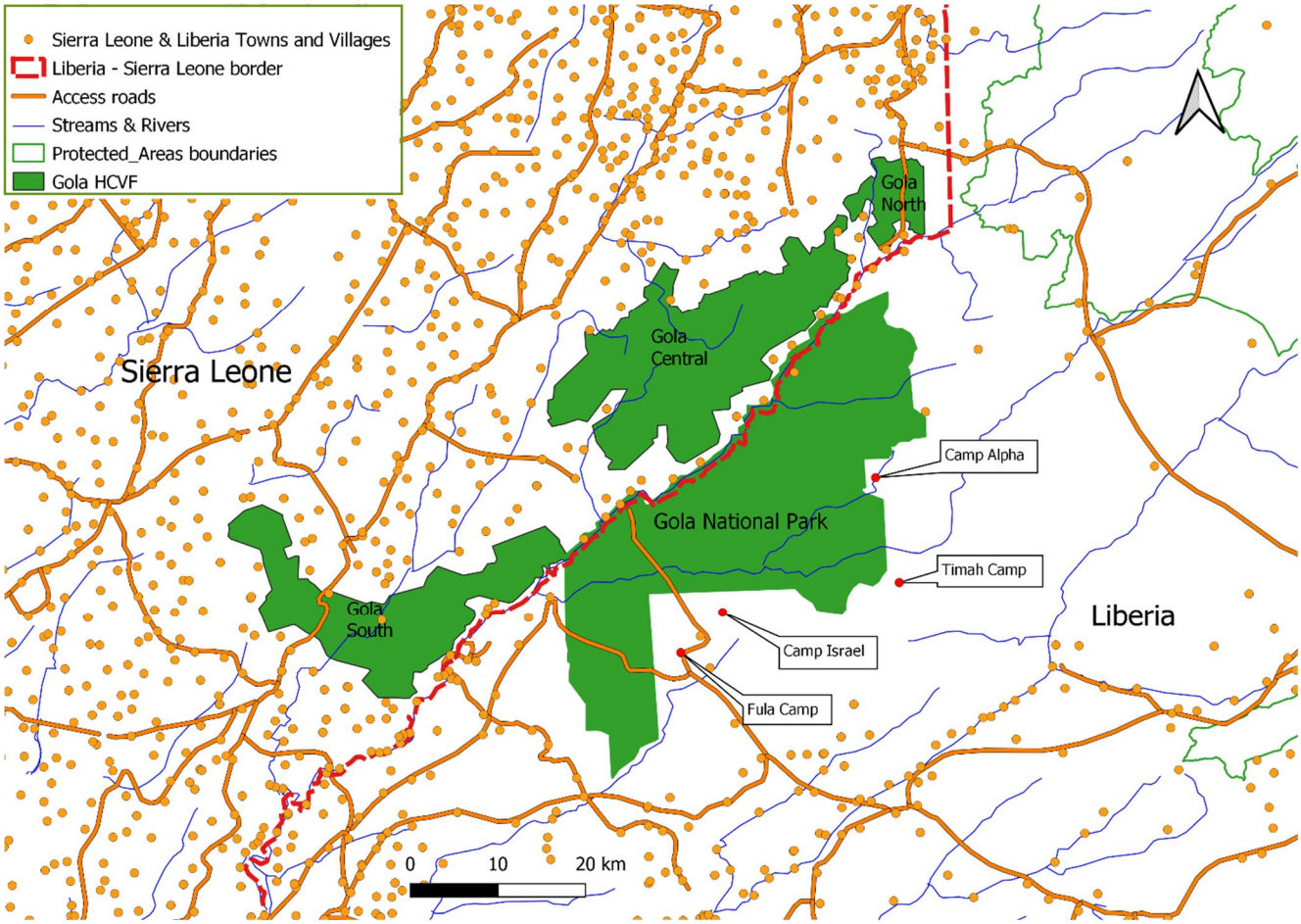

Source: https://diva-gis.org/gdata

FOREST LANDSCAPE RESTORATION OPPORTUNITIES ASSESSMENT

SCALE:	**Sub-national**
Country	**Liberia – Gola Forest National Park: Liberia–Sierra Leone Transboundary Landscape**
Supervising Body:	**Forestry Development Authority (FDA)**
Funding	**Global Environment Facility (GEF)**
Year	**2020**

Contents

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List of abbreviations

AAE		Average Annual Expenditure
AAI		Average Annual Income
ANR		Assisted Natural Regeneration
ARTP		Across the River Transboundary Park
CBD		Convention on Biological Diversity
CBR		Cost Benefits Ratio
CFMA		Community Forests Management Agreement
CO2		Carbon Dioxide
CRL		Community Rights Law
ESI		Environmental and Social Impact
ESSP		Engineering Sustainable Solutions Program
FACE		Farmers Associated to Conserve the Environment
FDA		Forestry Development Authority
FLR		Forest Landscape Restoration
GNP GEF		Gola National Park Global Environment Facility
HCVF		High Conservation Value Forest
NDC		Nationally Determined Contributions
IUCN		International Union for the Conservation of Nature
IWRM		Integrated Water Resources Management
LCC		Local Consultative Committee
LDN		Land Degradation Neutrality
LMF		Landscape Management Framework
LRB		Land Rights Bill
MOA		Ministry of Agriculture
MRU		Mano River Union
NBSAP		National Biodiversity Strategy and Action Plan
NGO		Non-Governmental Organization
NTFP		Non-Timber Forest Products
PA		Protected Area
REDD+		Reducing Emissions from Deforestation and Forest Degradation and the contribution of Conservation, Sustainable forest management and Enhancement of forest carbon stocks.
ROAM		Restoration Opportunities Assessment Methodology
SCNL		Society for the Conservation of Nature Liberia
SCNSL		Society for the Conservation of Nature Sierra Leone
SDG		Sustainable Development Goals
tCO2eq		Tons of Carbon Dioxide Equivalent
ToC		Theory of Change
UGF		Upper Guinea Forest
UNDP		United Nations Development Programme
VADEMCO		Vainga Agriculture Development and Management Consultancy
VSLA		Village Savings and Loans Association

Foreword

The implementation of a Restoration Opportunities Assessment Methodology (ROAM) around the Gola National Park, is part of the Integrated Water Resources Management (IWRM) project being implemented by the Mano River Union. The ROAM application is implemented to address the outcomes of four main activities of the IWRM Project, namely;

- 1.2: Produce onsite guidelines for restoring productivity of tree-based systems to promote best practices of forest landscape restoration interventions and sedentary agriculture practices in key sectors affecting the forest ecosystem
- 1.9: The production of opportunity maps for restoration of degraded areas
- 1.14: Collection of information on human populations and socioeconomic dynamics in order to assess the origin of threats to natural resources and impact on livelihoods and sustainable resources management
- 1.17: Negotiate integrated land use planning in a participatory manner with stakeholders and target groups.

Firstly, the ROAM applications are implemented to address expected outcomes of integrated land use planning, enabling the generation of sustainable sources of income from various restoration interventions.

Secondly, the ROAM exercises will recommend and provide technical mechanisms for achieving improved management of existing and new tree-based agricultural activities near protected areas and other High Conservation Value Forests.

Finally, the ROAM exercises will deliver action plans that include on-site guidelines, promoting the use of various best practices for restoring productivity to tree-based systems, thereby, strengthening sedentary agricultural practices in key locations where such practices can help perpetuate ecosystems services (biodiversity, water, detoxification, carbon sequestration, etc.) provided by forests.

The Consortium

Executive Summary

Under the Mano River Ecosystem Conservation and International Water Resources Management Project, a consortium of National NGOs comprising Farmers Associated to Conserve the Environment (FACE), Forest Cry, and GREENLIFE was contracted by the Forestry Development Authority (FDA) of Liberia from March 2019 to May 2020 to implement a Restoration Opportunity Assessment Methodology (ROAM) within the Gola Forest Landscape. This was done in four communities within five (5) km from the Gola Forest National Park boundary, namely; Alpha Camp, Timah Camp, Fula Camp and Camp Israel.

The higher goal of the ROAM process was to help Liberia achieve Sustainable Development Goals (SDGs) through landscape restoration interventions at site level. ROAM will thus; support Liberia in the sustainable management of natural resources; improve data and information gathering and sharing at national and regional levels; contribute to livelihoods of local communities by building resilience at the ecosystem level and help the country combat land degradation and climate change. More specifically at the site level, the ROAM set out to identify and characterize relevant stakeholders; identify most relevant and feasible restoration opportunities; analyze their costs and benefits; their ecosystems (water services, biodiversity, carbon) benefits; explore appropriate and available finance and investment options and identifying key national, regional and global policy enablers or bottlenecks.

Information was gathered by a team of consultants, followed by extensive desk reviews of documentation; and an inception workshop, during which the methodology was presented and extensively discussed. The ROAM implementation process comprised consultations with communities near the Gola Forest, as well as FDA staff and members of the Local Consultative Committees (LCCs). Additional stakeholders like miners and forest products exploiters were consulted on an ad hoc manner. Using Focused Group Discussions (FGD), socio-economic analyses focused on participatory land use and resource mapping; household surveys and analyses; demographic survey and analyses, farming systems analyses, food security analyses, value chain assessment, stakeholder mapping and a cost benefit analyses of major commodity tree crops. Through these analyses, a sense of the Gola economic and livelihoods context was acquired; and local drivers of deforestation and forest degradation understood.

The Theory of Change for Landscape restoration in Gola encapsulates the vision of the communities of the Gola National Park (GNP) periphery. That vision is to have the deforested and degraded sites, according to their local perceptions, rehabilitated with cash/tree crops that will yield both ecosystem and direct economic benefits for communities. This vision includes that of the Forestry Development Authority (FDA), one of the institutions of government responsible for the sustainable management of forest resources of Liberia. Analyses towards this vision used remote sensing and geographic information systems and techniques, multi-criteria analyses of spatial data; forest management, land use, elevation, and hydrology carried out to better identify spatial priorities and opportunities for landscape restoration.

The extent of Forest landscape perceived as degraded within the Gola landscape, as defined under Liberia's REDD+ Strategy, and covered under this assessment stands at 1, 719.36 ha. Using expert's inputs in Liberia's REDD+ Strategy, against the backdrop of the ecosystems services characteristic of the landscape; and the results of the socio-economic, ecological and spatial analyses, three (3) principal restoration interventions were identified for the Gola National Park. These comprise of; (i) Assisted

Natural Regeneration (ANR) of vegetation in abandoned mines (ii) Incentives and Enforcement of Regulations and/or Environmental and Social Impact Evaluation in active mines, (iii) Law enforcement and assisted natural regeneration in degraded gallery forests (inside the Park); and (iv) Individual Plantation development of hybrid oil palm, cocoa and/or rubber; (v) rehabilitation of individual home gardens outside the park, with pilots around Timah Camp, Camp Alpha, Camp Israel and Fula Camp with possibilities for expansion as the opportunities present themselves.

The restoration options were subjected to analyses for biodiversity, social, ecological and economic indicators. The interventions were further evaluated against some success factors linked to the national and international policy context; and eventually, viable financing mechanisms for landscape restoration were explored.

Based on these analyses the following findings and recommendations were arrived at;

1. In the Gola Forest National Park, restoration actions are;

    a. To be backed by approved Environmental Impact Assessment guidelines; through natural regeneration of indigenous vegetation in abandoned mines and degraded banks of streams and rivers; and where feasible, assisted by diligent introduction and management of species like Bamboo and Rattan known for their detoxification services. Restoring vegetation cover in these sensitive zones will be implemented under Management Issue No. 6 of the Park Management Plan
    b. To be based on negotiated agreements with communities inside the Park willing to relocate elsewhere, an opportunity exists for reforestation of thousands of hectares of previously farmed and inhabited portions of the Park

2. Outside the Park; within 5 km of its periphery, restoration actions are to be;

    a. Backed by approved Environmental and Social Impact Assessment guidelines, assisted natural regeneration of vegetation on stream banks and abandoned mines is recommended, and where feasible, the regeneration process with indigenous, economically viable species such as *Zylopia aethopica* and *Calamus spp* such as rattan, can be developed whose value chains can improve livelihoods and store carbon
    b. Characterized by the development of commodity tree crop plantations of oil palm, cocoa, rubber or other appropriate species (e.g. Teak) on degraded secondary bushes, appropriate old fallows and home gardens should be promoted, and the development of value chains for their products, supported; and will contribute to carbon sequestration and eventually storage.
    c. Ensured by community tree plantations to include at least 10% indigenous tree species, per hectare to enhance on-farm biodiversity and increase chances of certification of community plantations.

3. To achieve improved knowledge and understanding at the national and regional levels, the following are recommended;

a. Improved data and information gathering and sharing on land-use, e.g., on artisanal miners, small scale timber and NTFPs actors in HCVF in Liberia to help inform planning decisions by working with the FDA and with the MRU for transboundary lessons.
b. Improve understanding of Tree Crops Value chains, such as oil palm; and how sustainable small-scale oil palm production practices can be promoted and financed around HCVF.
c. Improved knowledge, data and awareness of opportunities and mechanisms for financing landscape restoration from private and public sources.

4. Excellent factors of success exist at national and international levels. For instance, Landscape Restoration contributes to the national REDD+ program, to National Adaptation Plans, to CBD Aichi Art. 14, and to the UNDP's LDN. Through the monitoring of restoration of degraded lands inside and out of the Gola National Park, an evaluation of the contributions to local individual and community livelihoods, and to the Bonn Challenge and ARFR100 initiatives by Liberia can be achieved.

5. The main sources of readily available finance identified for restoration investments in the National Park are from Public sources (the State, FDA, GEF/MRU), from Bilateral and Multi-lateral donors. Furthermore, it is possible, given relationships with Park settlers to attract private sector funding for reforestation inside or outside the Park. Going forward, engagements by the MRU, National Governments and Civil Society will need to be made for these funding opportunities to have a serious chance of evolving to real financial support. Nevertheless, two funding streams are possible;

   The first is the development of Agroforestry plots (home gardens) through financial relationships with enhanced VSLAs. Secondly (also applicable inside the Park), there is growing interest from Private Sectors like AIRBUS France (Toulouse) and others, to purchase and secure biocarbon from Reforestation Projects. The requirements for this are very specific and represent a very viable source of financing. For obvious reasons information is scanty, until there is a serious proposition in hand. Finally, the development of commodity tree crops of oil palm, rubber and cocoa represents the biggest restoration opportunity outside the Park. There is a huge internal and regional market for these commodities. What is required is solid value chain analyses to better understand these investment streams and sources of investments. Such value chain analyses were outside the scope of this ROAM.

1. Background

The Mano River Union sub regional context

The Mano River Ecosystem Conservation and International Water Resources Management (IWRM) project, is funded by the Global Environment Facility, executed by the International Union for the Conservation of Nature (IUCN) and implemented in the 4 member countries of the Mano River Union; Liberia, Côte d'Ivoire, Guinea, and Sierra Leone.

The project targets the conservation and sustainable use of the transboundary water basins and their biodiversity resources within the Mano River Union member states. These resources are of highest importance for the sub-region, seriously affected by socio-political problems with displaced and suffering populations, and demand support under these very difficult contexts. The project seeks to promote holistic approaches to integrated ecosystem management and to design participatory and community–based strategies, which will lead to in-situ conservation and sustainable use of soil, water and biota in the river basins and on their watersheds.

The MRU covers a total area of 751,450 km² and an estimated population of 41,800,000 as at 2010. All four countries share 07 transboundary River Basin Ecosystems comprising of; (i) the great Scarcies – Kolenten (linking Sierra Leone and Guinea), (ii) Lofa (stretching into Liberia from the Guinean Highlands, (iii) the Mano, and (iv) Moa/Makona (linking Sierra Leone and Liberia), (v) Little Scarcies (linking Sierra Leone to Guinea Conakry in the far west), (vi) Cavally (linking Liberia to Cote d'Ivoire), and (vii) Sassandra, being contiguous with the Cavally linking Liberia to Cote d'Ivoire. The remaining two river basins; (viii) Cestos and (ix) Saint John, have their entire upstream portions in the Cote d'Ivoire and Guinea Conakry, respectively, with the bulk of their downstream, within the territory Liberia.

These river-basins are narrow-shaped and small-sized (22,000 km² and 320 km-long on average), and highly vulnerable to degradation (MRU, 2011). The key biodiversity hotspots are largely in their upstream catchments, whereas protected areas tend to concentrate mid and downstream. Smallholder agriculture land-use, charcoal fabrication, game hunting, wildlife trade, human intrusions into protected areas and bushfires by resident populations upstream, constitute important drivers of landscape degradation, land cover change, water quality issues, biodiversity and soil fertility loss. Meanwhile, in some downstream catchments, such as the Gola, or Sapo – Gebo area, reports of land use conflicts, involving land use operations like mining, logging and agro-industrial plantations are common (MRU, 2011).

Local Context; The Liberia - Sierra Leone Gola Transboundary Peace Park initiative

There is longstanding community engagement and involvement in the transboundary forests connecting Liberia to the Gola Rainforest National Park in Sierra Leone. This creates a unique transboundary Peace Park covering over 2,000 km², providing important additional collaborative opportunities between the two neighboring countries, and promoting conservation and sustainable resource management across the politically divided ecosystem. In 2009 there was a joint declaration by the Presidents of Liberia and of Sierra Leone on the intention to designate portions of the Gola National Forest within their borders as national parks, essentially creating a Transboundary Peace Park. Between 2010 – 2013 an "Across the River", transboundary Peace park project was instituted for Liberia and Sierra Leone

A committee was proposed to take responsibility for transboundary operational plan on the Liberian side, including consultative meetings with their Sierra Leonean counterparts. Through programs such as "Across the River" –Transboundary Peace Park for Liberia and Sierra Leone (ARTP) and GolaMa, the Society for the Conservation of Nature Liberia, in partnership with her counterpart in Sierra Leone, Society for the Conservation of Nature, Sierra Leone (SCNSL), has built and nurtured a rewarding relationship with park fringe, adjacent communities; and with traditional and local government authorities for nearly a decade. Among the objectives of GolaMa, for example, are to (i) Establish Community Forest Management Agreements (CFMAs) and financially sustainable business plans; (ii) Ensure forest-dependent communities are benefiting from new, sustainable, alternative income generating activities under CFMAs, while contributing to forest protection; (iii) Reduce bushmeat hunting/trading of protected species in the project area and hopefully beyond; and (iv) Determine the potential of carbon trading to provide additional, sustained funding.

Liberia and Sierra Leone's transboundary Cooperation on the Gola National Park and Forest Reserves respectively, represent a significant continuous portion of the Upper Guinea Forest ecosystem. The impacts of conservation efforts and community outreach work will be more effective if such conservation efforts in the two forest blocks are coordinated. Indeed, such a Transboundary conservation initiative was identified as the highest priority conservation area in the Upper Guinea Forest conservation strategy published in 1999 by Conservation International (CI)

A Transboundary Committee will be organized to take full responsibility for crafting Transboundary operational plans and making sure such plans are executed. Steps to achieve such cooperation started in 2011 when Liberia and Sierra Leone signed a Memorandum of Understanding (MoU) to collaborate on activities such as law enforcement, free cross-border movement of staff assigned to the National Parks, joint research and monitoring, community engagement and cross border marketing. Following from the MoU, a Transboundary Action Plan detailing concrete activity to be undertaken by each party has been prepared by the Forest Development Authority of Liberia and the Forestry Department of Sierra Leone. Both countries are experiencing their forested and related landscapes being rapidly replaced by large-scale oil palm plantations, mining and logging concessions.

1.1. Forest Landscape Restoration Objectives

Given the context of existing landscape degradation and incident hazards, an important goal of the IWRM regional project is to strengthen the management of transboundary natural resources for sustained ecological benefits and improved livelihoods of forest-dependent communities in this transboundary landscape and to improve river basins, watersheds as well as high conservation value forests adjacent to the Gola Forest National Park (GFNP).

In 2015, Liberia pledged to restore degraded landscapes by committing 1 million hectares of forest to the Africa Restoration Initiatives (AFR100) and the Bonn Challenge. These adherences should automatically align Liberia's restoration commitments to the Convention on Biological Diversity (CBD) regarding Aichi Target 15 on restoration, carbon stocks enhancements, sustainable forest management and conservation goals of REDD+ (e.g., Liberia's INDC); the Rio + 20 and other Degradation Neutrality targets (e.g., LDN, UNDP).

At the national and site levels, landscape restoration interventions seek to help Liberia achieve Sustainable Development Goals (SDGs) including the following broad objectives;

1. Support Liberia in the sustainable management of natural resources by restoring vegetation cover in sensitive ecosystems (PAs, Watersheds, River Basins) to improve ecosystem services in degraded areas, increase rural income and improve biodiversity richness even in community areas.
2. Improve data and information gathering and sharing on land-use in Liberia to help inform larger land-use planning decisions by working with the MRU
3. Contribute to the REDD+ program in Liberia through the restoration of degraded lands and supporting local livelihoods at the community level.
4. Supporting Liberia to meet its international commitments, particularly the Climate Change mitigation and Adaptation goals in the INDC,

More specifically, and as part of the process of Forest Landscape Restoration, the Restoration Opportunities Assessment Methodology, (ROAM) is a recommended entry point to Landscape Restoration with the following specific objectives:

- To identify and characterize relevant stakeholders of the process
- To identify priorities and opportunities for restoration in the landscape
- To identify the most relevant and feasible restoration options across the regions
- To analyze the costs and benefits of the most relevant and feasible restoration options
- To analyze ecosystems (biodiversity, carbon) benefits of the restoration options
- To analyze appropriate and available finance and investment opportunities and constraints
- To analyze and identify policy and institutional bottlenecks and enablers of landscape restoration

1.2. Drivers of Deforestation and Land Degradation

The key threats to the different blocks of the Gola forest landscape are on both large and small-scales. Large scale drivers include artisanal mining, establishment of new settlements, shifting cultivation, logging (chain sawing), and agricultural land use, while small scale threats include charcoal production, unsustainable extraction of non-timber forest products, and wildlife hunting. Although these small scale threats have lower magnitude with respect to forest degradation, they are sporadic drivers of forest degradation and often lead to forest fragmentation.

Furthermore, it is hypothesized that, a general lack of local understanding about ecosystem services in general, and specifically those provided by forests, often contribute to attitudes and behaviors which make artisanal mining, extraction of wood from gallery forests, streams and river banks, destructive. For every ensuing landscape restoration process, ecosystem must include training, sensitization and other forms of educational process for communities about services and the effect of their activities on the environment.

Photo 1: Artisanal Mining in the Gola landscape (By Shedrack E. Smith)

Diverse livelihoods strategies carried out by the communities, such as uncontrolled hunting and slash and burn - shifting cultivation, are small scale but very widespread factors compounding the negative consequences of no formal land use planning.

Below is a response of a member of the Sokpo Clan Community Forest Organizing Committee (CFOC) interviewed during the Forest Landscape Restoration (FLR) exercise in Camp Israel and some participants shared the same view:

"Before this restoration project came, we had been participating in several trainings, so we know our responsibility as a CFOC, which is to manage the day-to-day activities of the CFOC. Behavior change is not an event; it's a process. A lot of people are getting discouraged about hunting and mining because they don't see money coming from those activities anymore. Some of them are coming to us and saying they believe the forest restoration project will be a direct benefit for us."

An important aspect in the integrated implementation of the transboundary action plans, and the goals and objectives of the management plans of both the Liberia National Park and Sierra Leone's Forest Reserves is, dealing with landscape (habitat) degradation. For instance, habitat restoration is specifically highlighted in the implementation plan for rehabilitating/restoring all mining pits, sites of previous human settlements and other degraded areas in the Park.

Due to illegal alluvial gold mining activities in communities around the GFNP, there are many areas of disturbed vegetation. Although many of these areas are open pits filled with stagnant water, many are

cleared camp sites and human settlements. The specific numbers, locations and conditions of these sites are not known, although they are thought to be widespread. Determining and locating them is an important landscape restoration assessment, and Park Management activity. The details of what needs to be done as part of restoration process are developed in the relevant management plan of the park and will be reinforced in this assessment report. In general terms, however, three main sets of activities are planned: (i) Identification, mapping and rehabilitation of habitats degraded by mining and related activities; (ii) to ensure that after years beyond the validity of the management plan, all degraded vegetation areas are allowed to recover naturally; and (iii) in areas where damage is extensive, the government's agency (i.e. the Ministry of Mines and Energy) responsible for mining activities in Liberia is currently ensuring that measures are taken towards assisting recovery of the damaged sites.

1.3. Theory of Change

The concept of 'Theory of Change' (ToC) is very important in decision making for restoration. ToC is essentially a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. It is a living tool that links: What you do; who you are targeting for results; why and how you do it; and what you expect to achieve.

The landscape restoration vision of the communities of the Gola National Park (GNP) periphery is to have the deforested and degraded sites rehabilitated with cash/tree crops that will yield both ecosystem and direct economic benefits for communities. Their goals are to achieve these through practices and behavior change from unsustainable land-use practices, improve human wellbeing, reducing deforestation and forest degradation while making contributions towards national climate mitigation goals (e.g., NDC, Bonn Challenge, etc.). For the Gola trans-boundary landscape, the stakeholders are committed to bring at least 3000 ha of degraded/deforested land under restoration over a period of five years. This figure will increase if sites inside the Park are rehabilitated.

In order to attain this vision and achieve the anticipated objectives in a context of degradation within the targeted landscape around the GNP, a minimum of three (3) sets of outcomes need to be evaluated as; sufficient. For purposes of differentiation, the first set are considered as inputs (context and resources), the second as through-puts (actions and investments) and the third as outputs (impacts and scope).

Firstly, inputs (context and resources) comprising of institutional, policy and bio-physical factors of success, enabling of restoration interventions should be in place. To this is then added mobilization of relevant knowledge of sources and mechanisms of sufficient and appropriate financing and other resources.

Secondly, to this context is introduced, through-puts of economically, financially and ecologically viable restoration interventions (actions and investments). There should be no constraints posing any conflicts of interest; either ecological, technical, financial or social – with potential to prevent the restoration interventions from flourishing.

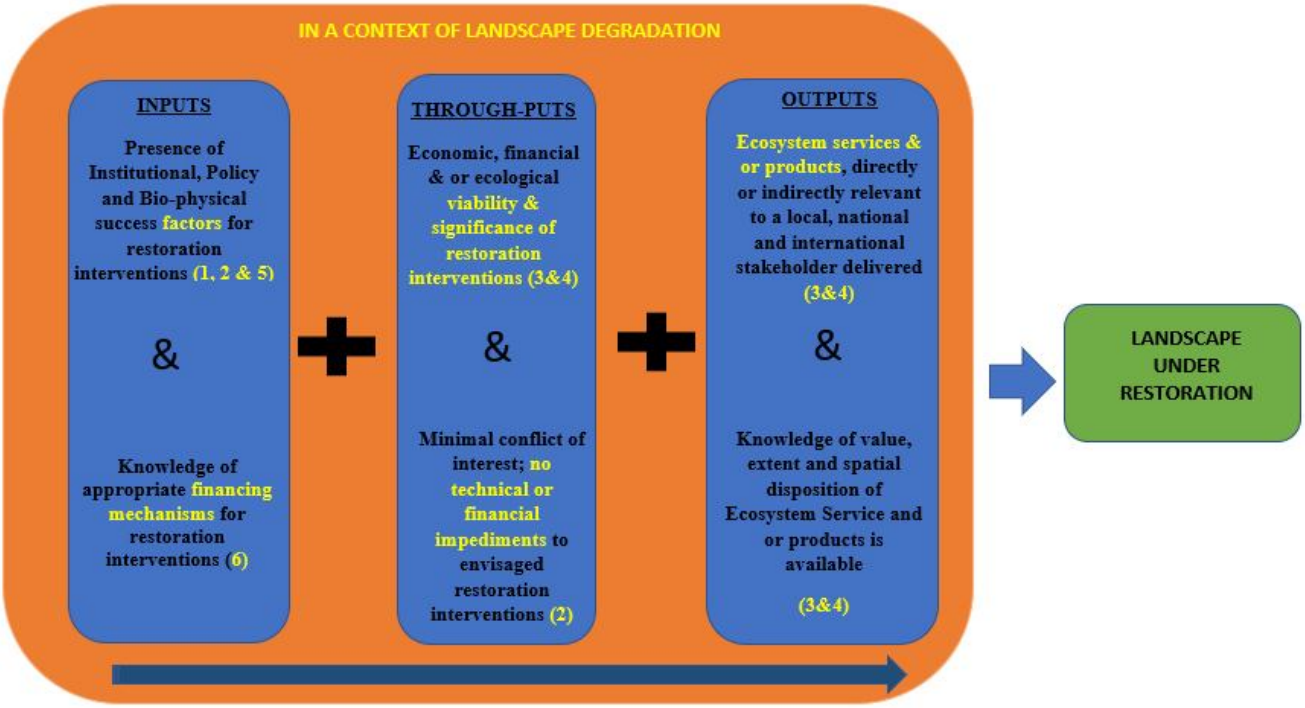
Finally, once in place, the through-puts (actions and investments) should be guaranteed to ultimately lead to the delivery of ecosystems benefits in services and direct products. These benefits should be directly or indirectly relevant to local, national and international stakeholders; who must possess and

exhibit awareness of their value and benefits. The acknowledgement of value and delivery of benefits (impacts and scope) of restoration should be demonstrable as being across the scope of the landscape and to be addressing the problems of degradation and deforestation identified in the diagnoses.

Figure 1: Theory of Change (ToC) from a state of degradation to that of a landscape under restoration

1.4. Limitations of the assessment

de facto ecological entities to be considered in their completeness in transboundary areas include; biodiversity continuums and hotspots (e.g. habitats or migratory routes for fauna), watersheds or river basins such as the Mano and Lofa in the case of the Gola forests. However, this ROAM exercise was performed according to a "distinct State" prerogative; (countries) where political limits took precedence over ecological continuity (landscape, eco-region, river basin or watershed perspective).
As a result, the "transboundary" prerogative in the ROAM was downgraded in favor of the "national" objectives. Ideally, under the auspices of the MRU, multi-country, multi-disciplinary teams should have been constituted to perform the mapping and associated landscape analyses. This is therefore, an important limitation in this ROAM exercise. In practice therefore, it cannot be said to have been "transboundary" as data collection ended at the border.



