CI-GEF PROJECT AGENCY

Project Document

Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – building blocks towards Liberia's marine and coastal protected areas

LIBERIA

March 11, 2016 (resubmitted)

PROJECT INFORMATION			
PROJECT TITLE:	Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas		
PROJECT OBJECTIVE:	To strengthen the conservation and sustainable use of globally important mangrove forests through effective participatory land-use planning and establishment of marine and coastal protected areas in at least 35% of Liberia's mangroves		
PROJECT OUTCOMES:	• 20% of priority mangrove areas have been identified, delineated, and management plans to safeguard them completed • Priority mangrove forest land-use planning integrated and mainstreamed in wider landscape and subjected to 5-year monitoring and evaluation program for adaptive management • 15% of priority mangroves are protected in buffer areas by addressing drivers of deforestation and improving people's livelihoods, • Capacity and awareness of key government agencies and local communities on mangrove forest conservation and sustainable use substantially improved		
COUNTRY(*IES*)**:**	Liberia	**GEF ID:**	5712
GEF AGENCY(*IES*)**:**	Conservation International (CI)	**CI CONTRACT ID:**	
OTHER EXECUTING PARTNERS:	Environmental Protection Agency, Liberia; CI-Liberia	**DURATION IN MONTHS:**	36
GEF FOCAL AREA(*S*)**:**	Biodiversity	**START DATE** (*mm/yyyy*)**:**	2016-06-01
INTEGRATED APPROACH PILOT:	NA	**END DATE** (*mm/yyyy*)**:**	2019-05-31
NAME OF PARENT PROGRAM:	NA	**PRODOC SUBMISSION DATE:**	2016-01-22
RE-SUBMISSION DATE(*S*)**:**	2016-03-11		

FUNDING SOURCE	AMOUNT (*USD*)
GEF PROJECT FUNDING:	$963,994
PPG FUNDING:	$91,000
TOTAL GEF GRANT:	$1,054,994
CO-FINANCING 1: CONSERVATION INTERNATIONAL	$1,300,000
CO-FINANCING 2: ENVIRONMENTAL PROTECTION AGENCY	$1,000,000
CO-FINANCING 3: FORESTRY DEVELOPMENT AUTHORITY	$1,350,000
TOTAL CO-FINANCING :	$3,650,000
TOTAL PROJECT COST:	**$4,704,994**

TABLE OF CONTENTS

TABLES AND FIGURES

Tables

Figures

ACRONYMS & ABBREVIATIONS

AML	*ArcelorMittal Liberia*
BCP	*Biodiversity Conservation Programme*
BNF	*Bureau of National Fisheries*
BRI	*Biodiversity and Red Meat Initiative*
CA	*Conservation Agreement*
CBD	*Convention on Biological Diversity*
CCPF	*Central Cardamom Protected Forest*
CEPF	*Critical Ecosystem Partnership Fund*
CI	*Conservation International*
COPAN	*Consolidation of the Protected Areas Network*
CMS	*Convention on the Conservation of Migratory Species of Wild Animals*
CR	*Critically Endangered(IUCN Red List category)*
DD	*Data Deficient (IUCN Red List category)*
EN	*Endangered (IUCN Red List category)*
EPML	*Environmental Protection and Management Law*
EPA	*Environmental Protection Agency*
EXPAN	*Expansion of the Protected Areas Network*
FACE	*Farmers Associated to Conserve the Environment*
FAO	*Food and Agriculture Organization*
FCPF	*Forest Carbon Partnership Facility*
FDA	*Forestry Development Authority*
FFI	*Fauna and Flora International*
FPIC	*Free, Prior and Informed Consent*
GDP	*Gross Domestic Product*
GEF	*Global Environmental Facility*
GIS	*Geographic Information Systems*

ha	*hectare*
IUCN	*International Union for Conservation of Nature*
kg	*kilogram*
LC	*Least Concern species (IUCN Red List category)*
LC	*Land Commission*
LCG	*Liberian Coast Guard*
LMA	*Liberian Maritime Authority*
LPMUR	*Lake Piso Multiple Use Reserve*
MCC	*Monrovia City Corporation*
MCS	*Monitoring Control and Surveillance*
MIA	*Ministry of Internal Affairs*
MLME	*Ministry of Lands, Mines and Energy*
MOA	*Ministry of Agriculture*
MOG	*Ministry of Gender, Children and Social Protection*
MPA	*Marine Protected Area*
NACUL	*National Charcoal Union of Liberia*
NAPA	*National Adaptation Program of Action*
NBSAP	*National Biodiversity Strategy and Action Plan*
NT	*Near Threatened (IUCN Red List category)*
PA	*Protected Area*
PRS	*Poverty Reduction Strategy*
PMU	*Project Management Unit*
PSU	*Project Steering Committee*
REDD	*Reducing Emissions from Deforestation and Forest Degradation*
RICCE	*Rural Integrated Center for Community Empowerment*
SADS	*Skills and Agricultural Development Services*
SAMFU	*Save My Future Foundation*

SCNL	*Society for the Conservation of Nature in Liberia*
STWL	*Sea Turtle Watch Liberia*
UNDP	*United Nations Development Program*
UNEP	*United Nations Environmental Program*
USAID	*United States Agency for International Development*
USD	*United States dollar*
VU	*Vulnerable (IUCN Red List category)*
WARFP	*West Africa Regional Fisheries Project*
WB	*World Bank*
WIOMSA	*West Indian Ocean Marine Science Association*

GLOSSARY OF TERMS

Conservation Agreement	An agreement where communities commit to implementing conservation actions, such as patrolling activities, forgoing logging and hunting and carrying out more sustainable resource extraction practices in exchange for a benefits package defined through participatory processes to address local development needs and priorities.
Rights-based Approach	An approach to conservation that promotes and integrates human rights into conservation policy and practice by emphasizing the positive connections between conservation and the rights of people to secure their livelihoods, enjoy healthy and productive environments, and live with dignity.
Free, Prior and Informed Consent	A framework for ensuring that the rights of indigenous peoples are guaranteed in any decision that may affect their lands, territories or livelihoods. Composed of four separate components: • Free—Without coercion, intimidation, manipulation, threat or bribery. • Prior—indicates that consent has been sought sufficiently in advance, before any project activities have been authorized or commenced, and that the time requirements of the indigenous community's consultation/consensus processes have been respected. • Informed—Information is provided in a language and form that are easily understood by the community, covering the nature, scope, purpose, duration and locality of the project or activity as well as information about areas that will be affected; economic, social, cultural and environmental impacts, all involved actors, and the procedures that the project or activity may entail. • Consent—The right of indigenous peoples to give or withhold their consent to any decision that will impact their lands, territories, resources, and livelihoods.
Gender	The economic, social, political, and cultural attributes and opportunities associated with being women or men. Gender-defined roles, for example fuelwood harvesting for women, can provide an opportunity to engage women in forest conservation and reforestation since they have firsthand knowledge of the amount of available fuelwood.

SECTION 1: PROJECT SUMMARY

Background

1. Coastal ecosystems are critical to maintaining human well-being and global biodiversity. In particular, mangroves provide numerous benefits and services that contribute to the overall health and function of the coastal ecosystem including protection from storm surge and sea level rise, erosion prevention, coastal water quality regulation, habitat provision for numerous commercially important and endangered marine species, and food security for many coastal communities around the world (Kennedy 1984; Robertson & Alongi 1992; King & Lester 1995; Hogarth 1999; Beck et al. 2001; Kathiresan & Bingham 2001; Saenger 2002; Mumby 2006; Gedan et al. 2009; Barbier et al. 2011; Sousa et al. 2012; Cullen-Unsworth & Unsworth 2013). Despite their benefits and services, mangroves are some of the most threatened ecosystems on earth. It is estimated that up to 67% of the historical global mangrove range has been lost. If these trends continue at current rates nearly all unprotected mangroves could be lost in the next 100 years (Pendleton et al. 2012).

2. In Liberia, it is estimated that the rate of mangrove deforestation could be as high as 65% since 1980 (FAO 2007). The greatest threat to mangroves in Liberia is land degradation due to urbanization, transportation infrastructure development, and mining and oil exploitation. A secondary cause related to habitat loss is the overuse and overexploitation of natural resources, specifically around urban areas, through the practices of hunting, firewood collection, charcoal production, and timber extraction. Finally, pollution of the water, air, and soil from chemicals released from agricultural pursuits, oil exploration, mining, and the effects of climate change also contribute to the loss of mangroves in Liberia.

3. Biological diversity in Liberia has also declined significantly over the years with the substantial degradation of the country's ecosystems leading to the rapid loss of many species. Increasingly, Liberia recognizes the importance of mangroves as valuable habitat for their most charismatic and endangered species. In addition, Lake Piso and the Mesurado and Marshall wetlands, have all been declared Ramsar sites (Spalding *et al.* 2010). Progress has been made to include these systems in international and national policy. And as a result, a number of mangrove sites have been identified and targeted for inclusion in Liberia's formal protected area network. Despite this, coastal management activities that include mangroves as part of Liberia's environmental protection portfolio have not yet been fully realized.

4. Against this background of increasing interest in mangrove protection, degradation and over-exploitation of mangrove resources continues creating a great need to advance a holistic, integrated approach to better identify mangrove areas vital for biodiversity and community well-being. This project, combining research, policy recommendations, technical advice and practical tools coupled with small-scale interventions, provides such an approach. This project provides an opportunity to enhance the protection of mangroves already in multiuse protected areas, provides decision support tools for incorporating additional highly threatened mangroves into new coastal protected areas, works with local communities and other stakeholders to educate them on the importance of mangroves, and provides guidance and recommendations on best practices for protecting mangroves, their biodiversity and the ecosystem services that they provide.

5. The project execution will be led by Conservation International (CI) Liberia. CI has a strong track record of delivering conservation outcomes around the world. In Liberia, CI is the leader in biodiversity conservation, through activities ranging from community-based resource management to capacity-building for local organizations to national policy engagement. CI has been integral in the expansion of protected area management and is a key advocate for the community co-management approach to forest management.

Conservation Context and Project Sites

6. The northern coast of Liberia was selected for project implementation not only for the highly significant mangrove coverage in the region, but also for the conservation infrastructure, ease of access, and capacity already in place. Specifically, the mangroves and communities located in the Lake Piso, Marshall, Monrovia, and Buchanan areas are being proposed as potential project sites. CI-Liberia has been working directly with these communities and local partners on conservation efforts, specifically sea turtle conservation, since 2013. CI has been providing technical assistance to the Liberian government in support of legally establishing multi-use Marine Protected Areas (MPAs) and in developing new legislation aimed at giving communities the ability to declare their own lands as conservation areas. Thus, CI has ample experience in working with Liberian ministries and community leaders in these areas to reach the conservation goals set for this project.

7. The proposed project to be funded with GEF funds would directly compliment work supported by Chevron through CI Liberia to strengthen conservation and sustainable use of mangrove habitat, terrestrial forests and sea turtle habitat in Buchanan. The proposed project would be the first phase of a comprehensive coastal biodiversity and mangrove conservation project in Liberia and will inform and support expansion of Liberia's coastal biodiversity program into the future.

Program and Project Goal

8. **Program Vision:** Liberian communities, decision makers, and private stakeholders recognize the national and global importance of mangroves and commit to a comprehensive plan that strengthens the conservation and sustainable use of these valuable ecosystems.

9. **Project Objective:** This project will advance the vision by strengthening the conservation and sustainable use of Liberia's globally important mangrove forests through effective participatory land-use planning and establishment of marine protected areas in at least 35% of Liberia's mangroves.

Project Components and Outcomes

10. Through this GEF project, mangroves will become a major driver of coastal ecosystem biodiversity protection and will enhance coastal ecosystem management capacity in Liberia. It will also provide innovative tools aimed at protecting the valuable ecosystem services (coastal protection), food security (fisheries), and revenue (tourism, fisheries) provided to some of the most vulnerable Liberian communities.

Component 1: Enabling conditions for establishment of coastal and marine protected areas in 20% of priority mangrove forests.

11. Component 1 will identify and provide the delineation for the establishment of a mangrove forest protected areas in Liberia – protecting 20% 0r 7,000 ha of mangrove forests within the Protected Areas Network of Liberia. The criteria for selecting sites includes biodiversity, pattern and process (connectivity), mangrove functioning and health, community uses, and ecosystem services such as flood control. It will also be based on the existing proposed protected area network of Liberia. Participatory management plans for proposed national protected areas, as well as financial plans, will be developed with stakeholders for both the government and community declared protected areas. The project is aware that stand-alone "island" protected areas that are not incorporated into the wider landscape, or where no attempt to reduce land-use pressure has been made, will not produce our desired results.

12. Throughout the project we will increase awareness within the appropriate government agencies, ministries and the legislature to garner support and advocacy for the formal declaration of mangrove and costal protected areas.

Outcomes and Outputs under Component 1:

13. Outcome 1.1: 15% of priority mangrove areas have been identified, delineated, and management plans to safeguard them completed

a. Output 1.1.1. A multi-stakeholder participatory process to identify and delineate national protected areas has been established.
b. Output 1.1.2. Participatory management plans for two proposed, national protected areas developed, and on-the-ground management activities initiated.
c. Output 1.1.3. Financial plans, including establishment and management costs in short, medium and long terms, for the inclusion of priority mangrove forests into the Protected Areas Network of Liberia, completed.
d. Output 1.1.4. Advocacy to create public awareness and government support for the creation of new coastal and marine protected areas within the appropriate government agencies, ministries and legislature completed.

14. Outcome 1.2: 5% of priority mangrove forests is safeguarded through community based Conservation Agreements and other legal mechanisms

a. Output 1.2.1.: A multi-stakeholder and community process is established to identify and protect priority mangrove areas

Component 2: Reducing pressures on an additional 15% of priority mangrove areas.

15. Component 2 will endeavor to reduce the pressures on the mangrove systems in Liberia by integrating land-use planning and Conservation Agreements (CAs) for improving communities' livelihoods, providing incentives to communities to directly participate in the protection and monitoring of the critical ecosystems near them. Analysis during the PPG phase of mangrove threats revealed that urban and private land development pose the greatest threat to mangrove ecosystems. As the population and urbanization of Liberia grows, this threat will be even greater. To address this threat, the project will develop a tool kit for incorporating mangroves into land-use planning and will use the tool kit with communities and government bodies responsible for the mangrove areas within each project site. A central element of this component is working with

the communities in and around the mangroves to find a solution that protects these vital forest systems while also addressing the needs of the communities. The toolkit will also be designed to meet the needs of key stakeholders including the Environmental Protection Agency (EPA) and the Forestry Development Authority (FDA). This will include issues of land allocation, harmonizing land use needs based on all current uses and conservation needs, among others.

16. Additional information will be gathered as necessary to ensure that land-use planning will be fully comprehensive including current extent, biodiversity and ecosystem services (carbon, flood control), aesthetic and cultural services, uses and pressures, conservation status, as well as identification of priority areas for conservation and sustainable use. This will cover an additional 15% or 5,250 ha of mangrove area outside of the targets in Component 1. This 15% will act as a buffer zone to shield the officially protected mangrove areas from external pressures. As part of the land-use planning process, a 5-year monitoring and evaluation program for mangrove and coastal ecosystem biodiversity protection will be developed and government capacities built to ensure successful implementation.

Outcomes and Outputs under Component 2:

17. Outcome 2.1: Priority mangrove forest land-use planning integrated and mainstreamed in the wider landscape and subjected to 5-year monitoring and evaluation program for adaptive management.

- **a.** Output 2.1.1. Multi-stakeholder integrated land-use planning and decision support toolkit (with key information gathered) for priority mangrove forests and immediate buffer areas in the wider landscape completed and applied to the priority mangrove areas.
- **b.** Output 2.1.2. Five-year monitoring and evaluation program for the mangrove forests developed and being implemented by the EPA.
- **c.** Output 2.1.3. Plans for demonstration sites developed and implemented for sustainable management and restoration by local communities within 4 priority mangrove areas.

18. Outcome 2.2: No further deforestation within the 15% of priority mangroves and surrounding buffer areas through addressing drivers of deforestation and improving people's livelihoods.

- **a.** Output 2.2.1. Conservation Agreements signed and being implemented with at least 10 communities providing local economic development (alternative livelihoods) and community involvement in mangrove protected areas management (governance) strengthened in and around key proposed protected areas.

19. Outcome 2.3: Capacity and awareness of key government agencies and local communities on mangrove forest conservation and sustainable use substantially improved.

- **a.** Output 2.3.1. Capacity building programs, based on needs assessment, designed and delivered to at least 50 government officials and 1,000 members from 4 local communities.

Project Safeguards Policies

20. In compliance with CI-GEF project safeguards policies recommendations, a Stakeholders Engagement Plan and a Gender Mainstreaming Strategy and Action Plan were developed. The project will also comply with the GEF and CI Accountability and Grievance Policy.

Implementation and Execution Arrangements

21. The CI GEF Project Agency is the Implementing Agency and will provide strategic oversight and monitoring of the project. CI Liberia will execute the project in collaboration with the Environmental Protection Agency (EPA) of Liberia, the co-executing agency on this project. The EPA has been deeply involved during the preparatory phase and will continue to play a strong role during the execution of the project. Another key partner that will be involved in the project is the Forestry Development Authority (FDA) who is the custodian of protected areas in Liberia and has a major role within the existing and proposed protected areas impacted by this project.

22. The project has established a Project Steering Committee (PSC) composed of representatives from a range of different ministries and government agencies. CI Liberia acts as the secretariat of the PSC while the EPA chairs the group and the Maritime Authority as co-chairs. FDA will be the alternative should one of the chairs be unavailable. The principal function of the PSC is to provide guidance on the project delivery. The PSC will provide insight based on the requisite positions within government regarding the projects alignment with national policies and laws, best practice and new initiatives. This team will ensure collaboration with other programs and avoid duplication of efforts within the sector. The PSC will meet once a quarter during the project. The PSC will maintain continuous exchange of information among its members by electronic means, and additional ad hoc steering committee meetings can be convened via telephone conference or other means, if necessary.

SECTION 2: PROJECT CONTEXT

A. Introduction

23. This project will build on CI's established biodiversity conservation work in Liberia by expanding efforts into the mangrove-rich areas of the Liberian coast. We aim to provide the integrated land-use policies and tools needed to mainstream mangrove forest biodiversity conservation and to secure mangrove forest protected areas. Establishing priority mangroves as protected areas will be the first phase of a longer term process directed towards the establishment of a Coastal and Marine Protected Area Network in Liberia. This project will directly address: (1) the complexity of developing and establishing new protected areas, (2) the high priority of the global environmental problem associated with mangrove forest loss, and (3) the weak institutional capacity in the Liberian government and other key stakeholders, with emphasis on increasing the capacity of women stakeholders in the communities. The project will initially focus on the mangrove areas along the northern coast of the country, due to issues with access to the mangroves along the southern coast. However, lessons learned and the successful implementation of this project in the north will catalyze efforts to expand the program in the coming years. Mangrove conservation provides a new opportunity for driving and supporting coastal ecosystem biodiversity conservation within Liberia while simultaneously securing human well-being and sustaining the multiple benefits these ecosystems provide.

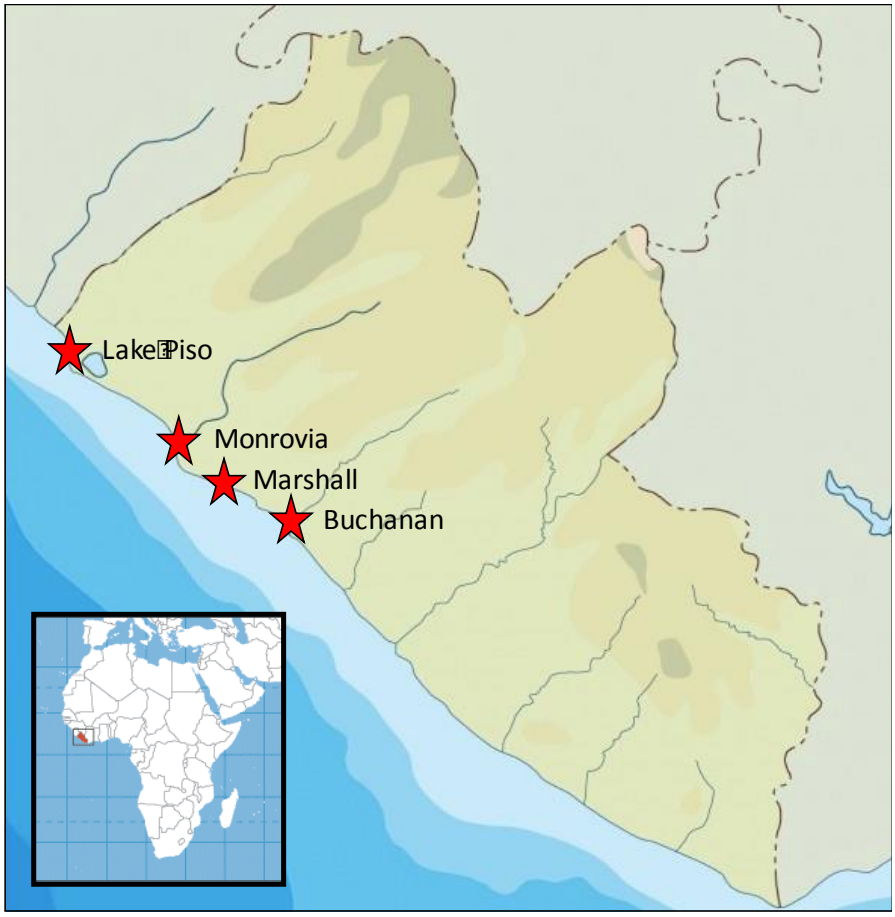
B. Environmental Context and Global Significance

Geographic and Thematic Scope

24. Mangrove ecosystems dominate the coastal wetlands of tropical and subtropical regions throughout the world. West Africa is no exception, with mangroves extending along the coast from Mauritania in the north down to Angola in the south, covering an area of approximately 30,000 km^2. This accounts for around 16% of the total global mangrove area (Saenge & Bellan 1995, Spalding *et al*. 1997). Liberia is close to the northern edge of this distributional range and is home to around 427 km^2 of mangrove habitat (Spalding *et al*. 1997). Mangrove stands in the region occur in a number of different forms - open shoreline (frontal), lagoonal (occur in lagoons behind barrier islands that extend parallel to the beach), and deltaic (estuarine and fluvial) mangrove stands.

25. The northern coast was selected for project implementation due to its significant mangrove coverage, conservation infrastructure, ease of access, and capacity already in place. Specifically, the mangroves and communities located in the Lake Piso, Monrovia, Marshall, and Buchanan areas (Figure 1) are being proposed as project sites. Four out of ten of the most populated cities in Liberia (Monrovia, Buchanan, Greenville, and Harper) are situated along the coast. Of those four, Monrovia and Buchanan lie within the scope of this project. With a national population growth rate of 2.92% and increased migration from rural to urban areas, the impact of urban development on coastal mangrove forests surrounding these areas will certainly increase.

Figure 1: Proposed project sites



Environmental Context

26. Mangroves are highly productive ecosystems, with rates of primary production that rival those of tropical terrestrial forests. This primary production is derived from three main sources - the mangrove trees, algae growing on tree roots and on the forest floor, and phytoplankton in the water column. Secondary (mostly terrestrial) consumers feed on the mangrove leaves, propagules, twigs and branches, break this material down and make it available to the decomposers and ultimately feed nutrients and energy into the marine food chain. Microalgae that occur on mangrove trees, in their soils and the water column, also contribute to the marine food chains. While these microalgae have lower rates of productivity than the trees themselves, they are nutritionally more accessible to consumers. The structural complexity of the mangrove habitat also reduce prey visibility and impede access by large predators.

27. Mangroves help protect coral reefs and sea-grass beds by filtering and trapping sediments and other suspended matter discharged by rivers. They also provide protection from coastal erosion, tsunamis and other coastal hazards such cyclones, wind and salt spray. They are considered to be amongst the most carbon rich ecosystems in the world and as such are a significant carbon sink in terms of forest biomass as well as organic sediment accumulation (Mcleod *et al*. 2011, Donato *et al.* 2011, Ajonina *et al*. 2014). Total ecosystem carbon in undisturbed Central Africa has been estimated at around 1,520.2 tonnes of carbon per hectare (Ajonina *et al*. 2014). Liberia

specifically is estimated to have up to 1,337 tonnes of carbon per hectare. The amount of stored carbon is almost 50% lower in heavily exploited relative to unexploited mangrove stands.

28. Mangroves also provide important breeding and nursery areas for many West African marine species of fish, crab, shrimp and mollusks. If the mangroves were destroyed, fish stocks would be negatively impacted leading to reduced food security and an increase dependence on the bushmeat trade to supply protein to the Liberian people. Thus, mangrove protection has an indirect effect on terrestrial biodiversity conservation in Liberia.

Global Significance

29. Liberia's coastal mangrove forests are recognized internationally as Key Biodiversity Areas (KBAs). They provide habitat and feeding ground for several species of birds including the African Spoonbill (*Platalea alb,* LC), Common Pratincole (*Glareola nuchaltis,* LC) and the Curlew (*Numenius arquata,* NT). Rufus Fishing Owls (*Scotopelia ussheri,* VU) have also been found to occur in the southern mangrove forests. Beyond birds, the mangroves provide habitat to the threatened West African Manatee (*Trichechus senegalensis*, VU), as well as the vulnerable African Dwarf Crocodile (*Osteolaemus tetraspis*, VU), the Nile Crocodile (*Crocodylus niloticus*, LC) and the African Sharp-nosed Crocodile (*Mecistops cataphractus, DD*). Liberia's beaches are breeding grounds for Leatherback (*Dermochelys coriacea*, EN), Loggerhead (*Caretta caretta*, EN), Green (*Chelonia mydas*, EN), and Olive Ridley (*Lepidochelys olivacea,* EN) sea turtles, and the mangroves provide important nursery areas for these species.

30. Lake Piso, Marshall Wetlands, and Mesurado Wetlands are all internationally recognized Ramsar Sites. They are home to many of Liberia's charismatic wildlife and the natural resources and ecosystem services provided by mangroves to local communities are significant. Given the global rate of loss of mangroves every effort to conserve these systems is vital.

C. Socio-Economic and Cultural Context

31. Liberia is a least developed country that has recently emerged from an extended period of civil war. The World Bank estimates that 63% of the population in Liberia is living below the national poverty line. Many people were displaced from their homes during the war and have only recently returned. The proportion of people living in urban areas is high and levels of unemployment and poverty are extremely high across the country. The war had a devastating impact on the country's health and education systems and a large portion of the population is illiterate. The majority of the country's population is directly dependent on natural resource harvesting for their livelihoods.

32. Tourism is the single largest industry in the world today (UNWTO 2011). The industry is worth over US$450 trillion per annum. Historically, Liberia drew considerable benefit from international tourism, with large numbers of visitors coming to the country, mostly from the United States. However, the tourism industry was largely obliterated by Liberia's civil war, which ran from 1989 until 2003. Liberia suffered a further setback as a result of the arrival of the Ebola virus in 2014 (now Ebola free since December 2015). Liberia has many features, not the least of which is its extensive mangrove forests that are attractive for international tourists given the diversity of wildlife inhabiting mangrove systems, and their proximity in many cases to other tourist attractions such as coral reefs and sandy beaches. Once all travel restrictions have been lifted,

tourism will undoubtedly play an important role in the development and economy of the country again

33. The fishery sub-sector in Liberia is estimated to provide 65% of the protein needs of the country and contributes about 10% to Gross Domestic Product (Government of Liberia, 2004). Yield of fish and shellfish from mangrove forest areas tend to be much higher than other shoreline habitats. The average yield of fish and shellfish in mangrove areas is about 90 kg per hectare (Kapetsky, 1985), with maximum yield of up to 225 kg per hectare (FAO 1994). Thus the destruction of mangrove forests can have a devastating impact on fishery yields, with losses to coastal fisheries amounting to as much as 480 kg of fish per year for every hectare of forest that is lost (MacKinnon & MacKinnon 1986). Estimates on the value of mangrove fisheries vary widely. The value of such fisheries on the Atlantic coast of Central Africa (Cameroon, Gabon, Republic of Congo and the Democratic Republic of Congo) are estimated at USD 12,825 per ha per year (Ajonina et al. 2014) while those in the Gulf of Mexico have been valued at USD 37,500 per ha per year (Aburto-Oropeza et al. 2008).

34. At the site level, we estimate that there are 1.2 million people living in the Lake Piso (7,000), Monrovia (1.1 million), Marshall (44,000), and Buchanan (34,000) areas that are either directly or indirectly benefiting from intact mangrove stands and associated waterways used for transportation, commercial and non-commercial fishing, and sand for construction. They are all also benefiting to some degree from the climate mitigation role mangroves play. Men and women in Liberia, with different positions in society, use mangroves differently and have unique perspectives about why mangroves are important and how they should be protected. Access, and the ability to restrict it, is vital for the ability of local communities to properly manage mangrove forests. At all suggested sites men do the majority of fishing in Liberia while women are responsible for smoking the fish, so they are central in addressing drivers of mangrove loss and a key beneficiary in their conservation. The use of mangrove wood as cooking fuel as well as to prepare fish for market is a major cause of deforestation. But women also use the mangroves for fishing, to a greater extent than their male counterparts, producing an important source of animal protein for the population. Women are also the primary sellers of fish in the markets. Clearly both women and men are using mangrove resources in different ways and any restriction on access to mangrove resources would have a negative impact on both sexes. Based on these key differences in the use of mangrove and coastal resources by both women and men in Liberia, a gendered perspective on mangrove conservation will be adopted in this project.

D. Relevant Policies, Laws, Regulations, Rules, and Standards

35. The constitutional basis for environmental law and conservation of biodiversity in the Republic of Liberia is found in Article 7 of the 1986 Constitution of Liberia, which provides for public participation of all citizens in the protection and management of the environment and natural resources in Liberia. The clause embraces environmental protection as a fundamental rule according to which the country must be governed. It binds state organizations – in particular the legislative and executive – to adopt and activate environmental policy and to formulate national development plans that are environmentally sustainable.

36. National policies, laws and regulations of relevance to this project include those pertaining to forestry and those to environmental protection and protected areas. Together, these laws and

regulations provide for conservation of biodiversity in the Republic of Liberia, including the creation of a network of protected forest areas; protection of wildlife, including regulation of the bushmeat trade; prevention of the introduction of invasive species; environmental impact assessment for a wide range of activities that may threaten biodiversity; environmental planning; and scientific research.

37. The Forestry Law (2006) is arguably the most important of these laws and directs the Forestry Development Authority (FDA) to establish a "Protected Forest Areas Network" encompassing at least 30% of Liberia's existing forest area. This Network is composed of two categories of protected areas: Category I and Category II areas.

38. Category I areas consist of National Forests, National Parks, Nature Reserves, and Strict Nature Reserves, and must be established through legislation, following a proposal submitted by FDA to the President and forwarded by him/her to the Legislature. National Forests are set aside for sustainable regulated commercial forest product extraction, hunting, and the preservation of essential environmental functions performed by forests. National Parks encompass areas of sufficient size to form a complete ecological unit, and are set aside for the preservation and enjoyment of features that have outstanding natural beauty, or cultural or biological significance. Nature Reserves are set aside for the preservation and enjoyment of features that have outstanding natural beauty, or cultural or biological significance, and which may require some management intervention. Strict Nature Reserve possess outstanding or representative features, ecosystems, or species, and are set aside primarily for scientific research or environmental monitoring, and requiring strict protection and minimum intervention.

39. Category II areas, which serve essentially as Conservation Corridors, consist of Game Reserves, Controlled Hunting Areas, Communal Forests, Buffer Zones, and other areas, and may be established through FDA regulation. Transitional zones (such as a Communal Forest, Game Reserve, or Multiple Sustainable Use Reserve) surrounding a more strictly protected zone, are intended for low-impact sustained human use, and are used to reduce the impact of outside human disturbance on Category I areas, to protect the boundaries of these areas from encroachment, and to preserve the natural state of the more strictly protected zone they surround. Communal Forests are set aside by statute or regulation for the sustainable use of forest products by local communities or tribes on a non-commercial basis. Game Reserves are designated to protect important features for wildlife or to allow the recovery or growth of indigenous species. Multiple Sustainable Use Reserves are established to allow sustainable uses of Forest Resources, including subsistence uses.

40. Other Cultural Sites are designated for the preservation and enjoyment of features with a local or national cultural significance. The 2006 Forestry Law also requires FDA to support forest conservation by undertaking research on socioeconomic conditions and wildlife distribution, habitat, and population, and to seek the advice of a Forestry Management Advisory Committee and others on management of the Protected Forest Areas Network. The Forestry Law also directs FDA to prepare comprehensive management plans in accordance with international standards for National Forests, National Parks, Nature Reserves, and Strict Nature Reserves. These plans must be reviewed and republished every five years.

41. Although the 2006 Forestry Law designates the FDA as the main authority on protected areas, the Environment Protection and Management Law (EPML) (2003) also contains some provisions

relevant to this project. This law gives the Environmental Protection Agency (EPA) authority to declare rivers, lakes, or wetlands as protected areas based on specified criteria, and/or the authority to declare any area of land, river, lake, wetland, or coastal zone as a "protected natural environment," a "wildlife protected area," or a "wildlife management area." "Wildlife protected areas" include a subset of the protected areas that can be designed under the Forestry Law (2006) (and include National Parks, Wildlife Reserves, Nature Reserves) while "wildlife protected areas" and "wildlife management areas" are distinct and include of "Wildlife Sanctuaries" and "Community Wildlife Areas." The EPML also charges the EPA with prescribing measures necessary for wildlife management in these areas, to define and designate communal forests, and to issue guidelines for their management and use. The law also authorizes the EPA to declare "specially protected forest areas" in which human activity is prohibited. The EPA is also required promulgate regulations for the conservation of biological resources in-situ, including the selection and management of protected areas and the selection and management of buffer zones near protected areas. Finally, the law provides authority for the protection of coastal zones and natural heritage sites.

E. Institutional Context

42. Key institutions tasked with conservation of biodiversity and environmental resources in the Republic of Liberia include the Forestry Development Authority (FDA), the Environment Protection Agency (EPA), and Bureau of National Fisheries (BNF). Ministry of Internal Affairs (MIA) is responsible for local governance and rural development and as such will be a key partner in engaging local communities in the project priority areas.

