

GOLA REDD PROJECT

CCB & VCS MONITORING REPORT

DRAFT

2015 - 2019



Document Prepared by Royal Society for the Protection of Birds and Winrock International on behalf of Gola Rainforest Conservation.

Project Title	The Gola REDD Project
Project ID	1201
Version	Version 1
Report ID	GRC_MIR2_v1
Date of Issue	30-November-2020 this version of the document issued
Project Location	Gola Rainforest National Park, Kailahun & Kenema Districts in Eastern Province and Pujehun District in Southern Province, Sierra Leone.
Project Proponent(s)	Gola Rainforest Conservation LG. 164 Dama Rd, Kenema, Sierra Leone. Contact person: Francis Massaquoi, Head of Gola francis.massaquoi@golarainforest.org
Prepared By	Alex Hipkiss, Richard Dixon, Benjamin Barca, RSPB Michael Netzer, Winrock International Contact: Richard Dixon Richard.dixon@rspb.org.uk
Validation/Verification Body	Aster Global Environmental Solutions Inc. Janice McMahon jmcmahon@asterglobal.com (VVI ID: 016) 3800 Clermont St NW, North Lawrence, Ohio, 44666, USA
GHG Accounting/Crediting Period	1st August 2012 and ends on the 1st August 2042. The CCB and VCS periods are the same.
Monitoring Period of this Report	01 January 2015– 31 December 2019; 5-year total period. The CCB and VCS periods are the same.
History of CCB Status	Validation statement issued 23 October 2015. First verification report 25 November 2015.
Gold Level Criteria	Gold level for Climate Change Adaptation: it enhances resilience to climate change stresses amongst 122 Forest Edge Communities whilst maintaining critical ecosystem services such as water, land and soil resources. Gold level for Biodiversity: the project protects 1 Critically endangered species and 8 endangered species. Gola Level for Community Development. This is not part of the Project Document, however, the project reaches 122 forest edge communities, regarded as the poorest of the poor, with diverse and direct development support and is proposing that community interventions carried out in this reporting period qualifies for Community Gold.

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1 SUMMARY OF PROJECT BENEFITS

1.1. Unique Project Benefits

Table 1. Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period	Section Reference (linked)	Achievements during the Project Lifetime
<p>Staff training events Training events held covering; Safeguarding, small business development, gender, budgeting, research, extension, etc.</p>	87	2.4.1. Required Technical Skills and Expertise (G4.2) 2.4.4. Worker Training (G4.3) Annex 5. Staff training opportunities.	107 (Estimated 30 Events during 1 st MIR)
<p>High Conservation Value Areas (HCVA) established Any deforestation risks losing HCVA in Community Forest (CF), which provides habitat for globally threatened species and connectivity.</p>	2	Table 51. Community Initiative 4. Co-management of community use zones in the GRNP and land use mapping and planning in the leakage belt.	2
<p>Transboundary collaboration. MoU signed by Governments of Sierra Leone and Liberia and implementation measured through joint SL/Liberia boundary patrols</p>	4 transboundary border patrols.	2.2.6. Enhancement of High Conservation Values (G3.6).	4 transboundary border patrols.
<p>Tourism Includes: Tourists; Research Groups; GRC stakeholder invitations; and consultancies.</p>	215	Table 6. Activities and results to maintain or enhance the High Conservation Values of the Gola Forest.	244
<p>Gender Communities with Gender Action Learning System (GALS) Champions with responsibilities of implementing</p>	46	4.4.2. Protections for Poorer and More Vulnerable Households and	46

		Individuals (GL2.4)	
Commodity development. Farmer field schools established/ numbers attending	48/2245 (50%women)	Table 48	83
Commodity development. Fairtrade Certification for 3 farmer Associations	3	4.1.2. Net Positive Community Well-Being Impacts (CM1.1) Table 40	3
Health Total number of communities (estimated population) for whom health services were improved as a result of project activities.	2 (2460) (estimate)	4.1.1. Community Impacts (CM1.1) Table 45	3 (3690) (estimate)
Health Number of women (estimated population) for whom health services were improved as a result of project activities, measured against the without-project scenario	1230	As above	1845
Water Total number of communities (estimated population) who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	4 (492)	As above	5 (615)
Water Number of women (estimated) who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	246	As above	308
Biodiversity Conservation Area/% of protected area covered by forest guard patrols	58,225ha / 85%	2.2.6. Enhancement of High Conservation Values (G3.6) Table 6	58,225ha / 85%

1.2. Standardized Benefit Metrics

Table 2. Standardized Benefits Matrix

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	461,604	3.2. Quantification of GHG Emission Reductions and Removals	461,604
	Net estimated emission reductions in the project area, measured against the without-project scenario	1,957,051	3.2. Quantification of GHG Emission Reductions and Removals	3,154,277
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	5,889	3.2. Quantification of GHG Emission Reductions and Removals	9,228
	For ARR ³ projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	n/a	n/a	n/a
Improved land management	Number of hectares of existing production forest land in which IFM ⁴ practices have occurred as a result of the project's activities, measured against the without-project scenario	n/a	n/a	n/a
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	2,190	4.1.1.1, 4.1.1.2, (specifically Table 40)	2,190
Training	Total number of community members who have improved skills and/or	5,880	4.3.2. Community Monitoring Plan	940

¹ Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (*VCS Program Definitions*)

² Reduced emissions from deforestation and forest degradation (REDD) - Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (*VCS Program Definitions*)

³ Afforestation, reforestation and revegetation (ARR) - Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (*VCS Program Definitions*)

⁴ Improved forest management (IFM) - Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood and fuelwood (*VCS Program Definitions*)

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	knowledge resulting from training provided as part of project activities		Results (CM3.1, CM3.2, GL2.5) Table 39, Table 40, Table 41	
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	1,399	As above	164
Employment	Total number of people employed in of project activities, ⁵ expressed as number of full-time employees ⁶	148	2.4.1. Required Technical Skills and Expertise (G4.2)	168
	Number of women employed in project activities, expressed as number of full-time employees	17	2.4.1. Required Technical Skills and Expertise (G4.2)	19
Livelihoods	Total number of people with improved livelihoods ⁷ or income generated as a result of project activities	n/a	n/a	n/a
	Number of women with improved livelihoods or income generated as a result of project activities	n/a	n/a	n/a
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	See 1.1.	n/a	See 1.1.
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	See 1.1.	n/a	See 1.1.
Education	Total number of people for whom access to, or quality of, education was improved as a result of project	1,169	4.3.2. Community Monitoring Plan	1,391

⁵ Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers and community members that are paid to carry out project-related work.

⁶ Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region or economic territory (adapted from UN System of National Accounts (1993) paragraphs 17.14[15.102];[17.28])

⁷ Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. *The Sustainable Livelihood Approach to Poverty Reduction*. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	activities, measured against the without-project scenario		Results (CM3.1, CM3.2, GL2.5) Table 43	
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	585	As above	696
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	See 1.1.	Na/	See 1.1.
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	See 1.1.	Na/	See 1.1.
Well-being	Total number of community members whose well-being ⁸ was improved as a result of project activities	See 1.1.	n/a	See 1.1.
	Number of women whose well-being was improved as a result of project activities	See 1.1.	n/a	See 1.1.
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation, ⁹ measured against the without-project scenario	68,340	2.2.6. Enhancement of High Conservation Values (G3.6)	68,340

⁸ Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

⁹ Biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	Number of globally Critically Endangered or Endangered species ¹⁰ benefiting from reduced threats as a result of project activities, ¹¹ measured against the without-project scenario	7	Exceptional Biodiversity Benefits (GL3)	7

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¹⁰ Per IUCN's Red List of Threatened Species

¹¹ In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

2 GENERAL

2.1. Project Description

2.1.1. Implementation Description

Implementation of Key Management Measures: The project focus is to protect and enhance the integrity of the Gola Rainforest National Park. This has been achieved through patrolling, boundary maintenance and open and clear communication/awareness raising with communities, supported by a well-trained and motivated management team. Research and Monitoring of forest management impacts shows that only 152ha of forest having being lost in the National Park between 2015 and 2019. Red Colobus Monkey (En) population doubled and recolonized regenerating, formerly commercially logged areas. White-necked Picathartes (Vu) populations are growing and the Pygmy Hippopotamus (En) remains stable in the community forests and leakage belt.

- Key external events that impacted on the project: The Ebola outbreak of 2014/15 held back project forest and community development operations. The project supported staff and communities with training and food aid. The outbreak had a positive impact on the forest with the limited movement of people across the landscape.
- The management and monitoring of leakage plays a significant part in the successful delivery of this project. This is primarily focused on the 122 Communities in the leakage belt through 10 Community Initiatives. Progress is monitored by project staff and periodic external evaluations:
- Crop intensification and increased production activity. The 69 Farmer Field Schools established by the project have over 2000 members (50% female) for the last 3 years. Of these over 100 are Master Farmers, who have in turn trained over 884 Farmer field School members (50% Female). The project is also distributing improved seed varieties.
- Improved cocoa production and post-production. Intensive work across Forest Edge Communities in 3 of the 7 chiefdoms has resulted in a 500-member producer organisation, improved yields, quality and prices for farmers. The project exported its first container of cocoa to the USA of 12.5 metric tons and sold to single batch artisanal chocolate.
- There are 64 Saving and internal lending community groups across the project taking revolving loans primarily for farm implements and healthcare.
- Co-management of community use zones in the GRNP and leakage belt, has recently begun with 3 groups supported but solid progress is awaiting updates to the forestry laws.
- Education - annual scholarships supported 1,169 children (50% girls)
- Research on Crop Raiding by Wildlife concludes that on cocoa farm rodents and forest edge monkeys are key. Recommended mitigation is on-farm crop intensification.
- Chiefdom development fund. Funds were delivered to all chiefdoms, in line with the agreement. A total of 85 projects were delivered including community halls (29), Rice mills (34), offices (3), schools (4), water/sanitation (6), bridges (2), Roofing (4), clinics (2)
- The project keeps up to date policies for workers rights to national and international standards. This also includes staff loan systems and training opportunities. Communication and grievance procedures maintained and managed by the project. Training events, where possible incorporate government staff and projects.

The project scored the minimum value of 10 on the VCS Permanence Risk report. Natural risks (fire) are minimal. Project management risks are managed through good staff retention, welfare and training opportunities. Financial risks are managed through carbon credit marketing and grants; jointly providing income needs. Longevity and political risks are low due to high-level political support to GRNP, also a core part of Sierra Leone's climate mitigation plans. Tenure and community engagement risks are low, being integral to project design through royalty payments to landowners, annual chiefdom development support and the above support to 122 leakage belt communities.

Gola REDD Project's net GHG emission reduction (not including the 10% buffer account) are 1,922,610t CO₂e between Jan 2015 and the second monitoring event at the end of 2019, and an additional 459,993 t CO₂e in sequestration from Gola South that occurred since the project start date in 2012 to 2019. There have been no key changes to the project proponent which remains the same.

2.1.2. Project Category and Activity Type

The Gola REDD Project falls under VCS sectorial scope 14: Agriculture, Forestry and Other Land Uses. It is a frontier Avoided Unplanned Deforestation (REDD AUDD) project and is not grouped. It is classified as frontier deforestation because 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.

2.1.3. Project Proponent(s)

Organization name	The Gola Rainforest Conservation LG
Contact person	Francis Massaquoi
Title	Head of Gola
Address	164 Dama Road, Kenema, Sierra Leone
Telephone	+232 76967320
Email	francis.massaquoi@golarainforest.org

2.1.4. Other Entities Involved in the Project

Organization name	National Protected Areas Authority
Role in the project	GRC Director
Contact person	Kate Garnett
Title	Deputy Director, NPAA
Address	4-6A FA John Avenue, Congo Town, Sierra Leone
Telephone	+23279372124
Email	info@npaa-sl.org

Organization name	The Forestry Division of the Ministry of Agriculture and Forestry of the Government of Sierra Leone (GoSL)
Role in the project	<ul style="list-style-type: none"> • 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)
Contact person	Joseph Jonathan Ndanema
Title	Minister of Agriculture and Forestry
Address	Ministry of Agriculture, Forestry, Ground Floor, Youyi Building, Brookfields, Freetown
Telephone	+232 76 601492
Email	info@maf.gov.sl

Organization name	Conservation Society of Sierra Leone (CSSL)
Role in the project	Member of the Gola Rainforest Conservation LG and representative sits and on the board of directors Support the implementation of community environmental awareness program, comms and land use planning.
Contact person	Dr Sheku Kamara
Title	Executive Director
Address	86A Main Road, Congo Town, Freetown, Sierra Leone
Telephone	+232 78434897
Email	shekukamara2014@gmail.com

Organization name	Paramount Chief Representative (Traditional Authorities)
Role in the project	<ul style="list-style-type: none"> • 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)
Contact person	Chief Alameen Kanneh
Title	Paramount Chief Representative
Address	The Paramount Chief, Baoma, Koya Chiefdom, Kenema district. OR No. 3 Kaisamba Terrace, Education Quarter, Kenema Town.
Telephone	+232 76364429
Email	pckanneh05@gmail.com / PCKanneh05@yahoo.com

Organization name	The Royal Society for the Protection of Birds (RSPB)
Role in the project	<ul style="list-style-type: none"> • Member of the Gola Rainforest Conservation LG and a representative and sits and on the board of directors • Acts as authorized representative on behalf of the Gola Rainforest Conservation LG. • Technical lead in the development of the documentation required to validate the project under VCS and CCB standards. • Market and negotiate the sale of any project credits directly or through a third party. • Provide technical and management assistance to the project implementers throughout the project's lifetime
Contact person	Richard Dixon
Title	Greater Gola Landscape Programme Manager
Address	RSPB UK Headquarters, The Lodge, The Tropical Forest Unit, Sandy, Bedfordshire, SG19 2DL, UK.
Telephone	+44 (0)1767 680551
Email	richard.dixon@rspb.org.uk

Organization name	Cambridge-Wageningen Research Group
Role in the project	Provide support in developing the community consultations phase of project development Provide support in monitoring of the impacts on communities in the project zone
Contact person	Professor Andreas Kontoleon (University of Cambridge) / Dr Maarten Voors (Wageningen University)
Title	Professor of Environmental Economics and Public Policy / Associate Professor
Address	University of Cambridge, Department of Land Economy, 19 Silver Street, Cambridge, CB3 9EP, UK
Telephone	+44 1223 339773 / 0031 624090140
Email	Maarten.voors@wur.nl ak219@cam.ac.uk

Organization name	Access to Gender Action Learning System (AGALS)
Role in the project	Facilitate the trainings of trainers (GALS champions) on Community-led empowerment methodologies using participatory processes and diagram tools which aims to give women and men more control over their lives as the basis for individual, household, community and organisational development.
Contact person	Milicent Brima
Title	
Address	Waa Man Abu road, Kenema, Sierra Leone
Telephone	+232 78631560
Email	agalssl@gmail.com

Organization name	Rory's Well
Role in the project	Pilot Beekeeping project in Barri Chiefdom
Contact person	Karen Binns
Title	Chair
Address	The Keepers, Symn Lane, Wotton-Under-Edge, Gloucestershire GL 127BD
Telephone	+44 0779 710211
Email	roryswell@icloud.com

Organization name	Jula Consultancy
Role in the project	Providing trainings on Certification and Governance
Contact person	Mohamed Fofanah
Title	Managing Director
Address	15 Swarray St, Kenema, Sierra Leone
Telephone	+232 76689200
Email	consultsjula@yahoo.com

Organization name	Ngoleagorbu Farmers Union
Role in the project	Cocoa Producer Organisation providing business services to their members
Contact person	Ahmed Koima or (Foday Brima)
Title	Logistics and Certification Manager (Chairman)
Address	110 Dama Road, Kenema, Sierra Leone
Telephone	+232 76334466
Email	koima.gola@gmail.com

2.1.5. Project Start Date (G3.4)

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

2.1.6. Project Crediting Period (G3.4)

The Gola REDD project’s crediting period started the 1st of August 2012 and ends on the 31st of July 2042, totaling a project lifetime of 30 years.

2.1.7. Project Location (G3.3)

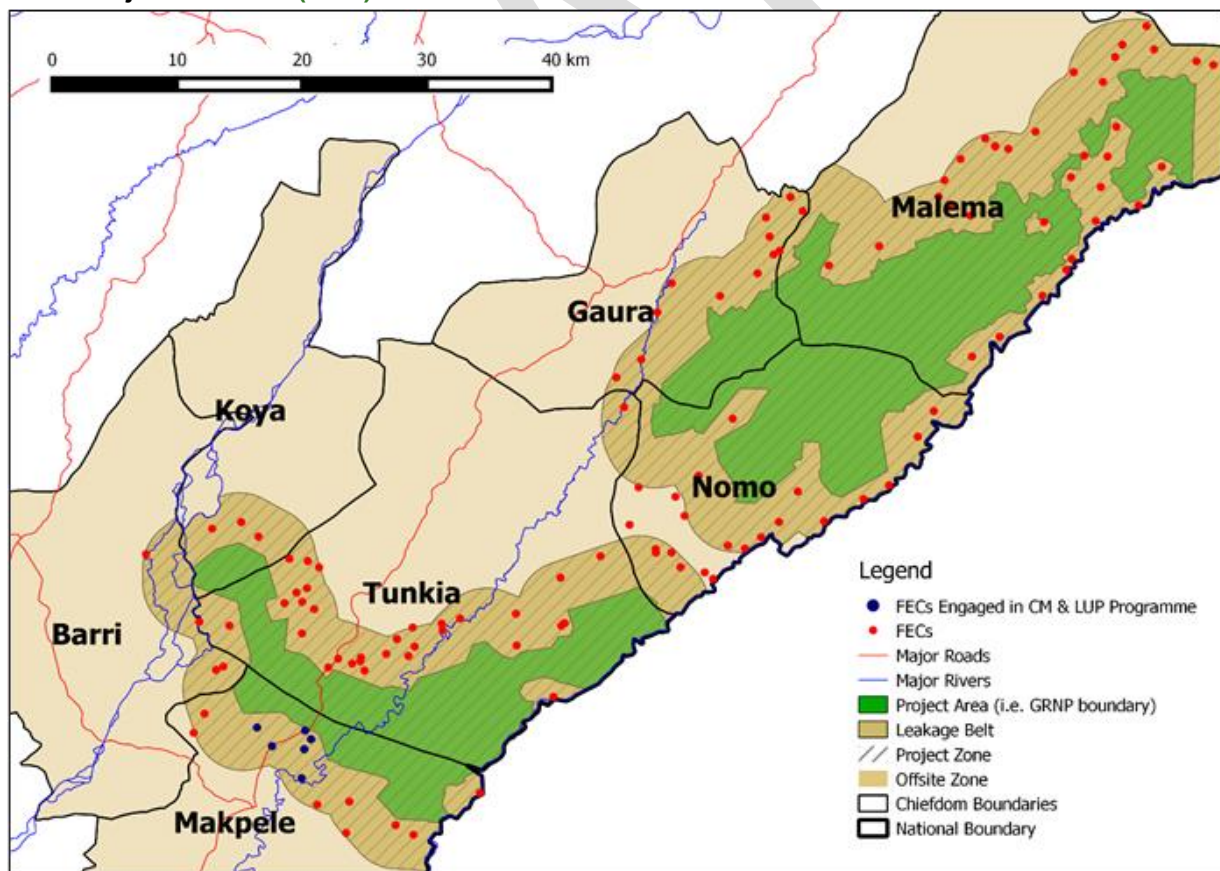


Figure 1. Map of the project location. This map remains as per the Validation.

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.

The forest in Gola REDD and surrounding area 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 region.

The project area is divided into 3 blocks; Gola North, Gola Central and Gola South (**Figure 1**). The geodetic coordinates of the project boundaries for each of the 3 blocks that form the project area as required by the VCS AFOLU requirements (V3.4) are found in the KML file in Teuten 2019 (see supporting document folder). The map projection for project boundaries and all spatial analysis is:

Projected Coordinate System: WGS_1984_UTM_Zone_29N
Projection: Transverse_Mercator
False_Easting: 500000.00000000
False_Northing: 0.00000000
Central_Meridian: -9.00000000
Scale_Factor: 0.99960000
Latitude_Of_Origin: 0.00000000
Linear Unit: Meter

Geographic Coordinate System: GCS_WGS_1984
Datum: D_WGS_1984
Prime Meridian: Greenwich
Angular Unit: Degree

The total size of the REDD project area in 2018 is 68,340ha of forest (this does not include areas of non-forest, including rivers and a number of rocky outcrops known as inselbergs within the Park boundary.) The boundary has been demarcated on the ground in coordination with the Forest Edge Communities living adjacent to the boundary. There are 86 communities sharing a boundary with the project area and all have signed an agreement with the project over the location of the boundary (Marris et al 2013) (**Figure 1**). The boundary was initially cleared with members from the bordering communities, these are regularly brushed by casual workers and GRC staff to facilitate the detection of the boundary. In addition, a boundary team has been erecting cement boundary pillars along the border. The work started in late 2015 and is an ongoing task to maintain. See **Table 6**.

Following requirements set out in VM0007 BL-UP Module, the spatial boundaries required from the Gola REDD project are the Project Area (PA) stratified into two strata Gola North/Central (Stratum 1) and Gola South (Stratum 2), and Leakage Belt (LB) (

Table 3). Gola South was stratified out from Gola Central/North because the carbon stocks were significantly lower, and this was thought to be because of a history of logging in the South. Therefore, the Gola REDD project stratified Goal South and has been monitoring enhancements as part of the project. See the Baseline Report and the Project Document (PD 2020) for a detailed description of these boundaries (Netzer and Walker 2013) and the KML and KMZ folders for the geodetic polygons.

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Table 3. Project areas for the first and second baseline benchmark maps.

	Forest area 2011	Forest area 2018
	Benchmark land cover for first baseline period	Benchmark land cover for second baseline period
Project Area (PA)	68,498	68,340
Strata 1 (Gola Central/North)	43,064	42,989
Strata 2 (Gola South)	25,434	25,351
Leakage Belt (LB)	62,882	48,452
PA & LB (Reference Region for Location)	131,380	116,792

2.1.8. Title and Reference of Methodology

This project is within sectoral scope 14 “Agriculture Forestry and Other Land Use” of the VCS. It is a frontier Avoided Unplanned Deforestation (REDD AUDD) project and is not grouped.

VM0007 REDD Methodology Modules (REDD-MF) (v1.4)

2.1.9. Other Programs (CL1.5)

There are no other programs and the risk of double counting is not present. The project currently sells VCUs on the voluntary markets, and a requirement of both of our current and contracted offset Retailer/Broker is that they must retire credits.

2.1.10. Sustainable Development

The project supports the delivery of a range of Sierra Leones national development and environmental priorities. Sierra Leone’s [Medium-term National Development Plan \(2019–2023\)](#) sets the ambition for the next 5 years. Gola contributes to this in significant ways:

- Policy Cluster 7 – Addressing vulnerabilities and building resilience. Under this cluster, the government will focus on the following broad result areas: 7.1 Building national environmental resilience; 7.2 Strengthening forest management and wetland conservation;
- Key targets under policy cluster 7 By 2023, review and pursue land degradation neutrality targets
- Strategic Target: The strategic objective is to enhance the holistic conservation and management of Sierra Leone’s biodiversity in all ecosystems for the benefit of present and future generations through an integrated approach.
- Other policy clusters such as agriculture and poverty

The establishment of the Gola Rainforest National Park was highlighted as a headline achievement in the first National Biodiversity Strategy and Action Plan (NBSAP) of 2004-10. Sierra Leone’s NBSAP is on its second iteration; [2017-2026](#).

This project directly contributes to the vision of the NBSAP of ‘Sierra Leone’s biodiversity, natural ecosystems and habitats are well preserved, protected and sustainable managed for the benefit, development and perpetual prosperity of its present and future generations’. Sustainable management, biodiversity conservation and sustainable development are core to the design of this Project expressed through the CCB targets. Gola delivers Multiple Strategic outputs of the NBSAP. These 23 strategic outputs are arranged across 5 core areas A-E. Gola contributes substantively to each of them. See

Table 4

Table 4. Gola REDD project contribution to Sierra Leone's NBSAP.

CBD Strategic Output	Gola REDD project Contribution to outputs
A. Sierra Leone's biodiversity is well conserved through sound and holistic national legislation and policy implementation across all sectors.	A1(ii) A1(v) - local and national awareness raising on biodiversity A4 (iii) engaging with private sector – cocoa, carbon. A4(iv) Incentivizing forest managers and rangers.
B. Practical methods and mechanisms enhanced and functioning to safeguard biodiversity, resulting in improved conservation status of threatened and rare species.	B1(i). Law enforcement and ranger employment B1(ii). Forest enterprise such as ecotourism. B1(v). REDD+ carbon trading established and providing income. B1(vi) Restrict and control chainsaw use. B3(iii), B3(iv) Ecosystem restoration with community engagement.
C. Practical and robust conservation actions are significantly enhancing the status of species, habitats, sites and ecosystems in and outside protected areas.	C1(i-iii), (vi) biodiversity research and monitoring on site and nationally. Strengthen human resource for biodiversity conservation. C3(iv-vi) Increase PA management capacity and regulation enforcement. C4(ii) Protect species outside PAs (REDD Leakage belt)
D. Improved living standards, ecosystem services and opportunities provided to people, particularly local communities through sustainable and inclusive biodiversity conservation actions.	D1-D4 – Most areas covered to improve the impact of agricultural practices on biodiversity and agro biodiversity and build capacity, whilst utilizing indigenous knowledge.
E. Improved sectoral and public involvement, and enhanced capacities and awareness, are contributing to effective, result-oriented planning and execution of conservation projects and programs.	E1 – build human and financial resource and capacity for biodiversity conservation. E2(ii) E2(iii) Local community engagement in biodiversity conservation. E5(ii) Promote ecotourism. E5(v-vi) Foster International technical support, funding and collaboration

Sierra Leone's initial statement to develop [Nationally Appropriate Mitigation Actions](#) under the UNFCCs Copenhagen Accord notes the intention to increase its forest estate, improve management planning, recognizes the role that REDD can play in protecting its forest estate.

2.2. Project Implementation Status

2.2.1. Implementation Schedule (G3.4)

The Gola REDD project’s crediting period started the 1st of August 2012 and ends on the 31st of July 2042, totaling a project lifetime of 30 years. The first baseline was renewed in 2018, therefore the project is monitoring against its initial baseline through 2018 and a renewed (second) baseline for 2019 and after.

Table 5. Implementation schedule of key dates in project development (G3.4).

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 – 2013	Project start date (August 2012) Beginning of community consultation process for project design and development; Meetings with Paramount Chiefs to launch the process Collection and analysis and report writing of all baseline data
2014-2015	Project validation to VCS and CCB standards
2015	Social, Biodiversity and Climate/VCS monitoring events and reports generated Project verification to VCS & CCB 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	Updated baseline assessment (see Project Document 2020) Management Plan update was drafted and is awaiting final comment and adoption.
2019	Longitudinal Survey
2020	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 under review for completion 2021

2.2.2. Methodology Deviations

The deviations validated and verified in the Project Description remain consistent. This is documented in Project Description 2015 and referenced in Project Description 2020.

2.2.3. Minor Changes to Project Description (Rules 3.5.6)

The Project Description was updated in the new Project Document (PD) 2020. See PD 2020. No changes have been made.

2.2.4. Project Description Deviations (Rules 3.5.7 – 3.5.10)

The project description deviates according to rule 3.5.7, point 6. Specifically: 'Information is provided to demonstrate that the project meets the requirements of a Gold Level that was not included in the project'

The project is proposing that its activities qualify for CCB Gold. Information is provided to demonstrate that the project meets the requirements of a Gold Level (see Section 4.4). This was not included in the project description for an earlier validation.

2.2.5. Risks to the Project (G3.5)

The Gola project 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 10. (See supporting document folder). 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 are to 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 has a well-established presence on the ground with over 150 staff. Illegal activities are monitored, addressed and reported with very few significant illegal incursions recorded. Staff are regularly trained and where needed external expert staff are appointed to bring specific skills.

Financial Viability: The project partners and staff successfully managed private and donor funds during early conservation work and in the development of the REDD project. Revenues from the sale of carbon credits have been slow to be realized but with the engagement of a professional Offset Retailer sales have progressed upwards with sales reaching \$45,000 in 2016, \$45,000 in 2017, \$457,000 in 2018 and \$394,000 in 2019 and over \$500,000 in 2020. This is still below the needed estimate of c \$1m annually but we are confident this will continue to increase eventually to be sufficient to cover the majority of the costs of implementing the project. Should there be any excess revenues these will be held in trust funds (see section 2.2.7. Benefit Permanence (G3.7)) to be used to manage the GRNP beyond the lifetime of the project. One of the project partners, the RSPB, has been providing bridging finance through its own resources or grant writing and management until carbon revenues are available, resulting in a minimal financial viability risk to the project.

Opportunity Costs: Threats to the forest's integrity remains from commercial mining interests. The short-term financial benefits from such, vastly outweigh the carbon incomes. This has been mitigated through the forest becoming a national park in 2011 and the legal protections that this ensures that the

project proponent is a not for profit company, registered in Sierra Leone. There was an influx of artisanal mining in 2015 into the protected area, but this was resolved by the project in collaboration with the police and the law enforced.

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. 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 Government created a trust fund (See section 2.2.7. Benefit Permanence (G3.7)) 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 and resource tenure: The Government of Sierra Leone represented by the Ministry of Agriculture and Forestry owns the carbon rights and management rights to the project area. These rights were 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 were consulted to secure outstanding carbon rights and were 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 122 communities. Consultations with communities in both the project zone and the offsite zone were intensive during project design and are ongoing during project implementation. Any negative impacts of conservation activities on local communities are 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. For more details on community engagement see section 2.3.

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 demonstrates its long-term commitment towards reducing anthropogenic GHG emissions through participation in international climate change negotiations, developing a NAMA and putting in place appropriate governance structures.

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 actively monitored fire outbreaks using the MODIS satellite early warning system, patrol teams were sent out to investigate any outbreak and react accordingly. In Sierra Leone wildfires 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 smart' 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. Through land use planning the project encourages the protection of water catchments and inland valley swamps which contributes to reforestation and improved water availability in the swamps.

Protection of the project area itself and the maintenance of connectivity between the forest blocks also helps 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 are about to 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 were monitored and further mitigation measures will be introduced should any further risks be identified.

2.2.6. Enhancement of High Conservation Values (G3.6)

The project zone possesses a number of High Conservation Value attributes (HCVs) which 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 this vision. With the forest protected, the forest dependent HCVs are maintained and, in many cases, enhanced. The first major step to ensuring that the HCVs are maintained was achieved with the recognition of the unique value of the project area which was upgraded to the status of National Park from that of a Production Forest Reserve as part of the preparation of this project; however this was entirely reliant on having an effective REDD project without which no sustainable financing is possible. 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 above **Table 5**) for timeline of key events). As a production forest reserve the primary objective for the area was timber production. Strengthening the protection strategy and effective management of the Park is one of the three main goals of the project. This is partly achieved through regular patrolling the project area but also through involving neighboring 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.

Table 6. Activities and results to maintain or enhance the High Conservation Values of the Gola Forest.

HCVs	Activities	Results
HCV 1 Species Diversity	<p>Patrols by forest rangers in the project area</p> <p>Education and awareness campaigns</p>	<p>Patrols carried out constantly by GRC rangers through reporting period. For example, in 2019, there were 116 patrols carried out. This equates to 1563 patrol days and a distanced covered of 7,560km. Over the reporting period, this amounts to over 30,00km, over 7500 patrol days and almost 600 patrols. Overall, this covers 85% of the entire GRNP.</p> <p>There were also 4 joint border patrols carried out with Liberian rangers.</p> <p>GRNP boundaries are regularly cleared with over 100km cleared each year. Concrete pillars are also erected to mark the boundary. In total 622 pillars have been erected over 306.7km of boundaries. This equates to 88% of the entire reserve.</p> <p>Illegal activities are overall decreasing in the project area. See Figure 2 below for a summary of trends.</p> <p>Education and awareness campaigns are carried out constantly during the project but both the Community development and Research teams. These are captured in section 4</p> <p>HCV species numbers have been maintained and, in some cases, increased (for example the Upper Guinea Red Colobus and the White-necked Picathartes). See section 5 for more detail of HCV species.</p>
HCV 2	Protecting the project area to reduce	<p>See above for Protection and patrol results.</p> <p>See section 4 for education and awareness, sustainable livelihood, and landuse mapping results.</p>

HCVs	Activities	Results
Landscape level ecosystems	<p>deforestation and degradation</p> <p>Patrols by forest rangers in the project area</p> <p>Education and awareness campaigns in the project zone and wider Chiefdoms</p> <p>Sustainable livelihood projects</p> <p>Land use mapping and planning with Forest Edge Communities</p> <p>Transboundary collaboration between governments</p>	<p>See HCV 1 for transboundary collaborations. Transboundary collaborations are framed in an MOU between the Governments of Sierra Leone and Liberia.</p> <ul style="list-style-type: none"> The Greater Gola Landscape has received increased protection thanks to the creation of the Gola Forest National Park (GFNP) in 2016 in Liberia. No loss of forest within the National Park in 4 years Community forestry and co-management projects started in 2018 Cocoa agroforestry methods promoted in degraded connecting area Cross border collaboration and cooperation and signing of an MoU between the governments of Liberia and Sierra Leone which includes joint ranger training and joint patrols and information sharing.
HCV 3 Ecosystems and habitats	<ul style="list-style-type: none"> Protecting the project area to reduce deforestation and degradation Patrols by forest rangers in the project area Education and awareness campaigns in the project zone and wider Chiefdoms 	<p>See HCV 1 for activity results.</p> <ul style="list-style-type: none"> Key ecosystems within the project area protected, including waterways and inselbergs
HCV 4 Ecosystem services	<ul style="list-style-type: none"> Protecting the project area to reduce deforestation and degradation Education and awareness campaigns in the project zone and wider Chiefdoms Land use mapping and planning with Forest Edge Communities 	<p>Activity results as per HCV1 and see section 4 for more details.</p> <ul style="list-style-type: none"> Clean drinking water flowing from the project area used by most communities in LB Intact forest canopy and understory protects communities bordering hills from landslides. Community forestry and co-management projects started in 2018 Illegal mining sites are being restored with tree planting activities (e.g. 4000 trees planted on an old mining site in 2019).
HCV 5 Community needs	<ul style="list-style-type: none"> Education and awareness campaigns in the project zone and wider Chiefdoms Land use mapping and planning with Forest Edge Communities 	<p>See section 4 for more details.</p> <ul style="list-style-type: none"> Healthy riverine systems sustain an important fishery for local populations Communities access project area to collect NTFPs for personal use and sale Community forestry and co-management projects started in 2018 See section 4.1.3. for more information

HCVs	Activities	Results
HCV 6 Cultural Values	<ul style="list-style-type: none"> Education and awareness campaigns in the project zone and wider Chiefdoms Land use mapping and planning with Forest Edge Communities 	<ul style="list-style-type: none"> Eco-tourism promoting cultural tours within communities. Communities members being training in service provision. Tours include community visits. The operation was heavily affected by the 2014 Ebola outbreak into subsequent years. Recovery through 2016 and 2017 was slow with only 14 and 25 visitors respectively. However, visits have improved again and in 2018/19 there were a total of 186 visitors (166 tourists, 11 research groups, 6 partner visits and 3 consultancies), each of which have to pay. The Income to the GRC was \$11,600. The wider income impacts re not measured (local purchases, tips to community members and accommodations in communities. Project area protects traditional graveyards and sacred sites from clearcutting and /or concessions See section 4.1.3. for more information. Land Use mapping has been piloted in Malema Chiefdom and will be rolled out with the training and formation of a Land Use Mapping Unit.

The integration of conservation and development goals 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. As HCV have been identified by past research work, the project prioritizes 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.

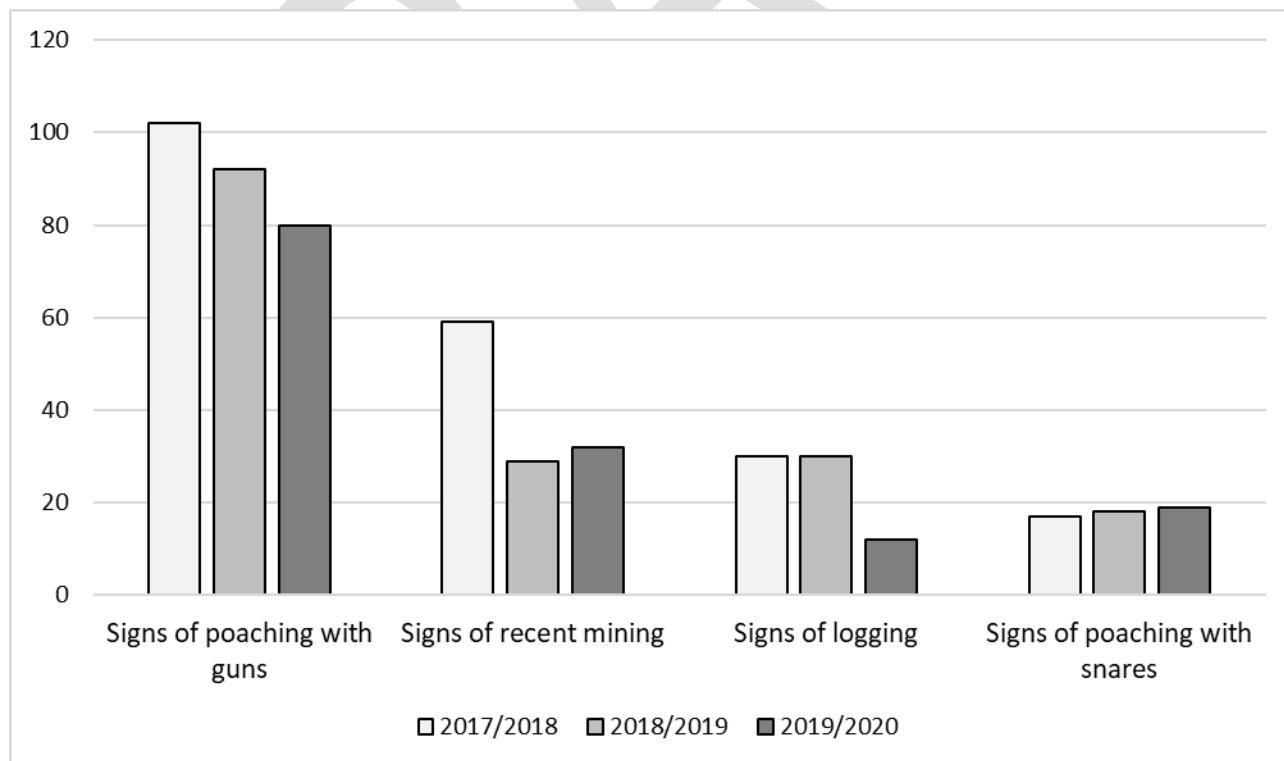


Figure 2 Comparison between frequency of observations of illegal activity recorded in 2017/2018, 2018/2019 and 2019/2020.

2.2.7. Benefit Permanence (G3.7)

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.