Nevertheless, in the special case of Gola; Liberia – Sierra Leone border, longstanding collaboration between the two countries can help mitigate this limitation. The existence of notions such as the Peace Park between Liberia and Sierra Leone; linking the Gola Forest National Park to Sierra Leone's Gola Rainforest National Park; and other forms of collaboration, means that restoration activities between both countries are less likely to be constrained compared to say between Liberia and Cote d'Ivoire and with Guinea.

2. Multi-criteria [Spatial] Analysis of Restoration Opportunities

As a methodology, there are several criteria; spatial, socio-economic and biophysical, that can be used to determine restoration opportunities in Gola. Regardless, the participatory spatial planning and implementation methodology - ROAM, will seek to achieve the most spatially optimal, politically appropriate, economically viable, socially acceptable and ecologically relevant decisions for restoration interventions. The criteria for identifying opportunities for Gola, can thus be put under three broad categories; Policy and Institutional, Economic and Social; and Ecological.

(i) Policy & Institutional criteria:

- *To promote transboudary collaborative learning and capacity building to support wildlife & ecological corridors between Liberia and Sierra Leone through restoration interventions* **:**

Relationships for transboundary management of forests, biodiversity and other natural resources – including landscape restoration, between Liberia and Sierra Leone run deep. Longstanding agreements and colaboration resulting to a Peace Park between the two countries have been ongoing as far back as 2013. However, limitations regarding extended opportunities across the boundary exist, given that the assessment has been carried-out out not at international, but at national level.

- *To support management of the GFNP, evaluate BioCarbon markets and Support global processes (e.g., REDD+, Aichi/CBD, etc):*

Given the official definition of forests under REDD+ in Liberia (≥ 30% canopy cover, of at least 5m tall in a minimum area of 1 ha) the restoration process provides an opportunity to account for enhancement of carbon stocks and sequestration inside the Gola National Park and outside within 5 km of its immediate periphery. It also provides a legitimate opportunity to make contributions to Liberia's Pledge to the Bonn Challenge and AFR100 global initiatives to restore 1 million hectares of degraded landscapes by 2030.

(ii) Economic and Social criteria

- *Market-led development of restoration options; near access roads/marketing channels, and proximity*

market centers; restoration interventions are expected to be economically viable and be able to provide direct benefits for individuals and to communities. So, taking adavtange of available access roads; marketing routes into urban areas of Liberia, and across into Sierra Leone is another important consideration.

- *Gender responsive strategies and landscape management framework with potential to support*

landscape restoration: a Landscape Effectiveness Framework[1] approach is proposed as a landscape management philosophy to support ROAM in this analyses and later-on during implementation. The LMF considers restoration as an additional strategy – either for livelihoods or for resilience, and not

[1] Buck LE, Milder JC, Gavin TA, Mukherjee I (2006) Understanding ecoagriculture: a framework for measuring landscape performance. Cornell University, New York and Ecoagriculture Partners, Washington DC, USA

necesarrily as part of a *trade-off* or *quid pro quo* to make-up for, or replace unsustainable land use activities.

(iii) Ecological criteria:

- *To ensure enhancement of health of the Mano and Lofa river basins in terms of floral biodiversity, water quality, soil fertility and other ecosystem services*: The Gola National Park and Landscape (Park and 5 km Peripheral Zone), occurs between the Lofa and the Mano River basins. These Basins are two of the nine river basins of the Mano River Union area. The health of both River Basins depends on the health of the forests within the landscape and land use practices (e.g., agriculture and mining) can make a significant contribution to the health of forests. The determination of restoration opportunities to support ecological functions upstream will be served by also considering the direction of water flow, shape and extent of the river basins and spatial disposition of restoration interventions. Finally, floral biodiversity is an important consideration given that different species of trees and other plants have different survival rates and can perform hydrological functions differently.

2.1 Functional degradation

The Gola Forest ecosystem, including the Mano and Lofa river basins, perform various functions. These comprise provisioning functions, through their plant and animal biodiversity, such as; food, construction materials, fertile soils for fallows, wood energy, etc. The forests also perform regulatory and service functions, such as; water capture, filtration, erosion and storm control, etc. These functions help enhance water quantity and quality downstream in streams, springs and in groundwater. The forests also influence micro climatic conditions such as protecting soil and water from insolation. Gola forests also perform sequestration of carbon dioxide and carbon storage functions. Where healthy forests, performing these functions abound, or are a part of a contiguous block (such as across borders), they facilitate ecological corridors, pollination and wildlife migrations.

When these forests degrade by losing dominant individual trees or undergrowth; or are lost, and soil becomes bare, scrubby, stunted or patched, many of these functions are no longer performed efficiently or at all. This is referred-to as functional degradation of forests. Table 1 below summarizes the functional degradation pathway as it may be occurring in the Gola forest.

Table 1: Functional degradation in the Gola Forest and landscape

	(i) Examples of Forest /landscape function	*(ii) Activities harmful the function*	*(iii) Characteristics of degradation of the function*
1	Water quality provision	Open caste mining	Water, soil poisoning and loss of life
2	Forest products provisioning & services	Selective logging, species habitat destruction through slash and burn farming	Loss of trees, animal species, soil fertility and pollination services
3	Micro-climate	Deforestation; creation of farms	Increased insolation, exposure & dryness
4	Carbon sequestration and storage	Deforestation and forest Degradation: excessive exploitation of NTFPs, timber and sub soil resources	Lost carbon sequestration and storage. Harsh and unpredictable micro climate
5	Forest biodiversity	Illegal forest offtakes; hunting, deforestation & degradation	Loss of provisions, resilience, value of forest to people and other wildlife

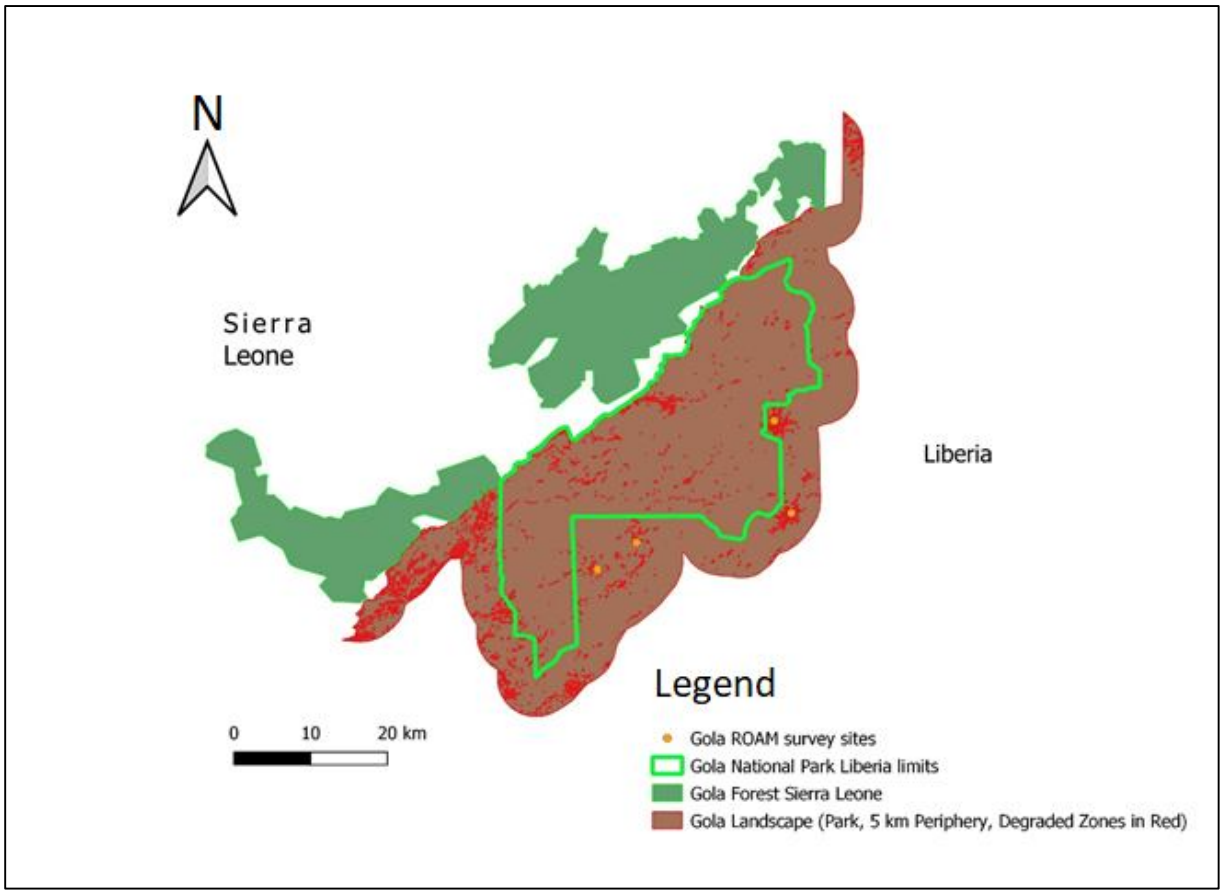
6	Wildlife & Ecological corridors	Deforestation, forest degradation, habitation	Plant and animal species isolation, vulnerability and extinctions

Data Source: Adapted from socio economic survey, 2019 (GREENLIFE WA)

2.2. Degradation detection and analysis in Gola, Liberia

According to the official definition of forests in Liberia (Liberia REDD+ Strategy, 2016) degradation matures into deforestation and are considered part of the same continuum. Forest landscape degradation is when dominant plant components (trees) within an area of at least 1 ha are reduced to a state of below 5 m in height with a maximum canopy cover of less than 30%. Such 'degraded' areas can be observed locally; or be detected, mapped and estimated using remote sensing methods. The causes of 'degradation' are varied and can be triggered by any of the factors in column (ii) in Table 1. Given this definition, 15.8% (or 1,529,949 ha) of forests in Liberia can be described as having <30% canopy cover (Metria-GeoVille, 2015). An extract of this degradation analysis for the Gola landscape is presented in Figure 2 below (Reddish areas). Note however that, the visual effect can be misleading as the appearance on the map depends on the thickness of borders of objects.

Photo 2: Degraded area in the Gola landscape (By Shedrack E. Smith)



Author: GREENLIFE, Data source: Metria-GeoVille, 2015

Figure 2: Forest Degradation in the Gola National Park and Landscape based on national degradation data

Table 2: Distribution of forest canopy cover inside the Gola National Park and within 5 km of its borders

	% Canopy cover (used as forest degradation proxy)	Area (Ha)
1	60 – 80%	175, 633.74
2	30 – 60 %	576, 45
3	< 30%	1, 719.36

Author: GREENLIFE; Data source: Metria-GeoVille, 2015

The information presented in Table 2 is based on % canopy cover and has been detected via remote sensing. Canopy cover here is used as one proxy for forest degradation (pending ground-truthing) and is aligned to the REDD+ - inspired definition of what constitutes healthy forests in Liberia[2]. However,

[2] At an FDA sponsored multi - stakeholder workshop in January 2016, a final national forest definition was proposed with the following thresholds; minimum area of one hectare, minimum canopy cover of 30%; and minimum tree height at a maturity of 5 meters.

as explained further in this report there are various 'dimensions of degradation', whether of forests, land, water resources or habitat. Determination and detection of these can be subjective and often requires participatory, qualitative analyses, using local knowledge and functional inferences about the type of ecosystems services that may have been lost.

2.3. Participatory analyses of degradation

Photo 3: Participatory land use mapping in the Gola landscape (By Shedrack E. Smith)

A restoration opportunities assessment capitalizes on the best available local knowledge in determining prevalent landscape degradation characteristics. Whereas detection of degradation via remote sensing can use varying criteria (based on what the satellite sensors are calibrated for), one based on the official definition of forest degradation can be more limited. It is therefore, useful to strengthen analyses and understanding of degradation through participatory means at the local level.

Four participatory maps were developed for the Liberia side of the Gola forest all within the landscape outside and within 5 km of the Gola National Park. These are; one describing land use and degradation in Camp Israel (Figure 3), Fula Camp (Figure 4), Timah Village (Figure 5) and Camp Alpha (Figure 6).

The use of participatory mapping was not sufficiently developed during the ROAM training. There is still a need to engage with local communities and sensitize the resource persons who do the actually

mapping on the process, methodology and value of using participatory or community mapping in a sub national ROAM process.

Despite these methodological shortcomings the participatory mapping facilitated capture of local knowledge on different and use types. It also demonstrated local spatial knowledge of the relationships between human land uses, and ecologically relevant physical features like streams and forests.

However, all four participatory maps are very limited in scope and focus on land use very close the village centers. During the ROAM process field communications with mappers was effected late during the exercise, and the resource persons used the guidance to attempt to better identify and situate important physical features like the Gola National Park, the International boundaries, against other physical features like streams. The idea was to ensure that local resource persons and community members, take-in the transboundary dimension of the work, as well as well as the landscape/ecosystem dimensions.

They also identified infrastructure features like main roads and footpaths. However, their local perceptions of "degraded lands" tends to be more static - more associated with land use; farming and mining activities for instance and less so with the dynamics of water flow and other upstream/downstream dimensions of degradation.

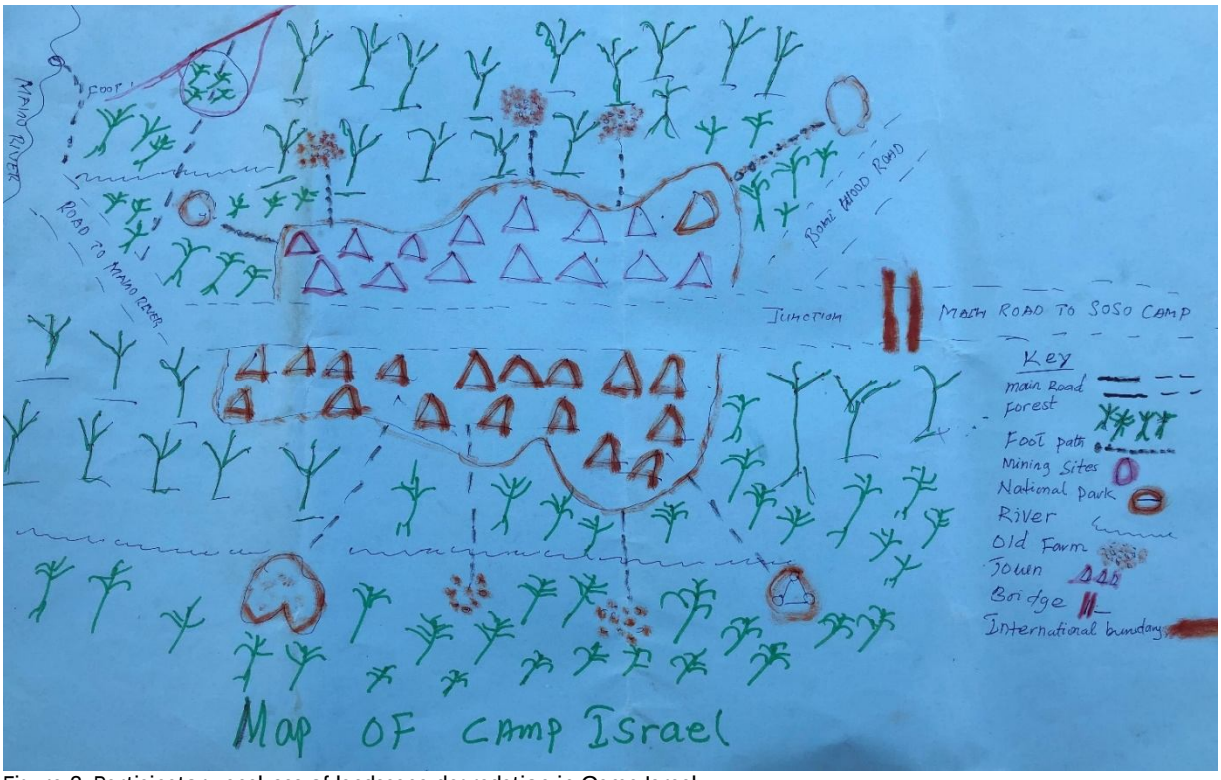


Figure 3: Participatory analyses of landscape degradation in Camp Israel

The participatory mapping process did not use a topographic basemap of the area. This approach would have guided mapping and facilitated comparisons between the participatory maps and real-world features.

As a result, transposition of participatory information based on local knowledge into real world coordinates is not immediately achieved by reading the participatory maps in this report. However, their inclusion remains important. They confirm the intuitive interpretations by local people of degradation, related to mining, old farms and in the Gola National Park.

The local empowerment aspects of the participatory mapping has been useful, even if the communications aspects have been weak.

Such local knowledge of degradation by local people, distributed inside the forest facilitates understanding that, these drivers of degradation are scattered across the landscape, can be difficult to track and inventory; and more work is needed to locate them, estimate their areas (ha) and to determine tactics for restoration.

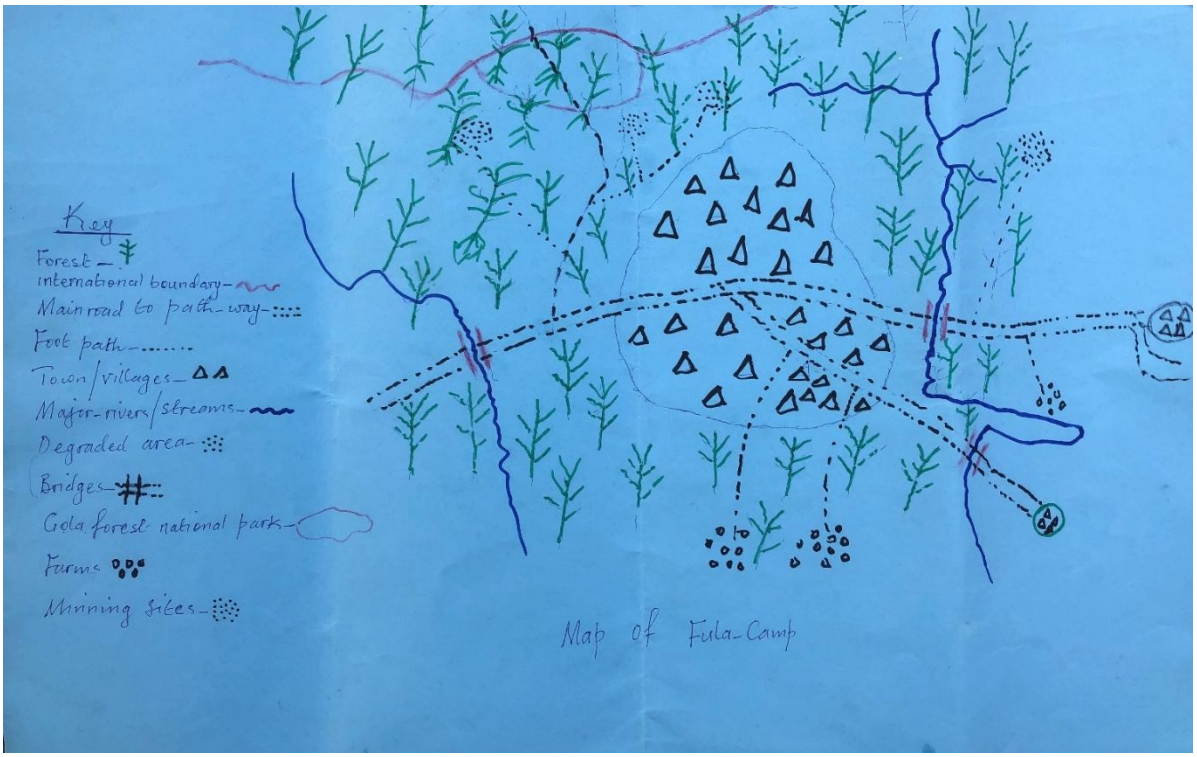


Figure 4: Participatory analyses of landscape degradation in Fula Camp

Figure 5: Participatory analyses of landscape degradation in Timah Village

Figure 6: Participatory analyses of landscape degradation in Camp Alpha

2.4. FLR Opportunities Areas

In the fisrt instance, and based on the restoration assessment criteria, Table 2 below is a summary of the broad restoration priorities for the Gola forest landscape, including the Gola Forest National Park (GFNP).

Table 3 : Criteria and Priorities for Restoration in the Gola Forest Landscape

	Criteria	*Description of Restoration priority (location, and options)*	*Observations (local preferences and suggestions if relevant)*
1	*Policy & Institutional aspects (see Figure 5)*		
	To promote transboundary collaborative learning and capacity building to support wildlife & ecological corridors	Degraded areas of the Peace Park; mining areas on the borders of both countries. Preferece should be given to gallery forests on the banks of the Mano River	Preferred strategies/interventions should consider a) capacity building in law enforcement and rehabilitation of abandoned mines; and b) support to wildlife protection and transboundary ecological corridor.
	To support management of the GFNP, evaluate BioCarbon markets and Support global processes (e.g., REDD+, Aichi/CBD, etc)	Abandoned mines, assisted natural regeneration and reforestation inside the GFNP.	Public Private Partnerships or colaboration with CBD or LDN
2	*Economic and Social aspects (see Figure 5)*		
	Market-led development of restoration options; nearness to access roads/marketing channels, and proximity market centers	Fula Camp and Camps Israel are candidate sites due to apparent nearby access roads. Additional location in the south parts of the GFNP and others nearer the Sierra Leonean border should be given priority.	Individual Oil Palm plantations, and Cocoa farm rehabilitation using high yoelding hybrids in both cases supported by strong marketing programs.
	Gender responsive strategies and landscape management framework with potential to support landscape restoration	Support and or help develop value chains for Tree crops; backed by Women-led Village Savings and Loan Schemes.	Target locations with active restoration programmes
3	*Ecological aspects (see Figures 6 and 7)*		
	To ensure enhancement of health of the Mano and Lofa river basins in terms of biodiversity, water quality, soil fertility and other ecosystem services	Paying attention to generation direction of water flow, target water heads or source areas of streams if these are settled by communities. Target also diversity of degraded gallery forests as these have direct impact on silting, water quality and quantity through protection from insolation; restoration of upstream mining areas as a matter of priority.	Ministry of Mines and Energy supports communities to ensure closure of open pits and natural regeneration of damaged sites. Overall enhanecement of biodiversity and mitigating species invasiveness is another consideration.

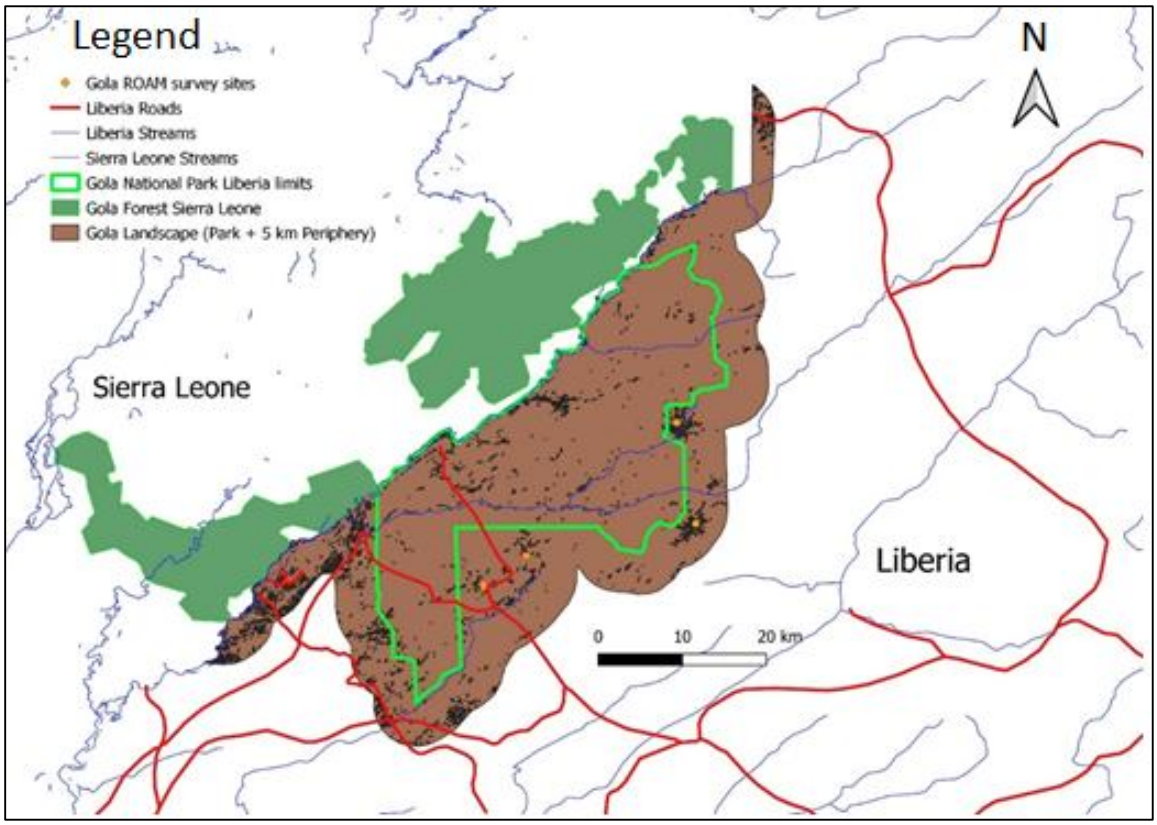


Figure 5: Extents and transboundary characteristics of landscape degradation in Gola

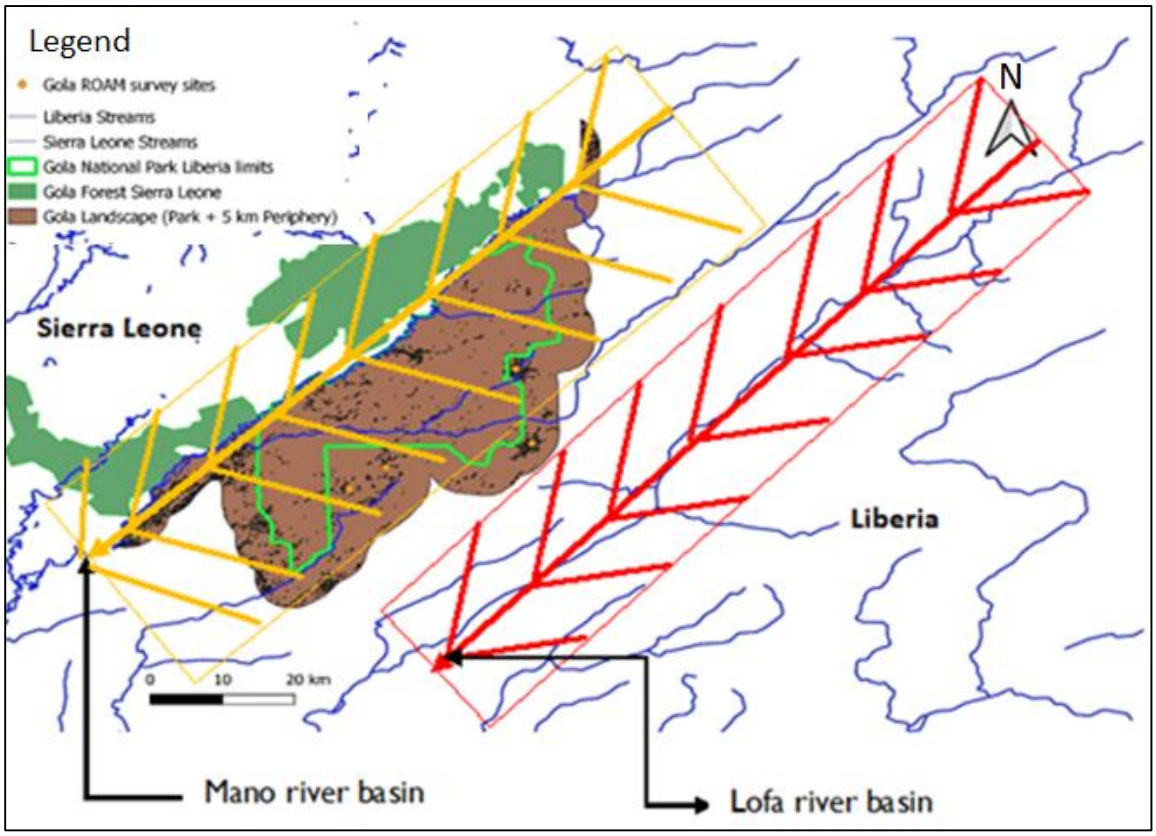
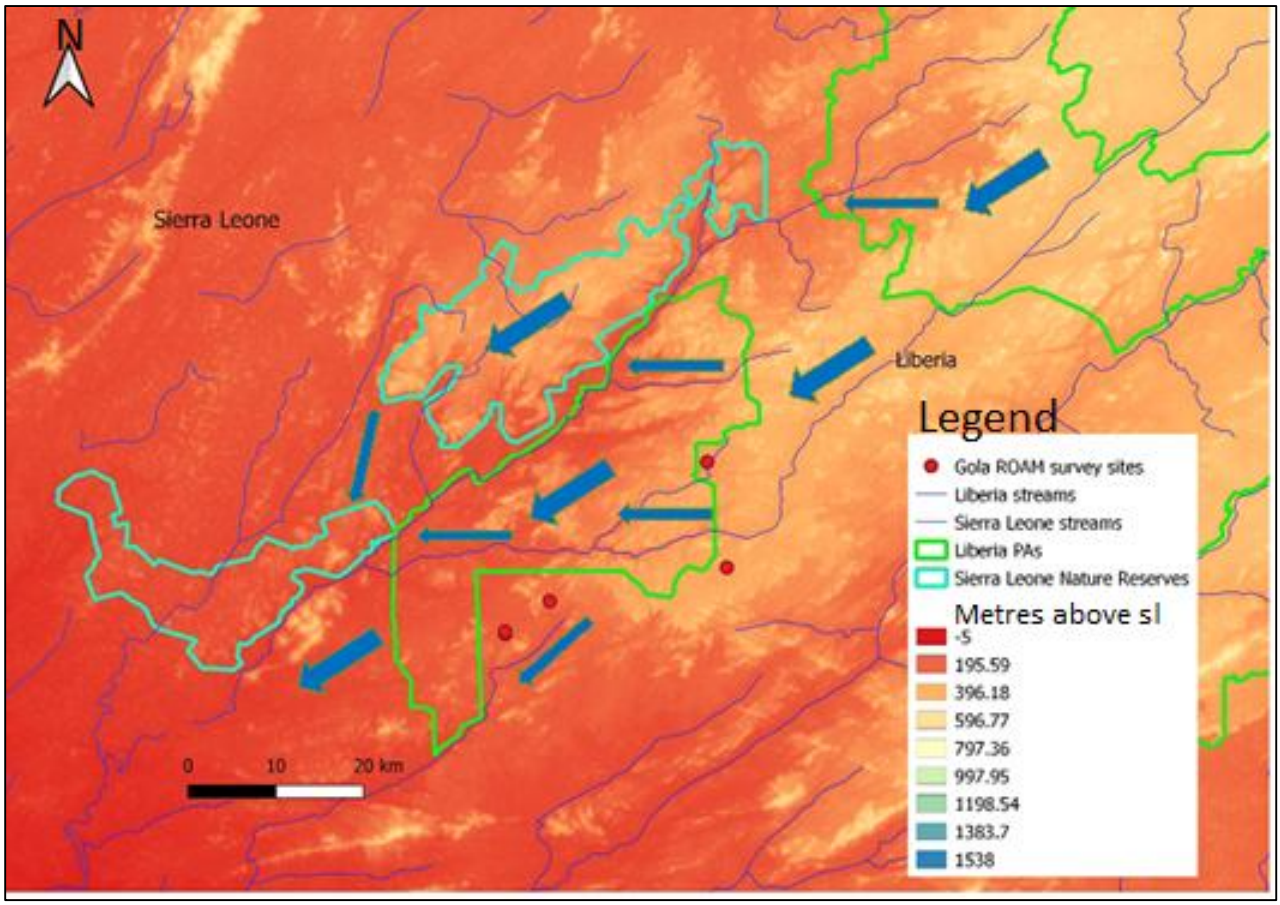


Figure 6: Rendering of the Mano and Lofa river basins to guide restoration prioritization.