43. The FDA was established in 1976 through promulgation of the FDA Act. The FDA was originally established to develop a forestry program that includes scientific and conservation research, productive use of publicly-owned forest lands, sustainable harvesting of forest products, and forestry training and technical assistance, while simultaneously conserving recreational and wildlife activities. The FDA has three primary departments: (1) the Commercial Forestry Department (2) the Conservation Forestry Department and (3) a Community Forestry Department. The FDA's responsibilities include setting up a protected areas network; training, employing, and equipping staff to deploy in protected areas; conducting monitoring patrols; and prosecuting violators. It also promulgates regulations, conducts inspections, and levies fines for such violations as over-harvesting of timber. As the custodian of the protected area network, it will be important that this project work directly with the FDA, particularly on Component 1 of this project. Participatory management plans for proposed national protected areas, as well as financial plans, will be developed with stakeholders for both the government and community declared protected areas. Sustaining these interventions in the long term will depend on FDAs ownership of this process. Other FDA activities include forest conservation, educational awareness, agroforestry programs, environmental awareness-raising in communities surrounding protected areas, and discussion of trans-border issues such as hunting in restricted areas, some of which tend to extend into neighboring countries. This includes sustainable use of mangrove forests that lie outside the protected area network. Working with FDA on Component 2 of this project will also be crucial to reduce pressures on an additional 15% of priority mangrove areas.

44. The Environmental Protection Agency (EPA) was established through legislation in 2002. Senior staff in the EPA includes the Executive Director (appointed by the president), a Policy Council, a Board of Directors, an Environmental Protection Unit, a Programs Unit and County and District

Environmental Committees. The Executive Director of the EPA is also the GEF Operational Focal Point for Liberia. The EPA's major areas of focus include the formulation of a national environmental policy, the drafting of a comprehensive framework for environmental protection and natural resources management law, and reporting on the current status of the environment in Liberia. The EPA monitors and manages the Liberian environment to prevent natural resources from being overexploited, by implementing policy to ensure good governance and conservation. The Agency is responsible for the conservation of wetlands areas across Liberia. Liberia ratified the Ramsar Convention in 2003 and the Ramsar focal point is based in the EPA. As the co-executing partner on this project, the EPA will be integral to both Component 1 and Component 2 of this project.

45. The Bureau of National Fisheries (BNF) was established in 1957 within the Ministry of Agriculture (MOA) under the National Resources Law. Their responsibility is to regulate fishing activities in Liberian waters. The BNF has three divisions (Marine, Research and Statistics, and Aquaculture) that are closely aided by an administrative section to run its day to day affairs. The Division of Marine Fisheries is charged with the responsibility of coordinating, supervising and monitoring all marine capture fisheries activities in the Republic of Liberia. Responsibilities include enforcement of both artisanal and industrial fishing activities via the Regulations Relating to Fisheries, Fishing and Related Activities for the Marine Fisheries Sector in the Republic of Liberia (Fisheries Regulations), licensing of industrial vessels, registration of artisanal vessels, overseeing the import and export of fish into and from Liberia, collecting catch data and distributing to the statistics division, collecting general information on landing sites in Liberia, and Monitoring Control and Surveillance (MCS). The BNF works closely with the West Africa Regional Fisheries Project (WARFP)-Liberia, to improve the management and regulation of fisheries in Liberia, in line with the Poverty Reduction Strategy (PRS). The BNF also collaborates with partners such as Food and Agriculture Organization (FAO) and the United Nations Development Program (UNDP) and others to ensure that the PRS is achievable. The BNF published new Fisheries Regulations in 2010. The BNF maintains a strong presence within certain communities, particularly in the Marshall area, where they have been working to address unsustainable fishing practices. The BNF will be an important ally as the project seeks to address pressures on priority mangrove areas, particularly those that lie outside the proposed Protected Area network.

46. The Ministry of Internal Affairs is Liberia's oldest and largest institution, and was established under the in 1864. The Ministry is a two tiered structure comprised of a Central and Local Administration. The Central Administration is the corps of personnel assigned at the Headquarters or Central Office of the Ministry with specific duties and functions of administering the affairs of the political sub-divisions of the Country. This body of personnel includes the Minister, deputy ministers, assistant ministers, directors, coordinators, and general staff. The Local Administration is comprised of personnel who run the various political sub-divisions of the country as local government. This leadership structure comprises the County Superintendent, the County Inspector, the Statutory District Superintendent, the District Commissioner, the Township Commissioner, the Paramount Chief, the Clan Chief, the General Town Chief, and the City Mayor (Municipal Leader). Working with members of the Local Administration at all four project sites will be crucial in this project. Their support will be an important determinant of the projects sustainability when the project ends.

SECTION 3: PROJECT JUSTIFICATION

A. Problem Definition: Global Environmental Problems and Root Causes

47. The main threats to Liberia's mangroves include: 1) infrastructure development, such as illegal structures for housing; 2) agriculture expansion, particularly for swamp rice; 3) illegal sand mining; 4) use of mangrove wood for fuel-wood, charcoal, and fish smoking; and 5) unregulated waste disposal.

48. *Infrastructure Development*. Nearly 58% of Liberia's four million people live within 40 miles of the coast, which puts extensive pressure on mangrove ecosystems for food, land, mineral extraction and other resources. The greatest damage to the mangrove forests has occurred near larger towns in the northern region such as Monrovia and Buchanan (both sites for this project), as well as Greenville and Harper in the southern region of the country. Populations are also growing in coastal areas, and new infrastructure (e.g. roads and housing), while desperately needed, will only add additional pressure and increase mangrove deforestation. The biggest threat to Liberia's mangroves is urban expansion and accompanying landfills, particularly in Monrovia (see Figure 2). Similar mangrove destruction can be seen along the entire length of the Mesurado River.

Figure 2: Urban expansion around Monrovia.

Google Earth image accessed January 2016, drone work done during site visits confirmed mangrove loss due to rudimentary housing projects not visible from satellite

49. This expansion began during the civil war when many displaced people—having very limited land space to carry out business activities—established landfills in Mesurado and Marshall mangrove wetlands, causing large areas of mangroves to be destroyed (and to be used as dumps or for sewage disposal). The process continues today. Liberia's burgeoning post-conflict economy and increased population have overwhelmed the original planned land area for Monrovia and other coastal cities. Originally made to accommodate 350,000 persons, Monrovia's population is now

more than 1 million people. As we discovered during the PPG phase, mangroves surrounding Monrovia are being cleared at an industrial scale and in their place plots of land are being developed for the purpose of cheap housing. This mangrove loss is resulting in increased erosion and because the plots barely sit above sea level, communities living within the mangrove are extremely vulnerable to storms, flooding, and climate change.

50. *Agriculture Expansion*. The National Rice Development Strategy of Liberia (Republic of Liberia 2012) is aggressively attempting to double domestic rice production by 2018, which raises a number of potential environmental concerns. Historically, rice has been predominantly grown in upland habitats by smallholder farmers using slash-and-burn methods with minimal agricultural inputs, resulting in low yields harvested once per year; until now lowland habitats have not been farmed extensively for rice. However, this strategy aims to increase rice productivity in both upland and lowland ecosystems, but especially by expanding rice cultivation in the lowlands, where water resources are more abundant and climatic suitability is more favorable for higher productivity and more cropping cycles per year. Lowland rice cultivation is planned to increase from 22,000 ha in 2009 to 110,000 ha by 2018. Overall, the rice strategy will result in a net loss of wetlands, and thus valuable mangrove area, and potentially damage wildlife due to chemical pollutants and habitat loss.

51. Although this initiative claims that "the proposed strategies will substantially improve the food security, environmental sustainability and livelihoods of both rural and urban communities," there are no specific environmental safeguards identified related to ecosystem integrity or the safe use of agricultural inputs. During our site visits, rice cultivation was mentioned by several local communities, particularly in the Marshall and Buchanan areas, but we did not observe any mangroves actively being destroyed for this purpose. However, it is important to note that we focused our site visits on areas that currently have significant mangrove stands based on GIS data collected in December 2014 to January 2015. Additional historical mapping will be carried out as a component of this project to determine the rate, and probable cause, of mangrove deforestation over the past ten years. It is possible that rice cultivation is being done in concentrated areas along the coast and those sites were not visited by this project as there are no significant mangrove stands left.

52. *Sand Mining*. Beach sand mining is one of the most serious threats to the coastline and marine environment in the country (UNDP 2008). Nearly every coastal community practices sand mining primarily for the purpose of brick production but there are no estimates regarding the actual amount of sand being removed. The sand pits cause a slight embayment, which must be filled before the sand moves along the coast leading to exacerbated shoreline erosion. We observed shoreline recession due to coastal erosion at all sites visited. Incidents of beach erosion along the Monrovia coastline have resulted in the loss of land and shorefront properties. We also observed many structures that were being propped up on stilts or attempts to fill in lost land with rocks and trash to try and prevent structures from falling into the water (Figure 3). Erosion and mangrove degradation exacerbate each other in that mangroves have limited area and time to migrate inland and as the coasts erode, mangrove habitat shrinks causing increased habitat degradation. Conversely, mangroves, with their complex root structures prevent coastal erosion but as the ecosystem is lost, erosion caused by sand mining is amplified.

Figure 3: Impacts of sand mining.

A) Sand mined from the river is brought to the shore to dry and be molded into building materials.
B) As a result of sand mining coastal erosion and subsequent habitat degradation coastal structures are at risk of falling into the water.

53. *Fuel, Charcoal, and Fish Smoking*. The production and distribution of charcoal is another practice commonly mentioned by stakeholders as a major threat to mangroves and biodiversity. During the assessment, teams travel along the Liberian coast and the charcoal production and delivery system was evident in every community visited. Talking to local communities they emphasized that the majority of charcoal is produced from terrestrial forest wood but that mangrove wood adds strength and longevity to the product. Charcoal made with a percentage of mangrove wood is therefore more valuable at market. What is not known is the amount of mangrove wood used (which will vary significantly from one location/batch to the next), and whether the amount included in charcoal production is sustainable. Mangrove wood is also highly valued for smoking fish that will be sold at market because the wood gives the fish a distinctive brown color that buyers find attractive (other wood turns the fish black). Thus, the use of mangrove wood for charcoal and smoking is not just about access and availability, instead mangrove wood provides specific qualities that make providing alternatives difficult.

54. *Unregulated Waste Disposal*. Pollution is a threat not only to mangroves and biodiversity but also to basic human health. Improper waste disposal practices in much of the country threaten the access to and quality of drinking water, and contribute to the spread of disease. Liberia continues to struggle with providing sufficient access to water and sanitation facilities, and this is true for both urban and rural populations. The need for improved solid waste management is anticipated to increase with economic growth, and with continued rural-to-urban migration. The mangrove areas surrounding Monrovia were particularly impacted by poor water quality and marine debris.

Figure 4: Mangrove root systems collecting and trapping refuse.

B. Barriers to Addressing the Environmental Problems and Root Causes

Barriers to addressing the environmental issues mentioned above largely fall into five categories:

55. *Weak legal framework*. While the conflict ended in 2003, Liberia's civil war was a long dark period in its history characterized by violence, divisiveness, and economic mismanagement. National and local institutions understandably spent the years following the end of the war reestablishing a working government structure and providing livelihoods, housing, and food to the Liberian people. Liberia is now experiencing some economic improvement but it will take time to put in place the regulatory, political, and informational framework necessary to deal with integrating ecosystem and biodiversity protection into national actions. Specific areas that need improvement include addressing inconsistencies in legislation and how it is applied, lack of integrated planning between different sectors, and inadequate law enforcement. This project will address these barriers by working with government officials across agencies and local communities to integrate mangroves into government sanctioned land-use planning initiatives. CI-Liberia will also act as technical advisors in the completion and implementation of the Marine Protected Area Network.

56. *Capacity*. Institutional and individual capacity at both national and local levels is limited and will need to be strengthened in order to realize the benefits from mangrove protection on coastal biodiversity as well as communities. This includes capacity to manage and monitor mangroves, develop alternative livelihoods, and educate and raise awareness among local communities. This project will address this barrier through working with the Government of Liberia (FDA and EPA) to build scientific capacity through the establishment of a mangrove research center (including mangrove monitoring, reporting, and mapping) that will be housed within the EPA. The research center will provide training in species identification and GIS mapping. It will also function as a data repository.

57. *Funding*. To date, inadequate funding both at the local and national scale threatens to limit the level of implementation of key measures identified as priorities for mangrove and coastal biodiversity conservation. GEF funding for this project, and the co-financing that we were able to raise will increase awareness, capacity, and confidence in our abilities that we will then be able to catalyze into future proposals.

58. *Poverty*. In rural areas, there continues to be persistent extreme poverty. Economic pressures and limited employment opportunities have resulted in an increase in local communities' dependence on mangroves for subsistence and local commerce (wood provides energy and housing materials, species living in mangroves provide food, and other ecological services – most of which are accessed more often by women). This project will address this barrier through the development and implementation of Conservation Agreements (CAs) that will provide employment, livelihoods and/or services specifically designed to meet the needs of each individual community and address the particular threat to mangroves within each context. CAs will be designed to offset the opportunity cost that resource owners believe they will incur if they choose conservation. In essence, communities are compensated for any loss of access to resources using opportunity cost to determine a fair level of compensation. Men and women in Liberia interact with their environment in different ways, and therefore have different needs, priorities, and interests in conservation. This project will take these differences into consideration, and ensure that both men and women are involved with developing and implementing CAs.

59. *Awareness*. At the national level almost nothing is known about mangrove extent, rate of loss, or which threats are the most prominent in key mangrove areas. Due to the lack of quantitative information and insufficient awareness among key decision makers, mangrove and coastal biodiversity conservation has not been a national priority. Through this project we will raise awareness through educational programs specifically targeted at national level decision makers and the community of Monrovia where the mangroves are the most threatened. Also, during the PPG phase we completed the most up to date and comprehensive mangrove map for the entire Liberian coast, something that has never before been done at this level of detail. At the community level awareness of the importance of mangroves for maintaining species diversity and productive fisheries is relatively good, in particular in the communities around Lake Piso largely due to efforts made by the FDA. Through this project we will amplify those efforts by applying the FDA's proven methods for community education to the Marshall, Monrovia, and Buchanan sites included in this project.

C. Current Baseline (Business-As-Usual Scenario) and Future Scenarios without the Project

60. Knowledge regarding the extent, distribution and status of mangrove forests in Liberia is very poor. Estimates of mangrove cover range from as low as 100 up to 427 km^2 (Spalding *et al*. 1997, Giri *et al*. 2011, Tang *et al.* 2014). They are reportedly concentrated around river mouths and coastal lagoons, and comprise of at least six species. Four protected areas that include mangroves have been proposed, but only one, the Lake Piso Multiple Use Reserve (LPMUR), has actually been established to date. The LPMUR (97,159 ha in extent) includes 11,130 ha of mangrove but requires additional management support to ensure that the mangroves and their associated fauna (which includes the West African Manatee (*Trichechus senegalensis)* and other globally threatened species) are adequately protected (Sambolah 2007, BirdLife International 2013).

61. The population of the country, especially of people residing in major coastal towns, is growing very rapidly, and along with it the demand for land, fuel-wood, charcoal, building materials and protein. The World Bank estimates that 49% of Liberian's now reside in urban areas and most urban development is occurring along the coast. The expanding populations are placing ever increasing pressure on mangrove resources and the rate at which mangrove forests are being lost in Liberia is already one of the highest in Africa (FAO 2007). Private developers are also taking advantage of local communities' need for cash income, their low levels of education, and their limited understanding of the true value of the land, and are entering into agreements to purchase or lease riparian and coastal land at rates that are well below market value. In the absence of clear guidelines, policies or regulations preventing it, landowners are free to (and frequently do) clear the land (including any mangrove forests that may exist on this land) thereby depriving coastal communities not only of the land itself but also the ecosystem goods and services that it historically provided.

62. The composition, distribution, status, threats to and benefits provided by mangroves in Liberia is not well understood. Awareness amongst coastal communities and other stakeholders in Liberia of the important role mangrove forests play in supporting biodiversity, livelihoods and community wellbeing through their contribution to primary production, provision of habitat for rare and endangered species, provision of nursery and foraging areas for important fish species, protecting the shoreline from coastal erosion, sediment trapping, water purification, and other goods and services, is also poor.

63. Without this project, and GEF support, it is unlikely that the Liberian Government would be able to initiate mangrove conservation projects with the limited funding and capacity available to them. Current efforts made by the Government of Liberia to monitor and regulate urban development have ignored biodiversity and ecosystem impacts, there is a general lack of information regarding mangrove loss rate and causes, and local communities are often instructed to limit their use of mangroves without any alternatives supplied to them. Without this project, Liberia is on a trajectory to lose all their unprotected mangrove forests, and the biodiversity associated with them, within the next 100 years.

D. Alternatives to the Business-as-Usual Scenario

64. Alternative 1: There are a number of options that can be pursued for improving the conservation status of mangrove forests in Liberia. The first option is a top-down approach in which the Government of Liberia establishes a series of Category 1 Protected Areas for mangroves at each of the priority sites without any consultation or participation by local people.

65. Alternative 2: The second option focuses solely on community-based management of mangroves. Here communities take the responsibility and ownership for designing and implementing management plans for the resources under their control. This will also include self-monitoring and enforcement community imposed rules and regulations regarding resource use.

66. Alternative 3: A third option is one that includes elements of formal protection as well community-based management. This mixed management approach needs to be underpinned by intensive consultation with all affected stakeholders, particularly those from poorer communities in which there is a high degree of dependence on natural resource harvesting.

E. Cost Effectiveness Analysis

67. In the case of a top-down approach (Alternative 1)**,** studies throughout the world have shown that this approach generally meets with limited success owing to the lack of buy-in from local people and the reliance on enforcement and punitive measures such as the imposition of fines and imprisonment to achieve conservation objectives. This approach is unlikely to meet with any success in Liberia owing to the limited capacity of the relevant government agencies to implement such an approach. This approach is also contrary to the participatory approach that the Government of Liberia has adopted for management of natural resources in the country.

68. An entirely community management approach (Alternative 2) has its limitations as often community management approaches initiated by an NGO tend to lose momentum when the NGO withdraws support. Despite the fact that important resources might have been invested in technical assistance and training and efforts made to define phase-out strategies, the overall result is generally that few of the innovations continue after the project finishes. It is important that state owned institutions are empowered to support these innovations in community management through formal protection mechanisms that include protected area management. Further, private land management have yet to be proven in Liberia, would be hard to monitor, and generally do not guarantee conservation outcomes.

69. Support for the conservation measures that are implemented is generally much higher under Alternative 3 approach and success is much more likely. By adopting this approach, we are confident that Liberia's mangroves will be better protected, thus decreasing deforestation, through a combination of improved enforcement, reduced pressures, and the sustainable land management of 35% of total mangroves in Liberia (20% in formally protected areas and 15% in surrounding buffer zones under community management and protection).

F. Incremental Cost Reasoning and Expected Contributions to the Baseline

70. Without GEF interventions current investments in protected areas would focus primarily on terrestrial forest areas. Little consideration would be given to the uniqueness of the mangrove ecosystems and their protection needs. In the case where mangroves have been included in protected areas, such as Lake Piso, little attention has been given to the specific strategies needed to safeguard these ecosystems. Awareness of the importance of these areas would continue to be created by government in an ad hoc fashion, but its ability to ensure protection would be limited. This GEF investment will leverage current investments in terrestrial conservation through the protected areas network and sustainable financing mechanisms being established.

71. Under the business as usual scenario, mangrove conservation planning activities will continue to be ad hoc and piecemeal in their approaches without proper data to develop plans. Also in the absence of this project, priority will continue to be given to planning of development activities rather than to the maintenance of key ecosystems. This GEF investment will facilitate a comprehensive land use planning in all key mangrove areas with key stakeholders. A decision support toolkit will also be created to guide these processes beyond the life of the project. The project will work with key stakeholders building upon all associated efforts to establish a 5-year monitoring and evaluation program that will allow Liberia to properly track, assess and adaptively manage mangrove forest interventions in a collective fashion. Key priority areas will be selected

through a multi-stakeholder process and prioritized for initial investment as demonstration sites for sustainable green development.

72. In the absence of this project, livelihoods activities will continue to be carried out without explicit commitments to conservation actions, thus creating competition for resources or poor planning. Also these investments usually are only for a limited time and often end as funding priorities change. The current lack of sustainable options will continue to lead to the degradation and loss of mangroves in Liberia. This GEF investment will expand current Conservation Agreement efforts that CI has in other areas of the country, and ensure that at least 10 new communities are able to benefit from livelihoods and jobs that support mangrove conservation. These investments will allow project executers to tie local livelihood initiatives to sustainable sources of financing, thus ensuring their longevity.

73. There are currently many investments in awareness and capacity building; however, few of these initiatives have been designed based on a comprehensive needs assessment. Thus, in the absence of the project these initiatives will continue, but will fail to achieve the needed behavior changes in order to ensure mangrove conservation. This GEF investment will support capacity building activities that will take into consideration the specific needs of both government officials and community members and will promote Liberian institutions as world class experts in environmental management. At least four targeted communities will be engaged in a comprehensive awareness creation strategy thus increasing their access to information, understanding of the current threats to mangroves, and awareness of alternatives. In and around Monrovia, there will be a high level awareness campaign targeting national legislators, other decision makers, and involving the media.

G. Associated Baseline Projects

74. ***WB/GEF Consolidation of the Protected Areas Network (COPAN) and Expansion of the Protected Areas Network (EXPAN)--2010- closed, USD 950,000;*** These two projects, implemented by the FDA, have laid the foundation for protected area creation and management in Liberia. Through these projects a framework for the Protected Areas Network in Liberia was established and several new protected areas, such as Lake Piso were created. The proposed project will add mangrove and coastal forest to the existing set of protected areas under that framework. The project will also build upon lessons learned from COPAN and EXPAN in alternative livelihoods and economic development for communities around globally significant biodiversity. In addition, CI Liberia is currently working with the ***Global Conservation Fund*** to establish a sustainable financing mechanism for a protected area in Nimba County. This would establish a governance *structure at the national level to which other protected areas can subscribe.*

75. ***Norway- WB Liberia Forest Sector Project- TBD 2016-2020 USD 37.5 million;*** *The Liberia Forest Sector Program* will be implemented by the FDA with funding from the World Bank and the Kingdom of Norway. This project seeks to expand the protected area network and community forestry program, with a focus on avoiding deforestation and REDD+. This project will continue to support existing PAs, sponsor new PAs and build capacity of the FDA to manage these in future. The proposed project is strategically positioned to collaborate with and benefit from the groundwork of this new project. CI will work with the WB, the FDA and others to ensure that mangrove ecosystems are considered and that tools, such as the decision support toolkit is available as new investments are considered.

76. ***West Africa Regional Fisheries Project (WARFP) [Regional Project]—2009- ongoing, USD 12 million:*** WARFP supports the development of sustainable fisheries, including conserving breeding areas such as mangroves. The proposed project will build upon the regional work done to date and continue to work with local communities on sustainable harvesting practices at the grass roots level. The project will also contribute to the WARFP activities of good governance and sustainable management, improved monitoring, and improved livelihoods.

77. ***UNDP/GEF Enhancing Resilience of vulnerable coastal areas to climate change risks in Liberia—June 2010-June 2014-ongoing, USD 3.3 million:*** This project seeks to develop costal defense mechanisms. Current investments are specifically focused on the Monrovia and Buchanan areas where risks are highest. The proposed project will compliment these investments, working specifically with coastal and mangrove communities on local land-use plans and livelihood solutions. Putting in place mangrove protected areas will also help to address current coastal erosion issues.

78. ***UNDP/GEF Strengthening Liberia's capability to provide climate information and services to enhance climate resilient development and adaptation to climate change—October 2013-2017, USD 6.7 million:*** This project aims to strengthen Liberia's capability to provide climate and hydrological information and services that enable climate resilient sustainable development. This proposed mangrove project will collaborate with the UNDP/GEF project to ensure the data collected for the early warning system is also included as part of local land-use plans and other development activities.

79. ***The government of Liberia's investments in mangroves and coastal areas:***

- ***The Environmental Protection Agency*** hosts a number of education and awareness activities related to conservation of coastal areas and biodiversity (i.e. National Wetlands Day, Biodiversity Day, World Environment Day and Ozone/Climate Change Day). The total investment in these activities annually is USD 75,000. They employ security teams to monitor and enforce wetland and mangrove conservation. They have placed signboards near wetlands and mangroves in Marshall, Montserrado and Bong Counties. They also collaborate with the **Forestry** ***Development Authority*** regarding the use of resources near these areas. The EPA has also led the development of a wetland policy for Liberia.
- ***The Forestry Development Authority; requested budget USD 1.8 million*****:** The FDA is the custodian of protected areas and as such is currently providing staff to manage the existing protected areas in Liberia. Funding for activities beyond staff salaries is being provided through supportive projects like the Forest Sector Project and the proposed project.
- ***Liberia Maritime Authority: Ongoing project Reclaiming Liberia's Beaches and Waterways; 2011-2014-ongoing, USD 1.5 million/year:*** This project is currently raising awareness of the importance of coastal and mangrove areas, providing jobs for beach cleanup, and supporting small community developments such as latrines. The proposed project will build on the current investments providing additional jobs and livelihood creation as well as awareness specifically targeting biodiversity conservation.

80. ***Conservation Agreements in Liberia:*** Globally CI has been implementing the CA model since 2005, and the current portfolio includes projects in Africa, Asia, Latin America, and the Pacific, directly benefitting nearly 35,000 people, protecting nearly 1.5 million hectares of natural habitat, and is capitalized at USD 10 million. In Liberia, CI is working with Chevron to develop CAs that

promote mangrove conservation while developing and promoting alternative livelihoods within local communities in and around the mangrove forest of Buchanan, specifically in the Barcoline community (USD 200,000/year). CI is also working with ArcelorMittal in Nimba County to further test Conservation Agreements as a key management tool to support protected areas (USD 400,000/year). CI's experiences in these projects will provide key lessons learned as to the applicability of the CA model. Overall this project will build on 12 years of conservation and livelihood investments managed by CI in Liberia.

81. The proposed project will also seek to collaborate with other projects in the region and beyond promoting similar objectives to ensure full information sharing and to build on current successes in mangrove conservation. Specifically, the project will collaborate with the USAID Forest Carbon, Markets and Communities project and the USAID Coastal Sustainable Landscapes Project in Ghana. We will do this through regular contact with project managers and also through regular exchanges and site visits. CI-Liberia will also coordinate annual meetings with the other project managers and distribute a quarterly newsletter on the Liberia work to ensure coordination.

H. Project Consistency with GEF Focal Area and/or Fund(s) Strategies

82. This proposed project is consistent with GEF 5 Biodiversity Objectives 1 and 2.

GEF 5 Objective 1: improve sustainability of protected area systems

- Component 1. Outcome 1.1 directly addresses this objective by expanding Liberia's Protected Area Network to include 20% of priority mangrove habitat, representing a significant increase in the scale and scope of the Network.
- Component 2. Outcome 2.2 directly addresses this objective by implementing Conservation Agreements that ensure sustainable use of mangrove habitats which will provide buffer zones around the mangrove protected areas and create locally appropriate sustainable livelihoods that are tied directly to the conservation of biodiversity rather than habitat degradation.

GEF 5 Objective 2: mainstream biodiversity conservation and sustainable use into production landscapes/ seascapes and sectors

- Component 2. Outcome 2.1 directly addresses this objective by building capacity within local communities, local government, and national government agencies for monitoring and evaluation. People at all levels will be included in the process of plan development and implementation.
- Component 2. Outcome 2.2 directly addresses this objective through outreach, capacity building, and awareness raising at the local to national scale that will inform decision makers and lead to a reduction of pressures on priority mangrove areas through integrated land use planning.

83. The project will also contribute to four of the Aichi Biodiversity targets, namely Target 1, 3, 5 and 11. These targets can be linked and tracked to specific Project Outcomes and Indicators as presented in Table 1.

Table 2: Project Contribution to Aichi Targets

Aichi Targets	Linkages with the Project	Relevant Indicators
Target 1 By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	Component 2. Outcome 2.3 directly addresses this target by building the capacity and awareness of key government agencies and local communities on mangrove forest conservation and sustainable use.	Indicator 2.3: Number of government officials and local stakeholders aware of threats and benefits of mangroves
Target 3 By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.	Component 2. Outcome 2.2 directly addresses this target by implementing Conservation Agreements that will provide positive incentives for the conservation and sustainable use of biodiversity in mangrove habitats, as well as sustainable livelihoods that are tied directly to the conservation of biodiversity	Indicator 2.2.1.: Number of communities with Conservation Agreements
Target 5 By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	Component 2. Outcome 2.2 directly addresses this target by ensuring that there is no further deforestation within the 15% of priority mangroves and surrounding buffer areas through addressing drivers of deforestation and improving people's livelihoods.	Indicator 2.2.: Number of ha deforested within the buffer areas surrounding priority sites
Target 11 By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	Component 1. Outcome 1.1 directly addresses this objective by expanding Liberia's Protected Area Network to include 20% of priority mangrove habitat, representing a significant increase in the scale and scope of the Network.	Indicator 1.1.: Area (ha and % of total) of mangrove forest incorporated into protect areas

I. Project Consistency with National Priorities, Plans, and Policies

The following table highlights how this project is aligned with the country's priorities, plans and policies:

Table 2: Project Consistency with National Priorities, Plans, and Policies

National Priorities	Project Consistency
a. **Convention on Biological Diversity (CBD)**	This project addresses, directly or indirectly, articles 1, 7, 8, 10, 11, 12, 13, 16, and 19 of this convention
b. **Agenda for Transformation (Liberia's PRSP), 2012 - 2017**	This project will specifically address ***Strategic Objective 6: Improve Wetlands, Water Catchments, and Coastal Management*** within the environmental cross-cutting section of the Agenda for Transformation otherwise known as Liberia's PRSP. It will also contribute to many other strategic objectives including climate change adaptation and mitigation, environmental governance, and mainstreaming environmental concerns into natural resource use and management policies and practice.
c. **Liberia's Protected Areas Network Strategy, 2006**	While extensive analysis has not yet been completed to evaluate the state of mangroves in Liberia there are already four areas included within the Proposed Protected Areas Network, which includes the following coastal mangrove areas: Lake Piso Multiple Use Reserve, the proposed Margibi Mangrove protected area, the proposed Cestos Senkwehn protected area, and the proposed Grand Kru –River Gee protected area. Additional areas could be added to the protected area based on the project results.
d. **National Biodiversity Strategy and Action Plan (NBSAP), 2015 - 2025**	This project seeks to address the threats identified within the NBSAP and also to contribute to all 6 of the NBSAP goals namely: 1. To take appropriate measures to protect critical ecosystems against harmful effects or destructive practices for conservation of biological diversity; 2. To create biodiversity awareness among sectors of the society and promote international cooperation; 3. To commit the people to the sound and sustainable use of biological diversity to bring about socio-economic development; 4. To promote rational utilization and conservation of biological diversity; 5. To promote access to genetic resources and the fair and equitable sharing of benefits arising from their utilization To contribute to the fulfillment of the Millennium Development Goals through poverty alleviation, food security, and women empowerment in biodiversity conservation by 2015.
e. **National Adaptation Program of Action (NAPA), 2008**	This project addresses key issues highlighted within Liberia's draft NAPA. Mainly it will address socioeconomic challenges of groups identified as most vulnerable and also will support the NAPA priority projects and ongoing efforts to reduce vulnerability to coastal erosion through the maintenance and regeneration of mangrove forest areas.
f. **National Land Reform Programs and Strategies**	There are currently ongoing programs being completed or supported by the Land Commission, USAID and other partners addressing land reform issues. It is important to ensure that these programs are in compliance with laws regarding mangrove protection.

g. **Abidjan Convention, 1984**	Coastal profile and action plans have been completed that highlight the importance of mangrove conservation in Liberia.
h. **National Laws, policies, and regulations**	This project both supports and is developed within Liberian national laws, especially the Environment Protection and Management Law of 2003 and the New Forestry Law of 2006 and the subsequent environmental and forestry management policies.
i. **National Climate Change Policy**	The EPA is currently leading the development of a national Climate Change Policy for Liberia. Drafts of the policy suggest that this project will specifically address a number important policy issues that will be determined in greater detail over the course of this project.

J. Country Ownership and Drivenness

84. The Project Management team consists of a mix of personnel from Conservation International, the Environmental Protection Agency and the Forestry Development Authority of Liberia. During the PPG phase, representatives from an array of government institutions played an integral role designing all the interventions and convening a wide range of stakeholders to ensure that there is broad commitment to this project. There has been sustained support from the GEF focal point, Madam Anyaa Vohiri, during the preparatory phase of the project. Madam Anyaa Vohiri has constantly stated that the Environmental Protection Agency is deeply committed to the success and sustainability of this project, and that much of that success will depend on the country's support, involvement, and commitment to the project. The Environmental Protection Agency made a specific request for the construction of a GIS lab during the life of this project with the view that monitoring of the actions taken in this project, both during and after the project ends, will need to be led by the EPA and other government stakeholders. As co leads on this project, the EPA is acutely aware of the need to include and coordinate a broad cross section of stakeholders, and this has been reflected in the strong drive to include a number of government entities on the Project Steering Committee.

K. Project Consistency and Alignment with CI Institutional Priorities

85. CI implements transboundary ocean management that sustains significant improvements in people's lives while safeguarding a consolidated network of Marine Protected Areas (MPA), well-managed mangrove gulfs, and a sustainable fishery and tourism industry. With nearly a decade of extensive work in marine protected areas, CI is now well-positioned to replicate and expand our innovative solutions to Liberia. Moreover, marine biodiversity and mangrove conservation have been, and will remain, institutional priorities under CI's Oceans and Field division. The new CI marine strategy (set to be released in early 2016) will feature mangroves prominently as important ecosystems for climate adaption and mitigation, valuable fisheries habitats, and as a means to link terrestrial and marine conservation efforts. In the coming years CI will focus efforts on marine conservation at the landscape scale and this project directly applies to this goal through the scope of work proposed (national level MPA network, sites represent approximately half of the total mangrove area in Liberia) and by raising awareness of the value of mangrove habitats for biodiversity at the local community to national level.

86. CI applies a Rights-based Approach to all of its work, and is a leader among conservation organizations in developing institutional policies, tools and training that support a Rights-based Approach to conservation, including CI's Indigenous Peoples Policy, Research Ethics Policy,

guidelines for applying Free, Prior and Informed Consent (FPIC), and guidelines for integrating gender into projects and programs. CI also supports an Indigenous Advisory Group – the first of its kind in the conservation community – to provide ongoing advice on issues related to indigenous peoples and conservation. CI Liberia is an integral part of CI's Sub-Saharan Africa Strategy and this project perfectly aligns with the region's priorities.

