they said that they had been aware of it since they were very young.

Most of the elderly people in the communities have visited the island, but they visited when the island was not under any management and was being used for various activities, particularly hunting and farming. Almost all respondents in the communities have visited the island because they wanted to know what was happening or because they were working there in one capacity or the other. Open meetings are held at least once per-year to explain what had happened and where the funds had been spent etc.

Response from the elders in all communities was that “informed prior consent” was obtained during the negotiations for the declaration of Tiwai Island as a Wildlife Sanctuary. As the Sanctuary was legally declared in 1987 many of the younger respondents were not yet born or were too young to take part in the negotiation. In general, there was consensus among communities that they were consulted about the Sanctuary prior to the intervention by government in 1987 and there was a general acceptability of this legal status as a Game Sanctuary, and the terms and conditions of its implementation. However, a significant proportion of the people expressed their dissatisfaction over how activities

were being handled, although some of their perceptions were observed to be based on limited or absence of personal gains rather than a fair reflection of the benefits to the communities as a whole.

Q1.2 Involvement in the activities on the island before and during the Tiwai island Programme

All respondents and communities admitted that before the 1980's the Island was used for farming, hunting, collecting NTFP, logging, fishing and some small-scale mining, but suggested that none of these are going on now in the island. Observation suggest that hunting (poaching) is still a problem and exploratory mining pits occur fairly regularly. Many of the youths said that they have been involved in activities on the Island one way or another; eg: cleaners, patrol guards, cooks, tour guiding, boat operators etc. Many also know other people within their communities who have also been involved and those who are still working on the Island.

Q1.3 Knowledge and perception about TIAC and its management of the island

Most of the respondents know about TIAC. There is a general feeling that TIAC was effective initially, but their operations have declined over the last five years.

A good number of community people reported that they have attended one or more of the meetings called by TIAC (or by Tommy Garnett as most people perceived), whenever there is issue of interest to the community and in a few instances for the purpose of distributing benefits to the communities. The number of meetings organised by TIAC for various purposes is perceived to have declined since the 2014-2015 Ebola crisis.

Most of the communities think TIAC's operations have been good for the island, but a vocal minority have negative perceptions. In two communities (Jene and Geima) there was unanimous agreement that TIAC's operation in the island has been good for the island. In other communities there were mixed opinions and perceptions about the impacts of activities on the island.

Q1.4 The impacts and benefits of the Tiwai Programme to local people and their communities

Most respondents think activities on Tiwai Island have not significantly improved their livelihoods, but some of them acknowledged that they have been directly or indirectly employed by TIAC and are obtaining alternative livelihood opportunities.

It was agreed by many respondents that community projects undertaken by the TIAC have brought benefits to their communities. Some of the community projects mentioned include construction of school classroom block, solar charging station (from which funds were raised for the community), the construction of water well in all communities and the construction of Guest Houses in five communities. However, a few people were disgruntled over the sustainability of some of these projects, because according to them, the solar charging station broke and none of the revenue had been saved for repairs, some water wells need rehabilitation, more schools should have been built by now and more scholarships given to their children.

For most of the respondents, their perception of indirect benefit was misconstrued and so could not give appropriate answers. Some of those who could appreciate what indirect benefits are indicated that the continued existence of the Tiwai Island forest as a result of the intervention of TIAC is good for them. The services that Tiwai Island is bringing to them includes tourism, the provision of seedlings (e.g. cacao) and seed rice through alternative for their farming and the construction of a jetty at Kambama which has enhanced transport to other villages in the Tiwai environs.

A good proportion of the people were positive about the impact of the programme on the state of the island, yet there were some who were dissatisfied about the current state of the island simply because they have limited access to the island. The dissatisfied suggest that more youths should be employed and there should be greater community representation in the management planning of the island through the Tiwai Communities Committee (TCC) and their local chiefs and elders.

Q1.5 Knowledge about the legal status of the Tiwai Island

The general response to the issue of legal protection of the island was that the communities know that it is a protected area under the jurisdiction of the government of Sierra Leone. None of the individual respondent or community consultation refuted or rejected the protected status of the island and they are willing to accept and continue with that arrangement.