- A trust fund exists (The International Ecofund) that has endowment capital to generate income from interest accrued. This is a UK based Charity that supports Gola directly. In addition, with the establishment of the National Protected Areas Authority in 2012, the act of Parliament (<http://www.sierra-leone.org/Laws/2012-11.pdf>) also paved the way for a 'Conservation Trust Fund'. This latter fund is yet to be fully established (its members are now appointed) but is intended to receive income from a variety of sources including carbon trading. It was envisaged that the excess income from carbon sales would be deposited into these Funds to grow the capital and invest in conservation around the country. However, current Voluntary carbon prices and the market are not conducive to generate any excess. The International Eco Fund capital generates approximately 10% of the income needs of the Gola Programme each year.
- The project has a core partner in the Forestry Division of Sierra Leone and GRCLG member, and other government agencies (e.g. the Environmental Protection Agency and the NPAA) to ensure that the project is integral in any future national mechanism and that social and biodiversity safeguards are incorporated.
- The project works 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 becomes embedded into community values and sustainable management extends beyond the lifetime of the project.
- The project has secured funding through the West Africa Biodiversity and Climate Change program (USAID) to support the work to update and approve the Tiwai Wildlife Sanctuary Management Plan. This step is necessary for the Gola Rainforest National Park and the Tiwai Wildlife Sanctuary to jointly apply for World Heritage status with UNESCO, currently both sites are on the tentative list (<https://whc.unesco.org/en/tentativelists/5747/>) and updated management plans are a requirement for final approval, this will be a priority objective in 2020. If successful, this will become the first World Heritage site for Sierra Leone, an invaluable step that will aid the protection of the landscape beyond the lifetime of the project.

2.3. Stakeholder Engagement

2.3.1. Community Consultation (G3.8)

The initial description of community consultations that lead to the signing of the landowner agreements and the agreement over the REDD+ project Memorandum of Understanding can be found in the 2015 VCS and CCB MIR.

During the verification period the GRC community development team, supported by other departments of the GRC LG, continued important outreach activities, including stakeholder meetings, road shows and community trainings, to ensure that all communities in the leakage belt were informed of the project and had the opportunity to raise any issues and feedback into the grievance process if needed. All communities were approached to offer re-fresher meetings on the concepts of climate change and carbon projects, discussing the potential impacts and solutions. In addition, the Community Development Relations Officers (CDROs), 1 for each chiefdom, started working at chiefdom level, including visits to the

FECs to open communication channels, raise awareness, and monitor project implementation (activities and impact) in collaboration with Gola Community Development Committees (GCDCs). The GCDC members are elected locally and act as an important bridge between the Gola staff and the communities. For example, potential project ideas for using the community development funds are developed by the offsite communities, selected and evaluated by the GCDC members and implemented by offsite communities once projects are approved by the Gola management team.

As the Gola REDD project moved forward, there were many key messages that need to be communicated with FECs in a standardized and timely manner to ensure transparent and effective communication was in place. The aim was to reduce potential grievances and confusions about the project highlighted in the first verification report and to make sure that communities understood why protecting the GRNP and surrounding forests can ultimately bring benefits to them and future generations. During the verification period CDROs held formal meetings with each FEC in their Chiefdom at least once every 6 months. At each formal the FECs were brought up to date with recent developments. Main topics included: livelihood activity updates, a project monitoring update and grievance mechanisms update. Travelling roadshows, involving various activities from drama and dance to videos and presentations, were developed as part of the process of cementing an understanding of the Gola project and key conservation and sustainable development messages. On average about 200 villagers, from youth to elders, attended each roadshow. Between 2015 and 2018 these run on a six-monthly basis, focusing on key communities within each chiefdom.

Input and feedback from communities is very valuable and CRDOs collect all such feedback and, on return to the office, collate all information received to be shared with the Superintendent and other relevant staff. The community may highlight the need for co-financing of a particular project, or request for specific capacity training and/or support in building links with other NGOs. For example, in 2017 the GRCLG supported communities in Lalehun, Guabu and Nyeyama to receive solar power facilities from the Welthungerhilfe (WHH) PRESSD project, acting as a third party to ensure the projects could go ahead. Or during consultations with communities at the start of the cocoa activities in 2016 there was an overarching consensus between cocoa farmers that the GRCLG should assist them in setting up farmer associations at Chiefdom level and by 2018 four farmers associations had been setup and trained and to this day actively trading on the market.

2.3.2. Public Comment Period Publicity (G3.9)

Community roadshows play an innovative and key role in communicating the project to communities in the project zone. As the majority of community members are illiterate, roadshows 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. More details of this can be found throughout section 4.

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 to be noted in the grievance log. Radio shows on various local radio stations during the public comment period communicated the projects goals, objectives and activities and an open session for questions and comments are to be held after each show.

The roadshows will be conducted 30 central villages with neighboring villages being invited to attend. Community members and local leaders will be given the opportunity to feedback during follow on community meetings. The process for public comment will be open from 29th November to 22nd December 2020.

2.3.3. Distribution of Project Information (G3.9)

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. A representative from the GRC LG is always available if translation is needed and the office has an open-door policy for all community members from the 7 chiefdoms. Additionally, all meetings are held in the local Mende language and translated into English if a non-Mende speaker is present. A representative of the GRCLG will take minutes in English for reporting and monitoring purposes.

Project Roadshows (public meetings) are carried out in each of the 7 chiefdoms twice a year since project inception. Approximately 500-1000 people per chiefdom attend each time.

2.3.4. Conflicts and Grievances (G3.10)

The Communication and Grievance Procedures programme is intended to ensure robust communication channels with neighbouring communities and local authorities to enable threats and grievances to be efficiently and effectively addressed. The communication channels and procedures for addressing grievances are defined and illustrated in a mechanism document, and are repeatedly communicated with stakeholders through meetings, radio broadcasts, and notice boards. The mechanism includes the appointment of an independent third-party mediator to oversee more complex or serious grievances.

Grievance procedures were first introduced from April 2012 and have been communicated with community and local authorities and stakeholders – particularly during a period of public comment on the project between Jan-Feb 2014.

In response to non-conformities identified by the project validators the grievance mechanism was amended in Jun 2014 to include a grievance cross-check form to be completed with each FEC at 6-month intervals, and the Network for Movement for Justice and Development (NMJD) replaced Green Africa as the third party mediator from June 2014.

Some aspects of the project (e.g. awareness raising of procedures during 6-monthly FEC meetings) were disrupted by the outbreak of Ebola virus disease in Sierra Leone from June 2014, although communication channels for registering and resolving grievances remained open.

In 2017, grievance mitigation meetings which included all the stakeholders (town chiefs, section chiefs, town speakers, youth and women representatives) were used to raise awareness and grievance procedures were fully explained including the purpose of the procedures, the channels through which grievances should be raised, the rights of a community to involve third parties and the role of the third party mediator.

The project is administered within GRCLG by grievance mechanism coordinator/community development relation officers under the supervision of the senior management team. The coordinator maintains a hard copy register of all grievances received and is responsible for overseeing and documenting all actions required for appropriate resolution. The role of the third-party mediator and the sharing of responsibilities with GRCLG are defined by a Memorandum of Understanding.

It is worth noting that awareness raising of the Grievance Procedure is conducted in all 122 forest edge communities on a 6-monthly basis.

During the reporting period, 15 grievances were raised and 12 are resolved. One unresolved is a long standing challenge and the other two unresolved are recent boundary disputes. The list of Grievances and their resolution are in **Annex 3**. Summary of Grievances and their resolution during the reporting period)

2.4. Management Capacity and Best Practices

2.4.1. Required Technical Skills and Expertise (G4.2)

The Gola Rainforest Conservation LG (GRC) oversees the overall management of the project and the 3 partners of the company bring a variety of technical skills to the project that provide support to the 'GRNP management' department which is responsible for the day to day management and implementation of the project. The Forestry Division provides the technical knowledge of policy and legislation required to implement the project, for example the co-management activity, CSSL provides support in developing the environmental awareness raising required to empower local communities to become effective environmental stewards and the RSPB provides 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 Head of Gola. The Head of Gola 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 158 employees who are spread across the five departments (100+ of which come from communities in the 7 Gola Chiefdoms). Currently 19 (12%) of the workforce are women.

The Head of Gola 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 **Annex 4**. Roles and responsibilities of key GRC management staff)

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.

A wide range of technical skills is required to implement the project successfully, covering aspects of financial management, natural resources management and agricultural practices so the training table in **Annex 5**. Staff training opportunities. is not exhaustive and the project's management needs to be receptive and responsive to any further technical skills that are identified during the lifetime of the project. To illustrate such responsiveness, the 2014 Ebola outbreak required extensive training and capacity building on health and safety measures and precautions, but also on key awareness raising messages to share with local stakeholders, particularly local communities. Before the start of any key activity a refresher training course is undertaken by all staff involved, this is usually lead by the Superintendent, the Technical Advisor or a specialized external trainer.

2.4.2. Carbon and Biodiversity research and monitoring

The research team 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. The team has also benefitted from a wide range of visiting experts from organizations and universities worldwide who have run trainings and worked with the research team building capacity and expertise in key areas such as: botany, herpetology, ornithology, and primatology (see **Annex 5**. Staff training opportunities. for training delivered). Together the team has a long track record of publishing in peer reviewed journals (see

Annex 1 Gola REDD Project Publication List (2015-2018) Date order) and has made a name for itself at a regional level, often called in to help run trainings for government staff in country, carry out workshops with external organizations and provide expertise for consultancy projects. The team is also supported by the Technical Advisor to apply for bursaries and scholarships, in this verification period 3 staff from the Research department travelled internationally for training and workshop opportunities (UK, Ivory Coast and Liberia). When needed the Research team has also helped run internal trainings such as GPS use for Agriculture staff or Wildlife identification trainings for park rangers. In 2018 carbon stocks of Gola South were reassessed by GRC staff and results were reported in Swinfield 2020.

2.4.3. 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 oversees 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 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 were sought with organizations with more extensive local experience. The team strongly benefited from close collaboration with a wide range of partners:

- Cambridge-Wageningen team of social scientists. The Cambridge team carried out extensive baseline and longitudinal surveys of the Forest Edge Communities (in 2010 and started another in 2014 and another in 2019) and collaborated with the community development team in developing the community engagement plans and methodologies and in the development of the project's monitoring activities, as well as training the community development team in survey work and monitoring and evaluation. Their inputs into the longitudinal surveys are critical to reporting on Section 4.
- An agreement was signed with WeltHungerHilfe, (WHH) a German agricultural development organization, to secure their involvement and the resourcing of interventions. Additionally, an intern program was developed with WHH so the team's staff can build its own capacity and benefit from the partners' expertise.
- TWIN & TWIN Trading, Divine (Chocolate producer) JULA (local small business consultancy organization) supporting the development of a Farmer Producer Organization to buy cocoa from members to market and export to chocolate producers in US, EU and UK.
- Access to Gender Action Learning (AGAL) a local gender NGO supporting mainstreaming gender across all REDD program activities.
- International Security Advisory Team (ISAT) and Republic of Sierra Leone Armed Forces (RSLAF) providing training to Park Rangers
- Rory Wells & MELO US training honey producers and bringing to marketing of Gola honey.
- Biodiversity research institutions: Basel Zoo, Cambridge University, RSPB, Wageningen University, IUCN, University of Washington

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 still required for land use mapping and co-management. As such an international Technical Advisor was recruited to provide and transfer these additional skills and the team will work with WHH to trial methodologies.

2.4.4. Worker Training (G4.3)

The project has an ongoing cycle of staff training and orientation. Ongoing training are one of the key activities to ensure staff retention. Retention in the project is very high and is sustained at these levels. For 2019 retention was greater than 95%

Training covers all aspects of project operations for staff and also for communities. Community level training is outlined across the key community work areas outlined in section 4. such as Farming, Cocoa, savings and loans and others.

For the biodiversity and monitoring research work there is tailored training received from the projects scientific advisers and from the UK based RSPB scientists and other visiting researchers. There are also occasional international conferences, training workshops that are utilised.

For Overall project management and wider staff, there are training events for computer use, health and safety and others and for the Park Rangers refresher courses are held at regular intervals.

The complete list of training events in in **Annex 5**. Staff training opportunities.

2.4.5. Community Employment Opportunities (G4.4)

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 favorable treatment on the grounds of age, color, 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 was given employment preference (Gola Employees Handbook 2020 p9 - see supporting document file). All community development relations officers are from the 7 Chiefdoms and all forest rangers are from Forest Edge Communities. Sub-station caretakers are always from the local community.

There are currently 148 Gola staff employed with over 100 hailing from the 7 Gola Chiefdoms, mainly comprising the Community Development team and forest rangers. The project also benefits local communities by hiring a significant number of casual workers on a day-to-day basis to support a number of field activities. Casual workers may also be trained by relevant project staff or be included in external trainings to build capacity and create local expertise within the communities. For example, the Research team has a number of community biodiversity specialists that have been trained in various capacities and are often hired at a higher rate to assist with project activities.

2.4.6. Relevant Laws and Regulations Related to Worker’s Rights (G4.5)

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

Annex 6. Regulation of Wages and Industrial Relations Act – analysis of compliance).

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 which was updated recently (2019/20). The handbook is available in a written format but also in audio format for any employees that are illiterate.

2.4.7. Occupational Safety Assessment (G4.6)

The GRC Employee handbook has a dedicated section on 'Health and Safety' and includes a register of the hazards facing GRC staff. Many hazards are mitigated through risk assessments for particular activities, including 'Forest working' (applying to Rangers and Research Technicians), and 'Travel & Transport' (applying to most staff but particularly drivers and positions involving fieldwork). Risk assessments are reviewed and updated annually (for current risk assessments see 'Updated post-validation' document folder). Forest working is a particularly risky activity, and through the risk assessment field teams are required to carry safety equipment including first aid kits and communications equipment (e.g. VPN phones, satellite phones, HF Radio transceivers).

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 Employees Handbook 2020).

Additionally, the project provided 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 communicated during induction, refresher trainings and spotlight presentations.

Staff that work as Park Rangers undertake 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). Due to the Ebola outbreak, the 2014 refresher training did not take place, though one was carried out in subsequent years to present day.

Zoonotic diseases training conducted after Ebola and a "Guidelines for the Gola Rainforest National Park office and field work with respect to the Ebola Virus Disease" was developed for all office staff. Covid-19 awareness campaigns provided training to staff and community outreach. Basic PPI and hand washing equipment were distributed to staff and communities.

Research Technicians all have access to the Standard Operating Procedures for the various research activities of the Gola REDD project. Each SOP includes a section on "Field Safety". At the onset of each new field activity, a training is given, including the distribution of the respective SOPs.

2.4.8. Financial Health of Implementing Organization(s) (G4.7)

The GRC is a relatively new organisation and absorbed the operations of the Gola Forest Programme into its operations in 2015. The GRCLG has a double-entry bookkeeping system. The accounts are kept regularly and in accordance with applicable accounting and tax legislation in Sierra Leone (the beneficiary's country). Information from the accounts kept by the GRCLG for the implementation of the Action is accurate and up to date.

2017/18 FY income was £929,822 (SLL8,666,871,736) and expenditure was £801,855 (SLL 7,474,366,716) leaving a balance of £127,937 (SLL1,192,505,020)

2018/19 FY income was £1,234,159 (SLL11,449,290,378) and expenditure was £1,131,106 (SLL Le10,493,274,639) leaving a balance of £103,152 (SLL956,015,739)

In both of these recent financial years, income was sufficient to cover operational expenses. Income sources are varied which help ensure financial sustainability. These include Carbon sale revenues, grants routed through the GRC members and grants to GRC directly. Further steps towards income diversity and sustainability are outlined in section 2.2.7.

2.5. Legal Status and Property Rights

2.5.1. National and Local Laws (G5.1)

No relevant laws and regulations have come into effect since the last verification (2015).

2.5.2. Free, Prior and Informed Consent (G5.3)

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 undertook a series of consultations with each of the identified stakeholder groups. 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, and in the design and implementation of project activities.

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 were 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) entered 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 was also signed to secure the transfer of carbon rights which is registered in Sierra Leone

2.5.3. Property Rights Protection (G5.4)

Management rights to the project area have been held by the Government of Sierra Leone since the Gola Forest Reserves were gazetted, 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 through a public-private partnership agreement obtained 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.

To date, all major groups of customary rights holders as well as other stakeholder groups actively participated in consultations and gave 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).

the Gola project works with local stakeholders to maintain consent during project implementation. All project activities conducted in the leakage belt are 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.

Boundary disputes occur on an ongoing basis, with disputes resolved in 2016,17 and one ongoing in 2019. See [Annex 3](#). Summary of Grievances and their resolution during the reporting period) for more detail.

2.5.4. Identification of Illegal Activity (G5.5)

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 is being used. Firstly, forest rangers 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 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 being implemented with all the Forest Edge Communities.

Other illegal activities that are occurring in 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 works 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. Between 2015 and 2018 patrols have effectively reduced small scale artisanal mining activities within the project area by about 50%. Restoration of open mining pits has also been part of the activities with trees planted in old mining site areas.

Snaring and hunting have been identified as an issue within the project area as this has become a refuge for many hunted species that cannot be found outside of the national park boundaries due to over hunting. Pressure from hunting may also be coming from across the border due to the high demand for bushmeat in Liberian markets. This may be driving Liberian and Sierra Leone hunters alike to enter the project area in search of high value bushmeat species such as colobus and duikers. Data from hunting signs collected by rangers shows hunting has remained constant throughout the years. For this reason joint patrols with armed officers from the Sierra Leone Police (SLP) and the Royal Sierra Leone Armed Forces (RSLAF) regularly patrol key hotspots and border areas. In addition, increased sensitization activities have been put in place to inform communities about Sierra Leone national laws regarding the hunting of protected species and the use of illegal firearms.

DRAFT

3 CLIMATE

3.1. Monitoring GHG Emission Reductions and Removals

3.1.1. Data and Parameters Available at Validation

Data / Parameter	Regional Forest Cover / Non-Forest Cover Benchmark Map
Data unit	ha
Description	Map showing the location of forest and non-forest areas in the Reference Region RRD at the beginning of the accreditation.
Source of data	Landsat satellite imagery
Value applied	See Table 7. Project areas forest cover.
Justification of choice of data or description of measurement methods and procedures applied	<p>The Landsat images have an adequate resolution (30m) and they are available to all public.</p> <p>For the first baseline period three maps are available 2001, 2007 and 2011. Cloud cover over the project boundaries was reduced to 0%. All land cover maps are >90% accurate. For more information see Mitchard 2012.</p> <p>For the second baseline period addition maps for 2018 were developed with less than 1% cloud cover and >90% accuracy. For more information See Teuten 2019.</p>
Purpose of the data	<p>Landsat imagery was used for all the purposes listed below:</p> <ul style="list-style-type: none"> • Determination of baseline scenario (AFOLU projects only). • Calculation of baseline emissions. • Calculation of project emissions. • Calculation of leakage.
Comments	<p>All forest areas are considered the same forest type, a mix of tropical evergreen to moist semi-deciduous. Stratification of the project area is based on management history and not forest type. Non-forest areas are predominantly crop fallow. Because the crop fallow has the highest biomass of any non-forest area in the region it is conservative to assume all non-forest is crop fallow.</p>

Data / Parameter	Project Forest Cover Benchmark Map
Data unit	ha
Description	Map showing the location of forest within the project area at the beginning of each monitoring period. The benchmark map will show the deforested areas at each monitoring event
Source of data	Landsat satellite imagery
Value applied	See Table 8. Project areas forest cover

Justification of choice of data or description of measurement methods and procedures applied	The Landsat images have an adequate resolution and they are an available tool to all public. All land cover maps are >90% accurate. Maps will be created at minimum ten years prior to baseline renewal. For more information on the land cover mapping for the first baseline see Mitchard 2012 and Teuten 2019.
Purpose of the data	<i>The project area forest benchmark map for 2011 was used for the first baseline period and map for 2018 is used for the second baseline period. Both are used to:</i> <ul style="list-style-type: none"> • Determine baseline scenario (AFOLU projects only) • Calculate baseline emissions • Calculate project emissions
Comments	All forest areas are considered the same forest type, a mix of tropical evergreen to moist semi-deciduous. Stratification of the project area is based on management history and not forest type. Non-forest area are predominantly crop fallow. Because the crop fallow has the highest biomass of any non-forest area in the region it is conservative to assume all non-forest is crop fallow.

Data / Parameter	Leakage Belt Forest Cover Benchmark Map
Data unit	ha
Description	Map showing the location of forest within the leakage belt at the beginning of each monitoring period. The benchmark map will show the deforested areas at each monitoring event
Source of data	Landsat satellite imagery
Value applied	See Table 9. Project areas forest cover
Justification of choice of data or description of measurement methods and procedures applied	The Landsat images have an adequate resolution and they are an available tool to all public. For the first baseline period three maps are available 2001, 2007 and 2011. Cloud cover over the project boundaries was reduced to 0%. All land cover maps are >90% accurate. For more information see Mitchard 2012. For the second baseline period addition maps for 2018 were developed with less than 1% cloud cover and >90% accuracy. For more information See Teuten 2019.
Purpose of the data	<i>The leakage belt forest cover bench mark map is used to:</i> <ul style="list-style-type: none"> • Calculate project emissions • Calculate leakage
Comments	All forest areas are considered the same forest type, a mix of tropical evergreen to moist semi-deciduous. Stratification of the project area is based on management history and not forest type. Non-forest area are predominantly crop fallow. Because the crop fallow has the highest biomass of any non-forest area in the region it is conservative to assume all non-forest is crop fallow.

Data / Parameter	Ai
Data unit	ha

Description	Area of stratum i
Source of data	Landsat satellite imagery & forest inventory in 2006
Value applied	See Table 10. Project areas forest cover
Justification of choice of data or description of measurement methods and procedures applied	The area of stratum was decided based on Landsat imagery and historic harvest intensity. The Landsat images were used to map forest and non-forest. For more information see Mitchard 2012 and Teuten 2019. The harvest intensity was based on historic logging concession areas and the forest inventory in 2006. The forest inventory found significantly lower (and growing) stocks in Goal South compared to Golan North/Central. This was the basis for stratification.
Purpose of the data	The forest strata was used to: <ul style="list-style-type: none"> • Determine baseline scenario (AFOLU projects only) • Calculate baseline emissions • Calculate project emissions
Comments	Ex-ante it is assumed that strata area will remain constant.

Data / Parameter	ARRD,unplanned,hrp																								
Data unit	ha																								
Description	Total area deforested during the historical reference period in the RRD																								
Source of data	Landsat satellite imagery																								
Value applied	<p>The annual area of unplanned deforestation in the RRD in the initial baseline is detailed in Section 3.1.1.1.1 Table 12 of the original Project Document (2015).</p> <table border="1"> <thead> <tr> <th></th> <th>Total area deforested during the historical reference period in the RRD</th> <th>Duration of the historical reference period</th> <th>Annual deforestation during the historic period in the RRD</th> </tr> <tr> <th></th> <th>Area_{ARRD,unplanned,t}</th> <th>T_{hrp}</th> <th>Area_{BSL,RRD,unplanned,t}</th> </tr> <tr> <th></th> <th>Hectares</th> <th>Years</th> <th>Hectares</th> </tr> </thead> <tbody> <tr> <td>Total RRD area</td> <td>31,150</td> <td>10</td> <td>3,115</td> </tr> <tr> <td>FR-RRD</td> <td>14,244</td> <td>10</td> <td>1,424</td> </tr> <tr> <td>BUFF-RRD</td> <td>16,907</td> <td>10</td> <td>1,691</td> </tr> </tbody> </table> <p>For the Second baseline it is detailed in Section 4.1.7 of the updated Project Document (2020).</p>		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 _{ARRD,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
	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																						
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	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}	$Area_{SSL,RRD,unplanned,t}$
	Hectares	Years	Hectares
Total RRD area	53,974	11.9	4,529
FR-RRD	27,845	11.9	2,337
BUFF-RRD	25,585	11.9	2,147

Justification of choice of data or description of measurement methods and procedures applied	Landsat imagery was used to determine the total area deforested during the first historical reference period (baseline) 2001-2011 and again during the second baseline 2007-2018. The Landsat images have the adequate resolution and they are a free and available tool to all public. For more information see Mitchard 2012 and Teuten 2019.
Purpose of the data	The total area deforested during the historic reference period was used to: <ul style="list-style-type: none"> • Determine baseline scenario (AFOLU projects only) • Calculate baseline emissions
Comments	Monitored for the purpose of baseline revisions

Data / Parameter	CF
Data unit	t C t-1 d.m.
Description	Carbon fraction of dry matter
Source of data	Value taken from IPCC 2006 INV GLs AFOLU Chapter 4 Table 4.3
Value applied	0.47 t C t-1 d.m
Justification of choice of data or description of measurement methods and procedures applied	Default value 0.47 t C t-1 d.m. can be used, or species specific values from the literature (e.g. IPCC 2006 INV GLs AFOLU Chapter 4 Table 4.3)
Purpose of the data	The Carbon fraction for dry wood was used to: <ul style="list-style-type: none"> • Calculate baseline emissions • Calculate project emissions • Calculate leakage
Comments	NA

Data / Parameter	CF _j
Data unit	t C t ⁻¹ d.m.

Description	Carbon fraction of biomass for tree species j
Source of data	Species- or family-specific values from the literature (e.g. IPCC 2006 INV GLs AFOLU Chapter 4 Table 4.3) shall be used if available, otherwise default value of 0.47 t C t ⁻¹ d.m. can be used.
Value applied	0.47 t C t ⁻¹ d.m
Justification of choice of data or description of measurement methods and procedures applied	Default value 0.47 t C t ⁻¹ d.m. can be used, or species specific values from the literature (e.g. IPCC 2006 INV GLs AFOLU Chapter 4 Table 4.3)
Purpose of the data	The Carbon fraction for dry wood was used to: <ul style="list-style-type: none"> • Calculate baseline emissions • Calculate project emissions • Calculate leakage
Comments	Where new species are encountered in the course of monitoring, new carbon fraction values must be sourced from the literature or otherwise use the default value.

Data / Parameter	Dj
Data unit	t d.m. m ⁻³
Description	Basic wood density in t d.m. m ⁻³ for species j.
Source of data	Wood density data were gathered from published databases (Chave et al. 2005; Zanne et al. 2009; Henry et al. 2010). For 30 species, no species- or genus-specific data were available. The mean wood density of all recorded species was 0.59 g cm ⁻³ .
Value applied	See Project's Master Excel named "Baseline_verification_2020_10142020" tab "wood density"
Justification of choice of data or description of measurement methods and procedures applied	Wood density data were gathered from published databases (Chave et al. 2005; Zanne et al. 2009; Henry et al. 2010) and were available for 59.4 % of recorded tree species (65.2 % of trees). If species-specific data were not available we used, in order of priority, the genus mean (26.1% of trees), the mean of all other known species in the same plot (8.5% of trees), the mean of all other known genera in the same plot if no species were identified (0.01%) or the family mean (0.005%). For 30 species, no species- or genus-specific data were available. The mean wood density of all recorded species was 0.59 g cm ⁻³ .
Purpose of the data	The basic wood density was used to: <ul style="list-style-type: none"> • Calculate baseline emissions • Calculate project emissions • Calculate leakage
Comments	

Data / Parameter	Dmn
Data unit	t d.m.m ⁻³

Description	t d.m.m ⁻³
Source of data	Mean wood density of commercially harvested species
Value applied	NA (for all wood densities see parameter Dj)
Justification of choice of data or description of measurement methods and procedures applied	NA (for all wood densities see parameter Dj)
Purpose of the data	NA
Comments	NA

Data / Parameter	fj (X,Y)
Data unit	t d.m. tree ⁻¹
Description	Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees, expressed as t d.m. tree ⁻¹
Source of data	Formulas have been taken from: Chave, J, et. al. 2005. Tree allometry and improved estimation of carbon stocks and balance in tropical forests. <i>Oecologia</i> 145: 87-99. The final model selected for above-ground biomass is the model for moist forest found in Chave et al. (2005) based on DBH, height and wood density. See Project's Master Excel named "Baseline_verificaton_2020_10142020"
Value applied	Exp(-2.977 + ln(ρ D ² H)) exp(-1.576 + 2.179 ln(D) + 0.198
Justification of choice of data or description of measurement methods and procedures applied	The applicability of the selected model from Chave et al. (2005) was tested using a 'limited measurements' approach (see VMD0001). The data used for the limited measurements analysis consist of a random sample of 100 trees (with DBH>20cm) taken from the survey data of 2005 – 2007. Stem volume and biomass were calculated following VMD0001. Out of the sample of 100 measurements, 60 of the trees have a greater biomass when using the Chave et al. (2005) equation than the volume*BEF approach. This is within the limits set in VMD0001, confirming the validity of the model for Gola Forest.
Purpose of the data	<i>The allometric equation for tree biomass was used to:</i> <ul style="list-style-type: none"> • Calculate baseline emissions • Calculate project emissions • Calculate leakage
Comments	

3.1.2. Data and Parameters Monitored

Data / Parameter	Project Forest Cover Monitoring Map
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Data unit	ha
Description	Map showing the location of forest land within the project area at the beginning of each monitoring period. If within the Project Area some forest land is cleared, the benchmark map must show the deforested areas at each monitoring event
Source of data	Landsat imagery or other similar Satellite images and field verification of deforested areas if any (GPS).
Description of measurement methods and procedures to be applied	By using satellite images and remote sensing to map forest and non-forest covering the Project Area it would be determined if there are any variations in the forest in the project area. All maps will be >90% accurate.
Frequency of monitoring/recording	Every 5 years (or less) with images. Verification of deforested areas will be continually monitored in field by the project staff.
Value monitored	NA
Monitoring equipment	Landsat imagery or other similar. Remote sensing software (e.g. ENVI)
QA/QC procedures to be applied	Field based accuracy assessment including accuracy assessment from high resolution imagery (<10m).
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • Calculation of project emissions
Calculation method	These results are from the GIS analysis of land cover change for the RRL including new land cover maps. The GIS layer is developed by using the ArGIS tool "combine" and combining the new land cover maps See Project's Master Excel named "Baseline_verificaton_2020_10142020"
Comments	

Data / Parameter	Leakage Belt Forest Cover Monitoring Map
Data unit	ha
Description	Map showing the location of forest land within the leakage belt at the beginning of each monitoring period. If within the Project Area some forest land is cleared, the benchmark map must show the deforested areas at each monitoring event
Source of data	Landsat imagery or other similar Satellite images and field verification of deforested areas if any (GPS).
Description of measurement methods and procedures to be applied	By using satellite images and remote sensing to map forest and non-forest covering the Project Area it would be determined if there are any variations in the forest in the project area. All maps will be >90% accurate.
Frequency of monitoring/recording	Every 5 years (or less) with images. Verification of deforested areas will be continually monitored in field by the project staff.
Value monitored:	NA
Monitoring equipment	Landsat imagery or other similar. Remote sensing software (e.g. ENVI)

QA/QC procedures to be applied	Field based accuracy assessment including accuracy assessment from high resolution imagery (<10m).
Purpose of data	Indicate one of the following: <ul style="list-style-type: none"> • Calculation of leakage
Calculation method	These results are from the GIS analysis of land cover. The GIS layer is developed by using the ArGIS tool "combine" and combining the new land cover maps See Project's Master Excel named "Baseline_verificaton_2020_10142020"
Comments	

Data / Parameter	Degradation PRA Results
Data unit	Percent of response indicating degradation
Description	The PRA will be executed from interviews and/or surveys to local actors with the purpose of identifying the existence of degradation potential within the area of the project due to: <ul style="list-style-type: none"> - Extraction of firewood. - Illegal logging <p>If $\geq 10\%$ of the surveys indicate that there is a risk of degradation then the procedures to verify and estimate the degradation should be executed. An additional result of the PRA would be the penetration distance that should be applied to calculate the area with degradation potential (buffer area).</p>
Source of data	PRA
Description of measurement methods and procedures to be applied	The PRA will be conducted every 2 years. If the results indicate that the project area has no pressure from this type of degradation, then it will be assumed that: $\Delta C_{p,Deg,i,t} = 0$. If the results of the PRA indicate that there is potential for degradation, then it must: <ul style="list-style-type: none"> - 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. - Transects will be established 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 is 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

	<p>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.</p> <p>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 2005 Equation -- $\text{Exp}(-2.977 + \ln(\rho D^2 H))$)</p> $\text{exp}(-1.576 + 2.179 \ln(D) + 0.198).$ <p>- It will be assumed that all stock will be lost to the atmosphere.</p>
Frequency of monitoring/recording	This assessment will be repeated every 5 years.
Value monitored:	NA
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of data	<p>Indicate one of the following:</p> <ul style="list-style-type: none"> • Calculation of project emissions
Calculation method	
Comments	

Data / Parameter	Result of Limited Degradation Survey
Data unit	
Description	This will be sampled by surveying several transects of known length and width across the access-buffer area (equal in area to at least 1% of A _{Deg,i}) to check whether new tree stumps are evident or not.
Source of data	PRA
Description of measurement methods and procedures to be applied	NA
Frequency of monitoring/recording	Will be repeated each time the PRA indicates a potential for degradation
Value monitored:	NA
Monitoring equipment	GPS Measuring tape DBH tape Camera Data collection sheets

	Other required equipment
QA/QC procedures to be applied	Blind checks will be conducted by field team leads. Hot checks will be conducted by other field staff on a regular basis.
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • Calculation of project emissions
Calculation method	NA
Comments	

Data / Parameter	ADefPA,i,u,t
Data unit	ha
Description	Area of recorded deforestation in the project area in stratum i converted to land use u at time t in hectares
Source of data	Landsat satellite images.
Description of measurement methods and procedures to be applied	The images used will be compatible with the ones already used in the estimations ex-ante in order to be compared.
Frequency of monitoring/recording	The data will be assessed at least every 5 years or if verification occurs
Value monitored:	NA
Monitoring equipment	Landsat imagery or other similar. Remote sensing software (e.g. ENVI)
QA/QC procedures to be applied	Field based accuracy assessment including accuracy assessment from high resolution imagery (<10m).
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • Calculation of project emissions
Calculation method	These results are from the GIS analysis of land cover. The GIS layer is developed by using the ArGIS tool "combine" and combining the new land cover maps See Project's Master Excel named "Baseline_verification_2020_10142020"
Comments	According to what has been observed on each monitoring, it has been considered to be zero for project scenario.

Data / Parameter	ADefLB,i,u,t
Data unit	ha
Description	Area of recorded deforestation in the leakage belt in stratum i converted to land use u at time t in hectares
Source of data	Landsat satellite images.

Description of measurement methods and procedures to be applied	The images used will be compatible with the ones already used in the estimations ex-ante in order to be compared.
Frequency of monitoring/recording	The data will be assessing at least every 5 years or if verification occurs
Value monitored:	NA
Monitoring equipment	Landsat imagery or other similar. Remote sensing software (e.g. ENVI)
QA/QC procedures to be applied	Field based accuracy assessment including accuracy assessment from high resolution imagery (<10m).
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • Calculation of leakage
Calculation method	These results are from the GIS analysis of land cover. The GIS layer is developed by using the ArGIS tool "combine" and combining the new land cover maps See Project's Master Excel named "Baseline_verificaton_2020_10142020"
Comments	

Data / Parameter	ADECKS,I,t
Data unit	ha
Description	Area of logging decks in stratum i at time t in hectares
Source of data	Landsat satellite images.
Description of measurement methods and procedures to be applied	NA
Frequency of monitoring/recording	NA
Value monitored:	NA
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of data	NA
Calculation method	NA
Comments	

Data / Parameter	ADegW,i
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Data unit	ha
Description	Area potentially impacted by degradation processes in stratum i in hectares
Source of data	PRA
Description of measurement methods and procedures to be applied	<p>The PRA will be executed from interviews and/or surveys to local actors with the purpose of identifying the existence of degradation potential within the area of the project due to:</p> <ul style="list-style-type: none"> - Extraction of firewood. - Illegal logging <p>If $\geq 10\%$ of the surveys indicate that there is a risk of degradation then the procedures to verify and estimate the degradation should be executed. An additional result of the PRA would be the penetration distance that should be applied to calculate the area with degradation potential (buffer area).</p>
Frequency of monitoring/recording	Every 2 years
Value monitored:	NA
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of data	<p>Indicate one of the following:</p> <ul style="list-style-type: none"> • Calculation of project emissions
Calculation method	<p>The PRA will be conducted every 2 years. If the results indicate that the project area has no pressure from this type of degradation, then it will be assumed that: $\Delta C_{p, Deg, i, t} = 0$.</p> <p>If the results of the PRA indicate that there is potential for degradation, then it must:</p> <ul style="list-style-type: none"> - 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. - Transects will be established 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 is 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

	<p>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.</p> <p>-</p> <p>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 2005 Equation -- $\text{Exp}(-2.977 + \ln(\rho D^2 H))$)</p> $\text{exp}(-1.576 + 2.179 \ln(D) + 0.198).$ <p>It will be assumed that all stock will be lost to the atmosphere.</p>
Comments	

Data / Parameter	ADistPA,q,i,t
Data unit	Ha
Description	Area impacted by natural disturbance in the project stratum <i>i</i> converted to natural disturbance stratum <i>q</i> at time <i>t</i> , in hectares
Source of data	<p>Satellite images, field monitoring and:</p> <ul style="list-style-type: none"> - United States Geologic Society (USGS) and Incorporated Research Institute for Seismology (IRIS) Seismic Monitor¹². - National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center, International Best Track Archive for Climate Stewardship (IBTrACS)¹³. - MODIS Active Fire and Burned Area Product¹⁴.
Description of measurement methods and procedures to be applied	Any disturbance detected will be evaluated with Landsat imagery and ground verification using a GPS.
Frequency of monitoring/recording	This will be monitored on an annual basis.
Value monitored:	NA
Monitoring equipment	<p>United States Geologic Society (USGS) and Incorporated Research Institute for Seismology (IRIS) Seismic Monitor¹⁵.</p> <ul style="list-style-type: none"> - National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center, International Best Track Archive for Climate Stewardship (IBTrACS)¹⁶. <p>MODIS Active Fire and Burned Area Product¹⁷.</p>

¹² <http://www.iris.edu/dms/seismon.htm>

¹³ <http://www.ncdc.noaa.gov/oa/ibtracs/index.php?name=ibtracs-data>

¹⁴ <http://modis-fire.umd.edu/index.html>

¹⁵ <http://www.iris.edu/dms/seismon.htm>

¹⁶ <http://www.ncdc.noaa.gov/oa/ibtracs/index.php?name=ibtracs-data>

¹⁷ <http://modis-fire.umd.edu/index.html>

QA/QC procedures to be applied	NA
Purpose of data	Indicate one of the following: <ul style="list-style-type: none"> Calculation of leakage
Calculation method	NA
Comments	Ex-anti estimation of disturbance has been assessed based on the historic incidence

Data / Parameter	AROAD,i,t
Data unit	Ha
Description	Area of roads in stratum i at time t in hectares
Source of data	Field measurements or reported measurements such as post-harvest assessment reports and post-harvest maps that are based on field measurements
Description of measurement methods and procedures to be applied	No logging NA
Frequency of monitoring/recording	NA
Value monitored:	NA
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of data	NA
Calculation method	NA
Comments	NA

Data / Parameter	ARRL,forest,t
Data unit	Ha
Description	Remaining area of forest in RRL at time t in hectares
Source of data	Landsat satellite imagery
Description of measurement methods and procedures to be applied	Landsat imagery or other similar. Remote sensing software (e.g. ENVI)
Frequency of monitoring/recording	Remaining forest area will be updated at least every 5 years or at verification.