Data Source: NASA SRTM 90 Direction of water flow based on relief

Figure 7: Digital elevation Model of Gola Forest Landscape indicating general water flow directions

Table 4: Opportunities for landscape restoration and learning lessons from Gola

	Priorities for Restoration in the Gola Forests Landscape	*Description of Opportunities for Restoration*	*Justification and assessment of Opportunities*
1	- Abandoned mines in the Sierra Leone – Liberia Gola "Peace Park". - Gallery forests of GFNP (banks of streams & rivers)	Management Issue No. 06 (2019 – 2023 GFNP Management Plan: Identification of mapping of mines, degraded gallery forests & negotiating a restoration agreement	Best implemented under ongoing management plan.
2	- Upstream community lands; - Borders of streams/rivers; - Within 5 km of the GFNP; - Closer to the Sierra Leone Liberia border;	All Camps appear to have acute road access difficulties. However, Alpha & Timah Camps, seem furthest from roads; Fula and Camp Israel, appear closer to roads and to the SL border. Camps Alpha & Israel are biggest communities; with Timah having the most youthfull population.	Gola Landscape Restoration proposal 3000 Ha over 5 years. Proposals for the four communities surveyed: (700 ha): Alpha Camp = 100 ha Timah Camp =100 ha Israel Camp = 200 ha Fula Camp = 300 ha
3	- Value chain Options for Tree crops; Oil Palm and Cocoa - Women-led Village Savings and Loan Schemes.	Value Chain Development for Tree Crops and Public Private Partnerships negotiated as part of Agreements and Restoration Strategy with communities	Less accessible (Timah & Alpha camps); more Accessible (Israel & Fula camps), and Border with Sierra Leone have different marketing opportunities.

For reasons of accessibility and connectivity with Sierra Leone border areas (for markets and inputs), Fula Camp and Camp Israel present the bigger opportunity for early gains in landscape restoration through tree crops development. Timah camp possesses one of the most extensive forest degradation footprints. This is unsurprising as it also has the biggest youth population and therefore, a big opportunity for labour.

3. Forest landscape restoration options and interventions

In consideration of restoration options, two main goals are examined. The first goal is to restore ecological functions where degradation exists or is imminent. The second gal is how to improve the livelihoods of the forest-dependent communities. By option, implementing by stakeholders refer to every action capable of mitigating degradation, whereas by intervention, the study refers to the actual actions to be taken based on an assessment of 'opportunity", feasibility or likelihood that this intervention will succeed.

3.1 Forest landscape restoration models

Table 5 below are the priority restoration options for the five sites (National Park and four Camps) considered as samples in the Gola forest Landscape. It should be noted that, except for specific conditions or landscape criteria, which will be explained as a part of the design of the technological package, conditions across the Gola Landscape are similar. The restoration options are largely applicable across the landscape.

Table 5: Restoration options and interventions in Gola

	Degradation Hotspot	*Restoration Options/Interventions*	*Objective (s)*
Inside the GFNP			
1	Abandoned mine	Assisted Natural Regeneration	Reinstating ecological function
2	Active mine	Law enforcement or ESI Evaluation	
3	Degraded gallery forests	Law enforcement & Assisted Natural regeneration	
Outside the GFNP, within 5 km periphery			
4	Abandoned farms, old and young fallows	Hybrid Oil Palm and Cocoa Plantation development	Supporting Livelihood
5	Unmanaged homegardens	Rehabilitation	Supporting Livelihood
6	Abandoned mine	Assisted Natural Regeneration with Bamboo or other species	Detoxification & Reinstating ecological function
7	Active mine	Law Enforcement & ESI Evaluation	
	Degraded gallery forests	Assisted Natural regeneration	Reinstating ecological function

ESI = Environmental and Social Impact Evaluation

3.2 Design of technological packages

In the multi-criteria analyses, three sets were considered for determining restoration opportunity; Institutional and Policy, Social and Economic, and Ecological. The Institutional and Policy criteria focused

on how much a restoration option/intervention contributed to the vision of the Sierra Leone – Liberia Peace Park Initiative, or to the Transboundary management processes; and to global processes like REDD+, Aichi/CBD, etc. Meanwhile, Social and Economic criteria focused on how to leverage market opportunities and options, including gender responsiveness. Finally, Ecological criteria examined how restoration options/interventions must be sensitive to aspects such as; biodiversity, hydrological characteristics of; slope and direction of water flow in the Mano and Lofa river basin ecosystems. These considerations provide the basic "in-put" criteria for the Restoration options/interventions in Table 5 below. These are the criteria which then serve as bases for the design, implementation and assessment of efficacy of restoration interventions.

Table 6: Design of restoration interventions

	Restoration Options/Interventions	*In-put Criteria for design of Restoration interventions*	
		Criteria or considerations for content of action	*Monitoring & Evaluation (measurability and impact)*
Inside the GFNP			
1	Assisted Natural Regeneration in abandoned mines	Addresses Transboundary Cooperation, Aichi/CBD,	Cooperation & Governance; diversity assessment; Hydrological assessment
2	Law enforcement or ESI Evaluation active mines	Addresses Transboundary Cooperation, ESI Evaluation	Cooperation & Governance; ESI Evaluation reports; Hydrological assessment
3	Law enforcement & Assisted Natural regeneration degraded gallery forests	Transboundary Cooperation, Aichi/CBD, ESI Evaluation	Cooperation & Governance, ESI Evaluation reports; diversity assessment; Hydrological assessment
Outside the GFNP, within 5 km periphery			
4	Hybrid Oil Palm and Cocoa, individual Plantation development	Considers market access, Gender Participation; addresses REDD+, Aichi/CD, Bonn Challenge /AFR100	Value Chain Analyses (including stakeholder mapping), BioCarbon benefits and market potentials; Hydrological assessment; diversity assessment; Assessment for invasiveness
5	Rehabilitation of Home Gardens		
6	Assisted Natural Regeneration with Bamboo or other species of abandoned mines		
7	Law Enforcement & ESI Evaluation of active mines	Ensures ESI Evaluation	ESI Evaluation reports
	Assisted Natural regeneration of degraded gallery forests (borders of streams/rivers)	REDD+, Aichi/CD, Bonn Challenge /AFR100	BioCarbon benefits and market potentials; Hydrological assessment; diversity assessment; alternative energy assessments

3.3 Genetic Diversity and Species Selection

In the process of investments in restoration options/interventions, ensuring genetic diversity and making sure the right species are selected are important considerations, irrespective of whether it is for ecological, social or economic purposes. Forest degradation, in inhabited forest areas that are mildly accessible, is also characterized by selective exploitation of valuable plants and timber tree species. In the Gola Forest Landscape, common timber tree species with commercial value include; *Cynometry*

leonensis, *Brachystgia leonensis* and *Heritiera utilis* to name these three. All three are native to the Upper Guinea forests and have good timber value. They are exploited regularly, often illegally, and sawn on the spot. *Heritiera utilis* is also solicited for its medicinal and aphrodisiac properties.

During restoration, considerations for maintenance of biological diversity and species selection should be made in all cases of restoration interventions. For instance, Assisted Natural Regeneration (ANR) inside the Gola Forest National Park, in degraded gallery forests and abandoned mines should involve encouraging/bringing back indigenous species. It may also require assisting the process by introducing other species with strong establishment record. Protection of degraded river or stream banks; or detoxification of abandoned mines and quickly providing ground coverage for ANR may require using more than one species. To the extent that such species are indigenous so too would their adaptation be enhanced, and their invasiveness diminished.

Landscape restoration interventions can benefit considerably from observing the guidelines of Aichi/CBD's Article 14 on handling biological diversity, especially during landscape restoration or similar activities. As part of the implementation process, ex ante assessment of diversity are important steps to consider within the ambit of ex post monitoring and evaluation of restoration investments.

In addressing livelihoods aspects of landscape restoration, in respect of social and economic criteria, diversity and species selection are especially important. Although Oil Palm and Cocoa emerged as prime species options for restoration in Gola, experience shows that, more resilient farms are developed using a minimum of species mixtures. In fact, forest landscape restoration such as in Ghana by the Forestry Company FORM Ghana, use 90% *Tectonis grandis* and 10% indigenous species. In Cote d'Ivoire Cocoa certification has been achieved by incorporating at least 17 indigenous trees in plantations of previously shade-free cocoa.

In diversifying Oil Palm Plantations, Home gardens, Cocoa fields; or even rehabilitating degraded stream and river banks, the needs of women should be considered. Though a vine, *Piper guinensis* (bush pepper), *Garcinia Kola* (bitter kola) and *Coula edulis* (Walnut) are important non timber forest products (NTFPs) collected and sold by women. Fast growing tree species are suitable for restoring abandoned mines.

3. Economic analysis

Economic analysis of landscape restoration in the Gola landscape is the process of examining the context, costs, benefits and market indicators for landscape restoration in relation to the overarching objectives. Here, the economic analyses, which are not feasibility assessment, are specific to the identified restoration opportunities; options and/or interventions.

The overarching objectives of landscape restoration in the Gola landscape are to foster transboundary collaboration between Liberia and Sierra Leone for conservation of the GFNP, help restore degraded areas inside the Park. Especially, restoration seeks to support landscape management to protect the entire ecosystem of which the GFNP is a central feature, between two narrow river basins threatened with degradation. While economic analyses can be used as justification for each specific restoration investment, it is especially critical to help determine lucrative activities, and therefore, most likely or more appropriate financing mechanism for the identified restoration opportunities or interventions.

3.1. Livelihood analysis

The GFNP and landscape is not presently, an economically attractive location. It occurs in a physically remote area of Liberia, on the border with Sierra Leone, with very poor road infrastructure. Fula Camp and Camp Israel, two of the sites surveyed, are only marginally better served by poor, seasonal road infrastructure than Timah and Alpha camps. Mobile Telephone coverage, portable water, schools, health centers and access to electric power are also very weak to nonexistent across the landscape, nearest to the Park. The broader communities within 5 km of the GFNP border and within zones of degradation (Figure 5) share similar infrastructure conditions like the four sites covered in the assessment. All communities surveyed are opportunistic settlements that started as mining camps. The population structure is mildly ageing, with 50% above 40 years old, and Timah Village having the most youthful population and labour force. Mining is the most lucrative activity followed by agriculture and collection/sales of NTFPs. Mining brought in more revenue in 2018, as much as Agriculture, NTFPS sales and livestock rearing, combined. The main tree crops of cocoa, rubber and Oil Palm are the next major revenue earners after mining. Small-scale agriculture, now widespread, is largely for subsistence, with markets mainly seasonal and internal, dominated by petty trading. Some low-keyed cottage industry; mainly bee keeping, and non-timber forest products (NTFPs) harvesting also occurs in the area, with external support from NGOs. The main areas of household expenditure are Fuel & transportation, social events and health.

Photo 4: Cocoa nursery in the Gola landscape (By Shedrack E. Smith)

Although the true poverty levels across the communities surveyed were difficult to ascertain with certainty, conditions did not appear as dire. Across all the communities, the Average Annual Income (AAI) was estimated to be less than the Average Annual Expenditure (AAE); LD 3,359,825 ($17,871) and LD 6,720,550 ($35,748) respectively. This suggests that most or some of the respondents did not (or could not) reveal their actual income due to lack of robust records or due to literacy levels.

However, analysis of their daily income shows that their average daily income to be in the neighborhood of LD 263 ($1.40/day), which exceeds the World Bank Poverty line rate analysis, $1.25/day[3]. Below are summaries of some social characteristics of the communities in relation to landscape restoration.

4.2. Food security analyses

Small scale farming, mainly for subsistence in the mainstay for food security for populations. Annual crops grown include; banana, groundnuts, rice, cassava, corn, pine apples and vegetables (mainly; pepper, okra, eggplant and bitter ball). Small quantities are sold to provide additional income (mainly by the women). Some fishing and limited hunting (mainly using traps) is practiced for protein. Some human-wildlife conflicts mainly involving river-hog, elephant and red deer have been reported, with minor devastation of crop farms. Livestock rearing is also low-keyed. Food security is thus precarious; subsistence based and not supported by any sort of technology.

4.3. Value chains analyses

Given the ecological, socio-economic and policy context, the eight (8) restoration interventions identified for Gola show a strong dominance (6/8) by non-lucrative restoration interventions. The two options with economic potential likely to grow are; Tree crops plantation development (e.g., Cocoa, Oil Palm, Rubber) and NTFPs (e.g., *Calamus spp* such as Rattan).

Calamus spp can initially begin from wild stands. Further development of their supply chain as part of the restoration effort may involve cultivation of appropriate varieties as part of the rehabilitation of abandoned mines, inside and outside the GFNP. *Calamus spp* have considerable economic potential. However, given that *Calamus spp* have invasive credentials, management for commercialization inside the Park may have to be done under special arrangements, if at all. Sourcing rhizomes of local species from the wild may be the only short-term option.

On the other hand, small plantations of Cocoa, Oil Palm and Rubber already exist in the area although the quality of their starting material and their production base still needs to be fully estimated and strengthened. There is evidence that marketing of Cocoa and Oil Palm from Camp Israel and Fula Camp is stronger than from the more remote Alpha and Timah Camps. Stakeholder mapping (see success factors), did not reveal an extensive network of technical and financial support systems for either the *Calamus spp* or the Tree Crops proposals. Especially, no significant financing and other credit sources were identified. However, there is evidence of women's groups constituted as Village Savings and Loans Scheme (VSLAs) operating locally, with external NGO support.

Marketing channels for the Tree crops are mainly outwards, and towards the border with Sierra Leone. None were identified for the moment for *Calamus spp* products. However, existing knowledge suggests both markets for Tree crops and for NTFPs cottage industries are feasible given strong transboundary movements and a growing middle class. In urban areas in both Liberia and Neighboring Sierra Leone.

[3] The World Bank has announced that about 54 percent of the population of ***Liberia*** is living below the ***poverty line***. This means they live on less than $US2. 00 a day, 2016

Photo 5: Road challenges in the Gola landscape (By Shedrack E. Smith)

Finally, very minimal data were available with which to perform cost-benefits analyses for all the restoration options/interventions. Nevertheless, limited comparative analyses were performed for Cocoa and Oil Palm. Table 6 below, is a summary of qualitative and quantitative ecological and economic appraisals of the different proposed restoration interventions.

4.4 Cost-benefit analyses

Given limited quantitative data available, minimal financial cost-benefit analyses were only performed for cocoa and oil Palm outside the GFNP. For the rest of the proposed interventions qualitative information will be used to perform benefits appraisals.

Table 7: Appraisal of economic, social and environmental costs & benefits of restoration interventions

	Restoration Options/Interventions	*Type of Appraisal*	*Assessment conclusions*
Inside the GFNP			
1	Assisted Natural Regeneration (ANR) in abandoned mines	Qualitative	Using specific plants like Bamboo in ANR of indigenous species in abandoned mines has the benefits of detoxification. This improves what quality. ANR of degraded stream and river banks helps protect them from excessive insolation and enhances water quantity and quality.
2	Law enforcement or ESI Evaluation in active mines	Qualitative	Law enforcement inside the Park will enhance compliance with Environmental and Social Impact assessments of active mines in cases where eviction is not possible.
3	Law enforcement & Assisted Natural regeneration in degraded gallery forests	Qualitative	Same as above (1)
Outside the GFNP, within 5 km periphery			
4	Hybrid Oil Palm and Cocoa, & Rubber; individual Plantation development	Quantitative; Cost – Benefit Ratio (CBR)	Oil palm as a restoration option produced a benefit cost /ratio of 5.8, and Cocoa, 4.0. Both options are positive and can be indicative of additional room for expansion.
5	Rehabilitation of Home Gardens	Qualitative	The health of the home garden or "kitchen garden" is often indicative of level of food security. It is diverse and serves as a fall-back; even storage for the household .
6	Assisted Natural Regeneration with Bamboo or other species (e.g. Rattan) of abandoned mines	Qualitative	Same as above
7	Law Enforcement & ESI Evaluation of active mines	Qualitative	Same as above
8	Assisted Natural regeneration of degraded gallery forests (borders of streams/rivers)	Qualitative	Same as above

5. Modeling and optimizing investment: impacts on ecosystems services

The river-basins of the wider Mano River Basin Ecosystem from Sierra Leone to Cote d'Ivoire, of which the Mano and Lofa, are just two are narrow-shaped and small-sized (22,000 km² and 320 km-long on average), and highly vulnerable to degradation (MRU, 2011). In general, the key biodiversity hotspots for which the Upper Guinea Forest Ecosystems are renowned for, are largely in their upstream catchments, whereas High Conservation Value Forests (HCVF) tend to concentrate downstream. Upstream to these narrow, fragile, degradation-prone river basins furthermore, small holder agriculture land-uses by resident populations constitute the main drivers of degradation and land cover change. These degradation cycles often result to water quality and quantity issues in their immediate vicinities and downstream (MRU, 2011).

The principal ecosystem service at play in the Mano River Union in general and in Gola in particular, is by far, water services; quality and quantity. Although the GFNP is bordered by two river basins, not too far away into Sierra Leone is the Moa river basin. Therefore, with a Gola Peace Park in Perspective, as a high-level goal of restoration in the Gola landscape, three (3) river basin ecosystems come into consideration. Given that restoration interventions to slow-down and eventually roll-back degradation will directly enhance biomass carbon stocks, carbon dioxide sequestration is the second most significant ecosystem service considered by the restoration interventions. Finally, Biodiversity Conservation and Management emerges as a prime beneficiary of successful and strategic restoration of degraded portions of the Moa, Mano and Lofa River basins within which the GFNP is sitting.

No original quantitative data was collected on ecosystems services benefits. Economic valuation of ecosystems services remains highly controversial with pundits arguing against quantifying ecosystem services. However, with monetization of CO2 through REDD+ related processes gaining ground, making quantitative assessments have become less tenuous and controversial. Table 7 below, is a summary of the qualitative and quantitative appraisals of the ecosystem services contributions of the different proposed restoration interventions.

Table 8: Assessment of ecosystem services benefits of restoration interventions in Gola

	Restoration Options/Interventions	*5.1.* Water quality and quantity	*5.2.* Carbon Sequestration	*5.3.* Biodiversity
Inside the GFNP				
1	Assisted Natural Regeneration (ANR) in abandoned mines	Carefully selected and managed species) like Bamboo and Rattan (in addition to indigenous ones, take-up heavy metals and other substances; reducing the toxicity of waters caused by mining, thereby protected indigenous, fresh water life forms. The vegetation enhances infiltration and groundwater volumes, reduces bank erosion/ silting of streams; shields waters from excessive insolation, hereby diminishing evaporation and water quantity.	Each hectare of mature Upper Guinea Forest is estimated to hold 160 tC02eq/ha (JA. Lindsell & E Klop, 2013). Of the 1,529,949 ha of landscape is defined as "degraded" in Liberia (REDD+ strategy, 2016). 170,181 ha (11.12%) of this is in the Gola Landscape; Old Park + 5km periphery (Figure 5). Areas benefitting from ANR inside the Park and Landscape are included in this total. Liberia's total pledge to the Bonn Challenge/AFR100 is 1 million ha. Estimate of sequestration and storage will depend on species used.	Giving preference to indigenous species. Carefully managing or avoiding use of invasive species in ANR.
2	Law enforcement or ESI Evaluation in active mines	Due diligence ensures practices are less poisonous ad damaging to water resources.	Not applicable	Implementation of "Dig-hole Cover-hole" as part ESI due diligence will reduce wildlife accidental deaths.
3	Law enforcement & Assisted Natural regeneration in degraded gallery forests	Same as above	Same as above	Preference is given to indigenous species. Avoiding invasive species. Rigorously implement ESI assessment and due diligence
Outside the GFNP, within 5 km periphery				
4	Hybrid Oil Palm and Cocoa, & Rubber; individual Plantation development	The example of J-Palms (Led by Mahmud Johnson) in Liberia in which small (rather than large new farms) of Commodity Tree Crops are used to support the sector can best be used to combat degradation that negatively impacts water quality and quantity upstream and down. It's down to a question of putting a premium on locations that best serve the river basins and support water services in the wider landscape.	Tree crops will be planted outside the Gola National Park in community areas. The "expectation" from the community is for 3000 ha to be restored across the Gola landscape (outside the Park) over a period of 5 years. The four communities surveyed pledged to restore a total of 700 ha by developing oil palm agroforest, cocoa agroforest and rubber agroforests with estimated Time-Averaged Carbon Stocks (TACS) of 113	Promoted through mixed plantations. Ensuring minimum mixture with indigenous timber or medicinal plants species.

			tC02eq/ha[4], 148 tC02eq/ha[5] and 116 tC02eq/ha[6], respectively.	
5	Rehabilitation of Home Gardens	Same as the above	Home gardens are included in the Tree Crop Agroforests development	Enhanced through diversification with different species of farmers choice
6	Assisted Natural Regeneration with Bamboo or other species (e.g. Rattan) of abandoned mines	Same as above	Same as above	Same as above
7	Law Enforcement & ESI Evaluation of active mines	Same as above	Not Applicable	Same as above
8	Assisted Natural regeneration of degraded gallery forests (borders of streams/rivers)	Same as above	Same as above	Same as above

[4] Hairiah et al., 2001 ; Yemefack & Alemagi, 2013

[5] Sonwa et al., 2009 ; Magne et al., 2014 ; Yemefack & Alemagi, 2013; Norgrove et al., 2013

[6] Hairiah et al., 2001

6. Social Aspects of FLR

6.1. Gender Analysis

Across the four communities surveyed, the male to female ratio is on average 3:1. It is hypothesized that the dominant activity – mining, is also by far a male-dominated field. However, women also contribute to deforestation through the development of annual crops by means of shifting cultivation.

The LISGIS data for 2008 census show that the average female involvement in agricultural activities in the rural sectors of Liberia is about 23% of the household across the country. This includes females from bellow 18 years to above 60 years. On age class basis, the following table summarizes the LISGIS 2008 Census: data for gender involvement in rural agricultural activities. Whatever the age class, the table suggests that less females than males are involved in rural agriculture, and this also applies to the Gola forest landscape. (2008 National Population and Housing Census)

Age class (year)	Male (%)	Female (%)
Less 18	53.8	46.2
18-24	72.3	27.7
25-39	80.8	19.2
40-59	77.0	23.0

Photo 6: Women discussing economic issues during Focus Group Discussions in the Gola landscape (By Shedrack E. Smith)

6.2 Stakeholders Mapping

Table 9: Stakeholder Mapping for Landscape Restoration in the Gola Landscape.

	Restoration Options/Interventions	*Main Stakeholders*	*Functions/roles*
Inside the GFNP			
1	Assisted Natural Regeneration (ANR) in abandoned mines	FDA, GNP Co-management Advisory Body, Restoration/ MRU experts,	Provide main policy and technical orientations to address landscape ecosystem issues
		NGO e.g., VADEMCO, GREENLIFE, SCNL, etc., Local Consultative Committees (LCC)	Ensure local facilitation, implementation & monitoring
		FDA, Bi lateral and Multi-lateral Donors	
2	Law enforcement or ESI Evaluation in active mines	FDA, GNP Co-Management Advisory Body, LCC, Restoration/ MRU experts	Provide Law enforcement legitimacy, framework, personnel
3	Law enforcement & Assisted Natural regeneration in degraded gallery forests	FDA, Bi lateral and Multi-lateral Donors	Provide funding
Outside the GFNP, within 5 km periphery			
4	Hybrid Oil Palm and Cocoa, & Rubber; individual Plantation development	FDA, Community individuals,	Local land/Plantation owners
		LCCs, VADEMCO, FDA, MOA Liberia, Restoration/MRU experts, Private Firms (e.g. ESSP)	Local, National and International facilitators & Technical Support
		FDA, VSLAs, Private Sector (BioCarbon Market),	Investors

5	Rehabilitation of Home Gardens	Community individuals,	Local land/Plantation owners
		MOA Liberia, VADEMCO, Restoration/MRU experts	Local, National and International facilitators & Technical Support
		VSLAs and local Investors	Investors
6	Assisted Natural Regeneration with Bamboo or other species (e.g. Rattan) of abandoned mines	Same as 1, 2 & 3 above	Same as 1, 2 & 3 above
7	Law Enforcement & ESI Evaluation of active mines		
8	Assisted Natural regeneration of degraded gallery forests (borders of streams/rivers)		

6.3 Cultural dimensions

Over two thirds of the communities surveyed use the forest as a sacred place and or view forests as a place for wildlife and biodiversity conservation. Cultural practices across the sampled communities, who are majority of *Mende ethnic* extraction revealed practices are ethnically-based. Common grounds for socialization are sex-specific secret societies; Poro for men and Bondo for women. These societies used specific locations (no-go zones for others) in the forest, where none-members are prohibited to deliberate. No details of community forest conservation and management areas emerged in the socio-economic surveys.

7. Enabling Environment for FLR

Enabling conditions for forest landscape restoration begins with an acknowledged status of widespread landscape degradation. Such acknowledgement can be significant, such as in Liberia if degradation can be perceived almost as an existential threat. Unfortunately, in Liberia keen observers would agree that, to be that case. The Upper Guinea Forest (UGF) region of West Africa is one of the most climatically marginal and human-impacted tropical forest regions in the world (Liu et al, 2017). Liberia is today the epicenter, harboring 40% of all remaining UGFs. Of the 9 river basins in the Mano River Union, five (5) are wholly or partly in Liberia; Mano, Lofa, St John, Cestos and Cavaly. By their shape and size, these river basins are vulnerable to degradation, and given settlement and migratory patterns, their upstream sections are sites of widespread degradation.

For restoration to take root, a country must be signatory to major conventions framing the practice; and must be committed to doing something about it. Finally, knowledge and commitment must be translatable to concrete restoration actions on the ground through assessments, policies, incentives and action plans. With a minimum of audacity across Stakeholders, Liberia can currently be said to be ready for landscape restoration.

7.1 National Strategies and Policies (NBSAP and NDCs)

Liberia is a signatory to the Convention on Biological Diversity, which is committed through the Aichi/CBD Article 14 to restore degraded habitats. Under the CBD Liberia pledged that at least 10% of her suitable landscape(s) be set-aside for Strict Protection and 30%, for protection and multiple-use.

The creation and existence of the Gola Forest National Park (88,000ha) in part addresses some of these commitments.

In 2015 Liberia pledged to restore 1 Million hectares of degraded lands through the Bonn Challenge and AFR100 platforms. Nevertheless, Liberia's REDD+ strategy defines at least 1,529,949 ha of its forested landscapes (exceeding her pledge) with <30% canopy cover as officially degraded. Liberia has ratified the UNDP's Land Degradation Neutrality (LDN) Convention, has a National Drought Plan and as recently as 2019 reaffirmed her commitment to LDN. A number of Policies however, underline why restoration has a good foundation for success;

- The National Forestry Policy and Implementation Strategy (2007), wherein the State commits to Conservation, Community benefits and Commercial use of forests
- The Community Rights Law with respect to forestlands (CRL 2009) wherein the State commits to upholding community benefits from forests.
- A duly approved Gola Forest National Park Management Plan; including Management Issue No. 06; rehabilitation and restoration of areas destroyed by mining activity.

7.2 Local Governance

Each village at the local level belongs to a Chiefdom. The District where Gola Forest PA is located has a Paramount Chief and a Commissioner, appointed by the President of Liberia. The Clan Chief is selected by the Paramount Chief, while the General Town Chief is selected either by the Commissioner or the Paramount Chief. Town Chiefs are selected (or elected) by the community.

The GFNP lies in Sokpo Clan in Kporkpa District, Grand Cape Mount County and Tonglay Clan in Gbarpolu County. The relatively high proportion of 'strangers' (people from outside a village, often migrant workers) complicates enforcement of State or Customary Laws and these social groups tend to be mobile; moving in and out of the area at will. However, most permanently residents are more compliant and maintain good relations with authorities. The "stranger" phenomenon can also create bases for marginalization of sections of the population.