FUTURE ENGAGEMENT FOR THE MANAGEMENT OF THE ISLAND

Q2.1 The future of Tiwai Island Advisory Committee

Most of the respondents are of the opinion that TIAC should be transformed or evolved into a more operational entity, mainly involving people within the local communities. Some of the reasons given for the need for transformation of TIAC are as follows:

- should be more inclusive,
- should share more information more regularly,
- should concentrate less on secondary stakeholders in Freetown and more on the local communities.
- Should include local businesses such as Carma Cola and their Tiwai Communities Committee.

Q2.2 Willingness to be involved in the management of the island

All respondents expressed a willingness to be involved in the management of the island; the elders would like to serve as Chairmen and advisors to the activities whilst the women and young people would like to be actively involved as representatives of their respective communities and gender groups.

Q2.3 What needs to be done to create effective management

Unclear.

Q2.4 Things that Tiwai programme needs to do differently to enhance the management of the island

- TIAC or its proposed new form should be inclusive of all interest groups within the communities and other peripheral stakeholders, such as Carma Cola and the TCC. This will ensure that community development could be handled collectively and the impact be spread over all communities.
- Provide more employment opportunities to the young people especially as tour guides, patrol guards and skilled works (masonry, carpentry etc.).
- Sustainable alternative livelihoods should be provided, as compensation for the loss of potential livelihood from the island from farming, hunting and mining.
- Funds meant for community development or any other benefits should be distributed to communities based on their proximity to the island, because some of these communities are not directly connected to Tiwai, such as Niahun and Sahun.
- Access to micro-finance and other opportunities should be part of the community development initiatives, especially for women.

Q2.5 How the communities think they can be involved in the Management of the Island.

- The community should be part and parcel of the management at all levels of the operations of the island, including the advisory community down to the operations committee.
- Community representatives should be at the entrance to the island to monitor and record numbers and payments made by visitors to the island in order to ensure transparency and accountability in the management of the funds.
- The local chiefs or elder should be the key means by which information can be transmitted to their respective communities.
- The communities should be allowed and facilitated to develop and enforce bye-laws to protect the island and deal with any encroachers

Q2.6 How the local community heads should be involved in the management of the island.

The response to this question was consistent across all communities visited. The key points are:

- The community heads would like to be member and/or chairmen of the management committee or subcommittees;
- They would like to be involved in the management of the funds raised from entry fees to the island or any externally funded projects, and decisions on how these funds are utilised.
- Be responsible for managing the funds for maintenance of facilities in and around the island and on setting and paying wages to local employees.
- As custodian of the customs and traditions of the people, the elders should be directly in the development and implementation of bye-laws for the effective protection of the biodiversity of the island.

Q2.7 How the youths of this community should be involved in the management of the island

The youths would also like to be fully involved in the management and day-to-day running of the island because they are the potential law breakers. They want be employed as forest guards and wildlife rangers to be able to earn their livelihoods instead of being involved in illegal activities.

Q2.8 How the women should be involved in the management?

The women would like to be represented in the management committee of the island as a way of ensuring gender representation and that their concerns are addressed, as access to micro-credit facilities and skills training opportunities. The women admitted that they use to house poachers and so for them to be involved in the protection and management of the island they should be employed as cooks, cleaners and even tour-guiders.

Q2.9 How should Government be involved in the management of the island.

Respondents think that government officials, through the Forestry Division should be included in the management team with the key purpose of implementing and enforcing government policies on conservation of wildlife. However, there is a general perception that government officials should not be included in the day-to-day running of the affairs of Tiwai island. Also, government should provide armed security as a means of dissuading potential poachers and encroachers into the island.

Q2.10 The problems and challenges the communities think the TI management could have in future

- Poaching is still a threat to the island, according to most respondents, no matter the mechanisms put in place to protect the island.
- The ownership of the island could be a key problem in future because some communities wish to remove some of the other communities from the group.
- The potential chieftom dispute that may emerge from issues of ownership and rights to the island by people from the two chiefdoms of Barry and Koya.
- The potential problem posed by TCC for control of the management of Tiwai as a rivalry to TIAC.

Q2.11 How the communities think the problems and challenges could be addressed and what mechanism do you think should be followed.

- The local people should be given rights to arrest and prosecute poachers and encroaches with full support from the police.
- Permanent staff, mainly community people, paid by government as part of the forest and wildlife rangers assigned to the area.
- The issue of the ownership of the island should be resolved on the basis that each chiefdom agrees to work in collaboration with the other, with the primary objective of ensuring that the Tiwai island is conserved for their collective benefit and that of posterity.