Value monitored:	NA
Monitoring equipment	- Landsat imagery or other similar. - Remote sensing software (e.g. ENVI)
QA/QC procedures to be applied	Field based accuracy assessment including accuracy assessment from high resolution imagery (<10m)
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • Calculation of project emissions • Calculation of leakage
Calculation method	These results are from the GIS analysis of land cover. The GIS layer is developed by using the ArGIS tool "combine" and combining the new land cover maps See Project's Master Excel named "Baseline_verification_2020_10142020"
Comments	Ex-anti estimation has been made of deforestation in the project case following BL-UP

Data / Parameter	<i>APi</i>
Data unit	Ha
Description	Total area of degradation sample plots in stratum i
Source of data	Ground measurement
Description of measurement methods and procedures to be applied	<i>See parameter PRA</i>
Frequency of monitoring/recording	<i>Every 2 years</i>
Value monitored:	NA
Monitoring equipment	NA
QA/QC procedures to be applied	NA
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • Calculation of project emissions
Calculation method	NA
Comments	

Data / Parameter	CDegW,i,t
Data unit	t CO ₂ -e

Description	Biomass carbon of trees cut and removed through illegal logging and fuelwood and charcoal extraction degradation process from plots measured in stratum i at time t
Source of data	Field measurement
Description of measurement methods and procedures to be applied	The diameter of all tree stumps in the designated plots will be measured and conservatively assumed to be the same as the DBH. If the stump is a large buttress, several individuals of the same species nearby will be identified and a ratio of the diameter at DBH to the diameter of buttress at the same height above ground as the measured stumps will be determined. This ratio will be applied to the measured stumps to estimate the likely DBH of the cut tree. The above and below ground carbon stock of each harvested tree will be estimated using the same allometric regression equation and root to shoot ratio used in the module for estimating the carbon pool in trees (CP-AB) in the baseline scenario.
Frequency of monitoring/recording	Must be monitored 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
Value monitored:	NA
Monitoring equipment	GPS Measuring tape DBH tape Camera Data collection sheets Other required equipment
QA/QC procedures to be applied	Blind check will be conducted by field team leads. Hot checks will be conducted by other field staff on a regular basis.
Purpose of data	<i>Indicate one of the following:</i> <ul style="list-style-type: none"> • <i>Calculation of project emissions</i>
Calculation method	NA
Comments	This will only occur if the Degradation PRA Results indicate logging is occurring

3.1.3. Monitoring Plan

3.1.3.1. Overview

The project activities 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 rangers are overseen by the Superintendent of Park Operations and supported by the technical advisor for Park Operations. The Park Operations team uses the software SMART (Management Information System), which is a database management system designed for conservation management needs, to collate

information gathered by 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 climate monitoring follows VM0007 REDD+ Methodology Framework which includes the use of: 1) VCS Module VMD0007 for the estimation of baseline carbon stock changes and GHG emission from unplanned deforestation (BL-UP), 2) VMD0010 for the estimation of emission from activity shifting for avoiding unplanned deforestation (LK-ASU), and 3) VMD0015 for the monitoring of GHG emissions and removals (M-MON). The establishment of the baseline and leakage is detailed in the Gola REDD Project Document from 2015 and 2020. The baseline and leakage is also summarized in this report (Section 3.2) along with the monitoring.

The Community Development team is responsible for implementing all of the activities that involve local stakeholders. A Community Monitoring Plan was developed to monitor all relevant indicators of this component of the project (Henman 2013) and includes both surveys and standard operating procedures to gather information to ascertain progress and impact of the project throughout its lifetime.

The third area of activities surrounds the research work that is carried out for measuring and enhancing biodiversity in and around the project area. A Monitoring Plan was developed (Hillers and Tatum-Hume 2013) and the methodologies and protocols to collect the required data are available to the auditor for review through a series of Standard Operating Protocols (SOP).

3.1.3.2. Organizational structure, responsibilities, and competencies

Please see Annex 4. Roles and responsibilities of key GRC management staff for the detailed roles, responsibilities and competencies following the organizational structure below (Figure 3).

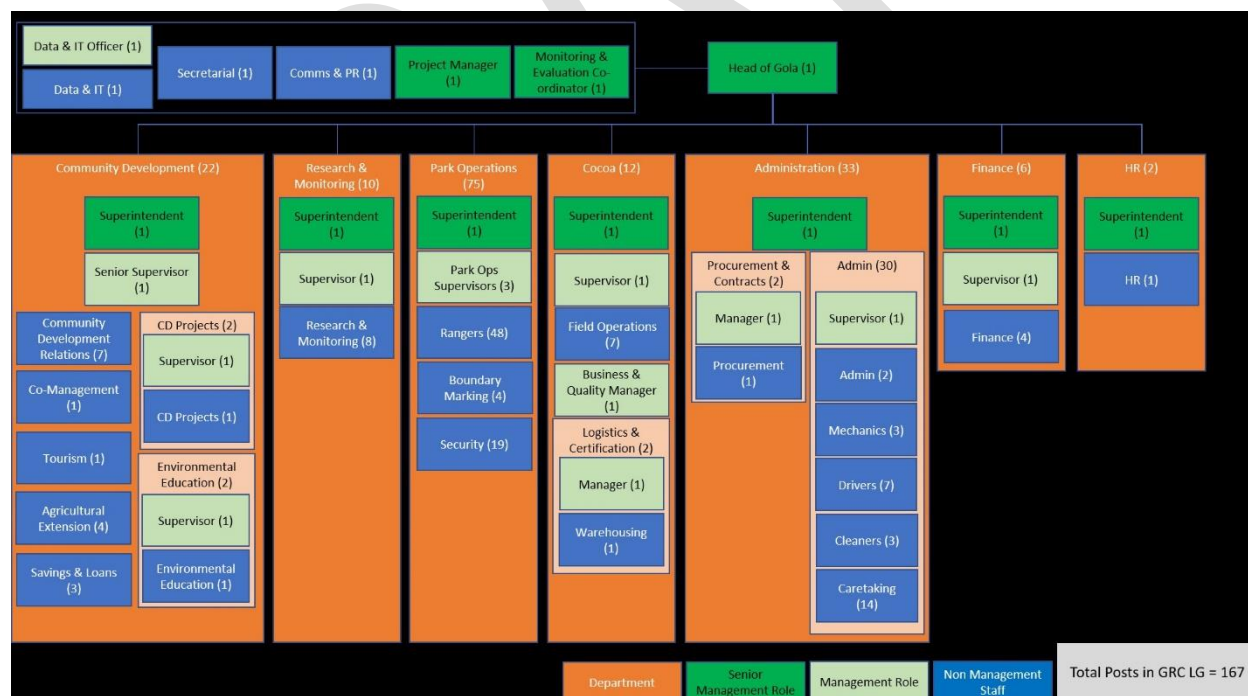


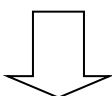
Figure 3. Organisational structure of the Gola Rainforest National Park Management Department of the Gola Rainforest Conservation LG.

3.1.3.3. Data generation, storage, and reporting

Generation, recording, storing, aggregating, collating and reporting of data is 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 correctly entered and stored in the database 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.

Additionally, the team relies on a 'cloud storage' platform (Dropbox) for the compilation of reports and data analysis to ensure effectiveness between the team sitting in the project office in Kenema and the one in the UK offices of the RSPB.

Data Generation	Storage	Archiving and reporting
Park Ops	Field data	Monthly progress reports
Forest Rangers &	- Surveys and GPS	
	to management,	bi-annual
Technical Advisor	- SMART database at project office	synthesis reports
Social monitoring	Field data	Monthly progress reports
CD team & Technical	Activity and longitudinal surveys,	
	to management	bi-annual
Advisor	activity data	synthesis reports
	- Excel databases at project office	
Biodiversity monitoring	Field data	Monthly progress reports
Research team & technical	- Surveys	to management, bi-annual
Advisor	- Excel databases at project office	synthesis reports
GIS information	- Geo-databases	Annual reports
RSPB and field support Analysis of imagery etc		
From research team & - Arc view, MODIS etc databases		
Data management staff held by RSPB and shared with office		



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
- External Publications

Figure 4 Data generation, storage and reporting

3.1.3.4. Internal auditing and non-conformities

The project has a standard operating procedure for measuring carbon stocks (specifically for Gola South). All monitoring events must conduct QA/QC, must document how the QA/QC was followed and provide an analysis of measurement error.

All team members have initially been fully trained in all aspects of data collection and analysis and should be fully cognizant of all procedures and the importance of collecting data as accurately as possible. The data sheets are checked carefully after the Research Technicians return to the office in order to make sure that no necessary information was left out. In addition, two checks are made to provide unbiased estimates of measurement variance; hot checks to correct errors in techniques and blind checks to estimate the field measurement error. Checks were done for the Gola South measurements as per the SOP.

3.1.3.5. Implementation of climate monitoring

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 trigger¹⁸ or more frequent baseline renewal based on the methods written in the Methodology Module VMD0007:

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.

¹⁸ 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 the project area, major natural disturbance, a new influx of immigrants due to unforeseen events like refugees.

- Estimate the total area deforested during the historical reference period in the reference region for rate - RRD (ARRD,unplanned,hrp).

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 was applied as per M-MON and detailed in Section 3.2.

Selection and analyses of sources of land-use and land-cover (LU/LC) change data

Monitoring of the Project Area and Leakage Belt was 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 Section 3.2). This includes Landsat (or most similar dataset to Landsat) and ALOS PALSAR. It is carried out by the RSPB's Data Management team which includes a GIS analyst. If for any reason the sensors used for the baseline are not available the most similar sensor type is used to replace it.

For the calculation of each category of land use change:

- The area of each category within the project area is calculated in the project area and leakage belt
- The forest cover maps of reference for the project area and leakage belt is updated
- The remaining forest area within the project zone is updated

Following M-MON the data is collected for the entire reference region and no more or less than 1 year from the data of baseline renewal. The entire Project Area and Leakage Belt is available for the year that monitoring and verification occurs.

Processing LU/LC Change Data

All remote sensed data is 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 follows the same methods used in the development of the baseline (Mitchard 2012).

Post-processing and accuracy assessment

Post processing follows BL-UP and M-MON guidance and strict scientifically approved methods. This includes mapping areas of change and calculating the area of each category in both the Project Area and Leakage Belt following the same methods used to establish the baseline (See Mitchard 2012 and Teuten 2019 and 2020). This enables the updating of the forest cover benchmark maps and updating of the remaining area of forest in the RRL.

To avoid issues of cloud cover obscuring the image, we use multi-date images for the remote sensing analysis to ensure less than 10% cloud cover as was done in the initial analysis.

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 and Teuten 2019 and 2020).

A detailed accuracy assessment is conducted and all efforts made to achieve the required 90% accuracy of the overall classification.

Change detection

To assess land cover change a "combined" (i.e. cross-tabulation) was used to create a single map where each pixel represents a unique combination of class over the entire period. The maps that are combined

are classified into 3 classes - forest, non-forest and water. All pixels that are classified as “water” at any of the time points are reclassified into a single water class to avoid accounting for deforestation as the conversion of forest to water.

Monitoring deforestation

Monitoring of emission resulting from deforestation that occurs in the Project Area and Leakage Belt is conducted following common good practice in the remote sensing field, and every effort is made to follow the same methods as were used in the baseline. Following from Step 1 BL-UP “Selection and analyses of sources of land-use and land-cover (LU/LC) change data” produces an estimate of the emissions resulting from any deforestation that occurs within the project area and leakage belt ($\Delta CP, Def, i, t$).

The calculation of net carbon stock change as a result of deforestation follows M-MON and any other referenced VM0007 Modules (e.g. CP-W).

Monitoring Degradation through felling of trees for illegal timber, fuelwood and charcoal

Emissions due to extraction of trees is 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 is conducted every 2 years (one due in end 2015) 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: $\Delta Cp, Deg, i, t = 0$.
 - 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 $\Delta Cp, Deg, i, t = 0$ 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 is monitored on an annual basis, using a variety of remote sensing data types and on the ground knowledge. Tectonic activity and landslides are rare in the Project Area, but it is monitored on an annual basis through the United States Geologic Society (USGS) and Incorporated Research Institute for Seismology (IRIS) Seismic Monitor¹⁹. Any earthquakes are also monitored through reports on the ground. All the data is 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 investigates the extent of the damage through satellite imagery. Landsat satellite imagery is downloaded and every effort to accurately delineate and forest loss is implemented. If Landsat is not available or sufficient, other remote sensing data are investigated. Any event is also investigated on the ground by field crews. Field crews assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes follows M-MON.

Landslides are not a major natural risk in the project area²⁰. However, monitoring of these events is 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 is downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring.

Extreme weather and drought, is monitored on an annual basis through National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center, International Best Track Archive for Climate Stewardship (IBTrACS)²¹. Any extreme weather events and drought are monitored through reports on the ground. All the data is downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring. If an event occurs that could have affected carbon stocks in the Project Area or Leakage Belt the project investigates the extent of the damage through satellite imagery. Landsat satellite imagery will be downloaded and every effort to accurately delineate and forest loss is implemented. If Landsat is not available or sufficient, other remote sensing data is investigated. Any event is also investigated on the ground by field crews. Field crews assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes follows M-MON.

Pests, are unknown to cause major forest die-back in the Project Area, however every effort is made to monitor it. There are no current monitoring methods in Sierra Leone for pests. The GRNP project staff makes every effort to monitor this on the ground. If an event occurs that could have affected carbon stocks in the Project Area or Leakage Belt the project investigates the extent of the damage through satellite imagery. Landsat satellite imagery is downloaded and every effort to accurately delineate and forest loss is implemented. If Landsat is not available or sufficient, other remote sensing data is investigated. Any event is also investigated on the ground by field crews. Field crews assess the extent

¹⁹ <http://www.iris.edu/dms/seismon.htm>

²⁰ Columbia University Center for International Earth Science Information Network (CIESIN). <http://sedac.ciesin.columbia.edu/theme/hazards/data/sets/browse>

²¹ <http://www.ncdc.noaa.gov/oa/ibtracs/index.php?name=ibtracs-data>

and carbon loss on the ground through field measurements. The quantification of carbon stock changes follows M-MON.

Fire is monitored on an annual basis through assessments of MODIS Active Fire and Burned Area Product²². Because the MODIS data can be very sensitive to even small controlled burns from slash and burn agriculture this data is cross referenced with visual inspection of burned areas in Landsat imagery for every year. Fire is also monitored through reports on the ground. All the data is downloaded and written-up on an annual basis and stored with all other documentation collected for monitoring. If an event occurs that could have affected carbon stocks in the Project Area or Leakage Belt the project investigates the extent of the damage through satellite imagery. Landsat satellite imagery is used to accurately delineate the area of forest loss. If Landsat is not available or sufficient, other remote sensing data is investigated. Any event is also investigated on the ground by field crews. Field crews assess the extent and carbon loss on the ground through field measurements. The quantification of carbon stock changes follows M-MON.

Monitoring areas undergoing carbon stock enhancement

The Gola REDD Project monitors 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 is to be conducted to ensure this is not occurring (See Monitoring Degradation).

Carbon stock enhancements are measured based on permanent plots established in 2006 and was revisited in 2012 (Tatum-Hume et al 2013b). Enhancements are monitored following M-MON. All the plots were re-measured in 2018 (see Swinfield 2020) following Standard Operating Procedures for Carbon Stock Enhancement.

Monitoring project emissions

Emissions from non-CO₂ due to biomass burning are 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 are 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.

Documentation

A consistent time-series analysis of land-use change and the associated emission is monitored following M-MON steps 1-2. The procedures for steps 1-2 include:

- 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 is monitored in each monitoring period ($A_{DefLB,i,t}$). The same methods for monitoring deforestation in the project area are used for the leakage belt.

The leakage belt is monitored each time the project area is monitored ($A_{DefPA,i,t}$), which is at least every 5 years or if verification occurs on a frequency of less than every 5 years examination occurs prior to any verification event.

Development of a comprehensive monitoring plan

A full monitoring plan was developed. The results of monitoring and verification are made publically available on the project website and disseminated to communities and stakeholders through radio shows, meetings and notice boards, amongst other methods.

3.1.4. Dissemination of Monitoring Plan and Results (CL3.2)

Results are fed back to the communities through number of channels:

- (i) via the Paramount Chiefs (PC) and section chiefs. The council of seven paramount chiefs, one from each of the seven chiefdoms surrounding GRNP, select one Paramount Chief each year to be a GRC Director. The Directors hold quarterly meetings during which project progress and results are discussed. The PC Director then holds quarterly meetings with the PC Council after the GRC Directors meeting and feedback this information to them to discuss with section chiefs and community members.
- (ii) The GRC community development team, supported by other departments hold community meetings organized by the Gola Community Development Committees (GCDCs), to ensure that all communities in the leakage belt are informed of program results. During these meetings community members have the opportunity to raise any issues and provide feedback. All communities have re-fresher meetings to discuss potential impacts and solutions. In addition, the Community Development Relations Officers (CDROs), 1 for each chiefdom, work at chiefdom level, including visits to the FECs to open communication channels, raise awareness, and monitor project implementation (activities and impact) in

collaboration with the GCDCs. The GCDC members are elected locally and act as an important bridge between the Gola staff and communities.

The GCDCs also:

- Provide assess and monitor community based natural resource use;
- promote community participation in forest protection and enforcement activities.
- Document community institutions and institutional bylaws and provide information on institutional role and methodology in conservation.
- Contribute to the planning, coordination and implementation of capacity building and training of communities for forest management and related activities.
- Provide information, guidance, assistance, assess and monitor on sustainable community-based conservation and natural resource use and management.
- Monitor and evaluate community attitudes towards conservation and the Gola Rainforest National Park.
- Mediate and facilitate between local communities and Gola Rainforest National Park staff where necessary in developing trust and resolving conflict.
- Assist in the effective monitoring of community development project activities.

Input and feedback from communities is very valuable and CRDOs collect all such feedback and, on return to the office, collate all information received to be shared with the Superintendent and other relevant staff.

(iii) Community roadshows play an innovative and key role in communicating the project to communities in the project zone. As the majority of community members are illiterate, roadshows conducted in Mende, the local language and disseminated information on survey results, program progress and results and area conduit for on a range of topics feedback. Presentations are given using video, picture presentations, drama, songs and competitions.

3.2. Quantification of GHG Emission Reductions and Removals

3.2.1. Baseline Emissions

The Gola REDD Project Monitoring Report quantifies baseline GHG emission reduction and removals following VM0007 REDD+ Methodology Framework Module VMD0007 for the estimation of baseline carbon stock changes and GHG emission from unplanned deforestation (BL-UP). The Gola REDD Project renewed its baseline deforestation numbers in 2018, therefore the monitoring of avoided deforestation used the original baseline (developed in the Project Document 2015) ex-ante calculations through 2018, and after 2018 uses the renewed baseline detailed in the new Project Document 2020.

The original baseline established ex-ante deforestation over the historical period 2001-2011 (Project Document 2015). The renewed baseline established a new historical reference period for 2007-2018 (Project Document 2020). The with-project ex-post deforestation and GHG emissions were first monitored and verified in 2015 for the period 2012-2015 (MIR 2015). This monitoring report measures ex-post deforestation against the original baseline through 2018 and then after 2018 using the renewed baseline.

The updated baseline applies consistent methods and sources of data as the original, but reflects the more recent historical time period of 2007-2018. In accordance with module BL-UP, the baseline deforestation rate was calculated from a Reference Region for Deforestation (RRD) and the rate of

deforestation was applied to the Project Area and Leakage Belt (together referred to as the Reference Region for Location – RRL) using spatial modelling²³.

Following the methodology deviation, presented in Section 2.6 of the Project Document and approved during previous validation and verification, uses two deforestation rates: 1) within forest reserves (FR-RRD) applied to the Project Area (PA), and 2) buffer area around forest reserves (BUFF-RRD) applied to the Leakage Belt (LB). All other methodology requirements were followed.

3.2.1.1. Definition of the spatial boundaries

All project boundaries remained the same as those defined in the original Project Document (2015) and detailed in the baseline report Netzer and Walker 2013. The original baseline used the historical reference period of 2001-2011, and the renewed baseline used the period of 2007-2018. The area of forest in each of these project boundaries is presented in **Table 11**. There are small discrepancies in the forest area (<0.5%) with past reports due to small inconsistencies in remote sensing and small changes in the project boundary as the Gola project staff have worked over the years to improve the demarcation of National Park.

Table 11. Project areas forest cover.

	Forest area 2001	Forest area 2007	Forest area 2011*	Forest area 2015	Forest area 2018*	Forest area 2019
Ha						
Project Area	69,637	69,683	68,498	68,445	68,340	68,293
Gola South	-	25,872	25,434	25,397	25,351	25,346
Gola Central/North	-	43,811	43,064	43,048	42,989	42,947
Leakage Belt	76,747	73,365	62,882	55,658	48,452	45,020
RRL	146,384	143,048	131,380	124,103	116,792	113,313
RRD	161,728	148,668	118,402	**	84,022	**

* Benchmark forest years that establish the start to the two different baseline assessments

** Years when the RRD was not mapped

²³ The population driver approach was not used.

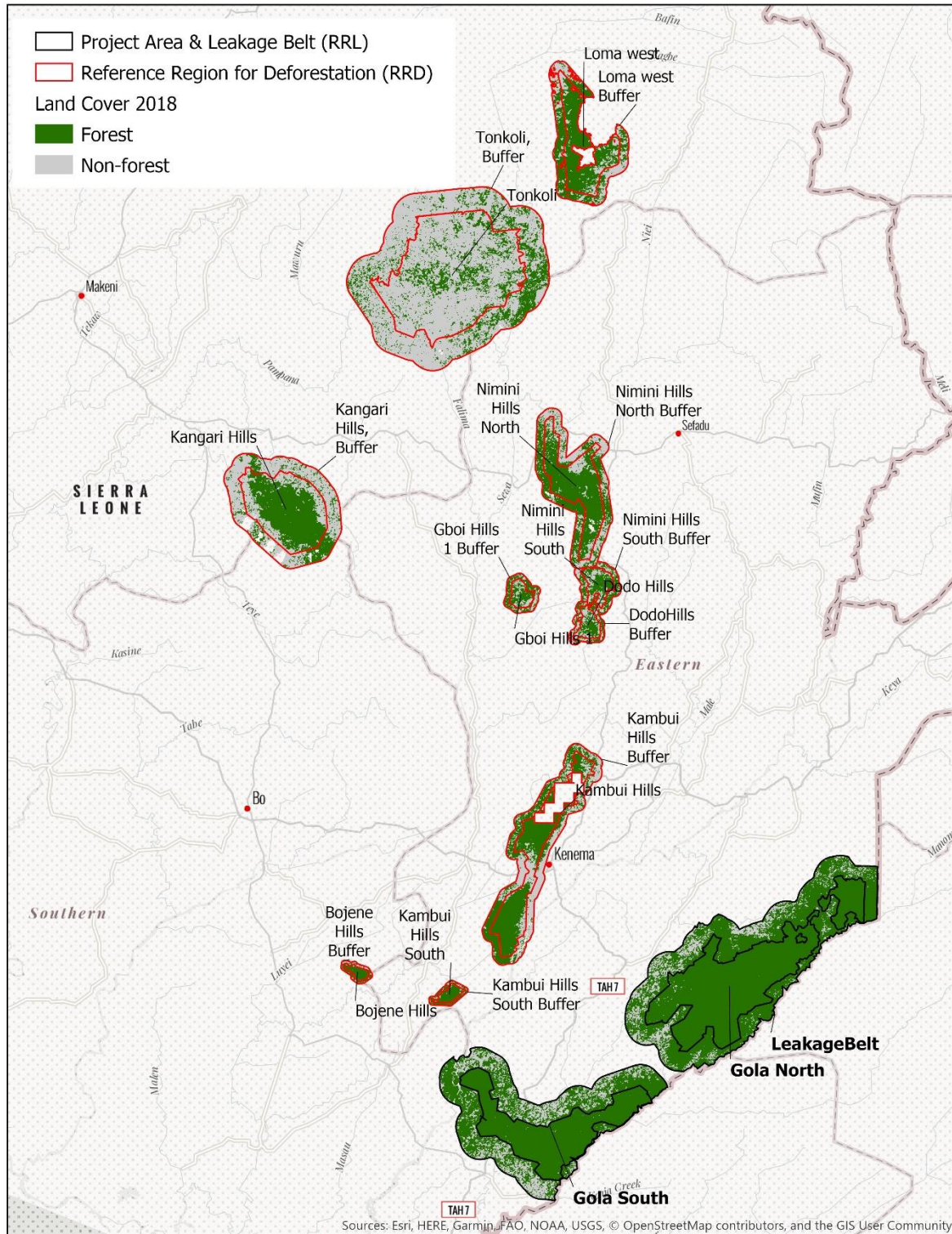


Figure 5. Project areas for the Gola REDD Project and land cover for 2018.

3.2.1.2. Temporal boundaries

The original start date of the Goal REDD Project remains the same at 1st of August 2012. The historic baseline was updated from 2001-2011 to 2007-2018. The first monitoring event occurred in 2015 where the project was successfully verified.

For this monitoring event (the second monitoring event which this MIR is related to) the Gola REDD Project has renewed the project baseline, and therefore the start and end dates of the “historical reference period.” As per REDD-MF “The historical reference period is the temporal domain from which information on historical deforestation is extracted, analyzed and projected into the future. A historical reference period must be defined for all eligible REDD categories. The starting date of this period must be between 9 and 12 years in the past and the end date must be within two years of project start date.”

The new historic baseline period is established from the land cover maps from 1/1/2007, 1/1/2011 and the most recent 12/12/2018. This is a period of 11.9 years for the historic reference period. The 2015 land cover map could not be used for the baseline because it did not include the RRD area.

No other project dates were changed. As per REDD-MF the project has projected baseline emission for 10 years forward (2028) using spatial modeling (See Section BL-UP Part 3) that the project will use as the new fixed baseline for which monitoring will be measured against.

3.2.1.3. Estimation of Annual Areas of Unplanned Deforestation

Renewing the baseline and conducting a monitoring report requires compliance with both VM0007 modules BL-UP and M-MON for LU/LC mapping and interpreting those results to establish the rate of deforestation in the RRD. Then the rate of deforestation in the RRD is adjusted by area to the RRL as the new baseline deforestation rate for the RRL. This RRL rate is then used for modeling the location of deforestation across the Project Area and Leakage Belt (RRL) (ex-ante). This baseline rate of deforestation in the RRL is what monitoring is evaluated against (ex-post).

The selection and analysis land-use and land-cover (LU/LC) change data for the baseline followed VM0007 and is detailed in the Project Document (2015) and Project Document (2020).

Using the new LU/LC data deforestation in the RRD (both the FR-RRD and BUFF-RRD) ($A_{BSL,RRD,unplanned,t}$) was analyzed for both the original and renewed baseline. The project used the “simple historic average” approach.

The annual area of unplanned deforestation in the RRD in the initial baseline is detailed in Section 3.1.1.1.1 Table 12 of the original Project Document (2015). For the Second baseline it is detailed in Section 4.1.7 of the updated Project Document (2020).

Following the methodological guidelines and the approved methodology deviation the projected unplanned deforestation in the FR-RRD and BUFF-RRD was associated with the Project Area and Leakage Belt. The results for ex-ante baseline deforestation in the Project Area and Leakage Belt for both the first and second baseline is presented in **Table 12** and **Table 13**

Table 12. Estimation of annual areas of unplanned baseline deforestation in the RRL for the original baseline relevant for 2012-2018

	Projected area of unplanned baseline deforestation in the reference region for location for the baseline period 2012-2018 ABSL,RR,unplanned,t Hectares
RRL	2,517
Project Area	1,041
Leakage Belt	1,544

Table 13. Estimation of annual areas of unplanned baseline deforestation in the RRL for the renewed baseline relevant for 2019-2028

	Projected area of unplanned baseline deforestation in the reference region for location for the baseline period after 2018 ABSL,RR,unplanned,t Hectares
RRL	3,559
Project Area	1,819
Leakage Belt	1,709

Therefore, the baseline annual deforestation:

- First baseline: in the Project Area is 1,041ha-1 y-1 and the baseline deforestation in the Leakage Belt is 1,544ha-1 y-1
- Second baseline: in the Project Area is 1,819ha-1 y-1 and the baseline deforestation in the Leakage Belt is 1,709ha-1 y-1

3.2.1.4. Location and Quantification of Threat of Unplanned Deforestation

Location analysis was conducted for the RRL (Project Area and Leakage Belt). 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. The land surrounding the Gola REDD Project has been classified as having a frontier configuration because, patchy, deforestation is slowly progressing towards the frontier of the National Park.

The software used to model the location of deforestation in the RRL was TerrSet formally IDRISI Selva²⁴, which includes two models appropriate under VM0007 BL-UP for projecting deforestation: Land Change Modeler (LCM) and GEOMOD. Both have similar setup and dataset requirements and therefore can be used in tandem and both met all requirements set out in BL-UP, peer-review, transparent and able to project location of future deforestation. LCM was used to derive the risk map which is derived from relevant factor maps and input to GEOMOD which projects future deforestation.

²⁴ <http://www.clarklabs.org/products/idrisi.cfm>

The first modeling projection is detailed in the original Project Document (2015) Section 3.1.1 Table 14 and in (Netzer and Walker 2013). The second modeling projection, again followed the same methods as Netzer and Walker 2013, and are detailed in new Project Document (2020) Section 4.1.9.

The area of projected baseline deforestation in the Project Area (*FR- ABSL,RR,unplanned,t*) was stratified between Gola Central/North and Gola South.

The resulting ex-ante deforestation in the Project Area is shown in **Table 14**, and Leakage belt in **Table 15**.

Table 14. Projected area of deforestation in each strata the Project Area

Baseline				Gola Central & North ($A_{unplanned,2,PA,t}$)	Gola South ($A_{unplanned,1,PA,t}$)	Cumulative
		t	year	Ha	ha	ha
First baseline	Current monitoring event	4	2015	446	595	1,041
		5	2016	435	606	2,082
		6	2017	487	554	3,123
		7	2018	518	522	4,163
		8	2019	996	823	5,982
Second baseline		9	2020	1,071	748	7,801
		10	2021	1,121	698	9,620
		11	2022	1,115	704	11,439
		12	2023	1,159	660	13,258
		13	2024	1,153	666	15,077
		14	2025	1,155	664	16,896
		15	2026	1,179	640	18,715
		16	2027	1,193	626	20,534
		17	2028	1,181	638	22,353

Table 15. Projected area of deforestation in the Leakage belt.

Baseline				Leakage belt ($A_{unplanned,1,PA,t}$)	Cumulative
		t	Year	ha	ha
First baseline	Current monitoring event	4	2015	1,544	1,544
		5	2016	1,544	3,088
		6	2017	1,544	4,632
		7	2018	1,544	6,176
Second baseline		8	2019	1,709	7,885
		9	2020	1,709	9,594
		10	2021	1,709	11,303
		11	2022	1,709	13,012
		12	2023	1,709	14,721
		13	2024	1,709	16,430
		14	2025	1,709	18,139
		15	2026	1,709	19,848
		16	2027	1,709	21,557
		17	2028	1,709	23,266

3.2.1.5. Estimation of Carbon Stock Changes and Greenhouse Gas Emissions

The Gola REDD Project Area stratification remained the same as the original baseline which used VM0007 Module X-STR, with Gola North/Central “Strata 1,” and Gola South “Strata 2.” Forest carbon stocks and strata were derived based on extensive forest carbon ground measurements in the Project Area (Klop 2012). While this study found that forests across the project area were relatively homogenous in species composition (same forest type), there were significant differences in carbon stocks between and Gola Central/North and Gola South. It was hypothesized that the difference is attributed to the southern block having been more extensively logged, resulting in a forest with lower carbon stocks but with potential for re-growth (Lindsell and Klop 2012). Therefore, the stratification between Gola North/Central and Gola South was so the project could measure enhancements in the South.

Carbon stocks at the start of the project (2012) were estimated in the forest areas following VM0007 Modules CP-AB and CP-S, excluding non-tree, litter and deadwood (Tatum-Hume et al 2013b). Above and below ground tree biomass and soil organic carbon for both strata (Table 16) and uncertainty was calculated as a percentage of the mean at 95% confidence intervals following X-UNC.

Table 16 represents forest carbon stocks in the Project Area at the start of the project (c. 2012), and does not include the net increase in carbon stocks measured in Gola South in 2018. The Leakage Belt was conservatively assumed to have the same forest carbon stocks as Gola North (see Project Document 2020 for more detail)

Table 16. Forest carbon (pre deforestation) carbon stocks in the Project Area and Leakage Belt.

Carbon Pool	Strata 1 (GRNP Central/North)				Strata 2 (GRNP South)			
	No of Plots	Mean Stock	95% CI	95% CI as % of mean	No of Plots	Mean Stock	95% CI	95% CI as % of mean
		t CO ₂ ha ⁻¹				t CO ₂ ha ⁻¹		
C _{AB_Tree,i}	353	629	48.4	6.6%	49	578	76.6	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	30.5	8.4%		909.05	49.1	12.9%

Shifting cultivation farming is the primary livelihood activity for communities around the project area (Witkowski et al 2012a, Bulte et al 2013) and thus post-deforestation strata is crop-fallow. Post-deforestation carbon stocks reflect the long-term average carbon stocks of agricultural land from 0-10 years. Following VMD0007, Section 4.2.2, Option 1- Simple approach, a time-weighted average was used to estimate the above ground biomass of post-deforestation carbon stocks (Tatum-Hume et al 2013b) including 1-2 years of planted crops and the 10 year fallow **Table 17**.

Table 17. Post-deforestation carbon stocks.

Carbon Pool	Post Deforestation			
	Number of Plots	Mean Stock	95% CI	95% CI as % of mean
t CO ₂ ha ⁻¹				
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%

Wood products were calculated following CP-WP. Based on data from surveys undertaken during project development (Witkowski et al 2012a), 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 results in the estimation of baseline carbon stock changes in the Project Area and Leakage Belt **Table 18**.

Table 18. Carbon stock changes per stratum.

Carbon Pool	Strata 1	Strata 2	Post deforestation	Wood product CWP, strata1	Wood product CWP, strata2	ΔC , Strata 1	ΔC , Strata 2
	Mean Stock t CO ₂ e ha ⁻¹						
C _{AB_Tree,i}	629.3	578.0	127.0	5.3	4.8	497.1	446.2
C _{BB_Tree,i}	151.0	138.7	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

Under the baseline Gola REDD project has elected not to estimate emissions from fossil fuel combustion as this is an optional emission source.

Emission from N₂O due to nitrogen application is not included as these fertilizers are not used in the project activities.

Subsistence crop-fallow farming which involves clearing and burning the vegetation as the primary driver of deforestation in the project area (Witkowski et al 2012a). Thus, GHG emissions from biomass burning is expected to occur on all land deforested during site preparation and was estimated following Module E-BB (Table 19).

Table 19. 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	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, CH ₄	37	34	CH ₄ Emission from biomass burning per hectare, t CO ₂ e/ha
Emissions per hectare, N ₂ O	16	15	N ₂ O Emission from biomass burning per hectare, t CO ₂ e/ha

3.2.1.6. Calculation of net emissions

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.

Following BL-UP ex-ante emissions were calculated for each strata in the Project Area and Leakage Belt (Table 20)

Table 21) These are the total baseline emissions by strata for the Project Area and Leakage Belt (without project emissions).

Table 20. Ex-Ante calculation of net emissions.

Baseline + monitoring				BSLunplanned - Strata 1			BSLunplanned - Strata 2			Total CBSL,PA
		t	y	ha	t CO2e	t non-CO2e (EBiomassBurn,i,t)	ha	t CO2	t non-CO2 (EBiomassBurn,i,t)	t CO2
First baseline	Current verification event	4	2015	446	246,059	23,877	595	295,343	29,257	594,536
		5	2016	435	247,435	23,288	606	307,173	29,798	607,695
		6	2017	487	280,944	26,072	554	290,301	27,241	624,558
		7	2018	518	304,503	27,732	522	281,986	25,667	639,888
Second baseline		8	2019	996	557,767	53,322	823	425,685	40,468	1,077,242
		9	2020	1,071	611,897	57,338	748	400,766	36,780	1,106,781
		10	2021	1,121	654,387	60,015	698	386,431	34,322	1,135,154
		11	2022	1,115	665,013	59,693	704	389,797	34,617	1,149,121
		12	2023	1,159	700,297	62,049	660	371,147	32,453	1,165,946
		13	2024	1,153	711,335	61,728	666	374,247	32,748	1,180,057
		14	2025	1,155	725,294	61,835	664	374,726	32,650	1,194,504
		15	2026	1,179	750,695	63,120	640	365,000	31,470	1,210,284
		16	2027	1,193	770,738	63,869	626	360,118	30,781	1,225,507

		17	2028	1,181	777,307	63,227	638	367,309	31,371	1,239,214
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Table 21. Ex-Ante calculation of net emissions.

Baseline + monitoring		t	y	BSLunplanned - Leakage belt			Total CBSL, LB
				ha	t CO2e	t non-CO2 (EBiomassBurn,i,t)	t CO2e
First baseline	Current verification event	4	2015	1,544	864,627	82,660	947,287
		5	2016	1,544	888,919	82,660	971,580
		6	2017	1,544	913,212	82,660	995,872
		7	2018	1,544	937,504	82,660	1,020,165
		8	2019	1,709	1,046,407	91,494	1,137,901
Second baseline		9	2020	1,709	1,073,296	91,494	1,164,790
		10	2021	1,709	1,100,184	91,494	1,191,678
		11	2022	1,709	1,109,047	91,494	1,200,541
		12	2023	1,709	1,117,910	91,494	1,209,404
		13	2024	1,709	1,126,773	91,494	1,218,267
		14	2025	1,709	1,135,637	91,494	1,227,131
		15	2026	1,709	1,144,500	91,494	1,235,994
		16	2027	1,709	1,153,363	91,494	1,244,857
		17	2028	1,709	1,162,226	91,494	1,253,720

3.2.2. Project Emissions

Quantify project emissions and/or removals providing sufficient information to allow the reader to reproduce the calculation. Attach electronic spreadsheets as an appendix or separate file to facilitate the verification of the results.

3.2.2.1 Selection and analyses of sources of land-use and land-cover (LU/LC) change data

A consistent time-series analysis of land-use change, and the associated emission have been maintained following M-MON steps 1-2.

Following past methods a combination of optical Landsat data and Synthetic Aperture Radar data were used.