Currently, there are about 28 settlements inside the GFNP. Following a series of consultative dialogue sessions held with settlers in the park, many expressed willingness to leave the park voluntarily whereas some requested compensation. The latter group constitutes groups with Tree Crops investments such as coffee, cocoa and oil palm inside the Park. The National Park's Management Plan recommends that, on a case by case basis, Park Management negotiate with all settlers before voluntary relocations can organized and administered by the Co-Management Advisory Body.

7.3. Land Tenure (use all legal instruments relative to land policies in Liberia)

To begin with land tenure, the Land Rights Act of Liberia defines four main categories of tenure: Private Land, Customary Land, Government Land and Public Land. This provision has strong implications for the millions of rural Liberians such as in Gola Forest communities who currently do not have formalized land rights. The framework for formal land ownership, in rural Gola Forest, sufficient to the needs for private sector engagement in landscape restoration for instance, remains unclear. These are best handled on a case by case basis. However, at customary level, based on the communities sampled in

focused group discussions in the Gola, Forest landscape, access and rights to land is said to be given by the local authorities and families who have cultivated a particular piece of land for several years. Some of them inherit the farmland from their parents. However, it was revealed by some of the respondents that in most cases, community members claim plots of land after they have cultivated them for at least 10 years. Informal land demarcation between communities was revealed. As such, every community has their land area based on local acknowledgement and understanding to carry out their farming activities. So far, no land conflicts have been recorded, probably due to abundant land.

7.4 Readiness diagnostic

According to the Theory of Change for attaining Landscape Restoration outcomes a number of factors must be satisfied; put otherwise, a diagnostic (evaluation) of readiness needs to be performed. Table 9 below is a Readiness diagnostic for Gola Forest Landscape.

Table 10: Readiness Diagnostic for Landscape Restoration in Gola Forest Landscape

	Theory of Change Assumption	***Proposed Restoration Interventions for the Gola Landscape***				
		1. Assisted Natural Regeneration (ANR) in abandoned mines (Inside Park)	2. Law enforcement or ESI Evaluation in active mines (inside Park)	3. Law enforcement & Assisted Natural regeneration in degraded gallery forests (inside Park)	4. Hybrid Oil Palm and Cocoa, & or Rubber; individual Plantation development (Outside Park)	5. Rehabilitation of Home Gardens (Outside Park)
1	*Institutional, Policy and Biophysical success factors in place for restoration interventions*	Yes	Yes/No. Despite laws, miners' level of organization and willingness to be engaged is unknown	Yes/No. Despite laws, wood harvesters' level of organization and willingness to be engaged is unknown	Yes/No. Policies exist but optimum locations still need to be mapped out in the field	Yes
2	*Knowledge of appropriate financing mechanisms for restoration interventions*	Co-funding from Partners. Liberia Conservation Fund.	Co-funding from Partners. Liberia Conservation Fund.	Co-funding from Partners. Liberia Conservation Fund.	Yes/No. This is lucrative & all Tree Crops have Liberian Markets. Value Chain Analyses needs to be carried-out with different financing options	No, But within reach for VSLA schemes & other small funding schemes
3	*Viability and significance of restoration intervention.*	Bamboo and Rattan are potentially invasive. Local species will be evaluated	Yes, to significance. Viability is yet to be tested.		Viability and significance largely known and tested	Viable/ significant for livelihoods
4	*Minimal conflict of interest; no technical or financial impediment*	Potential for conflict of interest	Potential for strong conflict of interest	Potential for moderate conflict of interest		Yes, minimal conflict & Tech/Fin impediment
5	*Ecosystem Service and or Product directly or indirectly relevant to local, national or international Stakeholder is clarified*	Yes	Yes	Yes	Yes	Yes

6	*Knowledge of value and spatial extent of Ecosystem Service or Products is available*	Knowledge of value – Yes, but Spatial extent of investment and impact yet to be determined

8. Financing forest landscape restoration

The proposals are made here; one tied to the restoration option options that emerged from this assessment and a second based on existing carbon markets.

8.1. Financing options based on assessment findings

Table 11: Options for financing landscape restoration in Gola. Forest Landscape

	Main proposed restoration interventions	*Possible financing mechanisms*
1	Assisted Natural Regeneration (ANR) in abandoned mines (Inside Park)	Principal funder is the FDA. Co-funding from Technical & Financial Partners is possible as stated in just expired Management Pan. Liberia Conservation Fund is also mentioned as possible funding source. The existing Management Plan expired 2019 and requires revision
2	Law enforcement or ESI Evaluation in active mines (inside Park)	
3	Law enforcement & Assisted Natural regeneration in degraded gallery forests (inside Park)	
4	Hybrid Oil Palm and Cocoa, & or Rubber; individual Plantation development (Outside Park)	This is lucrative & all Tree Crops have existing Liberian Markets. Oil Palm was the most profitable based on the current assessment and can be a starting point. A Value Chain Analyses needs to be carried-out with different financing options and possibilities for certification based on extent on integration with indigenous species. The example of J-Palms (Led by Mahmud Johnson) currently ongoing in Liberia is one model. The potential for engaging with Large Mining Companies should also be explored.
5	Rehabilitation of Home Gardens (Outside Park)	Financing for home gardens is minimal and could easily be developed through conditional support for Village Savings and loans schemes & other small funding schemes

8.2. Public Private Partnership (PPP) financing opportunity

Private sector financing for landscape restoration currently exists with very specific demands. One case involves possibility for purchase of long-term forest carbon by AIRBUS Industries, Toulouse, France. This case focuses on reforestation of degraded landscapes. The preference is timber species of medium duration 25 – 40 years. As a classic PPP such restoration agreements require solid agreements, including the following minimum criteria.

- The land should be at least 5000 ha, or more (preferable)
- Preferably on one owner with who a binding agreement is entered into, to avoid long term problems
- The preferred previous land use types are grasslands, degraded secondary forests etc.

- The land needs to have some residual fertility, such as a long fallow area (7 years above)

Funding of afforestation/reforestation is done with the goal of acquiring Carbon Credits. Such Plantations may involve some form of Verified Carbon Standards (VCS) certification or other. The prices paid tC02eq are based on the level of attractiveness of the project; such as what Sustainable Development Goals (SGDs) can be achieved through the project. The Gola forests with the combined water services, biodiversity and livelihoods prerogatives present excellent conditions for a good price per tC02eq of forest carbon. Generally, price ranges are wide and can be from 2 – 15 USD tC02eq in order to make allowance for good and bad quality credits.

9. Conclusion

The ROAM application in the Gola landscape set out to identify and evaluate opportunities for restoring and safeguarding ecosystem services, and how livelihoods can be improved in the process.

The Gola Forest National Park is located in the middle of two (2) river basins; the Mano and the Lofa with various parts facing different forms of degradation; from uncontrolled mining to slash and burn small holder agriculture. The assessment observes that, management of sensitive areas in the basins, can prevent and or roll back degradation; while development of viable portions using appropriate species will store carbon, improve livelihoods and promote biodiversity. Right across the basins, the combined, long-term effect of restoration will help safeguard the ecosystem and support livelihoods downstream.
However, based on the objectives laid-down from the outset of the assessment, the following specific deductions can be made;

In the Gola Forest National Park;

Backed by approved Environmental Impact Assessment guidelines; through natural regeneration of indigenous vegetation in abandoned mines and degraded banks of streams and rivers; and where feasible, assisted by diligent introduction and management of species like Bamboo and Rattan known for their detoxification services. Restoring vegetation cover in these sensitive zones will be implemented under Management Issue No. 6 of the Park Management Plan.

Based on negotiated agreements with communities inside the Park willing to relocate elsewhere, an opportunity exists for reforestation of thousands of hectares of previously farmed and inhabited portions of the Park

Outside the Park; within 5 km of its periphery

Backed by approved Environmental and Social Impact Assessment guidelines, assisted natural regeneration of vegetation on stream banks and abandoned mines is recommended, and where feasible, the regeneration process with indigenous, economically viable species such as *Bambusa spp*., and Rattan, can be developed whose value chains can improve livelihoods and store carbon
The development of commodity Tree Crop Plantations of Oil Palm, Cocoa, Rubber or other appropriate species (e.g. Teak) on degraded secondary bushes, appropriate old fallows and home

gardens should be promoted, and the development of value chains for their products, supported; and will contribute to carbon sequestration and eventually storage.
Ensuring community tree plantations include at least 10% indigenous tree species, per hectare to enhance on-farm biodiversity and increase chances of certification of community plantations.

To achieve improved knowledge and understanding at the national and regional levels, the following are recommended;

Improved data and information gathering and sharing on land-use, e.g., on artisanal miners, small scale timber and NTFPs actors in HCVF in Liberia to help inform planning decisions by working with the FDA and with the MRU for transboundary lessons.
Improve understanding of Tree Crops Value chains, such as Oil Palm; and how sustainable small-scale Oil Palm production practices can be promoted and financed around HCVF.
Improved knowledge, data and awareness of opportunities and mechanisms for financing landscape restoration from private and public sources.

Excellent factors of success exist at nation and international levels. For instance, Landscape Restoration contributes to the REDD+ program, to National Adaptation Plans, to CBD Aichi Art. 14, ad to the UNDP's LDN. Through the monitoring of restoration of degraded lands inside and out of the Gola National Park, an evaluation of the contributions to local individual and community livelihoods and to the Bonn Challenge and ARFR100 initiatives by Liberia can be achieved.

The main sources of finance identified are from Public sources (the State, FDA), from Bilateral and Multi-lateral donors for restoration investments in the National Park. Furthermore, it is possible given relation of settlers to attract private sector funding inside the Park. Outside the Park two private sector funding streams are possible, but these have to be further developed. The first or development of Agroforestry plots (home gardens) can be derived from the VSLAs. Secondly (also applicable inside the Park), there is growing interest from Private Sectors like AIRBUS (Toulouse) to purchase secure biocarbon from Reforestation Projects. The requirements for this are very specific and represents a very viable source of financing. Finally, the development of commodity tree crops of Oil Palm, Rubber and Cocoa represents the biggest restoration opportunity outside the Park. There is a huge internal and regional market for these commodities. What is required is solid value chain analyses to better understand these investment streams. Such value chain analyses were outside the scope of this ROAM.

10. Proposed Restoration Action Plan

Table 12: Proposed 5 – year restoration action plan for Gola

	Main proposed restoration interventions	*Actions*	*Time frame*				
			Y1	*Y2*	*Y3*	*Y4*	*Y5*
1	Assisted Natural Regeneration (ANR) in abandoned mines as well degraded farmlands (Inside Park, if necessary)	1.1. Brief review of policies and local bylaws					
		1.2. Identify funding sources, negotiate and sign funding agreements & implementation plans					
		1.3. Identify, select, characterize, validation & use species for restoration					
		1.4. Evaluate & survey for any existing conflicts of interest and technical challenges; and feasibility					
		1.5. Due diligence: Evaluate and confirm local national and international acceptability of benefits/costs					
		1.6. Map and otherwise evaluate quantitative and qualitative aspects and extent of impacts of benefits/costs of interventions					
2	Law enforcement or ESI Evaluation in active mines (inside Park)	2.1. Evaluate extent of illegal mining, level of organization of miners & willingness to be engaged					
		2.2. Identify funding sources, negotiate and sign funding agreements & implementation plans					
		2.3. Evaluate effectiveness of ESI & Law enforcement strategy.					
		2.4. Evaluate any existing potential for conflicts of interest and propose mitigation measures					
		2.5. Due diligence: Evaluate and confirm local national and international acceptability of benefits/costs					
		2.6. Map and otherwise evaluate quantitative and qualitative aspects and extent of impacts of benefits/costs of interventions					

3	Law enforcement & Assisted Natural regeneration in degraded gallery forests (inside Park)	3.1. Evaluate extent of illegal wood harvesting; harvesters' level of organization & willingness to be engaged					
		3.2. Identify funding sources, negotiate and sign funding agreements & implementation plans					
		3.3. Evaluate effectiveness of Law enforcement strategy and proposed ANR approaches					
		3.4. Evaluate any existing potential for conflicts of interest and propose mitigation measures					
		3.5. Due diligence: Evaluate and confirm local national and international acceptability of benefits/costs					
		3.6. Map and otherwise evaluate quantitative and qualitative aspects and extent of impacts of benefits/costs of interventions					
4	Hybrid Oil Palm and Cocoa, & or Rubber; individual Plantation development (Outside Park)	4.1. Evaluate and map all optimum locations for Commodity tree crop establishment; establish ownership and build database					
		4.2. Develop full Value Chain Analyses and Business Plans; including analyses of funding options & investors					
		4.3. Produce stories about viability and importance for livelihoods, Park and Landscape and use as a marketing tool for funding					
		4.4. Evaluate any existing potential for conflicts of interest and propose mitigation measures					
		4.5. Due diligence: Evaluate and confirm local national and international acceptability of benefits/costs of Agroforestry based plantations					
		4.6. Map and otherwise evaluate quantitative and qualitative aspects and extent of impacts of benefits/costs of interventions					
5	Rehabilitation of Home Gardens (Outside Park)	5.1. Review, and sharing of lesson of the value, legitimacy and significance of this underestimate land use.					
		5.2. Access funding for development; especially potential of VSLA as sources of investment					
		5.3. Produce stories about viability and importance for livelihoods, Park and Landscape and use as a marketing tool for funding					
		5.4. Evaluate innovations in Homes Gardens and potentials for expansion					
		5.5. Due diligence: Evaluate and confirm overall contribution/potential of this Agroforestry practice to landscape restoration					
		4.6. Map and otherwise evaluate quantitative and qualitative aspects and extent of impacts of benefits/costs of Home gardens as restoration interventions					

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An Act to Establish the Land Rights Law of Liberia, 2018

Annexes

Annex 1: Socioeconomic Assessment Report - Gola

EXECUTIVE SUMMARY

The Gola Forest National Park (GFNP) is the second national park in Liberia with an area of 88,873 Hectares. Research shows that it accounts for approximately 24% of the Greater Gola Landscape in Liberia and spans across the Sierra Leone-Liberia boarder[7]. This tract of natural forest is a mosaic of protected areas, community forests and forest management projects. In Liberia, the GFNP is located in Gbarpolu and Grand Cape Mount counties, along the border with Sierra Leone, where the park creates a transboundary complex of protection with Sierra Leone's Gola Rainforest National Park. This protected area has been exposed to numerous natural and human induced threats that may degrade its biodiversity content. In order to practically reduce the human threats to the forest's biodiversity, the Forestry Development Agency (FDA) Liberia in collaboration with the Manor River Union (MRU) with funding from the International Union for the Conservation of Nature (IUCN) have launched a comprehensive forest Restoration Opportunity Assessment Methodology (ROAM) to fully understand the existing drivers of degradation and appropriate intervention options to restore the forest landscape. GreenLife West Africa was contracted by IUCN through FDA to conduct a comprehensive socioeconomic assessment to understand the drivers of degradation and measures to ameliorate the negative impact of these actions. Specific objectives geared towards understanding; social and economic factors, knowledge on livelihoods and natural resource use, sociocultural and economic dimensions, cultural and social landscape priorities, socio-economic priorities of stakeholders, Cataloging the socially and economically important biodiversity and the costs and benefits of forest landscape restoration opportunities. The assessment will serve as a baseline for the restoration intervention across the landscape. Hence, both quantitative and qualitative assessment methods were employed to establish the baseline. Four (4) forest communities were purposively selected, coupled with a random sampling of 140 household heads across those communities for the quantitative assessment and at least 64 community key stakeholders were reached through the Focus Focus Discussions (FGDs). The assessment revealed the following key findings with respect to specific objectives;

Social and economic factors in the assessment of forest landscape restoration opportunities

Almost half (49%) of the household heads interviewed were above 44 years and 13% were below the national youth age. The household size was 4 and 42% of the household heads interviewed had no formal education. Diverse ethnic groups exist across the sampled communities and the Mende ethnic group was revealed as the largest ethnic group in the landscape, but most of the residents widely communicate in the Liberian language. Religious tolerance was revealed and Christianity was cited as the most practiced religion. 75% were revealed married and expressed high dependency on the forest resources for their livelihoods. However, the majority of household heads expressed willingness to support the protection of the gola national park. Despite the approval of the national park, the forest

[7] Birdlife international, 2015: http://www.birdlife.org/worldwide/projects/forests-hope-site-gola-national-forest-liberia

is still challenged with the appropriate law enforcement strategies. More than half of the households interviewed had not benefited from any intervention projects in the last two years. Current interventions stated were; cocoa production, micro loan and training in beekeeping. Interestingly, 64% had participated in awareness raising programs about forest resources use and land use five years ago.

Livelihoods and natural resource use and dependence

Subsistence farming using shifting cultivation, coupled with slash and burn methods was revealed as highly practiced by residents. Almost half (51%) of the households asserted clearing of forest for agricultural activities. Mining was second on the list of livelihood activities across the landscape and 49% denied clearing of forest for farming, but mostly involved in the diamond or gold mining. In 2018, 144 Hectares of forest were cleared for farming. Common crops revealed were; pepper, rice, vegetables, cocoa oil palm and pineapple. Rice was revealed as mostly substance while cocoa and oil palm were grown for economic purposes. Average fallow period revealed was 7 years.

Social, cultural and economic dimensions of landscape degradation

Generally, the cultural practices across the sampled communities were strongly revealed as ethnicity based. However, the common ground for socialization was revealed as the prominent sex specific secret societies; Poro for men and Bondo for women. These societies were revealed as sacred practices done at specific locations in the forest, where none-members are not allowed to visit. The economic activities mentioned were strongly in line with their livelihood activities; farming, mining, collection of Non-Timber Forest Products (NTFPs), hunting, fishing and livestock rearing. However, average income from mining and remittance exceeded average income from agriculture and other economic activities. Also, the average expenditure on travels ($17,871) was revealed higher than all other expenditure categories. Most (60%) of the agricultural products and 70% of forest products were revealed for economic purposes to off-set financial needs of the households.

Cultural and social landscape priorities and their alignment with restoration activities;

The wide spread of diverse ethnic groups across the communities largely influence the social and cultural practices in the forest. The FGDs strongly revealed that community members deeply need the forest for diverse social and economic activities both at community and household levels. Hence mentioned that Any forest restoration activities should respect their secret society bushes ('Poro' for men and 'bondo' for women), a portion of the forest should be given to the communities to perform their secret society activities, the forest restoration agencies (IUCN, MRU or FDA) should employ the community indigenes as part of the forest guards, Foreign forest guards or workers should not tamper with our wives, provide basic social and employment opportunities.

Socio-economic priorities of stakeholders throughout the landscape(s);

Generally, from both the household and FGDs, communities in and around the forest highly depend on the diverse forest resources either directly or indirectly. About 85% of the FGD participants asserted that the forest is their main livelihood source through the following; farming, fishing, mining, collection of NTFP, hunting, sacred sites etc. Therefore, prioritizing forest restoration over the above activities will require relevant alternative sources of income with an appropriate buffer zone for these activities. Such

activities are; cocoa plantation, rubber plantation and oil palm plantation with huge local employment opportunities.

Cataloging the socially and economically important biodiversity (genes, species, ecosystems) within the landscape(s).

Various plants and animal species were revealed in local dialects, but these species were all discovered in the previous researches; chimpanzees, pygmy hippos, forest elephants, different duiker species, White-necked Picathartes, White-breasted Guinea fowl). Common plant species revealed were; Cynometry *leonensis* and *Brachystgia leonensis*. However, the most dominant tree species were *Heritiera utilis* (Sterculiaceae).

Gender-responsive restoration strategies

The male to female ratio is on average was 3:1, which implies that there are 3 times more men than women in the communities sampled. This may be due to the Dimond mining activities in the villages as such mining is mainly done by men. Summary of suggestions gathered from the FGDs are as follow; Inclusive forest management training programs, provide scholarship for school going children across the communities targeted and Provide employment opportunities on an equal opportunity basis

Costs and benefits (social, economic, and biophysical) of forest landscape restoration opportunities in the landscape(s);

Three preferred restoration options were mentioned; cocoa, rubber and oil palm plantations. The most preferred was cocoa plantation. However, the cost benefit analysis clearly shows that the oil palm plantation has the highest benefit cost ratio of 5.8, as opposed to the cocoa with benefit cost ration of 4.0.

1.0 BACKGROUND AND CONTEXT

Although Liberia's 54th National Legislature signed the Gola Forest National Park (GFNP) into law on September 22, 2016, the new protected area was officially launched with a community-focused regional ceremony in Kungba District, Gbarpolu County in 2018. Over 250 people from local and national government agencies, non-governmental organizations, project donors and community members – including clan and town chiefs – attended the event.

The Gola National Park is the second national park in Liberia with an area of 88,873 Ha. It accounts for approximately 24% of the Greater Gola Landscape in Liberia and almost continuous tract of forest spanning the Liberia-Sierra Leone border. This tract of forest is a mosaic of protected areas, community forests and forest management projects. The GFNP is located in Gbarpolu and Grand Cape Mount counties, along the border with Sierra Leone, where the park creates a transboundary complex of protection with Sierra Leone's Gola Rainforest National Park. Together, these two parks safeguard one of the largest remaining tracks of the Upper Guinea Forest and also form one of the largest protected area complexes in West Africa at approximately 400,000 acres.
This protected area is exposed to numerous natural and human induced threats that may degrade its biodiversity content. In a bid to reduce the human and natural activities' impact on the protected forest,

specific interventions should be made with focus on addressing the drivers of forest degradation. Prior to these interventions, GreenLife West Africa has been contracted by IUCN through FDA to conduct a comprehensive socioeconomic assessment to understand the factors leading to forest landscape degradation and how to ameliorate the negative impact of these actions; permanent settlement, immigration, shifting agriculture, economic activities attracting foreigners, household incomes, infrastructure, access, corridors[8]. The assessment serves as a baseline for the Mano River Ecosystem Conservation and International Water Resources Management Project. Literatures reveal that most of the threats to biodiversity loss in the Gola forest could be attributed to several factors from the previously undefined legal status of the Park (for several years) to inaccessibility and relatively limited presence of non-governmental organizations in the area[9]. The assessment focused on four (4) communities in two counties; Camp Alpha and Timah Town in Gbarpolu county, and Fula Camp and Camp Isreal in Grand Cape Mount County.

Aim and objectives of the socioeconomic assessment

The aim of this activity is to collect information on human populations and socio-economic dynamics that contribute to forest landscape restoration, integrated land use planning and sustainable income generation from various restoration interventions. Objectives include:

- The integration of social and economic factors in to the assessment of forest landscape restoration opportunities;
- The collection of data and knowledge on livelihoods and natural resource use and dependence
- An assessment of the social, cultural and economic dimensions of landscape degradation;
- An assessment of the cultural and social landscape priorities and their alignment with restoration activities;
- Assessments of socio-economic priorities of stakeholders throughout the landscape(s);
- Cataloging the socially and economically important biodiversity (genes, species, ecosystems) within the landscape(s).
- The identification of gender-responsive restoration strategies
- A landscape assessment of the costs and benefits (social, economic, and biophysical) of forest landscape restoration opportunities in the landscape(s);

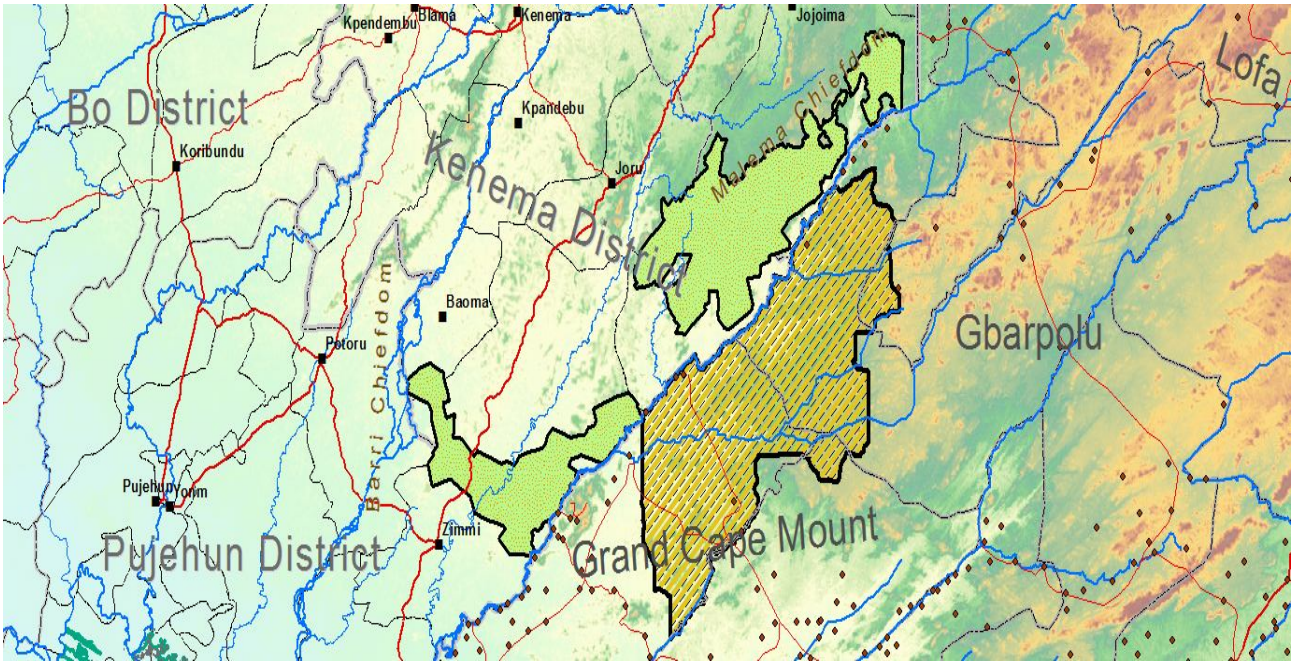
1.2 Scope of the assessment

[8] Output 1.1.4. Integrated land use planning to enable the generation of sustainable sources of income from the various restoration interventions - Mano River Ecosystem Conservation and International Water Resources Management Project. Expected Deliverable No. 1

[9] Gola National Park (GNP) Socio-Economic Baseline Report by Across the River Transboundary Peace Park, 2012.

This assessment focused on four (4) communities on the Liberia side; Camp Alpha and Timah Town in Gbarpolu county, and Fula Camp and Camp Isreal in Grand Cape Mount County.

In Liberia, Gola forest is one of the largest remaining intact areas of seasonal dense moist evergreen and semi-deciduous forests in the whole region There are 550 forest dependent communities representing about 250,638 inhabitants spread within 200,000 ha transboundary forest landscape that extends from Liberia covering two counties (Grand Cape Mount and Gbarpolu) to Sierra Leone across two provinces (Eastern and Southern) and three districts (Kailahun, Kenema and Pujehun).



Source: LISGIS 2008

Figure 1 Map of Gola Forest Landscape, Liberia, 2008

2.0 APPROACH AND METHODOLOGY OF SOCIOECONOMIC SURVEY (SES)

The study methodology was developed in harmony with the other socioeconomic research team in Gola Landscape to enhance easy production of landscape level report. Therefore, the entire study adopted an IUCN forest restoration assessment approach; Restoration Opportunities Assessment Methodology. The Restoration Opportunities Assessment Methodology (ROAM) is an approach that was developed by IUCN and the World Resources Institute (WRI) to guide the processes of developing forest restoration interventions at landscape level. It is a stepwise and iterative application of a series of analyses used to identify the best set of Forest landscape restoration (FLR) opportunities applicable to a specific site (IUCN & WRI 2014). This approach was piloted in Mexico, Ghana, Guatemala, Rwanda and most recently Uganda (2016). ROAM provides a flexible and affordable framework to rapidly identify and analyze forest landscape restoration (FLR) potential and locate specific areas of opportunity at a national or sub-national level. It provides vital support to move forward with developing restoration

programmes and landscape-level strategies[10]. Prior to this study, a training in this approach was conducted by IUCN in Monrovia, Liberia in February 2019 to establish a clear understanding on the approach to be applied to the specific sites identified for the FLR project. Consultants from delivering the various components of the ROAM participated and coordination strategies established between the four MRU states.

A consulting firm, Greening Environments, Economies and Lives in the Fifteen States of West Africa (GREENLIFE West Africa) is responsible for delivering the baseline activity 1.14, working in consort with the established community/chiefdom platform and other consultants delivering the other baseline activities in the transboundary landscapes. This arrangement also requires active inputs from the national coordinating institution (Forestry Development Agency-FDA), the Mano River Union (MRU) and the International Union for the Conservation of Nature (IUCN) to ensure the success of baseline data harmonization. A team of consultants comprising Socio-Economic and Social Science Experts with proven experience in the respective sites was set up. The team developed data collection tools, utilized data collection templates adopted from the Forest Poverty Toolkit, and generated a field data collection schedule to capture information from communities within the landscape on socio-cultural dimensions of restoration including economic data, household livelihood data (through the Forest Poverty Toolkit), gender, and the social and economic components associated with identified FLR interventions in the Gola Forest Landscape.

2.1 Data Collection Tools

In order to fully capture details on the socio-economic conditions, the poverty toolkit was used[11]. A set of questionnaires/tools for conducting the socio-economic surveys in the target project sites was structured and developed by the project team. The Structure included questionnaires for the household survey (HHS) and Focus Group Discussions (FGD) for community key stakeholders.

The Forest Poverty Toolkit (FPT) was used to triangulate primary data for each sampled community. The FPT has eight (8) FLR Assessment tools, but only four was used during the socio-economic data collection for Gola Forest Landscape considering the scape and necessary parameters required for this study. These tools and their objectives are presented in the table below.

Table 1: Forest Poverty Toolkit

Tool 1: Wealth ranking to understand how poor households depend on natural resources	**Tool 2:** Situational analysis of the local landscape to understand how people use local natural resources

[10] IUCN and WRI (2014). A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level. Working Paper (Road-test edition). Gland, Switzerland: IUCN. 125pp.