GENERAL OBSERVATIONS AND COMMENTS

During the interviews, individual respondents and groups of people were willing to talk about the issues and expressed themselves freely.

It was clear that the people do not know the difference between TIAC and EFA (represented by Tommy Garnett). There is a general perception that Tommy Garnett controls TIAC and does things the way he wants, which may be due to lack of understanding of the roles and responsibilities of the other institutions and individuals that constitute TIAC, and often their non-appearance.

There seems to be some antagonism amongst the communities in the two chiefdoms, as there is still some silent dispute about ownership of the Island. According to some speakers, some of the elders of Barri chiefdom claimed that Tiwai Island lay entirely within Barri not Koya and only the more northerly communities of; Kambama, Niahun, Jene, Sarhun and Boma have rights to the Island. From the discussion it was observed that some of these people, especially local leaders may wrongly perceive that considerable outside influence and money might be flowing coming into Tiwai island management and so want to exclude the other communities from such benefits.

There is also some misgivings about EFA among the local communities. Before the rebel war, Tiwai benefited greatly from “core funding” provided externally, since then activities have been limited to the surplus from the paying visitors. The perception is that there were many more opportunities when core funding existed, and the economic realities of a sustainable self-supporting system are not clearly understood. There is a belief that Jene and Kambama benefit disproportionally from employment opportunities, and that EFA is not offering an equal voice to these other communities and they are excluded in the management structure.

One strong antagonist to the work of TIAC is the chairman and Leader of a newly formed group known as Tiwai Communities’ Committee (TCC). This particular antagonist wants the management of Tiwai to be entrusted to himself as leader of TCC, but much of his response were in variance from the facts on the ground. A general observation is that there was inconsistency in the responses by a number of respondents to questions relating to benefits and community participation.

APPENDIX II - PHASE II, CONSULTATIONS REPORT OF FOCUS GROUP DISCUSSION HELD IN BARRI AND KOYA CHIEFDOMS FOR THE DEVELOPMENT OF A CO-MANAGEMENT PLAN FOR TIWAI ISLAND GAME SANCTUARY

Prof A.B. Karim*, Dr A. Okoni-Williams & Jimmy Squire

*Corresponding Author

1.0 INTRODUCTION

This report describes the second phase of community consultations geared towards the development of a co-management plan for the Tiwai Island Game Sanctuary (TIGS), and therefore will be included as an addendum to the first report. The first phase was focussed at getting the perspective of each of the eight communities associated with the TIGS, during which individuals within these communities were interviewed followed by collective group consultations with key members at each of the communities. The report has been submitted to TIAC and subsequently to RSPB, the coordinators of the project.

This second phase of consultation was done at the chiefdom level. Two tiers of consultations were held with each of the composite representatives from each of the communities in the two chiefdoms of Koya and Barri, respectively. Firstly, focus group discussions were held for each of the following categories of representatives from each of the communities with chiefdom: (i) the community chiefs and leaders; (ii) the women and (iii) the youths and young people. This was then followed by a collective consultation with all members from all communities in the same chiefdom.

The general observation from these consultations was that the issues that emanated from the first phase of the individual community consultations were consistent with those from the second rounds of consultations. However, though there were a few agitated individuals who attempted to sway the discussions towards personal grievances, the rest of the community representatives were very cooperative and showed great willingness to participate and contribute to the discussion. The contributions were open and frank and effort was made by the consultant and facilitators to diffuse all potentially volatile arguments.

The consultations were held at two locations, respectively, for the following chiefdoms and communities:

Potoru Town: Barri Chiefdom – 23rd October, 2019.

Kambama Town: Koya Chiefdom – 24th October, 2019.

2.0 TIWAI ISLAND GAME SANCTUARY MANAGEMENT: LOCAL COMMUNITY'S PERSPECTIVE ABOUT THE PAST TO PRESENT.

2.1 Awareness of Tiwai Island Wildlife Sanctuary and Operations of TIAC

In each of the consultations with the individual groups and the communities there was a general awareness and acceptability about the operations of the TIWS in the area. There is however some discontent among some of the local people such as: (i) that the agreement that was made with their traditional leaders needs to be reviewed, taking into cognisance current economic situation and other potential players and investors in the running of the island; and (ii) that the island is to be protected against poachers and miners since the island used for wildlife purpose, because as alleged, people are coming from outside the area to poach and mine.