Processing LU/LC Change Data

Level-2 surface reflectance Landsat 8 data were downloaded from Earth Explorer (<https://earthexplorer.usgs.gov/>). The 2 scenes from Jan 2020 covering the project and leakage belt are near cloud free. Landsat 8 is the same data source used in 2015 and 2019, so this is directly comparable. There was <1% cloud cover.

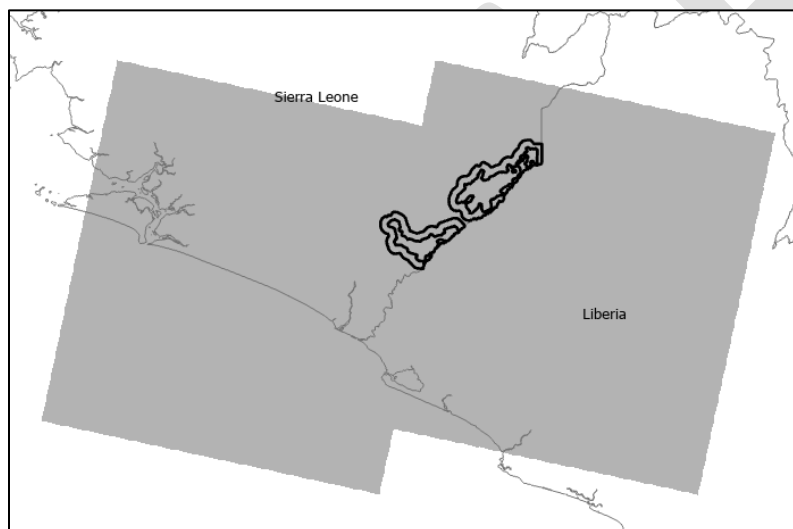


Figure 6. Landsat scene boundaries

Table 22. Landsat scenes for 2020 monitoring event.

Scene ID	Path	Row	Date captured	Time captured	Satellite	Sensor
LC08_L1TP_200055_20200103_20200113_01_T1	200	55	3 Jan 2020	10:58	Landsat 8	OLI
LC08_L1TP_201055_20200110_20200114_01_T1	201	55	10 Jan 2020	11:04	Landsat 8	OLI

C-band ground range detected (GRD) radar data was downloaded from the Copernicus Open Access Hub (<https://scihub.copernicus.eu/dhus/#/home>). A single scene covers the whole project area and leakage belt. Coverage is shown in **Figure 6** and scene details in **Table 23**. This is a different data source to the L-band PALSAR used in 2015, but the same as used in 2019. Sentinel 1 has the advantage, over PALSAR, of being freely available. In addition, 10m resolution from Sentinel 1 data are available for the whole site, whereas in 2015, the gaps in PALSAR's 10m data were filled with 100m data.

In the 2015 analysis, HH and HV polarisations were used. These were combined to create the Radar Forest Degradation Index (RFDI). Sentinel 1 data is most commonly available with VV and VH polarisations, which were accessed for this work. Consequently, we will not be able to calculate RFDI. However, use of RFDI in the previous analysis was partly to minimise inter scene variation, resulting from using several discrete PALSAR tiles.

Sentinel 1 is now widely used for forest land cover analysis, and is recommended for REDD+ forest cover analysis by [REDD Compass](#). It is an adequate replacement for PALSAR, with key benefits being the cost (free) and improved spatial resolution.

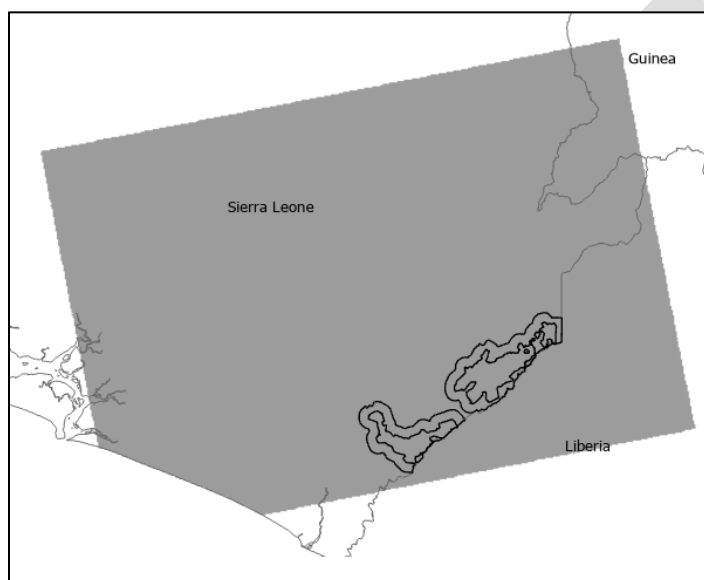


Figure 7. PALSAR scene boundaries

Table 23. Radar scenes for 2020 monitoring event.

Scene ID	Orbit number	Relative orbit	Pass direction	Date captured	Time captured	Satellite
S1A_IW_GRDH_1SDV_2020118T185948_20200118T190013_030859_038A86_F7C0	30859	162	Ascending	18 Jan 2020	19:00	Sentinel 1A

Data preparation

The level-2 Landsat 8 product is preprocessed, the raw data have been accurately georeferenced, the data converted to surface reflectance, and atmospheric corrections applied. Images from 2 dates were combined to give a total of 0.1% of pixels classified as cloud.

Sentinel 1 radar data were provided as a level-1 processed product. Radiometric correction, speckle filtering and terrain correction were conducted in SNAP v5.0. The Digital Elevation Model (DEM) used in this correction was the 3 arc-second (approx. 90m) resolution Shuttle Radar Topography Mission (SRTM) DEM.

Classification

The 2019 classification output was assessed against an independent dataset, that was not used in the original classification. The overall accuracy for the classification exceeds 90%, which is the accuracy level required by VMD0007 (Table 24).

Table 24. Accuracy assessment for land cover maps

	Forest	Non-forest	Total	Error of commission (%)	User accuracy (%)
Forest	275	24	299	8.0%	92.0%
Non-forest	15	93	108	13.9%	86.1%
Total	290	117	407		
Error of omission (%)	5.2%	20.5%		9.6%	
Producer accuracy (%)	94.8%	79.5%			90.4%

The results following M-MON for the selection and analysis of land use land cover change is showing in **Figure 8**.

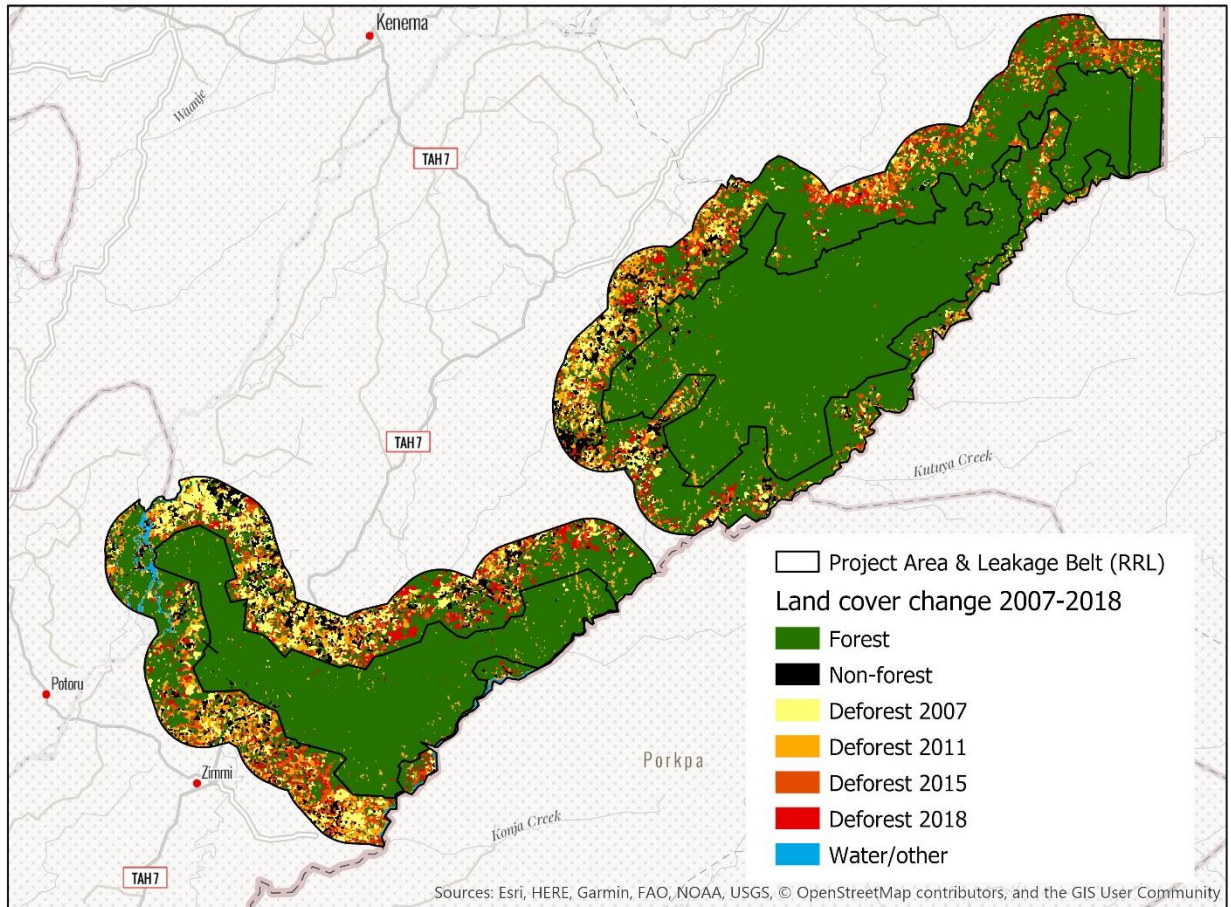


Figure 8. Ex-post land cover change map of the Project area and Leakage Belt.

3.2.2.2 Interpretation and analyses

3.2.2.2.1 Monitoring deforestation

Actual, ex-post deforestation in the Project Area and Leakage Belt following M-MON were monitored through 2019 (date of land cover monitoring event Jan 2020). The total area of ex-post deforestation between 2015 (the last monitoring event) and 2018 (this represents the annual ex-post deforestation under the first baseline) and then 2018 to 2019 (ex-post under the second baseline).

Table 25. Ex-post forest area and deforestation 2015-2018 in the Project Area and Leakage Belt.

A _{DefPA,u,l,t}				
	Forest area 2015	Forest area 2018	Total deforestation	Annual deforestation
ha				
Project Area	68,445	68,340	105	27
Goal North	43,048	42,989	59	15
Goal South	25,397	25,351	46	12
Leakage Belt	55,658	48,452	7,206	1,840

Table 26. Ex-post forest area and deforestation 2018-2019 in the Project Area and Leakage Belt.

A _{DefPA,u,l,t}				
	Forest area 2018	Forest area 2019	Total deforestation	Annual deforestation
ha				
Project Area	68,340	68,293	47	47
Goal North	42,989	42,947	42	42
Goal South	25,351	25,346	5	5
Leakage Belt	48,452	45,020	3,432	3,432

The net carbon stock change as a result of deforestation is equal to the area deforested multiplied by the emission per unit area.

$$\Delta C_{P,DefPA,i,t} = \sum_{u=1}^U (A_{DefPA,u,i,t} * \Delta C_{pools,P,Def,u,i,t})$$

The resulting emission reduction for the Gola Project (Strata 1 and 2) are shown in **Table 27** and

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Table 28. Emission reduction is shown as a negative. This is the Project Area ex-post monitored emission not including leakage of any buffer discounting.

Table 27. Net ex-post carbon stock change (emissions) as a result of deforestation in Strat 1 (North) in the Project Area.

t	y	Baseline Ex-ante			With project Ex-post				
		AreaBSLunplanned - Strata 1			ΔCP,Def,i,t - Strata 1			ΔEmission Strata 1	ΔEmission Strata 1
		ha	t CO2	t non-CO2e (EBiomassBurn,i,t)	ha	t CO2	t non-CO2e (EBiomassBurn,i,t)	Δt CO2e	Cumulative t CO2e
4	2015	446	246,059	23,877	12	6,221	225	(263,491)	(263,491)
5	2016	435	247,435	23,288	12	6,406	629	(263,689)	(527,180)
6	2017	487	280,944	26,072	12	6,590	629	(299,798)	(826,978)
7	2018	518	304,503	27,732	12	6,775	629	(324,831)	(1,151,809)
8	2019	996	557,767	53,322	5	3,423	268	(607,399)	(1,759,208)

Table 28. Net ex-post carbon stock change (emissions) as a result of deforestation in Strat 2 (South) in the Project Area.

t	y	Baseline Ex-ante			With project Ex-post				
		AreaBSLunplanned - strata 2			$\Delta CP_{Def,i,t}$ - Strata 2			$\Delta Emission$ Strata 2	$\Delta Emission$ Strata 2
		ha	t CO2	t non-CO2e (EBiomassBurn,i,t)	ha	t CO2	t non-CO2e (EBiomassBurn,i,t)	Δt CO2e	Cumulative t CO2e
4	2015	595	295,343	29,257	15	7,973	806	(315,820)	(315,820)
5	2016	606	307,173	29,798	15	8,146	806	(328,019)	(643,839)
6	2017	554	290,301	27,241	15	8,318	806	(308,417)	(952,257)
7	2018	522	281,986	25,667	15	8,490	806	(298,357)	(1,250,614)
8	2019	823	425,685	40,468	42	21,879	2,249	(442,026)	(1,692,639)

3.2.2.2.2. Monitoring degradation

Degradation is not accounted for in this project. There is no selective logging in the project area.

However, the GRNP project implements active protection of the Project Area and any wood extracted due to illegal logging or fuel wood collection will be measured and discounted from the projects avoided emissions.

3.2.2.2.3. Degradation through extraction of trees for illegal timber or fuelwood and charcoal

As per the Monitoring Report (M-MON 2013), Participatory Rural Appraisal (PRA) was conducted every 2 years including 2019. The 2019 PRA can be seen in **Annex 8** Limited Degradation Survey - Monitoring Degradation within the Gola REDD Project Area 2019. The results from the 2019 PRA showed that forest degradation remained insignificant in the project area.

3.2.2.2.4. Monitoring degradation due to selective logging of forest management areas possessing a FSC certificate

There is no legal selective logging allowed in the Gola REDD Project Area.

3.2.2.2.5. Monitoring areas undergoing carbon stock enhancement

The Gola REDD Project intends to monitor forest carbon stock enhancement in Gola South. This area was stratified from Goal Central/North following X-STR. Forest carbon stock enhancements was measured in the project scenario following M-MON.

In the first Gola Project Document and in the first monitoring event (MIR 2015) the net carbon stock change from forest growth and sequestration had not been measured. In 2018 the Gola Project conducted a remeasurement of 48 plots in Gola South (Swinfield 2020). The remeasurement compared net carbon stocks from 2012 to 2018. The summary results are shown in **Table 29** and presented in Swinfield 2020.

Table 29. Net carbon stock change from forest growth in Gola South.

	Number of Plots	Mean Stock	95% CI	95% CI as % of mean
		t CO ₂ ha ⁻¹		
Above & below ground 2012	48	720.2	94.1	13.1
Above & below ground 2018	48	842.1	111.5	13.8

Following M-MON, $\Delta C_{P,Enh,i,t}$ is calculated as the difference in mean carbon stocks between 2012 and 2018. The results show total sequestration as 121.9 t CO₂ ha⁻¹, resulting in an annual sequestration of **20.3 t CO₂ ha⁻¹**, with a confidence interval below the ±15% of 95%.

$$\Delta C_{P,Enh,i,t} = \sum_{t=1}^t \sum_{i=1}^M ((C_{P,i,t} - C_{BSL,i}) * A_{Enh,PL,i,t}) \quad (8)$$

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 CO₂-e
- $C_{P,i,t}$ Carbon stock in all pools in the project case in stratum *i* at time *t*; t CO₂-e
- $C_{BSL,i}$ Carbon stock in all pools in the baseline in stratum *i*; t CO₂-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 emission reduction from sequestration is calculated as the net carbon stock changes times the area of unplanned deforestation in stratum *i*. Annual sequestration accumulates each year cumulatively on the area of avoided unplanned deforestation. **The results for Gola South from 2012 to 2019 are a total of 459.993 t CO₂**. Annual results are presented in

Table 30.

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Table 30. Annual sequestration in Gola South.

t	y	Carbon sequestration	Area of avoided deforestation in Strata 2 (Gola South)	Net carbon stock change as a result of forest growth and sequestration during the project in areas projected to be deforested
		t CO ₂ e ha	ha	ΔCP,Enh,i,t
1	2012	20.3	695	14,118
2	2013	20.3	619	26,697
3	2014	20.3	679	40,488
4	2015	20.3	580	52,270
5	2016	20.3	591	64,276
6	2017	20.3	539	75,226
7	2018	20.3	507	85,525
8	2019	20.3	781	101,392

3.2.2.2.6. Monitoring project emissions

No project emission are monitored as Gola REDD project has elected not to estimate emissions from fossil fuel combustion as this is an optional emission source, and emission from N₂O due to nitrogen application is not part of the project activities. Biomass Burning is calculated both in the baseline and with-project.

3.2.2.2.7. Monitoring areas undergoing natural or social disturbance

Where natural disturbances occur *ex-post* in the project area such as tectonic activity (earthquake, landslide, volcano), extreme weather (hurricane), pest, drought, or fire that result in a degradation of forest carbon stocks, the area disturbed shall be delineated and the resulting emissions estimated. Emissions resulting from natural disturbances may be omitted if they are deemed *de minimis* through the use of the module T-SIG.

Natural Disturbance

Disturbance in the project area, such as tectonic activity (earthquake, landslide, volcano), extreme weather (hurricane), pest, drought, or fire have been monitored since The Project start in 2012 till current 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 are monitored on an annual basis through the United States Geologic Society (USGS) and Incorporated Research Institute for Seismology (IRIS) Seismic Monitor²⁵. No earthquakes have occurred in or near the project area in recent time. This correlates with reports on the ground from GFC staff.

²⁵ <http://www.iris.edu/dms/seismon.htm>

Landslides. Landslides were monitored through visual inspection of Landsat imagery, checked with the land cover mapping analysis, and based on field report from GFC staff. Through this monitoring no major landslides were detected.

Extreme weather and drought are monitored on an annual basis through National Oceanic and Atmospheric Administration (NOAA) National Climate Data Center, International Best Track Archive for Climate Stewardship (IBTrACS)²⁶. No major storm tracks were reported anywhere near the project area. Annual rainfall and precipitation have remained consistent with historic averages from 1960.

Pests and Diseases are not known to cause major forest die-back in the Project Area; however, every effort has been made to monitor it. There are no current monitoring methods in Sierra Leone for pests. Therefore, the GRC project staff have tried to monitor any dieback. There were no major pest outbreaks reported, and land cover mapping in the Project Area have shown no sign of any pest infestation or damage, with forest cover increasing in the Gola Rainforest National Park.

Fire, has been monitored on an annual basis through assessments of MODIS Active Fire and Burned Area Product²⁷. A summary product is shown in showing areas burns have been detected over the last 5 years **Figure 9**. Because the MODIS data can be very sensitive to even small controlled burns from slash and burn agriculture this data has been cross referenced with visual inspection of burned areas in Landsat imagery. Based on detailed land cover mapping there were no largescale burns in the Project Area. No large burns were reported by GRC staff during patrols.

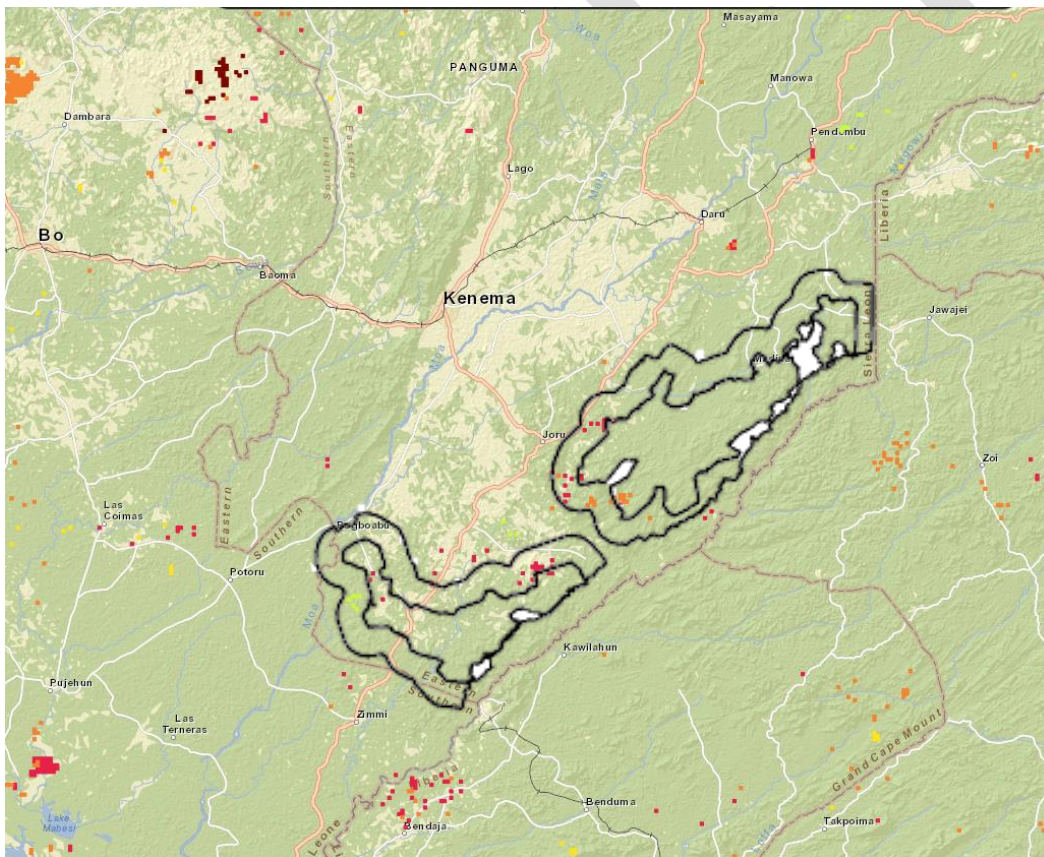


Figure 9. MODIS Active Fire and Burned Area Product for 2015 to 2018.

²⁶ <http://www.ncdc.noaa.gov/oa/ibtracs/index.php?name=ibtracs-data>

²⁷ <http://modis-fire.umd.edu/index.html>

Political or Social

There have been no political or social changes that would trigger a reassessment of the baseline. The Ebola outbreak in mid-2014 had a considerable impact on communities in the Gola region, however these impacts did not result in any perceivable change in deforestation or forest degradation.

3.2.3. Leakage

3.2.3.1. *Estimation of baseline carbon stock changes and greenhouse gas emissions in the Leakage Belt*

This Monitoring Report quantifies the leakage of GHG emission from activity shifting for avoided unplanned deforestation following VM0007 REDD+ Methodology Framework Module VMD0010LK-ASU.

Baseline carbon stock changes in the Leakage Belt are described in the Section Baseline Emissions.

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

Post deforestation strata in the Leakage belt is that same as that described in the Section Baseline Emission and the described in Project Document 2020.

3.2.3.2. *Estimation of the Proportions of Area Deforested by Immigrant and Local Deforestation Agents in the Baseline*

The proportion of are deforested by immigrant and local agents is detailed in the Project Document 2020.

Residents ($PROP_{RES}$) =97.1%

Immigrants ($PROP_{IMM}$) =3.9%

3.2.3.3. *Estimation of unplanned deforestation displaced from the Project Area to the Leakage Belt (Ex post assessment)*

Activities that deforestation agents would implement inside the project area in the absence of the REDD project activity could be displaced outside the project boundary as a consequence of the implementation of the REDD project activity.

Based on community PRA there is no unsustainable fuelwood collection occurring within the project boundary (PRA 2019), see [Annex 8](#) Limited Degradation Survey - Monitoring Degradation within the Gola REDD Project Area 2019.

Leakage prevention activities may lead to the increase in combustion of fossil fuels, however, as per M-REDD, any increase in emissions is considered insignificant, therefore combustion of fossil fuels was not considered in the baseline case.

There are no leakage prevention activities that use increases in fertilizer.

There are no emissions from activity shifting resulting in peat drainage (Step 5 LK-ASU).

There are no leakage prevention activities that result in biomass burning or fertilizer usage (Step 6).

Ex post leakage was assessed following Module M-MON and 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 CO₂ emissions due to unplanned deforestation displaced from the Project Area to the Leakage Belt; t CO₂-e

$DC_{BSL, LK, unplanned}$ Net CO₂ emissions in the baseline from unplanned deforestation in the leakage belt; t CO₂-e

$DC_{P, LB}$ Net greenhouse gas emissions within the leakage belt in the project case t CO₂-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).

Baseline (ex-ante) emission were calculated in the Leakage Belt following BL-UP and LK-ASU. As part of this second monitoring event the baseline emissions are compared to the *with project* (ex-post) emission.

Where this displacement of activities increases the rate of deforestation, the related carbon stock changes and non-CO₂ emissions must be estimated and counted as leakage.

The *with project* (ex-post) assessment of leakage by local deforestation agents in the Leakage belt is shown in **Table 31**. The positive numbers in Δt CO₂e show project leakage.

Table 31. Emission reduction for Leakage Belt, baseline minus with project.

t	y	Baseline Ex-ante			With project Ex-post				
		AreaBSLunplanned - LB			$\Delta C_{P, Def, i, t} - LB$			$\Delta Emission_{LB}$	$\Delta Emission_{LB}$
		ha	t CO ₂	t non-CO ₂ e (EBiomassBurn,i,t)	ha	t CO ₂	t non-CO ₂ e (EBiomassBurn,i,t)	Δt CO ₂ e	Cumulative t CO ₂ e
4	2015	1,544	864,627	82,660	1,840	999,843	98,498	151,053	151,053
5	2016	1,544	888,919	82,660	1,840	1,023,124	98,498	150,043	301,096
6	2017	1,544	913,212	82,660	1,840	1,046,406	98,498	149,032	450,128
7	2018	1,544	937,504	82,660	1,840	1,069,688	98,498	148,022	598,150
8	2019	1,709	1,046,407	91,494	3,432	1,861,089	183,738	906,925	1,505,075

3.2.3.4. *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 detailed in the Project Document 2020. The amount of leakage displaced outside of the Leakage Belt to other area in Sierra Leone is estimated once at the start of the project (reported in the Project Document) following Step 4 in LK-ASU, and is not recalculated at each monitoring event. The results found the PROP_{IMM} to be 3.9% and PROP_{RES} 96.1%. Following LK-ASU the proportional leakage associated with immigrating populations was calculated as 3.4% of the leakage expected to be displaced from the Project Area to the Leakage Belt. The results for leakage displaced outside of the Leakage Belt are shown in **Table 32**.

Table 32. Net cumulative CO2 emissions due to unplanned deforestation displaced outside the Leakage Belt.

y	Net CO2e emissions due to displaced unplanned deforestation outside LB ΔCLK-ASU, OLB	
	t CO2e	cumulative t CO2
2015	4,054	4,054
2016	4,143	8,197
2017	4,258	12,455
2018	4,363	16,818
2019	7,345	24,163

3.2.3.5. *Estimation of Total Leakage Due to the Displacement of Unplanned Deforestation*

The total emission reduction for the Gola REDD project at the 2018 Monitoring event including leakage is shown in

Table 33.

$$\Delta C_{LK-AS,unplanned} = \Delta C_{LK-A\ SU-LB} + \Delta C_{LK-ASU-OLB} + GHG_{LK,E} \quad (13)$$

Where:

- $\Delta C_{LK-AS,unplanned}$ Net greenhouse gas emissions due to activity shifting leakage for projects preventing unplanned deforestation Net CO₂ emissions ; t CO₂-e
- $\Delta C_{LK-ASU-OLB}$ Net CO₂ emissions due to unplanned deforestation displaced outside the Leakage Belt; t CO₂-e
- $\Delta C_{LK-ASU-LB}$ Net CO₂ emissions due to unplanned deforestation displaced from the Project Area to the Leakage Belt; t CO₂-e
- $GHG_{LK,E}$ Greenhouse gas emissions as a result of leakage of avoided deforestation activities; t CO₂-e

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Table 33. Net greenhouse gas emissions due to ALL leakage for projects preventing unplanned deforestation.

Net greenhouse gas emissions due to activity shifting leakage for projects preventing unplanned deforestation Δ CLK-AS,unplanned		
y	t CO2e	t CO2e (cumulative)
2015	155,107	155,107
2016	154,186	309,293
2017	153,290	462,583
2018	152,384	614,968
2019	914,270	1,529,238

3.2.4. Net GHG Emission Reductions and Removals

3.2.4.1. Summary of GHG Emission Reduction and/or Removals

The total net greenhouse gas emissions reductions of the REDD project activity are calculated as follows:

$$C_{REDD,t} = \Delta C_{BSL} - \Delta C_P - \Delta C_{LK} \quad (1)$$

Where:

$C_{REDD,t}$ Total net greenhouse emission reductions at time t ; t CO₂-e

DC_{BSL} Net greenhouse gas emissions under the baseline scenario; t CO₂-e

DC_P Net greenhouse gas emissions within the project area under the project scenario; t CO₂-e (from M-MON)

DC_{LK} Net greenhouse gas emissions due to leakage; t CO₂-e

For the Gola REDD project this includes avoided unplanned emission reduction from deforestation monitored over the current monitoring period 2015-2019 (C_{BSL,Def} – C_{P,Def}), plus sequestration from areas avoided from deforestation in Gola South for the entire project period 2012-2019 (C_{P,Enh}), minus project emissions (GHGP), minus leakage (CLK)

Table 34.

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Table 34. Total net greenhouse gas emissions reductions of the REDD project activity.

t	year	ΔCP					ΔCLK	C _{REDD,t}	
		ΔCBSL	ΔCP, DefPA	ΔCP, Def, PA, ALL, t	GHGP, E, t	ΔCP, Enh, i, t		annual	cumulative
		tCO _{2e}							
1	2012	*	*	*	*	14,118	*	14,118	14,118
2	2013	*	*	*	*	26,697	*	26,697	40,815
3	2014	*	*	*	*	40,488	*	40,488	81,303
4	2015	594,536	15,226	579,311	0	52,270	155,107	476,474	557,777
5	2016	607,695	15,986	591,708	0	64,276	154,186	501,799	1,059,576
6	2017	624,558	16,343	608,215	0	75,226	153,290	530,150	1,589,726
7	2018	639,888	16,700	623,188	0	85,525	152,384	556,329	2,146,055
8	2019	1,077,242	27,817	1,049,425	0	101,392	914,270	236,547	2,382,602

* Already accounted for under the first monitoring event.

3.2.4.2. Correction of accounting error from last monitoring event

In October 2018 RSPB was made aware by third party auditors from Climate Care that the verification and subsequent allocation of REDD Voluntary Carbon Units (VCUs) has overallocated the amount of buffer credits to be withheld due to a miscalculation in the 2012-2014 Monitoring/Verification reports by the Rainforest Alliance and Winrock International.

This error is displayed in the final 2015 Verification Report (pp 53) and the 2015 Monitoring Report (pp 149) and presented below in **Figure 10**. As can be seen the number of VCUs shrinks between the 2013 and 2014 period, despite a net increase ERs. Given the buffer percentage is a fixed 10%, this points to a calculation error. This is attributed to the erroneous subtraction of the cumulative buffer total from the annual net ERs, rather than the annual buffer total.

Figure 10. Table from verification and monitoring report in 2015 showing the miscalculation of buffer credits.

Y	Buffer withholding percentage	ΔCBSL	ΔCP	Total permanence risk buffer withholding (BufferTotal)	Net GHG Emission Reductions (tCO _{2e})	The number of Verified Carbon Units (VCUs)	
	Buffer%	t CO _{2e} (cumulative)				VCUt	VCUt (cumulative)
2012	10%	182,343	2,351	17,999	160,798	142,798	142,798
2013	10%	747,828	9,468	73,836	511,621	437,785	580,583
2014	10%	1,323,379	16,752	130,663	525,103	394,440	975,023

The correct calculation and VCUs is therefore presented in **Table 35**.

Table 35. Corrected buffer accounting issue.

y	Buffer withholding percentage	ΔCBSL	ΔCP	Total permanence risk buffer withholding (Buffer _{Total})	Estimate the number of Verified Carbon Units (VCUs)		Difference (issued vs. corrected)
	Buffer%				t CO2e annual		
2012	10%	182,343	2,351	17,999	142,798	142,798	
2013	10%	565,485	7,117	55,837	455,784	598,582	17,999
2014	10%	575,551	7,284	56,827	468,276	1,066,859	73,836
						Total:	91,835

Thus, GRC seeks to free up 91,835 VCUs from the buffer account and update the records accordingly so that these credits can be issued in the Gola primary account.

During the development of this MIR report, the accounting error was discussed and acknowledged between Winrock International and Verra staff. Their suggestion was to include it in this report and through the audit process it should be possible to free up these VCU as part of the total VCUs from this monitoring event.

3.2.4.3. 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 (ΔCBSL) and with project scenario (ΔCP). Leakage emissions do not factor into the buffer calculations.

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 Risk Report).

To estimate the number of Verified Carbon Units (VCUs) for the monitoring period, this methodology uses the following equation:

$$Buffer_{UNPLANNED} = \left(\left(\Delta C_{BSL,unplanned} - \sum_{t=1}^{t^*} \sum_{i=1}^M \left(E_{FC,i,t} + N_2O_{direct,i,t} \right) \right) - \left(\Delta C_{P,(Unplanned\ Deforestation\ Areas)} - \sum_{t=1}^{t^*} \sum_{i=1}^M \left(E_{FC,i,t} + N_2O_{direct,i,t} \right) \right) \right) * (Buffer\%)$$

3.2.4.4. *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.

Uncertainty in projection of baseline rate of deforestation or degradation

In this case the $Uncertainty_{BSL,RATE} = 0$ where the baseline rate is long term (i.e. historic) average.

Uncertainty of emissions and removals in project area in baseline scenario

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. The Uncertainty from above ground biomass, below ground biomass and soil organic carbon are shown in Table 16, Table 17 and for sequestration in

Table 30. All uncertainty was below the +/- 15% of 95% confidence level, and therefore uncertainty in all pools is set to 0.

Uncertainty in the emissions from biomass burning is captured in the uncertainty of above ground biomass (CAB_Tree, I Uncertainty_{BSL,SS,i}).

Uncertainty in the wood products pool is considered undisputedly conservative and therefore Uncertainty =0.

3.2.4.5. Calculation of Verified Carbon Units

To estimate the number of Verified Carbon Units (VCUs) for the monitoring period $T = t2-t1$, this methodology uses the following equation:

$$VCU_t = (Adjusted_CREDD_{t2} - Adjusted_CREDD_{t1}) - Buffer_{TOTAL}$$

Where:

VCU _t	Number of Verified Carbon Units at time T = t ₂ – t ₁ ; VCU
Adjusted_C _{REDD,t2}	Cumulative total net GHG emissions reductions at time t ₂ adjusted to account for uncertainty; t CO ₂ -e
Adjusted_C _{REDD,t1}	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

The total VCUs that the Gola REDD Project has generated between for this monitoring period, are 2,091,384 VCUs. This includes a 10% buffer withholding and a crediting of 91,835 VCU from the accounting error in 2015

Table 36. Total VCUs that the Gola REDD Project.

	Buffer withholding percentage	ΔCBSL	ΔCP,Enh	ΔCP	Total permanence risk buffer withholding (BufferTotal)	Leakage emissions ΔCLK	Estimate the number of Verified Carbon Units (VCUs)	
y	Buffer%	t CO2e					VCUt	VCUt (cumulative)
2012			14,118				14,118	14,118
2013			26,697				26,697	40,815
2014			40,488				40,488	81,303
2015	10%	594,536	52,270	15,226	63,158	155,107	413,316	494,619
2016	10%	607,695	64,276	15,986	65,598	154,186	436,200	930,819
2017	10%	624,558	75,226	16,343	68,344	153,290	461,806	1,392,626
2018	10%	639,888	85,525	16,700	70,871	152,384	485,457	1,878,083
2019	10%	1,077,242	101,392	27,817	115,082	914,270	121,466	1,999,549
Buffer accounting error correction								91,835
Total cumulative VCUs								2,091,384

3.3. Optional Criterion: Climate Change Adaptation Benefits

3.3.1. Activities and/or processes implemented for Adaptation (GL1.3)

Based on the project's validated causal model, describe activities and/or processes implemented to 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). Project activities are designed to reduce climate exposure and sensitivity as they 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 was through informal discussions with community members to date, activities 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 assist both biodiversity and communities to adapt is found in **Table 37** below but outlined in detail in terms of interventions and their impacts throughout section 4

Table 37. Broad overview of how the project activities assist both biodiversity and communities to adapt to climate change.

Anticipated Climate Change	Impact on Climate (CL), Community (CO) and Biodiversity (BD)	Impact of project activities
Changes in micro-climate especially rainfall and temperature	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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
Erosion from increased and heavier rainfall	<ul style="list-style-type: none"> • Sedimentation of streams and water supply (BD, CO) • Loss of soil fertility (CO) 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Increase in disease and deaths (CO) • Increase in economic damage (through crop failures or destruction) (CO) 	<ul style="list-style-type: none"> • Increased incomes enable families to access health care • Improved agricultural techniques and livelihood diversification reduce vulnerability and enhance resilience
Ecosystem degradation	<ul style="list-style-type: none"> • Changes in the quantity and quality of land, water and soil resources (CO) • Loss of suitable habitat resulting in biodiversity loss (BD) 	<ul style="list-style-type: none"> • 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

4. COMMUNITY

The community monitoring plan (Henman 2013) has indicators spread across a range of 10 Community Initiatives undertaken by the project. These are listed below. For the purposes of this section of the report we present results for Community Initiatives 1 – 7. Community Initiatives 8-10 are reported in section 2, with their specific sub-sections noted in **Table 38** below.

Table 38. Community initiatives carried out by the project.

Community Initiative	Areas to be monitored	Focal Issue being addressed/issue	Presented in report section
1	Crop intensification and increased production activity	Poverty Reduction	This section
2	Improved cocoa production and post-production	Poverty Reduction	This section
3	Saving and internal lending communities (VSLA)	Poverty Reduction	This section
4	Co-management of community use zones in the GRNP and land use mapping and planning in the leakage belt	Poverty Reduction Improved Governance	This section
5	Education	Poverty Reduction Improved Governance	This section
6	Crop Raiding by Wildlife	Monitoring identified possible negative impact	This section
7	Chieftdom development fund	Poverty Reduction	This Section
8	Workers' Rights and Employment Scheme	Worker rights	2.3 above
9	Communication and grievance procedures	Improved governance	2.3. above
10	Government capacity building	Improved governance	2.4. above

The community monitoring plan (Henman 2013) has 3 levels of indicators; Impact, Outcome and Output. For the purpose of this report we use each of these indicator levels to report on a different part of Section 4 as follows:



Impact Indicators.