SECTION 4: PROJECT STRATEGY

A. Project Vision and Objective

The project vision and objective are as follows (please see Appendix I for more information):

87. **Project Vision:** Liberian communities, decision makers, and private stakeholders recognize the national and global importance of mangroves and commit to a comprehensive plan that strengthens the conservation and sustainable use of these valuable ecosystems.

88. **Project Objective:** To strengthen the conservation and sustainable use of globally important mangrove forests through effective participatory land-use planning and establishment of coastal protected areas in at least 35% of Liberia's mangroves.

89. **Project Indicators:**

a. Level of information and data on the distribution, extent, conservation status, value and key threats to mangroves and associated fauna in Liberia available to inform conservation requirements and planning initiatives
b. Area (ha) and % of mangrove forests in Liberia incorporated in areas designated for formal protection
c. Area (ha) and % of mangrove forests in Liberia safeguarded through community based Conservation Agreements or other legal mechanisms
d. Number of Conservation Agreements negotiated with coastal communities in Liberia

90. **Project Site Selection Approach:** During the Project Preparation Phase we conducted a Rapid Mangrove Survey. Maps of mangrove ecosystems along the entire Liberian coast were developed using GIS and Landsat imagery during the PPG phase and initial project site selection was based on areas that had significant mangrove area and were composed largely of primary forest (see report by Clark & Thompson 2015, Appendix IX). The maps were ground-truthed during site visits and the map accuracy was found to be very high. Communities located within or adjacent to these larger mangrove stands were visited and analyzed for their potential not only for mangrove degradation but also for their capacity and interest in participating in this project. Once the project is underway additional consultation with communities and government officials will be needed to delineate the specific mangrove areas that will be targeted for inclusion in this project. Other factors considered in the site selection are the conservation infrastructure, ease of access, and capacity already in place.

91. Following the survey and initial stakeholder consultations, the northern coast of Liberia was selected for project implementation. Specifically, the mangroves and communities located in the a) Lake Piso, b) Marshall, c) Monrovia, and d) Buchanan areas are being proposed as potential project sites (for detailed description of these sites, please see Appendix X).

92. Lake Piso is an open coastal lagoon near Robertsport northwest of Monrovia and the largest such inlet on the Liberian coast. Mangroves occur behind the dune ridge on the west side of the lake mouth and at other creek mouths. The site is important both as a nursery and spawning ground for fish and sea turtles and as feeding and roosting places for large numbers of shore and sea birds. Mammals such as antelopes, duikers, monkeys, and bushbucks, are found in the area, as well as crocodiles.

93. The wetland surrounding Marshall is dominated by mangroves stands. In addition to the Red Colobus Monkey (*Procolobus badius,* EN), a number of bird species listed by the Convention on the Conservation of Migratory Species of Wild Animals (CMS) appear in the area, such as the Glossy Ibis (*Plegadis falcinellus,* LC*)*, Lesser Kestrel (*Falco naumanni,* LC), and Common Pratincole (*Glareola pratincola,* LC). Mangrove forests at this site provide protection against flooding and underground water recharge and provide an important sediment trap. The very large stands of mangroves, fish population and wildlife are valuable resources for inhabitants in the area. The three rivers are navigable and are used for transport from one village to another.

94. Located in the capital city Monrovia, the Mesurado wetlands are important for the protection of three mangrove species (*Rhizophora harrisonii*, *R. mangle* and *Avicennia germinans*). It provides a favorable habitat and feeding ground for several species of birds including the African Spoonbill (*Platalea alba,* LC), Common Pratincole (*Glareola nuchaltis,* LC), and Curlew (*Numenius arqua*ta, NT). It also hosts the vulnerable African Dwarf Crocodile (*Osteolaemus tetraspis,* VU), the Nile Crocodile (*Crocodylus niloticus,* LC), and the African Sharp-nosed Crocodile (*Mecistops cataphractus*, DD) and plays an important role in shoreline stabilization and sediment trapping. The Mesurado mangroves are threatened by intense charcoal burning and fuel-wood collection as well as clearing for residential housing. An additional threat comes from unregulated fishing, as well as from pollution from the industries around the site, including an oil refinery and paint factories.

95. Buchanan is the second largest port city in Liberia. It is also nesting habitat for the leatherback (*Dermochelys coriacea*, CR), loggerhead (*Caretta caretta*, EN), green (*Chelonia mydas*, EN), and olive ridley (*Lepidochelys olivacea*, VU) sea turtles. CI has been working with the communities in this area since 2013 to reduce the hunting and consuming of turtles as well as addressing problems with turtles becoming entangled in and tearing fishing nets. The local communities have agreed to stop harvesting turtles but the turtles' habitat of mangrove forest is also under threat because the mangroves are a source of fuel to dry fish.

96. Based on the analysis of mangrove use and community engagement completed during the PPG phase, we will develop decision support tools that can be used by decision makers at the national and local levels to inform the development of mangrove protected areas. The tool kit we provide will consist of monitoring and evaluation procedures for determining priority mangrove areas, management plans of those areas, and financial plans for maintaining those areas.

97. The Conservation Agreement (CA) methodology will be introduced with at least 10 communities living in and around key mangrove areas. A CA is an explicit agreement between a group of resource users (communities around the mangroves) and an organization representing conservation investors, specifying conservation commitments on the part of the resource users and a benefit package that will be provided in return for these commitments. The benefit package is determined together with the resource users to ensure that it responds to local needs and priorities, but delivery of benefits over time depends on verified compliance with conservation commitments. CI has demonstrated that CAs are an effective way to channel funding for conservation, with particular interest growing rapidly among private sector partners. Governments also are increasingly recognizing the value of the CA model as a tool for poverty reduction that also achieves ecosystem benefits, as in the case of CI-Ecuador's *Programa Socio Bosque*.

B. Project Components, Expected Outcomes, and Outputs

98. This project will seek to strengthen the conservation and sustainable use of globally important mangrove forests in Liberia through the establishment of coastal protected areas and effective participatory land-use planning. The project comprises two components:

- **Component 1:** Enabling conditions for establishment of coastal protected areas in 20% of priority mangrove forests (15% as National Protected Areas and 5% as community Conserved Mangrove Forest)
- **Component 2:** Reducing pressures in an additional 15% of priority forest areas through integratned land-use planning, improving local community livelihoods and increasing stakeholders' capacity and awareness.

Component 1 Expected Outcomes and Outputs

99. The expected outcome of Component 1 is that at least 20% of priority mangrove forests in Liberia have been identified, delineated and managements plans to safeguard them have been completed. The following outputs will together contribute to achieve the Component 1 outcome:

A. Through this project, detailed information will become available on the distribution, extent, conservation status, value, key threats and rates of loss of mangroves and associated fauna in Liberia that can inform conservation requirements and planning initiatives. This will be achieved through the production of detailed maps of mangrove distribution in the country as a whole from remote sensing (satellite) data, aerial surveys and ground-based field surveys at priority sites identified during the PPG phase of this project (Lake Piso Multiple Use Reserve, Mesurado, Marshall and Buchannan).

B. Stakeholders at all levels will be sensitized to the value of, and be made aware of key threats to mangrove forests in Liberia and will be supportive of measures to protect these important resources. The project team will engage with key decision makers, local authorities and key stakeholders at priority sites identified during the PPG phase of this project to ensure that they are fully informed as of the value and importance of mangroves forests, of the potential threats to these forests in Liberia and the benefits of conserving representative portions of these habitats to local people and the country as a whole. Throughout the project we will increase awareness within the appropriate government agencies, ministries and the legislature to garner support and advocacy for the formal declaration of mangrove and costal protected areas. Materials to be developed as part of this project to achieve these outcomes include videos, pamphlets, signage and detailed technical reports. There will be a series of multi-stakeholder workshops held during this project. A broad cross section of stakeholders from government, civil society and the private sector will be invited to all of these meetings. The project will implement education and awareness activities at a community level to raise awareness on the importance of mangroves.

C. Priority conservation areas incorporating at least 20% of mangrove forest area in Liberia will be identified and delineated, and interventions required to secure protection of mangroves in two coastal protected areas will be formulated, costed and endorsed by all stakeholders. Priority mangrove forest sites where existing levels of protection can be enhanced and formalized and where new coastal protected areas can be established were identified together with key stakeholders in the PPG phase of this project. The project team will work with local stakeholders at these sites and decision makers at a national level to identify and delineate boundaries, zonation and management plans for protected areas in at least two of

these sites. Participatory management plans and financial plans will be developed for each of these proposed national protected areas in consultation with all relevant stakeholders.

D. Gazettement packages including management plans for each of the target protected areas will be prepared and submitted to the President and cabinet for ratification. The gazettement packages will include statutory documentation required for the formal proclamation of the identified protected area through the National Legislature.

Component 2 Expected Outcomes and Outputs

100. The key objective of Component 2 of this project is to reduce pressure on an additional 15% of priority mangrove forests in Liberia through (1) integrated land-use planning, and (2) improving local community livelihoods, and (3) increasing stakeholders' capacity and awareness. The following outputs will together contribute to achieving component 2 outcomes:

A. Integrated land use planning in this project will have two dimensions. Localized land use planning will be conducted with villages located near important mangrove sites. Localized land use planning will ensure that local land users are given the opportunity to play a central role in decision-making processes concerning mangroves that are situated near their community. The project will also convene a broader range of stakeholders in project sites to develop comprehensive land use plans. Decision support tools will be developed that provide key decision makers and other stakeholders, including effected communities, with planning tools that will enable them to prioritize biodiversity conservation and the maintenance of key ecosystems and their services in areas surrounding the formal protected areas targeted in Component 1 of this project, as well as other priority mangrove forest sites in the country that may not be ideally suited for incorporation into formally established protected areas. An additional 15% of the mangrove forest area in Liberia will be targeted as part of this intervention. This 15% will act as a buffer zone to shield the officially protected mangrove areas and other priority sites from external pressures. A 5-year monitoring and evaluation program for mangrove restoration and protection will be developed and capacities will be built to implement this in the long run.

B. This project will also assist communities to become stewards of the mangroves and coastal areas through the development of Conservation Agreements (CAs). Conservation International has demonstrated that CAs are an effective way to channel funding for conservation, particularly in Liberia where we have been implementing CAs successfully since 2014. The project will introduce the CA methodology with at least 10 communities living in and around priority mangrove forests in three of the project sites identified during the PPG phase of this project. CI's Conservation Agreement model fully integrates gender and FPIC into the process. Further, all CAs will be screened to ensure that CI-GEF safeguard policies are adhered to.

C. The benefit package is determined together with the resource users to ensure that it responds to local needs and priorities, but delivery of benefits over time depends on verified compliance with conservation commitments. The community benefit packages will vary from one community to another but they are anticipated to include components related to education, health, investment in sustainable fishing options, and a community-based vigilance and monitoring program to protect mangroves.

D. This community-based vigilance and monitoring program may result in the education and hiring of community members to become community rangers. A community rangers program is a valuable way to create conservation-based jobs, while also cultivating

awareness and pride regarding local biodiversity among the community members. Both men and women will be encouraged to become community rangers and support will be given to ensure both are able to fully participate. The monitoring program will rely on collaboration between community rangers, local conservation NGOs, and the Liberian government. We will design a monitoring framework that uses these three parties to ensure a set of checks and balances and third-party objectivity with respect to CA performance.

E. Of critical importance, the benefit packages design will specifically address the different resource-use roles of men and women, to ensure equitable distribution as well as effectively address all key drivers of unsustainable use. For instance, although men do the fishing, women are responsible for smoking the fish, so they are central in addressing this driver of mangrove loss. The use of mangrove wood as cooking fuel as well as to prepare fish for market is a major cause of deforestation; therefore, we will work with the community to develop more sustainable ways to meet these needs, such as by using more efficient cook-stoves and establishing fuelwood lots. In every case, the overall intention is to ensure that community members do not loose livelihoods, but that livelihoods are strengthened through the agreements. Information on the livelihood and biodiversity baselines will be gathered through the initial phases of CA implementation. Key behaviors that threaten mangroves and surrounding areas that we will seek to address through the implementation of the CAs include practices such as the collection of mangroves for fuel-wood and charcoal. This project will ensure that women have equal access to important positions that hold influence in key decision making bodies that are established during this project.

101. Through this project we will seek to improve understanding and awareness amongst people living in communities surrounding priority mangrove sites, along with community leaders and local authorities in these areas, of the importance of conserving and utilizing mangroves in a sustainable manner, and of any potential alternatives to the destructive use and consumption of mangrove resources that exist. This intervention will complement the education and awareness program that will be implemented as part of Component 1 of this project in as much as the primary focus of this program will be on local people, traditional leaders and local authorities while the primary focus for Component 1 was targeted at decision makers. Education and awareness materials developed as part of Component 1 will need to be adapted and additional materials developed that are fit for purpose. All information disseminated through this project will be presented in a manner that is accessible to all stakeholders, including community members who are illiterate or haven't been through formal schooling.

102. The Project will hire a local consultant to develop a targeted advocacy campaign on the Mesurado wetlands in Monrovia. This campaign will include the development of a video highlighting irresponsible urban development in mangrove areas in Monrovia. The campaign will culminate in a high level meeting with key decision's makers from the legislature to help raise awareness and stimulate action. The consultant will also develop a more positive video on the project that includes aerial footage of mangrove areas and interviews with community members who utilize mangroves, to highlight their importance and the benefits of a sustainable management approach.

103. There will also be a series of multi stakeholder workshops held during this project on Protected Area gazettement and land use planning. Stakeholders will have several opportunities to contribute to the development of the Protected Area gazettement packages and the land use planning decision took kit. The land use planning tool kit will be utilized during landscape level

planning meetings in Buchanan, Lake Piso and Marshall. The broad cross section of stakeholders from government, civil society and the private sector will be invited to all of these meetings. Actions will be taken to ensure equitable participation by women in the communities.

104. The Project will implement education and awareness activities at a community level to raise awareness on the importance of Mangroves. Theatre is often used as an important tool to convey important messages in Liberia. Activities may include the use of theatre to convey important messages about mangrove conservation that are adapted to the local context. The project will utilize sign boards to raise the profile of the project and key conservation messages. The project will ensure that both women and men are well represented during workshops and other stakeholder meetings.

C. Project Timeline

Table 3: Project Timeline

	Timeline											
	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1.1.: 20% of priority mangrove areas have been identified, delineated, and management plan to safeguard them completed												
Output 1.1.1.: A multi-stakeholder participatory process has been established to identify and delineate priority marine and coastal protected areas in Liberia	■	■	■	■								
Output 1.1.2.: Participatory management plans for two proposed national protected areas developed and on-the-ground management activities initiated.	■	■	■	■	■	■	■	■				
Output 1.1.3.: Financial plan, including establishment and management costs in short, medium and long terms, for the inclusion of priority mangrove forests into the Protected Areas Network of Liberia, completed	■	■	■	■								
Output 1.1.3.: Advocacy to create awareness and support for the creation of new coastal and marine protected areas within the appropriate government agencies, ministries and legislature completed	■	■	■	■	■	■	■	■	■	■	■	■
Outcome 1.2 5% of priority mangrove forests is safeguarded through community based Conservation Agreements and other legal mechanisms												
Output 1.2.1.: A multi-stakeholder and community process is established to identify and protect priority mangrove areas	■	■	■	■								
Outcome 2.1.: Priority Mangrove forest land-use planning integrated and mainstreamed in the wider landscape and subjected to 5-year M&E program for adaptive management												
Output 2.1.1.: Multi-stakeholder integrated land-use planning and decision support *toolkit* (with key information gathered) for priority mangrove forests and immediate buffer areas in the wider landscape completed and applied to the priority mangrove areas	■	■	■	■								
Output 2.1.2.: Five-year monitoring and evaluation program for the mangrove forests developed and being implemented by the EPA					■	■	■	■				

	Timeline											
	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 2.1.3.: Plans for demonstration sites developed for sustainable management and restoration by local communities within 4 priority mangrove areas and implemented.												
Outcome 2.2.: No further deforestation within the 15% of priority mangroves and surrounding buffer areas through addressing drivers of deforestation and improving people's livelihoods												
Output 2.2.1.: Conservation agreements signed and being implemented with at least 10 communities providing local economic development (alternative livelihoods) and community involvement in mangrove protected areas management (governance) strengthened in and around key proposed protected areas												
Outcome 2.3.: Capacity and awareness of key government agencies and local communities on mangrove forest conservation and sustainable use substantially improved												
Output 2.3.1.: Capacity building programs, based on needs assessment, designed and delivered to at least 50 government officials and 1,000 members in 4 local communities												

D. Expected Global, National, and Local Environmental Benefits

105. This project seeks to deliver the following global environmental benefits:

Conservation of globally significant biodiversity:

106. Through the increased recognition of mangroves as being important for coastal biodiversity and the establishment of some form of legal protection for 35% of Liberia's mangroves, this project will have a direct and positive impact on global biodiversity. Liberia's coastal mangrove forests are recognized internationally as Key Biodiversity Areas (KBAs). The wetlands of Lake Piso, Mesurado, and Marshall are all designated Ramsar sites and fall within the scope of this project.

107. They provide habitat and feeding ground for several species of birds including the African spoonbill (*Platalea alba,* LC), common pratincole (*Glareola pratincola,* LC) and the curlew (*Numenius arqua*ta, NT). Rufous fishing owls (*Scotopelia ussheri*, VU) have been found to occur in the mangroves of the southeast. Beyond birds, the mangroves also provide habitat to the threatened West African manatee (*Trichechus senegalensis,* VU*)*, African dwarf crocodile (*Osteolaemus tetraspis*, VU), Nile crocodile (*Crocodylus niloticus*, LC), and the African sharp-nosed crocodile (*Mecistops cataphractus, DD*). Liberia's beaches are breeding grounds for Leatherback (*Dermochelys coriacea*, EN), Loggerhead (*Caretta caretta*, EN), Green (*Chelonia mydas*, EN), and Olive Ridley (*Lepidochelys olivacea,* EN) sea turtles and the mangroves provide important nursery areas for young sea turtles. Mangroves also provide important breeding areas for many species of fish, crab, shrimp and mollusks.

Additional Benefits

108. **Sustainable use of the components of globally significant biodiversity**: Through the implementation of participatory land-use planning processes and Conservation Agreements, the project will seek to develop sustainable harvesting practices for mangroves and associated species. The Conservation Agreement approach implemented through this project is based on the premise of fair and equitable benefit sharing. By engaging resource users and all other relevant stakeholders in the planning processes of this project we ensure that they have a say in how resources are extracted sustainably and how benefits are shared.

109. **Improved provision of forest ecosystem goods and services**: This project aims to halt the ongoing destruction of globally significant mangrove ecosystems by creating both national and locally designated conservation areas for 35% of Liberia's mangroves. In doing so, the project will support improved and continued availability of ecosystems services, such as carbon sequestration, nutrient filtration, coastal and soil stabilization, and flood protection.

110. At the national level, a 2013 report estimated that 49% of Liberians experienced some level of food insecurity, and 34% had inadequate food consumption patterns characterized by high intake of cereals and low intake of protein-rich foods (World Food Program 2013). Fish and shellfish provides approximately 15% of total animal protein supply and a recent analysis found Liberia to be very vulnerable to a decline in fisheries due to its low adaptive capacity (FAO 2011). Given the current threats to the mangroves, and the role mangroves play as nurseries for many traditionally and economically important fish species, if mangrove habitats continue to be degraded or lost completely, the impacts on food security would be severe. As a result, there would be greater pressure on the bushmeat trade to meet demands for high quality protein. This, of course, would

have further implications on biodiversity in Liberia, not just in areas near the coast but far inland where bushmeat is obtained.

111. **Reduced vulnerability of mangrove forest ecosystems to climate change and other human-induced impacts:** Through improved land-use planning, livelihood development, and protection this project will reduce human induced impacts on mangrove forests which will in turn make them more resilient to climate change effects.

112. **Reduced pollution and siltation of international waters**: Maintaining healthy functioning mangroves is essential to the filtration of water systems flowing to the sea, and also reducing sedimentation released into the ocean.

E. Expected Human Well-being Benefits

113. The protection of mangrove ecosystems under this project will reduce the vulnerability of people by providing protection and shelter against extreme weather events, such as storm winds and floods and reduce the impact of coastal erosion that is currently threatening Liberia's coastline. Protecting mangroves will help safeguard traditional economic activities such as fishing and gathering of crustaceans, which is generally done by women. Storage of carbon in mangroves in Liberia will also help mitigate against the future impacts of climate change in a country that is highly vulnerable to *climate change impacts* in coastal areas.

114. The project will introduce the Conservation Agreement (CA) methodology with at least 10 communities living in and around key mangrove areas. These agreements will improve the livelihoods of an estimated 10,000 people and will be equitably distributed between men and women. Specific details on the benefits that communities will receive under the Conservation Agreements will need to be determined during the negotiation and design of the agreements; however, we anticipate that investments in local livelihoods and socioeconomic development will potentially enhance food security, improve access to education and health services and provide direct income through conservation jobs.

115. An estimated 10,000 people (equitably distributed between men and women) will also benefit from improved land use planning under this project. This project will enhance rural development and participation in the governance of natural resources through participatory land use planning in 3 project sites. By engaging resource users and all other relevant stakeholders in the planning processes of this project we ensure that they have a say in how resources are extracted sustainably and how benefits are shared. Through this process, communities will be empowered to negotiate future land and resource uses and help reduce power asymmetries that exist between communities and other stakeholders.

F. Linkages with other GEF Projects and Relevant Initiatives

This project will work and coordinate activities with the following initiatives:

Table 4: Other Relevant Projects and Initiatives

GEF Projects Other Projects/Initiatives	Linkages and Coordination
WB/ Kingdom of Norway Liberia Forest Sector Project (LFSP)	This project will continually share lessons and collaborate with the LFSP as it is finalized and begins implementation. To date this has included sharing information on our project approach within protected areas, providing input to the process framework developed for the LFSP Safeguards, and aligning activities to ensure complementarity instead of overlap. We will continue to work with FDA and the WB to ensure the two projects are able to build on one another's success in expanding protected areas, both terrestrial and coastal.
CLED- Project to CI Liberia in the Barcoline community	A Chevron sponsored project being implemented by CI-Liberia; it aims to protect mangroves and coastal systems by putting in place Conservation Agreements with local communities. The successes of the project in Barcoline will be incorporated into the proposed GEF project-specifically in Component 2.
West Africa Regional Fisheries Project(WARFP)	The project, part of a larger regional initiative in 9 countries, in Liberia aims to strengthen the capacity of Liberia to govern and manage targeted fisheries, reduce illegal fishing and increase local value added to fish products. Liberia was granted USD 12 million for the implementation of WARFP over five years beginning in April 2010. The proposed project will coordinate with the BNF to ensure synergies especially in promoting the conservation of key fish breeding areas along the coast (i.e. mangrove forests).
WB/ Forest Carbon Partnership Facility (FCPF) –REDD Readiness Plan	The FCPF has approved a REDD Readiness grant of USD 3.6 million to Liberia to develop and build capacity for its national REDD Readiness Plan. This project will coordinate through the REDD Focal Point and the REDD Technical Working Group to ensure that mangroves are included in the Liberia REDD+ strategy.
UNDP/ GEF Climate Change Adaptation and Agriculture Project	Coordination with the MOA will be critical in ensuring that the approach proposed by both projects are mutually reinforcing especially as it pertains to agricultural development within wetlands and mangroves. CI and EPA sit on the Steering Committee for this project and thus are well placed to ensure coordination.
The Critical Ecosystem Partnership Fund (CEPF)	The CEPF is currently planning a new investment in the Guinean forests which would begin at the end of 2014. Funding would be made available for civil society to participate in biodiversity conservation within KBAs. In Liberia these areas will likely overlap with the project priorities and therefore could be a source of co-financing for the project. Both CI and EPA sit on the management committee developing the investment profile and as such are well placed to ensure coordination.
WIOMSA	WIOMSA aims to advance regional co-operation in all aspects of coastal and marine sciences and management, and to support sustainable development. CI has been collaborating with WIOMSA since 2011 on our blue carbon work, representatives from the

	WIOMSA office in Senegal attended the Blue Carbon Scientific Working Group Meeting, which CI coordinates, in 2015 where they connected to the management team for this project. We will continue to coordinate efforts with WIOMSA in relation to this project to ensure complementarity.
Key regional and international mangrove networks such as WIOMSA Mangrove Network, Mangrove Action Project, applicable Universities, and others as identified.	Both CI and the EPA are in touch with other regional mangrove networks, associations and projects. Throughout the project we will continue to coordinate with these networks through regular contact with project managers and also through regular exchanges and site visits. We will also coordinate annual meetings with the other project managers and distribute a quarterly newsletter on the Liberia work to ensure coordination.
UNDP/GEF project: Enhancing Resilience of vulnerable coastal areas to climate change risks in Liberia—June 2010-June 2014-ongoing, USD 3.3 million	This project seeks to develop costal defense mechanisms. Current investments are specifically focused on the Monrovia and Buchanan areas where risks are highest. The proposed Project will compliment these investments, working specifically with coastal and mangrove communities on local land-use plans and livelihood solutions. Putting in place mangrove protected areas will also help to address current coastal erosion issues and support efforts to enhance resilience of vulnerable coastal areas.
UNDP/GEF project: Strengthening Liberia's capability to provide climate information and services to enhance climate resilient development and adaptation to climate change—October 2013-2017, USD 6.7 million	This project aims to strengthen Liberia's capability to provide climate and hydrological information and services that enable climate resilient sustainable development. This proposed Project will collaborate with the UNDP/GEF project to ensure the data collected for the early warning system is also included as part of local land-use plans and other development activities. CI maintains regular communication with UNDP on both projects.

G. Appropriateness of New Technology and Methodologies to be Applied by the Project

116. The project will introduce the Conservation Agreement (CA) methodology developed by Conservation International (CI), with at least 10 communities living in and around key mangrove areas. A CA is an explicit agreement between a group of resource users (communities around the mangroves) and an organization representing conservation investors, specifying conservation commitments on the part of the resource users and a benefit package that will be provided in return for these commitments. The benefit package is determined together with the resource users to ensure that it responds to local needs and priorities, but delivery of benefits over time depends on verified compliance with conservation commitments.

117. CI's Conservation Agreement model reflects our Rights-based Approach (RBA), which recognizes that respecting human rights is an integral part of successful conservation, and emphasizes community rights to choose and shape conservation and development projects that affect them. CI's RBA includes principles, policies, guidelines, tools, and practical examples to guide the organization, ensuring that we respect human rights in all of our work. Any Conservation Agreement initiative involves a thorough community engagement process and a participatory design and negotiation stage that together must embody the principle of Free, Prior and Informed Consent (FPIC). Moreover, project implementers must seek culturally appropriate ways to ensure

that the unique needs and priorities of disadvantaged or marginalized groups within a community are included, with particular attention to gender considerations and differences among other social groups.

118. CI has demonstrated that CAs are an effective way to channel funding for conservation, with particular interest growing rapidly among private sector partners. Governments also are increasingly recognizing the value of the CA model as a tool for poverty reduction that also achieves ecosystem benefits, as in the case of Ecuador's *Programa Socio Bosque.* Some of CI's Conservation Agreements highlights are listed below:

- Around Cambodia's Central Cardamom Protected Forest (CCPF) — part of the largest remaining intact forest block in Southeast Asia — biodiversity is threatened by shifting agriculture, hunting and trading of wildlife, and fishing practices that result in bycatch of the Siamese Crocodile (*Crocodylus siamensis,* CR*)*, the most threatened crocodilian in the world, with a global population in 2006 of only about 200. In the first year of the CA, nest protection and incubation of eggs led to the release of 20 juvenile crocodiles, representing 10 percent of the global population; such releases, accompanied by village ceremonies and blessed by monks, have yielded a steady increase in the Siamese crocodile population. Starting with support for a single agreement with the community of Chumnoab in 2006, CI-Cambodia now supports Conservation Agreements between CI-Cambodia and four communities around the CCPF who have stopped deforestation and illegal hunting. In return, the communities are benefiting from investments in improved rice production, additional household income from community ranger jobs, and permanent presence of teachers in local schools.

- In South Africa, 22 communal farmers in Namaqualand signed Conservation Agreements with CI-South Africa in 2009 to join the Biodiversity and Red Meat Initiative (BRI), taking steps to restore ecological balance on their farmlands. These agreements represent the first payment for ecosystem services scheme for communal lands in South Africa. The farmers commit to sound rangeland management, fire control, and non-lethal predator responses; in return, CI facilitates the purchase of stock at premium prices, maintains water pumps, and provides employment for three local monitoring officials who assist BRI members in implementing sustainable grazing and monitoring regimes. Benefits also include training opportunities in holistic rangeland management, wetland restoration, and market research. Monitoring shows that behavior change (stock reductions, avoidance of sensitive areas) has reduced pressure on grazing lands, though full biological impact will require considerable time to manifest given that measurable range conditions change very slowly over time; however, wetlands have shown rapid recovery, with marked improvement in quantity and quality of water flows. CI-South Africa now receives funding from the Government of South Africa to support some of the Conservation Agreements with farmers related to rangeland management.

- Since 2007, CI-Colombia has managed Conservation Agreements with eight indigenous and local farming communities of the lower Caquetá and Apaporis Rivers in Colombian Amazonia. The communities are committed to protecting about 300,000 hectares of lakes and forests, habitat for more than 50 fish species, including the Pirarucú (*Arapaima gigas,* DD) and American Arowana (*Osteoglossum bicirrhosum*, not assessed), and many vulnerable and endangered species such as Giant Otters (*Pteronura brasiliensis*, EN), manatees (*Trichechus inunguis*, VU), and Woolly Monkeys (*Lagothrix* spp., VU, EN, and CR). Protected lakes provide the main source of income as well as a staple protein for local people, and are important cultural sites for local communities. Populations of the two target fish species have shown

sufficient increases to warrant consideration of sustainable extraction models. Increased vigilance throughout the project area has helped law enforcement authorities respond to illegal resource use, as community patrols now provide eyes and ears over a vast swath of territory that previously suffered from an enforcement vacuum. Nearly 120 families, more than 800 people, have benefited directly from the agreements through increased income, protection of fishing areas and sacred sites, and strengthened community organization.

- In addition to these three examples, CI maintains a database of monitoring data for more than 40 other Conservation Agreements around the world, tracking socioeconomic trends in partner communities as well as project impacts on biodiversity and ecosystem maintenance. Monitoring data are gathered through partnerships with universities, local NGOs, and relevant government agencies, including community participation in data gathering whenever possible.

119. A second innovative technique that will be introduced through this project is the use unmanned aerial vehicles (UAVs) or drones for assessing the status of priority mangrove forest areas in Liberia. Historically drones have mostly found military and special operation applications, but also are increasingly finding uses in civil applications, such as policing, surveillance and firefighting, and nonmilitary security work, such as inspection of power or pipelines. Drones have also been found to aid conservation efforts and are being used with increasing frequency for this purpose. The World Wide Fund for Nature (WWF) have, for example, been using drones to aid conservation efforts in Chitwan National Park in Nepal since 2012. The Sea Shepherd Conservation Society used drone technology to document the annual seal cull in Namibia. The Namibian and South African governments have been using drones to help combat rhino poaching. Drones were used very successfully in the PPG phase of this project to collected high-definition video footage at the identified priority mangrove sites. This video footage was used to validate remote sensing (satellite) data, to assess the state of mangrove forests at the different sites, to identify hotspots where people and development were encroaching on the forests, and also as an educational tool. It is our intention to make further use of drone technology for assessing the status of mangrove forests at all priority mangrove forest sites and also for the development of educational videos that can be used to promote mangrove conservation efforts throughout the country and region. Communities will be consulted on the use of unmanned aerial vehicles in advance of any activities to ensure that they understand assessments that are being conducted and that they participate fully in any monitoring that takes place.

H. Project Stakeholders

120. There are a range of different stakeholders that are likely to be affected by this project. The Stakeholder Engagement Plan is a cross-cutting element that is central to the project's success and sustainability. Through it we aim to encourage awareness, adoption and stewardship of conservation measures by ensuring effective participation and productive dialogue. Specifically, the Stakeholder Engagement Plan will articulate the different opportunities that stakeholders will have to actively participate in the project and how the expectations of different stakeholders will be managed by the Project Management Unit. The Plan highlights key institutions, organizations, communities and individuals that influence or would be influenced by project activities. An overview of the stakeholder groups considered within the project is provided below:

Local Communities

121. Local communities residing around Lake Piso Multiple Use Reserve in Cape Mount. Communities residing in the Marshall wetlands in Margibi County. Barcoline and Edina communities near Buchanan and local residents in Montserrado wetland.

Local County Administration

122. Local County Administration is the sum-total of personnel who run the various political sub-divisions of the country as local government. The Project will engage members of the county administration to ensure ownership and drivenness for the project by local authorities in each of the four counties that the project will be implemented. This leadership structure in each county comprises the following:

- County Superintendent
- City Mayor
- District Commissioner
- Township Commissioner
- Paramount Chief
- Clan Chief
- General Town chief
- Cultural leaders

National Government Entities

123. Environmental Protection Agency (EPA). The EPA was authorized by the EPA Act in 2003, but did not become functional until late in 2006, with a board of directors and the Policy Council. EPA is charged with implementing the Environment Protection and Management Law, a framework environmental law that envisions the development and harmonization of sector-specific laws. EPA serves as the principal authority for managing and regulating environmental quality (including environmental and social impact assessments), and it is directed to coordinate all activities relating to environmental protection and the sustainable use of natural resources. It also promotes environmental awareness and oversees the implementation of international conventions related to the environment.

124. Forestry Development Authority (FDA). The FDA was created by an Act of the Legislature in 1976, which was subsequently amended in 2006 with the adoption of the Forestry Reform Law. The FDA provides forestry planning, develops forestry policy, administers and enforces the forestry laws, administers concession agreements, calculates forestry fees, carries out reforestation and forest research and training, monitors the activities of timber companies, and sets up and administers national parks.

125. Liberia Maritime Authority (LMA). Liberian Maritime Authority has a statutory mandate to administer, promote and regulate programs relating directly and indirectly to the functioning, growth and development of the maritime sector.

126. Ministry of Agriculture (MOA)/ National Bureau of Fisheries (BNF). The Bureau of National Fisheries (BNF) is housed within the MOA to regulate fishing activities in Liberian waters. The BNF is working to promote the sustainable development of the fisheries sector in Liberia, balancing the

needs of ecosystem health, food security, economic growth and development within a framework of good governance. The BNF has three divisions, Marine, Research and Statistics, and Aquaculture, that are closely aided by an administrative section. The BNF is charged with the responsibility of managing and developing fisheries and aquaculture in Liberia. BNF collaborative efforts include work with NGOs to conduct outreach and education and mangrove conservation management with the EPA.