It was clear that every representative of the local communities were aware of the operations of TIAC. There is a general perception that TIAC as managers of the TIWS would have been able to perform well to the satisfaction of the local communities, but for the influence of EFA on TIAC team. From discussions only some individuals within the

local communities share this view, which may have emanated from seeming lack of transparency on how resources and finance have been shared by EFA (representing TIAC). They cited the infrequency meetings in the last several years and that the two community representatives in TIAC were no longer invited to the meetings. According to the local people these two representatives were very instrumental in providing updates to the communities and operations of TIAC, including job availability, planning community engagement and participating in the distribution of resources and finance. Now that TIAC is hardly meeting and community representatives are no longer in touch with them, thus the general suspicion that TIAC, under the influence of EFA is not being transparent accountable in their operations.

There was also a semblance of disagreement among the traditional leaders about the operations of TIAC. Some alleged that TIAC has shifted its focus more to certain communities which has led to inequitable distribution of resources and attention in affected communities. However, the caretaker chief of Barri Chiefdom indicated that he has served as secretary to TIAC and so has been attending the meetings, although he admitted that it has been over five years now since meetings were held. The lack of meetings of TIAC, which should have included local leaders and the respective chiefdom representatives was the key issue raised by the communities over the operations of Committee.

2.2 How the Tiwai Island project affected the livelihood and activities of the communities.

The response from the different community groups to this question was mixed, but the nature of the answers were not diverse. Whilst there is common understanding that the TIWS has brought considerable benefit to their communities, they are still aggrieved about the lack of access to farming on the island and non-compliance with the original promises that was made over compensations to the communities. Some of the benefits cited are as follows:

- provision of solar powered facilities (though now defunct) which was helpful to their children's study and was used to charge their mobile phones;
- Rehabilitation or construction of at least a school, guest house, mosques or palava huts in each of the eight communities, respectively;
- The provision of rice seedlings for some communities.
- Direct cash payments were made every year as proceeds from the tourism on the island, to address other community needs.

2.3 Community's Perception about the current state of Tiwai Island and the direct and indirect benefit of the conservation the island to them and posterity.

The majority of the chiefs, women and youths admitted the importance of conserving Tiwai Island and the ecosystem service and existential benefits it accords to the area and surrounding communities. They also admitted that without management of the island by TIAC, the island's ecosystem would have been decimated through farming, poaching and mining for diamonds and so the benefit being enjoyed by the local communities would have been lost. They believe that if the Tiwai Island forest is properly conserved, their children, grandchildren yet unborn will be educated enough to handle the affairs of the project even after TIAC may have exited in future. Also, most of the women and youths believe that if the management of the island is left in their hands, they will enjoy more benefits. They look forward to the day when TIAC would hand over the affairs of the island to the local communities, but agreed that with a greater involvement of other stakeholders and investors, the potential for community development could be huge.

All the community focus groups were dissatisfied over the recent decline in the activities of TIAC on the island, which they said has led to the general feeling that TIAC is losing their influence on the island. However, they believe that a more inclusive version of TIAC would trigger greater acceptability and collaboration among local communities. This is because some sections of the community representative do recognise and support the work of other organisations that run programmes in the Tiwai communities, including Carma Cola and Tiwai Island Community Committee (TCC).

2.4 Knowledge and acceptability about the legal status of Tiwai Island among local communities

Tiwai island was made a Wildlife Sanctuary in 1985 through facilitation by John Oates. According to the provision in the act the Tiwai Island wildlife or game sanctuary was declared through the consultation and agreement with the chieftain council and local communities. However, most of the local people who were involved in the negotiations and were signatories to the agreement are now deceased and the younger generation think that a review of that agreement is long overdue. The communities still recognise the legal protection of the island as given in the 1972, but would like to see greater protection with greater roles played by the local authorities and the people themselves. In fact, the youths and young men suggested that if government could engage and train wildlife rangers from members of the local communities, there would be greater effectiveness in the protection of wildlife in and around the island. The youths know the area better, including the entry and exit points better, can easily identify internal and invading poachers and so should be able to handle the situation more efficiently. In addition to government appointed rangers, local guides should be trained across all communities, to support the surveillance and monitoring mechanism for the protection of the wildlife on the island.