[11] PROFOR 2010 https://www.profor.info/content/poverty-forests-linkages-toolkit-0

Tool 3: Trend analysis to understand the dynamics of change on forest and land use (process and factor of deforestation / degradation)	**Tool 4:** Livelihood Analysis to understand how people are dependent on natural resources, and evaluate the income from these resources
Tool 5: Institution, Policies and Governance **The range of local institutions that you come into contact with**	

2.2 The Household (HH) questionnaire

This questionnaire focused on both the livelihoods analysis and the situation analysis of the communities to understand how people use local natural resources and their dependency on the forest for social, cultural and economic purposes. This tool was mostly used to capture quantitative data at the household level by interviewing heads of households of each household (or a proxy) as the interviewee in each household in the sampled communities. Based on the size of the village/town, at least ten (10) households were randomly selected in each sampled community for the interviews (this sampling technique was adopted due to the availability of respondents across the communities). A purposive sampling approach was used to determine the villages/towns to be assessed in each county and the landscape at large. The household questionnaire was electronically administered using KoboCollect software, which were synchronized into Kobotoolbox for onwards transfer into an SPSS for analysis.

2.3 Focus Group Discussion (FGD) guide

This tool was used to capture qualitative data at gender specific levels (men and women separately) in the project landscape across the four communities. In each location of the FGD, women and men were separately engaged and consisted of youth, adults, elders and community authorities representing other members of the communities. The number of participants in each group did not exceed eight (8) persons (this means that each targeted community was represented by at least 16 stakeholders; 8m, 8f).

This tool was tested and validated during the training of data collectors/enumerators prior to conducting the actual field exercise in order to ensure a better understanding of the data collection tools and their applications.

2.4 Data collection methods

The data collection was done by a team of two people who are experienced in socioeconomic activities at a forest landscape level. Analyses were done by the GreenLife lead socioeconomic consultant. Each of the sampled communities provided local personnel to support the study team in working within the community.The two (2) data collectors were fully trained by the GREENLIFE West Africa consultant in the contents of the HH Questionnaire and the FGD guide to enable them grasp better understanding of the various questions and harmonize thoughts and interpretation of qualitative responses. The data collection team was based in the landscape for three weeks in May to increase their accessibility to the targeted communities and also enable them to interact with community members outside formal interviews for diverse opinion gathering. Hence, captured detailed information about the landscape with

diverse opinions across the landscape. Two main approaches were employed; the HH questionnaire administered to HH heads and the FGD guide administered to key community stakeholders based on their sex distribution. The separate discussions in the men's and women's focus groups made it possible to answer general questions concerning the entire landscape/communities with respect to communities at the forest edge (see the interview guide and HH Questionnaire in the appendix).

2.5 Sample approach

This refers to the strategies used to select the respondents for both household survey and the Focus Group Discussions. Given that it was impossible to reach the entire population in this study, specific sampling approaches were employed to select the most relevant respondents across the landscape as described in the following sub-sections;

2.5.1 Household questionnaire administration

The household questionnaires were administered to adult household heads in four communities across the landscape. A household was used as the basic unit of the survey and the household head was the unit of observation. In this regard, a household was defined as a group of people living together, making common arrangements for food and other essentials for a living. In this case, a household included people living in the same or nearby houses but food prepared in a common pot and usually eaten together[12]. These communities were selected based on their proximity to the forest landscape and their influence and dependence on the forest resources. Approximately, average sample size was 30% of the households in every community surveyed. A simple random sampling technique was employed to select the households across the communities. The table below indicates the population and sample size used in each community;

2.5.2 Population and Sample Size

There are 28 communities across the GFNP who in one way or the other depend on the forest for their livelihoods. This study focused on four of these communities that are strategically located closed to the GFNP and proved to be high impact on the forest natural resources.

Table 2: Sample size calculation

Calculated sample size for the selected communities in Gola Liberia			
Sampled Communities	**Total households**	**Sample size (30% HHs)**	**Population**
Camp Alpha	140	***45***	742
Timah Town	83	***25***	440
Camp Israel	124	***40***	657

[12] Africa journal on food, agriculture, nutrition and development 2018-Volume 18

Fula Camp	94	***30***	498
Total	**441**	**140**	**2,337**

2.5.3 Focus Group Discussion (FGD)

Respondents for the FGDs were purposively selected from each of the targeted communities across the landscape considering the key informants across the communities; people who are knowledgeable in community livelihood, governance and socioeconomic issues. Two categories of respondents were engaged in each of the four communities; male FGDs and Female FGDs to ascertain gender sensitive opinion in relation to Forest Landscape Restoration in the Gola Forest. All of these participants were selected from the forest edge communities already sampled for the household assessment. This is to establish a comprehensive qualitative data for detailed explanation on the quantitative household assessment. The FGD guide mainly captured information of general opinion about FLR and situation of the communities and chiefdoms at large. At least eight (8) participants from each category of sex were selected, which made up of sixteen participants per community where applicable. Some of the communities with very low population had less than 16 participants in the FGDs.

2.6 DATA ANALYSIS AND INTERPRETATION

This section presents the different stages employed to analyze all the primary data; coding, data entry, statistical techniques used, and interpretation of data for both the household and FGDs.

2.6.1 Household data

Processing and analyzing data for any survey or fieldwork activity is as critical as the data collection process itself. Data from the field were entered into the excel template and thoroughly cross-checked and cleaned by the consultants. After the data cleaning, all data were exported into a Statistical Package for Social Scientist (SPSS) for analysis. Thereafter, analysis was done across the data to generate frequencies and percentages based on thematic areas of focus:

- Demographic and socioeconomic characteristics of the population
- Livelihood analysis
- Gender and Social inclusion
- Organizations/institutions supporting restoration

Descriptive statistics were used to fully describe the existing situation on the above parameters by presenting results in charts and tables with descriptive text based on the various analyses. Disaggregation based on an assortment of variables was conducted, some of which were guided by the IUCN ROAM baseline guidance document to identify trends. The report is structured with specific focus on the survey content and requirements for the ROAM process.

2.6.2 Focus Group Discussion (FGD) Analysis

The FGD data were recorded on the FGD guides and entered into an excel template based on categories. These data were analysed using both context and content analysis methods with specific focus on the project objectives and information needed to establish a comprehensive baseline for the

Forest Restoration Programme. Most of the FGD data served as strong narratives to explain the quantitative results with respect to specific parameters assessed.

2.6.3 Cost Benefit Analysis

Implementing forest landscape restoration interventions require land, labor, input materials and time, with both direct costs from the physical process of restoring degraded land and indirect costs from foregone production (opportunity costs) and transaction costs (i.e. negotiating and planning). Restoration interventions impact the functionality of landscapes and the production of ecosystem services and commodities over time. These changes need to be quantified to understand the value of various interventions. To facilitate the analysis of costs and benefits from restoration interventions, it is necessary to have accurate, localized data on the costs of production inputs (e.g., labor, seeds, fertilizer, land) and the benefits from production of related outputs (e.g., crop yields, timber yields, fuel wood, charcoal, carbon). This is usually gathered through a combination of field surveys and value-chain and market analysis[13]. In order to capture the various FLR options, key questions on applicable restoration choices were posed in the FGDs. Responses from the FGDs across the landscape were analysed to determine the FLR options. These results were used to further investigate the market values of the outputs mentioned in the FGDs to determine the Costs and benefits of each option.

2.0 RESULTS AND DISCUSSIONS

This section presents mixed results on the various objectives with respect to data captured from both quantitative and qualitative assessments;

3.1 DEMOGRAPHIC, SOCIAL AND ECONOMIC FACTORS IN FOREST LANDSCAPE RESTORATION

These factors were captured to understand the number of people across the sampled communities who depend on the forest and their interaction with the forest resources. It further captures the level of formal education and how their knowledge level affect their behavior.

3.1.1 Age distribution of the respondents

Age in this study was defined as the number of years one has lived on earth. Household heads were asked to state their ages in year. Data were analyzed as indicated in the table below;

Table 3: Age distribution of household heads by community

Age distribution of household heads by community		
	Name of community	

[13] IUCN and WRI (2014). A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level. Working Paper (Road-test edition). Gland, Switzerland: IUCN. 125pp.

Age cohort	Camp Alpha, n=45	Camp Isreal, n=40	Fula Camp, n=30	Timah Camp, n=25	Total, n=140
19-24 years	4%	0%	3%	0%	**2%**
25-29 years	7%	8%	17%	20%	**11%**
30-34 years	13%	10%	7%	12%	**11%**
35-39 years	11%	8%	17%	16%	**12%**
40-44 years	16%	23%	10%	4%	**14%**
>44 years	49%	53%	47%	48%	**49%**
Total	**100%**	**100%**	**100%**	**100%**	**100%**

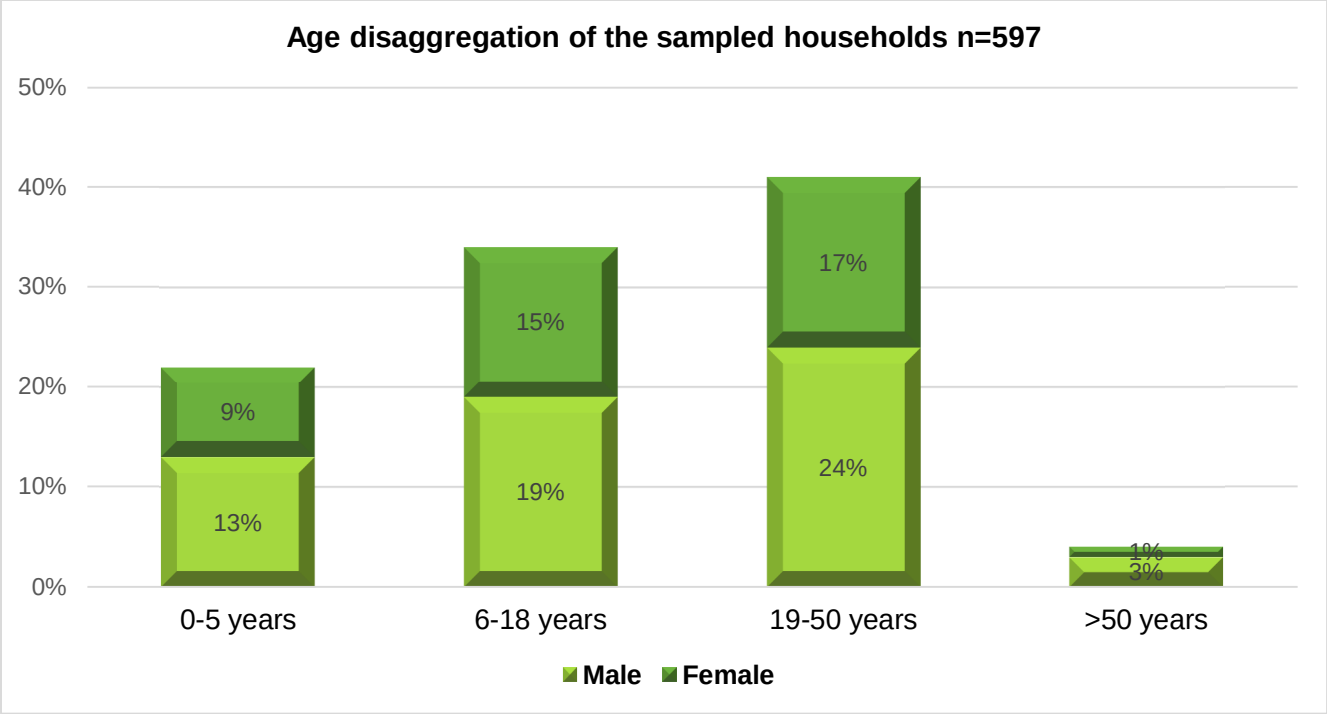
Source: Household survey 2019

From the table above, most (49%) of the household heads were above 44 years. This indicates that most of the respondents were adults who have knowledge about their household demographic and social economic statuses. Very few (13%) were below the national youth age[14].

3.1.2 Household size and age distribution of household members by sex

The average household size across the communities was calculated as 4.3 persons per household. This is below the rural household size (5.3 people per household) reported in the 2008 Liberia demographic census. The chart below shows the total household members by age and sex in the sampled households;

[14] Liberia National youth age bracket is 15-35 years, Youth Policy 2017.



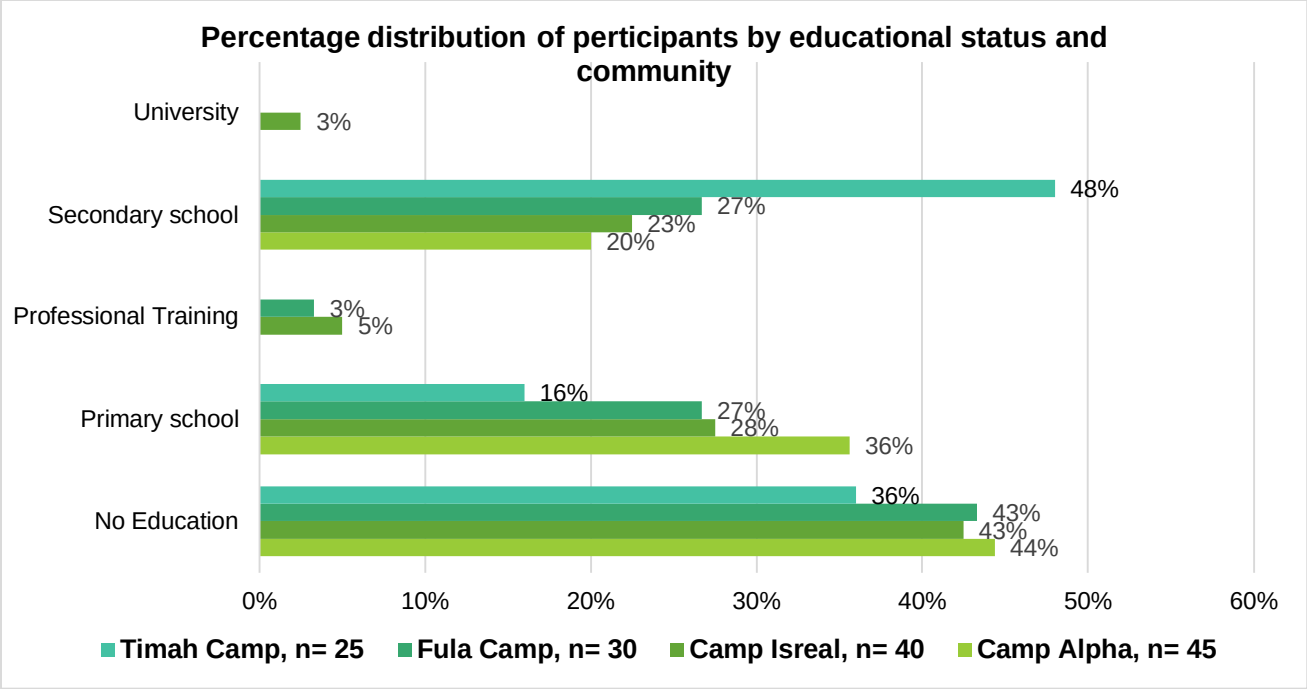
Source: Household survey 2019

Figure 2: Age disaggregation of the sampled households

From the chart above, it is clear that more male household member (3%) were above 50 years of age. The active age category also had more male (24%) than females (17%). These were mostly the household heads who cater for their households' survival. This means that there is at least 41% of the sampled household members who influence the forest resources in diverse ways; farming, mining, hunting, fishing etc.

3.1.3 Educational status of household heads

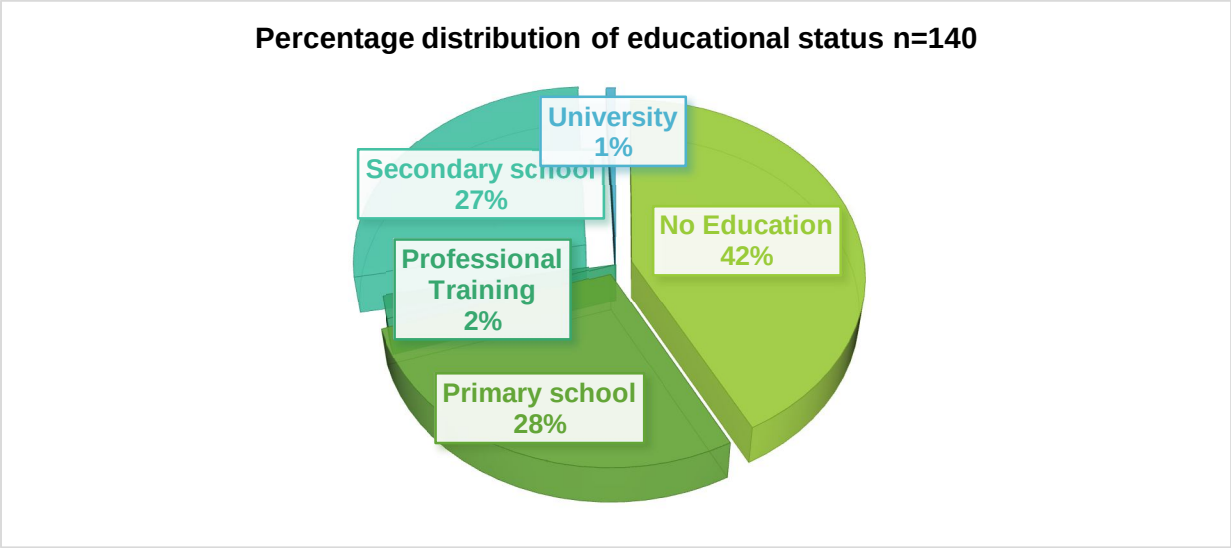
Education is one of the means of acquiring modern knowledge and skills, which will help in natural resources management. Across all the communities, Timah camp revealed the highest number of respondents who gained secondary education (48%), followed by Fula camp (30%) with Camp Alpha the least (20%). Despite the free education at primary level in the Liberia's Government Schools, across all the communities, those with no education (42%) are almost equal to those with some form of education and very few (1%) attained university education. This may be associated with the long civil war, which restricted access to education in the most part of the rural areas, coupled with poor educational facilities in the rural communities in Liberia.



Source: Household survey, 2019

Figure 3: Percentage distribution of participants by educational status

In addition, the chart below clearly shows the general distribution of the educational level the respondents across the landscape. This distribution indicates the level of vulnerability associated with high illiterate population in the rural communities. Low education or no education (42%) may result to poor natural resources management. This clearly agrees with the national census 2008 result on literacy, that 57 % of the entire population in Liberia was revealed illiterate. Discussions from the FGDs revealed that most of the illiterate household heads strongly rely on forest products for their survival, thereby increase pressure on the forest's biodiversity. Below further shows the comprehensive educational status of respondents across the sampled communities;



Source: Household survey, 2019

Figure 4: Combined percentage distribution of educational status

3.1.4 Ethnicity

Ethnicity is defined as a segment of a society whose members are thought of by themselves and or others to have a common origin and to share important segments of a common culture. They in addition, take part in shared activities in which common origin and culture are of significant ingredients. These are inscriptive differences in terms of colour, appearance, language, religion, or some other indicators of common origin or some combination seen as salient to their identity[15]. According to the discussants in the FGDs, most of the residents in the sampled communities are unstable and migrated from neighbouring countries like Sierra Leone and Guinea with diverse culture and ethnicity; Various tribes were found in the communities such as Mende, Madingo, Gbande, Kpelle (the largest tribe in Liberia[16]), Lorma, Gola and others. Each of these tribes practice their unique culture and tradition using the forest resources and environment. The Mende tribe was revealed as the dominant tribes, but most of the communications among community members were in the Liberian English.

3.1.5 Religion

Religion is defined as a spiritual belief in reverence for supernatural powers. It is a system of thought, feeling, and action that is shared by a group and that gives the members an object of devotion and a code of behaviour by which individuals may judge the personal and social consequences of their actions[17]. This definition was discussed in the FGD and they added that it is a frame of reference by which individuals relate to their group and the universe. Across all the communities, FGDs clearly revealed that Christianity dominates all other religions in the landscape.

3.1.6 Marital status

This measures the state of whether respondent is married, single, divorced or widowed to understand the types of responsibilities that exist among the sampled households in the landscape. Below indicates the marital status of respondents across the communities;

Table 4:

Table 4: Marital status of respondents by community

Marital status of respondents by community					
Marital Status	**Name of community**				**Total**
	Camp Alpha	***Camp Isreal***	***Fula Camp***	***Timah Camp***	
Divorced	2%	0%	7%	4%	**3%**
Married	82%	88%	57%	64%	**75%**

[15] LISGIS 2008 Census: Population size and composition
[16] LISGIS 2008 Census: Population size and composition
[17] LISGIS 2008 Census: Population size and composition

single	9%	10%	33%	20%	**16%**
Widowed	7%	3%	3%	12%	**6%**
Column Total	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Household survey, 2019

The table above indicates that over half of the respondents were married (75%) and 16% single. This means that most of the respondents had some amount of responsibility, which influence their behavoiur towards the forest resources in their various communities. Focus Group Discussions further revealed that most of the married household heads relied on the forest through farming or mining activities to feed their households. This is highly intensive in Camp Isreal and Camp Alpha respectively.

3.1.7 Governance structure

The GFNP lies in Sokpo Clan in Kporkpa District, Grand Cape Mount County and Tonglay Clan in Gbarpolu County. All permanently settled communities create local bylaws but the imposition of these depends to a large extent on the strength and personality of the Town Chief. According to the knowledgeable community stakeholders, the Ministry of Internal affairs divided the area into sections for local governance. Each zone has a General Town Chief and there are Town Chiefs for each community. The basic unit of local governance in the landscape is also the Chiefdom, which is a group of communities under the ruling of a Paramount Chief, local leaders and institutions. Chiefdoms are ancestral/political units maintained first by the settlers and after by the central government of Liberia. The hereditary Paramount Chiefs and the ruling families are recognized as local government.

Moreover, the FGDs revealed that there are about 28 settlements in the Park. Due to the series of consultative dialogues held with settlers in the Park, many expressed willingness to leave the Park voluntarily without conditions, others said they will only leave if they are "fairly" compensated. The group that asked for compensation consists of individuals who have established plantations of cash crops such as coffee, cocoa and oil palm in the Park. The National Parks Management Plan recommends that Park Management negotiates with all settlers to continue to relocate themselves voluntarily, and that this activity should be organized and administered by the Co-Management Advisory Body. Partners and stakeholders of the Park should be consulted to lend support to the process of negotiation and voluntary relocation. The Body, among others, could assess the claims for compensation and decide what compensation is fair and just.

3.1.8 Law Enforcement Challenges

The key policy implication is that the FDA's community partnership is very weak with very little consultation on activities and national legislations. These gaps have attracted more populations coming from the Sierra Leone side of the Gola Forest, especially youth who do mining[18]. This statement was re-emphasized in the 2019 FGDs during this assessment. Despite the approval of the Gola forest as a national peace park, there is still a challenge in enforcing the protection laws across the park.

[18] WA BiCC Scoping report, 2016

Initially there was a conflict between the community and FDA because of their plan to demarcate the forest for conservation. However, since they revealed the demarcation law in 2017, some community members have gained consciousness about protection of the forest and communities have established local laws to help domesticate the nation protection law.

3.1.9 Local governance structure

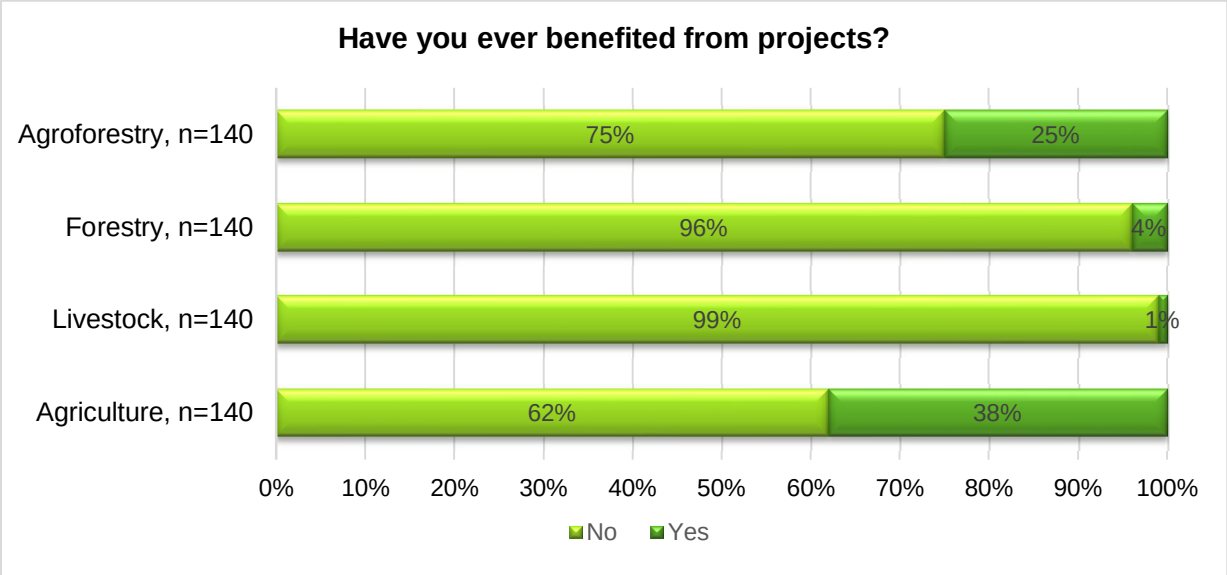
- *Paramount Chief*
- *Clan Chiefs*
- *General town chiefs*
- *Town chiefs*
- *Quarter chiefs*
- *Youth leaders*
- *Women's leaders*

3.1.10 Indigenous laws for the forest

- No cutting of forest without cultivating the land
- No tree felling as a result of mining activities
- Communities have their society forests that they protect for secret society activities and people who are not part of the secret societies are not allowed to enter

3.1.11 Benefits from projects in the last two years

Given the unique biodiversity richness of the Gola Forest, many forest management organizations may have intervened in the landscape. However, results clearly show that more than half of the respondents had not benefited from any project that dealt with agroforestry, forestry, livestock and agriculture. The figure below shows the analysis of the responses;



Source: Household survey, 2019

Figure 5: Benefited from projects in the last two years

In the FGDs, participants were very assertive that they will more interested in projects/interventions that do not neglect their livelihoods.

3.1.12 Current intervention

Generally, there is little presence of development organizations across the landscape, especially in communities sampled. However, FGDs revealed that some development organizations in the landscape are providing to some communities in the landscape;VADEMCO is currently conducting Farmers Field School training in cocoa production (including nursery development, planting and farm development) and swamp rice farming.This community-based organization has also provided assistance to women for peanut farming and also provided loan to women. Currently, 15 women have been provided loans of up to L$12,000 each. Although it is a good livelihood strategy, loan recipients complained that the time for payment (end of every month) is too short. Another group called Universal Outreach is providing training in beekeeping for honey production, SCNL and FDA support and enforce forest conservation. Below indicates the list of development organizations working in the landscape;

Table 5: Organizations working in the landscape

No	Name of organization	Intervention
1	VADEMCO	Farmers Field School training in cocoa production and micro-loan to women
2	Universal Outreach	training in beekeeping for honey production.
3	The Forest Development Authority (FDA)	forest guard, conservation
4	Society for the Conservation of Nature, Liberia (SCNL)	Support rice production, bee keeping
5	Cooperative Development Agency (CDA) of the ministry of Mines and Energy	a training method called *'Smartest Mining or dig-hole-cover-hole"* for miners in Camp Alpha. Established a mining cooperative

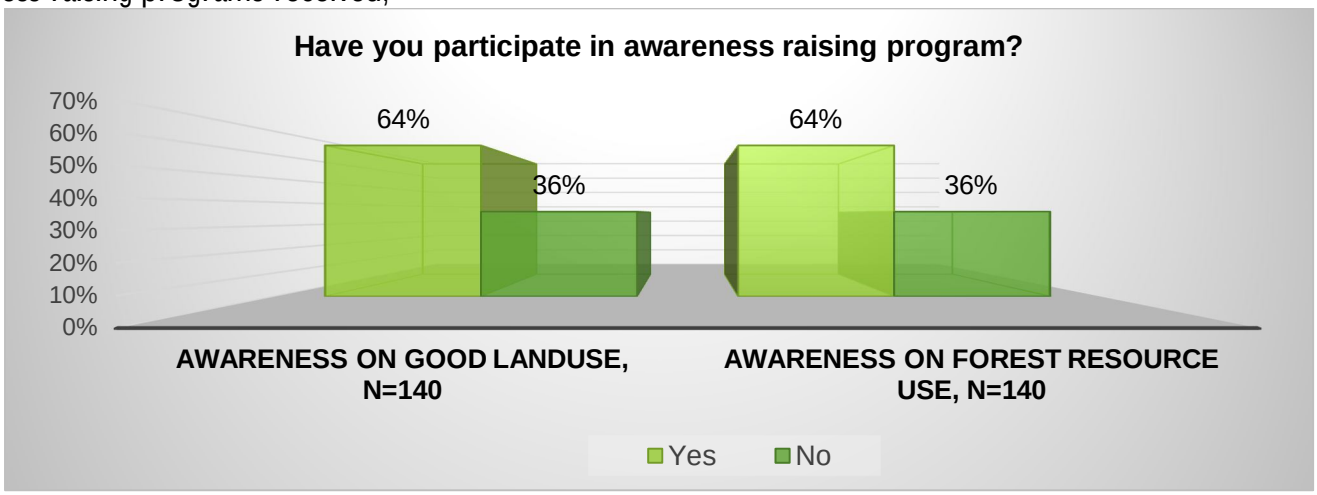
Best practices observed and revealed

- The following best practices were noted in some of the sampled communities:
- Training in cocoa farming/production
- Training in swamp rice cultivation
- Training in beekeeping.

3.1.13 Participation in awareness raising program

Awareness programs were mostly conducted in 2017 when the protected area was officially declared. From the chart below, 64% of the household heads participated in both land use and forest resources management awareness raising programs. Discussants in the FGDs further expressed that their participation is some of the community awareness raising programs have made them to understand the relevance of forest conservation and the numerous benefits that will be derived from rich biodiversity.