127. Ministry of Gender, Children and Social Protection (MOG). Established in 2001 by an Act of the National Legislature, the Ministry of Gender, Children and Social Protection amongst other things serves as a driving force of government for the practicalization of the Universal Declaration of Human Rights and its related instruments including UN Convention on the Elimination of all forms of Discrimination Against Women (CEDAW); the Convention on the Rights of Children (CRC); the AU Protocols on Women and Children, UNSCR 1325 on Women Peace and Security; and the Beijing Platform for Action.

128. The Ministry is mandated to advise government on all matters affecting the development and welfare of women and children as well as any other matters referred to it by the government. The Ministry is divided into two departments: Planning and Administration and Research and Technical Services.

129. Liberian Coast Guard. The mission of the Liberian Coast Guard is to enforce law and make enquiries, examinations, inspect, search, seize and affect arrests within the Liberian Exclusive Economic Zone, in order to prevent, detect, and suppress violation of the Laws of the Republic of Liberia. In these efforts, the LCG collaborates with a variety of Government Agencies, including BNF, Liberia Maritime Authority, National Port Authority, Bureau of Immigration and Naturalization, and others.

130. Ministry of Internal Affairs (MIA). Ministry of Internal Affairs is responsible for local governance and rural development and as such will be key engaging local communities in the project priority areas.

131. Ministry of Lands, Mines and Energy (MLME). Established in 1972, the MLME maintains jurisdiction over the management and extraction of mineral, water, and energy resources in Liberia. The Ministry was established by an act of legislature to administer all activities relative to land, mineral, water and energy resource exploration, coordination and development in the Republic of Liberia. In adherence to its statutory mandate, the Ministry formulates and implements policies and regulations in collaboration with other sector related agencies for the delivery of efficient services to the public from the land, mineral, water and energy sectors.

132. Monrovia City Corporation. The Monrovia City Corporation oversees municipal waste, and the provision of environmental health and sanitation.

133. Land Commission. The Land Commission was established in 2009. The general mandate and purpose of the Land Commission is to propose, advocate, and coordinate reforms of land policy, laws and programs in Liberia. The mandate of the LC extends to all land and land based natural resources, including both urban and rural land, private and public land, and land devoted to residential, agricultural, industrial, commercial, forestry, conservation and any other purposes. The Land Commission have taken a central role in the drafting of the new Land Rights policy which

aims to empower rural communities by allowing them to manage their land and land based resources so as to advance their economic growth and development.

Bilateral/ Multilateral Entities

134. **USAID**. For nearly six decades, USAID has been working in Liberia on rural and urban development, health and education. USAID invests heavily in natural resource management in Liberia. USAID continues to build the capacity of the Liberian Forestry Development Authority and other government agencies, civil society organizations as well as strengthen local communities' management of forests and natural resources.

135. *USAID PROSPER Program.* USAID Liberia launched a significant new community forestry initiative, the People, Rules and Organizations Supporting the Protection of Ecosystem Resources (PROSPER) Program in 2012 that builds on previous investments in the forestry and agricultural sectors, particularly the Land Rights and Community Forestry Program (2007-2011) and the Liberia Forestry Support Program (2011-2012). PROSPER is intended to introduce, operationalize, and refine appropriate models for community management of forest resources for local self-governance and enterprise development in targeted areas of the country. USAID contracted Tetra Tech ARD in May 2012 to implement the five-year project (2012-2017). ACDI/VOCA manages the third objective of the project, "Livelihood and Enterprise Development," by enhancing livelihoods through improved agriculture and sustainable harvesting of non-timber forest products. PROSPER is working at national, landscape and community levels, including 10 sites in Nimba and Grand Bassa counties; the sites in Grand Bassa include Barcoline, one of the proposed project sites in this project. Several Liberian NGOs are collaborating with PROSPER—in community forest management, livelihood, and education and outreach activities—including Development Education Network Liberia (DEN-L), Sustainable Development Institute (SDI), Save My Future Foundation (SAMFU) and the Society for the Conservation of Nature of Liberia (SCNL).

136. **UNDP.** Environment and energy represents one of the key practice areas for UNDP in Liberia due to its critical links with efforts in poverty eradication and sustainable development. UNDP's activities in Liberia fall within six corporate thematic areas, including Environment & Energy. The Energy and Environment Programme aims to mainstream environment and climate change in national development priorities and strategies in the country. UNDP in Liberia is an implementing agency for the GEF. UNDP have been the implementing agency on a number of GEF projects in Liberia, including projects with a focus on coastal communities and ecosystems.

137. **GEF.** Since joining the GEF, Liberia received GEF grants totaling USD 19,688,901 that leveraged an additional USD 63,230,789 in co-financing resources for 14 national projects. These include six projects in climate change, six projects in biodiversity, one in persistent organic pollutants, and one multifocal area project. During the GEF-5 replenishment period (July 2010 - June 2014), Liberia received an indicative allocation to formulate and execute projects for USD 2,420,000 in biodiversity, USD 2,000,000 in climate change, and USD 620,000 in land degradation.

138. GEF Agencies in Liberia: World Bank, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO) ; Conservation International; African Development Bank

139. National Executing Partners: Environmental Protection Agency, Ministry of Land, Mines and Energy, Rural and Renewable Energy Agency, Ministry of Agriculture, Electricity Corporation, Ministry of Lands

140. CI-GEF Project Agency. The CI-GEF Project Agency supports governments, private sector, civil society and knowledge institutes in accessing GEF funding in Asia, Africa and Latin America. The CI GEF Agency will supervise development, implementation, monitoring and evaluation of the projects and are accountable to the GEF Council.

141. United Nations Environmental Program (UNEP). United Nations Environment Program (UNEP) post-conflict capacity-building program was ended in December 2007. Liberia has since reverted to being serviced remotely by the UNEP Regional Office for Africa. UNEP has strong interest supporting conservation of mangroves and coastal ecosystems in Liberia. UNEP and the EPA are currently implementing a 'The Economics of Ecosystems and Biodiversity' study that aims to demonstrate the value of mangroves for Liberia. The study will focus on revealing the economic and cultural benefits gained from conservation or restoration of wetlands in five study sites along the coast of Liberia.

142. World Bank (WB). In past years, the World Bank has supported more than 30 projects in Liberia that have impacted many sectors such as agriculture, education, transportation, energy, and water, supply and sanitation. Significant projects related to natural resource management include:

- The Smallholder Tree Crop Revitalization Support, operating from 2013-2016, will increase access to finance, inputs, technologies and markets for smallholder tree crop farmers in Liberia (cocoa, coffee, oil palm and rubber), and develop a long term development program for the tree crops sector in six of the country's main tree crop producing counties (Bong, Nimba, Grand Gedeh, Grand Bassa, Montserrado and Margibi).
- The West African Regional Fisheries Program (WARFP), which began in 2009 and operated through 2014, supported a combination of regional cooperatives, national reforms and local education and empowerment. The goal was to help West African countries work together to manage their shared fisheries resources. Since its inception in 2009 WARFP has supported Ghana, Cape Verde, Guinea-Bissau, Liberia, Sierra Leone and Senegal. In Liberia, BNF is currently engaged in activities designed to improve the management and regulation of fisheries in Liberia in line with the PRS.
- The Biodiversity Conservation through Expanding the Protected Area Network in Liberia was initiated in March of 2011 and concluded in 2014. The project's objective was to contribute to the conservation of Liberia's globally significant biodiversity by: (1) providing better representation of ecosystems within Liberia's current protected area network; and, (2) enabling active conservation and sustainable use of biodiversity with local communities. The project includes the planned creation and gazettement of two additional protected areas (Grebo and Grand Kru).

Private Land Owners in Coastal and Riverine Areas

143. Mangroves surrounding Monrovia and Marshall are being cleared and in their place plots of land are being developed for the purpose of housing. This includes housing for impoverished residents in Monrovia and land development by wealthy individuals on the Marshall River.

Private Sector

144. The oil sector is also a fairly recent addition to Liberia's natural resource management portfolio. The Liberia Basin consists of 30 oil concessionary blocks; to date 10 of these blocks have been leased, and all are located adjacent to Liberia's coastline. The Government of Liberia requires environmental and social impact assessments (ESIAs) for all offshore oil exploration, and exploration is limited to areas 25-80 km from the coast and depths of 200 m to protect fisheries. There are currently five production sharing contracts, though the total area for exploration has not been reported (LEITI Database, 2013).

145. Chevron. Chevron Liberia Limited is exploring for energy resources in deepwater concessions off the coast of Liberia. Working with international and Liberian partners, Chevron is drilling some of the first deep water wells in Liberia.

146. ArcellorMittal. ArcellorMittal Liberia mine iron ore in Yekepa, Nimba County, and transport it to the iron ore quay in Buchanan, Grand Bassa County. ArcelorMittal Liberia (AML) launched its Biodiversity Conservation Programme (BCP) in August 2011. This initiative is intended to compensate for the impacts of the mining of direct shipping ore (DSO) over the period of 2011 to 2015.

NGOs and Civil Society Organizations

147. There are a number of local NGOs and civil society groups working with communities towards mangrove protection and alternative livelihoods. The project will seek the involvement of these groups to collaborate with the project.

148. The Society for the Conservation of Nature in Liberia (SCNL). Founded in 1986, SCNL is the oldest environmental NGO in Liberia. Its conservation projects include the creation and maintenance of protected areas, wildlife conservation, bio monitoring, and the use of socioeconomic surveys. They are the local partner for Birdlife International (BI), and have conducted bird inventories in several forest areas, and produced a list of Important Birds Areas in Liberia.

149. Farmers Associated to Conserve the Environment (FACE). Farmers Associated to Conserve the Environment (FACE) Mission is to help empower local farmers to engage in modern, stable farming practices that are sustainable, environmental friendly, and have the propensity to yield significant positive net income. FACE is involved in seed rice multiplication and mangrove conservation. The focus is to promote stable, modern farming systems in order to improve food production and enhance the natural environment.

150. Save My Future Foundation (SAMFU). The Save My Future (SAMFU) Foundation is a non-governmental organization established in 1987 by a renowned Catholic priest and two conservationists. SAMFU's mission is to facilitate and promote participatory community-based sustainable natural and human resource management and development in Liberia. This is pursued through an educational and empowering process in which the people in partnership with each other and those able to assist them identify their priorities, mobilize resources and assume the responsibility to manage and control the resources they depend on. The organization's activities are directed towards the protection for the environment, facilitation of nature conservation and embrace the promotion of social justice, equality and respect for human rights.

151. **National Charcoal Union of Liberia (NACUL).** NACUL is an umbrella organization of charcoal stakeholders in Liberia. NACUL advocates on behalf of charcoal producers, sellers and buyers, and works closely with FDA to monitor charcoal production.

152. **Sea Turtle Watch Liberia.** The Sea Turtle Watch (Liberia) is working directly with other international and local NGOs to build an alliance with the responsible government agencies and coastal communities in an effort to save sea turtles and their habitats in Liberia. Sea Turtle watch are implementing community-based sea turtle conservation projects in five coastal villages (Little Bassa, Samuel Brown, Duo, Sand Farm and Bassa Point Township) that have some overlap with the proposed project sites on this project.

153. **Skills and Agricultural Development Services (SADS).** SADS was founded in 1998 as a campus-based organization with the goal of improving environmental awareness and education of students. SADS is focused on implementing a wide range of education and developmental programs designed to improve social services in areas such natural resource governance, advocacy, human rights, and rural livelihood skill development in Liberia

154. **Rural Integrated Center for Community Empowerment (RICCE).** The mission of RICCE is to empower rural residents to build vibrant self-sustaining communities through peace building initiatives, networking, advocacy and poverty reduction. RICCE works in several program areas, including: rights monitoring, biodiversity conservation advocacy, women's empowerment, agriculture, health promotion, peace building, and community development.

155. **Fauna and Flora International (FFI).** FFI has operated in Liberia since 1997, and currently has a five-year mission (2013-2018) to make a measurable improvement to the status of biodiversity and ensuring resilient ecosystems through supporting good environmental governance, building capacity and supporting conservation-friendly livelihood strategies. Past efforts have included support to re-establish Sapo National Park, developing a rapid ecological assessment tool to identify and prioritize sites for inclusion in the protected area network, leading field activities for the Liberian National Forest Re-Assessment, conducting a variety of floral and faunal surveys, capacity building in key Government of Liberia ministries, and facilitating the development of laws related to community rights and forestry. In the 15 years since FFI's arrival, geographical focus of on-the-ground activities has broadened from the Southeast, to include Nimba Mountains and Lake Piso, both recognized biodiversity hotspots.

156. **Anchor Environmental.** Anchor Environmental is an independent consulting firm based in Cape Town, South Africa offering ecological and economic expertise to inform management and decision making regarding the use and conservation of natural resources.

I. Project Assumptions Risk Assessment and Mitigation

157. The following outlines several key assumptions or external factors that have the potential to influence the success of this project, some of which may lie outside the direct control of the Project Management Unit. These assumptions were progressively identified during the PPG phase of this project.

Table 5: Project Assumptions

Project Outcome	Key Assumptions
Outcome 1.1 Multi-stakeholder participatory process for national protected area identification, delineation and planning to safeguard at least 20% of priority mangrove areas along Liberia's coast completed and results endorsed by Government of Liberia	- Local communities will support the move to establish new protected areas - FDA is willing to support CIs approach to developing PA management and financial plans - The Government of Liberia will endorse plans developed under this project
Outcome 2.1 Priority Mangrove forest land use planning integrated and mainstreamed in the wider landscape and subject to 5-year M&E program for adaptive management	- Social cohesion and governance of target communities are sufficiently strong to fully participate in land use planning activities - Local authorities are supportive of communities participating in land use planning activities - National government entities such as the EPA and FDA work with local authorities to support land use planning activities
Outcome 2.2 No further deforestation within 15% of priority mangroves and surrounding buffer areas through addressing drivers of deforestation and improving people's livelihoods.	- Communities identified during the PPG phase maintain their engagement in the project when it starts - Communities fully participate in the negotiation and design of Conservation Agreements and provide their consent to sign the agreements - Involved communities are open towards integration of gender approach into local processes
Outcome 2.3 Capacity and awareness of key government agencies and local communities on mangrove forest conservation and sustainable use substantially improved	- Government agencies are interested in participating in advocacy and awareness programs offered by the project. - Communities are able to actively participate in raising awareness activities conducted at a community level - Communities are ready to apply new knowledge gained through awareness activities

J. Project Risk Assessment and Mitigation Planning

158. A number of risks have been identified that may affect the implementation of this project. The Project Management Unit has put together the following risk mitigation plan to ensure successful project completion. This risk mitigation plan is designed to manage, eliminate, or reduce risks to an acceptable level. The plan will be continually implemented to assess its efficacy with the intent of revising the course of action if needed.

Table 6: Project Risk Assessment and Mitigation Measures

Project Outcome	Risks	Rating (Low, Medium, High)	Risk Mitigation Measures
Component 1: Enabling conditions for establishment of coastal and marine	Government entities may support an approach to Protected Area gazettement and	Medium	The project will work with individuals from government agencies to help them understand that top down and non-participatory approaches are seldom

protected areas in 20% of priority mangrove forests (15% as National Protected Areas and 5% as community Conserved Mangrove Forest)	management that is top down and non-participatory		successful and that this kind of approach may contravene CI's Right Based Approach to conservation. The project will achieve this through advocacy work that includes workshops and one on one meetings.
	Communities living in or near proposed protected areas may not support the delineation and gazettement of those areas	High	The project will ensure that protected area identification, delineation and planning is a participatory process with full community involvement. The project will support the development of protected areas that allow for sustainable use of natural resources within the Protected Area. The project also proposes to use Conservation Agreements to adequately compensate for any loss of access to resources.
Component 2: Reducing pressures on an additional 15% of priority mangrove areas through integrated land-use planning, improving local community livelihoods and increasing stakeholders' capacity and awareness	There may not be interest from local communities to engage in Conservation Agreements	Low	The project will demonstrate through strong community engagement that the environmental, social and economic benefits of Conservation Agreements have the potential for sustained impact over time. The project will demonstrate that the livelihood benefits associated with Conservation Agreements are determined together with communities and respond to local needs and priorities. The project will achieve this through numerous community meetings and workshops. CI has implemented Conservation Agreements in many countries including Liberia and the lessons learned from this experience will be utilized in this project.
	Local authorities may not be supportive of communities actively participating in land use planning activities	Medium	CI will work with local county authorities to help them understand that top down and non-participatory approaches are seldom successful and that this kind of approach may contravene CI's Right-based Approach to conservation. The project will achieve this through close one on one consultations with different local officials to help sensitize them on these issues
Component 1 & 2	The impact of climate change	High	Rising sea levels and other climate change related impacts may pose a risk to the successful conservation of mangrove forests that are protected in this project. The project will seek to mitigate this risk through careful site selection.
	A resurgence of the Ebola virus in Liberia	Medium	Whilst the Ebola epidemic has subsided and all but disappeared in the West African region, there remains a risk that Ebola could reappear in Liberia. CI will work with all

			stakeholders to ensure the safety of those affected by this project. The Project Management Unit will ensure that strict hygiene procedures are maintained in the field and that there is continued awareness on Ebola and its impact among stakeholders.
	Conflict in Liberia	Low	It has been over 14 years since civil conflict ended in Liberia. Whilst the risk of conflict remains low, upcoming national elections in 2017 may result in some unrest in local communities. CI will ensure that actions taken in the project do not exacerbate potentially volatile situations in local communities. The Stakeholder Engagement Plan and Process Framework for Restriction of Access to Natural Resources in this document are important tools that will help mitigate against the risk of conflict in this project.

K. Sustainability

159. *Finance*. CI will work to secure the financial sustainability of Protected Areas that feature in this project, by ensuring their inclusion in the National Conservation Trust Fund (NCTF) that is currently being developed by CI, the Government of Liberia, the Global Conservation Fund and the private sector.

160. The first step toward the NCTF will be the establishment of an endowment for the East Nimba Nature Reserve (ENNR), one of Liberia's three existing protected areas. The ENNR was declared in 2003 to protect a key portion of the most important Alliance for Zero Extinction (AZE) site in Africa. The 11,553-hectare reserve is home to a host of endemic and endangered species, including numerous migratory birds, leopards, buffalo, crocodiles, and the endangered West African chimpanzee (*Pan troglodytes*, EN). Twenty-four communities with a total population of about 55,000 around the ENNR are critical partners in management of the Reserve.

161. The ENNR portion of the NCTF will comprise an endowment, such that only the investment earnings on the funds held in trust will be used. This way, once the endowment is capitalized at a level that generates a steady stream of returns sufficient to cover management costs, it will support the ENNR in perpetuity. It will be set up as a Charitable Incorporated Organisation in the United Kingdom, able to receive contributions from a wide range of sources. The initial target for the ENNR endowment is USD 6.75 million, to support annual costs of USD 220,000 per year for management of the reserve and USD 120,000 per year for community development. Depending on available funds and emerging needs, the endowment may further reinforce ENNR management by supporting long-term forest conservation, improved land management practices, or sustainable community development activities in the wider northern Nimba landscape. The Global Conservation Fund has committed USD 1 million toward the capitalization target, and the Government of Liberia now is seeking additional co-financing partners. As a national mechanism, the NCTF will include endowed, revolving, and sinking fund components, and will accommodate sub-accounts tied to individual protected areas (such as the ENNR endowment). Partners envision

that the NCTF will serve as a mechanism for channeling funds from a range of conservation finance sources, including biodiversity offsets from Liberia's growing mining and energy sector, payments for ecosystem services such as REDD+ transactions, and earmarked government revenues such as conservation fees levied on the timber sector. The ultimate goal of the Government of Liberia and her partners is to ensure long-term financing for all Liberia's protected areas. Completing the ENNR portion of the NCTF will be an important first step toward this goal.

162. *Benefits*. Global biodiversity benefits will be sustained through increased awareness and education of local communities such that mangrove protection becomes standard practice. During the PPG phase we observed the successful long term effects of other such educational programs surrounding mangrove deforestation and sea turtle harvesting in the Lake Piso area. Under this project these proven methods will be implemented with communities in Marshall, Buchanan, and Monrovia. In addition, this project will work to secure national recognition of mangroves through the establishment of a marine protected area network and legally protected mangrove areas and under these forms of legally binding protection, benefits from mangrove conservation will be long lasting.

163. *Long Term Stakeholder Support*. At the community level, the project will leverage CI's well-established system of community involvement in the development, protection and maintenance of protected areas, in general and through using the Conservation Agreement methodology. By incorporating alternative livelihood trainings, establishing woodlots, etc., the project will ensure that the communities will no longer require the deforestation of the mangroves for their survival, and in fact will be empowered and desire to protect these vital ecosystems into the future. At the national level, concessionaires are all developing environmental mitigation plans which will involve these key coastal areas in their environmental impacts assessments. They have vested interest in the health and well-being of communities and the natural environment and therefore will be engaged as potential partners and sources of long-term co-financing. Local NGOs and civil society organizations are currently being consulted and asked to provide input on project activities to ensure complementarity and reduced redundancy. Continued involvement of key organizations will allow CI to build upon our partner's efforts to establish a comprehensive mangrove program for Liberia. Through this effort, stakeholder support will develop into formal partnerships and networks.

164. *Institutional sustainability*. President Sirleaf has prioritized issues of coastal erosion nation-wide and specifically mangrove destruction in and around Monrovia. To meet the challenge, she has established government initiatives such as: the protected areas network overseen by the Forestry Development Authority, sustainable fisheries projects under the National Bureau of Fisheries within the Ministry of Agriculture, and rural development plans with the Ministry of Internal Affairs. Through this project, CI and the EPA will advise in the development of management plans and marine protected area networks to include mangroves. The timeline for this project will bridge the election cycle providing consistency of message during that time. The project will also build institutional capacities within key government ministries and agencies to provide improved protected area management that will benefit Liberia beyond the life of the project.

165. *Environmental threats to sustainability*. As the population continues to grow in Liberia pressure to clear cut mangroves for urban development will grow as well. In addition, climate change poses an increasing threat, largely due to sea level rise and increased coastal erosion. Through this project, protection of 35% of the mangroves will ensure the sustainable use or complete absence of

cutting for a significant portion of Liberia's mangroves, preventing use for rural and urban development. Also, intact and healthy mangrove stands are very effective at reducing the impacts of climate change.

166. *Decision making tools*. The land-use planning decision support toolkit developed and piloted during this project will provide key decision makers and technicians with a tool that can be used beyond the life of this project, with the ability to replicate the process in other areas of the country. The Conservation Agreement approach seeks to build and enforce local governance structures that should be sustained beyond the project timeline.

L. Project Catalytic Role: Replicability and Potential for Scaling Up

167. Baseline data collected in the PPG phase of this study have been used to identify the highest priority areas for conservation interventions in Liberia at this time. Not all of these priority areas can be tackled within the time and budgetary constraints of this project. These areas, along with a suite of secondary priority areas that have also been identified in this study, can thus be addressed in the future as part of a larger coastal and marine protected area program. Interventions that have been developed, tried, refined and implemented as part of the current project, such as the integrated land-use planning toolkit, education and awareness raising materials, and Conservation Agreement methodology, will be available for use at these additional priority sites in the future, specifically to further expand the Marine and Coastal Protected Area Network and for securing long term protection and sustainable use of mangroves in Liberia. Baseline data necessary to establish a REDD+ project on the carbon value of a mangrove forests in Liberia will also be gathered as part of this project and will be available to mobilize additional resources for mangrove conservation in the future. The set of tools and activities that will be developed and implemented through this project could also be replicated in other countries in West Africa.

M. Innovativeness

168. CI is well-known for innovativeness globally in establishing protected areas through extensive community involvement and integrated land-use planning. With the proposed project, CI will focus on one ecosystem (mangroves) to amplify and expand Liberia's protected areas to include comprehensive marine and coastal protected areas.

169. New and innovative tools in participatory land-use planning and Conservation Agreements will be introduced to Liberia through the proposed project. This will draw upon CI's experiences globally, but will be adapted to the specific situation in Liberia. CI South Africa and its partners have produced a set of best practices in participatory land use planning which will be introduced through this project. CI has worked with local partners to adapt the Conservation Agreement approach in more than 60 communities around the world (including in Nimba County, Liberia). These tools will be used throughout the project to promote integrated management, stewardship, and improved livelihoods within the priority mangrove areas of Liberia.

N. Project Communications, and Public Education and Awareness

170. Information about the project will be disseminated through a number of different channels. Content will be created and disseminated through CIs global website. This will include blog entries, social media updates and videos being posted online to raise the profile of the project and of mangrove ecosystems in Liberia more generally. Media releases will be crafted and published in local newspapers to help highlight major milestones in the project or bring attention to upcoming events. Project factsheets will also be widely disseminated at key meetings and events.

O. Lessons Learned During the PPG Phase and from other Relevant GEF Projects

171. Key lessons learnt during the PPG phase of this project include:

- Although the human population in Liberia is growing very rapidly and there is a high level of dependency on natural resource harvesting as a livelihood strategy, population pressure and its impact of natural resources and biodiversity outside of the larger urban centers in Liberia is still low. It is thus an opportune time to introduce measures to ensure that natural resources are used in a sustainable manner and to secure the country's biodiversity estate.
- There is very limited transport infrastructure (e.g. roads, railways, air transport) in Liberia especially outside the main urban centers. Links between the major urban centers along the coast are also very poor and become almost impassable during the rainy season. Access from the capital Monrovia to outlying centers in the southern half of the country, even during the dry season, is very challenging and time consuming. Priority sites targeted for interventions in this project have thus been specially selected such that they can be accessed easily throughout the year.
- Local communities are sensitive to the need for sustainable use of natural resources and for the conservation of biodiversity and are very willing to modify their behavior in a manner that limits the impact of these activities on the environment provided that suitable alternatives exist or are provided.
- Traditional leadership structures are well entrenched and are well respected across the country, especially outside of the major urban centers, and are very well integrated with national and local government structures where they intersect. People are generally respectful of these governance structures and levels of compliance with the law are high.

SECTION 5: COMPLIANCE WITH CI-GEF PROJECT AGENCY'S ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

A. Safeguards Screening Results

172. The safeguard screening analysis was conducted by the CI-GEF Agency team in February 2014. All GEF project's must incorporate measures as deemed necessary and sufficient to avoid, minimize, abate, and, where appropriate, offset any adverse impacts to people and the environment. The following table outlines the results of the safeguard screening process that was conducted and identifies safeguard policies that were triggered during the initial design of this project. Measures will be undertaken during the project to address the safeguard policy issues outlined below:

Table 7: Safeguard Screening Results and Project Categorization

Policy/Best Practice	Triggered (Yes/No)	Justification
Environmental and Social Impact Assessment Policy	No	
Protection of Natural Habitats Policy	No	
Involuntary Resettlement Policy	Yes	The proposed project intends to better assess and quantify the uses of natural resources by local people and to develop and promote alternatives within the communities. The project also plans to conduct detailed land use planning with these communities and other stakeholders to ensure that the maximum benefits to both biodiversity and livelihoods are promoted. Through the creation of community and national protected areas, specific areas will be designated as core conservation areas where access will be restricted. The project seeks to negate or minimize the effects of restricted access through the provision of sustainable livelihoods in other areas. In all cases this will be done in a participatory process fully respecting the principles of Free, Prior and Informed Consent (FPIC). CI Liberia has recently developed a toolkit for stakeholder engagement best practices including FPIC which will be used throughout this project. Also our proposed implementation of Conservation Agreements fully incorporates FPIC and relies on the adequate incentives for communities to support conservation measures.
Indigenous Peoples Policy	No	
Pest Management Policy	No	
Physical Cultural Resources Policy	No	
Stakeholder Engagement	Yes	This project aims to fully engage local communities living in and around key mangrove forests affected by this project. They will be involved through participatory planning and the use of best practices in community engagement. A focus will be placed specifically in providing locally appropriate

Policy/Best Practice	Triggered (Yes/No)	Justification
		alternatives to current unsustainable harvesting practices, these will be determined with communities during the Conservation Agreement engagement and negotiation phases. As two key tenants of Liberia's development strategy this project will promote income generation and job creation within communities living below the extreme poverty line. The project will work with existing governance structures within the communities, strengthening and adding where needed to ensure full and appropriate representation.
Gender mainstreaming	Yes	Throughout the project the Executing Agency will ensure full and equitable representation in and benefit sharing from project activities. We will seek to engage with all stakeholders within the community including any potentially marginalized groups. The project will engage through current leadership structures and will seek to add to or strengthen these groups when key stakeholders are underrepresented. We will ensure men, women, youth and other groups are engaged and build monitoring systems that include necessary disaggregation to track this throughout the life of the project.

B. Project Safeguard Categorization

The table below describes the overall result of the safeguard screening analysis conducted by the CI-GEF Agency team.

Table 8: Project Categorization

PROJECT CATEGORY	Category A	Category B	Category C
			X
Justification: The review of this screening form and the PIF indicates that this project will not cause or enable to cause any major environmental or social impacts.			

C. Safeguards Policies Recommendations

173. The screening process indicated that three CI-GEF Project Agency Environmental and Social Safeguards will be triggered by this project: Involuntary Resettlement, Stakeholder Engagement, and Gender Mainstreaming. This safeguard screening process also determined that the project's activities will not cause or enable to cause significant negative environmental and social impacts. The measures recommended below will help to avoid, mitigate or compensate the negative impacts generated by this project.

174. Two potential indirect or long-term adverse impacts can be anticipated, if the recommendations described are not properly implemented:

- Restriction/prohibition to traditional or customary access and use of natural resources without proper compensation or alternatives beyond the life of the project. This is applicable to those national protected areas that might be created in the future.

- Unequal distribution of project benefits among different groups within affected communities, especially women and disadvantaged groups.

175. The following measures will be undertaken during the project to address safeguard policy issues:

1. For the potential **restriction of access to and use of natural resources** as a result of the creation of new protected areas, land-use planning, or Conservation Agreements, the Executing Agency has prepared a "Process Framework" that describes the nature of the restrictions, the participatory process by which project components will be prepared, criteria by which displaced persons are eligible, measures to restore livelihoods and the means by which any conflicts would be resolved. A plan may also be developed during implementation providing more detail on the arrangements to assist affected persons to improve or restore their livelihoods. The terms of reference for the "Process Framework" will be provided by the CI-GEF Project Agency, who will approve and oversee the implementation of this Framework throughout the duration of the project.
2. **Stakeholders' engagement**: to ensure that the project meets CI-GEF Project Agency's "Stakeholders' Engagement Best Practice," the Executing Agency has developed a "Stakeholders' Engagement Plan" for the Project Agency's approval. The Project Agency will oversee the implementation of this plan throughout the duration of the project.
3. **Gender mainstreaming issues**: to ensure that the project meets CI-GEF Project Agency's "Gender Mainstreaming Policy #8," the Executing Agency has developed a "Gender Mainstreaming Strategy and Action Plan" that will ensure the mainstreaming of gender issues throughout the project. The terms of reference will be provided by the CI-GEF Project Agency, who will approve and oversee the implementation of this Strategy and Action Plan throughout the duration of the project.

176. Although the project will not "*work in lands or territories traditionally owned, customarily used, or occupied by indigenous peoples,*" the Project Management Unit will ensure that activities in this project embody the principle of Free, Prior and Informed Consent (FPIC). The principle of FPIC refers to the right of indigenous peoples to give or withhold their consent for any action that would affect their lands, territories or rights, as recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). While FPIC is the right of indigenous peoples alone under international law, the principles underlying it are generally considered to be a good guideline for engaging any community or group of local stakeholders.

D. Compliance with Safeguard Recommendations

Process Framework for Restriction of Access to and Use of Natural Resources

177. A Process Framework was developed during the PPG phase. The process framework draws on CI's existing Rights-based Approach to conservation and Conservation Agreement methodology. While this project will not resettle individuals, it may have an effect on access to marine and coastal resources by individuals and communities in the project areas. The project proposes to create the enabling conditions for the establishment of marine and coastal protected areas in Liberia. The process framework provides a set of actions that will be implemented by the Project Manager and the Project Management Unit (PMU) under this project to ensure that communities have been provided the space to give or withhold their consent to a project. The full Process Framework for Restriction of Access to and Use of Natural Resources is presented in Appendix VI.

Stakeholder Engagement Plan

178. A Stakeholder Engagement Plan was prepared during the PPG phase. Elements of the stakeholder plan were refined during a workshop at the conclusion of the Rapid Mangrove Survey. CI hosted a multi-stakeholder engagement meeting to review the findings of the biological and social baseline assessment conducted in priority mangrove areas across Liberia. A wide group of stakeholders came together to confirm, and where necessary, refine project outcomes and targets in preparation for submission of this final Project Document. The workshop was attended by participants including government representatives, private companies, NGOs and community representatives. During the course of the workshop, participants were given opportunities to comment on which key stakeholders needed to be part of the project and the methodology for engagement. The purpose of the Stakeholders' Engagement Plan is to encourage buy-in and support for the project through effective participation and productive dialogue. The plan will help the project in implementing effective communication channels and working relationships. A full version of the Stakeholder Engagement Plan is presented in Appendix VI.

Gender Mainstreaming Strategy and Action Plan

179. To ensure compliance with the safeguards on the inclusion of a gender perspective in the project, a *Gender Mainstreaming Strategy and Action Plan* was developed. Conservation International, in collaboration with the Ministry of Gender, Children and Social Protection, organized a special two-day workshop, entitled "Gender Strategy Development and Gender Mainstreaming" on the 11th and 12th of November 2015. The workshop brought together a cross-section of stakeholders including civil society groups, gender focal points from key government ministries, youth groups and international NGOs. The purpose of the workshop was to review the National Gender Strategy and Policies of Liberia and to identify best practices for mainstreaming gender into natural resource management projects. The final few sessions of this workshop had the specific objective of soliciting participants' views on the Gender Mainstreaming Strategy and Action Plan that was to be developed as part of this proposed GEF project. Input captured during this workshop was used to develop the final Gender Mainstreaming Strategy and Action Plan for this project. A full version of the Gender Mainstreaming Strategy and Action Plan is presented in Appendix VI.

E. Accountability and Grievance Compliance

180. The project will ensure that it is in compliance with the GEF's and CI's Accountability and Grievance Policy. At the community level, complaints will be directed to the project manager or implementing partner and through him or her, to the technical director. If the complaint, depending on its complexity, cannot be resolved by the technical director, it will be taken up by the Project Management Unit (PMU), who will address it at the next PMU meeting or, if necessary, organize an emergency meeting. Obtaining an answer to the complaint should not exceed more than 60 working days and must be provided in written form. Complaints will be addressed whenever they refer to a problem occurring within one of the four project areas and during the lifetime of the project. The letter of complaint must be signed by any of the owners or holders of complainant. Complaints from other stakeholders, including partners, will also be directed to the project manager, the technical director or the Project Management Unit. The CI-GEF Project Agency will be promptly informed about complaints submitted to the project manager, the technical director or the Project Management Unit and their resolution. Grievances not addressed

at the project/country level can be escalated with CI's General Council Office at HQ. Verbal complaints will also be addressed in community level meetings.