3.0 FUTURE ENGAGEMENT ON TIWAI ISLAND BY LOCAL COMMUNITIES

3.1 Community's perspective on how the Tiwai Island should be managed in the next 10years

The local leaders, women and the youths recognise the importance of the Tiwai Island as a place where variety of plant and animal species exist and are being conserved either for ecosystem services, tourism and research purposes. They therefore expect more robust ways of protecting the reserve and making it more attractive to visitors. Some even talk about expanding the potential of the island by the introduction of different species of animals that are not common in Sierra Leone; although this was said out of ignorance of the consequences it might have on the local ecology of the island, which none of the local people seems to understand.

The consultation also revealed that there is a wealth of local knowledge among each of the target categories in the focus group in terms of plant species and the wildlife of Tiwai Island. This knowledge base only requires some further training to enhance individuals within the local communities to engage in research and monitoring, and in tour guiding. Also, as it used to happen in the early days of the operations of the sanctuary, many community people were engaged in different forms of non-skilled labour on the island, including brushing of the trails. They believe that many more such opportunity exists on the island, especially after the construction of the research and dormitory facilities for which the local young people should be employed.

There was a unanimous affirmation of willingness by all community groups to be involved one way or the other on the management of the island. However, some of the women are not particularly enthusiastic about working on the island because of their traditional engagements, but would like to have a say on the decision making process on how the island is managed. It was clear from the discussion that the communities want to be involved in the following ways:

- The communities should be engaged in supporting the research and monitoring activities on the island and be involved in training opportunities for this purpose.
- Be engaged in the daily management activities for the island, including skilled labour (e.g. keeping the accounts books and tour guiding) and unskilled labour (e.g. cleaning of trails and keeping the dormitories).
- Some community youths should be appointed into government service by NPAA or Forestry Division to serve as rangers assigned to the Island.
- Inclusion in the management committee for the island, in whatever form it might take; particularly the chiefs and TCC to be recognised as important stakeholders within the new management arrangement.

- To establish a skills training scheme for youths in various fields of technical trade. It was clear that youths in the Tiwai Island communities are unemployed and untrained, and so the lack of training opportunities was a key concern during the discussions. Areas of training highlighted were carpentry, masonry, craft making, gara tying and dyeing, weaving, tailoring, solar light technicians, wildlife ranging and tour guiding. This will ensure the availability of local expertise whenever such employment opportunities arise at Tiwai Island. It will also create opportunities for self-employment for the youths and young people in these communities. In some of these trades, training should be followed by the provision of start-up kits.
- The women and the youths expect that the co-management arrangement will consider the establishment of a cooperative and micro-credit scheme, to enhance their livelihood base and improve the living standards for them and their children. They constitute the most active working population in these communities.
- TIAC or its new structure must have representatives from each community, other than the paramount chiefs. Alternatively, smaller committees should be established at community level, working in tandem with TIAC (or its new form) and contributing to decision making and running of the day-today affairs of the island.
- Included women in the management committee and engage them in programmes organised by Tiwai management, especially in the area of hospitality (reception, food provisioning and entertainment). For instance they were aggrieved that some other group of women who are not from the Tiwai communities had to cook and serve the food during the consultations, which they think could be better done by them.

3.2 Other groups or stakeholders the community wants to be involve in the management of the island

All community groups were interested in making input into the question of the involvement of other stakeholders in the management of the island. The enthusiasm shown in responding to the question was an indication of the willingness by the local community to have more players in the management network for the island. Their general perception is that having more players with a variety of roles and/or investment potentials will bring more benefits and job opportunities to the Tiwai communities. Whilst there is a common positive feeling and acceptance of the impacts made by TIAC and EFA, the recent decline in funding for community-based activities is being somewhat interpreted as fatigue on the side of TIAC/EFA to mobilise funding, therefore the need to encourage other potential stakeholders to sustain funding for the island and the surrounding communities. The following are the potential stakeholders proposed by the communities during the consultation:

- AFFA CARMA COLA – an NGO already operating in these communities and is supporting community development activities such as construction of schools and water wells, provision of scholarship for students, direct cash payments to communities and their leaders etc. This NGO buys cola nuts from the communities, which is used in the UK to produce coca cola drink that is effectively marketed sold at a higher cost in the UK because it carries a label indicating the profit goes towards community development around Tiwai Island. The communities people want Carma Cola to collaborate with EFA in an arrangement that would ensure that they continue to support development programmes in the communities, whilst operating as a significant stakeholder in the management of the island.
- TIWAI ISLAND COMMUNITY COMMITTEE (TCC) - The youths, women and some chiefs across the two chiefdoms perceive TCC as an alternative to TIAC. However, some sections of the community representatives admitted that TCC lacks the requisite skills and experience to be able to replace TIAC; otherwise, TCC could be incorporated into the management committee for the island as key partners representing the interest of the local communities.

3.3 Community expectations on the new management arrangement for the protection of Tiwai Island

The issues outlined below represent the collective perceptions of the various categories of representatives that were engaged in the chieftdom level consultations, on what additional things that should be done to ensure effective management of the island:

- Community bye-laws should be developed to compliment government legislation governing a game sanctuary. The implementation of government policy and the community bye-laws should be done across the board and there should be no sacred cows. Previously, only non-indigenes of the area were prosecuted for violating the laws governing the island. This time the community representatives think that no one should be an exception the rules. According to the TCC Chairman, the youths are responsible for most of the problem that is going on in the Tiwai reserve. Therefore, if TCC is recognised by TIAC, they will make sure that there is effective law enforcement. In addition, members of TCC can be trained and supported with logistics to serve as a surveillance unit for the periphery of Tiwai Island.
- The local traditional heads should champion the development and implementation of bye laws and government policies governing the island. The local community heads (chiefs, headmen, mammy queens) are most respected in these communities and therefore when they make customary bye-laws, nobody will go against it and any defaulter will be punished.
- Punishment for poaching and encroachment should be made stronger and compensation paid to personnel who apprehend violators. For instance, the proposal to pay monetary compensation to people who apprehend any poacher caught with his weapon and presented to authorities, should be strongly considered. Accordingly, such mechanism will encourage intensive surveillance activities with the aim of discouraging poaching and encroachment on and around the island.
- Alternative livelihood programmes be provided, more especially for the youths such as sustainable agriculture, micro-credits.

APPENDIX III - CONSULTATIONS WITH OTHER STAKEHOLDERS ON TIWAI ISLAND

Prof A.B. Karim*, Dr A. Okoni-Williams & Jimmy Squire

*Corresponding Author

DR MOHAMED IMAM BAKARR, ADJUNCT, SCHOOL OF NATURAL RESOURCES MANAGEMENT, NJALA UNIVERSITY

- Work started on Tiwai in the early 1980s by John Oates who fell in love with and was passionate about the Island. Initial focus was on the primates and not the people.
- John Oates later convinced the Chiefdom authorities to declare Tiwai a wildlife sanctuary.
- Tiwai was initially a destination for Primatologists, but interest in other taxa soon followed
- The involvement of the Peace Corps led to the involvement of people in ecotourism.
- Peace Corps did zonation for the ecotourism, also did a Management Plan for the island
- Research on Primates almost vanished since the last researcher left during the war
- The Academic partners (Miami, Hunter College, Njala) had their own focus
- EFA in its management tried to develop programs built around people
- Njala established a Functional Research Station
- Njala needs to have a dedicated research team to run Tiwai; they should have committed, and dedicated Field Technicians deployed to the island.
- Need to explore Research Grant mechanism for Tiwai

PROF RICHARD WADSWORTH, DEPARTMENT OF BIOLOGICAL SCIENCES, NJALA UNIVERSITY

- First Went to Tiwai for the 1st time in 2003 during the Mapping Land Cover Project which he was undertaking and has been going there since then
- His impression was that Tiwai is a good new story for Sierra Leone, although there was still problem with poaching but there was no logging.
- Forest has grown, no logging, once on a while there is mining for diamonds. There have been tests/trials pits mainly by outside people. The Primates population have improved substantially
- Though there have been some issues, the general trend is a steady improvement from conservation point of view. EFA has hung in despite challenges and badmouthing. Others came and left within a period but EFA weathered the storm. Accountability has been the key issue for many of the intending and operational groups.
- He is presently a member of staff of Njala University and is in charge of research and reviewing research proposals for Tiwai. Those that were not viable, such as one to habituate the monkeys. were rejected.
- In his estimation Tiwai receives over 700 visitors per year The Money generated is used partly for the maintenance of the facilities and the surplus is being distributed to (many) communities. The key people want the money to be shared rather than used for community (local) development. They think mining and logging were more beneficial
- Several attempts to give alternative livelihoods to the communities but these alternative income generation were not viable; NGO intervention was froth with lack commitment and deception from either the entrepreneurs or the committees.
- Cited attempts at Aquaculture training on fish pond construction and also the development of nursery by boat landing site, cocoa etc. the Agriculture expert from India that was brought in for making charcoal using bamboo. The Communities not commercially minded