On key stakeholder in the FDG in Camp Alpha said that "It is difficult to completely change the way we use forest, because it is the major source of our livelihoods". Below show the types of community awareness raising programs received;



Source: Household survey, 2019

Figure 6: Percentage responses about participation in awareness raising

The general awareness and attitudes of people living in and around Gola Forest Liberia have been studied by various researchers and results have not had any significant changes. Review of these reports revealed some of the key findings from the ARTP transboundary forest assessment are presented in the box below[19]**;**

[19] Socio-Economic Baseline Report for Across the River - A Trans-boundary Peace Park for Sierra Leone and Liberia – Liberia Results, December 2012

Attitudes. *As part of the household survey, respondents were asked about their attitudes towards conservation and forest activities. A few key findings:*

- *Declared knowledge of ARTP, FDA and (especially) laws dealing with forestry or community issues is low. Only 40% and 50% (respectively) of respondents claimed awareness of ARTP and FDA. As few as 10% admitted having any familiarity with the forestry and community forestry laws. What is not clear is whether this represents a strategic response (in effect, claiming ignorance to deflect any scrutiny of illegal activities) or whether the ignorance is genuine. Lack of knowledge of the community forestry law is perhaps understandable since it is very recent legislation. The number of strangers (and foreigners) in the sample may also help explain these low figures.*
- *Only 18 respondents can correctly name the head (Managing Director) of the FDA.*
- *People on average support conservation, and feel their leadership does too (average answers to each question are all above 2.5 -- the mean of the 5-point answer scale)*
- *Respondents report the level of most resources from the forest (mushrooms, rattan, herbs, medicine, etc.) has on average remained stable (averages are all close to 2 (resources have remained stable), except for the levels of bush meat (monkeys and duikers) which are somewhat decreasing (averages are below 2).*
- *A great majority of people use the forest for their livelihood. Over 90% of the people use the forest as a source of food, income, bush meat and medicine. Over 60% use the forest as a sacred place and sees it as a place for wildlife and biodiversity.*
- *Most people feel that land conversion for agriculture, hunting, mining and logging are somewhat impacting on the forest (averages are above 2, the mean value of the scale) and that this impact is driven mostly by village members, rather than strangers (averages are below 2).*
- *Most people feel the quality of the forest is going down and that this is a negative change.*
- *Most people feel the water flow in streams around the village is decreasing but that this is not (yet) problematic.*

3.2 LIVELIHOODS AND NATURAL RESOURCE USE AND DEPENDENCE

This section details the various activities carries out by the residents sampled and how they interact with the forest landscape for their survival.

3.2.1 Livelihood activities

In this assessment, livelihood was defined as one's activities essential to their survival. Respondents were asked whether they cleared forest form any agricultural activities. Responses were analyzed as indicated in the table below;

The major livelihood activity revealed in the landscape is mining, followed by subsistence farming (mainly rice cultivation) and hunting. The hunting of wildlife was reported everywhere except Camp Alpha where respondents denied hunting activities. In some communities (e.g. Fula Camp and Camp Israel), tree crops such as cocoa and oil palm are being cultivated for commercial purpose. Upland rice farming was common in the four communities visited. Other crops cultivated were banana and peanuts. Common domesticated animals reported are chicken, ducks, pig, goat, and sheep. The table indicates responses about clearing of forest for agricultural activities;

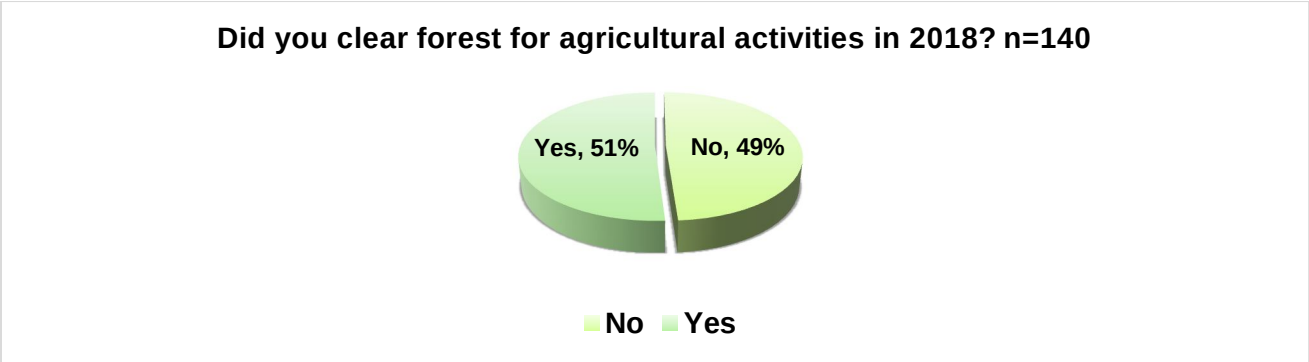
Table 6: Did you clear land for agricultural activities in 2018?

Did you clear land for agricultural activities in 2018? N=140					
	Name of community				Total
	Camp Alpha	**Camp Israel**	**Fula Camp**	**Timah Camp**	
No	47%	58%	57%	32%	49%
Yes	53%	43%	43%	68%	51%
	100%	100%	100%	100%	100%

Source: Household survey, 2019

From the table above, it is clear that almost half (51%) of the households asserted clearing of forest for agricultural activities. Tima Camp was revealed as the community with the highest (68%) forest clearing activities with respect to the other communities.

In addition, the chart below shows that 49% of the respondents said they did not clear any forest for agricultural activities in 2018. However, it was vividly revealed in the FGDs that some of those who were not directly involved in farming activities were doing mining and other forest degradation activities in the forest. This was further verified by non-participant's observation across the landscape as show in the photo below;



Source: Household survey, 2019

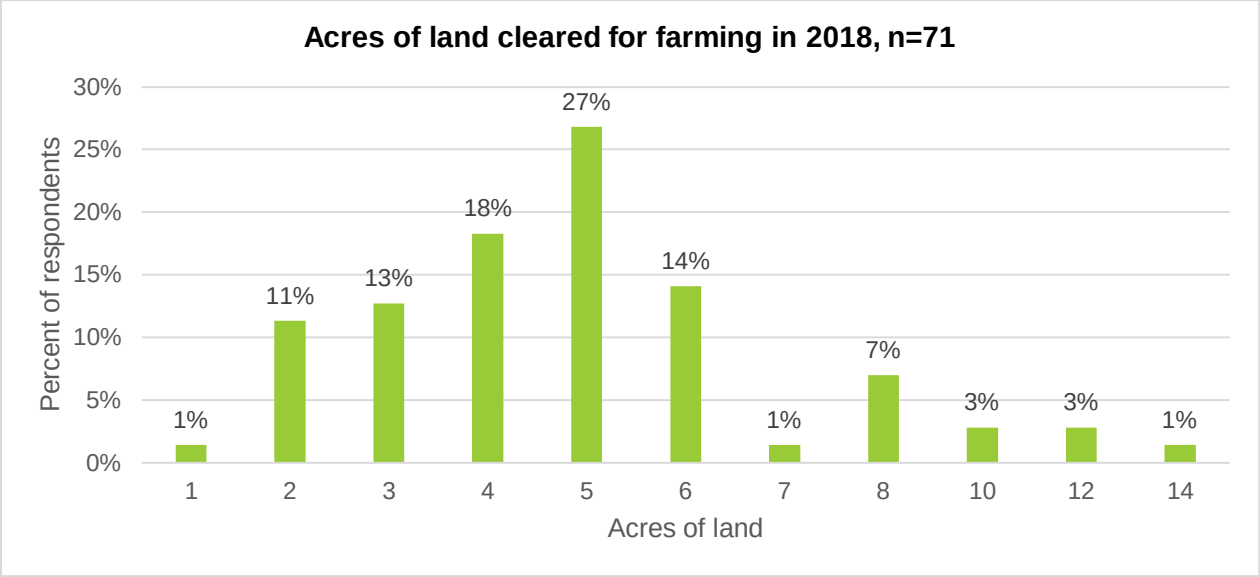
Figure 7: Cleared forest for agricultural activities

During the observations, the researcher discovered that most of the water bodies were brownish in colour, which signified some amount of water pollution through mining activities in the upstream within the landscape. Below show photos of the polluted water bodies through mining activities (Gold and Diamond mining);


Source: Household survey, 2019; photo of brownish water through mining activities

In Camp Alpha, mining was revealed as the most common activity among community members. Artisanal/uncontrolled mining was stated as the second challenge for the conservation of the forest. Artisanal mining is a major threat, as it has attracted migrants who, according to community FGD participants, have unlimited boundaries into the forest. Diamond mining is causing the creeks to dry up in the forest. The diamond diggers dig pits and don't refill them. This creates traps for wildlife. Artisanal miners also shovel in the swamp without refilling.

In the area of clearing land for farming, it was revealed that an average of 7 acres (3 Hectares) of land was cleared in 2018 by each of the farmers. Below shows the analysis of land cleared in acres;



Source: Household survey, 2019
Figure 8: Acres of land cleared for farming

The above chart shows the various farm sizes cleared in 2018 farming period. It clearly shows that 27% of all the respondents who cleared farm land, cleared 5 acres each with approximately 356 acres (144

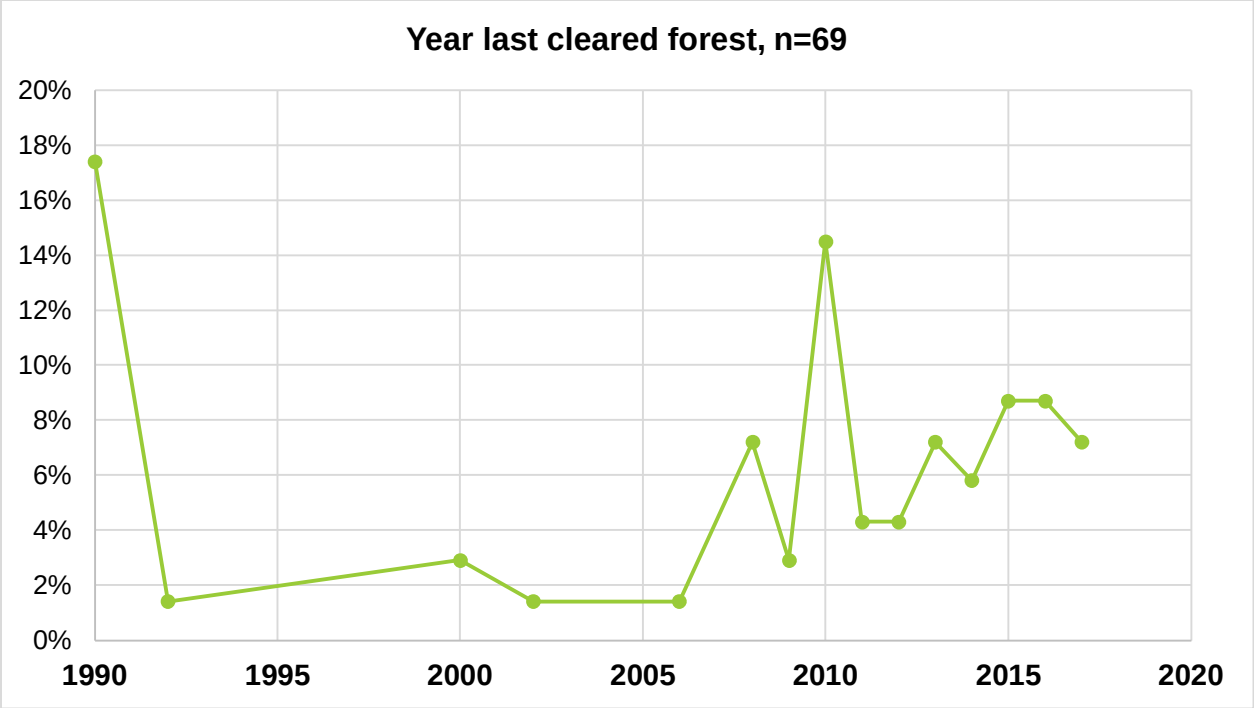
Hectares) cleared by all the 71 farmers annually. This is an indication that annually, the forest land is cleared mainly for farming activities and the rate of clearing will increase forest biodiversity loss. Discussants in the FGDs assert that the most common farming method across the landscape is slash and burn method compounded with shifting cultivation, which has exacerbated massive forest biodiversity loss and land degradation. In the FGDs and household interviews, various crops were revealed for which forest is cleared. Rice, Pepper, Bitter ball, Pineapple, Cassava, Okra, Vegetables, Cocoa, Beans etc. Below shows photo of cleared forest for farming activities;

Photo showing rice farm owned by a farmer at Camp Alpha

In addition to agricultural activities, other livelihood activities, especially farming, hunting, harvesting and collection of NTFPs for their livelihoods were revealed. However, it was unanimously accepted that rice farming through shifting cultivation method is the predominant livelihood activity, followed by mining across the landscape. According to one key stakeholder in Timah Camp, "We *are highly dependent upon this forest for our daily survival; we harvest forest products for medicinal herbs for ourselves and for sale, we are involved in doing mixed-cropping every year on virgin land to enhance high yield*". Such statement was repeated in almost all the communities sampled. Average years of fallow was revealed as 7 years. This means that farmers only cultivate land after every 7 year after cultivation of that piece of land. Hence, new forest is cleared every year for at least 2 years before returning to previously cleared land for farming. Common crops grown were listed in the embedded table and their preferences.

First 10 Common crops grown across the landscape	Rank (preference)
Rice	1
Pepper	2
Cassava	3
Bitter balls	4
Groundnut	5
Plantain	6
Okra	7
Palm oil	8
Potato green	9

Among the farming respondents, those who said they had not cleared forest in 2018 (69 respondents) provided various years in which they cleared forest for farming. The chart below shows the various years revealed across the landscape and the trend of farming activities from 1990 to 2018;



Source: Household survey, 2019

Figure 9: Year last cleared forest

From the trend analysis, forest clearing was very high in 1990, but fell between 1991 to 1995. This was largely due to the civil conflict that restricted farming activities in the rural communities in Liberia. However, most of the respondents admitted the clearing of forest in 2010.

Summary of key livelihood activities revealed in the Focus Group Discussions (FGDs)

- ***Farming:*** *The basic farming method practiced across the landscape is shifting cultivation. Farmers hardly earn money from farming because there is very poor road network to market their products. Basically, farmers focus on the production of rice, and vegetables (including pepper, bitter ball, okra and eggplant) for consumption and sell very little.*
- ***Hunting:*** *Hunting of wildlife is reportedly done on a subsistence basis mainly for household consumption and it is not intended for income generation because community members are not allowed to enter GFNP for hunting.They use single barrels and wire traps to kill the animals.*
- ***Fishing:*** *Fishing is also done on a subsistence basis but excess catches are sometimes marketed in the community to generate income for the household.*
- ***Livestock production:*** *The most domesticated animals across the landscape are chicken, sheep, and goat; they are raised on the free-range. These livestock are not raised on defined pieces of land; rather they are free-range domesticated animals moving everywhere for feeding.*
- ***Collection of NTFPs:*** *All the communities sampled are involved in the collection of NTFPs. The NTFPs often collected are bush pepper, bitter kola, bitter root, walnut, rattan, bush ateryea and ganagana. People also collect leaves, roots and barks of trees mainly for medicinal purposes.*
- ***Mining:*** *Mining is one of the main sources of income in these communities. But use the open pit method of digging leave them uncovered for future agriculture purposes.This has been very risky for wildlife movement in the forest.*

3.2.2 Land tenue

From the FGDs across the communities sampled, access and right to land was said to be given by the local authorities and families who have cultivated a particular piece of land for several years. Some of them inherit the farm land from their parents. However, it was revealed by some of the discussants that in most cases, community members claim a particular piece of land after they have cultivated it for at least 10 years. Informal land demarcation between communities were revealed. As such, every community has their land area by local understanding to carry out their farming activities. Interestingly, no land conflict was revealed. This is because, there is a vast land and few communities to cultivate the land.

3.3 SOCIAL, CULTURAL AND ECONOMIC DIMENSIONS OF LANDSCAPE DEGRADATION;

This section details the respondents' way of life and their economic activities in the landscape;

3.3.1 Sociocultural dimension

Social practices in the forest landscape adversely affect forest landscape conservation if relevant measures are not observed. Generally, the cultural practices of residents across the Gola Forest landscape were inherited from their grandparents and some have been imported from neighbouring countries. However, the FGDs revealed two major secret societies for men (Poro) and the women (Bondo). These societies are both performed in the forest by members only. Other cultural practices were revealed as follow;

- Friday is rest day/prayer day/market day
- Ramadan at the end of fast (Donky Salay)
- Christmas holiday (every 25th December)
- Liberia Independence Day (July 24)
- Easter day

3.3.2 Economic dimension

This measurement variable was captured to understand the perceived incomes and expenditures of the forest landscape residents. Data were analyzed as indicated in the tables below. From the analyses, it is clear that their average perceived incomes stated is less than their average expenditures.

Table 7: Summary of income by category

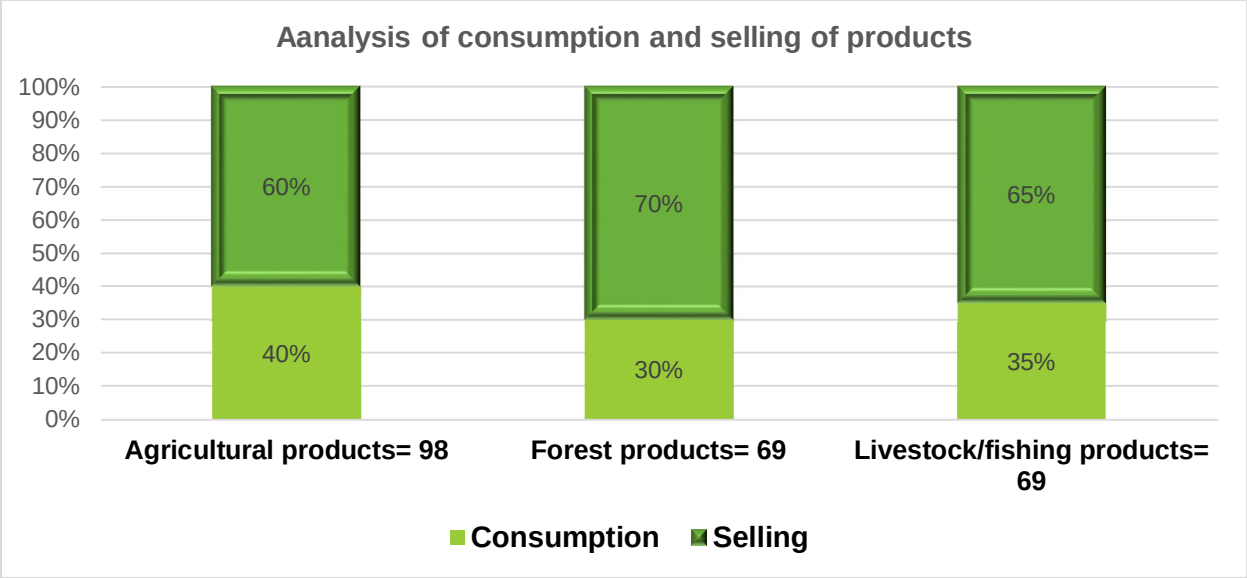
Descriptive analysis of income (Liberian Dollar-LD))					
Source of income	**r**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Income from Agriculture	140	0	200,000	32,930	44,188
Income NTFT	140	0	100,000	5,214	13,409
Income from Livestock	140	0	200,000	4,744	22,470
Income from mining, remittances etc	69	0	700,000	107,754	129,820

Source: Household survey, 2019

From the tables above, mean income from remittance and mining exceed income from agriculture. This may be as a result of subsistence farming and selling of products at very low prices. In the FGDs discussants revealed that almost half of their agricultural products are for household's consumption.

3.3.3 Selling and consumption of products

The chart below shows that more than half of all the products were sold for income, yet the average income from selling of products was less than average income from mining and remittances. However, agricultural products (rice, bitter balls, yam etc) were consumed more than other products. According to respondents, these products are used to provide daily food for the households. And the proportion of all the products sold are basically to address other household economic needs (health, school fees, transportation etc).



Source: Household survey, 2019

Figure 10: Analysis of consumption and sales of products

3.3.4 Summary of expenditures by category

From the expenditure analysis table below, it is surprising that the mean expenditure on mobility/travels (LD 38,224) far exceeds the mean expenditure on electricity (LD 943) and no expenditure on tree planting. If fact, respondent revealed that they don't involve in any tree planting apart from their economic trees (cocoa, coffee etc).

Table 8: Descriptive analysis of expenditure

Descriptive analysis of expenditure (LD)					
Expenditure Category	**n**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Health	140	1,000	150,000	27,407	26,934
School	140	0	50,000	7,760	8,754
Petroleum	140	0	1,204,500	12,414	103,881
Electricity	140	0	30,000	943	3,593

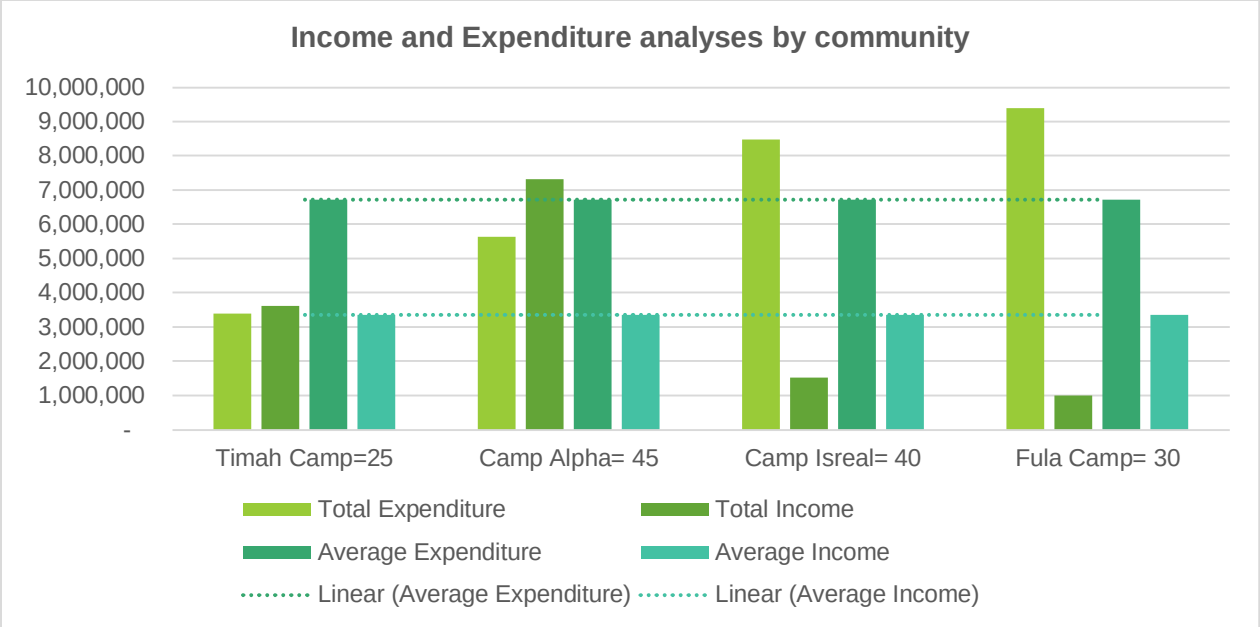
Fuel wood	140	0	63,000	9,434	11,570
Purchase physical goods	140	1,500	100,000	14,574	15,526
Mobility/travels	140	0	171,000	38,224	35,833
Clothes	140	1,200	250,000	30,364	31,950
Ceremonies	140	0	200,000	22,086	33,905
Agriculture	140	0	150,000	22,297	25,195
Hunting	140	0	300,000	6,513	28,257
Planting trees	140	0	0	0	0

Source: Household survey, 2019

3.3.5 Combined income and expenditure analyses

Across all the communities, the average income is less than the average expenditure; LD 3,359,825 ($17,871) and LD 6720,550 ($35,748) respectively. This means that most of the respondents did not revealed their actual income due to none-recording and partly the low literacy level among them. However, analysis of their daily income shows that their average daily income was LD 263 ($1.40/day), which exceeds the World Bank Poverty line rate analysis, $1.25/day[20].

[20] The World Bank has announced that about 54 percent of the population of ***Liberia*** is living below the ***poverty line***. This means they live on less than $US2. 00 a day, 2016



Source: Household survey, 2019

Figure 11: Analysis of consumption and sales of products

The above chart is a clear indication that forest households fully rely on the forest for their consumption and economic survival.

3.4 ACCESS TO FACILITIES AND INFRASTRUCTURES

Generally, across the sampled communities and beyond, FGDs and participant's observation by the researcher (shown on the moto-bike) revealed that access to market for agricultural products was a huge challenge. This is the reason why most of the products perish before reaching the nearest market places. Movement from one community to another requires moto-bikes and very few places are accessible by vehicles (4WD). The road is a major challenge especially during the rainy season. Therefore, transportation fare is too expensive to travel in the Gola landscape. Embedded is a photo showing a timber-bridge between Weajue and Fula Camp communities. The condition of this bridge is an exact representation of many other bridges across the landscape. This has created huge limitation to vehicular movements to transports agricultural good to the markets. In addition, the absence of schools and health centers was noted during the FGDs. Across the landscape, very few villages have schools and most of the time, the education cycle is not complete (one or two classes). The level of education is very low in the different communities visited. Common sanitation systems are inexistent. Access to water is through manual pumps installed in almost all the different villages visited. However, there is no form of water treatment in place. All the communities sampled had difficulties

in accessing communication networks. Most of the villages are not covered by the phone and internet networks. In some areas people have special places where they go for making calls, some even climb trees to access phone networks. Radio frequency is also limited. UN Radio is the most widely listened station and other frequencies struggled to receive include Liberia Broadcasting Systems and Truth FM.

3.5 CULTURAL AND SOCIAL LANDSCAPE PRIORITIES AND THEIR ALIGNMENT WITH RESTORATION ACTIVITIES;

The diversity of culture and tradition across the Gola landscape greatly influence the communities' interaction with the forest landscape. From all the FGDs, it was clear that community members deeply need the forest for diverse social and economic activities both at community and household levels. Summary of their priorities as follows;

- Any forest restoration activities should respect their secret society bushes ('Poro' for men and 'bondo' for women)
- A portion of the forest should be given to the communities to perform their secret society activities
- The forest restoration agencies (IUCN, MRU or FDA) should employ the community indigenes as part of the forest guards.
- "Foreign forest guards or workers should not tamper with our wives"
- Construct Health centers
- Construct Water facilities
- Construct Youth centers
- Provide Communication network facilities
- Construct Toilet facilities
- Provide Youth employment supports
- Construct primary and secondary Schools and support pupils and Teachers

3.6 SOCIO-ECONOMIC PRIORITIES OF STAKEHOLDERS THROUGHOUT THE LANDSCAPE(S);

This section captures summary of priorities for social and economic considerations in forest restoration;

3.6.1 Socioeconomic priorities

Generally, from both the household and FGDs, communities in and around the forest highly depend on the diverse forest resources either directly or indirectly. About 85% of the FGD participants asserted that the forest is their main livelihood source through the following;

- Farming
- Fishing
- Mining
- Collection of NTFP
- Hunting
- Sacred sites

- Secret society ground
- Logging
- Charcoal production

Therefore, prioritizing forest restoration over the above activities will require relevant alternative sources of income with appropriate buffer zone for these activities. Preferred intervention are economic trees; cocoa, rubber and oil palm.

3.6.2 Places where forest products are collected

Households were asked to indicate places where they collect forest products. The table below indicates the analysis of their first and second choices;

Table 9: Analysis of places where forest products were collected

Analysis of places where forest products were collected				
Forest products' collection points	**1st Choice**		**2nd Choice**	
	HHs	**Percent**	**HHs**	**Percent**
Home Garden	5	4%	40	29%
In agricultural farming	29	21%	30	21%
In community forest	52	37%	9	6%
In forest reserve or national park	1	1%	11	8%
In mining concession	31	22%	14	10%
In the fallow	22	16%	28	20%
In cocoa and coffee farming	0	0%	4	3%
In forest concession	0	0%	4	3%
Total	**140**	**100**	**140**	**100**

Source: Household survey, 2019

In the table above, 37% of the respondents stated community forest as their first source of forest products for their livelihoods and 29% stated home garden as their second place for collecting forest products. However, discussions from the FGDs clearly uncovered that fact that national reserve is guarded by the forest guards, most community members refrain from legally entering the reserve for harvesting of any forest product. Based on the researcher's observation and analysis of body language in the FGDs, community members harvest forest products from the reserve (medicinal herbs, fish, Non-Timber Forest Product, animals etc). Given that some of them are aware of the national protection pronouncement and law, they were not very comfortable to express all the dependency on the forest resources.

3.7 CATALOGING THE SOCIALLY AND ECONOMICALLY IMPORTANT BIODIVERSITY (GENES, SPECIES, ECOSYSTEMS) WITHIN THE LANDSCAPE(S).

Generally, across the communities surveyed, various plants and animal species were revealed in local dialects, but these species were all discovered in the previous researches; chimpanzees, pygmy hippos, forest elephants, different duiker species, White-necked Picathartes, White-breasted Guinea fowl), their habitat requirements and threats were also revealed. Common plant species revealed were; Cynometry *leonensis* and *Brachystgia leonensis*. However, the most dominant tree species was *Heritiera utilis* (Sterculiaceae) and Herbalists in the FGDs confirmed that the *Heritiera Utilis* serves as a very good herb for many diseases.

3.8 GENDER-RESPONSIVE RESTORATION STRATEGIES

The male to female ratio is on average 3:1, which implies that there are 3 times more men than women in the communities sampled. This may be due to the Dimond mining activities in the villages as such mining is mainly done by men.

In almost all the FGDs with women and men separately they demanded for holistic gender inclusion and gender sensitive intervention. Most of the discussants mentioned that for far too long, women gave not been given equal opportunities as men in the employment paradigm, especially in implementation of community development projects, but hope to seeing this restoration with a difference. Summary of suggestions gathered from the FGDs are as follow;

- Inclusive forest management training programs
- Provide scholarship for school going children across the communities targeted
- Provide employment opportunities on an equal opportunity basis (for men and women)

3.9 COSTS AND BENEFITS (SOCIAL, ECONOMIC, AND BIOPHYSICAL) OF FOREST LANDSCAPE RESTORATION OPPORTUNITIES IN THE LANDSCAPE(S);

The Cost Benefit Analysis (CBA) was designed to capture the costs and benefits associated with the preferred forest landscape restoration options per hectare/ year for specific preferred intervention. It was intended to capture the monetary values of social, biophysical and economic parameters as described below;

Social cost: The Social Cost is the cost related to the implementation of the proposed intervention, but is not explicitly borne by the implements instead it is the cost to the society due to the implementation of the preferred option.