181. In addition, a specific grievance mechanism will be established for each and every Conservation Agreement that is signed with communities. The details of the grievance mechanism will depend on the nature of the agreement and community dynamics; however, at a minimum the grievance management system under any agreement will track grievances and foster conflict resolution from the point of reporting to the point of redress and finality. A Conservation Agreement grievance mechanism will provide a system for recognising and responding coherently to a complaint through identifying a person responsible for investigating the complaint and coordinating response.

182. The system will include a methodology for the following:

- Receiving complaints through any of the above channels
- Assessing information needs
- Allocating responsibility for investigation
- Recording the process
- Contacting the complainant
- Determination of the facts
- Agreeing responsibility and action where required
- Informing the complainant
- Dealing with disagreements over response and outcome
- Implementing action
- Researching complainant satisfaction
- Monitoring and evaluating the outcome

SECTION 6: IMPLEMENTATION AND EXECUTION ARRANGEMENTS FOR PROJECT MANAGEMENT

A. Project Execution Arrangements and Partners

183. Conservation International, as the Project Executing Agency, will play the lead role in implementing and monitoring the project and maintaining its strategic focus. The Environmental Protection Agency (EPA) of Liberia is the primary strategic partner and Co-executing Agency on this project. The EPA has been deeply involved during the preparatory phase and will continue to play a strong role during the execution of the project. Also, as custodians of protected areas in Liberia, the Forestry Development Authority has a major role to play within the existing and proposed protected areas impacted by this project. Due to this responsibility they will also be a key Co-executing Agency. Their commitment to this project is highlighted in the co-financing of Component 1.

184. Other important partners who will be involved in project execution are:

- Liberia Maritime Authority
- Ministry of Gender, Children and Social Protection
- Land Commission
- Internal Affairs

Project Management Unit

185. The Project Management Unit (PMU) will be responsible for operative planning and day-to-day implementation of all project activities under the two project components, as well as for monitoring and reporting on project outputs and outcomes. The PMU will prepare and support PSC meetings and manage the project budget. The PMU be based within the CI Office in Monrovia and will be led by a full time Project Manager specifically hired for this project. The Project Manager will maintain ultimate responsibility for this project, with input from the Senior Program Manager, Technical Director, Operations Director, and Country Director. The PMU will receive important technical, administrative and institutional support from other technical advisers at the EPA and FDA. Furthermore, in line with CI's global management structure, this project will receive oversight and compliance monitoring from the Africa and Madagascar Field Division's office in Nairobi.

186. PMU Members:

- Project Manager – CI staff member - to be hired
- Senior Program Manager (Technical Support) – CI staff member - to be hired
- Liam Walsh - Technical Director, CI Liberia (Technical Support)

187. PMU Advisors:

- Jonathan Davies - National Coordinator Biodiversity Projects/Focal Point for Biodiversity, EPA (Technical Support)
- Johansen Voker - Synergistic Project Coordinator, EPA (Technical Support)
- Z. Elijah Whapoe - Manager, Policy and Planning, EPA (Technical Support)
- Blamah Goll, FDA (Technical Support)
- Jerry Yonmah, FDA (Technical Support)

188. The PMU Advisors have an important responsibility to ensure country ownership and drivenness of the project and this applies particularly to the empowerment of communities. The PMU will pursue a bottom up approach giving time to communities to take ownership of the proposed projects and adapt them to their own vision and needs. The PMU will be based in Monrovia at CI's head office in Congotown. The project manager and other staff will travel frequently to the four project sites to maintain close and continuous contact with the project implementing partners, communities and other stakeholders.

189. The PMU and its Advisors will meet on a bi-monthly basis and prior to PSC meetings to review progress of the project and help develop an agenda for PSC meetings. Minutes from PMU meetings will be submitted to the CI – GEF agency and other relevant stakeholders.

Project Steering Committee

190. The project has established a Project Steering Committee (PSC) composed of representatives from a range of different ministries and government agencies. Conservation International acts as the secretariat of the Steering Committee. The EPA will chair the group and the Maritime Authority will act as Co-Chair. FDA will be the alternative should one of the chairs be unavailable. The principal function of the PSC is to provide guidance on the project delivery. The Steering Committee will provide insight based on the requisite positions within government regarding the projects alignment with national policies and laws, best practice and new initiatives. This team will ensure collaboration with other programs and avoid duplication of efforts within the sector. The PSC will meet once a quarter during the project. The PSC will maintain continuous exchange of information among its members by electronic means, and additional ad hoc steering committee meetings can be convened via telephone conference or other means, if necessary.

191. Project Steering Committee members

- Madam Anyaa Vohiri - EPA Executive Director/ GEF operational focal point
- Jonathan Davies - National Coordinator Biodiversity Projects/Focal Point for Biodiversity, EPA
- Johansen Voker - Synergistic Project Coordinator, EPA
- Z. Elijah Whapoe - Manager, Policy and Planning, EPA
- Jessica Donovan-Allen - Country Director CI Liberia
- Darlington Tuagben, Deputy Managing Director, Forestry Development Agency
- Sieane Abdul-Baki, Deputy Minister, Ministry of Gender, Children and Social Protection
- Mr. John Cuffey, Maritime Authority
- R. Fole Sherman, Land Commission
- Mr. J. Momolu Kaindii, Internal Affairs, Director Urban Affairs
- Mr. Adam Manobah (EPA)
- Mr. Jerry Toe – Manager (EPA)

192. The PSC will meet quarterly to review project progress. Minutes of PSC meetings will be submitted to the CI – GEF Agency and other relevant stakeholders.

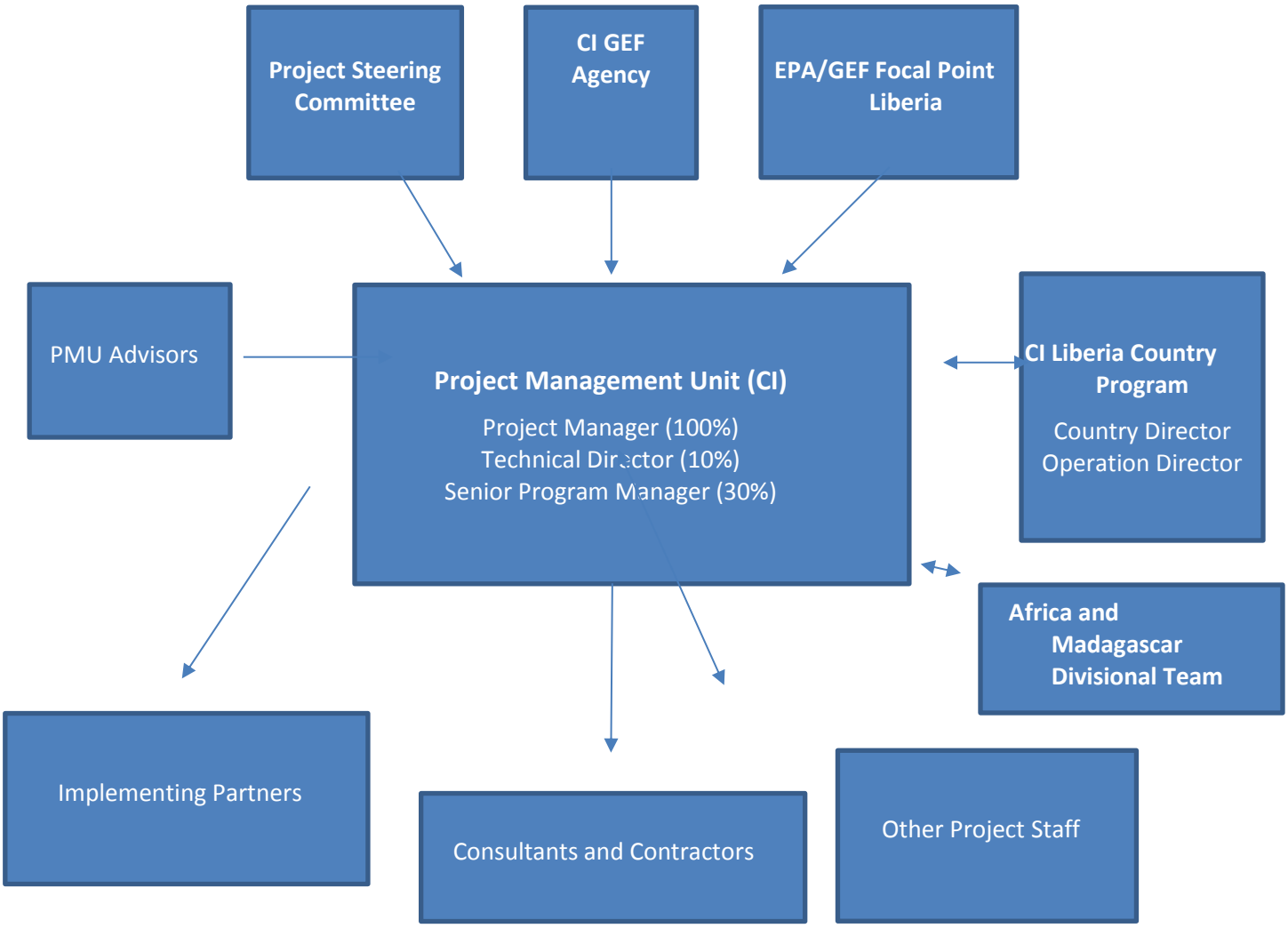
193. The CI-GEF Project Agency will support project implementation by maintaining oversight of all technical and financial management aspects, and providing other assistance upon request of the

Executing Agency. The CI-GEF Project Agency will also monitor the achievement of the project outputs, ensure the proper use of GEF funds, and review and approve any changes in budgets or workplans.

Other Project Staff

194. Conservation International has global staff who will play key roles in the implementation of this project. Their responsibilities will be to ensure alignment with CI strategies and to ensure that the project receives high level guidance regarding new and emerging technologies, lessons learned, and global progress. Specifically, CI's Marine Team, will support best practices in mangrove conservation techniques, provide linkages with international experts, and monitor lessons from other global projects to ensure common approaches and learning. The Conservation Stewards Program, who pioneered the Conservation Agreement model proposed in this project, will also provide technical guidance in the application and adaptation of the model. They will also provide a continuous link to other projects around the world which are using Conservation Agreements to conserve nature and promote livelihoods of local communities.

B. Project Execution Organizational Chart



SECTION 7: MONITORING AND EVALUATION PLAN

195. Project monitoring and evaluation will be conducted in accordance with established Conservation International and GEF procedures by the project team and the CI-GEF Project Agency. The project's M&E plan will be presented and finalized at the project inception workshop, including a review of indicators, means of verification, and the full definition of project staff M&E responsibilities.

A. Monitoring and Evaluation Roles and Responsibilities

196. The Project Management Unit on the ground will be responsible for initiating and organizing key monitoring and evaluation tasks. This includes the project inception workshop and report, quarterly progress reporting, annual progress and implementation reporting, documentation of lessons learned, and support for and cooperation with the independent external evaluation exercises.

197. The project Executing Agency is responsible for ensuring the monitoring and evaluation activities are carried out in a timely and comprehensive manner, and for initiating key monitoring and evaluation activities, such as the independent evaluation exercises.

198. Key project executing partners are responsible for providing any and all required information and data necessary for timely and comprehensive project reporting, including results and financial data, as necessary and appropriate.

199. The Project Steering Committee plays a key oversight role for the project, with regular meetings to receive updates on project implementation progress and approve annual workplans. The Project Steering Committee also provides continuous ad-hoc oversight and feedback on project activities, responding to inquiries or requests for approval from the Project Management Unit or Executing Agency.

200. The CI-GEF Project Agency plays an overall assurance, backstopping, and oversight role with respect to monitoring and evaluation activities.

201. The CI Internal Audit function is responsible for contracting and oversight of the planned independent external evaluation exercises at the mid-point and end of the project.

B. Monitoring and Evaluation Components and Activities

202. The Project M&E Plan should include the following components (see M&E table 8 for details):

a. **Inception workshop**
Project inception workshop will be held within the first three months of project start with the project stakeholders. An overarching objective of the inception workshop is to assist the project team in understanding and taking ownership of the project's objectives and outcomes. The inception workshop will be used to detail the roles, support services and complementary responsibilities of the CI-GEF Project Agency and the Executing Agency.

b. **Inception workshop Report**
The Executing Agency should produce an inception report documenting all changes and decisions made during the inception workshop to the project planned activities, budget, results framework, and any other key aspects of the project. The inception report should be produced within one month of the inception workshop, as it will serve as a key input to the timely planning and execution of project start-up and activities.

c. **Project Results Monitoring Plan** (Objective, Outcomes, and Outputs)
A Project Results Monitoring Plan will be developed by the Project Agency, which will include objective, outcome and output indicators, metrics to be collected for each indicator, methodology for data collection and analysis, baseline information, location of data gathering, frequency of data collection, responsible parties, and indicative resources needed to complete the plan. Appendix IV provides the Project Results Monitoring Plan table that will help complete this M&E component.

In addition to the objective, outcome, and output indicators, the Project Results Monitoring Plan table will also include all indicators identified in the Safeguard Plans prepared for the project, thus they will be consistently and timely monitored.

The monitoring of these indicators throughout the life of the project will be necessary to assess if the project has successfully achieved its expected results.

Baseline Establishment: in the case that all necessary baseline data has not been collected during the PPG phase, it will be collected and documented by the relevant project partners ***within the first year*** of project implementation.

d. **GEF Focal Area Tracking Tools**
The relevant GEF Focal Area Tracking Tools will also be completed i) prior to project start-up, ii) prior to mid-term review, and iii) at the time of the terminal evaluation.

e. **Project Steering Committee Meetings**
Project Steering Committee (PSC) meetings will be held annually, semi-annually, or quarterly, as appropriate. Meetings shall be held to review and approve project annual budget and work plans, discuss implementation issues and identify solutions, and to increase coordination and communication between key project partners. The meetings held by the PSC will be monitored and results adequately reported.

f. **CI-GEF Project Agency Field Supervision Missions**
The CI-GEF PA will conduct annual visits to the project country and potentially to project field sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Oversight visits will most likely be conducted to coincide with the timing of PSC meetings. Other members of the PSC may also join field visits. A Field Visit Report will be prepared by the CI-GEF PA staff participating in the oversight mission, and will be circulated to the project team and PSC members within one month of the visit.

g. **Quarterly Progress Reporting**
The Executing Agency will submit quarterly progress reports to the CI-GEF Project Agency, including a budget follow-up and requests for disbursement to cover expected quarterly expenditures.

h. **Annual Project Implementation Report** (PIR)
The Executing Agency will prepare an annual PIR to monitor progress made since project start and in particular for the reporting period (July 1st to June 30th). The PIR will summarize

the annual project result and progress. A summary of the report will be shared with the Project Steering Committee.

i. **Final Project Report**
The Executing Agency will draft a final report at the end of the project.

j. **Independent External Mid-term Review**
The project will undergo an independent Mid-term Review within 30 days of the mid-point of the grant term. The Mid-term Review will determine progress being made toward the achievement of outcomes and will identify course correction if needed. The Mid-term Review will highlight issues requiring decisions and actions, and will present initial lessons learned about project design, implementation and management. Findings and recommendations of the Mid-term Review will be incorporated to secure maximum project results and sustainability during the second half of project implementation.

k. **Independent Terminal Evaluation**
An independent Terminal Evaluation will take place within six months after project completion and will be undertaken in accordance with CI and GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The Executing Agency in collaboration with the PSC will provide a formal management answer to the findings and recommendations of the terminal evaluation.

l. **Lessons Learned and Knowledge Generation**
Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. There will be a two-way flow of information between this project and other projects of a similar focus.

m. **Financial Statements Audit**
Annual Financial reports submitted by the executing Agency will be audited annually by external auditors appointed by the Executing Agency.

203. The Terms of References for the evaluations will be drafted by the CI-GEF PA in accordance with GEF requirements. The procurement and contracting for the independent evaluations will handled by CI's General Counsel's Office. The funding for the evaluations will come from the project budget, as indicated at project approval.

Table 9: Project M&E Plan Summary

Type of M&E	Reporting Frequency	Responsible Parties	Indicative Budget from GEF (USD)
a. Inception workshop and Report	Within three months of signing of CI Grant Agreement for GEF Projects	• Project Team • Executing Agency •	$2800
b. Inception workshop Report	Within one month	• Project Team	$400

Type of M&E	Reporting Frequency	Responsible Parties	Indicative Budget from GEF (USD)
	of inception workshop	•	
c. Project Results Monitoring Plan (Objective, Outcomes and Outputs)	Annually (data on indicators will be gathered according to monitoring plan schedule shown on Appendix IV)	• Project Team •	$31,000
d. GEF Focal Area Tracking Tools	i) Project development phase; ii) prior to project mid-term evaluation; and iii) project completion	• Project Team • Executing Agency • CI-GEF PA	$31,000
e. Project Steering Committee Meetings	Annually	• Project Team • Executing Agency •	$9000
f. CI-GEF Project Agency Field Supervision Missions	Approximately annual visits	• CI-GEF PA	$500
g. Quarterly Progress Reporting	Quarterly	• Project Team • Executing Agency	$600
h. Annual Project Implementation Report (PIR)	Annually for year ending June 30	• Project Team • Executing Agency • CI-GEF PA	$600
i. Project Completion Report	Upon project operational closure	• Project Team • Executing Agency	$1000
j. Independent External Mid-term Review	CI Evaluation Office Project Team CI-GEF PA	• Approximate mid-point of project implementation period	$18,000
k. Independent Terminal Evaluation	CI Evaluation Office Project Team CI-GEF PA	• Evaluation field mission within three months prior to project completion.	$18,000
l. Lessons Learned and Knowledge Generation	Project Team Executing Agency CI-GEF PA	• At least annually	$200
m. Financial Statements Audit	Executing Agency CI-GEF PA	• Annually	$21,000

SECTION 8: PROJECT BUDGET AND FINANCING

A. Overall Project Budget

204. The project will be financed by a medium size GEF grant of USD 963,994 with co-financing from:

- CI GEF Agency
- The National Government of Liberia – Environmental Protection Agency
- The National Government of Liberia – Forestry Development Authority

205. A summary of the project costs and the co-financing contributions is given in the two tables below. The project budget may be subject to revision during implementation. The detailed Project Budget is provided in Appendix VII.

Table 10: Planned Project Budget by Component

	Project budget by component (in USD)			
	Component 1	Component 2	PMC	Total budget
Personnel Salaries and benefits	$90,800	$197,800	$41,000	$329,600
Contractual services	$104,250	$52,750		$157,000
Travels and accommodations	$18,725	$87,858	$5,122	$111,705
Meetings and workshops	$4,140	$40,850	$2,050	$47,040
Grants & Agreements		$191,400		$191,400
Equipment		$45,220		$45,220
Other Direct Costs	$23,000	$59,029		$82,029
TOTAL GEF FUNDED PROJECT	**$240,915**	**$674,907**	**$48,172**	**$963,994**

Table 11: Planned Project Budget by Year

	Project budget by component (in USD)			
	Year 1	Year 2	Year 3	Total budget
Personnel Salaries and benefits	$106,970	$109,550	$113,080	$329,600
Contractual services	$107,000	$25,000	$25,000	$157,000
Travels and accommodations	$40,950	$36,225	$34,530	$111,705
Meetings and workshops	$20,892	$18,580	$7,568	$47,040
Grants & Agreements	$38,200	$76,600	$76,600	$191,400
Equipment	$45,220			$45,220
Other Direct Costs	$27,129	$27,200	$27,700	$82,029
TOTAL GEF FUNDED PROJECT	**$386,361**	**$293,155**	**$284,478**	**$963,994**

B. Overall Project Co-financing

206. Conservation International is providing $1,000,000 of cash co-financing is from the CI's Global Conservation Fund (GCF), which helps design and support innovative sustainable financing mechanisms for delivering a steady flow of funds to protected areas. GCF Co-financing will support Component 1 of this project, which aims to create the enabling conditions for the establishment of coastal and marine protected areas covering 20% of priority mangrove forests for the period June 2016 – June 2018. GCF has earmarked and will be committing $1 million dollars in financing to endow a trust fund that will support future protected area management in Liberia, including protected areas that feature within this project.

207. The remaining $300,000 of in kind co-finance comes from our partnership with ArcelorMittal in support of Component 2, focusing on conservation agreements and land use planning development for the calendar years 2016-2017.

208. The Forestry Development Authority of the Government of Liberia has committed $1,350,000 in kind co-finance via staff and operational costs to the protected areas network of Liberia, and in support of the creation of the proposed Marshall Wetlands protected area.

209. The Environmental Protection Agency of the Government of Liberia is providing $1,000,000 in-kind co-financing in staff time to support the Project Steering Committee Activities as well as stakeholder engagement and consultations. This funding will also support the creation of a mangrove monitoring center to be established by this project.

Table 12: Committed Cash and In-Kind Co-financing (USD)

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount
GEF Agency	Conservation International	In-kind	$300,000
GEF Agency	Conservation International	Cash	$1,000,000
GEF Agency	Government of Liberia, Forestry Development Authority	In-kind	$1,350,000
National Government	Government of Liberia, Environmental Protection Agency of Liberia	In-kind	$1,000,000
TOTAL CO-FINANCING			**$3,650,000**

APPENDIX I: Project Results Framework

Objective:	To strengthen the conservation and sustainable use of globally important mangrove forests through effective participatory land-use planning and establishment of coastal protected areas in at least 35% of Liberia's mangroves.
Indicator(s):	a. Level of information and data on the distribution, extent, conservation status, value and key threats to mangroves and associated fauna in Liberia available to inform conservation requirements and planning initiatives b. Area (ha) and percentage (%) of mangrove forests in Liberia incorporated in areas designated for formal protection c. Number of Conservation Agreements implemented with coastal communities in Liberia d. Area (ha) and percentage (%) of mangrove forests in Liberia safeguarded through community based Conservation Agreements or other legal mechanisms

Expected Outcomes and Indicators	Project Baseline	End of Project Target	Expected Outputs and Indicators
Component 1: Enabling conditions for establishment of coastal and marine protected areas in 20% of priority mangrove forests			
Outcome 1.1.: 15% of priority mangrove areas have been identified, delineated, and management plans to safeguard them completed *Indicator 1.1.: Area (ha and % of total) of mangrove forest incorporated into protect areas*	• Lake Piso Multiple Use Reserve under limited protection • No current map delineating the extent of mangrove forest distribution in Liberia and identifying the priority areas exist. • No participatory management plans for mangrove areas exist • No financial plan for conservation of priority mangrove forests exist • Low levels of awareness and support for new coastal protected areas within appropriate government agencies, ministries and legislatures	15% of Liberia's mangrove priority areas delineated in a participatory process with management plans for two proposed national protected areas submitted to government for endorsement	Output 1.1.1.: A multi-stakeholder participatory process has been established to identify and delineate priority coastal protected areas in Liberia. *Indicator 1.1.1.:* • *Report on distribution and delineation of mangrove forests in Liberia with priority coastal protected areas identified for incorporation into formal protected areas endorsed by the Government of Liberia* Output 1.1.2.: Participatory management plans for two proposed national protected areas developed and on-the-ground management activities initiated *Indicator 1.1.2.:* • *Gazettement packages prepared for establishment of two coastal protected areas in Liberia and submitted to Cabinet for endorsement* • *Multi-stakeholder management forums established for each proposed protected area* Output 1.1.3.: Financial plan, including establishment and management costs

Expected Outcomes and Indicators	Project Baseline	End of Project Target	Expected Outputs and Indicators
			in short, medium and long terms, for the inclusion of priority mangrove forests into the Protected Areas Network of Liberia, completed. *Indicator 1.1.3.:* • *Financial plans prepared for two coastal protected areas in Liberia and endorsed by the Government of Liberia* Output 1.1.4.: Advocacy to create awareness and support for the creation of new coastal protected areas within the appropriate government agencies, ministries and legislature completed. *Indicator 1.1.4.:* • *Number of key government staff (gender disaggregated) that participated in project workshops and training sessions*
1.2 5% of priority mangrove forests is safeguarded through community based Conservation Agreements and other legal mechanisms *Indicator 1.2.: Area (ha and % of total) of mangrove forest under community conservation or other legal mechanisms*	No mangrove forests in Liberia are currently under community conservation	5% of Liberia's priority mangrove forests under community conservation or other legal mechanisms	Output 1.2.1.: A multi-stakeholder and community process is established to identify and protect priority mangrove areas *Indicator 1.2.1.: Number of workshops and meetings held with local communities to discuss progress*
Component 2: Reducing pressures on an additional 15% of priority mangrove areas through integrated land-use planning, improving local community livelihoods and increasing stakeholders' capacity and awareness			
Outcome 2.1.: Priority Mangrove forest land-use planning integrated and mainstreamed in the	No integrated land use practiced in the Liberian coastal zone at present	15% of additional priority mangroves with integrated land	Output 2.1.1.: Multi-stakeholder integrated land-use planning and decision support *toolkit* (with key information gathered) for priority mangrove forests and immediate buffer areas in the wider landscape completed

Expected Outcomes and Indicators	Project Baseline	End of Project Target	Expected Outputs and Indicators
wider landscape (surrounding buffer areas) and subjected to 5-year M&E program for adaptive management *Indicator 2.1.:* *Area (ha) of priority mangroves covered by the M&E program*		use plans and M&E program	and applied to the priority mangrove areas. *Indicator 2.1.1.:* • *Tool kit is completed* • *Number of ha where tool kit has been applied successfully* Output 2.1.2.: Five-year monitoring and evaluation program for the mangrove forests developed and being implemented by the EPA. *Indicator 2.1.2.:* • *M&E program developed and endorsed by the EPA* • *Records of monitoring activities and results of assessments undertaken* Output 2.1.3.: Plans for demonstration sites developed for sustainable management and restoration by local communities within 4 priority mangrove areas and implemented. *Indicator 2.1.3.:* • *Number of plans completed* • *Reduction in the rate of loss of mangrove forest area at priority sites.*
Outcome 2.2.: No further deforestation within the 15% of priority mangroves and surrounding buffer areas through addressing drivers of deforestation and improving people's livelihoods *Indicator 2.2.: Number of ha deforested within the buffer areas surrounding priority sites*	No protection exists for mangrove forests in buffer areas surrounding priority sites at present. Levels of deforestation and mangrove harvesting at many sites is very high at present, especially in the Mesurado and Marshall areas.	At least 50 government officials and 1,000 people in 4 local communities receive training on the key threats to and benefits provided by mangrove forests in Liberia	Output 2.2.1.: Conservation agreements signed and being implemented with at least 10 communities providing local economic development (alternative livelihoods) and community involvement in mangrove protected areas management (governance) strengthened in and around key proposed protected areas *Indicator 2.2.1.:* • *Number of communities with Conservation Agreements* • *Note: additional indicators of CA will be developed for each Agreement and will be monitored throughout the life of the project*

Expected Outcomes and Indicators	Project Baseline	End of Project Target	Expected Outputs and Indicators
Outcome 2.3.: Capacity and awareness of key government agencies and local communities on mangrove forest conservation and sustainable use substantially improved *Indicator 2.3*.: *Number of government officials and local stakeholders aware of threats and benefits of mangroves*	• Awareness of threats and benefits of mangroves amongst government officials in Liberia is currently very poor. • Awareness of threats and benefits of mangroves amongst people in local communities at the four priority sites is variable (moderately high at Lake Piso but poor at the other priority sites).	At least 50 government officials and 1,000 people in 4 local communities have received training on the key threats to and benefits provided by mangrove forests in Liberia	Output 2.3.1.: Capacity building programs, based on needs assessment, designed and delivered to at least 50 government officials and 1,000 members in 4 local communities *Indicator* 2.3.1.*:* • *Needs Assessment completed and report available* • *Capacity building program designed* • *Number of participants by type of stakeholders (gender disaggregated)*

Appendix II. Safeguard Screening Results

CI-GEF PROJECT AGENCY

SCREENING RESULTS AND SAFEGUARD ANALYSIS

Date Prepared/Updated: February 14, 2014

I. BASIC INFORMATION

A. Basic Project Data		
Country: Liberia	**GEF Project ID**:	**CI Project ID**:
Project Title: Improve sustainability of mangrove conservation as a building block towards the creation of Costal and Marine Protected Areas		
Estimated Appraisal Date: End of PPG phase and before beginning of full project implementation		
Executing Entity: CI-Liberia, EPA Liberia		
GEF Focal Area: Biodiversity and Land Degradation (GEF STAR)		
GEF Project Amount: USD 1,190,000		
Other financing amounts by source: 4 million, Government of Liberia, CI and partners, WB FCPF, GCF (please refer to PIF for details)		
Reviewer(s): Miguel A. Morales		
Date of Review: February 13, 2014		
Comments:		

B. Project Objective:

To strengthen the conservation and sustainable use of globally important mangrove forests through effective participatory land-use planning and establishment of marine and coastal protected areas in Liberia

C. Project Description:

Biological diversity in Liberia has declined significantly over the years with the significant degradation of the country's ecosystems and the rapid loss of many species. In Liberia, one can find mangroves near lagoons and rivers from Cape Mesurado to Cape Palmas. Unfortunately, most primary mangrove forest has been lost in Liberia due to road building, landfill, fuelwood collection and urban expansion. The

greatest damage to the mangrove forests has occurred near larger towns such as Monrovia, Buchanan, Greenville, and Harper. In fact, *Rhizophora racemosa* has been eradicated in many areas due to urban growth.

Updated information is sketchy and conflicting on the extent of mangroves in Liberia. The UNEP report (Mangroves of Central and Western Africa, 2007) provide the following overview on the extent of mangroves in Liberia, however the report failed to provide any explanation on the variance between 2005 (65% decline) and 2006 (43% decline), based on 1980 estimates (see chart on next page).

Table of Mangrove area estimates

Source Year	1980	1990	1997	2000	2005	2006
Area [km^2]	193	143	427	92.5	67.5	110

Mangroves are valued economically because of their utility as fish nurseries and the support they provide to traditional fisheries. In particular, the mangrove systems around Monrovia are important breeding grounds for various commercially viable aquatic species, including fish, crabs, shrimps and water snail (Wiles, 2005). The fishery sub-sector provides about 65% of the protein needs of the country and contributes about 10% to GDP (Government of Liberia, 2004). Local communities depend on mangrove wetlands for subsistence and local commerce, using wood to provide energy supplies, food, shelter, water and medicine and raffia palm for weaving and other ecological services. The economic pressures and limited employment opportunities during and after the war have compelled many families to grow rice for the first time in order to survive. This drove cultivation of land that had never previously been considered for rice production, such as the coastal mangrove swamps. As a result, there are many more families producing rice now than in pre-war times, albeit with smaller plots (UNEP 2007).

Project Components and Main Activities:

Component 1: Enabling conditions for establishment of coastal and marine protected areas in 20% of priority mangrove forests (15% as National Protected Areas and 5% as Community conserved mangrove forest (ICCAs)

Main activities:

- Multi-stakeholder identification and delineation process for the establishment of national and community protected areas in priority mangrove forest areas completed by Q1Y2
- Participatory management plans for two proposed national protected areas developed by Q1Y3 and on-the-ground management activities initiated by Q2Y3
- Financial plan, including establishment and management costs in short, medium and long terms, for the inclusion of priority mangrove forests into the Protected Areas Network of Liberia, completed by Q2Y3
- At least 2 areas for community conservation, totaling at least 5% of priority mangroves, identified and protected through community based Conservation Agreements or other legal mechanisms by Q3Y3
- Advocacy to create awareness and support for the creations of new coastal and marine protected areas within the appropriate government agencies, ministries and legislature completed by Q4Y3

Component 2: Reducing pressures to priority mangrove areas through integrated land-use planning and improving local community livelihoods

Main activities:

- Multi-stakeholder integrated land-use planning and decision support toolkit (with key information gathered) for priority mangrove forests and immediate buffer areas in the wider landscape completed and applied to the priority mangrove areas by Q4Y1
- Five-year monitoring and evaluation program for the mangrove forests developed by Q4Y2 and being implemented by the EPA by Q1Y3
- Plans for demonstration sites developed for sustainable management and restoration by local communities within 4 priority mangrove areas by Q3Y3 and implemented by Q4Y3
- Conservation agreements signed and being implemented with at least 10 communities providing local economic development (alternative livelihoods) and community involvement in mangrove protected areas management (governance) strengthened in and around key proposed protected areas by Q3Y3
- Capacity building programs, based on needs assessment, designed and delivered to at least 50 government officials and 1,000 members in 4 local communities by Q2Y3

D. Project location and physical characteristics relevant to the safeguard analysis:

This project will be executed along coastal areas of Liberia, focusing on critical mangrove forests. Specific sites will be identified during PPG phase. However, most mangrove areas are being used by local communities for fuel-wood, charcoal, building supplies and other household needs. The biodiversity within mangrove forests is also being used for food and medicines.

E. Executing Entity's Institutional Capacity for Safeguard Policies:

According to the results of the capacity assessment of the Executing Agency, based on the information provided it is difficult to assess if past experience is sufficient at this stage without an understanding of the level of involvement of the ZA based technical staff. Therefore, the recommendation of the capacity assessment is:

- All staff working on project to complete environmental and social safeguards training to build understanding of these policies and how they apply to this project, and
- GEF PA should include in the project progress reports a section on safeguards compliance and oversight to ensure regular monitoring of this aspect.