- Thomas Armitt first came to Tiwai to carry out research after which he came back to Tiwai and set up a private company. Carma Cola, which produced a special brand of Coca cola. The label on the Coke is that it is to support poor communities around Tiwai. The coke is sold for a much high price than the normal coke.
- With respect to sustainable management of Tiwai, Carma Cola and other groups needs to work through TIAC, at least on a polite approach to keep others out would not be a good concept.
- For sustainability, Tiwai needs projects. Most projects were short term. There has to be long term commitment from intending operators
- Intervention to be long term commitment e.g. oyster festival in Bonthe.
 - Farmers growing things they do not consume
 - Sponsor coffee and cocoa festival – Coffee tasting/drinking ceremony need to be organized- Open a booth at National/ regional festivals
- A review of funding to communities, motivation to teachers (Bonus) would be better and more effective approach instead of scholarships
- The John Oates factor has also negatively impacted Tiwai. He emphasizes his role in establishing Tiwai and emphasize the role of others. It is our resource not a community resource. Only land-owning families/communities should benefit.
- **For The way forward:**
 - An MOU signed between communities and anybody/ operating entity that want to work/operate around community. The MoU should spell out what their role is etc. it will not be prudent for an MoU to be signed between TIAC and Government as it may trigger political issues.
 - Restructure TIAC. Theoretically fine but practically not functional. The Paramount Chiefs should no longer be chairman of TIAC
 - New structure should have 3 representatives from each community, (men, women and youths); such a committee will be too big. Also, Tacugama and Gola Rain Forest to be members of the Committee
- The key management challenge is that for visitors – how to manage increased number of visitors without damaging the environment.
- Other issues to be considered
 - The RSPB factor
 - The Nagoya Protocol
 - The Biosphere Reserve concept
 - World Heritage site
 - Joining Tiwai with Gola
 - Access to Benefit Sharing
 - Developing of Medicinal gardens
 - Plant rattans, etc; and Non Forest Tree products
 - The need to talk to Carma Cola - business strategy

STAFF OF THE CONSERVATION TRUST FUND (CTF)

- The CTF sees itself as playing a prominent role in the new co-management structure for Tiwai and as such, expect to be included as one of partners in the its members.
- Tiwai is a valuable wildlife and conservation resource. The long-term sustainability of the resource there is a need to establish a Trust Fund.
- Government should cater for the Tiwai Island in terms of providing the following:
 - deployment of rangers paid by government of Sierra Leone

- covering some of the running and maintenance cost to the island, as part of the functions of the support PAs
- The Conservation Trust Fund, according to the Act, should be responsible to finance projects in PAs, and so would wholeheartedly support the establishment of a trust fund for the island
- NPAA should be involved in implementing projects and programmes, whilst Conservation Trust Fund would be involved in monitoring.
- The CTF will provide expertise and support the development of proposals for resource mobilisation and management of island's biodiversity resources.
- The CTF would like to see promotion of investments in the area of the development of touristic facilities such as eco-lodges etc.
- The CTF made the following key recommended inclusion in the co-management plan
 - Inclusion of CTF in co-management structure to strengthen CTF's participation and contribution to the management of the island; so there is need to review the stakeholders' analysis to reflect the role of the CTF.
 - Some ideas of what may happen if the co-management time frame expires or the management committee ceases to function;
 - Mechanism that would ensure transparency and accountability in the course of implementation of the management plan.
 - A trust fund must be set up and will be supported by the CTF.