Social benefit: Social benefit is the total benefit to society from implementing or consuming produce of the preferred intervention options.

Biophysical cost: This is the environmentally negative effects that will be created as a result of the preferred interventions
Biophysical benefit: This is the environmentally positive effects that will be created as a result of the preferred interventions

Economic cost: The economic cost is based on the cost of the alternative chosen and the benefit that the best alternative would have provided in a year if chosen.

Economic benefit: Economic benefits are often used to determine what may be gained from the preferred intervention per year.

However, respondents only provided monetary values for the economic parameter as indicated in the tables 10 & 11.

Table 10: Cost Benefit Analysis (CBA) of Prioritized FLR options

Cost Benefit Analysis of the identified Forest Restoration Options						
FLR Intervention option	**Social Cost/Ha (LD)**	**Biophysical Cost/Ha (LD)**	**Economic Cost/Ha (LD)**	**Social Benefit/Ha (LD)**	**Biophysical Benefit/Ha (LD)**	**Economic Benefit/Ha (LD)**
Cocoa			88,700			355,320
Oil Palm			1,848,000			10,800,000
Rubber			?			?
TOTAL						

Source: FGDs in FECs, 2019

In table 10, oil palm plantation costs and benefits exceed the cocoa plantation for every one hectare per annual. Further analysis of the net benefits in table 11 clearly shows that oil palm plantation is the preferred option with the highest monetary benefit.

Table 11: Net Benefit of CBA of FLR Options

Net Benefits of CBA of FLR Options				
FLR Intervention option	**Total cost (LD)**	**Total Benefit (LD)**	**Net Benefit (LD)**	**Benefit-Cost Ratio**
Cocoa	88,700	355,320	266,620	4.0
Oil Palm	1,848,000	10,800,000	8,952,000	5.8
Rubber	?	?	?	?
Total	1,936,700	11,155,320		

Source: FGDs in FECs, 2019

The above CBA clearly indicates that the oil palm FLR option will be the most beneficial intervention with a benefit cost ratio of 5.8, as opposed to the cocoa with benefit cost ration of 4.0.

3.0 CONCLUSIONS AND RECOMMENDATIONS

This section explains the conclusions and key recommendations for policy actions and forest restorations.

4.1 Conclusions

This socioeconomic assessment was done with strong focus on establishing a baseline for the restoration interventions across the Gola Forest landscape. Hence, both quantitative and qualitative assessment methods were employed to fully establish the perceived existing facts of residents and detailed explanation of their attitudes, behaviours and practices towards the forest. Four (4) forest communities were purposively selected, coupled with a random sampling of 140 households across those communities for the quantitative assessment and at least 64 community key stakeholders were reached through the Focus Group Discussions (FGDs). Researchers' experiences and observations were also detailed to further clarify specific areas of restoration interest.

Generally, it was evident that most of the adults' household heads were married with average household size less than the national household size, but strongly rely on the forest land and resources for their livelihoods and economic activities. However, the majority of the household heads interviewed expressed willingness to relocate from the forest if their suggested intervention package is agreed upon and provided.

Various agricultural activities were mentioned, but farming, through shifting cultivation, coupled with slash and burn method was revealed as the major agricultural activity across the landscape. This practice serves as a major driver of forest biodiversity degradation with a long-term regeneration period. Almost 144 ha of forest is cleared annually for farming activities. Mining was second on the list of livelihood activities across the landscape, which is mostly done all year round through the open-cast mining system. This unsustainable utilization of forest landscape will degrade both the watershed and landscape. It further destroys wildlife by trapping them into the uncovered open cast holes left uncovered by the miners.

The common ground for socialization was revealed as the prominent sex specific secret societies; Poro for men and Bondo for women. These societies were revealed as sacred practices done on a specific location in the forest, where none-members are restricted from full access to any activity. Historically, these demarcated forest areas for secret society activities were revealed as culturally protected forests with the notion of hiding their cultural activities from non-members. From the assessment, average income from mining and remittance ($574) exceeded average income from agriculture and other economic activities. This is due to the precious minerals accessed through mining and the monetary value accrued from any piece of diamond or carats of gold. Also, the average expenditure on travels ($17,871) was revealed higher than all other expenditure categories. This clearly indicates that movement within the Gola forest landscape is very expensive using commercial means. At the same time, the movement from the forest to commercial towns is costly. As a result, most of the agricultural produce perish after harvest, while waiting for marketing.

Moreover, communities in and around the forest highly depend on the diverse forest resources either directly or indirectly for their continuous livelihood source through the following; farming, fishing, mining, collection of NTFP, hunting, sacred sites, logging, charcoal production etc. Therefore, prioritizing forest restoration over the above activities will require relevant alternative sources of income with

appropriate buffer zone for these activities. The forest is vast with diverse plants and animal species, which allowed for appropriate forest biodiversity conservation.

In addition, the presence of diamond and gold across the forest strongly attract foreigners from the neighboring countries; Sierra Leone and Guinea. Hence, the population across the landscape is completely dynamic with respect to the availability of diamond and gold at a particular given location.

Finally, respondents emphasized the inclusiveness of all forest restoration interventions to ensure gender equality and their corresponding equity. Cost benefit analysis clearly revealed that oil palm plantation will be the most economically viable restoration interventions across the landscape. Therefore, investing in oil palm plantation with leverage the most appropriate economic benefits for the affected communities and the landscape at large.

4.2 Recommendations

Policy recommendations

- Government should seek for investment in forest landscape restoration to reduce the pressure on the available upper Guinea transboundary Forest. The FDA should work in collaboration with forest donors (IUCN etc) to fully invest in the preferred restoration options.
- Government should empower the forest guards to fully enforce the forest protection laws. More forest guards should be employed to increase their presence in the protected forest.

Recommendations for restoration interventions

- Forest co-management committees should be established or strengthened in all intervention communities to ensure close monitoring and supervision of all the activities.
- Further engagements with key affected persons across the selected intervention community should be done to fully understand their needs and responsibilities in the restoration interventions. This should be done to reduce community resistance and increase acceptability
- Socioeconomic conditions are very dynamic, especially with an unstable population. There is need to quarterly or semi-annually update the population and forest use data to fully inform the restoration intervention methodology.
- There is need to conduct a full ground-truthing to verify the degraded areas prior to intervention
- Gender consideration has been the top most priority in every development intervention. The forest restoration interventions should fully consider the needs of every gender and make the implementation inclusive.

Annex 2: Household Questionnaire and Focus Group Discussion Guide

ROAM Household questionnaire (15-20 minutes)

Pays 1 = Liberia 2= Guinea 3= Sierra Leone (circle)

Site _____ Village: _____ Group: _____ Name head of the Group: _____

Number I HH group

Questions	Reponses	
Age of household head (or year of birth)		
Level of education	0= no education 1= primary school; 2= secondary school ; 3= university ; 4= professional training	
Marital status	0= single ; 1= married ; 2= divorced ; 3= widowed	
Size of household (give the number of peoples that actually live in the house)	**Males :** _____ 0-5 years : _____ 5-18 years : _____ 18-50 years : _____ > 50 years : _____	**Females :** _____ 0-5 years : _____ 5-18 years : _____ 18-50 years : _____ > 50 years : _____
Are you notable in chieftaincy for conflict resolution?	0= no ; 1=yes	Have you benefited from a project in the last 2 years to improve: Agriculture : 0= no ; 1=yes Livestock : 0= no ; 1=yes Forestry : 0= no ; 1=yes Agroforestry : 0= no ; 1=yes
Are you member of legalized village association	0= no ; 1=yes	
Are you member of religious association	0= no ; 1=yes	
Have you been in contact with the state services (forestry, agriculture, livestock ...) during the last 12 months?	0= no ; 1=yes	Did you attend an awareness meeting on good land use? 0= no ; 1=yes if yes which year ? _____ Did you participate in an awareness meeting on good forest resources?? 0= no; 1=yes if yes which year? _____
Have you had land boundary conflicts with the neighbours of the village?	0= no ; 1=yes	
Did you clear any forest for agriculture in 2018?	0= no ; 1=yes estimate length _____m and width _____m	
If yes give the reason for clearing this space		
If yes what is the distance from your house?	_____ km or _____ hours for walking	
If not in what year did you last clear a virgin forest for agriculture??		
Have you ever heard of REDD+?	0= no ; 1=yes, if yes since which year ? _____	
Utilisation of agriculture inputs in your farms	fertilizer 0= no ; 1=yes : Pesticides : 0= no ; 1=yes ; Engine for plot 0= no ; 1=yes	
Use of chainsaw to prepare the fields	0= no ; 1=yes	
How many years do you leave a plot before returning to cultivate the same place?	_____ years why ?	
Estimate of expenditure for one year (in local currency) **Note:** put 0 in case the person does not make the expense	health : _____ ; School for children : _____ ; Petroleum : _____ ; electricity ; _____ ; fuelwood _____ : purchase physical goods _____ ; mobility (travel) _____ ; clothes _____ ; organisation of ceremonies _____ ; agriculture activities _____ ; hunting activity ; planting trees _____ _____	

Cash Income Estimate (refer to the list of products in Tool 4, the head of household selected an item where he or she can give accurate +/- information on the income earned in 2013)	**Agriculture Products** Name of product _____ Estimation of cash income : _____ **NTFP** Name of product _____ Estimation of cash income : _____ **Livestock products** Name of product _____ Estimation of cash income : _____ **Other** Name of product _____ Estimation of cash income : _____	Rank the place where you collect the forest product for your HH (1st 2nd 3rd ….) In agriculture farming (_____) In the fallow (_____) Home garden (_____) In cocoa and coffee farming (_____) In forest reserve or national park (_____) In forest concession (_____) In community forest (_____) In mining concession (_____) In other (precise_____) (_____)
Consumption and selling of product (score / 20)	**Agriculture Products :** Consumption in HH ___/20 Sell ___20 **Forest product/hunting** Consumption in HH ___/20 Sell ___20 **Livestock/fishing** Consumption in HH ___/20 Sell ___20	

FOCUS GROUP DISCUSSION GUIDE

What is the total population living in the intervention landscapes? How has it changed over time?

What areas are occupied by the villages and village activities-Estimated area in Acres?

What are the estimated human migration flows in the project landscapes- give percentage outflow and inflow and why?

What value chains exist in the landscapes? Including main fruit products and which have the highest export volume or value?

What are the revenues from natural resources commonly used by local communities within the intervention landscapes? What do they commonly use the revenue for?

Which economic activities attract more foreign investment or involvement in the project landscapes?

What land use options exist at the landscape scale?

What are the market access conditions? What is the level of accessibility of the villages? Road conditions and travel effort?

What traditional or indigenous species that exist and access by gender?

What institutions and organizations work in the landscape? What is their level of interest in forest landscape restoration (tree-based agricultural system)? What is their social or economic influence for restoration?

What are the roles of women, men and youth in agricultural systems?

How are the costs and benefits of economic activities and social responsibilities for restoration distributed between men and women?

What influence does culture have on the restoration or degradation activities? (Opportunity or barrier?)

Annex 3: Focus Group Discussion Participants' List

Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
	Kemah Sando	F	Camp Alpha	N/A	N/A	Section Chairlady	N/A	N/A	
	Korto Sumo	F	"	"	"	Youth Chair	N/A	"	K S
	Issatu Jalloh	F	"	"	"	Chairlady	"	"	
	Anne T. Kemuie	F	"	"	"	member	"	"	
	Kumba Pepay	F	"	"	"	member	"	"	
	Fatee Mansaray	F	"	"	"	member	"	"	
	Princess Jalloh	F	"	"	"	member	"	"	
	Aminata Conteh	F	"	"	"	member	"	"	
	Musu Kromah	F	"	"	"	member	"	"	
	Fanta Sawannah	F	"	"	"	member	"	"	
	Fatu Pepay	F	"	"	"	Youth member	"	"	
	Jusu Dunor	m	"	"	"	General town chief	"	"	
	Mohamed Pepay	m	"	"	"	Town chief	"	"	PEPE
	Musa Sannoh	m	"	"	"	Elder	"	"	
	Augustine Gborie	m	"	"	"	Elder	"	"	

2

Fanja	Johnson	Camp Alpha	N/A	Elder	N/A	N/A	N/A
Foday N.	Nomon	"	"	"	"	"	"
Lansana N.	Kamara	"	"	"	"	"	"
Issa	Dumbuya	"	"	"	"	"	"

--Fagia

Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1	Eva Walkria	F	Camp Israel	Sister Care	Local	Adviser	N/A	N/A	Eva
2	Jartu Emmanuel	F	"	"	"	Vice president	N/A	N/A	
3	Amelia Charles	F	"	"	"	Collector	N/A	N/A	A C
4	Mamie Demmie	F	"	New Vision	"		N/A	N/A	MDMIC
5	Anita Garison	F	"	"	"	Member	N/A	N/A	AGisol
6	Hawa Ndomma	F	"	"	"	"	N/A	N/A	
7	Korwu S. Joe	F	"	Sister Care	"	President	N/A	N/A	KSJ
8	Theresa Pine	F	"	New Vision	"		N/A	N/A	Pine
9	Jartu Essah	F	"	"	~~President~~	president	N/A	N/A	MEJ

2

Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1	Sekou Kamara	m	Camp Israel	N/A	N/A	Youth member	N/A	N/A	
2.	Mohamed Massaquoi	m	"	N/A	N/A	Elder	N/A	N/A	
3.	Flomo Zayzay	m	"	N/A	N/A	Tribal Head	N/A	N/A	
4	Armah Kanneh	m	"	N/A	N/A	Town Chief	N/A	N/A	
5	Amadu Bility	m	"	N/A	N/A	Hunter	N/A	N/A	
6	Balla Jalloh	m	"	N/A	N/A	Tribal Head	N/A	N/A	
7	Ibrahim Sannah	m	"	N/A	N/A	Farmer	N/A	N/A	
8	Ginna Janjah	m	"	N/A	N/A	Tribal Head	N/A	N/A	

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Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1	Mohamed Kamara	m	Fula Camp	N/A	N/A	Town elder	N/A	N/A	
2	Peter Kemu	m	Fula Camp	N/A	N/A	General Town Chief	N/A	N/A	
3	Moses Kotee	m	Fula Camp	N/A	N/A	Town Chief	N/A	N/A	
4	Ibrahim K. Swaray	m	Fula Camp	N/A	N/A	Teacher	N/A	N/A	Swaray
5	T. Momo Ricks	m	Fula Camp	FOA	Government	Ranger	0886287343	N/A	
6	B. Leo Sannon	m	Fula Camp	N/A	N/A	Youth	0886753591	N/A	
7	Alvin Gono	m	Fula Camp	N/A	N/A	Ecoguard	N/A	N/A	
8	Mulbah Moon	m	Fula Camp	N/A	N/A	Dean Elder	N/A	N/A	
9	Francis Varney	m	Fula Camp	N/A	N/A	Peaceful Citizen	N/A	N/A	

2

Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1.	Babe Smith	F	Fula Camp	N/A	N/A	Youth Member	N/A	N/A	S.B
2.	Bendu Dolo	F	"	N/A	N/A	"	N/A	N/A	
3.	Omie Kemu	F	"	N/A	N/A	Elder	N/A	N/A	
4.	Jenneh Dahn	F	"	N/A	N/A	Chairlady	N/A	N/A	
5.	Magret Ensah	F	"	N/A	N/A	Elder	N/A	N/A	
6.	Promise Dennis	F	"	N/A	N/A	Elder	N/A	N/A	
7.	Precious Dennis	F	"	N/A	N/A	Elder	N/A	N/A	Precious
8.	Marker Perry	F	"	N/A	N/A	Elder	N/A	N/A	MARKA
9.	Mariama Konneh	F	"	N/A	N/A	Elder	N/A	N/A	

2

Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1.	Babe Smith	F	Fula Camp	N/A	N/A	Youth Member	N/A	N/A	S.B
2.	Bendu Dolo	F	"	N/A	N/A	"	N/A	N/A	
3.	Omie Kemu	F	"	N/A	N/A	Elder	N/A	N/A	
4.	Jenneh Dahn	F	"	N/A	N/A	Chairlady	N/A	N/A	
5.	Magret Ensah	F	"	N/A	N/A	Elder	N/A	N/A	
6.	Promise Dennis	F	"	N/A	N/A	Elder	N/A	N/A	
7.	Precious Dennis	F	"	N/A	N/A	Elder	N/A	N/A	precious
8.	Marker Perry	F	"	N/A	N/A	Elder	N/A	N/A	
9.	Mariama Konneh	F	"	N/A	N/A	Elder	N/A	N/A	

Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1	Mary Mehn	F	Timah Town	N/A	N/A	Women Speaker	0888158686	N/A	
2	Mary Turay	F	"	N/A	N/A	community Mobialiste	N/A	N/A	
3	Mah Flomo	F	"	N/A	N/A	Youth	N/A	N/A	
4	Makeh Flomo	F	"	N/A	N/A	Chairlady	N/A	N/A	
5.	Matta Vah	F	"	N/A	N/A	youth	N/A	N/A	
6.	Mary Tuah	F	"	N/A	N/A	TTM	N/A	N/A	
7.	Mary Mehn	F	"	N/A	N/A	Youth Chairlady	N/A	N/A	
8	Josephine Weayan	F	"	N/A	N/A	youth	N/A	N/A	
9	Klolao Fasuh	F	"	N/A	N/A	Elder	N/A	N/A	
10	Youger David	F	"	N/A	N/A	Elder	N/A	N/A	

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Section 2. Training Participants

No.	Name	Sex	Origin(Country/ community)	Organization/ Instit.	Category of Organ/Instit.	Title/Position	Phone Number	Email	Signature
1.	Williams Sumo	m	Timah	N/A	N/A	Wiseman	N/A	N/A	Williams
2.	Daniel Dahn	m	Timah	N/A	N/A	Daniel	N/A	N/A	Daniel
3.	Soko Konneh	m	Timah	N/A	N/A	Town Chief	N/A	N/A	Soko Konneh
4.	John Wesley	m	Timah	N/A	N/A	Elder	N/A	N/A	John WESLEY
5.	Mohamed Maiga	m	Timah	N/A	N/A	Youth	N/A	N/A	[illegible]
6.	Sahr Fayia	m	Timah	N/A	N/A	Santor	N/A	N/A	[illegible]
7.	George Morlee	m	Timah	N/A	N/A	~~Elder~~	N/A	N/A	[illegible]
8.	J. Darplah Zargou	m	Timah	N/A	N/A	Elder	N/A	N/A	[illegible]

Annex 4: Gola Inception Report

EXECUTIVE SUMMARY

Under the **Mano River Ecosystem Conservation and International Water Resources Management Project**, the Farmers Associated to Conserve the Environment (FACE), Forest Cry, and GREENLIFE consortium was contracted by the Forestry Development Authority (FDA) of Liberia to implement research activities in the Gola, Wonegizi, East Nimba and Grebo-Krahn-Sapo Forest Landscapes which are all transboundary to adjacent forests in Sierra Leone, Guinea and Cote d'Ivoire. The information in this report was gathered by a team of four consultants through desk studies, inception meetings and site visits in the Gola Forest Landscape of Liberia. The desk study involved accessing previous reports from organizations that have either worked in the Gola Forest in the past or are currently working there. The purpose of the desk study was to capture preliminary information from these reports in order to answer some questions relating to activities 1.2, 1.9, 1.14 and 1.17. Inception meetings were also held in communities near the Gola Forest attended by FDA staff and members of the Local Consultative Committees (LCCs) established by the project. Sites were also visited by the consultants to understand the geographical attributes of the landscape.

These initial activities have provided information to better prepare the team for the socioeconomic survey, ground truthing and mapping that will form part of the final deliverables for above mentioned activities.

Consultants

Dickson Chowolo, Activity 1.2 : forestcryliberia04@yahoo.com - 0770 215 789
Richard Sambolah, Activity 1.17: sambolah12@yahoo.com - 0886 444 697
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Overview of the Gola Forest Landscape

Gola Forest in Liberia is located in Gbarpolu and Grand Cape Mount counties located in the extreme west of Liberia, on the border with Sierra Leone. The Gola Forest National Park (GFNP) covers an area of 88,000 hectares (217,448 acres). It accounts for approximately 24% of the Greater Gola Landscape, an almost continuous tract of forest spanning the Liberia-Sierra Leone border. This tract of forest is a mosaic of protected areas, community forests and forest management projects.

The Park is primarily accessed on foot along small bush roads from forest edge villages. On its north-eastern side, there is a dirt road linking Tima village, SLC, Camp Alpha and Kungbor, though this is often inaccessible to vehicles during the rainy season. Further south, the road to Camp Israel is only accessible by motorbikes for that last section of the Park.

The Gola Forest National Park lies within the wet tropical climatic zone and has marked wet (April to November) and dry (December to March) seasons. No specific meteorological data collection has been carried out in the Park.

Inception Meetings held in the Gola Forest Landscape

Participants of the first meeting – April 5, 2019

Team of Consultants (4)
Timah Village: Mary Mehn and George Morlee
Camp Alpha: Fannia Seyegeh
FDA Staff at Gola National Park: John R. Smith – Chief Park Warden, Thomas M. Deddel - Conservation Assistant, Harrison S. Warbey - Zone Warden and G. Norkkonney Kenh – Patrol Team Leader

Participants of the second meeting – April 6, 2019

Team of Consultants (4)
Butter Hill: Victor Kallon - LCC, Julia Kallon – Town Chief, Momo Sansen - A.A and Sacko Mendegla – Youth Chair
Mafala: James Gaheney – Town Chief and Siaffa Kromah - Youth
Kawelahun: Miatta Massaley – Town Chief and Sherff Cooper – General Secretary/GFNPMC
Beduma: Menson B. Kamara – Youth Chair, Sancee Borbor – Town Chief and Momo Seh – Committee member/FMC
Soso Camp: Hazi B. Kromah – Town chief
Camp Isreal: Varney Dumah – Town Chief
FDA Staff at Gola National Park: Augustine S. David – Ranger/CFR, Geeplah A. Klogba – Ranger/LER and Darlington Fatiah – Conservation Assistant

After the four activities and their objectives were presented, the consultants asked the community representatives the following inception scoping questions:

<u>Inception scoping questions</u>

- Where is your town/village located (district, county)?
- There are how many occupied houses in your town/village?
- What are the livelihood activities the people in your town/village do (Rank from the most popular that most people are involved in to the least popular that few people are involved in)?
- Are there deforested areas in your community (i.e. large areas where forest has been destroyed)?
- Area there areas in your community where forest has been fragmented by people's activities?
- Do you have people from elsewhere (migrants) living in your town/village?
- Why have they come to live in your town/village?
- What do these people do for their living?
- Do their activities damage your forest or land?
- Tell us more about some problems your forest is facing?
- If people come to you to help you improve your forest or the way you are making your living, will you welcome the idea?
- Will you be willing to work with them?

- If they say you should sign an agreement for improving your forest or the way you are finding your living, will you sign that agreement?
- How was each area degraded? Mining, logging or farming?
- What kinds of species of trees are common there?
- What kinds of species of trees will grow well there?
- What is the size of each degraded area?
- How much will it cost to do reforestation in each site?
- What other government agencies need to be involved in the planning and implementation?
- How is this linked to the development of the land use plan?
- How is this linked to the socio-economic survey?

ACTIVITY 1.2: PRODUCE ON SITE GUIDELINES FOR RESTORING PRODUCTIVITY OF TREE-BASED SYSTEMS TO PROMOTE BEST PRACTICES OF FOREST AND LANDSCAPE RESTORATION INTERVENTIONS AND SEDENTARY AGRICULTURE PRACTICES IN KEY SECTORS AFFECTING THE FOREST ECOSYSTEM

Consultant: Dickson Chowolo

Overview of Inception Results

As part of the implementation strategy, the project has identified actions to reverse current trends in natural resource degradation. The implementation of these actions requires credible and in-depth knowledge of the area to determine intervention options. This is the rationale behind the proposed activity on the 'conduct of a survey and compilation of data on best practices and outcomes of various forest and landscape restoration interventions' such as sustainable forestry, natural regeneration, enrichment planting, reforestation, eco-friendly mining and other tree practices such as traditional and improved agroforestry systems.

As a result of the inception meeting and site visits, degraded/deforested areas were identified within 5 kilometers of the Gola National Park. There were three types of vegetation observed:

Young farm bush where gardening is carried out near communities. (Grass and small under storage plants). Some cash crops like pineapples, bananas were observed.

Secondary forest some within one kilometer distance from the communities (fallow bush with some early colonizers such as Fagara, vitex, Anthoclesta, Bussea, Xylopia- were identified. Futumia, a variety of lianas and climbers characterized this forest type, amongst others. Also some life tree farming was observed in this forest type which included crops like oil palm plots, cocoa, and some rubber.

Primary forests near communities were on high elevation where the communities could not carry out shifting/slash and burn farming system. These type of forests comprised tree species such as: Lophira, Piptadeniastrum, Terminalia, Parkia, Amphimas, lianas and climbers, and Erythrophleum, amongst others.

National Policy Instruments

- **The 1986 Constitution of the Republic of Liberia** provides for public participation in the protection and management of the environment and natural resources of Liberia.
- The **National Forest Reform Law (NFRL) (2006)** mandates the FDA to "assure sustainable development of the Republic's Forest Resources, protection of the Republic's economy, with the participation of and for the benefit of all Liberians.
- **The National Forestry Policy and Implementation Strategy (2007)**, in which the FDA adopts the '3Cs' concept to promote integrated and balanced forest management practices for Conservation, Commercial and Community uses of the country's forests.
- **The Community Rights Law with respect to forestlands (CRL 2009)** is meant to ensure the full and interactive participation of local communities in the sustainable management of the country's forests.
- **Expansion of the Protected Areas Network (2002)** that resulted in a MoU signed by the Government of Liberia and Conservation International to create additional protected areas by setting aside 30% of Liberia's forests for conservation.
- **The Wildlife and Protected Area Management Law (2016)**, aims to govern the management of wildlife resources within and outside protected areas (PAs).

International Agreements and Conventions

- **Convention on Biological Diversity (CBD**), aims to conserve biological diversity, sustainable use of its components, and ensure the fair and equitable sharing of the benefits arising from commercial and other utilization of genetic resources.
- **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**, aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
- **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**, aims to conserve terrestrial, marine and avian migratory species throughout their range.
- **The International Plant Protection Convention (IPPC**), aims to protect the world's plant resources, including cultivated and wild plants by preventing the introduction and spread of plant pests and promoting the appropriate measures for their control.
- **Convention on Wetlands (popularly known as the Ramsar Convention**), provides the framework for national action and international cooperation for the conservation of wetlands and their resources.

Governance Context

Each village belongs to a Chiefdom. The District has a Paramount Chief and a Commissioner appointed by the President of Liberia. The Clan Chief is selected by the Paramount Chief, while the General Town Chief is selected either by the Commissioner or the Paramount Chief. Town Chiefs are selected (or elected) by the community. The GFNP lies in Sokpo Clan in Kporkpa District, Grand Cape Mount County and Tonglay Clan in Gbarpolu County. The relatively high proportion of 'strangers' (people from outside a village, often migrant workers) complicates monitoring and maintenance of civil law and order as such people regularly travel back and forth across Liberia or to neighbouring countries and so often escape any control or punishment for wrong doings. All permanently settled communities create local

bylaws but the imposition of these depends to a large extent on the strength and personality of the Town Chief.

Currently, there are about 28 settlements in the Park. Due to the series of consultative dialogues held with settlers in the Park, many expressed willingness to leave the Park voluntarily without conditions, others say they will only leave if they are "fairly" compensated. The group that asked for compensation consists of individuals who have established plantations of cash crops such as coffee, cocoa and oil palm in the Park. The Plan recommends that Park Management negotiate with all settlers to continue to relocate themselves voluntarily, and that this activity should be organized and administered by the Co-management Advisory Body. Partners and stakeholders of the Park should be consulted to lend support to the process of negotiation and voluntary relocation. The Body, among others, could assess the claims for compensation and decide what compensation is fair and just.

National Context

As a signatory to the Convention on Biological Diversity, Liberia pledged at least a 10% set-aside of her suitable landscape(s) for Strict Protection and 30% of protection and multiple-use. Creation of the Gola Forest National Park (88,000ha) is a laudable response. The other National Parks and Nature Reserves that had been gazette are the Sapo National Park (180,363 ha), East Nimba Nature Reserve (13,500 ha), Lake Piso Multiple Use Reserve (33,419 ha), Wonegizi Nature Reserve (37,979 ha) and Grebo-Krahn National Park (96,149 ha). Sapo National Park (SNP) is located in Sinoe County, Liberia and is the country's largest and oldest national park. Established in 1983, it stretches over 180,000 hectares and forms part of the Tai-Grebo-Krahn-Sapo Transboundary Forest Landscape between Liberia and Cote d'Ivoire. Efforts must be stepped up to create more reserves and parks in the face of the unprecedented threats Liberia's remaining forests face. GFNP is the third largest existing National Park in Liberia.

ACTIVITY 1.9: THE PRODUCTION OF OPPORTUNITY MAPS FOR RESTORATION OF DEGRADED AREAS

Consultant: J. Negatus Wright

Overview of Inception Results

In keeping with the Terms of Reference (TOR) for Activity 1.9, which is aimed at the production of opportunity maps for restoration of degraded lands in and around Gola Forest National Park, this report provides an overview of the field exercises that were held in the landscape.