III. SAFEGUARD AND POLICIES

Environmental and Social Safeguards:

Safeguard Triggered	Yes	No	TBD	Date Completed
Environmental & Social Impact Assessment (ESIA)		**X**		*Feb 13, 2014*
Justification:				
Natural Habitats		**X**		*Feb 13, 2014*
Justification:				
Voluntary Resettlement - Displacement	**X**			*Feb 13, 2014*
Justification: • The proposed project intends to better assess and quantify the uses of natural resources by local people and to develop and promote alternatives within the communities. The project also plans to conduct detailed land use planning with these communities and other stakeholders to ensure the maximum benefits to both biodiversity and livelihoods are promoted. Through the creation of community and national protected areas, specific areas will be designated as core conservation areas where access will be restricted. • The project seeks to negate or minimize the effects of restricted access through the provision of sustainable livelihoods in other areas. In all cases this will be done in a participatory process fully respecting the principles of FPIC. • CI Liberia has recently developed a toolkit for stakeholder engagement best practice including FPIC which will be used throughout this project. Also our proposed implementation of Conservation Agreements fully incorporates FPIC and relies on the adequate incentives for communities to support conservation measures.				
Indigenous Peoples			**X**	*Feb 14, 2014*
Justification: • Although the Executing Agency has not identified that the project will "*work in lands or territories traditionally owned, customarily used, or occupied by indigenous peoples*", the review of the screening form indicates that it is very likely that the communities that will be affected by the project can be considered "Indigenous Peoples", according with CI's Institutional Policy on Indigenous Peoples. • According to the policy mentioned above, "CI identifies indigenous peoples in specific geographic areas by the presence, in varying degrees, of: o Close attachment to ancestral and traditional or customary territories and the natural resources in them; o Customary social and political institutions; o Economic systems oriented to subsistence production; o An indigenous language, often different from the predominant language; and o Self-identification and identification by others as members of a distinct cultural group. • This discrepancy must be resolved before the PPG phase begins, thus appropriate safeguards are in place to comply with the CI-GEF Project Agency's Policy #4 on Indigenous Peoples				

Pest Management		**X**		*Feb 13, 2014*
Justification:				
Physical & Cultural Resources		**X**		*Feb 13, 2014*
Justification:				

Other relevant policies and best practices

Triggered	Yes	No	TBD	Date Completed
Stakeholder Engagement	**X**			
Justification: • This project aims to fully engage local communities living in and around key mangrove forests affected by this project. They will be involved through participatory planning and best practice in community engagement. A focus will be placed specifically in providing locally appropriate alternatives to current unsustainable harvesting practices, these will be determined with communities during the Conservation Agreement engagement and negotiation phases. As two key tenants of Liberia's development strategy this project will promote income generation and job creation within communities living below the extreme poverty line. The project will work with existing governance structures within the communities, strengthening and adding where needed to ensure full and appropriate representation.				
Gender mainstreaming	**X**			
Justification: • Throughout the project the Executing Agency will ensure full and equitable representation in and benefit sharing from project activities. We will seek to engage with all stakeholders within the community including any potentially marginalized groups. The project will engage through current leadership structures and will seek to add to or strengthen these groups when key stakeholders are underrepresented. We will ensure men, women, youth and other groups are engaged and build monitoring systems that include necessary disaggregation to track this throughout the life of the project.				

III. KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

- The screening process indicates that three CI-GEF Project Agency Environmental and Social Safeguards will be triggered by this project (Involuntary Resettlement, Stakeholder Engagement, and Gender mainstreaming). In addition, it is very likely that the Indigenous Peoples Safeguards will be also triggered, but this will be determined and recommendation made before the PPG begins;
- This review has also determined that the project's activities will not cause or enable to cause significant negative environmental and social impacts;

- On the contrary, this project is expected to generate benefits (improved livelihoods) for local people; and
- The measures recommended in section 4 (below) should be enough to properly avoid, mitigate or compensate the negative impacts generated by this project.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

- Two potential indirect and/or long term adverse impacts can be anticipated, if the recommendations described below (section 4) are not properly implemented:
    - Restriction/prohibition to traditional or customary access and use of natural resources without proper compensation or alternatives beyond the life of the project. This is specially is applicable to those national protected areas that might be created in the future.
    - Unequal distribution of project benefits among different groups within affected communities, especially women and disadvantaged groups.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts:

- No project alternatives are necessary for this project.

4. Describe measures taken by the Executing Entity to address safeguard policy issues. Provide an assessment of the Executing Entity capacity to plan and implement the measures described:

4. *For the potential **restriction of access to and use of natural resources**, for example as a result of the creation of new protected areas, the land-use planning processes, and Conservation Agreements, and to ensure that the project meets CI-GEF Project Agency's "Involuntary Resettlement Policy #3" the Executing Agency will prepare during the PPG phase a "Process Framework" that describes the nature of the restrictions, the participatory process by which project components will be prepared, criteria by which displaced persons are eligible, measures to restore livelihoods and the means by which any conflicts would be resolved. A plan may also be developed during implementation providing more detail on the arrangements to assist affected persons to improve or restore their livelihoods. The terms of reference for the "Process Framework" will be provided by the CI-GEF Project Agency, who will approve and oversee the implementation of this Framework throughout the duration of the project;*

5. ***Indigenous Peoples**: to ensure that the project meets CI-GEF Project Agency's "Indigenous Peoples Policy #4", the Executing Agency will reassess if indigenous people will be affected by the project, according to CI's policies and guidelines, before the PPG phase begins. The Project Agency will determine then the need to prepare an "Indigenous Peoples Plan" during the PPG phase. If necessary, the terms of reference will be provided by the CI-GEF Project Agency, who will approve and oversee the implementation of this plan throughout the duration of the project;*

6. ***Stakeholders' engagement**: to ensure that the project meets CI-GEF Project Agency's "Stakeholders' Engagement Best Practice", the Executing Agency will develop and submit, within 30 days of the beginning of the PPG phase, a "Stakeholders' Engagement Plan" for the Project Agency's approval. The Project Agency will oversee the implementation of this plan throughout the duration of the project;*

7. ***Gender mainstreaming issues****: to ensure that the project meets CI-GEF Project Agency's "Gender Mainstreaming Policy #8", the Executing Agency will develop, during of the PPG phase, a "Gender Mainstreaming Strategy and Action Plan" that will ensure the mainstreaming of gender issues throughout the project. The terms of reference will be provided by the CI-GEF Project Agency, who will approve and oversee the implementation of this Strategy and Action Plan throughout the duration of the project.*

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people:

- *The consultation mechanisms by each type of major stakeholder will be designed and implemented by the Executing Agency at the beginning of the project preparation phase, and approved and monitor by the Project Agency.*

IV. PROJECT CATEGORIZATION

PROJECT CATEGORY	Category A	Category B	Category C
			X
Justification: • The review of this screening form and the PIF indicates that this project will not cause or enable to cause any major environmental or social impacts.			

V. EXPECTED DISCLOSURE DATES

Safeguard	CI Disclosure Date	In-Country Disclosure Date
Environmental & Social Impact Assessment (ESIA)	**N/A**	**N/A**
Natural Habitats	**N/A**	**N/A**
Involuntary Resettlement - Displacement	Before Project Implementation Begins (date to be confirmed)	Before Project Implementation Begins (date to be confirmed)
Indigenous Peoples	Before Project Implementation Begins (date to be confirmed)	Before Project Implementation Begins (date to be confirmed)
Physical Cultural Resources	**N/A**	**N/A**
Pest Management	**N/A**	**N/A**

APPENDIX III: Project Results Monitoring Plan

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
Objective: To strengthen the conservation and sustainable use of globally important mangrove forests through effective participatory land-use planning and establishment of marine and coastal protected areas in at least 35% of Liberia's mangroves							
Indicator a: Level of information and data on the distribution, extent, conservation status, value and key threats to mangroves and associated fauna in Liberia available to inform conservation requirements and planning initiatives	Data on species composition, distribution, abundance and key threats to mangrove in Liberia	Remote sensing, aerial photography, ground-based surveys	Little or no data available	Whole country bit focusing on priority sites (Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI	$50,000
Indicator b: Area (ha) and percent (%) of mangrove forest in Liberia incorporated in areas designated for formal protection	Area (ha)	GIS maps, project documentation	11 130 ha	Lake Piso Multiple Use Reserve, Marshall	End of project	CI, EPA	$50,000
Indicator c: Number of Conservation Agreements negotiated with coastal communities in Liberia	Conservation agreements	MOA signed with communities	0	Lake Piso Multiple Use Reserve, Marshall, Buchannan	End of project	CI, local communities	$166,000
Indicator d: Area (ha) and percent (%) of mangrove forest in Liberia safeguarded through community based Conservation Agreements or other legal mechanisms	Area (% of total)	GIS maps, project documentation	0 ha				

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
Component 1: Enabling conditions for establishment of coastal and marine protected areas in 20% of priority mangrove forests (15% as National Protected Areas and 5% as community Conserved Mangrove Forest)							
Indicator 1.1.: Area (ha and % of total) of mangrove forest incorporated into protect areas	Area (ha) and % of total	GIS maps, project documentation	11 130 ha, 15% of total	Lake Piso Multiple Use Reserve, Marshall	End of project	CI, EPA	$50,000
Indicator 1.1.1: Report on distribution and delineation of mangrove forests in Liberia with priority coastal protected areas identified for incorporation into formal protected areas and endorsed by the Government of Liberia	Data on species composition, distribution, abundance and key threats to mangrove in Liberia	Remote sensing, aerial photography, ground-based surveys	Little or no data available	Whole country bit focusing on priority sites (Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan)	End of project	CI	$500
Indicator 1.1.2.: Gazettement packages prepared for establishment of two coastal protected areas in Liberia and submitted to Cabinet for endorsement	Number	GIS maps, project documentation	11 130 ha	Lake Piso Multiple Use Reserve, Marshall	End of project	CI, EPA	$45,000
Indicator 1.1.2.: Multi-stakeholder management forums established for each proposed protected area	Number	Meetings	No forums	Lake Piso Multiple Use Reserve, Marshall	Annual	CI, FDA	$10,000

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
Indicator 1.1.3. Financial plans prepared for two coastal protected areas in Liberia and endorsed by the Government of Liberia	Documentation	Project documentation	No evidence of financial plans	Lake Piso Multiple Use Reserve, Marshall	Annually	CI, , EPA, FDA	$45,000
Indicator 1.1.4. Number of key government staff (gender disaggregated) that participated in project workshops and training sessions	Number	Minutes of meetings	-	Monrovia, Lake Piso Multiple Use Reserve, Marshall	Annual	CI, EPA, FDA	$46,805
Indicator 1.2.1: Number of workshops and meetings held with local communities to discuss progress	Documentation	Meetings	-	Monrovia, Lake Piso Multiple Use Reserve, Marshall	Annual	CI, EPA, FDA, local communities	$46,805

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
Component 2: Reducing pressures on an additional 15% of priority mangrove areas through integrated land-use planning, improving local community livelihoods and increasing stakeholders' capacity and awareness							
Indicator 2.1.: Area (ha) of priority mangroves covered by the M&E program	Area (ha) and % of total	GIS maps, project documentation	11 130 ha, 15% of total	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA	$50,000
Indicator 2.1.1.: Tool kit is completed	Project documentation, land-use planning and decision support toolkit	Workshops with communities and government stakeholders, toolkit development	No coordinated land-use planning	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities	$50,000
Indicator 2.1.1.: Number of ha where tool kit has been applied successfully	Project documentation, land-use planning and decision support toolkit	Workshops with communities and government stakeholders, toolkit development	No coordinated land-use planning	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities	$50,000
Indicator 2.1.2.: M&E program developed and endorsed by the EPA	Project documentation	Workshops and meetings, training sessions	No monitoring undertaken at present	Lake Piso Multiple Use Reserve, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities	$22,600
Indicator 2.1.2.: Records of monitoring activities and results of assessments undertaken	Project documentation	Workshops and meetings, training sessions	No monitoring undertaken at present	Lake Piso Multiple Use Reserve,	End of project	CI, EPA, FDA, local authorities	$22,600

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
				Marshall, Buchannan			
Indicator 2.1.3.: Number of plans completed	Land-use plans	Workshops and meetings with communities and local authorities, preparation of land-use plans	No land use plans available	Lake Piso Multiple Use Reserve, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities	$50,000
Indicator 2.1.3.: Reduction in the rate of loss of mangrove forest area at priority sites.	Area (ha) and % of total	GIS maps, project documentation	11 130 ha, 15% of total	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA	$22,600
Indicator 2.2.: Number of ha deforested within the buffer areas surrounding priority sites	Area (ha) and % of total	GIS maps, project documentation	11 130 ha, 15% of total	Lake Piso Multiple Use Reserve, Marshall	End of project	CI, EPA	$23,742
Indicator 2.2.1.: Number of communities with Conservation Agreements	Conservation agreements	Negotiation with communities	No Conservation Agreements in place	Lake Piso Multiple Use Reserve, Marshall	End of project	CI, EPA, local communities	$23,742
Indicator 2.3.: Number of government officials and local stakeholders aware of threats and benefits of mangroves	Number	Meetings and training workshops with local communities, authorities, EPA and FDA	Limited awareness of threats to and value of mangrove forests	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities and local communities	$12,550

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
Indicator 2.3.1.: Needs assessment completed and report available	Project documentation, reports, videos, signage, and posters	Interviews, meetings and workshops	Limited awareness of threats to and value of mangrove forests	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities and local communities	$1000
Indicator 2.3.1.: Capacity building program designed	Project documentation, program document	Workshops/ trainings with communities and government stakeholders,	No capacity building program	Lake Piso Multiple Use Reserve, Monrovia, Marshall, Buchannan	End of project	CI, EPA, FDA, local authorities	$50,000
Indicator 2.3.1.: Number of participants by type of stakeholders (gender dissagreted)	Minutes of meetings	-	Monrovia, Lake Piso Multiple Use Reserve, Marshall	Annual	CI, EPA, FDA	CI	$14,029

Indicators	Metrics	Methodology	Baseline	Location	Frequency	Responsible Parties	Indicative Resources
Safeguard Plans:							
Male/ Female attendance in activities, meetings and trainings	Number/percentage of women/men *attending* activities & trainings & meetings	Gender mainstreaming plan	Limited role of work in decision making ta community level	Lake Piso Multiple Use Reserve, Marshall, Buchannan and Monrovia	Monthly	CI	$15,000
Male/ Female active participation in activities meeting and trainings	Number/percentage of women/men *actively participating* in activities & trainings & meetings.	Gender mainstreaming plan	Limited role of work in decision making ta community level	Lake Piso Multiple Use Reserve, Marshall, Buchannan and Monrovia	Monthly	CI	$15,000
Female/ Male beneficiaries on the project	Number of men/women benefitting from the project	Gender mainstreaming plan	Limited role of work in decision making ta community level	Lake Piso Multiple Use Reserve, Marshall, Buchannan and Monrovia	Monthly	CI	$15,000
Male/ female leadership during project implementation	Number of men/women demonstrating leadership in project implementation.	Gender mainstreaming plan	Limited role of work in decision making ta community level	Lake Piso Multiple Use Reserve, Marshall, Buchannan and Monrovia	Monthly	CI	$15,000

APPENDIX IV: GEF Tracking Tool by Focal Area

- *See separate attachment*

Appendix V: Safeguard Compliance Plans

- Stakeholder Engagement Plan
- Gender Mainstreaming Plan
- Process Framework for the Restriction of Access to and Use of Natural Resources

STAKEHOLDER ENGAGEMENT PLAN

a) Introduction

In Liberia it is estimated that the rate of mangrove deforestation could be as high as 65% since 1980 (FAO 2007). The greatest threat to mangroves in Liberia is land degradation due to urbanization, transportation infrastructure development, and mining and oil exploitation. A secondary cause related to habitat loss is the overuse and overexploitation of natural resources, specifically around urban areas, through the practices of hunting, firewood collection, charcoal production, and timber extraction. Finally, pollution of the water, air and soil from chemicals released from agricultural pursuits, oil exploration, mining, and the effects of climate change also contribute to the loss of mangroves in Liberia.

Against this background of continued degradation and over-exploitation of mangrove resources, there is a vital need to advance a holistic, integrated approach to better identify mangroves areas vital for biodiversity and community well-being. This project, combining research, policy recommendations, technical advice and practical tools coupled with small-scale interventions provide such an approach. This project provides an opportunity to enhance the protection of mangroves already in multiuse protected areas, provides decision support tools for incorporating additional highly threatened mangroves into new marine protected areas, will work with local communities and other stakeholders to educate them on the importance of mangroves, and will provide guidance and recommendations on best practices for protecting mangroves, their biodiversity, and the services that they provide.

The Stakeholder Engagement plan is a cross-cutting element that is central to the success and sustainability of this project. Through it we aim to encourage awareness, adoption and stewardship of conservation measures by ensuring effective participation and productive dialogue. Specifically, the Stakeholder Engagement plan will articulate the different opportunities that stakeholders will have to actively participate in the project and how the expectations of different stakeholders will be managed by the Project Management Unit. The plan highlights key institutions, organizations, communities and individuals that influence or would be influenced by project activities.

b) Policies and Requirements

The CI-GEF Project Agency oversees the Executing Entity involving all stakeholders, including project-affected groups, local communities, and local CSOs, as early as possible in the preparation process and ensures that their views and concerns are made known and taken into account. The CI-GEF Project Agency Team will also ensure that the Executing Entity will continue to hold consultations throughout project implementation as deemed necessary to address environmental and social impact assessment-related issues that affect them. The Screening and Safeguard Analysis by the CI-GEF Project Agency concluded that Stakeholders Engagement Plan must specify the mechanisms and measures to be put in place to ensure that the CI-GEF Project Agency Environmental and Social Safeguards are appropriately

applied at the overall project level. The following document presents an analysis of key stakeholders and explains the measures put in place to ensure that Environmental and Social Safeguards are appropriately applied.

c) Summary of any Previous Stakeholder Engagement Activities

Project preparation included a number of information sharing and consultation activities with various actors that have a key stake in the proposed project. These activities and the stakeholders involved are summarized below:

Project Steering Committee meetings

During the Project preparation phase, members of the Project Steering Committee were convened on a regular basis to provide insight based on the requisite positions within government regarding projects alignment with national policies and laws, best practice and new initiatives. The Project Steering Committee was focused on ensuring collaboration with other programs and avoiding any duplication of efforts within the sector.

Project Management Team meetings

During the Project preparation phase, members of the Project Steering Committee were convened on a regular basis. The Project Management team consisted of a mix of government employees from the Forestry Development, the Environmental Protection Agency and representatives from Conservation International. The Project management team was responsible for the day-to-day planning and implementation of the project. The team was responsible for developing project workplans and monitoring implementation. The team will met when key decisions were taken regarding the project contracting, staffing and workplan reviews. The team also met prior to all Project Steering Committee meetings to review documents to be presented during these meetings. Members of the Project Management team also participated in the Rapid Mangrove Survey.

Experts consultation meeting

On the 10th November 2015 Conservation International convened an expert's panel in Monrovia to review information on the distribution, composition, and status of mangroves in Liberia and identify key sites before the commencement of the nation-wide Mangrove survey. The event saw a number of government technicians and representatives from NOG/ civil society come together to debate site selection for the Rapid Mangrove survey and establish a clear set of criteria that the assessment team would utilize to identify communities that may be eligible for inclusion in the project.

Rapid Mangrove Survey

CI Liberia, on behalf of the project team and with approval from the Project Steering Committee, contracted a firm to support the mangrove site selection, assessment and stakeholder engagement processes in Liberia.

Goals specifically for the work performed during the assessment included:

- Identify and profile priority mangrove sites in Liberia based on criteria developed jointly between the Consultant/s and Conservation International
- Assess both the social and biological value of these priority mangrove sites including their use by communities, rate of loss, ecosystem services provided, and threats to these ecosystems
- Provide recommendations on which mangrove sites should be selected as future project sites based on their use by communities and existing threats
- Conduct a thorough stakeholder engagement process in Liberia to ensure that key stakeholders support the identification and profiling of priority mangrove sites

After careful deliberation a decision was made to award the contract to Anchor Environmental based on the strength of their proposal, quality of their team and ability to work within the timelines of the assignment. The lead consultant during the assessment was Dr. Barry Clark. The survey took place from 11th to the 23rd of November. During this time an assessment team conducted a thorough stakeholder engagement process with stakeholder both in Monrovia across four counties including Grand Bassa, Margibi, Montserrado and Cape Mount. The survey included extensive consultations in 11 different communities utilizing a mix of focus group discussions and one on one interviews.

Multi stakeholder workshop

At the conclusion of the Rapid Mangrove Survey, CI hosted a multi-stakeholder engagement meeting to review the findings of the biological and social baseline assessment conducted in priority mangrove areas across Liberia. A wide group of stakeholders came together to confirm, and where necessary, refine project outcomes and targets in preparation for submission of the final Project Document. The workshop was attended by participants including government representatives, private companies, NGOs and community representatives. At the conclusion of the workshop, participants provided their endorsement for the project.

Gender workshop in Monrovia

Conservation International, in collaboration with the Ministry of Gender, Children and Social Protection, organized a special two-day workshop on Gender Strategy Development and Gender Mainstreaming on the 11th and 12th of November. The workshop brought together a cross- section of stakeholders including civil society groups, Gender Focal Points from key government ministries, youth groups and international NGOs. The purpose of the workshop was to review the National Gender Strategy and Policies of Liberia and to identify best practices for mainstreaming gender into natural resource management projects. The final few sessions of this workshop had the specific objective of soliciting participants' views on the Gender Mainstreaming Strategy and Action Plan that was to be developed as part of this Project. Input captured during this workshop was used to develop the final Gender Mainstreaming Strategy and Action Plan for this project.

d) Project Stakeholders

The following major stakeholders/stakeholder groups:

<u>Local communities</u>

Local communities residing around Lake Piso multiple use reserve in Cape Mount. This includes the the Marshall wetlands in Margibi County, Barcoline and Edina communities near Buchanan and local residents in Montserrado wetland.

Local County Administration

Local County Administration is the sum-total of personnel who run the various political sub-divisions of the Country as Local Government. This leadership structure in each county comprises the following. The Project will engage members of the County administration to ensure ownership and drivenness for the project by local authorities in each of the four counties that the project will be implemented.

County Administration

- County Superintendent
- City Mayor
- District Commissioner
- Township Commissioner
- Paramount Chief
- Clan Chief
- General Town chief
- Cultural leaders

National Government Entities

Environmental Protection Agency (EPA)

The EPA was authorized by the EPA Act in 2003, but did not become functional until late in 2006, with a board of directors and Policy Council. EPA is charged with implementing the Environment Protection and Management Law, a framework environmental law that envisions the development and harmonization of sector-specific laws. EPA serves as the principal authority for managing and regulating environmental quality (including environmental and social impact assessments), and it is directed to coordinate all activities relating to environmental protection and the sustainable use of natural resources. It also promotes environmental awareness and oversees the implementation of international conventions related to the environment.

Forestry Development Authority (FDA)

The FDA was created by an Act of the Legislature in 1976, which was subsequently amended in 2006 with the adoption of the Forestry Reform Law. The FDA provides forestry planning, develops forestry policy, administers and enforces the forestry laws, administers concession agreements, calculates forestry fees, carries out reforestation and forest research and training, monitors the activities of timber companies, and sets up and administers national parks.

Liberia Maritime Authority (LMA)

Liberian Maritime Authority has a statutory mandate to administer, promote and regulate programs relating directly and indirectly to the functioning, growth and development of the maritime sector.

Ministry of Agriculture (MOA)/ National Bureau of Fisheries (BNF)

The Bureau of National Fisheries (BNF) is housed within the MOA to regulate fishing activities in Liberian waters. The BNF is working to promote the sustainable development of the fisheries sector in Liberia, balancing the needs of ecosystem health, food security, economic growth and development within a framework of good governance. The BNF has three divisions (Marine, Research and Statistics, and Aquaculture) that are closely aided by an administrative section. The BNF is charged with the responsibility of managing and developing fisheries and aquaculture in Liberia. BNF collaborative efforts include work with NGOs to conduct outreach and education; mangrove conservation management with the EPA; producing maps with LISGIS; and, coordinating enforcement efforts with the LCG and UNMIL.

Ministry of Gender, Children and Social Protection (MOG)

Established in 2001 by an Act of the National Legislature, the Ministry of Gender, Children and Social Protection amongst other things serves as a driving force of Government for the practicalization of the Universal Declaration of Human Rights and its related instruments including UN Convention on the Elimination of all forms of Discrimination Against Women (CEDAW); the Convention on the Rights of Children (CRC); the AU Protocols on Women and Children, UNSCR 1325 on Women Peace and Security; and the Beijing Platform for Action.

The Ministry is mandated to advise Government on all matters affecting the development and welfare of women and children as well as any other matters referred to it by the Government. The Ministry is divided into two Departments: Planning and Administration; and Research and Technical Services.

Liberian Coast Guard

The mission of the Liberian Coast Guard is to enforce law and make enquiries, examinations, inspect, search, seize and affect arrests within the Liberian Exclusive Economic Zone, in order to prevent, detect, and suppress violation of the Laws of the Republic of Liberia. In these efforts, the LCG collaborates with a variety of Government Agencies, including BNF, Liberia Maritime Authority, National Port Authority, Bureau of Immigration and Naturalization, and others.

Ministry of Internal Affairs (MIA)

Ministry of Internal Affairs is responsible for local governance and rural development and as such will be key engaging local communities in the project priority areas.

Ministry of Lands, Mines and Energy (MLME)

Established in 1972, the MLME maintains jurisdiction over the management and extraction of mineral, water, and energy resources in Liberia. The Ministry of Lands, Mines & Energy (MLME) was established by an act of Legislature to administer all activities relative to land, mineral, water and energy resource exploration, coordination and development in the Republic of Liberia. In adherence to its statutory mandate, the Ministry formulates and implements policies and regulations in collaboration with other sector related agencies for the delivery of efficient services to the public from the land, mineral, water and energy sectors.

Monrovia City Corporation

The Monrovia City Corporation oversees municipal waste, and the provision of environmental health and sanitation.

Land Commission (LC)

The Land Commission was established in 2009. The general mandate and purpose of the Land Commission is to propose, advocate and coordinate reforms of land policy, laws and programs in Liberia. The mandate of the LC extends to all land and land based natural resources, including both urban and rural land, private and public land and land devoted to residential, agricultural, industrial, commercial, forestry, conservation and any other purposes. The Land Commission have taken a central role in the drafting of the new Land Rights policy which aims to empower rural communities by allowing them to manage their land and land based resources so as to advance their economic growth and development.

Bilateral/ Multilateral Entities

USAID

For nearly six decades, USAID has been working in Liberia on rural and urban development, health and education. USAID invest heavily in natural resource management in Liberia. USAID continues to build the capacity of the Liberian Forestry Development Authority and other government agencies, civil society organizations as well as strengthen local communities' management of forests and natural resources.

USAID PROSPER Program

USAID Liberia launched a significant new community forestry initiative, the People, Rules and Organizations Supporting the Protection of Ecosystem Resources (PROSPER) Program in 2012 that builds on previous investments in the forestry and agricultural sectors, particularly the Land Rights and Community Forestry Program (2007-2011) and the Liberia Forestry Support Program (2011-2012). PROSPER is intended to introduce, operationalize, and refine appropriate models for community management of forest resources for local self-governance and enterprise development in targeted areas of the country. USAID contracted Tetra Tech ARD in May 2012 to implement the five-year project (2012-2017). ACDI/VOCA manages the third objective of the project, "Livelihood and Enterprise Development," by enhancing livelihoods through improved agriculture and sustainable harvesting of non-timber forest products. PROSPER is working at national, landscape and community levels, including 10 sites in Nimba and Grand Bassa counties. Sites in Grand Bassa include Barcoline, one of the proposed project sites in this project. Several Liberian NGOs are collaborating with PROSPER—in community forest management, livelihood, and education and outreach activities—including Development Education Network Liberia (DEN-L), Sustainable Development Institute (SDI), Save My Future Foundation (SAMFU) and the Society for the Conservation of Nature of Liberia (SCNL).

UNDP

Environment and energy represents one of the key practice areas for UNDP in Liberia due to its critical links with efforts in poverty eradication and sustainable development. UNDP's activities in Liberia fall within six corporate thematic areas, including Environment & Energy. The Energy and Environment Programme aims to mainstream environment and climate change in national development priorities and

strategies in the country. UNDP in Liberia is an implementing agency for the GEF. UNDP have been the implementing agency on a number of GEF projects in Liberia, including projects with a focus on coastal communities and ecosystems.

GEF

Since joining the GEF, Liberia received GEF grants totaling US$19,688,901 that leveraged US$63,230,789 in co-financing resources for 14 national projects. These include six projects in climate change, six projects in biodiversity, one in persistent organic pollutants, and one multifocal area project. During the GEF-5 replenishment period (July 2010 - June 2014), Liberia received an indicative allocation to formulate and execute projects for US$2,420,000 in biodiversity, US$ 2,000,000 in climate change, and US$620,000 in land degradation.

GEF Agencies in Liberia: World Bank, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO); Conservation International; African Development Bank

National Executing Partners: Environmental Protection Agency, Ministry of Land, Mines and Energy, Rural and Renewable Energy Agency, Ministry of Agriculture, Electricity Corporation, Ministry of Lands

CI-GEF Project Agency

The CI-GEF Project Agency supports governments, private sector, civil society and knowledge institutes in accessing GEF funding in Asia, Africa and Latin America. The CI GEF Agency will supervise development, implementation, monitoring and evaluation of the projects and are accountable to the GEF Council.

United Nations Environmental Program (UNEP)

United Nations Environment Program (UNEP) post-conflict capacity-building program was ended in December 2007. Liberia has since reverted to being serviced remotely by the UNEP Regional Office for Africa. UNEP has strong interest supporting conservation of Mangroves and coastal ecosystems in Liberia. UNEP and the EPA are currently implementing a TEEB study that aims to demonstrate the value of mangroves for Liberia. The study will focus on revealing the economic and cultural benefits gained from conservation or restoration of wetlands in five study sites along the coast of Liberia.

World Bank (WB)

In past years, the World Bank has supported more than 30 projects in Liberia that have impacted many sectors such as agriculture, education, transportation, energy, and water, supply and sanitation. Significant projects related to NRM include:

- The Smallholder Tree Crop Revitalization Support Project (STCRSP) is operating from 2013-2016, and will increase access to finance, inputs, technologies and markets for smallholder tree crop farmers in Liberia (cocoa, coffee, oil palm and rubber), and to develop a long term development program for the tree crops sector in six of the country's main tree crop producing counties (Bong, Nimba, Grand Gedeh, Grand Bassa, Montserrado and Margibi).

- The West African Regional Fisheries Program (WARFP), which began in 2009 and operated through until 2014, supported a combination of regional cooperatives, national reforms and local education and empowerment. The goal was to help West African countries work together to manage their shared fisheries resources. Since its inception in 2009 WARFP has supported Ghana, Cape Verde, Guinea-Bissau, Liberia, Sierra Leone and Senegal. In Liberia, BNF is currently engaged in activities designed to improve the management and regulation of fisheries in Liberia in line with the PRS.

- The Biodiversity Conservation through Expanding the Protected Area Network in Liberia (EXPAN) was initiated in March of 2011 and concluded in 2014. The project's objective was to contribute to the conservation of Liberia's globally significant biodiversity by: (1) providing better representation of ecosystems within Liberia's current protected area network; and, (2) enabling active conservation and sustainable use of biodiversity with local communities. The project includes the planned creation and gazettement of two additional protected areas (Grebo and Grand Kru).

Private land owners in coastal and riverine areas

Mangroves surrounding Monrovia and Marshall are being cleared and in their place plots of land are being developed for the purpose of housing. This includes housing for impoverished residents in Monrovia and land development by wealthy individuals on the Marshall River.

Private Sector

The oil sector is also a fairly recent addition to Liberia's natural resource management portfolio. The Liberia Basin consists of 30 oil concessionary blocks; to date 10 of these blocks have been leased, and all are located adjacent to Liberia's coastline. The GOL requires environmental and social impact assessments for all offshore oil exploration, and exploration is limited to areas 25-80 km from the coast and depths of 200 m to protect fisheries. There are currently five production sharing contracts, though the total area for exploration has not been reported (LEITI Database, 2013).

Chevron

Chevron Liberia Limited is exploring energy resources in deepwater concessions off the coast of Liberia. Working with international and Liberian partners, Chevron is drilling some of the first deep water wells in Liberia.

ArcellorMittal

ArcellorMittal Liberia mine iron ore in Yekepa, Nimba County, and transport it to the iron ore quay in Buchanan, Grand Bassa County. ArcelorMittal Liberia (AML) launched its Biodiversity Conservation Programme in August 2011. This initiative is intended to compensate for the impacts of the mining of direct shipping ore over the period of 2011 to 2015.

NGOs and civil society organizations

There are a number of local NGOs and civil society groups working with communities towards mangrove protection and alternative livelihoods. The project will seek the involvement of these groups to collaborate with the project.

The Society for the Conservation of Nature in Liberia (SCNL)

Founded in 1986, SCNL is the oldest environmental NGO in Liberia. Its conservation projects include the creation and maintenance of protected areas, wildlife conservation, bio monitoring, and the use of socioeconomic surveys. They are the local partner for Birdlife International (BI), and have conducted bird inventories in several forest areas, and produced a list of Important Birds Areas in Liberia.

Farmers Associated to Conserve the Environment (FACE)

Farmers Associated to Conserve the Environment's (FACE) mission is to help empower local farmers to engage in modern, stable farming practices that are sustainable, environmentally friendly, and have the propensity to yield significant positive net income. FACE is involved in seed rice multiplication and mangrove conservation. The focus is to promote stable, modern farming systems in order to improve food production and enhance the natural environment.

Save My Future Foundation (SAMFU)

The Save My Future (SAMFU) Foundation is a non-governmental organization established in 1987 by a renowned Catholic priest and two conservationists. SAMFU's mission is to facilitate and promote participatory community-based sustainable natural and human resource management and development in Liberia. This is pursued through an educational and empowering process in which the people in partnership with each other and those able to assist them identify their priorities, mobilize resources and assume the responsibility to manage and control the resources on which they depend. The organization's activities are directed towards the protection for the environment, facilitation of nature conservation and embrace the promotion of social justice, equality and respect for human rights.

National Charcoal Union of Liberia (NACUL)

NACUL is an umbrella organization of charcoal stakeholders in Liberia. NACUL advocates on behalf of charcoal producers, sellers and buyers, and works closely with FDA to monitor charcoal production.

Sea Turtle Watch Liberia

The Sea Turtle Watch (Liberia) is working directly with other international and local NGOs to build an alliance with the responsible government agencies and coastal communities in an effort to save sea turtles and their habitats in Liberia. Sea Turtle watch are implementing community-based sea turtle conservation projects in five coastal villages (Little Bassa, Samuel Brown, Duo, Sand Farm and Bassa Point Township) that have some overlap with the proposed project sites on this project.

Skills and Agricultural Development Services (SADS)

SADS was founded in 1998 as a campus-based organization at the UL with the goal of improving environmental awareness and education of students. SADS is focused on implementing a wide range of education and developmental programs designed to improve social services in areas such natural resource governance, advocacy, human rights, and rural livelihood skill development in Liberia

Rural Integrated Center for Community Empowerment (RICCE)

The mission of RICCE is to empower rural residents to build vibrant self-sustaining communities through peace building initiatives, networking, advocacy and poverty reduction. RICCE works in several program areas, including: rights monitoring; biodiversity conservation advocacy; women's empowerment; agriculture; health promotion; peace building; and, community development.