EXECUTIVE DIRECTOR OF NATIONAL PROTECTED AREA AUTHORITY (NPAA)

- NPAA has a mandate for the protection of all PAs and Tiwai is one of them.
- The importance of Tiwai in terms of Biodiversity cannot be over-emphasized.
- Tourism is now in the forefront of Government's agenda and Tiwai is one of the main tourism destinations.
- The Ministry now requires all PAs to be sending quarterly reports, including report from Tiwai island, once the co-management plan starts operation.
- The Sherbro Estuary Management Plan calls for calls for a Supervisory team (NPAA), An Advisory Team (Paramount Chiefs, etc) and a Management team which comprise support organisations. The Management Committee is bounded by a constitution. The NPAA would like to see a similar concept in operation at Tiwai, under the new co-management plan.
- The CTF should raise funds for NPAA and support Tiwai in terms of the employment of rangers, which ideally should be employed from the area.

DIRECTOR OF FORESTRY, MINISTRY OF AGRICULTURE, FORESTRY AND FOOD SECURITY

- Forestry has not been active on TIAC. Forestry has more commitment to show to the conservation of Tiwai and not interested in the material gains of becoming a member of TIAC
- Forestry Division is obligated to play a very important role in the management of Tiwai as the first Game Sanctuary and so happy to function as supporting partners.
- The Forestry Division supports the agreed with the proposed co-management structure, wherein the Division will serve as a secondary stakeholder, and the NPAA being a primary stakeholder.
- A good example worth citing is the Gola Forest co-management arrangement for the management of buffer zones around the national park, which for all intent and purpose is a success story. It is a 3-tier management.
- The Environmental NGOs are only coming in to help, as funding from Government is not forthcoming. Govt should be able to maintain the resources through working with and recognising the interventions by the NGOs and other partners.
- At Gola National Park, there is a tripartite arrangement as follows: (i) Government of Sierra Leone; (ii) Royal Society for the Protection of Birds (RSPB) & Conservation Society of Sierra Leone (CSSL); and (iii)

the local communities represented by the Paramount Chiefs from all the seven Chiefdoms around the Gola NP. The Government is represented by the Minister of Agriculture and Food Security. They meet two every year and the meetings are chaired by CSSL; all major partners should be present for any major decision to be taken.

- The Gola also has a Board of Directors, which is responsible for the day to day running of the affairs of the Park.
- There is a special account to which sale of carbon is deposited for the management of the Gola National Park and Loma, which is managed by a company limited by guarantee.
- The Gola National Park administration would be very happy to be involved in the co-management plan implementation at Tiwai Island.
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The undersigned representatives hereby confirm the processes leading to the development of this Co-Management Plan and affirm their commitment to upholding the aspirations of the said Plan for the continued protection and development of the Tiwai Island Wildlife Sanctuary and its host communities.

1. Paramount Chief Alameen Kanneh – Koya Chiefdom
Signature [Signature] Date 30.08.2020
2. Regent Chief Vandi Samei Rogers – Barri Chiefdom
Signature [Signature] Date 30/08/2020
3. Chairman Soabu Sowa – Chairman, Pujehun District Council
Signature [Signature] Date 30/08/2020
4. Chairman Mohamed Sesay, Chairman, Kenema District Council
Signature [Signature] Date 7/09/2020
5. Mr. Joseph Musa, Exec Director – National Protected Area Authority
Signature [Signature] Date 30/08/2020
6. Chief Brima Sesay Woya Section Chief – Koya Chiefdom
Signature RTP Date 30/08/2020
7. Chief Francis Tarleh, Section Chief – Barri
Signature pp Francis Tarleh Date 30/08/2020
8. Madam Kadie Gbao, Representative-Barri Chiefs
Signature RTP Date 30/8/2020
9. Samai Nyallay, Representative – Koya Chiefs
Signature Right Thumb Print Date 30/08/2020
10. Ms Jeneba Amara, Women's Leader – Barri
Signature Right Thumb Print Date 30/08/2020
11. Ms Hawa A. Kallon, Women's Leader – Koya
Signature RTP Date 30/08/2020
12. Mr Mohamed Koroma, Youth Leader – Barri
Signature [Signature] Date 30/08/2020
13. Mr Fatorma Nyallay, Youth Leader – Koya
Signature RTP Date 30/08/2020
14. Professor Richard Wadsworth – Representative Njala University
Signature [Signature] Date 30/8/2020
15. Tommy Garnett, Representative, Environmental Foundation for Africa
Signature [Signature] Date 30/8/2020