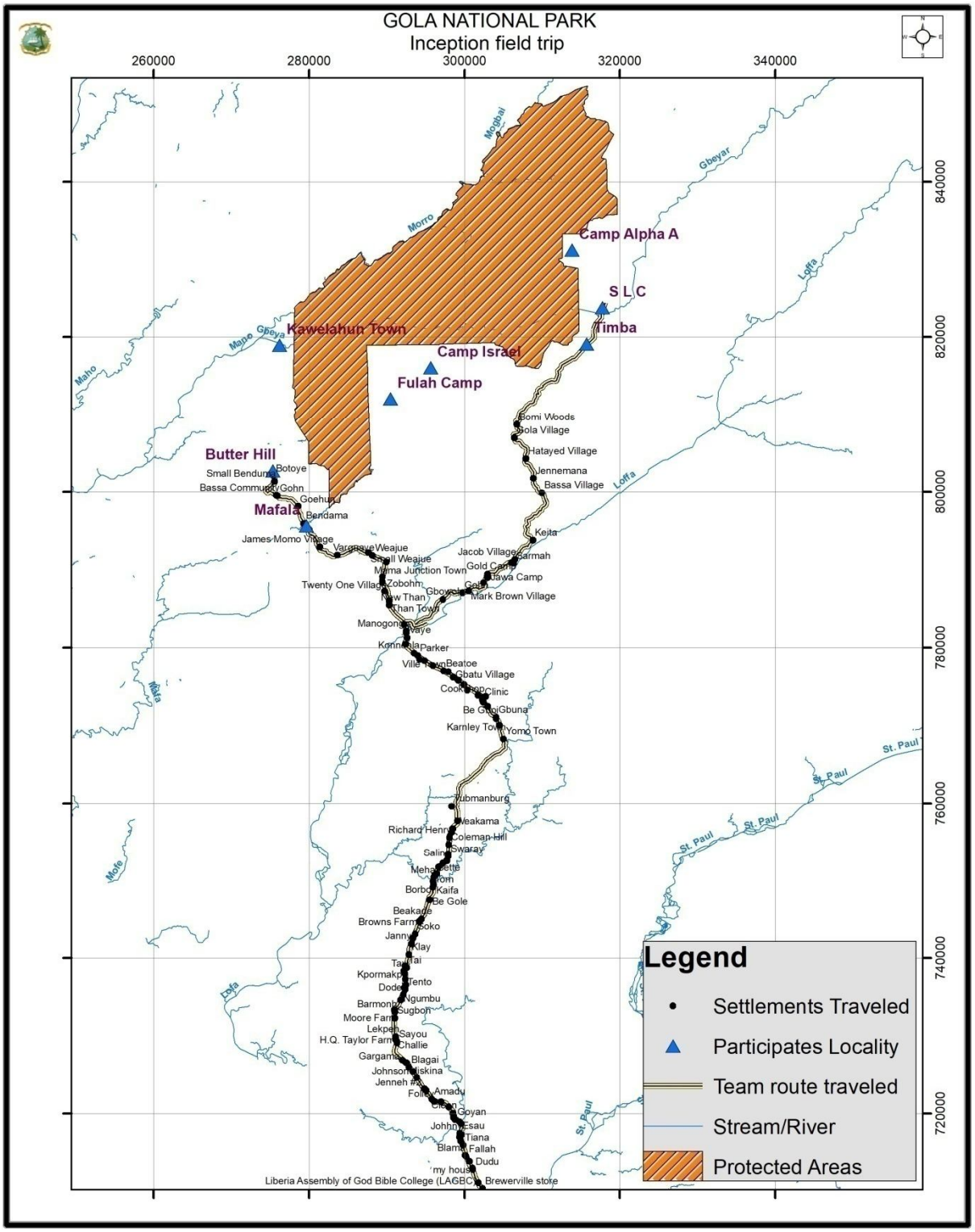
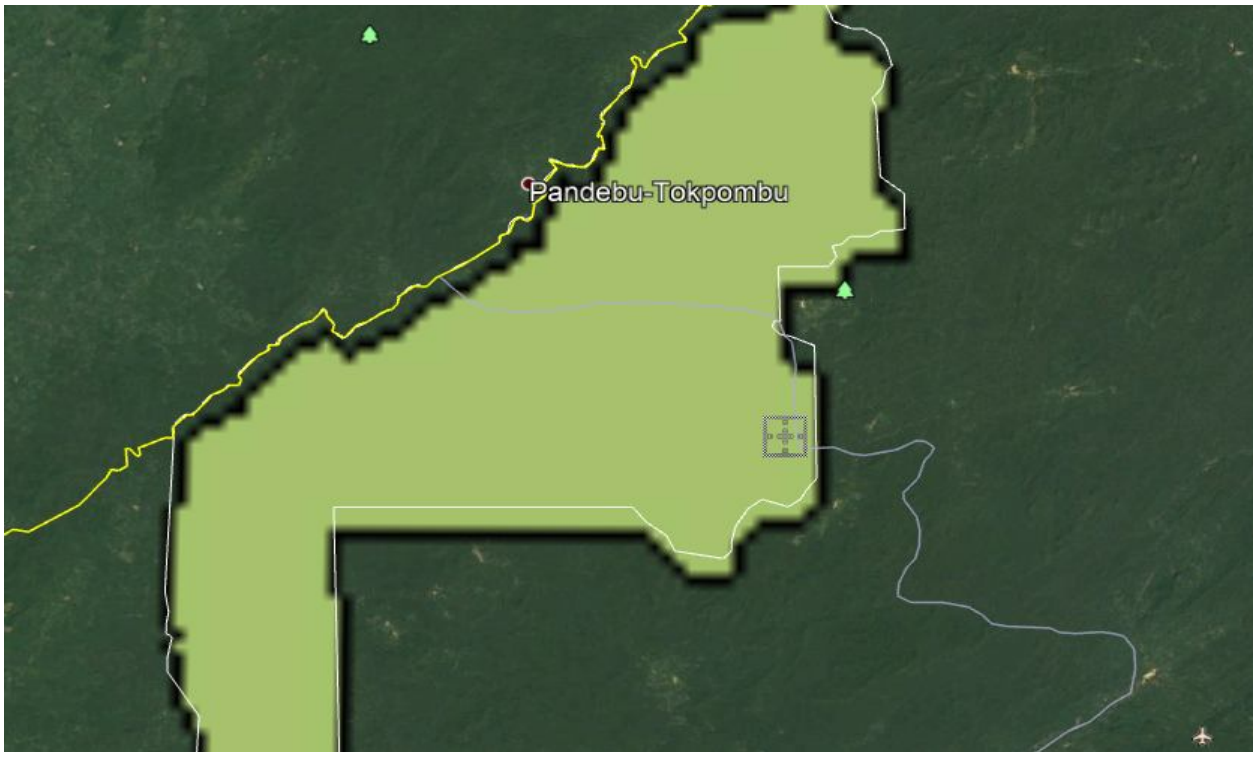


Figure 12: Map of the Gola landscape

The main causes of land degradation and deforestation in Liberia are agricultural activities mainly subsistence farming, mining, timber extraction or logging, population growth and charcoal production. During the inception meeting in the Gola Forest Landscape, some dwellers mentioned that mining, pit-sawing and farming are the main activities being practiced and are the main drivers of deforestation and forest degradation.

Figure 13: satellite image showing areas of deforestation around the Gola landscape

The areas indicated on the satellite image need further field verification to identity their nature of deforestation, as to whether it's a result of agriculture or mining practices.



Population growth is another factor causing deforestation and land degradation around these landscapes. More people from different parts of Liberia and neighboring countries are settling around these protected areas and doing farming and mining activities as their main livelihood activities. It is of no doubt that if measures are not put in place, deforestation and land degradation would be on the increase.

Next in line to this report is to come up with opportunity maps which would guide us in the implementation of this project. The maps will show areas where deforestation and or land degradation is on the increase. This is where activities 1.2 and 1.9 will come together to produce maps for the sites selected for forest restoration.

ACTIVITY 1.14: COLLECTION OF INFORMATION ON HUMAN POPULATIONS, SOCIOECONOMIC DYNAMICS IN ORDER TO ASSESS THE ORIGIN OF THREATS TO NATURAL RESOURCES AND IMPACT ON LIVELIHOODS AND SUSTAINABLE RESOURCES MANAGEMENT

Consultant: Archie Bawo

Overview of Inception Results

After an intense desk study, inception meeting and field visit to the Gola Forest Landscape, the consultant captured the total population living in the Gola intervention sites, identified areas occupied by the villages, various land use options, market access conditions, level of accessibility in the villages, road conditions, organizations working in Gola and their influence.

Population at 18,519 (Bulte et al 2012).

From the consultations and review of existing documents, there are 106 forest dependent communities representing about 10,055 inhabitants covering two counties (Grand Cape Mount and Gbarpolu) for the Gola forest.

The offsite/buffer zone of 5Km analysis in the protected area is being considered in these landscapes as seen in the map below prepared by LISGIS. It contains approximately 54 communities in the Gola Forest Landscape. The project is focused on 9 communities in the 5km buffer zone and 130,478 people (based on the population census of 2008 LISGIS).

Livelihood

Livelihood activities are the key drivers to forest degradation around the Gola Forest National Park. Forest edge communities are highly dependent on the natural resources around them and use these opportunities for self-employment. Livelihood options include shifting cultivation agriculture, logging, pitsawing, hunting, mining, charcoal/fuelwood production and the extraction of Non Timber Forest Products (NTFPs). Indirect threats to the Park are the lack of appreciation of the ecosystem services forests provide, weak governance at the borders and poverty.

The following are livelihood activities revealed by community members:

- Mining (done deep in the forest)
- Upland farming (shifting cultivation)-rice, cassava, vegetables (done at the edge of the primary forest)
- Hunting (monkeys, hippo, chimps and others)
- Petty trading

There are two types of communities; the more permanent and stable communities - which have developed retail services, timber/pit sawing, cocoa and coffee cultivations and more established houses (with zinc roofs), and the unstable transient towns or camps which are established or only inhabited in the dry season when mining activities take place.

Camp Alpha Community

Camp Alpha, Gbarpolu County, was established by a foreign diamond miner named “Alpha” in 1965 as a base camp for mining activities. The land was initially owned by the Gola people. From 1975 to 1985, some people from surrounding counties migrated into the settlement and gradually expanded. Since then, the community has received immigrants from diverse cultural and societal backgrounds (from Sierra Leone and Liberia) as a result of its mineral deposition. Various tribes are found in the community such as Mende, Madingo, Gbande, Kpelle, Lorma, Gola and others. Discussions with members of the chiefdoms revealed that most of the residents are migrants from neighboring communities and countries such as Sierra Leone and Guinea.

In Camp Alpha, populations depend mostly on subsistence farming but other key activities are mining and hunting. These activities have the potential to alter the environment and destroy the habitats of species leading to major local species extinction.

Camp Alpha is one of the forest edged communities located north-east of the Gola Forest National Park, approximately 1 kilometer from its boundary. It has a population of about 2,000 inhabitants, mostly miners and hunters who until 1977 were not allowed by the Government to mine in the area. However, government has recognized the need to allow them to mine and has been granting permits for mining in forest areas around the community. Community members expressed a cultural diversity as a result of the rapid immigration for mining. This has been fueled by the huge deposit of minerals in the Gola Forest particularly diamond and gold.

In Camp Alpha, mining was revealed as the most common activity amongst community members. Artisanal mining is the second challenge for the conservation of the forest. Artisanal/uncontrolled mining is a major threat, as it has attracted large populations who, according to community leaders, have unlimited boundaries into the forest. The mining license fee is $150 USD.

Diamond mining is causing the creeks to dry up in the forest. The diamond diggers dig pits and don't refill them. This creates traps for animals. Miners are traced by dirty water coming from their mining sites.

In Camp Alpha, it was noted that community members are unwilling to comprise their access to natural resources, namely wildlife hunting and mining.

Butter Hill Community, Grand Cape Mount County

Butter Hill Community is located 1 hour 30 minutes walking distance from the Gola Forest National Park close to the demarcation point, adjacent Banju Community, which is in the buffer zone. The people of Butter Hill include all the sixteen tribes of Liberia and Temne from Sierra Leone as well as Mandingos and Fulas. Sierra Leoneans can't carry out any activities on the Sierra Leone side of the Gola Forest so they come on the Liberia side to carry out activities because the forest has no protection status.

In Butter Hill, gold mining is common and the women are also involved. They've been mining gold from as far back as they can remember. But gold mining is more difficult than before because the population of Butter Hill has increased over the years. Only the hills are left for gold mining, as the miners have dug all the lowlands. They have already started digging up the hills and the work is harder. They haven't seen diamonds in Butter Hill, but in Ejokbay, another community adjacent to Butter Hill, there are old diamond mining pits. The men from Butter Hill said gold mining brings money every day. One man can take home up to $2 per day easily.

In Butter Hill, while the men are in the bush, the women are on the farm. One gold miner said his wife is his treasurer because if he keeps the money, it will finish fast. Gold is sold in grams and 4 grams cost around $33. After mining and packaging the gold dust, they sell it and share the proceeds among three men, which is about $11 per man. This could take up to one week to accomplish. They have to rent water pumps and it is at this particular point they have to credit money. They also credit food from the local traders before starting the work. After receiving the proceeds from the gold digging, the men pay their debts and give the rest of the money to their wives. Unlike diamond mining, gold mining doesn't need supporters. In Butter Hill, Liberians and other Nationals go there to buy gold and rent out water pump machines.

Some men do rice farming and women make vegetable gardens to sell. However, the rice and vegetables are grown for their own consumption and to feed workers, as there is no way to transport farm goods from Butter Hill to other communities.

Butter Hill has 1,500 people and no police. They have a government clinic with no toilet. There is another clinic structure but it's not opened yet. They have no hand pump, no town hall, and no guesthouse. During the dry season, they have to walk 1 hour for water. There is no national cellphone network coverage in Butter Hill. They use Airtel from Sierra Leone but the calls made are international calls and their credits finish fast.

Local governance and management of the natural resources in Gola

The basic unit of local governance in Liberia is the Chiefdom, which is a group of communities under the ruling of a Paramount Chief, local leaders and institutions. Chiefdoms are ancestral/political units maintained first by the settlers and after by the central government of Liberia. The hereditary Paramount Chiefs and the ruling families are recognized as local government.

The community members revealed that their cultural diversity is the result of the rapid immigration for mining. The Mende tribe which has its roots in both Liberia and Sierra Leone are large in numbers along with tribes from other parts of Liberia. This immigration could be easily linked to the difference between the two sides of the Gola Forest in terms of law enforcement. In Liberia the legislation is not fully in place and the local authorities have less control over access to resources.

Under the Ministry of Internal affairs, the area is divided into sections for local governance. The La Klan is divided into two zones, Zone 1 (Gonocon – Jenemana) and Zone 2 (Jenemana, Bomiwoods, Wadda, Wedeque, Fifedu, Gagama, Medebu, Kpan Town, Diabobor, Gologogar, Senehun, Biaconeh, Golatown). The zone has a General Town Chief. Then there are Town Chiefs for each community.

Local governance structure

- Paramount Chief
- Clan Chiefs
- General town chiefs
- Town chiefs
- Quarter chiefs
- Youth leaders and women leaders
-

Indigenous laws for the forest

- No cutting of forest without cultivating the land
- No tree felling as a result of mining activities
- Communities have their society forests that they protect for secret society activities and people who are not part of the secret societies are not allowed to enter

Land Tenure

Community members expressed that a person can own land after consulting with the local authorities and the family that owns the land. This person has the right to share a portion of the land to other community members or visitors. Women own land by inheritance.

Access to facilities

The absence of schools and health centers was noted during the focus group discussions. A small number of villages have schools and most of the time, the education cycle is not complete (one or two classes). The level of education is very low in the different areas visited. Common sanitation systems are inexistent. However, efforts have been made to facilitate access to latrines in all the villages. Access to water is assured through manual pumps installed in almost all the different villages. However, there is no form of water treatment in place.

Communication

Phone network

The area is marked by difficulties of communication. Most of the villages are not covered by the phone and internet networks. In some areas people have special places where they go for making calls.

Radio frequency

ECOWAS Radio is the most widely listened to station whilst other frequencies received include Liberia Broadcasting Systems and Truth FM.

Demography and ethnicity

The size of villages and the number of people per village in and around the GFNP vary considerably from small hamlets of as few as 6 individuals to large towns of up to 3,460 people, but more than 50% of these settlements have fewer than 100 inhabitants. Overall, these population figures suggest a relatively low population density. There are two types of communities: those that are largely permanent and stable and have developed retail services, palm oil production and more established houses (with zinc roofs); and those that can be considered unstable/transient which are newly established or only inhabited in the dry season when mining activities take place.

Most communities are of mixed ethnicity. No villages exist in isolation, instead there is a complex network typically with a larger village acting as a centre, politically, economically or socially, for nearby villages. Mende is the common language spoken in most communities. However, people of Gola descent still use the Gola language for societal and political gatherings. The majority of the population is either Muslim (46%) or Christian (44%) (RSPB 2017).

Production of a technical report on the cost and benefits (social, economic, and ecological) of forest landscape restoration opportunities in the transboundary project landscape(s) that may include

information on permanent settlement and immigration, shifting agriculture, economic activities, foreign investment or migration, household incomes and livelihood metrics, infrastructure, market access;

Very few studies have been conducted across the Gola and wonigisi Forest Landscape to fully establish baseline information on socio-economic characteristics and ecological conditions. This study will produce one of the most relevant socio-economic baseline report for these Forest Landscapes. However, we are awaiting formal or official letters of introduction from the FDA to access these documents from institutions and persons who conducted these studies.

Culture

- Cultural schedule
- Friday is rest day/prayer day/market day
- Ramadan at the end of fast (Donky Salay)
- Christmas holiday
- Liberia Independence Day (July 24)
- Easter

Data and Information of communities in close proximity to the Gola National Forest

Socioeconomic Variables	Value and Description of Variables
Population	18,519
Average age	23 years (Only 5% of the population is older than 58 years).
Language	Mende (Most common)
Ethnicity*	Most towns and villages mixed (Mende,Mandingo,Vai,Gio,Kissi,Gola)
Religion	Muslim(46),Christianity (44%),Traditional religion and others(10%)
Facilities**	Electricity (0),Generator (28%),Radio (88%),Public toilet (11%),and Cemented drying floors for solar drying(7%)
Services/Infrastructure	Primary school (40%),Health clinic (9%),Pharmacy (5%), Police station (5%), Shops of products for sale(21%), Construction shops (13%),Mosque (60%),Church building (42%),Palava hut (55%),Local well (47%),and Handpump (40%)
Livelihoods	Farming, Hunting (mostly commercial), mining, chainsaw logging ,small-scale enterprises (buy-and-sell businesses) +

*The names of ethnic groups and languages spoken by such groups are synonmynous.Mandingo,for example, is an ethnic group that speaks Mandingo.Gio speaks Gio,Mende speaks Mende and so on.

**The parenthesized percentages following each facility and service are indicative of the percentage of each of the 27 sampled settlements that benefit/possess/or somehow have access to such facilities and services.

Development Agencies working in the communities

- SCNL
- Equip (Health)
- International organization on Migration (IOM)- (migration data collection)
- Ministry of Agriculture (Farmer feeds school)
- The Forest Development Authority (forest guard and conservation)
- Mary's meals an NGO providing food to the school and impacting the lives of the children in Jenemana.

Society for the Conservation of Nature in Liberia

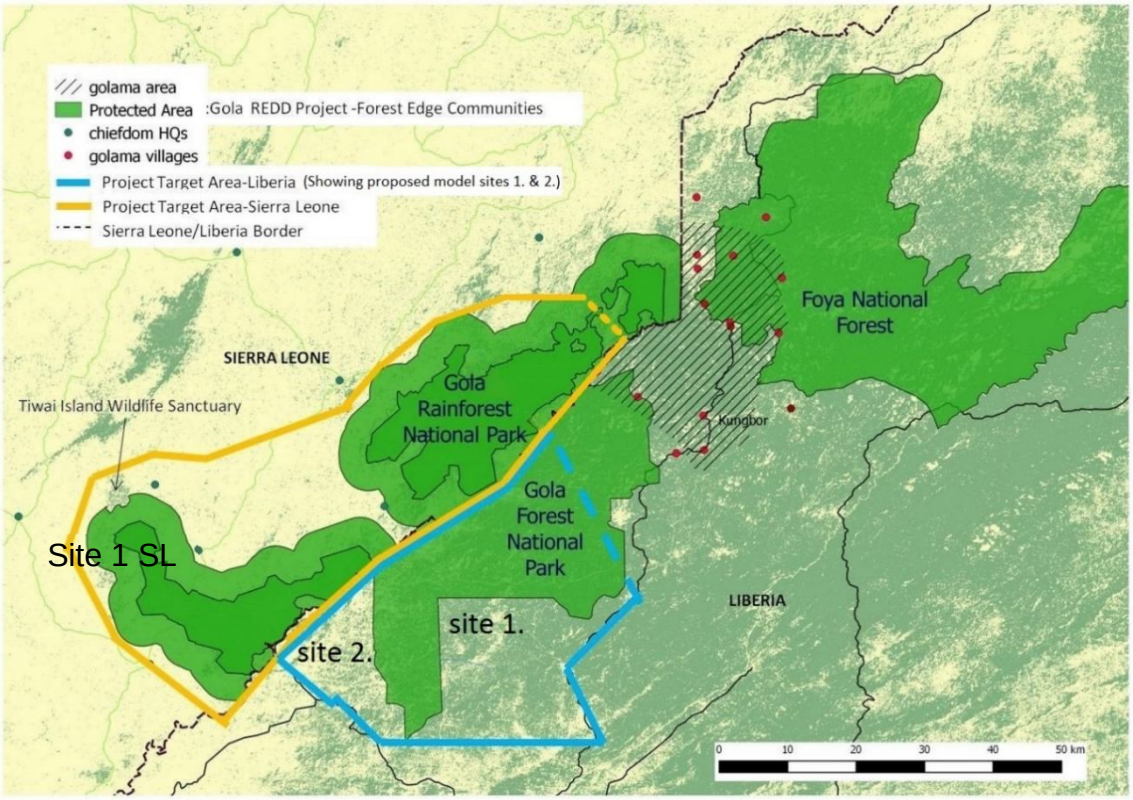
Society for the Conservation of Nature (SCNL) has been working in the Gola National Forest for many years.The Gola landscape is being conserved through the development of a mosaic of protected areas and Community Forests (CF). The establishment of the CFs is based on the 2009 Community Rights Law with Respect to Forest Lands and builds on the experience of the GolaMA project to establish two CFs to the north of the Gola Forest National Park (GFNP).The WA BiCC project awarded a grant to SCNL in 2018 to further contribute to this mosaic by supporting the establishment of two CFs to the south of the national park.

All livelihoods activities (cocoa, groundnuts, lowland rice, beekeeping, small loans) were started and some of the first harvests have taken place. A cocoa nursery for 15,000 seedlings was established and beekeeping is being introduced to the project area for the first time.

SCNL organized the first transboundary meeting since 2012 of technical government staff in the Sierra Leone and Liberian forest sector.

Through the WA BiCC grant, SCNL has trained 100 farmers in cocoa practices, established a nursery of 15,000 cocoa seedlings, set up four swamp rice demonstration sites involving 40 households, and supported four producer groups to achieve their first groundnut harvest. Implementation has started to extend the livelihoods work to an additional 180 farmers and to start the development of farmer-based organizations.

- Nine women's small loan groups were established and trained, and the first loans shared out.
- A beekeeping feasibility assessment was completed
- SCNL collaborated with the Ministry of Mines and Energy to hold a successful one-day Discussion Forum on conservation and artisanal and small-scale mining (ASM).



Map illustrating the Gola WA BiCC area including the Project Target Areas (PTAs) for Sierra Leone (orange) and Liberia (blue) as well as the model sites for Sierra Leone (Site1 SL) and Liberia (site1& site 2).

Project Target Area

The EU-funded GolaMA project is working with communities to the north of the GFNP to establish two community forests that will contribute to securing connectivity between GRNP, GFNP and Foya. The Gola WA BiCC project is working on community forestry at model sites in the southern part of the landscape - site 1 (site 2 proposed). The project is working one Clan in the Liberia PTA. Upper Sokpo Clan, Liberia

Through programs such as Across the River –Transboundary Peace Park for Liberia and Sierra Leone (ARTP) and GolaMa, SCNL, in partnership with her counterpart in Sierra Leone, Conservation Society of Sierra Leone (CSSL), builds and nurtures a rewarding relationship with park fringe and adjacent communities, and traditional and local government authorities for nearly a decade. Among the objectives of GolaMa, for example, are to (i) Establish Community Forest Management Agreements (CFMAs) and financial sustainable business plans; (ii) Ensure forest-dependent communities are benefiting from new sustainable alternative income generating activities under CFMAs, while contributing to forest protection; (iii) Reduce bushmeat hunting/trading of protected species in the project area and hopefully beyond; and (iv) Determine the potential of carbon trading to provide sustained funding.

Networks of more than 85 Livelihood Groups, Nature Clubs in schools and Local Conservation Groups have been successfully organized by SCNL to provide a broad platform that helps these two

conservation NGOs to plan and implement various activities including sensitization of communities on the wise use of forests, while communities use the platform to directly share their opinions wishes and concerns about the Park with SCNL and, more indirectly, with the FDA. Feedback from communities made possible through networks initially created to plan and implement conservation programs in the Greater Gola Landscape in general and the GFNP in particular, informs the planning process of the Management Plan and its eventual implementation. It also fosters and strengthens community engagement and participation in current and future park management activities. These efforts are an approach to FPIC, which have significantly contributed to a successful planning process and to the Plan's successful implementation ultimately.

In recognition of the relationship between forests and carbon emissions, the international community proposes and funds a policy instrument known as REDD+ (Reducing Emissions from Deforestation and Forest Degradation, and fostering conservation, sustainable management of forests, and enhancement of forest carbon stocks) to incentivize developing countries to keep their forests standing as a measure of adapting to and mitigating the cataclysmic effects and impacts of climate change (Visseren-Hamakers et al. 2012) in Liberia. Community and stakeholder outreach programs for purposes of this Plan must pay keen attention to climate change issues and Liberia's REDD+ Strategy that attempts to find a solution to climate change impacts.

ACTIVITY 1.17: NEGOTIATING INTEGRATED LAND USE PLANNING IN A PARTICIPITORY MANNER WITH STAKEHOLDERS AND TARGET GROUPS

Consultant: Richard Sambolah
Overview of Inception Results

There is no specific data for the Gola Forest National Park (GFNP); however, the geological map of Liberia prepared by the Liberian Geological Society and the US Geological Survey between 1965 and 1972 shows that the Park lies on a mix of Kimberlite, Granite and Granodiorite rocks dating from the Precambrian, Jurassic and Cretaceous periods. Extensive weathering of these rocks has produced a dense cover of laterite and saprolite soils. Liberia is rich in mineral deposits, especially gold, iron ore and diamonds, with a concentration of known or suspected deposits in the west of the country.

An inception meeting and field visit was held in April. Land use activities were captured along with challenges and issues related to the rational use of land.

Land Use Information

Camp Alpha

Town/ Community	Location	Livelihood	Livelihood impact on forest degradation	Migrants presence	Activities of migrants	Impact of migrants' activities on the environment	Comments
Timah Town	Komgbah District, Bopolu County	Farming (cocoa, groundnut and vegetable) Mining Petty trade Hunting NTFP collection (Bitter kola, rattan and ateryee)	Farming cause deforestation; mining cause forest degradation and hunting reduces the wild animal populations	Yes	Mainly mining Also Farming (cassava and vegetable production) and hunting	Deforestation and forest degradation	Local Consultative Committee established to monitor forest activities They will appreciate landscape restoration
Camp Alpha	Komgbah District, Bopolu County	Farming (beans, , groundnut, rubber and oil palm) Gold mining (Class C) Hunting	Same but not too extensive	Yes	Same as citizens	Same as citizens	Same
Butter Hill	Porkpa District, Grand Cape Mount County	Farming (cocoa, groundnut and vegetable) Gold mining Hunting	Farming cause deforestation; mining cause forest degradation and hunting reduces the wild animal populations		Same as citizens	Same as citizens	Same
Mafala	Gola Konneh District, Grand Cape Mount County	Chainsawing Farming (cocoa, groundnut and vegetable) Gold mining Hunting	Same	Yes	Same as citizens	Same as citizens	Same
Kawelahun	Porkpa District	Chainsawing Farming					

		(groundnut and vegetable) Gold mining Fishing	Same	Yes	Same as citizens	Same as citizens	Same
Beduma	Porkpa District	Farming (Vegetable, cassava) Gold mining Chainsawing Hunting Fishing	Same	Yes	Same as citizens	Same as citizens	Same
Camp Israel	Porkpa District	Mining Farming (Cocoa, cassava) Hunting	Same	Yes	Same as citizens	Same as citizens	Same
Soso Camp	Porkpa District	Gold mining Farming (Cocoa, cassava) Hunting	Same	Yes	Same as citizens	Same as citizens	Same
Fula Camp	Porkpa District	Gold mining Farming (Cocoa, vegetable) Hunting	Same	Yes	Same as citizens	Same as citizens	Same

Situation on the ground:

Gola Landscape

- Mining is the most prevalent land-use activity followed by farming.
- Mining is done extensively over the areas outside the protected area and causes deforestation and degradation in the landscape.
- Farming, mostly done in the forest close to communities outside the protected area, causes deforestation in patches.
- Logging is done in some parts of the landscape and cause forest degradation.
- There is more degradation in Gola because there is more mining and logging happening there.
- Deforestation due to farming cannot be found in huge continuous blocks. Instead, they are in patches in the landscape mostly up to two kilometers from communities/settlements.
- Common crops reportedly grown are rice, cassava, peanuts and cocoa

Land use and Restoration Possibilities:

Gola Landscape

In this landscape, interventions for land use and landscape restoration can be possible in communities practicing farming, especially communities currently engaged in cocoa and oilpalm farming.

However, the following issues need to be further assessed for the restoration intervention exercise: The size (in hectare) of the target intervention area; this is important since:

- Deforestation/deforestation are in scattered blocks and not contiguous in some communities
- Mining claims are not controlled in some communities.
- The receptiveness of mining groups for restoration interventions in their claimed sites. How far (in kilometer) should the landscape intervention be from the protected area?
- What is the best practice feasible for the target site?