Fauna and Flora International (FFI)

FFI has operated in Liberia since 1997, and currently has a five-year mission (2013-2018) to make a measurable improvement to the status of biodiversity and ensuring resilient ecosystems through supporting good environmental governance, building capacity and supporting conservation-friendly livelihood strategies. Past efforts have included support to re-establish Sapo National Park, developing a rapid ecological assessment tool to identify and prioritize sites for inclusion in the protected area network, leading field activities for the Liberian National Forest Re-Assessment, conducting a variety of floral and faunal surveys, capacity building in key GOL organizations, and facilitating the development of laws related to community rights and forestry. In the 15 years since FFI's arrival, geographical focus of on-the-ground activities has broadened from the Southeast, to include Nimba Mountains and Lake Piso, both recognized biodiversity hotspots.

Anchor Environmental

Anchor Environmental is an independent consulting firm based in Cape Town, South Africa offering ecological and economic expertise to inform management and decision making regarding the use and conservation of natural resources.

The table below describes each of the major stakeholders in detail (Table 1).

Project Stakeholders

Table 1: Project Stakeholders

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
Local communities in project sites	Local communities residing around Lake Piso multiple use reserve in Cape Mount, the Marshall wetlands in Margibi County, Barcoline and Edina communities near Buchanan and local residents in wetlands areas in Montserrado.	Local communities residing in the four project sites have a strong interest in ensuring that this project addresses the economic pressures and limited employment opportunities that have resulted in an increase in local communities' dependence on mangroves for subsistence and local commerce.	Local communities living in and around the mangroves are the primary users and beneficiaries of the mangroves and are key to the project's success.	Local communities are the direct beneficiaries in this project and will ultimately determine whether mangroves can be sustainably managed using the suite of tools that this project will provide.
National Government Ministries and Agencies	Environmental Protection Agency (EPA)	EPA is the co-executing agency on this project. As the operational focal point for GEF funding in Liberia, the EPA has a strong interest in the development and success of this project.	As the operational focal point for GEF funding in Liberia, the EPA has a strong influence on the direction of this project. The agency has a strong role in executing this project and this is reflected in the agency's strong representation on both the Project Steering Committee and Project Management team.	The success of this project will reflect either positively or negatively on the agency's position as operational focal point for all GEF funding in Liberia.
	Forestry Development Authority (FDA)	As the current custodian of the protected areas network in Liberia, the FDA has a particularly strong interest in Component 1 of this project that will directly address protected area management.	The FDA has a strong influence in all forest related projects across the country, including mangrove forests. The FDA has strong role in the execution of this project and this is	The project will create the enabling conditions for establishment of coastal and marine protected areas covering 20% of priority mangrove forests.

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
			reflected in agency's strong representation on both the Project Steering Committee and Project Management team	Currently FDA does not have the resources to expand the proposed Protected Area network.
	Ministry of Agriculture (MOA)/ Bureau of National Fisheries (BNF)	The BNF is charged with the responsibility of managing and developing fisheries and aquaculture. Actions taken in this project will have a direct impact on the future protection and management of fish stocks in Liberia.	The BNF has strong relationships with local communities living in and around the mangroves, particularly in Marshall wetland. The BNF will be influential in our interactions with the primary users of mangroves in this project. The BNF is also responsible for coordination with the West Africa Regional Fisheries Program. It will be important we align our interventions to avoid any duplication of activities.	The BNF is currently looking to support projects that involve managing and developing fisheries and aquaculture. This project will allow the ministry to increase its portfolio and include the management of mangroves as another component in their work.
	Liberia Maritime Authority (LMA)	Liberian Maritime Authority has a statutory mandate to administer, promote and regulate programs relating directly and indirectly to the functioning, growth and development of the maritime sector. The LMA has a strong interest in supporting initiatives that address coastal management.	As the lead agency regulating programs in the maritime sector, LMA could act as an intermediary between the FDA and the EPA.	This program will help the LMA execute better on aspects of their mandate.

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
	Ministry of Gender, Children and Social Protection (MOG)	Communities across Liberia are highly dependent on natural resource use for subsistence and local commerce. The mainstreaming of gender into all natural resource and climate change projects is a high priority for the MOG.	The MOG played a significant role shaping the gender mainstreaming plan for this project. The MOG is represented on the Project Steering Committee and hence will have a strong role in the execution of this project.	The execution of this project will provide valuable information for the ministry about the practicalities of mainstreaming gender into future natural resource management projects.
	Liberian Coast Guard (LCG)	The LCG's mandate is to enforce law and make enquiries, examinations, inspect, search, seize and affect arrests within the Liberian Exclusive Economic Zone. This includes law enforcement in project areas selected for this project.	The LCG works in close collaboration with the BNF, providing sea patrol and enforcement support. The LCG will be involved in policing any illegal activities happening in the project area, such as illegal fishing with dynamite.	This project may provide information on illegal activities occurring within mangrove areas that the LCG could utilize to make inquiries and enforce the law where necessary.
	Ministry of Internal Affairs (MIA)	The Ministry of Internal Affairs (MIA) is responsible for local governance and rural development. The MIA has an interest in all projects that seek to address issues related to rural development and governance of natural resources.	MIAs has an important role coordinating and implementing government services through the various units of the Local County Administration whose support and buy-in will be essential for the success and sustainability of this initiative. The MIA is represented on the Project Steering Committee and hence will have a	CI will be engaging with members of the County Administration in each project site, from County Superintendent down to the General Town chief. MIA will have an important role ensuring that the different representatives within the Local County Administration are aligned in their understanding and expectations

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
			role in the execution of this project.	of the project.
	Ministry of Lands, Mines and Energy (MLME)	The MLME administers activities related to the use of land and may have an interest in the land use planning component of the project.	The MLME maintains jurisdiction over the management and extraction of minerals, water, and energy resources in Liberia. Future projects including hydroelectric projects or mining projects may have a direct impact on mangrove ecosystems downstream.	The land use planning component in this project will provide valuable information for the MLME as it devises new strategies for future land use planning processes across the country.
	Monrovia City Corporation (MCC)	The Monrovia City Corporation oversees municipal waste, and the provision of environmental health and sanitation. Municipal waste is a significant problem in mangrove wetlands in Montserrado county.	Work under this project will raise awareness concerning the significant problems associated with poor management of municipal waste in Montserrado wetlands. The MCC will have a direct role in the roll-out of awareness activities associated with the Montserrado wetlands.	This project will provide a strong evidence base for the Monrovia City Corporation (MCC) to lobby and secure additional resources for future management of municipal waste, and the provision of environmental health and sanitation across Montserrado.
	Land Commission (LC)	The mandate of the LC extends to all land and land based natural resources. This project is currently the largest single investment in mangrove conservation across the country and as a result holds great interest for the LC.	The LC has strong role in the execution of this project and this is reflected in agency's representation on the Project Steering Committee.	The Land Commission has taken a central role drafting the new Land Rights policy, which aims to empower rural communities by allowing them to manage their land

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
				and land-based resources. This project's approach to empowering local resource users will provide valuable information for the LC regarding the adoption and future implementation of the Land Rights Policy.
Local Government	Local County Administration	Local County Administration is the sum-total of personnel who run the various political sub-divisions of the Country as Local Government. The project will be active in Montserrado, Cape Mount, Margibi and Grand Bassa counties. Local County Administrators have a direct interest in all projects being implemented in their County.	Local Administrators have a strong influence on the direction and success of projects within their counties. Local communities are unlikely to actively engage in the project if the project does not have the blessing of the Local Administration.	The project should provide Local County Administrators with an opportunity to demonstrate to their constituents that they are securing additional support to address challenges facing the local populace.
Bilateral/ Multilateral Entities	USAID	USAID invests heavily in strengthening local communities' management of forests and natural resources in Liberia. USAID hasn't previously invested in the management of Mangrove ecosystems and is likely to be interested in lessons learned from this project.	USAID currently invests in the People, Rules and Organizations Supporting the Protection of Ecosystem Resources (PROSPER) project. PROSPER is active in the same landscapes that this project will be active in. There is clearly a need for cross learning between the two	USAID is likely to be interested in lessons learned from this project. These lessons will likely determine future USAID investment in the environmental and natural resources sector in Liberia.

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
			different interventions to avoid any duplication of effort.	
	United Nations Development Program (UNDP)	UNDP has invested heavily in projects in Liberia focused on building resilience of vulnerable coastal areas to the risks associated with climate change. This project will invest in nature based solutions to address coastal resilience. These alternatives solutions are likely be of interest to UNDP.	UNDP is one of the few other GEF implementing agencies in Liberia. UNDP can potentially influence whether this project will secure additional funding for future expansion of the project.	This project is likely to determine the direction of future UNDP investments in coastal areas.
	Global Environmental Facility (GEF)	As a GEF investment there is significant interest in the success of this project.	The GEF secretariat played a significant role guiding the design of this project. This will likely to have an impact on the implementation of the project.	This project will likely have an impact in determining future STAR allocations in Liberia.
	CI-GEF Project Agency	As this is the first project being implemented by the CI –GEF Project Agency in Liberia, there is particularly strong interest in ensuring that the project is a success.	The CI-GEF Project Agency has a significant role in the Monitoring and Evaluation of this project. This will have a significant impact on the execution of this project over time.	The success of this project will have an impact on the future expansion of the project portfolio currently being managed by the CI –GEF Project Agency.
	United Nations Environmental Program (UNEP)	UNEP has strong interest supporting conservation of mangroves and coastal ecosystems in Liberia.	UNEP and the EPA are currently implementing 'The Economics of Ecosystems and Biodiversity' (TEEB) study that aims to demonstrate the value of mangroves for	This project may determine future UNEP support for conservation of Mangroves and coastal ecosystems in Liberia.

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
			Liberia. The results of this study are likely to guide execution of this project.	
	World Bank (WB)	The WB has and continues to support many significant natural resource management projects in Liberia. The WB holds particular interested in the Protected Area Management component of this project.	Current WB investment in the Protected Area Network may have an effect on Component 1 in this project	This project may influence future WB investments in forestry and Liberia's Protected Area Network.
Private Sector	Chevron	Chevron is currently investing in mangrove conservation in Grand Bassa County, one of the project sites in this project. The Chevron project is also being implemented by Conservation International.	Investments in mangrove conservation by Chevron will determine which villages will be chosen for this GEF Project.	This investment by GEF may influence decisions made by Chevron to invest in new mangrove conservation projects in future.
	Arcellor Mittal (AML)	ArcelorMittal Liberia (AML) launched its Biodiversity Conservation Programme (BCP) in August 2011 to compensate for the impacts of the mining and direct shipping of iron ore. The BCP program may be interested in expanding future investment to include coastal and marine ecosystems.	AML Liberia's iron ore quay is located in Buchanan, Grand Bassa County. Future expansion of the iron ore quay may affect project sites selected for this project.	Currently the BCP program is focused on terrestrial forest areas in Nimba County. GEF investment in mangrove conservation around Buchanan may influence AML to expand its BCP program to include mangrove areas in the Buchanan area.
NGOs and civil society organizations	The Society for the Conservation of Nature in Liberia (SCNL)	SCNL has previously been involved in past mangrove conservation projects around Lake Piso and continues to be very interested in similar projects	SCNL has a strong interest in partnering with CI as one of the local partners on this project. SCNL will provide significant guidance on the direction of this	SCNL currently partners with CI on another project that addresses mangrove conservation in Barcoline, Grand Bassa. SCNL may

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
			GEF investment based on their past experience in mangrove conservation in Liberia.	partner with CI as a local partner on this project.
	Farmers Associated to Conserve the Environment (FACE)	FACE implemented a UNDP sponsored awareness raising project in the Lake Piso wetlands in 1999 and an NC-IUCN small-grant sponsored project in 2004. They still hold great interest in mangrove conservation around Lake Piso.	FACE will provide guidance on the direction of this GEF investment based on their past experience in mangrove conservation in Liberia.	FACE currently isn't involved in mangrove conservation work but may become involved under this project.
	Save My Future Foundation (SAMFU)	SAMFU have previously been engaged in sea turtle conservation projects long the Liberian coast including Grand Bassa County. SAMFU continues to have strong interest in projects that address protected area management and biodiversity conservation in coastal landscapes.	SAMFU may help shape thinking on the development on new protected areas in this project.	SAMFU may partner with CI as a local partner on this project.
	National Charcoal Union of Liberia (NACUL)	The production and distribution of charcoal is another practice commonly mentioned by stakeholders as a major threat to mangroves and biodiversity. The project will address charcoal production from mangrove wood.	The NACUL may influence the way in which the project engages with project beneficiaries on the use of mangrove wood in charcoal production.	The project will potentially engage with the National Charcoal Union of Liberia to address the use of mangrove wood in charcoal making.
	Sea Turtle Watch Liberia (STWL)	Sea Turtle Watch Liberia's community-based sea turtle conservation project was launched in 2012 and includes sites in Grand Bassa County.	STWL will potentially be implementing activities in areas that lie adjacent to the proposed project sites in this project.	STWL may be able to use the GEF project to increase awareness around its own community-based sea turtle conservation projects.
	Skills and Agricultural	SADS currently partners	As a potential	This project may

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
	Development Services (SADS)	with CI to implement Conservation Agreements around East Nimba Nature Reserve. They have a strong interest in partnering with CI on this project.	partner, SADS may influence the design and delivery of future Conservation Agreements under this project.	offer SADS an opportunity to expand work on Conservation Agreements from terrestrial forest to mangrove forest.
	Rural Integrated Center for Community Empowerment (RICCE)	RICCE currently partners with CI to implement Conservation Agreements around East Nimba Nature Reserve. They have a strong interest in partnering with CI on this project.	As a potential partner, RICCE may influence the design and delivery of future Conservation Agreements under this project.	This project may offer RICCE an opportunity to expand work on Conservation Agreements from terrestrial forest to mangrove forest.
	Fauna and Flora International (FFI)	FFI previously implemented a project in Lake Piso Multiple Use Reserve to improve the capacity of civil society members to sustainably use and conserve mangrove resources. This included the development of a protected area (PA) management strategy for the reserve.	FFIs previous work developing a PA management strategy for Lake Piso Multiple Use reserve will be influential in guiding Component 1 of this project.	FFI may reengage in discussions on Lake Piso Multiple Use Reserve when this project starts.
	Anchor Environmental	Anchor Environmental was the lead consulting firm during the design phase of this project and has an interest in further engagement during the life of the project.	Anchor Environmental has already had a strong influence on the design of this project. The will continue to influence implementation as the project moves forward.	Work on this project has expanded Anchor Environmental's portfolio of work and may open up other opportunities for work in Liberia. Anchor Environmental may partner with CI on this project in the future.
Private land owners in coastal and riverine	Private land owners in Montserrado and Marshall wetlands	Many private land owners and land developers in Montserrado and Marshall wetlands have a vested	This project will potentially engage private land owners and land	Private land owners in Montserrado and Marshall wetlands

	Stakeholder	Interests in the Project	Stakeholder Influence in the Project	Project Effect(s) on Stakeholder
areas		interest in land use regulations in coastal and riverine areas.	developers under the land use planning component of this project.	may have a strong influence over Local County Administration and their role in this project.

e) Stakeholder Engagement Program

The goal of this Stakeholder Engagement Plan is to involve all stakeholders of the project, as early as possible in the implementation process and throughout project duration to ensure that their views and concerns are made known and taken into account. The plan will help the project in implementing effective communication channels and working relationships. The Executing Agency will continue to hold consultations throughout project implementation as deemed necessary. This section provides a summary of the engagement of the major stakeholders. The Stakeholder Engagement Plan will be implemented in conjunction with the Gender Mainstreaming Strategy and the process framework for restriction of access to natural resources.

Table 2. Summary of the engagement of the project's major stakeholders

Stakeholders	Engagement Methods/Means	Engagement Activities	Responsible Party(ies)	Required Resources
Local communities in project sites	Through face-to-face community meetings, individual interviews and workshops	Range of activities may include: participatory appraisals of community needs using standard PRA methods and tools; capacity building and awareness raising; feasibility studies for Conservation Agreements; data collection for research purposes; Consultations to attain Free, Prior and Informed Consent; Involvement in Strategic landscape level planning meetings and localized land use planning meetings	Project Management Unit (primarily CI Liberia)	Staff time; travel to project sites; Meeting venue and catering for community meetings
National Government Ministries and Agencies	Emails, face-to-face meetings, workshops	Project Management Unit meetings Project Steering Committee meetings Project Inception workshop Protected Area gazettement workshops Strategic landscape level planning meetings Share midterm and final project evaluation Participation in high level advocacy meetings for Montserrado	Project Management Unit (primarily CI Liberia)	Staff time; travel support for EPA; Meeting venue and catering for meetings
NGOs and civil society organizations	Emails, face-to-face meetings, workshops	Project Inception workshop Share midterm and final project evaluation Protected Area gazettement workshops Strategic landscape level planning meetings Protected Area gazettement workshops	Project Management Unit (primarily CI Liberia)	Staff time; travel support; Meeting venue and catering for meetings
Private Sector	Emails, face-to-face meetings, workshops	Project Inception workshop Share midterm and final project evaluation Strategic landscape level planning meetings Protected Area gazettement workshops	Project Management Unit (primarily CI Liberia)	Staff time; travel support for BNF; Meeting venue and catering for meetings
Bilateral/ Multilateral Entities	Emails, face-to-face meetings, workshops	Project Inception workshop Share midterm and final project evaluation Strategic landscape level planning meetings Protected Area gazettement workshops	Project Management Unit (primarily CI Liberia)	Staff time; travel support; Meeting venue and catering for meetings
Local Government	Emails, face-to-face meetings, workshops	Project Inception workshop Share midterm and final project evaluation Strategic landscape level planning meetings	Project Management Unit (primarily	Staff time; travel support; Meeting venue and catering for meetings

Stakeholders	Engagement Methods/Means	Engagement Activities	Responsible Party(ies)	Required Resources
		Protected Area gazettement workshops	CI Liberia)	
Private land owners in coastal and riverine areas	Emails, face-to-face meetings, workshops	Strategic landscape level planning meetings Protected Area gazettement workshops	Project Management Unit (primarily CI Liberia)	Staff time; travel support; Meeting venue and catering for meetings

f) Methods Used for Information Delivery and Consultation

The project will hire a local consultant to develop a targeted advocacy campaign on the Mesurado wetlands in Monrovia. This campaign will include the development of a video highlighting irresponsible urban development in mangrove areas in Monrovia. The campaign will culminate in a high level meeting with key decision's makers from the legislature to help raise awareness and stimulate action. The consultant will also develop a more positive video on the project that includes aerial footage of mangrove areas and interviews with community members who utilize mangroves.

There will also be a series of multi stakeholder workshops held during this this project on Protected Area gazettement and land use planning. Stakeholders will have several opportunities to contribute to the development of the Protected Area gazettement packages and the land use planning decision took kit. The land use planning tool kit will be utilized during landscape level planning meetings in Buchanan, Lake Piso and Marshall. The broad cross section of stakeholders from government, civil society and the private sector will be invited to all of these meetings.

The Project will implement education and awareness activities at a community level to raise awareness on the importance of Mangroves. Theatre is often used as an important tool to convey important messages in Liberia. Activities may include the use of theatre to convey important messages about mangrove conservation that are adapted to the local context. The project will utilize sign boards to raise the profile of the project and key conservation messages.

g) Resources and Responsibilities

A Liberian National will be hired as the project manager, and will oversee the implementation of the project's stakeholder engagement plan at the whole-project level.

CI Liberia's Technical Director and Senior Program Manager will also provide oversight and support implementation of the project's stakeholder engagement plan at the whole-project level. Half of the Technical Director's budgeted time on this project will be dedicated to implementation of the stakeholder engagement plan.

The Project Steering Committee (PSC) and Project Management Team (PMT) will also hold responsibility for implementation of the project's stakeholder engagement plan at the whole-project level.

j) Grievance Mechanism

The project will ensure that it is in compliance with the GEF and CI Accountability and Grievance Policy. At the community level, complaints will be directed to the project manager or implementing partner and through him or her, to the technical director. If the complaint, depending on its complexity, cannot be solved from the technical director, it will be taken up by the Project Management Unit, who will address it at the next PMU meeting or, if necessary, organize an emergency meeting. The answer to the complaint should not exceed more than 60 working days' time and must be given in written form. Complaints will be addressed whenever they refer to a problem occurring within one of four the four project areas and during the lifetime of the project. The letter of complaint must be signed by any of the owners or holders of complainant. Complaints from other stakeholders, including partners, will also be directed to the project manager, the technical director or the Project Management Unit. The CI-GEF

Project Agency will be promptly informed about complaints submitted to the project manager, the technical director or the Project Technical Unit and their resolution.

In addition, a specific grievance mechanism will be established for each and every Conservation Agreement that is signed with communities. The details of the grievance mechanism will depend on the nature of the agreement and community dynamics. However at a minimum the grievance management system under any agreement will track grievances and foster conflict resolution from the point of reporting to the point of redress and finality. A Conservation Agreement grievance mechanism will provide a system for recognising and responding coherently to a complaint through identifying a person responsible for investigating the complaint and coordinating response.

The system will include a methodology for the following:

- Receiving complaints through any of the above channels
- Assessing information needs
- Allocating responsibility for investigation
- Recording the process
- Contacting the complainant
- Determination of the facts
- Agreeing responsibility and action where required
- Informing the complainant
- Dealing with disagreements over response and outcome
- Implementing action
- Researching complainant satisfaction
- Monitoring and evaluating the outcome

GENDER MAINSTREAMING STRATEGY AND ACTION PLAN

Introduction to project

In Liberia it is estimated that the rate of mangrove deforestation could be as high as 65% since 1980 (FAO 2007). The greatest threat to mangroves in Liberia is land degradation due to urbanization, transportation infrastructure development, and mining and oil exploitation. A secondary cause related to habitat loss is the overuse and overexploitation of natural resources, specifically around urban areas, through the practices of hunting, firewood collection, charcoal production, and timber extraction. Finally, pollution of the water, air and soil from chemicals released from agricultural pursuits, oil exploration, mining, and the effects of climate change also contribute to the loss of mangroves in Liberia.

Against this background of continued degradation and over-exploitation of mangrove resources, there is a vital need to advance a holistic, integrated approach to better identify mangroves areas vital for biodiversity and community well-being. This project, combining research, policy recommendations, technical advice and practical tools coupled with small-scale interventions provide such an approach. This project provides an opportunity to enhance the protection of mangroves already in multiuse protected areas, provides decision support tools for incorporating additional highly threatened mangroves into new marine protected areas, will work with local communities and other stakeholders to educate them on the importance of mangroves, and will provide guidance and recommendations on

best practices for protecting mangroves, their biodiversity, and the services that they provide. Gender is an incredibly important element in this project and as a result the following Gender Mainstreaming Strategy and Action Plan has been developed.

Objectives of the Gender Mainstreaming Strategy and Action Plan:

The objective of this gender mainstreaming plan is to outline specific actions that will be taken within the project to ensure that both men and women have the opportunity to equally participate in, and benefit from, the project. Along with the stakeholder engagement plan, this plan is part of the project's commitment to equitable stakeholder participation. The plan takes into account that project activities cover a range of operational scales from communities to global agendas with components that fund field based implementation and broader knowledge management and capacity building. Gender implications and considerations will be different within each of the project components in this project

Gender dynamics within the project

Liberia's population is highly dependent on forest resources. Liberia is well endowed with natural resources and economic growth is primarily based on the use of these resources. In Liberia, about half of the population lives in or near forested areas and the forests are of great importance to the poor, for instance through the provisioning of food, building materials, wood fuel, medicine, etc. In Liberia, men and women have clear gender divisions that determine how natural resources are utilized at the household and community levels. Women in rural settings in Liberia are often highly dependent on natural resources for their livelihoods, and are therefore particularly susceptible to changes in the availability and quality of these resources. Despite their reliance on natural resources, women have less access to and control over natural resources than men. Due to structural injustice, social norms and traditions, women have limited access to land despite the fact that the farmers often are women. Usually it is men who put land, water, plants and animals to commercial use, which is often more valued than women's domestic uses.

Men and women in Liberia, with different positions in society, use mangroves differently and have unique perspectives about why mangroves are important and how they should be protected. Access, and the ability to restrict it, is vital for the ability of local communities to properly manage mangrove forests. During the PPG phase of this project, explicit attention was given during community meetings and one- on- one interviews to document and understand the different ways in which women and men access and utilize mangrove resources in Liberia and to identify any obstacles to equal participation in conservation. It was clear that both men and women living near Mangrove ecosystems in Liberia use mangrove resources in different ways. Based on data collected, it was understood that men were more likely to harvest wood in Mangroves based on the level of physical effort required to fell mangrove trees. Women were more likely to fish for crustaceans in Mangroves ecosystems by setting out woven palm traps. Men were more inclined to cut channels through the Mangroves and line them with nets to catch different species of fish. These same channels were used by women to gain access to Mangroves that grew closer to the water's edge. Clearly both women and men are using Mangrove resources in different ways and any restriction on access to Mangrove resources would have a negative impact on both sexes. Based on these key differences in the use of mangrove and coastal resources by both women and men in Liberia, a gendered perspective on mangrove conservation must be adopted. Strategies to avoid inequality in this project will be explained in the next section of this document. This strategy will outline a set of actions that signify a shift away from the focus on simply including greater numbers of women to a set of actions that will challenge existing power hierarchies. This project will

seek to address power differences and recognize the differing levels of control and dependence on mangrove ecosystems.

Strategies to avoid inequality within the project

The project will need to ensure that there are a number of different strategies in place that will allow women to openly voice their opinions on specific issues. At the same time, the project will have to ensure that these strategies are sensitive to local cultural norms and don't inadvertently encourage a deepening of power imbalances. These strategies cannot exclude men and discourage their support for the project by singling out women as primary agents responsible for conservation and resource management decisions. The Project will adopt the following strategies to avoid inequality within the project:

1. *Collect detailed sex-disaggregated data on project beneficiaries as the Full Project commences*

Whilst some of the baseline data collection did occur during the PPG phase of the project, there remains a need for more data collection as part of the Full Project. Detailed gender specific data on project beneficiaries will need to be collected at each local project site once communities have provided their Free, Prior and Informed Consent to participate as part of the Full Project. This will include more detailed information on gender roles relating to mangroves (such as use patterns and participation in management/decision-making), as well as possible positive/negative impacts on men and women.

Actions:

- Information/data will be collected with oversight from CI's Technical Director. This staff member already has time built into the project to oversee this work.
- The Project Manager will develop the protocol (questions, information gathering system, etc.) for collecting the gender information, with the suggestion that it be based on CI's Gender Integration Guidelines.
- Following the information gathering stage, the Project Manager will be responsible for interpreting the information and reviewing the Gender Mainstreaming Strategy and Action Plan to ensure that no negative gender-based impacts will occur during the project. Again, the Gender Integration Guidelines will be of some help, but this is ultimately something that someone familiar with the local socio-cultural landscape must develop.
- The CI-HQ Gender and Conservation Specialist (CI-HQ Policy and Practice Unit) as well as any local NGOs working with experience related to gender issues are resources that can be used to help fine tune a gender strategy for the particular site level project at hand.

2. *Ensure that women's representation on project management decision making bodies in this project isn't limited to nominal positions*

Women are often chosen to sit on decision making bodies but tend to be offered nominal positions with little decision making power or influence. This can mean that women often hold positions as tokens or fronts for men. This Project will seek to address this tendency and ensure that women have equal access to important positions that hold influence.

Actions:

The Project Management team will ensure that project management decision that any decisions making bodies that are established at community level will have fair representation by both genders.

3. *Establish separate project decision making bodies for both men and women in target project sites*

The involvement and participation of marginalized groups, such as women and youth, in public meetings concerning the management of mangroves and marine resources isn't sufficient. This strategy has identified specific actions to ensure equitable representation and participation in decision making by both men and women. In the local context in Liberia, it may be countercultural for women to openly disagree with their male counterparts. Efforts to increase gender equality in decision making about coastal and marine resources by mixing men and women in public forums may not create the enabling environment for women's participation, because the presence of men may serve as an intimidating factor.

Actions:

- In addition to establishing a central project decision making body in target project sites, this project will establish separate project decision making bodies for both men and women that will report directly to the main project management decision making body. As explained above, every effort will be made to ensure that women's representation on the primary project management decision making body in each community in this project isn't limited to nominal position.

4. *Ensure adequate access to information for both women and men and conduct g*ender sensitive communication activities in the project

The few men who have access to information and documents may use them to control and manipulate discussions. The project will need to address these concerns by ensuring that both men and women have access to the same information and that this information is presented in a manner that can be understood by both men and women at a community level.

Actions:

- The Project Manager will ensure that any communications and awareness raising material is distributed equally to both men and women. The Project Manager will also ensure that this material is presented in a manner that is accessible to community members who are illiterate or haven't been through formal schooling.

- The Project Manager will ensure that community meetings will be scheduled at an appropriate time to allow equal participation by both and women

5. *Consider gender as an important element during the negotiation and design of Conservation Agreements*

The project will utilize the Conservation Agreement methodology to engage with communities. CAs are a form of direct incentives for conservation, in which conservation investors provide a negotiated benefit package in return for conservation actions by communities. CAs link conservation funders (governments, bilateral agencies, private sector companies, foundations, individuals, etc.) to resource owners whose decisions influence conservation outcomes. Benefit packages typically include funding for social services like health and education, as well as investment in livelihoods, often in agricultural or fisheries sectors. Examples of conservation commitments in CAs include forgoing forest clearing, adopting particular farming or fishing practices, and participating in patrolling and monitoring activities. Respecting customary decision-making mechanisms within communities ensures that CAs are adapted to local realities. However, it is important to also remember that some customary decision-making mechanisms do not allow for disadvantaged or marginalized groups to be heard. It is necessary to find culturally-appropriate ways to ensure those voices are part of decision-making.

Men and women interact with their environment in different ways, and therefore have different needs, priorities, and interests in conservation. It is important to consider these differences, and ensure that both men and women are involved with developing and implementing CAs. Conservation actions identified by the community may have a more direct impact on either women or men. For example, if harvesting of mangrove wood is banned under a Conservation Agreement, this may directly affect men who tend to use mangrove wood in charcoal production. At the same time, this restriction on access by men could have an indirect impact on women if less income is available at a household level based on the restriction on charcoal production. Alternatives identified in any Conservation Agreement that is negotiated will need to take in account the different ways that men and women. The project must first ensure that women and men have the same knowledge about the Conservation Agreements.

Actions:

- During the initial feasibility analysis stage, a CI staff member will ask questions about how men and women use the mangrove resource the CA seeks to protect. A woman will lead focus groups or surveys where women's input is sought and vice versa for men to account for the fact that groups or individuals may be more comfortable speaking about these issues with people of the same sex.

- Negotiation of Conservation Agreement conservation commitments and benefits: During the negotiation and design phase of a Conservation Agreement, communities will define the conservation actions in the agreement and the benefits they will receive in return. During this phase the Project Manager or staff member responsible for negotiating the agreement will ensure that conservation actions identified in the agreement are analyzed to provide an understanding of how these actions may impact differently on men and women and ensure that the results of this analysis are reflected in the final benefit packages that are agreed upon with communities.

- Representative community bodies under the Agreements: If communities are to make decisions and choices as a collective whole, then effective and equitable organizations for community representation are required. The Project Manager will ensure that women's representation on Conservation Agreement decision making bodies won't be limited to nominal positions.

Monitoring and evaluation of gender

INDICATOR #1:
Number/percentage of women/men *attending* activities & trainings & meetings.

Logic: Reflects male/ female access to meetings linked with the project, training resources etc. - will also be subject to the local gender and interest group demographics.

INDICATOR #2:
Number/percentage of women/men *actively participating* in activities & trainings & meetings.
Logic: An indicator for the relative involvement and interest of men and women in the context of the exercise at hand.

INDICATOR #3:
Number of men/women benefitting from the project.
Logic: An indication of equal opportunities and access to benefits (excepting any activities specifically designed with stakeholders to redress a gender equitability issue).

INDICATOR #4:
Number of men/women demonstrating leadership in project implementation.
Logic: An indication of how gender influences decision making processes.

Budget and resources

Gender mainstreaming actions and activities are largely the responsibility of the Project Management team. Responsibility for gender mainstreaming in the Project will rest with the Project Manager and Technical Director. The project has allocated sufficient resources to support both the Project Manager and Technical Directors responsibility to manage gender mainstreaming activities. At least one quarter of the Technical Director's budgeted time on this project will be dedicated to mainstreaming gender in the different components of the project.

PROCESS FRAMEWORK FOR RESTRICTION OF ACCESS TO NATURAL RESOURCES

As part of our existing rights-based approach to conservation, CI recognizes that people have the right to remain on the lands and territories that they have traditionally occupied, which includes the continued access to resources they have traditionally used. While this project will not resettle individuals, it may have an effect on access to marine and coastal resources by individuals and communities in the project areas. The project proposes to create the enabling conditions for the establishment of marine and coastal protected areas in Liberia. The establishment of marine and protected areas may have an effect on access to resources including Mangrove resources. The project proposes to use Conservation Agreements to adequately compensate for any loss of access to resources.

What are Conservation Agreements?

Forests, reefs and species around the world are threatened because in many places that harbor exceptional biodiversity, local people lack alternatives to unsustainable resource use. Protecting biodiversity and key ecosystem services in these places requires conservation tools that provide development opportunities to local populations. When conservation offers concrete benefits to rural farmers and local communities, protecting the environment becomes an increasingly viable and attractive choice. In a Conservation Agreement, resource users commit to conservation actions in exchange for benefit packages defined through participatory processes to address local development needs and priorities. Conservation Agreements are long-term interventions that produce enduring

solutions for people and nature, with an emphasis on financial sustainability and sound governance. Conservation agreements promote social structures and local empowerment that improve stewardship of key natural resources and help people pursue sustainable development options.

A Conservation Agreement can be broken can be broken down into to two key elements

- The conservation actions to be undertaken by the resource users in response to threats to biodiversity or ecosystems
- The benefits provided by the conservation investor to offset the opportunity cost of conservation incurred by the resource users

The benefit package in a Conservation Agreements is determined together with communities to ensure that it responds to local needs and priorities, but delivery of benefits over time depends on verified compliance with conservation commitments. Benefits are conditional on the counterpart's compliance with commitments specified in the agreement. Sanctions (adjustments in benefits) for non-compliance are designed jointly by all parties to the agreement to ensure that they are understood, viable, and appropriate to the counterpart's culture while still respecting rights.