These are the indicators of the highest level of project impact, net of all factors. They are therefore used to report on section 4.1.2. Net Positive Community Well-Being Impacts (CM1.1). Progress against these are recorded in the annual MIRs and in addition in the longitudinal surveys conducted in 2015 and 2019 and in particular the 2019 analysis (Kontoleon et al. 2020)

Outcome Indicators:

These reflect the specific outcomes of project activities and are reported under section 4.1.1. Community Impacts (CM1.1) Progress against these are recorded in the annual MIRs and in addition in the 2019 analysis (Kontoleon et al. 2020)

Output Indicators:

Tangible achievements, such as training events, development funds spent etc. To back up and illustrate the Outcomes. Report on in section 4.3.2. Community Monitoring Plan Results (CM3.1, CM3.2, GL2.5). Progress against these are recorded in the annual MIRs.

4.1. Net Positive Community Impacts

4.1.1. Community Impacts (CM1.1)

This section gives an overview of community impacts of the project at the outcome level, summarized per the 7 community initiatives highlighted above.

4.1.1.1. Crop intensification and increased production Initiative

The Crop Intensification program is being implemented with the aim of supporting forest edge communities (FECs) to improve crop productivity on existing crop fallow land. All the trainings on field activities were conducted at field level by the Community Development Agriculture Extension Officers.

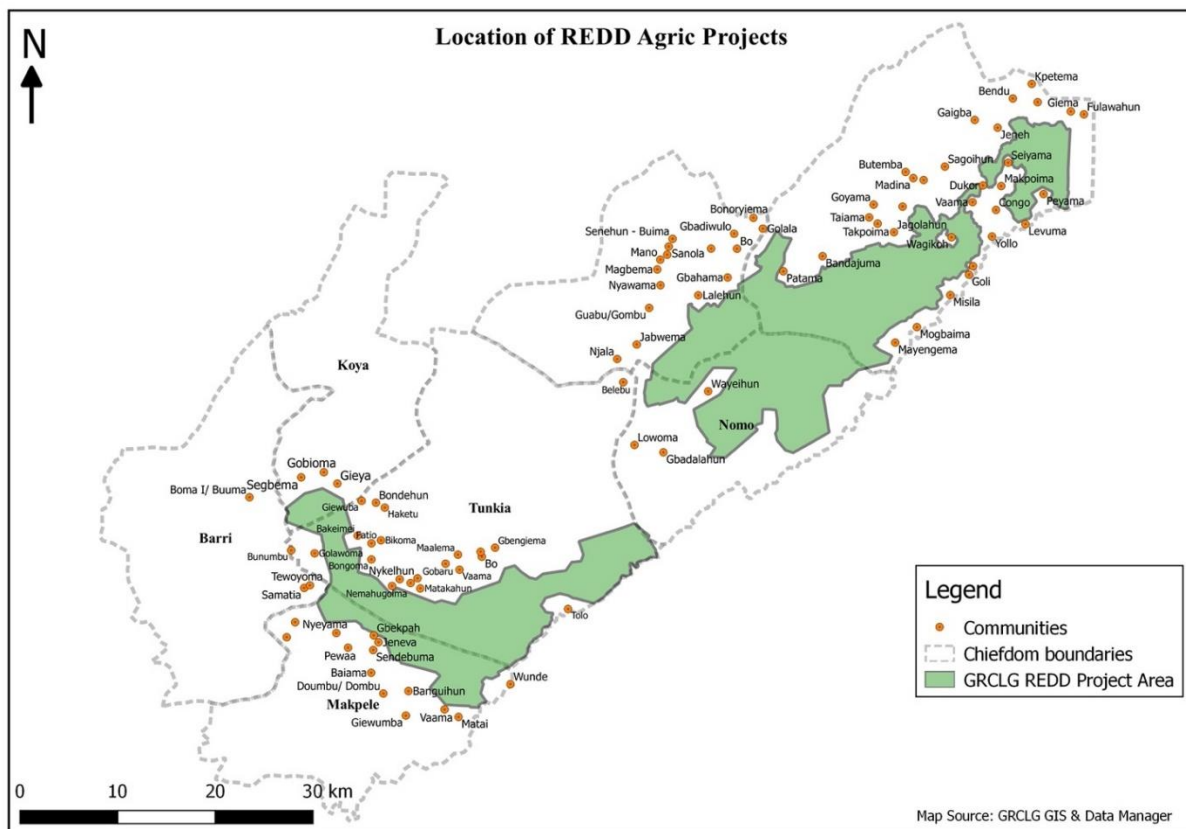
Over the course of the reporting period a growing amount of land is being brought under improved management for agricultural production. This is summarized in the **Table 39** below. Locations are in **Figure 11**.

This program makes the assumption/rationale that improving the productivity on land that is already part of the traditional bush fallow cycle will reduce deforestation (and therefore GHG emissions) and benefit household food security and income; this is part of the project strategy to achieve a net positive impact for communities in the leakage belt. This activity has been implemented in all 122 villages of the leakage belt over the past 6 years of the project, a new activity plan is now being developed. We believe this rationale holds true. (Kontoleon et al 2020) notes that the project has shown a 1% lower rate of deforestation in REDD villages as compared to non-REDD villages where the average is 3.3%. This implies a decreased deforestation rate of 30% attributable to the impact of our work in the Forest Edge Communities.

Table 39. Net positive community impacts of crop intensification and increased production Initiative.

Outcome Indicator	Sampling Type/Product	Timing/Frequency	Results of Evaluation
Number of hectares of intensified crops planted	From a survey of farmers following planting (activity survey)	on-going during program roll-out. Have quarterly review to ensure data has been collated.	Rice Inland Valley Swamp demonstration in Farmer Field Schools 69x2 Acres =138 Acres =55,85 ha Vegetables 69 acre = 27,9 ha Ground-nuts 69 acre = 27,9 ha TOTAL = 272 acres - 112 ha
Yield of harvested crop	Activity surveys	On-going during program roll-out. Have quarterly review to ensure data has been collated.	In Farmer Field Schools: Yield IVS rice 138 acres 500 Kgs per acre = 69,000 kgs ≈1380 bags; Groundnuts 69 X 270 kg = 18,630 kg ; Vegetables each one acre is planted with: pepper, okra and African cabbage Yield/acre: pepper 88 kg , Bitterball 75 kg , Okra 147 Kg , African cabbage 324 kg .
Number of farmers adopting new farming methods	Activity surveys	On-going during program roll-out. Have quarterly review to ensure data has been collated.	Covering activities 2015-2019 Rice production (IVS + upland Rice) 74% of trained farmers where cultivating 0,4-2 acres, 17% were cultivating > 2 acres. Groundnut cultivation 81 % of trained farmers cultivated 0,4-2 acres of groundnuts. Vegetables 83% were cultivating 0,4-2 acres of vegetables.

Figure 11. Locations of Gola Communities involved in agricultural projects.



4.1.1.2. Improved cocoa production and post-production

The Cocoa programme is intended to assist forest edge communities (FECs) with improving productivity and income from cocoa production. For each participating farmer group the project is implemented over a 2-year cycle within the core REDD funding, however, enthusiasm from the Chiefdoms has extended the program beyond the initial 2 years. Cocoa farmer groups are established during the first year consisting of 15-40 members. Each cocoa farmer group selects 2-3 cocoa master farmers (MFs) to participate in master farmer field schools, where they meet throughout the two years to receive a series of training modules from GRNP staff.

Since 2016 there have been two youth attached in every training to provide sustainability and support to the MFs. After each MF training, the trained MFs and youth hold meetings of their cocoa farmer group in a demonstration field to pass on the acquired knowledge by practicing on one of the members farms. MFs are provided with a set of pruning tools, fermentation baskets, and are shown on how to build raised drying tables. MFs are responsible for distributing and sharing the knowledge and tools within their cocoa farmer group.

In 2018 seven Cocoa demonstration plots were established in Malema, Gaura, Tunkia and Koya chiefdoms where cocoa were intercropped with shade trees, nitrogen fixing trees, plantain, pineapple and chili pepper. This is a way to promote food security and additional income during the establishing period. 2018 This demonstration plots were used for trainings. 2018 were 7 new plots established demonstrating different pruning approaches. Throughout the programme GRCLG staff ran trainings on cocoa rehabilitation (principally aimed at youths), to promote the availability of skilled labourer's

During the 2018 implementation cycle the project was administered by the GRCLG Cocoa Department in Partnership with JULA Consultancy (a Sierra Leone based company providing capacity building on Governance and Certification) and TWIN was (now defunct) a UK based NGO specialized on supporting the business development of cooperatives Africa and Latin America

The reporting period has seen some great success. Exports have gone to the US and Europe, and chocolate is now being sold in the RSPB shop to its members and supporters across the UK. The farmer associations supported by the projects are gaining greater skill ad trade links. On farm yields have more than doubled from 50kg/ha to over 100kg/ha, with 100 kg/ha being considered sustainable and achievable. Harvest and post harvest skills and learning the use of scales and market [prices has allowed those involved in the project to increase prices per kg by 50%

This programme is based on the assumption/rationale that 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 has been implemented in all 122 villages of the leakage belt over the past 6 years of the project, a new activity plan is now being developed. See **Figure 12**. This still holds true, with deforestation rates 33% lower than in the non forest edge communities. (Kontoleon 2020).

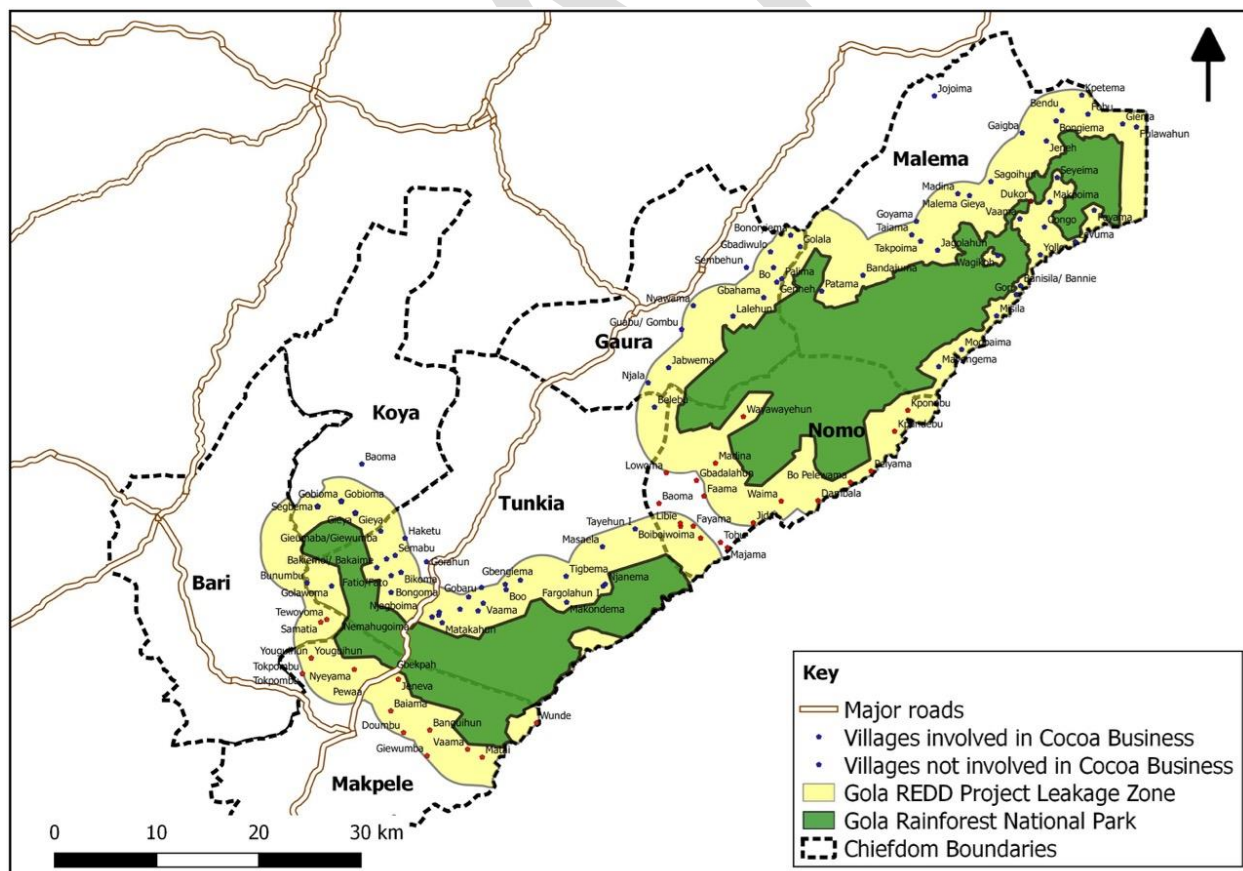
Table 40. Net positive community impacts of Improved cocoa production and post-production.

Outcome Indicator	Sampling Type/Product	Timing / Frequency	Results of Evaluation
Development of cocoa commercialisation and certification strategy	Report	one-off	<p>In 2016 a Producers Organisation with 500 members in 13 local groups from 14 communities was established in Gaura as Gaura Cocoa Farmers Association (GACFA). It developed a cocoa buying and selling strategy and started buying cocoa from their members. On behalf of the Farmers Association GRC LG exported one container (12 250 Kg) to USA, 2017 that was made into Gola Rainforest, Sierra Leone chocolate.</p> <p>For 2018/19 season, GRCLG and the three farmer Associations developed strategies for commercialization of cocoa in Gaura, Tunkia, Koya and Malema forming the Ngoleagorbu Cocoa Farmer's Union comprising of Gaura Cocoa Farmers Association (GACFA), Tunkia Koya Cocoa Farmers Association (TUNKOCFA) and Malema Cocoa Farmers Association (MACFA).</p> <p>The first Gola produced cocoa was shipped to Europe and turned into Gola Rainforest Chocolate in 2018. Lead by RSPB, 500 Kg of Gola Cacao was turned in to Gola Chocolate single origin Chocolate and sold online and in RSPB shops. This will help to promote the visibility of the Gola project.</p> <p>A Forest Friendly cocoa strategy is being developed Business plane is in place and will be revived 2020-21.</p> <p>Farmers Association have achieved Fairtrade certification and organic certification is planned for 2020-21. GRC is part of the Dutch CBI programme providing support to marketing and business support and mentoring to companies exporting cocoa to the European Union. One GRC staff was invited to the Choccoa Chocolate fair in</p>

			Amsterdam for learning and networking with stakeholders in the business.
Number of farmer based organizations with improved or new links to traders		on-going during programme roll-out. Have quarterly review to ensure data has been collated.	<p>All three existing farmer-based organization have with support of GRCLG created links to Dandelion an USA chocolate manufacturer and Meridian an USA trader Kinnerton in UK and Scambi Sostenebilita in Italy.</p> <p>In 2018/9 These three Farmer Associations operating in four chiefdoms sourced 47,616 kg of cocoa from their members and here successfully exported 25,600 Kgs to Europe and we are looking forward to exporting the remaining 22,000 kg beginning of 2019.</p> <p>GRC and RSPB are searching for potential buyers in Europe Associations in the FECs. In 2019, farmers received visits from 2 new potential cocoa buying companies: AltroMercato from Italy and Lush Cosmetics from UK. Due to the farmers improved production and quality, several local traders are approaching the Farmer groups/Farmers leading to an increased demand for the Farmers cocoa.</p>
Cocoa yield per ha	Longitudinal Survey	Every 5 years	From the registration information and baseline survey data in 3 chiefdoms an estimated 50 kg per ha was harvested. In the follow up registration survey done in 2017 with 50 farmers. gave an average of 106 kg per ha – we believe this >100kg mark is sustainable and consistently achievable.
Certification of cocoa applied for/achieved	report/certification documentation	Annually starting from year 2015	Capacity development on Certification has been provided to staff from Rainforest Alliance, WHH and Jula Consultancy. Basic traceability systems have been built among farmers association and trainings and implementation of Internal control systems (ICS) was worked on during 2018. Fairtrade Certification was achieved during 2019 and plans are to implement Organic certification 2020/21.
Improved quality of cocoa harvested	report	year 2015 and later every 2 years	Farmers have gained knowledge from trainings provided on quality processing and storing of cocoa beans. Trained farmer members are buying cocoa of better quality on behalf of the Farmers Associations. Test done by Producer Monitoring Board and Sierra Leone Standard Bureau confirmed that quality produced was of good quality. The Cocoa produced and traded by the project was of high quality and samples send to European and USA market was highly appreciated by potential buyers. Cocoa samples have been analysed with support of CBI on both taste and on Cadmium, Salmonella and Aflatoxin (tested by Eurofins) The samples fulfil the requirements for export to European Union. However, some cocoa is still sold under-fermented and with high moisture content to local traders by farmers in need for fast cash.

Higher price per unit achieved as result of better quality sold		From year 2015 and then every 2 years	A number of farmers in focus group discussions expressed that they received better price for their cocoa as a result of higher quality compared to previous years, consequently creating higher demand for their cocoa. We were told that Farmers were selling 1 kg of cocoa beans at Le. 9,000 at farm gate in other areas, while farmers in e.g., Gaura FEC's received an average of Le.13, 000 per kg. The average price for cocoa bought in the Farmers Association for 2019-2020 season was Le 18 000 per Kg. This is due to better harvest and postharvest processes but also farmers were taught how to sort and use scales. GRCLG provides regular information on notice boards and in meetings on market prices, this provides farmers with better bargaining leverage.
Hectares of rehabilitated cocoa	From a survey of farmers following rehabilitation	year 2015 and later every 2 years	56ha 2015, 646ha 2016, 2018/19 1,488.
Number of hectares of new cocoa	From a survey of farmers following planting	year 2015 and later every 2 years	Progress towards this indicator is expected in 2020.

Figure 12. Location of Forest edge communities involved/not involved in Cocoa Business



4.1.1.3. Saving and internal lending communities

The Village Savings and Loans Association (VSLA) programme is a microfinance initiative that is intended to provide basic, community-managed savings and loan facilities in communities that do not have easy access to financial services and at the same time increase financial literacy to the target communities. For each of the FECs communities targeted capacity support is implemented over a period of 2 years to improve financial literacy.

During year 1 GRCLG staff introduced the concept of VSLA and interested persons are facilitated to form a VSLA groups of 20-25 members during which a governing committee of 5 members are elected and by-laws are established. The groups are then provided with materials including a metal safe deposit box, savings and loan books. Group meetings occur regularly throughout the cycle (usually weekly or bi-weekly), and at each meeting all members deposit a saving and a small contribution into a social fund (minimum and maximum saving and contribution amounts are set in the bylaws). GRCLG staff attend some meetings to offer coaching and problem-solving support. After 2 months into the cycle, members may request a loan from the collected savings, which must be paid back with interest (interest levels and loan periods are set in the bylaws). Members in need of emergency cash may apply for support from the social fund. At the end of the cycle, all funds (savings, interest, income and social fund) are distributed between all members. Savings are returned to the owner along with income from interest in proportion to the savings that each member deposited. The social fund money is shared equally among the members.

After ending a cycle, groups can decide if it would like to commence with a new cycle or make changes to the bylaws and membership. Together with the GRCLG staff, the group completes an end of cycle evaluation. For successful groups in areas where there is potential to establish new groups, GRCLG can offer interested group members training on assisting other interested people to establish and run new VSLA groups. Once trained, these people can then 'work' as private service providers (PSP), also referred to as Village Agents.

The VSLA program was initiated in April 2015 in 31 FECs. As a result, 35 VSLA groups were established and provided with operational materials. Further implementation including the relevant trainings on savings, loan disbursement and repayment criteria was undertaken. During the 2016 implementation cycle groups coaching and monitoring was undertaken mainly to strengthen the identified capacity gaps by the GRC LG staff.

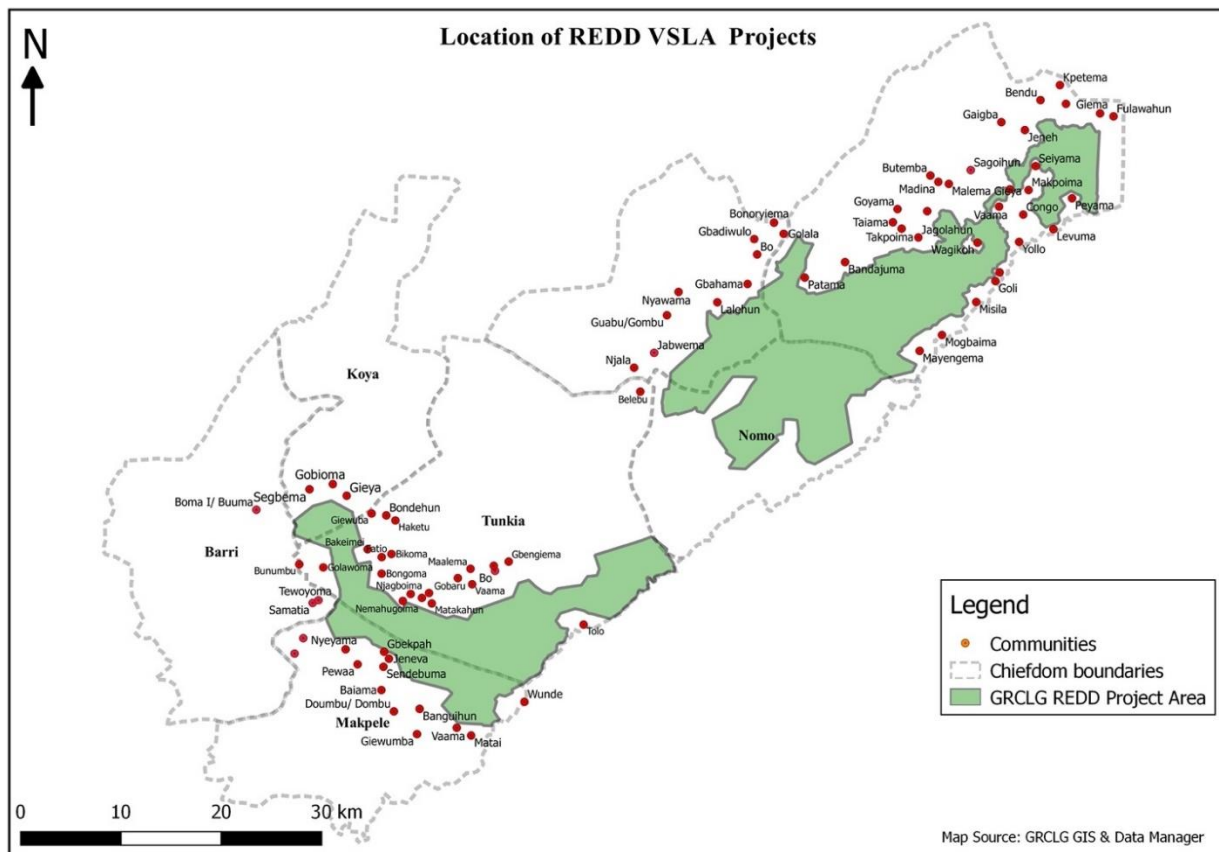
This program follows the assumption and rationale that enabling villagers to have access to a pot of funds that can be used to finance alternative livelihoods or used in times of emergency will provide improved and diversified incomes thus reducing pressure on forest resources (and thereby reducing GHG emissions) whilst providing net positive benefits to forest edge communities. This activity has been implemented in all 122 villages of the leakage belt over the past 6 years of the project, a new activity plan is now being developed. See **Figure 13**. We believe this holds true as the project is providing critical access to capital for local villagers. While there have been setbacks and it is complicated, this has the potential to help the people break out of just subsistence.

Table 41. Net positive community impacts of Saving and internal lending communities.

Outcome Indicator	Sampling Type/Product	Timing/Frequency	Results of Evaluation
Number and value of loans taken	accounting records per VSLA group	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	<p>2016: 11 groups 565 loans were taken, with a total loan value of SLL 64,089,500 (USD 4,957) 34 groups completed their third savings & loan cycle and paid out to individual members savings plus money accrued from interest paid on the loans to individuals.</p> <p>2017: 82 loans were given to group members in all the 4 groups in Makpele chiefdom totalling to Le. 31,430,000 (USD 2,430)</p>

			<p>2019: 394 loans in Malema totalling Le 33,447,000 (USD 3,280)</p> <p>Total loans = 1,041 Total loan value = USD10,667</p>
Number of group members taking loans	account data	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	<p>2016 – 92 % of the group members took one or more (up to 3) loans.</p> <p>2017 - A total of 82 members were recorded to have taken loans in all the 17 groups established</p> <p>2018 - The programme continued to support the 17 old groups in two chiefdoms (Barrie- 5 and Mapkele -12), total of 29 group were supported.17 groups are now in the second cycle (Barrie and Makpele).</p> <p>2019, 12 news groups were established in one chiefdom- Tunkia.</p> <p>2019 – 34 new group and 690 of 2020 members taking loans</p>
Purpose loans are taken for	Accounting data	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	During 2017 cycle, members took loans mainly for payment of school fees for their children, buying of farm inputs (seeds), health care and petty trading. Buying of farm inputs topped as the main purpose majority of members were taking loans for.
Financial assistance given to group members from the 'social fund' of VSLA	Accounting data	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	<p>2016 – For the 11 cycles closed a total of 5,712,500 SLL was paid into the social fund. Only 333,000 SLL of payments was made out of the social fund with 10 people benefitting.</p> <p>2017 - A total of Le. 425,000 out of 4,200,000 SLL saved as social fund was paid out as support to 17 members in the 4 groups in Makpele chiefdom. The money borrowed was used mainly for sickness.</p> <p>2019- A total of 12,240,000 le (1,204 USD)</p>
Personal Service Provider (PSP) is elected and trained within the VSLA group	Meeting minutes	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	49 PSPs have been elected and trained since 2015
Number of new groups set up by PSPs	Implementa tion records	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	4 New groups were set up by the PSP 3 in Tunkia and 1 in Makpele chiefdoms in 2017. None since.
Increase in size and kinds of income generating activities as a result of loans	Survey among selection of VSLA group members	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	<p>Activity Survey (2017): income generating activity:</p> <ul style="list-style-type: none"> • 40% used for rice production • 21% groundnut production • 9% oil palm production • 30% for petty trading

Figure 13. Location of VSLA Projects around the GRNP



4.1.1.4. Co-management of community use zones in the GRNP and land use mapping and planning in the leakage belt

The Co-management and Land Use Planning (CM & LUP) programme is intended to support forest edge communities (FECs) with improving resource governance both within the project zone (i.e. within GRNP) and within the project leakage belt (i.e. within private/community land). The programme is initially piloted with one cluster of FECs in 2015 and a second cluster in year 2 and was then extended to include clusters in subsequent periods. In the participating clusters, 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). Resource groups are assisted to map sites within GRNP that were used in the past for resource extraction and cultural activities. The maps are used to define community use zones (CUZs) within the National Park, where non-timber forest product (NTFP) (Wageningen Masters Research in Supporting Documents) extraction will be jointly managed and monitored by GRCLG and the resource groups. The responsibilities for management and monitoring will be set out in a co-management plan. Where applicable, resource groups will be assisted to formalise exclusive access and extraction rights through the development and signing of co-management agreements. Resource groups will also be assisted to map land use outside the National Park, and to develop land use plans for these areas. These plans will promote sustainable resource use through the establishment of bylaws to regulate where and when different types of land use will be permitted, and to set quotas for the extraction of resources.

Unfortunately, the programme was not implemented during the 2017 cycle due to lack of legal structures to formalize the involvement of FECs in the National Park. About who can do what when, how and utilize how much of a resource in the zones to ensure sustainable use of the resources and roles and responsibilities of all the parties i.e. The current Sierra Leonean legislation (NPAA Act, draft revised Forestry Act and draft revised Wildlife Act of 2015), does not mention the issue of co-management inside protected areas. Hence, there is no legal framework for formalizing co-management agreements that would provide communities exclusive co-management rights inside GRNP. NPAA has however drafted a new Forestry Act formalizing co-management agreements in 2017. The Act is currently awaiting validation from parliament expected by the end of 2020.

Despite these obstacles the project has established 3 resource user groups, and some communities have passed by-laws to protect species in their community forest (White necked Picathartes). Education work carried out by the project (community Initiative 5) has encouraged communities to be more proactive in protecting their forests with deforestation 30% less in the FECs than in the wider community forests (Kontoleon 2020) This excellent engagement needs to be utilised during the next reporting period.

This program makes the assumption that effective CBNRM will mitigate leakage in the project zone 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. 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 is being implemented with the forest edge communities in the leakage belt. We believe this holds true.

Table 42. Net positive community impacts of Co-management of community use zones in the GRNP.

Outcome Indicator	Sampling Type/Product	Timing/Frequency	Results of Evaluation
New by-laws drafted and adopted	report of by-laws	one-off with possible revision and updating over time	No new bylaws relating to resource use were adopted (refer opening paragraph to this section above) in the reporting period, but the 3 resource user groups have identified a community use zone (CUZ). A community by-law was adopted to protect a picathartes nesting site within a community forest.
Land use plans	report and maps	one-off with possible revision and updating over time	Progress towards this indicator will be measured upon consultation with WHH and Environmental Foundation for Africa (EFA) for the land use mapping exercise during the 2020 implementation cycle.
Co-management plans	report and maps	one-off with possible revision and updating over time	Progress towards this indicator will be measured upon formation of resource groups, development of land use plan and adoption of by-laws in the 2020 programme implementation cycle.
Sustainable extraction of natural resources	Longitudinal Survey	Every 5 years	The 2019 implementation cycle, a baseline phase of this activity will be done to identify the available extractable natural resources. To determine the intensity of the harvesting in Gaura, Makpele and Nomo Chiefdoms, NTFP activity was surveyed it was focused on identifying if and where there are areas of overharvesting of rattan, and whether restrictions were required in those areas.

			<p>Extraction of rattan was considered sustainable.</p> <p>The 2019 longitudinal survey (Kontoleon 2020) found an increase in NTFP income for REDD+ villages, indicating that sales of NTFPs went up by 76%. Looking at which NTFPs are collected, we find that more households have started collecting building materials, and more hunting is taking place in FECs.</p>
Active FEC engagement in protection of project zone	Number of violations addressed by Community Management	Annually	Progress towards this indicator will be monitored and measured upon identification of the pilot FECs and agreement on the natural resource land use and management.
Signed CM Agreement between community and GRNP concerning implementing the co-management plan	Agreement	Annually	This indicator is monitored through the Activity Survey (see document Output, outcome, and impact monitoring for the Gola REDD project). Progress towards this indicator will be monitored once the resource sharing framework has been formulated and adopted
Awareness of rights of access and use of the GRNP by local people	Survey	on-going during programme roll-out	

4.1.1.5. Education

The Environmental Awareness and Education Scholarships programme is intended to enhance environmental awareness and promote community support for the protection of the GRNP. The project has three components (i) environmental road shows consisting of visual & audio presentations and performances organized by GRNP staff in villages throughout the project zone (principally within FECs); (ii) establishment of nature clubs in primary and secondary schools throughout the project zone (principally in schools serving FECs) and provision of teaching materials and support with running field visits to the National Park; (iii) awarding of annual secondary school scholarships covering school fees, uniforms, and a school bag for 1 male and 1 female child from each FEC. If performance/attendance is satisfactory then it is expected that individual children will continue in the scholarships until they have completed their secondary education.

In the reporting period almost 1000 scholarships have been awarded to local school children (50% girls) and 40 wildlife clubs have been either supported or established and supported. 34 road shows to communities have been conducted attracting almost 10,000 community members.

This programme assumes that 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. We believe this still holds true as educating people is key to long term success of conservation and can change the paradigm for a new generation.

Table 43. Net positive community impacts of Education.

Outcome Indicator	Sampling Type /Product	Timing/ Frequency	Results of Evaluation
Number of years of secondary school education completed by FEC children	School records	On-going	School scholarships. A total of 1169 school scholarships were funded throughout the project with 1:1 gender balance. In one sample (2015) the percentage on students that passed their end of year exams was the same for boys and girls, 86%.
Improved education on natural resource management by FECs	Longitudinal Survey	Every 5 years	<p>The project supported education at a range of levels across communities. These can be summarised as:</p> <ul style="list-style-type: none"> • Wildlife Clubs. A total of 39 are in existence due to the project, that are supported on a regular basis by project staff. • Road shows 36 community 'roadshows' we made to communities across the 7 chiefdoms. Over 19,000 people attended these. <p>The longitudinal survey did not uncover any measurable difference in attitude between forest edge and non forest edge communities, emphasising that environmental education needs to continue long term!</p>

4.1.1.6. Crop Raiding by Wildlife

The Crop Raiding by Wildlife programme is intended to assess, address, and monitor crop raiding and other forms of wildlife/ community conflict within the project area. Initially incidences of wildlife/ community conflict are recorded, and the current source and scale of crop raiding and current mitigation measures are surveyed and assessed. Following this assessment, a strategy is developed that identifies the key conflicts and provides recommendations for mitigation. The strategy is communicated to communities through a series of training workshops.

The project is administered jointly by the GRCLG Research and Monitoring (R&M) and Community Development (CD) departments. The R&M department (with support from the RSPB Conservation Science department) is responsible for assessing the source and scale of crop damage. This has been complemented by a UK Government Funded Darwin Initiative Grant. Progress was tracked and reported through annual Darwin project reports. The CD department is responsible for recording incidences of conflict, surveying current mitigation measures, developing the strategy, and running training workshops.

With the contribution of the Darwin Initiative project, in-depth studies were carried out into the crop raiding challenge this resulted in an MSc thesis and several peer reviewed papers. The Wildlife survey report (Hulme et al.2018) noted that 18% of cocoa pods around GRNP are damaged. 87% of damage is caused by monkeys, 11% by rodents and a minimal amount by chimpanzees. The study also surprisingly noted that monkey damage increases closer to settlements, reflecting that the species adapted to human disturbed landscapes are primarily responsible (Campbells Monkey). The study also critically noted that if cocoa pod density is increased then the proportion of damage goes down.

Mitigation measures have only just been introduced and will likely involve support to increase productivity on farms.

Table 44. Net positive community impacts of crop raiding by wildlife interventions.

Outcome Indicator	Sampling Type/Product	Timing/Frequency	Results of Evaluation
Farmers adopt mitigation measures	Longitudinal Survey	Every 5 years	In the longitudinal survey (Kontoleon 2020), to assess mitigation measures undertaken by farmers to prevent them against losses from crop raiding by wildlife all households were asked if any methods for protection were used. In addition, we households were classified by the extent of protection measures taken and report the proportion of households indicating that they protect 'all crop'. The number of household actually doing some protection work where 57 % in the FECs and 54 % in the Non FECs this is an increase from 47 % for both FECs and Non FECs 2013. Most Farmers are only protecting some part of their crop.
Less cropland is damaged by wildlife	Longitudinal Survey	Every 5 years	The average income from crop sales amount to 624,000 Le per household. When we compare FECs and non-FECs: average incomes for non-FEC households are 30% higher. Cocoa is the crop that produces the highest income per household, while earnings from cocoa are higher in Non-FEC (948) than FEC (801) households. Upland rice is the crop which is most prevalent - produced in both non-FEC (68%) and FEC (77%) households.
Crop incomes increase as a result of better harvests	Longitudinal Survey	Every 5 years	Harvest data from upland, wetland (local) and wetland (ivs) rise have not been measured as accurate as necessary to obtain robust estimations.

4.1.1.7. Chiefdom development fund

The Community Development Fund programme is intended to assist the seven Gola Chiefdoms with the implementation of sustainable development projects. Each chiefdom receives annual funding of \$12,000 USD as set out in the Gola REDD project benefit sharing agreement, and funds are managed in each chiefdom by the Gola Community Development Committee (GCDC) consisting of elected representatives of the chiefdom. Following clearly defined procedures, project ideas are put forward by communities and suitable ideas are developed into project proposals by a GCDC with support from GRNP staff. The approval of projects and release of funds is subject to an assessment of proposals by GRNP. Project implementation is monitored by GRNP staff and an evaluation is completed 1-6 months after the completion of each project. In addition, the following funds are disbursed annually as per the agreement:

- Paramount Chiefs: \$2,000 each
- Section chiefs: \$500 each
- District Council: \$1,000 per district
- Landowners: \$4,000/Chiefdom

- GCDC: \$1,000 per chiefdom

plus

- Chiefdom Scholarship: \$7,500 (total across all 7 chiefdoms)

Community landowners also receive payments via a Benefit Sharing Agreement developed by the Gola Forest Programme. This amount is currently set at \$28,000 (as above, at \$4000/chiefdom) to be equally divided between the heirs of the original landowners identified in the landowner register. These payments have continued under the Gola REDD project and can only be sustained with REDD revenues and are made in lieu of potential royalties and for complying with the terms of the landowners agreement. The register currently contains the names of 1,141 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 Reserve.

This programme makes assumptions and rationale that 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. We believe this holds true as the project is shown to have a neutral impact to date on livelihoods (with some statistically insignificant improvements) whilst protecting forest

Table 45. Net positive community impacts of chiefdom development fund.

Outcome Indicator	Sampling Type/Product	Timing / Frequency	
Improvement in core areas of development selected in activity plans	Selected/ designed based on annual monitoring surveys and Longitudinal Survey	ongoing	<p>All 7 chiefdom's \$12,000/yr funds over the 5 years has collectively delivered 85 projects in the reporting period. These are detailed in Annex 7. Number of project proposals implemented but encompass:</p> <p>Community halls (29), Rice mills (34), offices (3), schools (4), water/sanitation (6), bridges (2), Roofing (4), clinics (2)</p> <p>Land owning families continue to receive their payments.</p> <p>Scholarships are reported on in section 4.1.1.5</p>

4.1.2. Net Positive Community Well-Being Impacts (CM1.1)

Without the project, the predicted scenario in the project document is 'unplanned deforestation due to smallholder agriculture practices. This scenario notes that 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. 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, and this still remains the case. Farming inside the project area occurred before conservation management and law enforcement began in 2004 and encroachment by local communities for farming continues to be a commonplace activity inside Forest Reserves in Sierra Leone and consequently an alternative land use scenario that is consistent with common practice.

The project therefore designed its second goal to directly address this:

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.

The project used the methodologies outlined in the Social and Biodiversity Impact Assessment (SBIA) manual for REDD+ projects (Richards and Panfil 2011) to evaluate project impacts through the theory of change approach (Tatum-Hume and Witkowski 2013).

The assessment of the Net Positive impact was made through a repeat of the longitudinal survey conducted in 2014/15 (Kontoleon et al 2015). This repeat survey was conducted in 2019, Kontoleon (2020) and the report is in the supporting document file. The report compares communities at the forest edge (those receiving direct REDD+ support) and non-forest edge (indirect support) across the 7 chiefdoms allowing a useful measure. The surveys were conducted by a highly skilled and experienced team from the Universities of Cambridge and Wageningen with support from the project and GRC partners.

As highlighted in section 4.1.1. the project has delivered a large and wide-ranging scope of community initiatives across a large area of forest edge communities and the wider community, consistently and over multiple years. The 2019 longitudinal survey (Kontoleon 2020) shows a highly significant impact of REDD on reducing deforestation. It also shows a suggestive (but not highly significant) positive impact on cocoa production. The rest of the livelihood indicators are not registering statistically significant changes based on this analysis. What this does show is that the project, and specifically stopping agricultural expansion into the protected area, has had no negative affect on livelihoods and the project interventions are likely to have achieved this.

The analysis is based on more robust difference in difference analysis of 'indicators' of a series of variables and not on simple t-tests between responses to specific survey questions take in isolation. The analysis is also based on a pre-analysis plan which ensures the credibility of the results.

Table 46 below summarizes the net impacts of community initiatives undertaken by the project on each community group. This is analyzed for each group against a set of project indicators and verified by the longitudinal survey (Kontoleon et al 2020)

Table 46. summary of Net Impacts of community initiatives on each community group.

Community Initiative	Community Group	Impact indicators	Impact achieved
1. To improve productivity on existing crop fallow land	Forest Edge communities	<ul style="list-style-type: none"> • Farmers' incomes from the sale of harvested crops. • Farmers increased ability to meet basic needs from increased income. • Farmers better able to meet basic food needs with reduced hunger gap 	<p>The longitudinal survey (Kontoleon 2020) shows that Farmers have an annual income from crop sales of 624,000 leones compared to 220,000 leones 2013. Farmers outside of the FECs have in average 30% higher income from crop sales. This figure includes farmers with no income.</p> <p>Changes to incomes as a result of the longitudinal survey are noted as not being statistically significant, likely due to the early stages that the crop programme is at (and was delayed by the Ebola Crisis).</p> <p>The 69 Farmer Field Schools established by the project have 2245 members (51% female). Of these over 100 are now Master Farmers, who have in turn trained over 884 Farmer field School members (50% Female). The project is also distributing improved seed varieties.</p> <p>Kontoleon et al (2020) find suggestive evidence that communities moved to forest-friendly crops and improved productivity, but found no evidence of large changes in conservation attitudes or livelihoods. This suggest that the REDD+ programme did what it was supposed to do: it improved conservation outcomes whilst at the same time not making affected communities worse off.</p>
2. To improve productivity and farmer income from cocoa production and other diversified sustainable income	Forest Edge Communities	<ul style="list-style-type: none"> • Income increases from sale of cocoa. • Reliable market from fixed supply agreements of purchasers of sustainable cocoa. • Farmers increased ability to meet basic needs from increased income • Farmers better able to meet basic food needs 	<p>As above.</p> <p>50% of households sell cocoa, while Non-FEC households are more likely to sell cocoa (53%) than non-FEC households (47%). Of those households making a profit from cocoa, the average income from cocoa amounts to 889,000 Leones per year, while the income from cocoa is 15% higher in Non-FEC households (948,000 L) than in FEC households (801,000)</p> <p>The annual average household income 2019 in the 29 Sampled FECs was 1188 000 Leones equal to 33 000 Leones per day and household. The</p>

Community Initiative	Community Group	Impact indicators	Impact achieved
generating activities		with a reduced hunger gap	<p>average daily expenditure per household is 14 000 Leones according to the survey.</p> <p>The number of farmers getting an income from cocoa in the 29 FECs have increased from 15 % 2013 to 47 % and the average income from cocoa sell is 801 000 Leones for the 2018-2019 season. This should be compared with fact that the average income from all crops including cocoa from all (100%) farmers is 501 000 Leones, Cocoa is the most important cash crop especially in the northern and central FECs.</p> <p>Do to better cocoa management, expansion, rejuvenation increasing the yields as well as better access to markets we expect the income to increase further the coming years.</p> <p>In addition:</p> <ul style="list-style-type: none"> • 3 containers (1 in 2017 and 2 in 2019) of Cocoa exported in 2017 and 2018 • Fair Trade certification was received by three farmer associations from Malema, Gaura and Koya and Tunkia chiefdoms that collectively form a local Producer Organisation up to October 2019, with full certification in February 2020. • Established links between Farmer Groups and reputable international traders • Farmer reports of yields of farms doubled from 50-100kg/ha as a result of the project support. • Increasing quality of yields and beans is increasing demand and prices. • During the last 2 years GRC has developed a good track record with chocolate producers and different traders in UK, EU & USA. However, the project cannot yet fully guarantee the volumes needed to enter into fixed supply agreements. It is believed that within 2 years that fixed supply agreements will be in place with customers. Organic and or Fairtrade certification will reinforce this possibility.
3. To enable forest edge communities	Forest edge communities	<ul style="list-style-type: none"> • Improved income helping to meet HH basic needs • Reduced short term crises as a result of 	<p>Kontoleon 2020 notes the proportion of households experiencing an emergency was 66% out of those households 8% indicated that they were</p>

Community Initiative	Community Group	Impact indicators	Impact achieved
to achieve financial independence		support from social fund of VSLA group.	<p>using funds from the VSLA group. The figure for 2013 was 9 %. This illustrates the importance of such a fund to supporting livelihoods.</p> <p>Over 1000 loans have been taken over the reporting period and membership of the groups is over 2000 people.</p> <p>The project takes a diverse approach to supporting livelihoods through agricultural support, cocoa programme, savings and loans and collaborative forest management.</p> <p>In terms of income the longitudinal survey did not find any large differences between REDD+ and non-REDD+ villages indicating that the REDD+ programme has not had an impact on income as measured in our survey and over the specific observed timeframe (2014-2019). We find, with moderate confidence, that REDD+ villages have higher irregular expenditures (e.g., goods and events such as education, health and burials) than non-REDD+ villages.</p>
4. To provide an enabling environment and capacity for forest edge communities to sustainably manage forest areas	Forest edge communities	<ul style="list-style-type: none"> Improved knowledge of the laws as they apply to the Gola National Park Improved income from NTFPs in project zone Improved participatory governance structure for the decision making and management of the GRNP Setting up of a democratic process for natural resource management Improved food security from subsistence use of NTFPs in the project zone 	<p>Community forest interim committees have been established in 2 forests.</p> <p>Households were asked about legality of 5 activities related to behaviour in the GRNP including logging, hunting, collecting Non-Timber Forest Products, mining and fishing and had to judge their legality. 9 % answered all five questions correct in 2013, both in non FECs and FEC. In the survey 2019 50 % of the Households in the FECs answered all question correct while 88 % answered the question correct in the non FECs.</p> <p>Only 12 % of the households in the FECs had income from NTFPs, average income among them was 13 000 Leones. Households in FEC also had slightly higher (16%) income from NTFPs.</p> <p>Building materials and yams are collected by more than 50% of all households and thus constitute the most collected items. When comparing FECs and non-FECs: the proportion of items collected across most items is higher in FECs which indicates that FECs are more dependent on NTFP items.</p>

Community Initiative	Community Group	Impact indicators	Impact achieved
		<ul style="list-style-type: none"> Improved food security from subsistence use of NTFPs in the project zone 	<p>Note this initiative was delayed due to a number of studies being carried out to develop a workable implementation plant with communities. In 2019 a comprehensive study of NTFP was conducted. A review of the GRNP Management plan has recently being conducted, form this a comprehensive co-management plan will be developed, which will be funded by an EU grant initiated in January 2020.</p> <p>In trainings on agricultural intensification, GRC emphasizes the importance of preserving forests. In addition, the mere adjacency of the protected forest and the presence of GRC in these areas could have increased awareness of conservation. The longitudinal data was inconclusive on this, however the report points to an overall reduction in deforestation in the leakage belt to 1%, compared to 3.3% in non-leakage belt areas – implying a 30% reduction in deforestation.</p>
<p>5. To enhance environmental awareness and promote community participation in the management of the GRNP</p>	<p>Paramount Chiefs Landowning families forest edge communities</p>	<ul style="list-style-type: none"> Improved Education Levels Communities supporting the protection of the Park 	<p>The project supported education at a range of levels across communities. These can be summarised as:</p> <ol style="list-style-type: none"> School scholarships. A total of 925 school scholarships were funded throughout the project Wildlife Clubs. A total of 39 are in existence due to the project, that are supported on a regular basis by project staff. Road shows 34 community 'roadshows' we made to communities across the 7 chiefdoms. 9163 people attended these. Farmer Field Schools. <p>The longitudinal survey (Kontoleon 2020) notes the proportion of Adults with no education is 72 % for FECs and 64 for non FECs while the proportion for children with no education is 46% in FECs and 27% in Non- FECs.</p> <p>The coefficient for attitudes is large and negative but not precisely estimated. For knowledge of conservation rules and use of sustainable farming practices the coefficients are large but again, not precise enough.</p>

Community Initiative	Community Group	Impact indicators	Impact achieved
6. Implement and monitor mechanisms that equitably compensate stakeholders and promote incentives for conservation practices in the project zone and offsite zone	Paramount Chiefs Landowning families forest edge communities	<ul style="list-style-type: none"> Farmer perception of Human Wildlife Conflict Change in species composition in project zone 	<p>The longitudinal survey (Kontoleon 2020) notes there was a small positive coefficient for human wildlife conflict perceptions. The relatively small sample that we have for our survey data could be the reason why we cannot detect smaller effects, which makes it difficult to rule out that conservation norms did not at all change. The majority of the household perceived crop raiding to be a 'problem' is slightly higher in the Non-FECs 85 % then in the FECs 81%. Breaking down to ranking the extent of the problem there is a perception that problem is 'more serious' in the FECs</p> <p>See section 5 for overview of species compositions. Key species monitored have stable or increasing populations.</p>
7. Chieftom development fund.	Paramount Chiefs Landowning families forest edge communities	<ul style="list-style-type: none"> Increased income, health, food security (depends on activities chosen) 	<p>A total of 85 projects were delivered including community halls (29), Rice mills (34), offices (3), schools (4), water/sanitation (6), bridges (2), Roofing (4), clinics (2)</p> <p>The focus here has been on community infrastructure projects supporting the above range of facilities. The direct impact of each of these is not monitored but is assumed to have an overall positive impact on community development as priorities are set by the Gola Community Development Committees made up of community members.</p> <p>Note also the livelihood/wellbeing indicators in sections 1 and 2 of this table.</p>

4.1.3. Protection of High Conservation Values (CM1.2)

The monitoring of HCV's 1-4 are covered in the Biodiversity Monitoring Plans although it is acknowledged there are cross-cutting impacts here on communities. HCV's 1-4 are closely aligned with the principle objective of the project: to reduce the drivers of deforestation within the GRNP so that the rainforest is conserved. You can find more details of 1-4 in section 2.2. of this report. In contrast HCV 5 and 6 specifically related to communities and are evaluated below.

HCV 5

In the CCB Project Document (2105) it is established that 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. 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 is monitored via Objective 4 in the Project Document and reported above in Community Initiative 4 under section 4.3.2. In summary limited progress has been made in this area due to unclear forestry laws.

HCV 6

The CCB Project Document (2015) established at the project zone does comprise areas which met HCV 6 as they provide for two critical traditional cultural activities:

Secret society (Sande and Poro): As part of the initiation process in Mende culture, 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 and are both within the bush areas of the leakage belt in the project zone and in the protected area (Personal communication, GRC LG 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 and are protected by communities and are viewed as sacred it is not possible to map or preserve and particular areas for this activity. However, as 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. However, due to the lack of clarity on the Forestry Laws this has not been progressed further. See **Table 51**. for more details.

4.2. Offsite Stakeholder Impacts

4.2.1. Mitigation of Negative Impacts on Other Stakeholders (CM2.2)

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. The CCB Project Document (2015) noted that not possible to target communities or individuals with mitigation activities for the loss of access to the project area as there was no particular pattern of use and therefore no specific negative impacts. Instead, the project provides 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 \$12,000, as per the benefit sharing agreement. These benefits are monitored in Community Initiative 7, reported across this section.

In addition to the above project provides 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, (community Initiative 5) employment to the project as permanent or casual staff (Community Initiative 8) and capacity building.

4.2.2. Net Impacts on Other Stakeholders (CM2.3)

Restriction of access to project area

As noted in 4.2.1. the project delivered payments to offsite villages across the 7 chiefdoms throughout the reporting period as payments for \$1,000 annually for each of the 7 chiefs, \$9,500 annually for each of the 7 Chiefdoms for priority development projects (see 4.1.2. above) and for some community members who receive part of the \$28,000 for land owning families.

Table 47. Benefit sharing agreements were updated to the following in 2018/19

Recipient	Amount (USD)	Number	Total
Paramount Chiefs	\$2,000 per PC	7	\$14,000
Section Chiefs	\$500 per Chiefdom	7	\$3,500
CD Fund	\$12,000 per Chiefdom	7	\$84,000
District Council	\$1,000 per District	4	\$4,000
Landowners	\$4,000 per Chiefdom	7	\$28,000
Chiefdom Scholarships	\$7,500 in total	1	\$7,500
GCDC	\$1,000 per Chiefdom	7	\$7,000
Total			\$148,000

4.3. Community Impact Monitoring

4.3.1. Community Monitoring Plan Development (CM3.3)

Not applicable. Please see the CCB social monitoring plan already developed and in use. (Henman 2013).

4.3.2. Community Monitoring Plan Results (CM3.1, CM3.2, GL2.5)

The results of monitoring across the 7 community initiatives are presented in the tables below at project **Output/Result** level. This is broken down by stakeholders (in the output indicators), methods, frequency and the results of our monitoring.

Table 48. Community Initiative 1. Crop intensification and increased production activity.

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
Number of Farmer Field Schools implemented	record in data form	on-going during programme roll-out. Have quarterly review to ensure data has been collated.	Prior to 2015 35 Farmer Field Schools (FFSs) had been established, in 32 Forest Edge Communities (FECs). By the end of the reporting period there are 83 FFS in 82 FECs.
Number of FECs receiving farmer field schools	Compiled from data forms		82.
Number of farmers actively participating in Farmer Field schools	Compiled from field school events		There are 1148 female and 1097 male. TOTAL = 2245
Number of trained Master Farmers	record in data form		136 trained master farmers.
Number and location of workshops convened	record in data form		During 2015, 44 Master Farmer (MF) training workshops were implemented, 4 in each of the 11 MF training centres, covering different crops and different topics. 2016 saw 5 in each of the 11 centres and 2017 saw 10 events in 10 centres. Totaling 199 events. A total of 128 master farmers (14 females 114 male) were trained from the 64 cocoa farmer groups in 2018. 2019 saw 11 workshops in 10 communities
Number of farmers trained by Master Farmers	Registration forms from training events		During 2017 a total of 884 farmers were trained by master farmers, 444 male and 440 female from the 34 FFSs.
Quantity of improved seeds distributed	Signed forms from villages receiving seed		27 FFS received seeds of 4 varieties in 2015, 34 FFS received 2 varieties in 2016 and in 2017 34 FFS received 6 varieties. 2019, 7 varieties totaling over 2300kg

Table 49. Community Initiative 2. Improved cocoa production and post-production.

Output Indicator	Sampling Type/Product	Timing/Frequency	Results of Monitoring
–maps of abandoned and maintained cocoa plantations	maps	Initial and then re-assessment after 6 years	During 2017 the cocoa plantation mapping was done in Malema, Gaura, chiefdoms. 122 farms were mapped 17 were found abandoned and 105 were found to be active. Data is ad hoc since then.
Number of farmer groups established e.g. farmer based org for selling, association, cooperative	record in data form	on-going during program roll-out. Quarterly review to ensure data collated.	Over the course of the reporting period 79 Farmer Groups have been established across 83 Villages. Total participants in the reporting period is now 953.
Number of master farmers trained	Registration forms from training events	As above	<p>2015 saw 96 master farmers trained in 2 events, 2016 and 2017 saw 112 trained in 2 events. 2018 saw 128 (14 females 114 male) were trained from the 64 cocoa farmer groups. 2019 saw 173 trained (519 master farmers and youth</p> <p>Events are the same every year, focussing on the establishment of new cocoa plantation including out planting and cocoa processing and quality</p>
Number of farmer groups trained by Master Farmers	Registration forms from training events	As above	All 61 farmer groups were trained by master farmers in 2016, 2017 and 2019 (over 300 participants in each session and 974 in 2019)
Number of Master Farmer field schools established and meetings held	Registration forms from training events	As above	<p>Prior to the establishment of the centres 7 Master Farmer training groups has been established in 2015 with meeting held quarterly thru 2015 and 2016. By 2017 19 Master Farmer field schools (training centres) were established and 19 training meetings were held for 122 master farmers and 244 youths focusing on good agricultural practices.</p> <p>In 2018, 19 Master Farmer field schools (training centres) were established and 19 training meetings were held for 122 master farmers and 244 youths focusing on good agricultural practices. In 2019 15 MF groups were established and met in 4 workshops. TOTAL =50 meeting held</p>
No. of participants at farmer field schools (FFS)	Registration forms from training events	As above	As result above: 'Number of master farmers trained'

Output Indicator	Sampling Type/Product	Timing/Frequency	Results of Monitoring
No. of cocoa seedlings planted out	record from nursery on number of cocoa seedlings distributed	As above	In 2017 25,000 seedlings were raised from community nurseries in addition it was reported that 74600 seedlings were raised in private nurseries this makes a total of 99600 seedlings. This equates to approx. 90 hectares new plantation. These seedlings were transplanted in May-June 2018. No survey in 2019
No. of exchange visits made to well-managed cocoa farms	record in data form	As above	<p>One exchange visit in 2015 and in 2017 Superintendent Cocoa was invited by Rainforest Alliance 2017 to Ghana to acquire specific knowledge on cocoa production harvest and postharvest technologies as well as certification and traceability processes.</p> <p>The Cocoa Supervisor and Gender Coordinator in 2018 went to Rainforest Alliance in Ghana to acquire specific knowledge on cocoa production harvest and postharvest and to understand how cooperatives in Ghana work and to compare to Sierra Leone and adopt. Later together with the Technical Advisor she attended the World Cocoa Conference in Berlin, for learning and networking among others they participated in discussion around Fine flavour cocoa and women in cocoa.</p>
Amount of cash for work support provided – no. of people, amount per person, total budget.	signed forms on receipt of cash payments from labourers	As above	<p>In 2016 cash for work support was given cocoa farmers for rehabilitation of 12 acres of cocoa nurseries using funds from WHH A4D project.</p> <p>During 2017 there was no cash for work supplied to Farmers as we are trying to minimize this in the cocoa business approach. However, material support for 7 farmers demo plots, some tools for new FFS and contribution to polybags we were provided and cost sharing for 25,000 polybags for raising seedlings for cocoa nurseries.</p> <p>In 2018 the project did not hand out any cash for work but on behalf of the farmers rented a warehouse, established a Chiefdom office for one in Gaura, distributed three secondhand motor bikes to 3 Farmers associations and supported the formation of an umbrella body (UNION), registered with the Sierra Leone Cooperative Society.</p> <p>In 2019 over 100 million SLL (c. USD 10,000) was paid to 1,429 farmers to rehabilitate cocoa farms in Gaura, Tunkia and Koya</p>
Amount of money paid back into the Community Fund	accounting records	As above	During the 2016, cash for work support was being provided by WHH (partner). However the program encouraged farmer groups to start a voluntary community fund. At beginning of 2018 Gaura chiefdom farmers association had Le. 7,822,500 in their community fund. Malema had beginning of 2018 over

Output Indicator	Sampling Type/Product	Timing/Frequency	Results of Monitoring
			Le. 4,128,000 and Koya and Tunkia chiefdom's farmer associations Le. 996,000. More on this will come up from their various AGMs which are expected to take place soon
No. of fermentation boxes supplied	As above	As above	By 2017, 99 fermentation baskets had been distributed to the 42 groups, 2 per group with some bigger group receiving 3 baskets. Plans are under preparation to expand this. 2019 3 were supplied. TOTAL=102
No. of drying facilities installed (and locations)	record in data form and/or farmer to sign on receipt of equipment	As above	2016 40 drying booths with a cover of solar plastics were installed (WHH A4D project) in 37 communities. 2017 GRCLG were promoting farmers to build more simple raised tables without solar plastic. 20 Raised tables were built in the training centres by the farmers 2018, 64 experimental elevated drying tables were built or constructed by all FFSs as a way of inspiring all members to construct one each for drying of their cocoa beans to maintaining quality. 2019 14 facilities added. TOTAL= 138
Refresher training carried out	record in data form and farmer to sign participation list	As above	In 2017/2018 4 refresher trainings were done by the GRNP staff as expected in 19 training centres covering on nursery establishment, land preparation and out planting, rehabilitation of cocoa farms, harvesting and processing for 122/128 master farmers and 244/256 youths In 2019 4 refresher trainings were done by the GRC staff covering Nursery establishment, land preparation and out planting, rehabilitation of cocoa farms, harvesting and processing TOTAL = 12 refresher training events.
Number of farmer based organizations with links to traders	?	As above	The 3 Farmers associations TUNKOCFA (Tunkia and Koya Cocoa Farmer's Association), MACFA-(Malema Cocoa Farmer's Association) and GACFA (Gaura Cocoa Farmers Association) have been established under one umbrella now called Ngoleagorbu Cocoa Farmers Union (NGOCFU). With a total of 1,766 members. This tree Associations have with support of GRCLG been trained and organised to buy cocoa from their members and sell to traders including GRCLG.

Table 50. Community Initiative 3. Saving and internal lending communities (VSLA).

Output Indicator	Sampling Type/Product	Timing/Frequency	Results of Monitoring
No. of VSLA established, size and location	record in data form	on-going during programme roll-out	Before 2016 35 VSLAs (VSLAs) were established involving 31 different FECs. During 2016 no new groups were established, instead the already established groups were

Output Indicator	Sampling Type/Product	Timing/Frequency	Results of Monitoring
			<p>supported through coaching and mentoring by the GRCLG staff.</p> <p>2017 - 17 new groups were established in Makpele and Barrie chiefdoms (Makpele 12 and Barrie 5)</p> <p>2018 - 12 new VSLA groups were established in Tunkia chiefdom. Remaining chiefdoms to cover are Malema, Nomo.</p> <p>2019- 34 new VSLA groups have been established covering all FECs in Malema.</p> <p>TOTAL = 63 new plus 31 continued = 94</p>
Number of training workshops / meetings on VSLA in villages	record in form	on-going during programme roll-out	<p>During 2015 held 12 training workshops with the established groups were implemented with all members participating. Additionally, 17 sensitization/ introductory meetings were held in 4 of the FECs that already have one VSLA-group and in 13 new FECs. These introductory meetings resulted in 17 groups expressing interest to start as a VSLA-group.</p> <p>In 2016 23 training workshops with the newly established groups were conducted with all 575 members participating. Additionally, 6 sensitization meetings were held in 6 FECs.</p> <p>During 2017, 3 training and sensitization workshops/ meetings were held with the already established VSLA groups. Total 425 members attended the training (210 male and 215 female). More members requested for an additional group to be allowed to start besides the existing ones in the various communities, this in itself is a good outcome of the project activities being implemented.</p> <p>During 2018, 4 training and sensitization workshops/ meetings were held with the already established VSLA groups. Total 708 members attended the training (308 m and 400 f).</p> <p>During 2019-20, 4 training and sensitization workshops/ meetings were held with the established VSLA groups. In total 1020 members attended the trainings</p> <p>TOTAL 46 training workshops to 2728 trained</p>
Number of group meetings per year	records from group meetings	on-going during programme roll-out	<p>Groups meet weekly/fortnightly depending on needs, resulting in hundreds of meetings each year.</p> <p>In 2017, 24 group meetings were held</p> <p>2018 74 in for saving and loan disbursement which were done monthly, according to by-laws of groups.</p> <p>2019 10 meetings</p>
Number of governing committees – with 5 elected members per group	minutes of election. Copies of minutes.	on-going during programme roll-out	<p>All 35 groups have functioning governing committees with a total of 175 governing committee members: 63 women and 112 men. 9 groups have either a chairlady or a women secretary (5 groups have a chairlady and 4 groups have a women secretary). In 26 groups both the chairperson and the secretary are men. Total of 85 new governing committee members were elected in all the 35 VSLA groups for 2017 cycle, 29 for the 2018 cycle and 43 for the 2019 cycle.</p> <p>TOTAL Members = 272</p>

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
Value of the savings (in currency)	accounting records / report	on-going during programme roll-out	The total value of savings of the 11 groups that closed their first cycle in 2016, was 48.652.000 SLL. (USD 3762) During the 2017 cycle a total of Le. 61,517,000 (USD 4758) were saved in all the 17 VSLA groups. The highest group savings was Le. 26,000,000 (USD 2011) and lowest Le. 11,000,000 (USD 851) During the 2018 implementation cycle a total of Le. 363,921,000 were saved in all the 29 VSLA groups. The highest group savings was Le. 269,921,000 and lowest Le. 29,794,000 2019 Le84,216,000

Table 51. Community Initiative 4. Co-management of community use zones in the GRNP and land use mapping and planning in the leakage belt.

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
Consultations with the FECs to negotiate the development and management for community use zones in the National Park.	workshops, consultation and meeting reports	on-going during programme roll-out	Two community forest areas in Malema North, one area of 40 acres and one area of 1500 hectares were proposed by Malema chiefdom and another in Pewa (Makpela Chiefdom) covering a cluster of three forest edge communities
Resource groups established drawing from different social classes	list of resource groups and participants	on-going during programme roll-out	Land use mapping was initiated in 3 FECs in 2015, but these communities chose to postpone the formalisation of a resource group(s) until after the land use maps are available. During 2017 3 resource groups were established with a total of 30 participants, 10 per community. Beekeeping groups trained in 2019 142 people (106 m and 36 f) through 2 events.
Number of Community Use Zones mapped	Maps of Community Use Zones	annually	Mapping of land use mostly outside and partly within the GRNP was initiated for 3 FECs in 2014, but completion of CUZ maps took up to September 2015. Resource groups mapped community forests zones 2018 in Bunubo forest (102 ha), 2019 -2020 in Naiati forest in Barri (253 ha), Gaia Yeiei Forest in Gaura (828 ha), Lukweh forest in Koya (28 ha), Naflador forest in Makpele (103 ha). In total 1314 ha has been mapped
Number of Land use plans under development	land use plan reports and maps with copies	on-going during programme roll-out	Progress towards this indicator is expected in 2018 following the validation of land use mapping and establishment of resource groups in the first pilot cluster of FECs.

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
	provided in an annex		
Graves and burial grounds mapped	Map of burial ground locations	during mapping exercise	No mapping of graves or burial grounds has been done, except for the identification of some burial sites in Malema North for touristic purposes. Indicator was validated in the first quarter of 2018 after consultation with WHH partner organization.

Table 52. Community Initiative 5. Education

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
Number of secondary school scholarships provided to FECs	list of scholarship awardees. Records of payment for scholarship.	yearly	2015 – 200 scholarships 2016 – 237 scholarships 2017 – 244 scholarships 2018 – 244 scholarships 2019 – 244 scholarships TOTAL = 1,169
Number of roadshows carried out	Roadshow reports	Ongoing	2015- none due to tail end of Ebola outbreak 2016 - 6 2017 - 14 2018- 14 2019 - 14 TOTAL= 48
Number of people attending roadshows	Roadshow reports	Ongoing	2015- none due to tail end of Ebola outbreak 2016 - 1250 2017 - 3560 2018- 4353 2019 –10,406 TOTAL = 19,569
Number of Nature Clubs set up	record in data form of nature clubs set up	on-going	34 were already existing, established in the previous reporting period. 5 Additional clubs set up in reporting period. Totaling 39. All supported in reporting period. An additional 25 clubs exist in non forest-edge communities

Table 53. Community Initiative 6. Crop Raiding by Wildlife.

Output Indicator	Sampling Type/Product	Timing/Frequency	Results of Monitoring
Source and scale of crop raiding evaluated	Report on crop raiding	2014	With the contribution of the Darwin Initiative project, in-depth studies were done on the crop raiding challenge this resulted in an MSc thesis and several peer reviewed papers. Hulme et.al.2018 noted that 18% of cocoa pods around GRNP are damaged. 87% of damage is caused by monkeys, 11% by rodents and a minimal amount by chimpanzees. The study also surprisingly noted that monkey damage increases <u>closer</u> to settlements, reflecting that the species adapted to human disturbed landscapes are primarily responsible (Campbells Monkey). The study also critically noted that if cocoa pod density is increased then the proportion of damage goes down.
Understand current mitigation measures and their effectiveness	report on crop raiding mitigation currently applied and effectiveness	2014	Mitigation initiatives on Cocoa were discussed in the Crop raiding workshop 2017 with 46 participants attending from FECs, Government and GRCLG. Until recently only the traditional mitigation methods have been used i.e. chasing chimpanzees and monkeys out of the cocoa farms by shooting stones at them with a catapult and using scare crows.
Make a new strategy to address problems	Strategy to mitigation crop raiding - report	2015	<p>Some strategies for and mitigation discussed are:</p> <ul style="list-style-type: none"> - Intensified management leading to higher presence in the farms and higher yields making farmers less vulnerable to losses; - Barrier planting of palatable fruits/crops outside Cocoa/Crop plantation attracting crop raiding animals; - Avoid Palm oil trees in the cocoa plantation as they attract squirrels. <p>Additional practices could be: Erect scarecrows in plantations, ensure guarding practices and trapping of rodents.</p> <p>But also adaptation has been discussed, do the conservation of the Rainforest farmers experience crop raiding from monkeys and primates, but the protection of rainforest also provides an opportunity to fetch a better price for the cocoa through the marketing potential of Forest Friendly cocoa. A suggestion is to gather best practice and pilot in specific FECs for comparison.</p>
Farmers trained in mitigation measures	monitoring of mitigation activities (tbd)	2016	See above. During 2017 Mitigation and adaptation strategies have been discussed on demand from farmers in meetings and trainings where GRC.LG staff attends.
Wildlife/Community conflict	Grievance crop raiding forms	on-going	Reports of wildlife community conflicts are gathered during 6-monthly meetings in all FECs. 2015 - In 40% of these meetings Crop Raiding was mentioned as a big problem and in 10% of the meetings as a very big problem.

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
			2016 wildlife community conflicts have been reported but not to the extend as during the 2015 meetings. This necessitated the undertaking of HWC survey in Makpele and Tunkia chiefdoms as a pilot to understand the extend of the crop damage and identify the animals causing crops damage.

Table 54. Community Initiative 7: Chiefdom Development Fund.

See **Annex 7**. Number of project proposals implemented

Output Indicator	Sampling Type/ Product	Timing/ Frequency	Results of Monitoring
Number of project proposals developed	Reports from Gola Community Development Committee	Ongoing	2015- 10 2016- 29 2017/18 20 2019 – 26 TOTAL = 85
Number of project proposals approved	Reports from Gola Community Development Committee	Ongoing	2015- 1 2016- 25 2017- 22 2018 - 21 2019 – 4 TOTAL = 73
Number of project proposals implemented	Reports from Gola Community Development Committee	ongoing	2015 - 11 (ongoing from previous year) 2016 - 22 2017 - 22 2018 -19 2019 – 16 TOTAL = 90
Number of communities directly benefitting from CDF projects	report	Yearly	2015 - 18 2016 - carried forward 2017 - 33 2018 – 83 2019 – 62 TOTAL =196
Money distributed	accounts	quarterly	2015 - USD 54,814 2016 - USD 57,343 2017- USD below with 2018 2018 – USD 73,600 2019 – USD 80,450 TOTAL = USD 266,207

4.3.2.1. Gold Level relevant Results/Outputs

[See 4.4. for an explanation as to why we believe this project qualifies for Gold Level.]

For Gold Level, the following outputs focused on marginalized groups. Specifically, women, youth and the elderly/sick. But focus on marginalized groups in the Forest Edge Communities is built into our agricultural work, savings and loans and scholarships. See **Table 55** below.

Table 55. Gold Level relevant Results/Outputs.

Output Indicator	Results of Monitoring
Community Initiative 1. Crop intensification and increased production activity. See Table 48	
Number of farmers actively participating in Farmer Field schools	Of the 2245 members 1148 (c51%) are female.
Number of farmers trained by Master Farmers	Example: During 2017 of the 884 farmers trained by master farmers, 440 were female (c 50%) from the 34 FFSs.
Community Initiative 2. Improved cocoa production and post-production. See Table 49	
Number of Master Farmer field schools established and meetings held	By 2017 19 Master Farmer field schools (training centres) were established and 19 training meetings were held for 122 master farmers and 244 youths focusing on good agricultural practices. In 2018, 19 Master Farmer field schools (training centres) were established and 19 training meetings were held for 122 master farmers and 244 youths focusing on good agricultural practices. In 2019 15 MF groups were established and met in 4 workshops. TOTAL =50 meeting held
Refresher training carried out	In 2017/2018 4 refresher trainings were done by the GRNP staff as expected in 19 training centres covering on nursery establishment, land preparation and out planting, rehabilitation of cocoa farms, harvesting and processing which included 244/256 youths In 2019 4 refresher trainings were done by the GRC staff covering Nursery establishment, land preparation and out planting, rehabilitation of cocoa farms, harvesting and processing TOTAL = 12 refresher training events.
Community Initiative 3. Saving and internal lending communities (VSLA²⁸) See Table 50 .	
Number of training workshops/meetings on VSLA in villages	46 training events were held reaching 2728 people. Over 50% are women
Number of governing committees – with 5	All 35 groups have functioning governing committees with a total of 175 governing committee members of 63 women and 112 men. 9 groups have either a chairlady or a women secretary (5 groups have a chairlady and 4

²⁸ VSLAs are called VSLAs in the context of this Project and mean the same

Output Indicator	Results of Monitoring
elected members per group	groups have a women secretary). In 26 groups both the chairperson and the secretary are men. Total of 85 new governing committee members were elected in all the 35 VSLA groups for 2017 cycle. And 29 for the 2018 cycle.
Community Initiative 5. Education See Table 52	
Number of secondary school scholarships provided to FECs	Equal representation of boys and girls: 2015 – 200 scholarships 2016 – 237 scholarships 2017 – 244 scholarships 2018 - 244 scholarships 2019 – 244 scholarships

4.3.3. Dissemination of Monitoring Plan and Results (CM3.3)

The monitoring plan itself has not been made public but is available at the GRNP office. This is a technical document.

The project conducts regular roadshows and radio broadcasts across the project communities, see Community Initiative 5 – Education, reported on across Section 4. These events discuss project progress and raise concerns and issues from communities. Monitoring results for the reporting period will be shared in the following way.

INTERNATIONAL/NATIONAL

- The report has been submitted to the VCS/Verra [website](#) [TBC]
- The report is available on the Gola Rainforest National Park [website](#) and has been promoted through Gola Social Media channels on [Facebook](#) and [Twitter](#) [insert hyperlinks to actual posts]

PROJECT AREA

- Summaries sent to all project stakeholders and partners [November 2020].
- Roadshows to each of the communities through the 7 chiefdom Headquarters to present the summary report carried out in [December 2020]
- Presentation of report summary on local radio around the project site in [December 2020]

4.4. Optional Criterion: Exceptional Community Benefits

This project was not Validated at the Gold Level. 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 4.4.1. 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 actually justifies its qualification for Gold Level for the following two reasons:

Reasons 1. The Gola Forest Edge Communities are some of the poorest in the country:

The 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 of the CCB Project Description.

Going into more detail the Annexes to the CCB Project Document (2015) (specifically Witkowski et al 2012 Household Survey and KII report) note 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 (**Annex 7**. Number of project proposals implemented)
- 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 **Annex 7**. Number of project proposals implemented.
- 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.

Lastly and most vitally we note that the 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 bely 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)

Reason 2 – deeper focus.

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. Also See 4.4.2. Protections for Poorer and More Vulnerable Households and Individuals (GL2.4)
- 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).
- Monitoring gender in the project staffing

Therefore, considering the above and that the Forest Edge Communities *are* the poorest of the poor, that the long-term programme of community benefits was refocussed in the 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. And as can be seen in **Table 48 to 46** under section 4.3.2. the project disaggregates much of its work to focus on women, youth and the elderly/sick.

4.4.1. Barriers to Benefits (GL2.3)

The CCB Project Document (2015) notes that 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 in the medium to longer term it is anticipated that poorer households will uptake on activities once they have been tested by other households.

4.4.2. Protections for Poorer and More Vulnerable Households and Individuals (GL2.4)

Table 56. Poorer and more vulnerable households and individuals who may be negatively affected by the project

Potential negative impact	Cocoa Programme – women and youth being underrepresented.
Households or individuals affected	Women headed households and youth
Measures taken to avoid impacts	By virtue of women under representation in the programme activities, an extensive gender inclusion training and sensitization exercise was undertaken to help increase the involvement of both youth and women in cocoa activities and for them also to have more control which increased the Female MFs from 10 to 14, for the benefits and decision-making possibilities, both at household level as well as at the level of the Cocoa Farmers Association. Gender Action Learning System (GALS) Champions with responsibilities of implementing Gender and development work have been established in 46 communities they will continue to train the communities and are a resource in the planning of all activities in the

	villages. 23 Male and 23 Female have been trained are expected to cascade training trainings to other members in their communities which will be followed up. An additional 20 GALS champions 10 Male and 10 Female were trained in the Chieftdom of Makpele and Barri and Tunkia in communities not yet included in the Cocoa programme.
Unavoidable impact mitigation	In 2017 46 GALS Champions (gender action learning skills) trained a total of 317 participants on Gender awareness and planning skills.
Potential negative impact	Lack of access of fund for sick and disabled family members
Households or individuals affected	Disabled and sick
Measures taken to avoid impacts	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.
Unavoidable impact mitigation	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 Table 41 Saving and internal lending communities (VSLA) and the Outcome Indicator <i>Financial assistance given to group members from the 'social fund' of VSLA</i>

5. BIODIVERSITY

5.1. Net Positive Biodiversity Impacts

5.1.1. Biodiversity Changes (B1.1)

The Gola REDD Biodiversity Monitoring Plan (Hillers and Tatum-Hume 2013) was developed to track changes in and impacts to key biodiversity in the project zone. The SMART data collected by park rangers complements the data collected in the monitoring plan and helps to better understand trends in threats across the project zone. In the 2015 validated CCB project description 4 key threats and associated impacts were identified. A breakdown of how these impacts have affected biodiversity within the project zone during this verification period is provided in in **Table 57**). The net positive impacts linked to the current project implementation activities are quite clear when compared to the “without project” scenario completed in G2 (see MIR 2015). More information can be found in section 5.3.

Table 57. Net positive impacts of project activities between 2015 and 2018.

Threats	Management Actions	Net Positive Impacts
Habitat loss and fragmentation	<ul style="list-style-type: none"> Protecting the project area to reduce deforestation and degradation (goal 1) Patrols by forest rangers in the project area (goal 1) Education and awareness campaigns in the project zone and wider Chiefdoms (goal 2) Sustainable livelihood projects (goal 2) Land use mapping and planning with Forest Edge Communities (goal 2) 	<ul style="list-style-type: none"> Between 2015 and 2019 forest loss was nearly eliminated in the GRNP, limited to 27ha over 4 years. See section 3 and Kontoleon et al 2020. A reduction in hunting pressure has led to recovery of the Upper Guinea Red Colobus, a forest specialist and Endangered species. A census using distance surveys was completed in 2017 showing that populations more than doubled in 10 years as well as recolonizing previously logged areas of Gola South. Key forest dwelling Amphibian species still present across the project area indicating maintenance of high forest quality in these areas.
Disturbance	<ul style="list-style-type: none"> Patrols by forest rangers in the project area (goal 1) Education and awareness campaigns in the project zone and wider Chiefdoms (goal 2) 	<ul style="list-style-type: none"> Continued monitoring has shown that Whit-necked Picathartes numbers are increasing both in the project area and the leakage belt. Recent surveys for signs confirm the continued presence of Pygmy Hippos in the

Threats	Management Actions	Net Positive Impacts
	<ul style="list-style-type: none"> Land use mapping and planning with Forest Edge Communities (goal 2) 	<ul style="list-style-type: none"> leakage belt and community forests.
Species loss (hunting)	<ul style="list-style-type: none"> Patrols by forest rangers in the project area (goal 1) Education and awareness campaigns (goal 2) 	<ul style="list-style-type: none"> An increase of populations of hunting sensitive species such as Upper Guinea Red Colobus and Black and White Colobus. A consistent reduction in hunting threats (snares, number of poachers) within the project area.
Pollution from mining or forest damage from logging	<ul style="list-style-type: none"> Patrols by forest rangers in the project area (goal 1) Education and awareness campaigns in the project zone and wider Chiefdoms (goal 2) Land use mapping and planning with Forest Edge Communities (goal 2) 	<ul style="list-style-type: none"> Healthy riverine systems sustain an important fishery for local populations Intact forest canopy and understory Illegal mining sites restored with tree planting activities.
Loss of connectivity	<ul style="list-style-type: none"> Development of sustainable management plans with Forest Edge Communities in key areas between project areas and the Liberian border (goal 2) Agriculture project to increase productivity in land that is already within the bush-fallow cycle (goal 2) Rehabilitation of cocoa farms in shade grown plantations to maintain forest cover between blocks (goal 2) 	<ul style="list-style-type: none"> Initial planning on community use zones has started by has been held back by a lack of supporting national laws allowing community forest management. See Section 4.1.1.4. Section 4.1.1.1 and 4.1.1.2 outlines efforts to improve bush fallow productivity and cocoa farm productivity. Overall we saw a leakage event in 2019 in the community forest. Clearly a balance needs to be struck to ensure

5.1.2. High Conservation Value Protection (B1.2)

The project has continuously delivered on continued presence or enhancement of all High Conservation Value species, habitats and landscapes within the project area. This has been monitored using the Biodiversity Monitoring Plan (Hillers and Tatum-Hume 2013) developed as part of the last validation. Most of the HCVs identified in this project are reliant on large areas of forest for continued survival, one of the needs identified in the project description was also a reduction in hunting pressure and forest degradation. Table 58). highlights key research activities and results from surveys carried out on HCV 1 (Globally, regionally or nationally significant concentrations of biodiversity values) from 2015 to early 2019, all details from surveys can be found in the MIR Annex 2 for 2016, 2017 and 2018.

Table 58. HCV 1 Monitoring and Summary Results from monitoring period 2015-2019

Species	Justification	Methodology & Year	Summary Results
All terrestrial bird and mammal species, in particular HCV species including Western Chimpanzee, Sooty Mangabey, Jentinks Duiker, Zebra Duiker, Pygmy hippo, Forest elephant, White breasted Guineafowl	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 throughout the project zone following a grid-based methodology (Annex 2, MIR 2019)	Camera trapping activities were delayed due to camera traps being lost or damaged after being left out during Ebola crisis in Sierra Leone. New baseline started in December 2017 and completed in May 2019. Data includes multiple records of all terrestrial HCV species except for Forest Elephant.
Western red Colobus, Western pied Colobus, Diana monkey	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 (Annex 2, MIR 2017)	Populations of all HCV primate species have remained stable or increased since the inception of the project. The EN Western red Colobus saw the largest increase in populations size, followed by Western pied Colobus. The VU Diana Monkey populations had remained stable.
Western Chimpanzee	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 throughout the project zone. (Annex 2, MIR 2016)	Up listed to CR from EN the Western Chimpanzee population within the Project Zone has remained stable with population estimates between 2011 and 2016 showing a population of about 300 individuals.
Pygmy Hippo	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 throughout project zone and in offsite zone. (Annex 2, MIR 2019)	The EN Pygmy Hippo is most present in the Leakage Belt but with strongholds inside the Project Area as well. Survey data from 2019 is yet to be analysed.

Species	Justification	Methodology & Year	Summary Results
White-necked Picathartes	Endemic and vulnerable species (HCV). Indicator of disturbance and changes to habitat.	Nest surveys in the project zone and offsite zone. (Annex 2, MIR 2019)	White-necked picathartes are also present both inside and outside the Project Area and populations have remained stable or increasing and most recent surveys in 2019 showing an increase in number of breeding nests and active colonies compared to 2013.
Tai toad and other species	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 throughout the project zone. (Annex 2, MIR 2018)	Extensive surveys in 2018 and 2019 did not confirm the presence of the EN Tai Toad within the Project Area. Evidence of other forest dwelling amphibians was collected in multiple plots within the Project Area indicating continued positive health status of the forest habitat.

Stable and increasing populations of HCV species throughout most of the project zone are also an indication of reaching the outlined target for HCV 2 (Globally, regionally, nationally significant large landscape –level areas where viable populations of natural populations occur in natural distribution and abundance) as outlined in the validated project description.



Figure 9 On the left a Vulnerable White-necked picathartes nesting under what used to be a logging bridge on the river Mahoi. On the right an Endangered Upper Guinea Red Colobus a species that has recolonized previously degraded areas of Gola South and a large increase in densities throughout the project area.

5.1.3. Invasive Species (B1.3)

During intensive field monitoring of the project area no new invasive species have been identified and communities have not informed the project of any invasive species introduction in and around the project area. Known invasive species, including shrubs *Chromolaena odorata* or grasses such as *Imperata cylindrica* are usually dominant in recently cleared upland farms, competing with other native shrubs and small trees. No apparent increase or spread of these invasives in the project area has been noted and effective management practices for these invasives have not been put in place due to the fact they are widespread and difficult to eradicate.

5.1.4. Impacts of Non-native Species (B1.4)

Table 59. Use of any non-native species in the project zone

Species	Theobroma cacao
Justification of Use	This species is widely used in West Africa as a cash crop for production and sale of cocoa beans. As part of our community development projects seedlings are distributed and planted outside of the project area within the leakage belt to enhance cocoa production as a livelihood activity and an alternative to slash and burn. There is no native equivalent.
Adverse Effect	No adverse effects known. Fruits are widely consumed by local fauna and are sometimes the cause of human wildlife conflict.
Species	Gmelina arborea
Justification of Use	Grown in woodlots this species is fast growing and coppiced for use as fire wood in many households.
Adverse Effect	No known adverse effects known but further studies needed. Reduced the cutting of native woodlots given fast growth and regeneration of this tree compared to any native one.

5.1.5. GMO Exclusion (B1.5)

The Gola REDD project does not use any GMOs in the project activities.

5.2. Offsite Biodiversity Impacts

5.2.1. Negative Offsite Biodiversity Impact Mitigation (B2.2)

There have been no clear negative offsite biodiversity impacts resulting from project activities. Continued monitoring of possible impacts is needed, specially to understand the impacts that certain farming activities promoted by the project, such as agroforestry, can have on local biodiversity. One example is the promotion of cocoa as a sustainable livelihood activity in communities within the leakage belt, the planting of cocoa farms can have a negative effect when these are planted within primary forest habitats but can help increase biodiversity in degraded habitats such as fallow land. A [Darwin Initiative funded project](#) run successfully from 2013 to 2017 (see [Darwin Final Project Report](#), 2017) and was setup to help understand the negative effects, if any, of cocoa development on biodiversity with a focus on forest dependent bird species. Results found that cocoa plantations are superior in terms of forest-typical bird diversity than slash and burn and similar to community forest bird communities when baselined with GRNP bird communities so represent lower risk of biodiversity loss and higher suitability as connective habitats between forest blocks.

Forest loss and fragmentation in most cases has a negative effect on biodiversity. This was observed prior to start of the project where the offsite zone was found to be absent of any endangered and/or threatened species due to extensive disturbance and deforestation (Ganas 2009, Hillers and Muana 2011). In addition, the project area was only used by very few people for farming purposes prior to the start of the project (Zombo et al 2012), thus farming activities were not displaced to the offsite zone during the verification period.

Mitigation of 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 engages 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 as well as Sierra Leone national laws protecting forests and wildlife. See interventions outlined in section 4

Discussing how the natural resource base underpins many communities' livelihoods with offsite communities via awareness raising campaigns are a first step towards encouraging offsite villages to place a value on the preservation of forest remnants. This is 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. This is especially important for key HCV species that mainly live outside of the project area such as pygmy hippopotamus and white-necked picathartes (see Annex 2, MIRs 2015-2018).

In order to foster political support for the conservation activities the project also continues 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. More recently a USAID funded project has focused on building community forestry and co-management initiatives around the project area to protect important and connecting forest remnants in the project zone.

5.2.2 Net Offsite Biodiversity Benefits (B2.3)

Over the current verification period no offsite biodiversity impacts were observed. Since the establishment of the National Park in 2012 there has been zero deforestation within the project area and reduced deforestation within the project zone (below without project scenario). The project staff have established a long working relationship with the local communities in the seven Gola chiefdoms surrounding the project area and for this reason the benefits and activities of the Gola project extend into the villages in the offsite zone. For example, sensitization activities are carried out at a Chiefdom level and the community development fund is accessible for villages within the offsite zone.

In addition, the project has a strong focus on connecting protected areas both nationally and internationally. Improving and protecting forests in the wider project zone and offsite zone is promoted through community forestry projects (recently through a USAID grant, West Africa Biodiversity and Climate Change), close work with the Forestry Department and the National Protected Area Authority in Sierra Leone, and collaborations with the Liberian government and the Gola Forest National Park established in 2016 in Liberia. Future projects will aim to monitor connectivity by following animal movements and dispersal of key species between the protected areas.

Taking into account the mitigation activities, there should be no negative biodiversity impacts in offsite zones and monitoring over the course of the project will reveal if in fact the project is able to improve the biodiversity in the offsite zone.

5.3. Biodiversity Impact Monitoring

5.3.1. Biodiversity Monitoring Plan Development (B3.3)

Not applicable.

5.3.2. Biodiversity Monitoring Results (B3.1, B3.2)

Biodiversity monitoring plans came to a halt between early 2014 and late 2015 as the country went through the Ebola epidemic and the consequent recovery efforts. The camera trapping baseline survey was severely affected during this time with camera traps left in the field for more than 12 months many of which were later found to be faulty when recovered in late 2015. All other activities were resumed and on schedule with the Gola REDD Biodiversity Monitoring Plan (Hillers & Tatum-Hulme 2013). **Table 60**, below shows the schedule activities and when these were carried in the reporting period. A summary of each of these activities is reported in the below sections.

In addition to monitoring activities opportunistic records of rare or important species are also collected by the research and ranger teams. The main monitoring program is also complemented by various studies conducted by independent and international research teams.

Table 60. Activities carried out as part of the Biodiversity Monitoring Plan in the last 5 years. (C= Complete; P = Planned; O = Ongoing)

Activity	Frequency	Last done	MIR Annex 2*	Length	FY 2015/2016	FY 2016/2017	FY 2017/2018	FY 2018/2019	FY 2019/2020
1) Remote Sensing	5 years	2014		2 months				C	
2) Carbon Stocks	6 years	2019	2018	2 months	C		C		
3) Camera Trapping	2-3 years	2018/2019	2019	6 months			O	C	
4) Primate survey	5 years	2016/2017	2017	4 months		C			
5) Chimpanzee survey	5 years	2015/2016	2016	6 months	C				
6) Pygmy hippo survey	5 years	2019	2019	4 months					O
7) Bird point counts	4-6 years	2013/2014	2015	4 months	C				P
8) Picathartes Monitoring	5 years	2018/2019	2018	4 months				C	
9) Amphibian Monitoring	3-4 years	2018/2019	2018	5 months	C			C	

All results from the surveys carried out as part of the biodiversity monitoring plan can be found in the relevant MIR Annex 2 sections from 2015 to 2018. Summaries of the different monitoring activities and relevant indicators can be found in **Table 61** below

Table 61. Monitoring activities carried out during the verification period.

Ind.	Activity	Justification	Methodology & Year	Summary Results
#18	Remote Sensing	In order to monitor changes in forest cover compared to the baseline the Gola REDD project following SOPs developed for the baseline map, will analyze satellite images of the project area and leakage belt for landcover changes (Forest, Non-Forest).	See Carbon monitoring plan and Mitchard et al. 2011, Mitchard 2012 Year: 2019	See secPre-REDD+ deforestation rates were 0.7% yearly, and there is indeed no significant difference before REDD+ between the REDD+ and non-REDD+ villages. After the REDD+ programme got started deforestation rates increased by 3% in non-REDD+ villages (this is partially driven by the more sensitive satellite data). However, the increase in REDD+ villages was 1 percentage point lower. This means that because of the REDD+ programme the deforestation rates are 30% lower in the REDD+ villages. A substantial and important outcome in this high-value biodiversity area.
#19	Carbon Stocks	The same subset of 49 plots that provided the baseline carbon stock data for Gola South will be revisited and carbon stocks will be measured following the same SOPs as for the baseline to account for growth and increased carbon sequestration	See Carbon baseline synthesis report and carbon monitoring plan (Tatum-Hume et al 2013b and Winrock 2013). Year: 2018	A total of 49 carbon plots were remeasured in 2018 to assess tree and carbon growth in the 6 years between 2012 and 2018. Only Gola South was selected for enhancement measurements as it had been intensively logged in the past and by 2012 had not reached full potential growth.(Swinfield 2020) Result are presented in Table 29 Table 30
#20	Camera Trapping	In the Gola context, camera traps provide (and have already proven to be) an invaluable tool for the monitoring of HCV species such as chimpanzee, sooty mangabey, different duiker species (e.g. Jentink's and Zebra duikers), pygmy hippopotamus and White breasted guineafowl. Many of these species are very elusive and it is very difficult to record them using other common survey techniques such as transect sampling.	Annex 3 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for the Gola REDD Project; 'Standard Operating Procedures for Camera Trapping'. Year: 2019	A total of 33 species have been identified from camera traps deployed between 2017 and 2019 in the project area. Of these 6 were HCV species (Jentink's duiker, Zebra duiker, Western chimpanzee, Long-tailed and White-bellied pangolins and White-breasted guineafowl). Gola Central had the highest encounter rates for HCV species and most HCV species (except for pangolins) were found across all three forest blocks. The Near Threatened Sooty Mangabey and hunting sensitive Maxwell's duiker were the two most abundant species on camera traps across the whole project area.
#21	Primate survey	Primate species in GRNP include several HCV species such as western red Colobus, western pied Colobus and Diana monkey. These monkeys are not	Annex 4 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for	Results indicate the presence of all 4 HCV primate species in both Gola Central and Gola South. The most abundant HCV primate identified on transects was the Endangered Western Red Colobus with 59 groups detected, followed by the

Ind.	Activity	Justification	Methodology & Year	Summary Results
		<p>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.</p> <p>Furthermore, they are a diverse group with some species being dependent on relatively undisturbed forest, making them valuable indicators of forest conditions. Primate densities are some of the best known for all mammals in the Afrotropical forest, so provide a valuable way to compare forests.</p>	<p>the Gola REDD Project; 'Standard Operating Procedures for Primate Survey'.</p> <p>Year: 2017</p>	<p>Vulnerable Diana Monkey with 46 group, the Vulnerable Western Pied Colobus with 32 groups, and the Sooty Mangabey with 19 groups detected across transects. Results from density estimates are encouraging, especially for Western Red Colobus, where initial analysis indicates the densities may be some of the highest in West Africa.</p>
#22	Chimpanzee survey	<p>The western chimpanzee has recently been listed as a Critically Endangered species with a declining population and hence a high priority for conservation. It requires large areas of suitable habitat to persist but besides habitat loss it is also persecuted for its perceived role in crop raiding, hunted for bushmeat and taken for the pet trade and medical research. Method for surveying chimpanzees are well developed, so it is one of the few large forest mammals for which reliable population density trend data can be collected.</p>	<p>Annex 5 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for the Gola REDD Project; 'Standard Operating Procedures for Chimpanzee Survey'.</p> <p>Year:2016</p>	<p>A total of 96 chimpanzee nests were identified during the course of the survey. The nest to effort ratio was markedly higher within the National Park boundary highlighting the importance of the protected area for the chimpanzee population. The results from the 2016 survey found that the population within and around GRNP appears to have remained stable compared to 2009, a positive result considering the declining numbers of Western Chimpanzees now classified as Critically Endangered (IUCN, 2016). A total of 294 (159-543) Chimpanzees were estimated to be found in the project zone and leakage belt with a density of 0.27 per km².</p>
#23	Pygmy hippo survey	<p>Monitoring pygmy hippo populations in GRNP is of utmost priority as it is the last place where this Endangered species is present in Sierra Leone. In the Gola area, pygmy hippos seem to be more abundant in community forests and swamps close to bigger streams than inside GRNP. In the light of current and future agricultural activities, including inland valley swamp</p>	<p>Annex 6 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for the Gola REDD Project; 'Standard Operating Procedures for Pygmy Hippo'.</p>	<p>Pygmy Hippo surveys for this verification period are ongoing and were started but not completed in 2019 as per AOP. Data was collected as part of a Zoo Basel funded project. Up to 2018 activities included sign and dung collection, community sensitization and trainings and more recently camera trapping in the leakage belt. Signs were collected in multiple sites across the leakage belt and dung samples were included in a wider regional conservation survey. In 2019, 30 opportunistic surveys have been performed along nine of the 13 selected</p>

Ind.	Activity	Justification	Methodology & Year	Summary Results
		farming, we need to use knowledge on pygmy hippo distribution and abundance for land use planning and conflict avoidance.	Year: 2019	streams to identify signs of presence of pygmy hippos. The work will be completed in 2020. Under the Pygmy Hippo Community Youth Conservation Volunteer (CYCV) funded by Zoo Basel, in September 2019, six CYCVs were selected from 3 communities and trained in pygmy hippo monitoring techniques, and provided crucial information on species presence that enabled GRC-LG Research Technicians to select the locations for camera trap deployment. The deployment of 17 camera traps was completed in 2019 with the help of the CYCVs and 3 of them were successful in capturing videos of pygmy hippos in Boma for the first time.
#24	Bird point counts	GRNP and its surroundings harbor a rich bird community, including many forest specialists of the Upper Guinea Forest region including many Threatened species. The global population sizes of these species are poorly known and changes in forest bird populations are largely driven by the extent and quality of forest habitat. Changes in the bird community will reflect changes in forest habitat and will be especially important with regard to understanding potential forest cover and habitat changes in the leakage belt.	Annex 7 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for the Gola REDD Project; ‘Standard Operating Procedures for Bird Point Counts’. Year: 2016	Bird point count survey was started in the 2019/2020, but it was not completed. Due to overlaps with the bird point counts under the Darwin Initiative activities, and to the subsequent resignation of the only RT with good knowledge of birds and bird song, 9 bird point counts were complete only in the leakage belt of Gola Central. 177 species were recorded under the Darwin project.
#25	Picathartes Monitoring	GRNP is known as a stronghold for this species in Sierra Leone and West Africa, efforts should be made to ensure the long-term viability of the Gola population. Especially because many colonies are found in community areas and are often threatened by agricultural activities. It is thus of utmost importance to include data on White-necked Picathartes in future land-use planning for agriculture in order	Annex 8 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for the Gola REDD Project; ‘Standard Operating Procedures for Picathartes Monitoring’.	During this survey a total of 69 colonies were accessed, of these 38 were outside and 31 inside the National Park boundary. Only 33 of these 69 colonies were found to be active. In the community forests we found 11 colonies that had been recolonized after having been found abandoned in 2013/2014. A total of 5 colonies that were active in 2013/2014 were instead found to have been abandoned by the birds in 2018/2019. Inside the park 3 colonies were abandoned and 4 were recolonized compared to 2013/2014. The overall number of active nests increased by 12.5% during the 5-year interval

Ind.	Activity	Justification	Methodology & Year	Summary Results
		to avoid conflicts between important Picathartes habitats and agriculture.	Year: 2019	between surveys, with 80 active breeding nests observed in 2018/2019 compared to 71 in 2013/2014.
#26	Amphibian Monitoring	Amphibians are known to be excellent indicators for the health status of a forest habitat. True forest species are sensitive to forest degradation and fragmentation and the composition of amphibian communities differ between pristine and disturbed forests. Any changes in their distribution and abundance will also give important information about changes in the quality of forest habitats which will be important for HCV amphibian species as well as of other taxonomic groups.	Annex 9 of Hillers & Tatum-Hume – Biodiversity Monitoring Plan for the Gola REDD Project; ‘Standard Operating Procedures for Amphibian Monitoring’. Year:2019	Preliminary results from 2018 indicate the presence of one HCV species, Allen’s slipper frog <i>Conraua alleni</i> , in the Project Area. A total of 12 records of the Vulnerable <i>C.alleni</i> were distributed within all three blocks of the Project Area (South, Central and North) whilst a total of 11 records of the Endangered <i>H. occidentalis</i> were found in the Southern and Central blocks. A total of 13 leaf litter frog species were identified during the course of the survey within the Project Area and 8 species found within the Leakage Belt.

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Figure 14. Camera trap pictures from within the project area capture a Critically Endangered Western chimpanzee (left) and a group of Vulnerable White-breasted guineafowl (right).

5.3.3. Monitoring Plan and Results Dissemination (B3.3)

The results of the biodiversity monitoring plan have been disseminated in many forms and to different audiences around the world. The project website (currently being updated) holds news and information about the research activities and results, we also used social media such as twitter <https://twitter.com/golarainforest?lang=en> and facebook <https://www.facebook.com/GolaRainforestNP/> to disseminate news about our activities, including images and videos from our field research activities (for example camera traps). Many of the results stemming from the biodiversity monitoring plan have also been edited and published in peer reviewed journals (see Appendix I for full list of publications for Gola between 2015 and 2018) for the academic and scientific community. We have ensured that most of these publications are also open access and freely available to download for both national and international researchers and policy makers. Data sharing agreements allow the data collected from this program to be collated as part of wider efforts to understand trends and patterns in species and forests at a regional and global scale. For example, data from the Gola REDD+ project has been used for a recent publication in Nature and one in the American Journal of Primatology (Kuhl et al. 2017; Steidinger et al. 2019).

Dissemination of results from the research activities has been completed using many different formats. For example, holding multi-stakeholder workshops to disseminate results from the crop raiding studies and discuss possible solutions with farmers. Or holding road shows throughout the seven chiefdoms with a highlight on endangered species using video projections of camera trapping results. Theatre groups from Kenema have also trained and helped to tour some of the community highlighting the results from the pygmy hippo research. A community youth conservation volunteer program was set up in 2015 and is still running in 2019, the focus is on communities living close to two key HCV species of the Gola landscape, the pygmy hippopotamus and the white-necked picathartes. For the last 4 years volunteers from more than 20 communities have been trained to participate in monitoring activities and disseminate results within their communities. Valuable data has been collected with the help of these trained volunteers and this has helped build a strong sense of participation in project activities and species sensitization events run by the Gola project staff.

5.4. Exceptional Biodiversity Benefits (GL3)

Vulnerability

- Critically endangered and endangered species

2 Critically endangered species and 5 endangered species are present within the project site. More than 1 individual of each species are present.

Table 62 Endangered and critically endangered species present in the project site

Common Name	Scientific Name	IUCN Status
Gola malimbe	<i>Malimbus ballmanni</i>	Endangered
Timneh parrot	<i>Psittacus timneh</i>	Endangered
Upper Guinea red colobus	<i>Piliocolobus badius</i>	Endangered
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	Endangered
Jentink's duiker	<i>Cephalophus jentinki</i>	Endangered
Western chimpanzee	<i>Pan troglodytes verus</i>	Critically endangered
Hooded vulture	<i>Necrosyrtes monachus</i>	Critically endangered

- Vulnerable species

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 (Evans & Fishpool 2001) and is part of the Upper Guinea Forest biodiversity hotspot defined by Conservation International (Myers et al 2000). 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 one species is listed as Critically endangered, three 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 but work using camera traps shows presence of both these species throughout the project area. African forest elephant is now very rare in Gola and probably does not meet the threshold of 30 individuals, however they are migratory and numbers could rebound as they move from Liberia. Approximate numbers of Pygmy hippos are thought to be between 100 and 150 individuals (Hillers et al. 2017). The project therefore meets the vulnerability criteria for endangered and vulnerable mammal species.

Table 63. Threatened mammals recorded in the project zone

English name	Scientific name	IUCN status	Numbers in PZ
Western pied colobus	<i>Colobus polykomos</i>	Vulnerable	7,000 – 22,000
Upper Guinea red colobus	<i>Piliocolobus badius</i>	Endangered	77,000 – 154,000
Diana monkey	<i>Cercopithecus diana</i>	Vulnerable	23,000 – 57,000
Chimpanzee	<i>Pan troglodytes verus</i>	Critically Endangered	200-300
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	Endangered	100-150
Jentink's duiker	<i>Cephalophus jentinki</i>	Endangered	Unknown
Zebra duiker	<i>Cephalophus zebra</i>	Vulnerable	Unknown
African forest elephant	<i>Loxodonta cyclotis</i>	Vulnerable	<30
Leopard	<i>Panthera pardus</i>	Vulnerable	Unknown

Birds

As described previously the project zone is listed as an Important Bird Area (Evans & Fishpool 2001) and holds a high proportion of the threatened and endemic species of the region. Two species are listed as Endangered, i.e. Gola malimbe and Timneh parrot, and one as Critically endangered, i.e. Hooded vulture. The Gola malimbe is extremely localized within the Central block of the project area, whilst both the Timneh parrot and the Hooded vulture are more present in the leakage belt but can be seen flying over within 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 64. Threatened birds recorded in Gola Forest

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
Timneh Parrot	<i>Psittacus timneh</i>	Endangered	Yes
Gola Malimbe	<i>Malimbus ballmanni</i>	Endangered	n/a
Hooded vulture	<i>Necrosyrtes monacus</i>	Critically endangered	n/a

Status refers to the 2019 IUCN Red List Category, updated from www.iucnredlist.org. The threshold refers to a threshold of at least 30 individuals or 10 pairs.

Amphibians and reptiles

Gola Forest is home to over 40 species of amphibians (Hillers, 2009) many of which are endemic to the Upper Guinea forests. Surveys in 2018/2019 confirmed the presence of key forest dependant amphibians such as *Conraua alleni* and *Amnirana occidentalis*. It is important to note that during the verification period these two previously threatened amphibian species were downgraded on the IUCN Red list to Least Concern, this is probably due to increased information about population size and range of both species. Two previously encountered threatened species, *Sclerophrys taiensis* and *Phrynobatrachus annulatus*, were not observed during this survey. In addition, two reptiles, the African dwarf crocodile *Osteolaemus tetraspis*, listed as Vulnerable and the Slender-snouted crocodile *Mecistops cataphractus*, listed as Critically endangered have both been observed opportunistically.

Table 65. Threatened amphibians and reptiles recorded in Gola Forest

Status refers to the 2019 IUCN Red List Category, updated from www.iucnredlist.org.

Species	IUCN status	Population above threshold?
<i>Sclerophrys taiensis</i>	Endangered	Not encountered in 2018/2019
<i>Phrynobatrachus annulatus</i>	Endangered	Not encountered in 2018/2019
<i>Osteolaemus tetraspis</i>	Vulnerable	Yes
<i>Mecistops cataphractus</i>	Critically endangered	In offsite zone

6. ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

n/a

7. ADDITIONAL PROJECT IMPACT INFORMATION

n/a

8. APPENDICES:

Annex 1 Gola REDD Project Publication List (2015-2018) Date order

Hillers, A., Tommy, S.M., Fofana, M.L., Turay, B.S. and Garteh, J.C. (2015a). Pygmy hippo research and conservation project Gola Rainforest National Park, Sierra Leone. Final report, May 2013-April 2014 for Basel Zoo.

Hillers, A., Sheriff, E., Kargbo, M., Fofana, M.L. and Tommy, S.M. (2015b). Pygmy hippo Environmental Education Program of the Gola Rainforest National Park, south-eastern Sierra Leone. In Steck, B. (2015). International Studbook for the Pygmy Hippopotamus 2014. Zoo Basel, Switzerland.

Monticelli, D, Koroma, A.P. and Bannah, D. (2015). Observations of Rufous Fishing Owl *Scotopelia ussheri* in Sierra Leone. *Bulletin of the African Bird Club* 22(2): 183-189.

Tubbs, N., Hulme, M. and Sanderson, F. (2017). Enhancing habitat connectivity through sustainable development around the Gola Rainforest. Darwin Initiative Main Project Annual Report.

Burgess, M., Hillers, A., Bannah, D., Sullay, M., Mohamed S., Turay B. S., Vickery, J., & Lindsell, J. (2016) The importance of protected and unprotected areas for colony occupancy and colony size in White-necked Picathartes *Picathartes gymnocephalus* in and around Gola Rainforest National Park, Sierra Leone. *Bird Conservation International* 1-12.

Jucker, T., Sanchez, A. C., Lindsell, J. A., Allen, H. D., Amable, G. S., & Coomes, D. A. (2016). Drivers of aboveground wood production in a lowland tropical forest of West Africa: teasing apart the roles of tree density, tree diversity, soil phosphorus, and historical logging. *Ecology and Evolution*

Cuni Sanchez, A., & Lindsell, J. A. (2016). The role of remnant trees in carbon sequestration, vegetation structure and tree diversity of early succession regrowing fallows in eastern Sierra Leone. *African Journal of Ecology*

Jusu, A., & Cuni-Sanchez, A. (2016) Priority indigenous fruit trees in the African rainforest zone: insights from Sierra Leone. *Genetic Resources and Crop Evolution*, 1-16.

Kanneh, B. A. (2016) Chimpanzee nesting ecology and abundance in the Gola Rainforest National Park (GRNP), South-Eastern Sierra Leone. A Dissertation submitted to the Department of Basic and Applied Science Eastern Polytechnic in partial fulfilment of the requirements for the award of Bachelor of Science degree (B.Sc.) in Biological Sciences.

Burgess, M., Hillers, A., Bannah, D., Mohamed, S., Swaray, M., Turay, B. S., & Lindsell, J. (2017). The importance of protected and unprotected areas for colony occupancy and colony size in White-necked Picathartes *Picathartes gymnocephalus* in and around Gola Rainforest National Park, Sierra Leone. *Bird Conservation International*, 27(2), 244-255.

Cuni Sanchez, A., & Lindsell, J. A. (2017). The role of remnant trees in carbon sequestration, vegetation structure and tree diversity of early succession regrowing fallows in eastern Sierra Leone. *African Journal of Ecology*, 55(2), 188-197.

Hillers, A., Buchanan, G. M., Garteh, J. C., Tommy, S. M., Fofana, M. L., & Lindsell, J. A. (2017). A mix of community-based conservation and protected forests is needed for the survival of the Endangered pygmy hippopotamus *Choeropsis liberiensis*. *Oryx*, 51(2), 230-239.

Jones, S., Burgess, M. D., Sinclair, F., Lindsell, J., & Vickery, J. (2017). Optimal Monitoring Strategy to Detect Rule-breaking: A Power and Simulation Approach Parameterised with Field Data from Gola Rainforest National Park, Sierra Leone. *Conservation and Society*, 15(3), 334.

Jusu, A., & Cuni-Sanchez, A. (2017). Priority indigenous fruit trees in the African rainforest zone: insights from Sierra Leone. *Genetic Resources and Crop Evolution*, 64(4), 745-760.

Lapeyre, R., Laurans, Y. (2017). Contractual arrangements for financing and managing African protected areas: insights from three case studies. *PARKS* 23(1), 75-88

Schillamer H. (2017). Trigonopalpus CAMERON, 1951 from mainland Africa, with description of two new species. *Koleopterologische Rundschau* 87, 117-127

Barca, B., Turay, B.S., Kanneh, B.A. and Tayleur, C., 2018. Nest Ecology and Conservation of Western Chimpanzees (*Pan troglodytes verus*) in Gola Rainforest National Park, Sierra Leone. *Primate Conservation*, 32, p.7.

Hulme, M.F., Salliss, D., Konneh, M.S., Dauda, P., Witcutt, E. and Sanderson, F.J., 2018. Improving cocoa harvest can mitigate for crop damage by wildlife in a forest-agriculture matrix. *Agriculture, Ecosystems & Environment*, 265, pp.236-243.

Payne, A.I., 2018. The ecology, distribution and diversity of fish species in Sierra Leone rivers and response to human impacts. *Environmental Biology of Fishes*, 101(5), pp.843-864.

Rossi, W. and Leonardi, M., 2018. New species and new records of Laboulbeniales (Ascomycota) from Sierra Leone. *Phytotaxa*, 358(2), pp.91-116.

Slik, J.F., Franklin, J., Arroyo-Rodríguez, V., Field, R., Aguilar, S., Aguirre, N., Ahumada, J., Aiba, S.I., Alves, L.F., Anitha, K. and Avella, A., 2018. Phylogenetic classification of the world's tropical forests. *Proceedings of the National Academy of Sciences*, 115(8), pp.1837-1842.

Data and results from the research activities implemented and supported by the GRNP Research & Monitoring Department from April 2019 to March 2020:

1. Pygmy Hippopotamus Regional Conservation Strategy 2019-2028. Cambridge UK: Fauna & Flora International, 2019
2. Indigenous Technical Knowledge in Non-Timber Forest Products around GRNP. Amadu Jusu, R&M Department GRC-LG, 12th February 2019
3. From Bush Yams to Kola Nuts: The Role of Non-Timber Forest Products (NTFPs) in Rural Livelihoods Around the Gola Rainforest National Park, Sierra Leone. Thomas Meijer, Wageningen University, April 2020

Annex 2. References

- Barca, B. (2019) Limited Degradation Survey - Monitoring Degradation within the Gola REDD Project Area. Gola Rainforest Conservation LG. Unpublished report.
- Bulte E., Kontoleon A., List J., Mokuwa E., Richards P., Turley T. and Voors M. 2013. REDD+ socio-economic descriptive analysis Sierra Leone. Cambridge-Wageningen social science group. (Pdf)
- CCB Project Document (2015) Gola REDD Project. Gola Rainforest Conservation LG. Unpublished
- Chave J, Andalo C, Brown S, Cairns MA, Chambers JQ, Eamus D, Fölster H, Fromard F, Higuchi N, Kira T, Lescure JP, Nelson BW, Ogawa H, Puig H, Riéra B, Yamakura T. Tree allometry and improved estimation of carbon stocks and balance in tropical forests. *Oecologia*. 2005 Aug;145(1):87-99. doi: 10.1007/s00442-005-0100-x. Epub 2005 Jun 22. PMID: 15971085.
- Climate Focus. 2011. Gola Forest REDD project, Analysis of legal issues (Pdf)
- Evans, M.I., and Fishpool, L.D.C. 2001. Important Bird Areas in Africa and Associated Islands: Priority Sites for Conservation. Pisces Publication; Cambridge: Birdlife International. Available at: <http://www.birdlife.org/datazone/info/ibasaf>
- Fauset, S., Baker, T.R., Lewis, S.L., Feldpausch, T.R., Affum-Baffoe K., Foli, E.G., Halmer, K.C. and Swaine, M.D. 2012. Drought-induced shifts in the floristic and functional composition of tropical forests in Ghana. *Ecology Letters* 15:1120-1129
- Fofanah, A. 2012. Government of Sierra Leone regulations report. Gola Rainforest Conservation LG. Unpublished Report.
- Forestry Division 2013 Gola REDD Project benefit sharing agreement. Government of Sierra Leone. Unpublished agreement.
- Ganas, J. 2009. Population Status and monitoring of western chimpanzees (*Pan troglodytes verus*) in the Gola Forest Reserve, Sierra Leone. Report to the U.S. Fish and Wildlife Services.
- Gola Employees Handbook 2020. Gola Rainforest Conservation LG. Unpublished
- Henry, M., Besnard, A., Asante, W., Eshun, J., Adu-Bredug, S., Valentini, R., Bernoux, M., Saint-André, L. 2010. Wood density, phytomass variations within and among trees, and allometric equations in a tropical rainforest of Africa. *Forest Ecology and Management* 260 (2010) 1375–1388
- Hillers, A and Muana, A. 2011. Pygmy Hippo Conservation project, Final report (Pdf)
- Hillers, A and Tatum-Hume, E. 2013. Biodiversity Monitoring Plan For The Gola Redd Project. Gola Redd Project pdf
- Hillers, A. (2009). Herpetological survey of the Gola Forest, south-eastern Sierra Leone (August-October 2009). Berlin, Germany, Museum of Natural History.
- Hillers, A., Buchanan, G. M., Garteh, J. C., Tommy, S. M., Fofana, M. L., & Lindsell, J. A. 2017. A mix of community-based conservation and protected forests is needed for the survival of the Endangered pygmy hippopotamus *Choeropsis liberiensis*. *Oryx*, 51(2), 230-239.
- Klop, E., Lindsell, J., Siaka, A. 2008. Biodiversity of Gola Forest, Sierra Leone. Gola Forest Program
- Klop, E. 2012 Carbon Stock Baseline Surveys 2006 – 2007. Gola REDD Project
- Kontoleon, A., Carmenta, R., Gsottbauer, E., Hofman, P., Malan, M., Swinfield, T. & Voors, M. 2020 Gola REDD+ Project: Report on Baseline-Endline Longitudinal Survey. Gola Rainforest Conservation LG, unpublished report.
- Koroma E. B. 2011. Statement by President of Sierra Leone for the 2011 official opening of the GRNP (Pdf)
- Kühl, H.S., Sop, T., Williamson, E.A., Mundry, R., Brugière, D., Campbell, G., Cohen, H., Danquah, E., Ginn, L., Herbinger, I. and Jones, S., 2017. The Critically Endangered western chimpanzee declines by 80%. *American journal of primatology*, 79(9), p.e22681.

- Langhammer, P.F., Bakarr, M.I., Bennun, L.A., Brooks, T.M., Clay, R.P., Darwall, W., De Silva, N., Edgar, G.J., Eken, G., Fishpool, L.D.C., Fonseca, G.A.B. da, Foster, M.N., Knox, D.H., Matiku, P., Radford, E.A., Rodrigues, A.S.L., Salaman, P., Sechrest, W., and Tordoff, A.W. 2007. Identification and Gap Analysis of Key Biodiversity Areas: Targets for Comprehensive Protected Area Systems. Gland, Switzerland: IUCN. Available at https://cmsdata.iucn.org/downloads/pag_015.pdf
- Lindsell, J., Klop, E., & Siaka, A. (2011). The impact of civil war on forest wildlife in West Africa: Mammals in Gola Forest, Sierra Leone. *Oryx*, 45(1), 69-77. doi:10.1017/S0030605310000347
- Lindsell, J and Klop, K. 2012. Spatial and temporal variation of carbon stocks in a lowland tropical forest in West Africa. *Journal of Forest Ecology and Management* 289 10–17
- Marris et al 2013 Gola Rainforest National Park Boundary Demarcation Report. Gola Redd Project pdf
- MIR 2015 THE Gola Redd Project Monitoring & Implementation Report I 2012-14. Gola Rainforest Conservation LG. Report to the VCS
- MIR 2020 THE Gola Redd Project Monitoring & Implementation Report II 2015-2019. Gola Rainforest Conservation LG. Report to the VCS (in prep)
- E.T.A. Mitchard, S.S. Saatchi, S.L. Lewis, T.R. Feldpausch, I.H. Woodhouse, B. Sonké, C. Rowland, P. Meir, (2011) Measuring biomass changes due to woody encroachment and deforestation/degradation in a forest-savanna boundary region of central Africa using multi-temporal L-band radar backscatter, *Remote Sensing of Environment*, Volume 115, Issue 11, Pages 2861-2873,
- Mitchard, E. T. A., Saatchi, S. S., White, L. J. T., Abernethy, K. A., Jeffery, K. J., Lewis, S. L., Collins, M., Lefsky, M. A., Leal, M. E., Woodhouse, I. H., and Meir, P.(2012): Mapping tropical forest biomass with radar and spaceborne LiDAR in Lopé National Park, Gabon: overcoming problems of high biomass and persistent cloud, *Biogeosciences*, 9, 179–191, <https://doi.org/10.5194/bg-9-179-2012>
- Munang, R., Thiaw, I., Alverson, K., Mumba, M., Liu J. and Rivington M., 2013. Climate change and Ecosystem-based Adaptation: a new pragmatic approach to buffering climate change impacts. *Current Opinion in Environmental Sustainability*, Available at: <http://dx.doi.org/10.1016/j.cosust.2012.12.001>
- Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca and J. Kent, 2000: Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.
- Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca and J. Kent (2000): Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858. (Pdf)
- NAPA. National Adaptation programme of Action. 2007. Government of Sierra Leone
- Netzer, M. and Walker, S. 2013 Gola REDD project Baseline Report Application of VM0007 BL-UP: Winrock International
- Project Document (2020) Gola REDD Project VCS/CCB Project document. Gola Rainforest Conservation LG. unpublished
- Project Document (2015) Gola REDD Project VCS/CCB Project document. Gola Rainforest Conservation LG. unpublished
- REPUBLIC OF SIERRA LEONE (2017) Sierra Leone's Second National Biodiversity Strategy and Action Plan 2017-2026 Environment Protection Agency Sierra Leone Office of the President The Government of Sierra Leone
- Richards, M. and Panfil, S.N. 2011. Social and Biodiversity Impact Assessment (SBIA) Manual for REDD+ Projects: Part 1 – Core Guidance for Project Proponents. Climate, Community & Biodiversity Alliance, Forest Trends, Fauna & Flora International, and Rainforest Alliance. Washington, DC. (Pdf)
- Sinclair, F. 2014 Ranger refresher training handbook. Gola Rainforest Conservation LG. Unpublished
- Steidinger, B.S., Crowther, T.W., Liang, J., Van Nuland, M.E., Werner, G.D., Reich, P.B., Nabuurs, G., de-Miguel, S., Zhou, M., Picard, N. and Herault, B., 2019. Climatic controls of decomposition drive the global biogeography of forest-tree symbioses. *Nature*, 569(7756), p.404.

- Swinfield, T. 2020 Change in carbon at Gola South. Gola Rainforest Conservation LG. Unpublished report.
- Tatum-Hume, E & Witkowski, K 2013 Synthesis Report on the social impact assessment for the Gola REDD project Unpublished report.
- Tatum-Hume, E. Klop, E. and Cuni-Sanchez, A. 2013b Gola Rainforest National Park Proposed VCS REDD Project Baseline Carbon Stock Report 2012
- Teuten, E. 2019 Gola REDD+ forest loss classification, 2019. Royal Society for the Protection of Birds, UK. Unpublished report.
- Koltoleon, A., Mokuwa, E., Ross, M., Voors, M. & Wilebore, B. (2015) Gola REDD Project Baseline Longitudinal Survey Report
- Witkowski, K. et al 2012a Forest Edge Community Household Survey and Key Informant Interview Report, Gola Redd Project. pdf
- Witkowski, K., Kanneh, F., and Tatum-Hume, E. 2012c Gola REDD Project Context Report. Gola Redd Project. Pdf
- Zanne, A., Lopez-Gonzalez, G., Coomes, D.A., Ilic, J., Jansen, S., Lewis, S.L., Miller, R.B., Swenson, N.G., Wiemann, M.C. and Chave, J. (2009). Data from: Towards a worldwidewood economics spectrum, Dryad Digital Repository
- Zombo, J, Abdulai, B, Witkowski, K. 2012. Offsite Village survey report. Gola Rainforest Conservation LG. Unpublished report.

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Annex 3. Summary of Grievances and their resolution during the reporting period

Chiefdom	Date rec'd	Brief description of grievance	Brief description of resolution	Status
2015				
Nomo	May 2015	The police and the military through consultation with the National Protected Area Authority conducted patrols in or around the National Park and arrested and prosecuted 21 people (miners) who pleaded guilty of all charges and sentenced to six months imprisonment or pay fine of Le700,000 each.	Paramount Chief held a meeting and it was discussed and accepted that GRNP was not responsible for the arrests and the communities will continue to participate in GRNP activities.	Resolved on 28/6/15
Malema	June 2015	GRNP Ranger acting like police.	An investigation was made on the 15th of October 2015 which George Alieu and Chief Saffa Keifa both of them said they never made a complaint, it was just a concern they made to the GRNP Staff. They got the report from other community members and because they are authorities, they brought it to the notice of GRNP to advise the Rangers.	Resolved on 2/3/2016
Makpele	n/a	The community people in Makpele are not happy with GRNP because they are not recruited as labourers when GRNP is cleaning their boundary. Also GRNP do not inform them about their activities.	Makpele CDRO, Park Operations Supt and GRNP Liaison Officer visited the community and apologised and stated that it was a mistake. The Supt assured them he will ensure things are done the right way.	Resolved on 8/12/2015
Nomo	Sep 2015	Boundary demarcation reported by GCDC Chairman Saffa Kallon that Boundary Officers involved into Communities Forest between Geiwoma Section by Dambala, Pelewamand Peiyema axis respectively.	GRNP sent Superintendent Tamba Vandi and Nomo CDRO to resolve the grievance. The Boundary Makers went and clean the boundary between the National Park and the Community Forest. The issue has been resolved and the exercise is going on.	Resolved on 7/11/2016

Chiefdom	Date rec'd	Brief description of grievance	Brief description of resolution	Status
Malema	March 2016	The Missila community said they do not receive benefit from GRNP, Mr Tamba and other community members complaint that the Misila community do not received any benefit from GRNP and they are very close to the boundaries.	The issue was discussed in a meeting and Mr Tamba said he had no knowledge about the said complaint as he was in Liberia when GRNP staff made a visit to Misila. The Town Chief, Saffa Lukuley said his community has received lot of benefits from GRNP and the information was false.	Reolved on 19th April 2016
Malema	March 2016	Community members complained that invitations for meetings with GRNP reached them late and they never have the chance to attend any of GRNP meetings. They also complained that they have never set eyes on the Malema CDRO. They will not allow GRNP staff to assess other communities through their village.	A meeting was held and allegation denied by Fomba Konneh and Town Chief.	Resolved on 28/4/16
Tunkia	#####	Complained that GRNP Boundary Officers erected pillar in their community forest along Tolo boundary with GRNP on the axis of Gbewai and Gbaa river.	Park Operations Supt. and Boundary Officers from GRNP, Mr. Senesie Kawa and four Stakeholders from Tolo and Tigbwema went to the said pillar. After investigation, it was cleared that the pillar was not rejected in the community forest but the agreed boundary.	Resolved on 4/5/2016
All Districts	May 2016	PCs royalty paid to all PCs was not up to the \$US 1,000 equivalent and all Stakeholders present in the meeting initially refused to accept the money. Le5,330,000 was paid and the Stakeholders vowed that if the balance is not pay within a week, they will not participate in GRNP activities.	GGRC-LG Management checked the exact dollar exchange rate and asked the finance to pay the balance amount to each stakeholder. The PCs and other stakeholders acknowledged that they received the difference in the dollar rate that was paid at that time. Therefore, they do not have any grievance against GRNP and they will continue to participate in GRC-LG activities.	
Kailehun	May 2016	The Districk Council Chairman of Kailehun refused to accept cheque as support to the council	Mr. Alex J.Bhonapha clearly said that it is only for the sake of his brother HoG that led hin to signed the cheque.	Resolved on 13/10/16

Chiefdom	Date rec'd	Brief description of grievance	Brief description of resolution	Status
		that was written in the council name. This happened during a meeting held with the 7pcs in Gola operational areas. The three Districk Councils chairpersons and the two Provisional Secretaries on May 19th 2016.		
Malema	#####	Boundary Officers encroached into their community forest	A meeting was held and Chief Musa stated that he surely believed the Boundary Officers will continue to work on the actual stones boundary as it has been resolved.	Resolved on 25/6/17
2018				
Malema	Feb 2018	The Rangers complained that some people residing at Teyama Village went and brushed the deserted Ngombu village in the National Park.	Meeting was held in Jojoima by PC & the Section Chief with the participation of the CD Superintendent, CDRO-Malema, Park Operations Team and the Community people who did the encroachment. PC & Stakeholders were present in the meeting advised them to stop the brushing and for them to understand that the deserted village fall within the National Park. The Matter was and the Community people agreed that they will stop all activities from the disserted village.	Resolved on 21/2/18
Tunkia	Sep 2018	GRNP changed the name of Matagelema to Fargolahun on boundary map. Matgelema did not received compensation after removing the people for Conservation. Njama Tunkia has not benefited any development projects from GRC-LG.	In the meeting all grievances were resolved as below; There is no Fargalahun 2 on GRC-LG landowners register, Matagelema is the name not Fargolahun 2. It is very difficult to go through people's removal documents because lots of changes have taken place in GRC-LG and there is no budget or money for removal compensation. The community development projects identification and selection process were explained and they were advised to always participate in any project activities possibility for Njama.	Resolved on 28/9/19
		Pending Grievances		

Chiefdom	Date rec'd	Brief description of grievance	Brief description of resolution	Status
Nomo	Sep 2016	The people of Nomo refused to sign MoU with GRNP	A meeting was held and the Paramount Chief rep. A.Z. Kamara said the reason why Nomo has refused to signed the MoU is because staff of GRNP went over radio and announced that nobody is allowed to do farming, mining, Logging and any other activities inside the leakage belt.	Pending
2019				
Tunkia	October 2019	Implementation of eco lodge and solar panels without involvement and consent of community stakeholders, especially GCDC	Ongoing	Ongoing
xx	Late 2019	Disagreed with the gazetted boundary line	Grievance resolution form was filled by the town Chief of Fobu, Malema Chiefdom. Series of meetings were held with stakeholders involved in order to reach resolution. The Supts CD and Park Ops to meet the Fobu Community for final resolution.	ongoing

Annex 4. Roles and responsibilities of key GRC management staff

Title	No. of staff	Role & Responsibilities
Head of Gola	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 Head of Gola 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 timelines and budget set and oversees the implementation of partners activities
Technical Advisor Research & Monitoring (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 Conservation Enterprise	1	To support GRC to develop a strategic vision for conservation enterprises and to start to put this strategic vision into operation on the ground, thereby supporting the development of GRC as a sustainable not-for-profit enterprise that provides communities with diverse income streams that support GRC conservation and socio-economic objectives. To support GRC to continue to develop a sustainable and successful community-driven forest-friendly cocoa business. To facilitate a Gola landscape approach to conservation enterprises through linking work in GRC with broader transboundary approaches and work in Liberia.
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.
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	Establishes, implements and supervises 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	Establishes, implements and supervises 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	Establishes, coordinates, implements and supervises 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. Ensures 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 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. Report 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 patrol, units that carry out monitoring activities and units that maintain the boundary.

Annex 5. Staff training opportunities.

Biodiversity Research and monitoring training.

Training title	Date	Number of participants
2015		
Training on plot centre marking of permanent carbon plots (theory and practice)	May 2015	8
Training in compass and measuring tape use (theory and practice)	May 2015	8
Training on Gola REDD camera trapping SOPs (theory and practice)	June 2015	8
Training on Gola REDD amphibian monitoring SOPs (theory and practice)	July 2015	8
Training in Gola REDD chimpanzee survey SOPs (theory and practice)	September 2015	8
Tree identification training (theory and practice) for potential chimpanzee nesting trees	October 2015	8
Report writing with MS Office	July 2015	8
Presentation training with MS Powerpoint (theory and practice)	October 2015	8
2016		
Community Youth Conservation Volunteers Picathartes training at the GRCC in Lalehun	January 2016	4 + 12 community members
Community Youth Conservation Volunteers Pygmy Hippos at the GRCC in Lalehun	March 2016	4 + 12 community members
Refresher training for Chimpanzee survey for continuation of transects in 2016	February 2016	All
Primate survey training with GolaMA team at Sileti	February 2016	All
Training given by CSSL on zoonotic diseases	March 2016	All + Rangers, community members
MENTOR Pace program at Njala University for 6 months of the year (funded by USFWS)	Mar–May 2016, Sep–Nov 2016	1
Training for MENTOR Pace students from Njala University in Chimpanzee Survey	April 2016	All
Workshop on scientific writing with FFI at Lake Piso, Liberia	May 2016	1
Visit to Tacugama Chimpanzee Sanctuary in Freetown	May 2016	All
Primate Survey training in Sileti, GRNP	September 2016	All
Exchange with Tacugama and NPAA at GRCC	September 2016	4 + 6 NPAA + 4 Tacugama staff

Training title	Date	Number of participants
MS Excel and Word in GRNP office (2 days)	September 2016	2
HCV Assessor Training with Proforest in Freetown	October 2016	2
Forest Carbon Inventory Techniques, at the FORIG/Bobiri Forest Reserve in Kumasi, Ghana, funded by WABICC	November 2016	1
2017		
Pygmy hippo community youth conservation volunteer training at Lalehun GRCC	January 2017	4 + 8 community members
Gola Malimbe nest identification and data collection training with RSPB sabbaticals at Lalehun GRCC	February 2017	4 + 2 community members
Picathartes community youth conservation volunteer training at Lalehun GRCC	March 2017	4 + 8 community members
Report writing using Word and Excel training in HQ, Kenema	April 2017	5
Presentation of poster at African Primatological Society inaugural meeting held at Abidjan, Ivory Coast	July 2017	1
Participation in first Red Colobus Action Plan meeting in Abidjan, Ivory Coast	July 2017	1
Elephant dung sampling collection protocols, field training with NPAA and Park Operation Rangers.	September 2017	3
Elephant dung sampling collection survey with NPAA at Outamba Kilimi National Park	September 2017	2
HCV training given to JENSEN and HCV assessment at Kambui hills south	September 2017	1
Refresher training of Gola REDD SOPs for Carbon Stock Enhancement survey with 4 NPAA staff at GRCC	October 2017	7
Refresher training on Gola REDD SOPs for Camera Trap survey	November 2017	7
Pygmy Hippo experience sharing with Basel Zoo team in Kenema and the field	November 2017	7
Participation in Regional Western Chimpanzee Action Planning & Process Workshop in Monrovia, Liberia	December 2017	1
2018		
Njala University and Wagenigen University training on Community Laboratory for mosquito prevention held at GRCC	January 2018	2 + Njala staff and community members
Training on rapid assessment of Timneh parrots with Stuart Marsden and Simon Valle from Manchester Metropolitan University and representatives from NPAA, CSSL, Njala University and Eastern Polytech.	March 2018	4 + 4 NPAA + 2 Njala and 1 EP staff

Training title	Date	Number of participants
GPS training for other departments involved in WABICC activities and lead by Research Department Staff	May 2018	3
Workshop on primate genomics held at Njala University with researchers from University of Lisbon and with invitation to Tacugama Staff.	June 2018	4
Refresher training on Gola REDD SOPs for Amphibian Survey in Sileti Research Station.	June 2018	7
Participation in International Primatological Society and Red Colobus Action Plan workshop in Nairobi, Kenya	August 2018	1
Pygmy hippo community youth conservation volunteer training at Lalehun GRCC with Kenema Eastern Entertainers	September 2018	5 + 8 community members
WABICC biomonitoring training held in Gorahun, Tunkia Chiefdom	September 2018	4 + 20 community members
Refresher training of Gola REDD SOPs for Picathartes monitoring at Belebu, Tunkia Chiefdom.	October 2018	7 + 4 community members

2019 Training events

Training Event	Brief Description	Start Date	End Date	Number of GRC-LG participants
WABICC Training	Adult Literacy Training for field staff	20/03/19	20/03/19	6 (4M & 2F)
Basic GIS Training	SCNL of Liberia provided training to GRNP Rangers on how to download tracks to a laptop	09/04/19	12/04/19	1 (1M)
Patrol Techniques	ISAT team from the UK provided training to GRNP Rangers on patrol techniques and skills	29/06/19	08/07/19	46 (43M & 3F)
Gender Training	Training on gender issues	02/09/19	05/09/19	8 (7M & 1 F)
WABICC training	Training on cocoa collection for WABICC livelihood monitoring	07/10/19	10/10/19	17 (14M & 3F)
WABICC training	Developing questionnaire for livelihood impact monitoring	01/10/19	03/10/19	10 (8M & 2F)
Integrated Management Effectiveness Tool	Tai-Grebo-Kralin National Park in Liberia provided training to GRNP Rangers on the IMET monitoring and planning tool	11/11/19	11/11/19	1 (1M)
Soft refresher training and assessment program	Tacugama Chimpanzee Sanctuary provided training to GRNP Rangers to	01/12/19	01/12/19	2 (2M)

for conservation officers and eco guards	improve effectiveness and efficiency of ranger patrols			
Management Training for senior staff	Initiation of a process of rapid improvement by means of achieving a shared understanding of the correct leadership and management methods that GRC-LG needs to employ	03/12/19	05/12/19	16 (13M & 3F)
Excel Training	Excel training for beginners and advance level staff	11/12/19	13/12/19	67 (55M & 12F)
WABICC training	Training on taking photos and filming	15/12/19	19/12/19	12
Computer Training	Excel/ PIT training for staff	19/12/19	19/12/19	3 (3M)
Anti-Poaching Capacity Building	Anti-poaching capacity building to park rangers as part of a regional ISAT programme	02/03/20	27/03/20	04 (3M & 1F)

5.2. Wider staff training

Training Event	Brief description	Start date	End date	Number of staff
2014				
Security guard refresher training	Annual security guard refresher training, delivered by senior Park Operations staff and including modules on: understanding your job; public relations; law enforcement rules and regulations; reporting & court proceedings.	10/04/14	14/04/14	33
MS Word	Basic training in word processing using MS Word (20 hrs)	21/03/14	20/04/14	07
MS Excel	Basic training in data handling using MS Excel (20 hrs)	21/03/14	20/04/14	25
MS Power-point	Basic training in designing presentations using MS Power-point (20 hrs)	21/03/14	20/04/14	13
MS Access	Basic training in data-basing using MS Access (20 hrs)	21/03/14	20/04/14	01
NP Management and Ecotourism	3-week course in USA covering various aspects of National Park management with particular focus on ecotourism. Supported/coordinated by USAID. Attended by Superintendent CD.	01/09/14	19/09/14	01
Ebola Awareness	1-day training course provided by GOAL Ireland and intended to raise awareness of Ebola virus disease, its prevention, and current rules/regulations. Attended by GRNP drivers, admin department, and management team.	09/10/14	09/10/14	24
Ebola Awareness	Repeat of 1-day training course provided by GOAL Ireland and intended to raise awareness of Ebola	05/11/14	05/11/14	10

Training Event	Brief description	Start date	End date	Number of staff
	virus disease, its prevention, and current rules/regulations. Attended by GRNP Rangers.			
2017				
San Standard Training	San standard training conducted in Ghana for the Comic Relief project staff aimed at meeting the rain forest Alliance partners based in Ghana on Tourist grounds.	21/3/2017	24/3/2017	01
Training on Gender methodology approach	Gender Action Learning Systems (GALS) approach training conducted at DFO's office covered the following topics: vision journey, gender balance tree, social empowerment map.	30/3/2017	nil	24
Ranger Training in Zoonotic Originated Disease	The Zoonotic originated Disease training geared towards increasing the knowledge base of Rangers (participants) in the following areas: meaning and types of zoonotic disease and possible preventive and control measures.	7/8/2017	12/8/2017	21
Refresher Ranger Training in Zoonotic disease	A Zoonotic Disease refresher training for rangers to enhance their capability in handling and dealing with Zoonotic animal diseases.	9/12/2017	12/12/2017	41
Road safety	Spot light talk on driving code of conduct from the Sierra Leone Road Safety Authority was done in order to minimise motor bike accidents.	xx	xx	all
2019				
Basic GIS training	SCNL provided training to GRNP Ranger on how to copy data from the GPS to your computer laptop	9/04/2019	12/04/2019	1
Patrol planning and skills	A specialised infantry team from the UK (British Armed) provided training to GRNP Rangers on Patrol planning, Map reading and Navigation	29/06/2019	8/07/2019	46
Integrated Management effectiveness Tool (IMET)	Tai - Grebo-Krahn National Park in Liberia provided to GRNP Ranger on introduction to the IMET monitoring and planning tool and practical application for the management planning of the Grebo - Krahn National Park	11/11/2019	14/11/2019	1
Soft refresher training and assessment program for conservation officers and Eco guards	Tacugama Chimpanzee Sanctuary provided to GRNP Rangers to improve effectiveness and efficiency of Rangers patrols.	1/12/2019	12/12/2019	2
Management Training	GRC through Njala University provided training to GRCLG Management	3/12/2019	5/12/2019	3

Training Event	Brief description	Start date	End date	Number of staff
Excel training	A volunteer from Wageningen University provided training to GRNP Rangers on how to use basic functions in Microsoft Excel, such as inserting rows and columns.	11/12/2019	13/12/2019	4
Counter Illegal Wildlife Trade	The International Security Advisory Team (Sierra Leone) provided training to GRNP Rangers on deliver counter-poaching capacity building to park Rangers and other counter-illegal wildlife trade enforcement agencies	2/03/2020	18/03/2020	4

5.3. Training sessions held between the government and project 2015

Workshops, meetings, or forums	Brief description of workshop and of GRNPs role	Start date	End date	GRNP participants	Government Category
Meeting at GRNP with NPAA Wildlife Lawyers	Discussion at GRNP with NPAA lawyers re GRNP arrests of illegal miners plus radio discussions of issues	23/03/2015	25/03/2015	CTA, PAM, TAPO, Supt PO	MAFFS, NPAA
Meeting at NPAA	Meet with GOPA Technical Advisers to NPAA update on REDD	26/06/2015	26/06/2015	CTA	NPAA, MAFFS
training of DFO staff	Training 2 DFO staff on chimpanzee survey	06/10/2015	10/10/2015	RM team	MAFFS, DFO
training of DFO staff	Training 2 DFO staff on chimp survey	15/10/2015	19/10/2015	RM team	MAFFS, DFO
training of DFO staff	training 6 DFO staff on chimp survey	31/10/2015	02/11/2015	RM team	MAFFS, DFO
Meeting of stakeholders on post ebola & wildlife	Workshop in Tiwai to explore post ebola in REDD context	10/11/2015	10/11/2015	CTA	NPAA, Ministry of Local Government
Meeting & training at GRNP	8 NPAA staff in GRNP to update on project & REDD and for NPAA to explain their mandate	18/11/2015	19/11/2015	All GRNP team	NPAA, MAFFS
Meeting at GRNP	PCs meet on GRNP, REDD & BSA incl signing of BSA	16/12/2015	16/12/2015	CTA, PAM, Acting Team CD	PCs, GCDC

Annex 6. Regulation of Wages and Industrial Relations Act – analysis 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.

Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
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
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
	Temporary & Casual Workers must be automatically absorbed into permanent staff after 12 months service. Are eligible for redundancy after 6 months continuous service.	Implemented Q4 2013	Staff Handbook, section 2
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
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. Overtime hours must be paid with a bonus of 25% of the regular rate.	Implemented Q4 2013.	Staff Handbook, section 3
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
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

Article/Section	Requirement	Gola Compliance	Evidence of Compliance
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
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
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
14	Paid Maternity leave After 1 year of service, entitled to 10 weeks paid maternity leave, which may be extended on recommendation of a doctor or deducted from annual leave allowance	Implemented. 10 weeks paid maternity leave, extendable on recommendation of doctor or deducted from following year leave allowance	Staff Handbook section 4 & Contract of Employment
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
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
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
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
23 (27in 2011 Revision)	Technical training. Training to be encouraged and aided by employer	Implemented Q4 2013	Staff Handbook section 8

Article/Section	Requirement	Gola Compliance	Evidence of Compliance
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
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 Over 10 years service - 25 working day	Implemented. Staff who leave GRNP receive end of service gratuity as set out in the regulations.	Staff Handbook section 10
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
30	Disciplinary procedure Disciplinary procedures to follow set process	Implemented. GRNP Disciplinary procedure meets & exceeds requirements	Staff Handbook section 11 & Contract of Employment
33	Grievance Procedure Grievance procedures to follow set process	Implemented. GRNP grievance procedure meets requirements of regulations	Staff Handbook section 12 & contract of employment
38	Acting appointments. Staff who temporarily act up into more senior positions are to be paid the rate for the senior post	Implemented Q4 2013	Staff Handbook section 3
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
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. Implemented Q4 2013	Health & safety policy, Hazard Register, Risk Assessments & Staff Handbook section 6

Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
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
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

Figure 15 Other related acts to workers right - analysis of how compliance is achieved

Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
Workman's Compensation Act 1971		Industrial Accident compensation	Implemented. In case of death or injury to an employee, compensation is 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,		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 Security and Insurance trust Act, No. 5.	Section 8, Subsection 3(f)	Retirement benefit The project contributes 10% of each staff member wages into NASSIT every month (5% is contributed by the staff member).	Fully implemented	Contract of employment, staff handbook and GRNP financial report (in confidential)

Legislation	Article/ Section	Requirement	Gola Compliance	Evidence of Compliance
		Payment is stopped if the staff member leaves.		financial analysis folder)
SAFEGUARDING		Part of HR staff handbook.		

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Annex 7. Number of project proposals implemented

Summary of all projects

Year	Total projects	Cost USD
2015	10	54,814
2016	29	57,343
2017/18	20	73,600
2019	26	80,450
TOTAL	85	266,207

Summary of project type

Type	Total projects
Ecolodge	1
Bridge	2
Water supply	3
School construction	4
Barray (meeting hall)	29
Oil/Rice Mill	34
Latrines/sanitation	3
Office	1
House roofing	4
Health post	2
TOTAL	83

2015 - 10 projects

Chiefdom	Village / Town	Project description	Approval Date	Completion date	Cost at completion (USD)
Nomo	Baoma	Primary School	14/-04-2015	18-07-2015/	18,447
Barri	Jaluahun	Rice mill	18/03/2014	20-01-2015	3,681
Barri	Waima	Rice mill	26/05/2014	20-08-2015	3,850
Barri	Mano	Community barray	27/03/2014	21-08-2015	5,392
Koya	Lowuma	Rice mill	05/04/2014	20-01-2015	3,653
Malema	Goyama	Community toilets (x4)	26/11/2014	20-04-2015	2,343
Malema	Kaikoyeahun	Community barray	26/11/2014	19-05-2015	3,576
Malema	Tobu	Community barray	26/11/2014	05-04-2015	3,732
Malema	Jojoima	GCDC office	26/11/2014	10-10-2015	6,466
Tunkia	Shenge	Community barray	01/05/2014	12 -07-2015	3,674
Tunkia	Bongor	Community barray	17/03/2014	Not yet	
TOTAL					54,814

2016 – 29 projects

C/dom	Village / Town	Project description	Approval Date	Completion date	Cost at completion (USD)
MALEMA	Jojoima	Rice Mill	29/02/16		
	Bumpeh	Barray	26/02/16	20/8/16	4.425
	Jenne	Barray	26/02/16	20/08/16	4.568
	Komboima	Barray	14/03/16		-
GAURA	Kokoru	Rice Mill	24/02/16	20/07/16	5.374
	Sandaru	Rice Mill	24/02/16	24/07/16	5.277
	Korwobu	Barray	26/02/16	8-10-2016	4.435
	Sembehun	3 c/room sch.	29/02/16		
NOMO	12 Villages in the 3 sections	Re-roofing of 25 thatced houses with zinc	10-11-2016		
TUNKIA	Fayeima	Rice Mill	29/02/16	29/07/16	5.337
	Borbu	Bridge	29/02/16	23/06/16	7.246
	Buuma	Barray	26/02/16	9-10-2016	4.538
	Ngeibu	Barray	26/02/16	8-9-2016	3.505

KOYA	Baoma	Rice Mill	24/02/16		
	Bongor	Rice Mill	24/02/16		
	Toobu	Barray	25/02/16		
BARRI	Jeiwoma	M. C. H. P	14/04/16		
	Golawoma	Barray	25/02/16	23/08/16	3.277
	Largo	Rice Mill	29/02/16	28/07/16	5.457
	Komende	Hand pump	14/03/16		-
MAKPELE	Peawa	Rice Mill	4-5-2016		
	Gissiwulo	Rice Mill	4-5-2016		
	Jagbwema	Barray	15/04/16		
	Deresalam	Barray	13/04/16		
	Dumagbe	Barray	4-5-2016		-
Tunkia	Bongor	Community barray	17/03/2014	15-3-2016	3.902
TOTAL					57.343

2017/18 20 projects

CHIEFDOM	TOWN/VILLAGE	TYPE OF PROJECT	Livelihood project	Infrastructure project
Malema	Fulawahun		30,358,500	59,017,504
Gaura	Kokoru	Rice Mill	60,449,000	91,483,640
	Sandaru	Rice Mill		
	Korwobu	Community barray		
	Sembehun	3 c/room sch.		
Nomo	12 communities	Roofing of thatched houses	0	95,702,150
Tunkia	Fayeima	Rice Mill	30,289,500	86,768,236
	Borbu	Double culvert bridge		
	Buuma	Community barray		
	Ngeibu	Community barray		
Koya	Baoma	Rice Mill	59,199,000	16,569,857
	Bongor	Rice Mill		
	Toobu	Community barray		
Barri	Jeiwoma	Maternal & Child Health Post	30,969,500	88,401,567
	Golawoma	Community barray		
	Largo	Rice Mill		
Makpele	Peawa	Rice Mill	60,039,000	45,623,435
	Gissiwulo	Rice Mill		
	Jagbwema	Community barray		
	Deresalam	Community barray		
TOTAL			271,304,500	483,566,389
		USD	26,600	\$47,000

2019 26 projects 14 of which completed,

C/DOM	PROJECT	TOTAL COST (LE)	NO. OF BENEFICIARIES	YEAR	STATUS
BARRI	Rice mill and Dry Floor	34,380,000	1200	2018	completed
	Sectional community barray	39,450,628	1185	2018	completed
	Local Oil Mill	15,432,000	1300	2018	not completed
	Local Oil Mill	15,112,000	1040	2018	not completed
	Hand Pump Water Well	26,928,600	350	2019	completed
	Community barray	53,104,100	1870	2019	not completed
			184,407,328		
GAURA	Rice Mill & Dry Floor	34,210,000	3600	2018	completed
	Rice Mill & Dry Floor	33,690,000	5800	2018	completed
	Provide rubber chairs & benches	4,700,000	Entire c/dom	2018	completed
	Community barray	57,473,850	1250	2019	completed
	Community barray	51,741,100	500	2019	not completed
	Local Oil Mill	15,338,000	600	2019	completed
	Community barray			2020	
	Two VIP toilets			2020	
		197,152,950			
KOYA	Ecolodge	63,288,362	Entire c/dom	2019	not completed
		63,288,362			
MAKPELE	Hand pump water well	27,000,500		2019	completed
	Two V.I.P toilet	38,800,000		2019	not completed
	3 c/room sch. Rehabilitation, Toilet & Furniture	49,940,499		2019	not completed

		115,740,999			
MALEMA	Rice Mill & Dry Floor	34,460,000	2800	2018	completed
	Local Oil Mill	15,112,000	950	2018	completed
	Local Oil Mill	15,532,000	1600	2018	completed
	local oil mill	15,428,000	980	2019	started
	local oil mill	15,008,000	850	2019	started
	local oil mill	15,008,000	1000	2019	started
	Local Oil Mill	15,208,000		2020	
		125,756,000			
	Rice Mill & Dry Floor	34,070,000	3100	2018	completed
		34,070,000			
	Provision of boards for 40 thatched houses	50,080,000	Entire c/dom	2019	completed
	Provision of imported roofing materials for re-roofing of 30 thatched houses	129,151,425	Entire c/dom	2019	ongoing
	Provision of boards for 15 thatched houses	45,000,000		2020	
		224,231,425			
	TOTAL Projects	818,891,064			
	USD	80,450			

Annex 8 Limited Degradation Survey - Monitoring Degradation within the Gola REDD Project Area 2019

Benjamin Barca RSPB

Based on the Methods for Monitoring of GHG Emissions and Removals (Winrock 2013)

Results from previous Participatory Rural Appraisals and field surveys indicated the potential for timber harvesting to be occurring within the project boundary ($\Delta C_p, Deg, i, t > 0$), limited to small stumps (<10 DBH) used for construction or sale. For this reason it was necessary to conduct a Limited Degradation Survey to assess levels of tree harvesting for illegal timber, fuelwood, charcoal and construction materials. This was to be concluded prior to the next verification in late 2019.

Results from previous PRAs and field surveys indicated a penetration distance for timber harvesting of about 3-4 km in the forest (equivalent to about 1hr walk). We conducted an informal PRA in 7 selected villages that lie the closest to the project area boundary (1 per chiefdom) to obtain additional information on timber harvesting from community members involved in such activities. Results indicated limited community use of trees within the Project Area and a penetration distance similar to the one previously recorded. In these same 7 villages the most important access points to the Project Area were identified and included in the limited degradation survey. Another 7 additional community access points were randomly selected to be included in the survey making it a total of 14 access points across the 7 chiefdoms (see Table 1 for details).

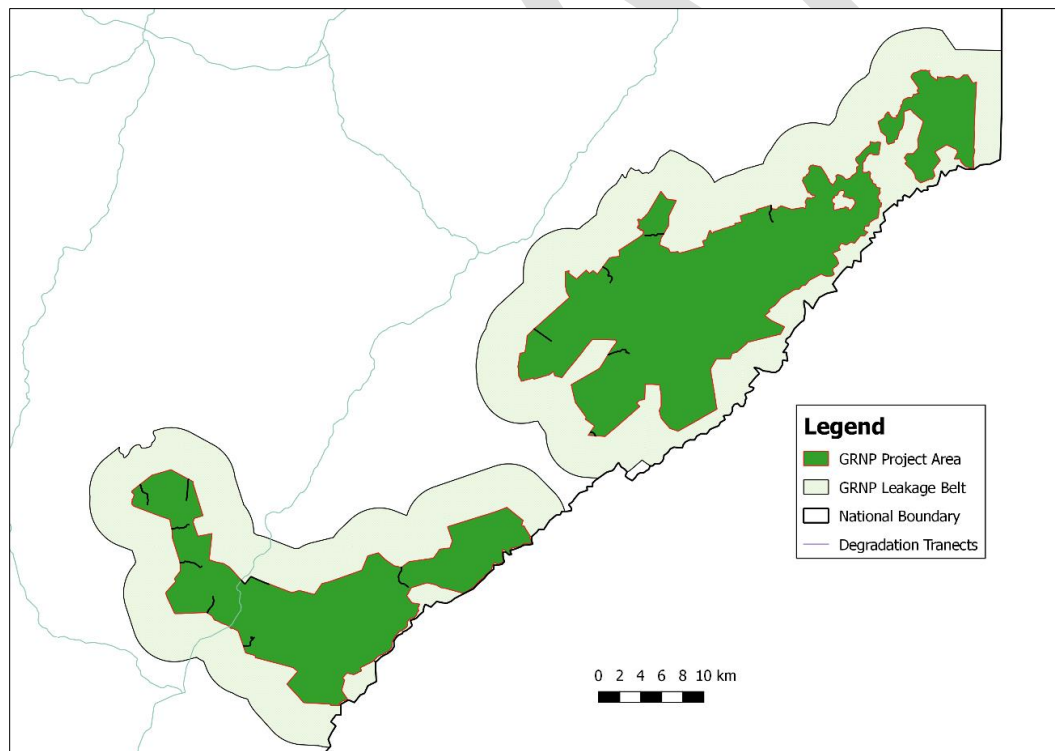


Figure 16. Transects surveyed during the 2019 limited degradation surveys, all transects were approximately 2km in length.

From each of the 14 access points a buffer area, with a width equal to length (and equal to penetration distance), was created. Assuming a penetration distance of 3.2 Km, the total area subject to degradation (ADegW,i) was calculated as approximately 140 Km² (as the sum of the 14 buffer areas of 10Km² created from each of the access points). We then establish 14 survey transects with a length of 2 Km and a width of 0,05 Km (assumed as the distance surveyors could see stumps on either side) equal to 0,1 Km². The combined survey area of 1.4 km² was equal to at least 1% of the area of degradation (ADegW,i). Based on Project specific data, we then counted every stump with diameter >10cm (the value was chosen based on an assessment of carbon stock data and average DBH size from the project data), using stump diameter as a rough measure of DBH, and avoiding to count stumps older than 3-5 years. All teams conducting the survey were trained in field protocols relating to this assessment and conducted a training survey transect with the team leader to ensure everyone was using the same methodology.

A total of 13 access points were successfully surveyed (see Figure 1) with 1 being missed in Matakahun (Tunkia Chiefdom) due to equipment failure. Transects were all 2km in length so a total of 26km within the Project Area were surveyed. Results clearly show that degradation within the Project Area is minimal with only 5 recently cut stumps encountered during surveys, all of which were below 20cm in DBH and in most cases these were cut for trail maintenance (for example bridge construction along forest trails). We can thus conclude that there is little to no evidence that trees are being harvested within the Project Area (far less than 5% of the total tree biomass), and degradation can be assumed to be zero ($\Delta C_p, Deg, i, t = 0$). No further monitoring is currently needed, and the assessment will be repeated in 2021.

Table 1. Community access points to degradation surveys and summary results per transect

Community	Chiefdom	Date Accessed	N of stumps	Average DBH
Lalehun	Gaura	16/07/2019	0	-
Jabwema	Gaura	17/07/2019	0	-
Takpoima	Malema	17/07/2019	0	-
Patama	Malema	18/07/2019	0	-
Wayeihun	Nomo	17/07/2019	0	-
Madina	Nomo	19/07/2019	0	-
Baiama	Makpele	20/07/2019	1	12.00
Pewaa	Makpele	21/07/2019	0	-
Tewoyoma	Barri	22/07/2019	2	13.75
Golawoma	Tunkia	23/07/2019	2	14.25
Makondema	Tunkia	19/07/2019	0	-
Matakahun	Tunkia	missed	-	-
Segbema	Koya	22/07/2019	0	-
Gieya	Koya	23/07/2019	0	-