Compensating resource users for any loss of access using Conservation Agreements

A Conservation Agreement recognizes that there is an opportunity cost associated with conservation. The opportunity cost of conservation reflects the value of what resource users give up by not utilizing their resources under the business-as-usual scenario.

This is the balance of:

- The income that would be derived from resource use such as clearing forest for agriculture or timber extraction (*e.g.*, the value of crops or timber that would be harvested in the absence of conservation)
- The value of ecosystem services that would be lost by destructive resource use (*e.g.*, reduced water quality, soil erosion, loss of culturally significant resources)

To secure an agreement, the benefit package must be designed to offset the opportunity cost that resource owners believe they will incur if they choose conservation. In essence, communities are compensated for any loss of access to resources using opportunity cost to determine a fair level of compensation.

Conservation International's Rights-based Approach (RBA) and Conservation Agreements

The Conservation Agreement model reflects Conservation International's Rights-based Approach (RBA). RBA is an approach to conservation that promotes and integrates human rights into conservation policy and practice by emphasizing the positive connections between conservation and the rights of people to secure their livelihoods, enjoy healthy and productive environments, and live with dignity. The Right's Based Approach recognizes that respecting human rights is an integral part of successful conservation, and emphasizes community rights to choose and shape conservation and development projects that affect them. CI's RBA includes principles, policies, guidelines, tools, and practical examples to guide the organization, ensuring that we respect human rights in all of our work. Any Conservation Agreement initiative involves a thorough community engagement process and a participatory design and

negotiation stage that embodies the principle of Free, Prior and Informed Consent (FPIC). The principle of FPIC refers to the right of indigenous peoples to give or withhold their consent for any action that would affect their lands, territories or rights, as recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). While FPIC is the right of indigenous peoples alone under international law, the principles underlying it are generally considered to be a good guideline for engaging any community or group of local stakeholders.

FPIC can be broken down as follows:

Free: Without coercion, intimidation, or manipulation

Prior: Before the start of any activity while also respecting indigenous consultation/consensus processes

Informed: Indigenous peoples have full information about the scope and impacts of the proposed activity on their lands, resources and well-being

Consent: right to say yes or no as a result of consultation and participation in good faith

FPIC is not simply a decision-making process or a veto mechanism for the community, but a tool to ensure that outside people and organizations engage indigenous communities in a culturally appropriate way, so that their development priorities, needs and desires can be met. A true FPIC process includes not only consultation but also the space for a community to give or withhold their consent to a project.

Negotiating Conservation Agreements under this Project

The decision to work on an agreement will be entirely up to the community. CI works with communities who have a strong collective interest and ability to organize to protect their natural resources. The consent to a Conservation Agreement must reflect the desire of the community, free of external pressure from not only the implementer but also any other entity such as the Government.

The following set of actions that will implemented by the Project Manager under this Project to ensure that there has been a true FPIC process that provides space for a community to give or withhold their consent to a project.

- The Project will develop the feasibility analysis for Conservation Agreement implementation using mainly secondary information to help avoid raising expectations in the communities.
- Respecting customary decision-making mechanisms within communities ensures that CAs are adapted to local realities. However, it is important to also remember that some customary decision-making mechanisms do not allow for disadvantaged or marginalized groups to be heard. The Project Manager will establish culturally-appropriate ways to ensure those voices are part of decision-making.
- The Project Manager will explain the CA model to communities during the engagement phase and allow them to understand the interests of the implementers and decide if they want to work together on a CA.
- The Project Manager will design the CAs together with communities and ensure that communities have enough time to discuss the content and to decide if they want to sign such an agreement
- The Project Manager will ensure that the communities know how the benefit package amount has been defined to reduce conflicts when negotiating the benefits to be provided by the CAs.

- The Project Manager will show the biodiversity and socioeconomic monitoring results to communities to increase their engagement and demonstrate how the CA impacts their natural resources and wellbeing.
- The Project Manager will aim to establish one-year agreements that allow communities and implementers to learn from the experience, improve the CA design, and build trust among the parties involved.

Appendix VI: Detailed Project Budget

Detailed GEF Project budget

Project Amount GEF-funded (USD) :	$	964,994	Indicative Project starting date :	Apr-16	
Project Amount co-financing (USD) :	$	3,650,000	Indicative Project end date :	Mar-19	
Total Project Amount (USD) :	$	4,614,994	Duration (in years):	3 years	

GEF FUNDED BUDGET		Project budget by component (in USD)				Project budget per year (in USD)			
EXPENSES TYPE	*DESCRIPTION*	Component 1	Component 2	Project Management Costs	Total	YR1	YR2	YR3	TOTAL
Salaries and benefits	Project Manager -100%	47,000	110,000	-	**157,000**	52,000	52,000	53,000	**157,000**
Salaries and benefits	Technical Director - 13%	-		41,000	**41,000**	13,400	13,800	13,800	**41,000**
Salaries and benefits	Senior Program Manager - 10%	19,000	-		**19,000**	6,000	6,200	6,800	**19,000**
Salaries and benefits	Driver - 100%		20,500		**20,500**	6,500	6,800	7,200	**20,500**
Salaries and benefits	Country Director - 2%	8,500	-	-	**8,500**	2,670	2,800	3,030	**8,500**
Salaries and benefits	Operations Director -10%	-	49,600	-	**49,600**	15,500	16,500	17,600	**49,600**
Salaries and benefits	Conservation Stewards Manager, Africa - 3%	-	4,700	-	**4,700**	1,450	1,600	1,650	**4,700**
Salaries and benefits	Senior Director, Marine Progra - 5%	-	13,000	-	**13,000**	4,200	4,350	4,450	**13,000**
Salaries and benefits	Marine Climate Change Director -4%	16,300	-	-	**16,300**	5,250	5,500	5,550	**16,300**
Total Personnel Salaries and benefits		**90,800**	**197,800**	**41,000**	**329,600**	**106,970**	**109,550**	**113,080**	**329,600**
Consultants fees - International	Consultant fees to develop Protected Area gazettement package	45,000			**45,000**	45,000			**45,000**
Consultants fees - International	Consultant fees to develop integrated land use planning support toolkit	45,000			**45,000**	45,000			**45,000**
Consultants fees - International	Mid term & Final Evaluation	9,000	27,000		**36,000**		18,000	18,000	**36,000**
Auditing fees	Annual Audit costs	5,250	15,750		**21,000**	7,000	7,000	7,000	**21,000**
Other fees / professional services	Consultant fees to Advocacy and awareness campaign		10,000		**10,000**	10,000			**10,000**
Total Professional Services		**104,250**	**52,750**	**-**	**157,000**	**107,000**	**25,000**	**25,000**	**157,000**
International Transportation	Marine and CSP staff to Field visit to Liberia	7,800	14,000		**21,800**	7,600	6,500	7,700	**21,800**
Lodging / meals / perdiem		6,900	12,200		**19,100**	5,700	6,100	7,300	**19,100**
Local transportation	Workshops uder compondnet 2 in support of Conservation Agreements, Land use planning & capacity building		8,278	5,122	**13,400**	4,400	6,800	2,200	**13,400**
Local transportation	Workshops under Component 1 - stakeholder engagement	1,025			**1,025**	500	525		**1,025**
Local transportation	Project inception workshop		750		**750**	750			**750**
Fuel	Fuel for vehicle	3,000	16,000	-	**19,000**	6,000	6,300	6,700	**19,000**
Lodging / meals / perdiem	CI Liberia Staff field trips		36,630		**36,630**	16,000	10,000	10,630	**36,630**
Total Travel and Accommodations		**18,725**	**87,858**	**5,122**	**111,705**	**40,950**	**36,225**	**34,530**	**111,705**

Catering	Project inception workshop			1,250	**1,250**	1,250			**1,250**
Space rental and material for Workshops	Project inception workshop			800	**800**	800			**800**
Catering	Workshops under Component 1 - stakeholder engagement	2,500			**2,500**	1,250	1,250		**2,500**
Space rental and material for Workshops		1,640			**1,640**	800	840		**1,640**
Catering	Workshops uder componanet 2 in support of Conservation Agreements, Land use planning & capacity building including monthly training of communities		37,350		**37,350**	15,192	14,590	7,568	**37,350**
Space rental and material for Workshops			3,500		**3,500**	1,600	1,900	-	**3,500**
Total Meetings and workshops		**4,140**	**40,850**	**2,050**	**47,040**	**20,892**	**18,580**	**7,568**	**47,040**
Grants & Agreements	Sub grants to local partners for Conservation Agreements Delivery: 10 communities for 2 years		122,000		**122,000**		61,000	61,000	**122,000**
Grants & Agreements	In-kind grant to the Environmental Protection Agency (EPA) for supplies and GIS Lab Creation (software , equipment and GIS Training)		69,400		**69,400**	38,200	15,600	15,600	**69,400**
Total Grants & Agreements		**-**	**191,400**	**-**	**191,400**	**38,200**	**76,600**	**76,600**	**191,400**
Furniture and equipment > 5000 USD	Vehicle for field work	-	43,000		**43,000**	43,000	-	-	**43,000**
Furniture and equipment < 5000 USD	One computer		2,220		**2,220**	2,220			**2,220**
Total Equipment		**-**	**45,220**	**-**	**45,220**	**45,220**	**-**	**-**	**45,220**
Office supplies	Sign boards at project sites	-	1,529	-	**1,529**	1,529	-	-	**1,529**
Car maintenance, insurance, registration	Vehicle maintenance, insurance, fuel	4,500	2,500		**7,000**	1,800	2,400	2,800	**7,000**
Other direct costs	Shared Office costs	18,500	55,000		**73,500**	23,800	24,800	24,900	**73,500**
Total Other Direct Costs		**23,000**	**59,029**	**-**	**82,029**	**27,129**	**27,200**	**27,700**	**82,029**
Total GEF funded project costs		**240,915**	**674,907**	**48,172**	**963,994**	**386,361**	**293,155**	**284,478**	**963,994**

CO-FINANCING				**Co-financing by component (in USD)**				**Co-financing per year (in USD)**			
SOURCES OF CO-FINANC	***NAME OF CO-FINANCIER***	***CO-FINANCING DESCRIPTION***	***TYPE OF COFINANCING***	**Component 1**	**Component 2**	**Project Management Costs**	**Total**	**YR1**	**YR2**	**YR3**	**TOTAL**
GEF Agency	Conservation International	Conservation International investment through the Global Conservation Fund	*Cash*	1,000,000			**1,000,000**		1,000,000		**1,000,000**
GEF Agency	Conservation International	Conservation International's Liberia Country program	*In-kind*		300,000		**300,000**	150,000	150,000		**300,000**
Government of Liberia	Environmental Protection Agency of Liberia	EPA annual budget in support of environmental management	*In-kind*	500,000	500,000		**1,000,000**	300,000	350,000	350,000	**1,000,000**
Government of Liberia	Forestry Development Authority	FDA annual budget in support of forest management	*In-kind*	1,350,000			**1,350,000**	450,000	450,000	450,000	**1,350,000**
							-				
Sub Total Co-financing IN-KIND				**1,850,000**	**800,000**	**-**	**2,650,000**	**933,333**	**933,333**	**800,000**	**2,650,000**
Sub Total Co-financingIN CASH				**1,000,000**	**-**	**-**	**1,000,000**	**-**	**1,000,000**	**-**	**1,000,000**
Total Co-financing				**2,850,000**	**800,000**	**-**	**3,650,000**	**933,333**	**1,933,333**	**800,000**	**3,650,000**
TOTAL PROJECT BUDGET				**3,090,915**	**1,474,907**	**48,172**	**4,613,994**	**1,319,694**	**2,226,488**	**1,084,478**	**4,613,994**

Appendix VII: Co-financing Commitment Letters

2011 Crystal Drive, Suite 500, Arlington, VA 22202, USA
Tel: +1 703 341.2400
Fax: +1 703 553.4817
www.conservation.org

CONSERVATION INTERNATIONAL

Subject: Co-Financing support for 'Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas'

To whom it may concern,

On behalf of Conservation International (CI), I am pleased to commit $1,300,000 in co-financing support for the GEF project, 'Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas'.

$1,000,000 of cash co-financing is from the CI's Global Conservation Fund (GCF), which helps design and support innovative sustainable financing mechanisms for delivering a steady flow of funds to protected areas. GCF Co-financing will support Component 1 of this project, which aims to create the enabling conditions for the establishment of coastal and marine protected areas covering 20% of priority mangrove forests for the period June 2016 – June 2018. GCF has earmarked and will be committing $1 million dollars in financing to endow a trust fund that will support future protected area management in Liberia, including protected areas that feature within this project.

The remaining $300,000 of in kind co-finance comes from our partnership with ArcelorMittal in support of Component 2, focusing on conservation agreements and land use planning development for the calendar years 2016-2017.

This contribution as described above is intended to qualify as co-financing should the project proposal be successful

Sincerely,

Jennifer Morris
Chief Operating Officer

REPUBLIC OF LIBERIA
ENVIRONMENT PROTECTION AGENCY
P.O. Box 4024
4th Street Sinkor, Tubman Boulevard,
1000 Monrovia, 10 Liberia

Office of the Executive Director

ED/EPA-01/0734/16/RL

Mr. Miguel Morales
Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 500
Arlington, Virginia 22202
USA

January 6, 2016

Subject: Co-Financing support for 'Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas'

Dear Mr. Morales,

On behalf of Liberia's Environment Protection Agency, (EPA) I am pleased to commit $1,000,000 in kind co-financing support for the GEF project, 'Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas'.

This co-financing from the EPA and will support Component 1 and Component 2 of this project during the period of June 2016 – June 2018. Specifically, the co-financing will provide support for the overall management of the project. The EPA will commit a number of personnel to support the project activities, including participation on the project steering committee, the project management unit, as well as participation in site visits, stakeholder meetings and other consultations. The EPA is also dedicating space for the mangrove monitoring center to be established by this project.

This contribution as described above is intended to qualify as co-financing should the project proposal be successful

Please accept the assurances of my highest esteem as we strive for environmental sustainability for Liberia.

Kind regards,

Anyaa Vohiri
EXECUTIVE DIRECTOR/CEO

Mobile: +231 886-596660/886-574652 *E-mail:Vohiri@yahoo.com*

REPUBLIC OF LIBERIA
FORESTRY DEVELOPMENT AUTHORITY (FDA)

Office of the Managing Director

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MD/177/2016/-1

January 13, 2016

Mr. Miguel Morales
Vice President, CI-GEF Project Agency
2011 Crystal Drive
Suite 500
Arlington, Virginia 22202
USA

Subject: **Co-Financing support for Project: 'Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas'.**

Dear Mr. Morales:

The Management of the Forestry Development Authority (FDA) of Liberia extends warm felicitation and has the honor to commit $1,350,000 demonstrating its share of co-financing support for the GEF project: 'Improve sustainability of mangrove forests and coastal mangrove areas in Liberia through protection, planning and livelihood creation – as a building block towards Liberia's marine and coastal protected areas'.

This is intended to support Component one of this project during the period of June 2016 – June 2018. Specifically, as the custodian of protected areas in Liberia, the FDA contributes staffing and operational costs to the protected areas network. This includes the regular annual operational budget for Lake Piso Mutiple Use Reserve of $200,000/ year, as well as staff and resources from the Conservation Department to support the creation of the proposed Marshall Wetlands protected area and also ensure participation in surveys and other project activities totalling $250,000/ year in staff and logistical support.

It is our hope that our contribution will, to some extent, boost the success of the project and ensure the realization of our dream as it relates to sustainable forest management in practical way.

Thanks for your support in providing the necessary assistance geared toward sustainable management of Liberia's forest and related natural resources.

Sincerely Yours,

Harrison Karnwea, Sr.
MANAGING DIRECTOR

HSK DST/jgd

Improving Sustainability of Mangrove Forests and Coastal Mangrove Areas in Liberia through Protection, Planning and Livelihood Creation

Review of the status, distribution and importance of mangrove habitats in Liberia

Report prepared by

Barry Clark & Mark Thompson
Anchor Environmental Consultants (Pty) Ltd
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TABLE OF CONTENTS

INTRODUCTION

Mangrove forests in Liberia are rich in biodiversity and provide habitat for a number of threatened species. Mangroves also hold great significance for local communities who depend on mangrove wetlands for subsistence and local commerce, using the wood to provide energy supplies, food, shelter and other ecological services. Current development trends along the coast are threatening Liberia's mangrove forests and in some cases mangrove degradation and forest loss is higher than in terrestrial forests in the country.

Conservation International (CI), in collaboration with Liberia's Environmental Protection Agency (EPA), is implementing a project preparatory process with the Global Environment Facility (GEF) for a project entitled "Improving Sustainability of Mangrove Forests and Coastal Mangrove Areas in Liberia through Protection, Planning and Livelihood Creation."

The project aims to identify and profile priority mangrove sites in Liberia and establish the necessary conditions for the identification and delineation of two coastal and marine protected areas. The project will reduce pressure on mangroves both within and outside the protected area network through integrated land-use planning, improving local community livelihoods and increasing stakeholders' capacity and awareness.

The following tasks have been identified for this project:

1. Review available literature on the status, distribution and importance of mangroves in Liberia;
2. Identify and profile priority mangrove sites in Liberia using remote sensing data and ground truthing;
3. Assess the social and biological value of these priority mangrove sites including their use by communities, rate of loss, ecosystem services provided, and threats to these ecosystems;
4. Identify a number of mangrove sites as future project sites based on their use by communities and existing threats in consultation with all key stakeholder in Liberia; and
5. Develop and finalise a Project Document and Budget to be submitted to the GEF.

This report addresses Task 1 (review of available literature, distribution and importance of mangroves in Liberia) and the first part of Task 2 (mapping and profiling of mangrove sites using remote sensing data). Ground truthing of the remote sensing data (Part 2 of Task 2) will be undertaken during the field visit scheduled for 10-22 November 2015.

COMPOSITION, DISTRIBUTION AND STATUS OF MANGROVES IN LIBERIA

Mangrove ecosystems dominate the coastal wetlands of tropical and subtropical regions throughout the world. West Africa is no exception, with mangroves extending along the coast from Mauritania in the north down to Angola in the south, covering an area of approximately 30 000 km^2. This accounts for around 16% of the total global mangrove area (Saenge & Bellan 1995, Spalding *et al*. 1997). Liberia is close to the northern edge of this distributional range and is home to around 427 km^2 of mangrove habitat (Spalding *et al*. 1997). The northern and southern limits of the mangrove distribution range in West Africa coincides more or less with the limits of arid regions defined by UNESCO (1979) as area with summer rainfall and winter drought, 12 months/year with <30mm rainfall, and a precipitation to potential evapotranspiration ratio (P/PEt) < 0.03.

The mangroves of West Africa (and indeed Liberia) are composed of six indigenous and one introduced woody species (Nypa fruticans, Wilcox, 1985):

- Rhizophora racemosa
- Rhizophora mangle
- Rhizophora harrisonii,
- Avicennia germinans
- Conocarpus erectus
- Acrostichum aureum

None of these species can be considered endemic as they also occur on the Atlantic and/or Pacific coasts of America. Mangrove stands in the region occur in a number of different forms - open shoreline (frontal), lagoonal (occur in lagoons behind barrier islands that extend parallel to the beach) and deltaic (estuarine and fluvial) mangrove stands. The Liberian coast is notched by a number of deep-branching estuaries with low-silted sandbanks which is where most of the mangrove stands are found. They occur as narrow fringes lining estuaries and coastal lagoons along the shoreline and are thus predominantly deltaic or (less commonly) lagoonal in nature (Kunkel 1966, Anthony 1989, Saenge & Bellan 1995).

Very little detailed information on the distribution of mangroves along the Liberian coast. Spalding *et al*. (1997) included a map of the distribution of mangrove on the Liberia coast in the "World Mangrove Atlas" but the resolution on the Liberian coast is low. In the accompanying description, Spalding *et al*. (1997) refers to the occurrence of mangroves at the mouths of some of the rivers and lagoons in Liberia. He also makes reference to the more extensive mangrove around Lake Piso on the Sierra Leone border, the occurrence of stunted *Rhizophora harrisonii*, *Avicennia germinans* and *Conocarpus erectus* long the central Liberian coast, and a larger (up to 3 m high) lagoonal mangrove communities around Cape Palmas in the south east dominated by *Conocarpus erectus* and thickets of *Acrostichum aureum* with the occasional specimens of *Avicennia germinans* and *Rhizophora racemose*. The description of mangrove communities on the central Liberian coast seems to be derived from a paper by Adam (1970) who described estuarine mangrove assemblages on the central Liberian coast near Buchanan and remarked on the fact that these mangrove communities were historically dominated by *Rhizophora racemose* but that this species is now absent due to felling. Sayer *et al*. (1992) also provides a brief account of mangrove stands on the Liberian coast. He makes reference to mangroves that are found some 7 km up the Mafa River, separated from those at the mouth by a small block of terrestrial forest, mangroves around Lake Piso, an extensive area of mangrove around Mesurado Creek close to Monrovia, fairly

extensive areas of mangrove at the confluence of the Bo and Junk rivers, along the Mechlin and Benson Rivers, at the mouth of the Joda River and on the Decoris, Cestos and Senkweni Rivers.

Zonation within the mangrove stands in Liberia (and indeed West Africa) is reportedly not well developed but individual species do display differences in the physiological tolerance limits and varying preferences for different sedimentary characteristics. Kunkel (1966) reports that mangrove stands in Liberia are mostly controlled by successional processes particularly in areas where the rate of sand movement and erosional mudflat deposition is high. *R. racemose*, for example is generally the predominant species on recently deposited, unconsolidated alluvium (Rosevear 1947, Savory, 1953, Jordan 1964, Saenge & Bellan 1995), and often forms a monospecific zone in these areas. Higher up on the shore, where sediments are more consolidated but still inundated by the daily tides, this is generally followed by a mixed *Rhizophora* zone, in which R*. racemosa, R. harrisonii* and *R. mangle* may co-occur. An *Avicennia* zone is often found above this level either as a monospecific stand or mixed with other mangrove species such as *Laguncularia* or *Conocarpus* and herbaceous halophytes such as *Paspalum vaginatum* and/or *Sesuvium portulacastrum*. The latter species start to predominate further up the shore and may ultimately be replaced with vegetation-free saltflats (or 'tannes') in those areas that are inundated only by extreme spring tides each month.

KEY THREATS TO MANGROVES IN LIBERIA

Key threats to mangroves in Liberia include habitat loss and land degradation, exploitation, pollution and climate change (Saenger & Bellan 1995, Sayer et al. 1992, FAO 2007, UNEP 2007). Agriculture and/or aquaculture expansion (particularly for swamp rice), urbanization and urban development, transportation infrastructure development (road building), and mining and oil exploitation are considered to be the main drivers of habitat loss and degradation; while hunting, firewood collection, charcoal production, timber extraction and the collection of species for the pet trade have been identified as the main exploitative threats to mangroves in Liberia. Chemicals released from agricultural pursuits and oil spills are considered to be the main pollution threats.

Coastal development arguably poses the greatest threat to Liberia's mangrove forests with the greatest damage being reported in the areas around the larger coastal towns such as Monrovia, Buchanan, Greenville, and Harper. Stands of *Rhizophora racemosa* have been completely extirpated around many of these towns due to habitat loss (road building and landfill) and fuel wood collection. In some areas mangrove degradation and forest loss is even higher than in terrestrial forests in the country. It is estimated that as much as 65% of the mangrove forest area in Liberia may have been lost since 1980, and that most of the remaining stands being comprised of small pockets of primary mangroves and some secondary growth (FAO 2007, UNEP 2007). Liberia, along with Côte d'Ivoire have been identified as the two countries in Africa with the highest negative annual rate of change for mangrove cover (FAO 2007).

The primary threat posed by climate change to mangrove in Liberia (and elsewhere) is from rising sea levels, which will affect inundation period, productivity and sediment budgets and may cause dieback from the seaward edge and migration landward, subject to topography, and human modifications (Gilman *et al*. 2008, Soares 2009, Ellison & Zouh 2012). Potential changes in rainfall are also of concern, particularly given that mean annual rainfall in Liberia appears to have decreased since the mid-1960s (Blaser et al. 2007).

Aquaculture is not currently widespread in West Africa but is expected to increase in the future and could in turn become a threat to remaining mangrove stands in Liberia. Dams and barrages are a major threat to mangrove systems in some countries in West Africa through their disturbance to the hydrological and tidal regimes of the rivers and through the reduction of sediment supply to deltas. It is not clear though how important this is in Liberia at present.

Threats to Liberia's mangroves are exacerbated by other factors including inadequate institutional capacity to manage and monitor mangroves, inconsistencies in legislation or how it is applied, lack of integrated planning between different sectors, lack of protection (specifically lack of community involvement in protection and conservation), inadequate law enforcement, and insufficient awareness among key decision makers and local communities in respect of the role mangroves play in supporting healthy fish stocks, as storm shelters, and their contribution to livelihoods of the communities who live in and around the mangroves.

A number of mangrove sites have been identified and targeted for inclusion in the country's formal protected area network little has been done to date to ensure their protection. Lake Piso, as well as the Mesurado and Marshall wetlands, have all been declared as Ramsar sites (Spalding *et al.* 2010), and the Lake Piso Multiple Use Protected Area was established fairly recently.

IMPORTANCE OF MANGROVES IN LIBERA

Globally, mangrove forest ecosystems fulfil a number of important functions and provide a wide range of services at the local and national levels. Rural and urban populations alike depend on mangroves as a source of wood (e.g. timber, poles, posts, fuelwood, charcoal) and non-wood forest products (food, thatch, fodder, alcohol, sugar, medicine and honey) (FAO 2007). Historically, mangroves were also often used for the production of tannin suitable for leather work and for the curing and dyeing of fishing nets but their importance in this respect has declined following the introduction of nylon fishing nets and the use of chrome as the predominant agent for curing leather (FAO 1994).

Mangroves also support the conservation of biological diversity by providing habitats, spawning grounds, nurseries and nutrients for a wide range of animal species including reptiles, amphibians and birds. Mangroves in Liberia provide habitat to the threatened West African manatee (*Trichechus senegalensis*, VU). They provide habitat and feeding ground for several species of birds including the African spoonbill (*Platalea alb,* LC), common pratincole (*Glareola nuchaltis,* LC) and curlew (*Numenius arquata,* NT). The Rufus fishing owl (*Scotopelia ussheri, VU*) can be found in the mangroves of the southeast. Liberia also hosts the vulnerable African dwarf crocodile (*Osteolaemus tetraspis*,VU), the Nile crocodile (*Crocodylus niloticus*, LC) and the African sharp-nosed crocodile (*Mecistops cataphractus, DD*). Liberia's mangroves also provide important nursery areas for leatherback (Dermochelys coriacea, EN), loggerhead (*Caretta caretta*, EN), green (*Chelonia mydas*, EN), and olive ridley (*Lepidochelys olivacea,* EN) turtles that are known to breed on beaches in Liberia.

The fishery sub-sector in Liberia is estimated to provide about 65% of the protein needs of the country and contributes about 10% to GDP (Government of Liberia, 2004). Yield of fish and shellfish from mangrove forest area tend to be much higher than other shoreline habitats. According to Kapetsky (1985), the average yield of fish and shellfish in mangrove areas is about 90 kg per hectare, with maximum yield of up to 225 kg per hectare (FAO 1994). Destruction of mangrove forests can have a devastating impact on fishery yields, with losses to coastal fisheries amounting to as much as 480 kg of fish per year for every hectare of forest that is lost (MacKinnon & MacKinnon 1986). Estimates on the

value of mangrove fisheries vary widely. The value of such fisheries on the Atlantic coast of Central Africa (Cameroon, Gabon, Republic of Congo and the DRC) are estimated at USD 12,825 per ha per year (Ajonina *et al*. 2014) while those in the Gulf of Mexico have been valued at USD 37,500 per ha per year (Aburto-Oropeza *et al.* 2008).

Mangroves are thought to enhance fish production via two main mechanisms – through the provision of food and of shelter (Saenger et al. 2013, Hutchison *et al.* 2014). Mangroves are highly productive ecosystems, with rates of primary production that rival those of tropical terrestrial forests. This primary production us derived from three main sources - the mangrove trees themselves, algae growing on tree roots and on the forest floor, and phytoplankton in the water column. Secondary (mostly terrestrial) consumers feed on the mangrove leaves, propagules, twigs and branches, break this material down and make it available to the decomposers and ultimately feed nutrients and energy into the marine food chain. Microalgae (or periphyton and phytoplankton) that occur on mangrove trees, in their soils and the water column, also contribute to the marine food chains. While these microalgae typically have lower rates of productivity than the trees themselves, they are nutritionally more accessible to consumers and thus provide an important contribution. The structural complexity of the mangrove environment also provides shelter from predators and serves to slow down water movement thereby creating a sheltered environment with soft sediment free of wave action. The roots and trunks of the mangrove trees reduce prey visibility and impede access by large predators, shade from the mangrove canopy and turbid water also reduce visibility, and collectively serve to reduce predation pressure on juvenile fish in these habitats.

Mangroves also help protect coral reefs, sea-grass beds and shipping lanes by filtering and trapping sediments and other suspended matter discharged by rivers. They also provide protection from coastal erosion, tsunamis and other coastal hazards (i.e. coastal erosion, cyclones, wind and salt spray). They also hold considerable value as an ecotourism resources, and can provide valuable and sustainable sources of income for coastal communities, especially where forests are easy accessible.

Mangrove ecosystems are considered to be amongst the most carbon rich ecosystems in the world and as such are a significant carbon sink in terms of forest biomass as well as organic sediment accumulation (Bouillon 2011, Donato *et al.* 2011, Ajonina *et al*. 2014). Total ecosystem carbon in undisturbed in Central Africa have been estimated at around 1520.2 tonnes C/ha, 65% of which is contained in below ground biomass and 35% in above ground biomass (Ajonina *et al*. 2014). The amount of stored carbon is almost 50% lower in heavily exploited relative to unexploited forest stands, however.

Additional information on the importance and value of mangrove stands in Liberia will be collected during project workshops and meetings with the community leaders and focus group discussions to be held during the field surveys that will be undertaken as part of this study. These meetings are expected to provide additional general and site specific information on the livelihoods of local people living around key mangrove sites in Liberia and will also establish the importance and contribution of mangrove to local livelihoods.

MAPPING OF MANGROVES IN LIBERIA

1.1 Use of remote sensing techniques for mapping mangrove distribution and cover

Remote sensing is often the tool of choice to provide information on the distribution of mangrove ecosystems, species differentiation, health status, and ongoing changes in mangrove populations (Green *et al*. 1998, Blasco *et al* 2001, Vaiphasa *et al*. 2006, Giri *et al*. 2007, Seto *et al*. 2007,Everitt *et al*. 2008, Kuenzer *et al.* 2011). There is a wide range of remote sensing data available, ranging from aerial photography to high- and medium-resolution optical imagery, and from hyperspectral data to active microwave (SAR) data. These different techniques, used on their own or in combination, have demonstrated a high potential to detect, identify, map, and monitor mangrove conditions and changes during the last two decades, which is reflected by the large number of scientific papers published on this topic.

Different remote-sensing techniques differ widely in terms of their spatial resolution and hence their application for different tasks. Six broad categories of remote-sensing data are recognised: aerial photography, high-resolution imagery (e.g. IKONOS, QuickBird), medium-resolution imagery (e.g. Landsat series, SPOT), hyperspectral imagery (e.g. Compact Airborne Spectrographic Imager (CASI)), and radar (Synthetic Aperture Radar (SAR)).

Aerial photography is the most widely used remote-sensing technology applied to analyse surface events and is best suited for highly detailed mapping in small and narrow coastal environments (i.e. narrow fringing mangrove stands). The main drawback with aerial photography is the difficulty in obtaining appropriate images which depends on flight conditions, local weather, and the occurrence of clouds, which are common in tropical and subtropical latitudes.

Mangrove mapping studies based on medium-resolution data such as can be derived from satellite sensors are widely used in mapping mangroves over large geographical regions. Data most commonly used for such studies is derived from Landsat-5 TM and SPOT, as well as from Landsat MSS, Landsat-7 ETM+, the Indian Remote Sensing Satellite (IRS) 1C/1D LISS III, and the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER). Measures that can be derived from this sort of data include data on distribution, condition, and increase/decreases in these variables. A range of different techniques have been developed for processing medium resolution satellite data and range from simple visual interpretation and on-screen digitising to automated processes using indices such as NDVI and LAI.

Studies based on high-resolution optical data have recently become popular with the launch of IKONOS-2 in 1999 and QuickBird in 2001 which made a new generation of high-resolution spaceborne sensors available for earth observation. These sensors allow mapping of mangroves with improved discrimination and also increased differentiation between mangroves stands and other species assemblages. A range of data-interpretation methods and processing techniques have been developed for use with high-resolution optical data, including pixel-based, object-based, linear unmixing, and neural-network analyses.

Hyperspectral data is not as widely used as other remote sensing data but does provide new opportunities for mapping mangrove forests as it provides a large number of very narrow bands (<10 nm) in the 0.38–2.5-µm range. This greatly increases the level of detail, and can enable differentiation of mangrove stands based on additional components, such as leaf water content, leaf chemistry in

relation to ecosystem, and environmental changes. The large number of narrow bands in hyperspectral imagery leads to time-intensive image-processing steps, however.

Spaceborne and airborne radar-imagery data also have an important role to play in mapping and assessing the status of mangrove ecosystems. Because of persistent cloud cover in the tropical and subtropical regions, radar imagery is an appropriate option compared with optical remotely sensed data. Radar data delivers information that is useful for characterising the spatial cover of mangrove surfaces, structural parameters, flooding boundaries, health status, deforestation status, and the amount of total biomass.

The selection of the appropriate sensor for a particular study will depend mainly on the purpose of the investigation, the attainable final map scale, the discrimination level required, the time frame to be covered, special characteristics of the geographic region, and the funds available for the envisioned study.

1.2 Approach used for this study

For the purposes of this study, a mangrove classification dataset for the coastal region of Liberia was generated from multi-seasonal, 30 metre resolution Landsat 8 satellite imagery, acquired between December 2014 and January 2015. The land-cover dataset provides data coverage for the inset project area (Figure 1, red boundary) which intersects 5 x Landsat frames (201-055; 200-055/056; 199-056; 198-057).

The mangrove classification dataset was generated using a hierarchical unsupervised classification technique, and manual visual interpretation. The original classification was based on 30 x 30 meter raster cells, equivalent to the original image resolution of the Landsat 8 sensor.

The supplied product is a desk-top generated dataset. No independent verification of statistical mapping accuracy has been calculated nor established for this preliminary data set. Limited validation of this data set will, however, be undertaken during the field surveys.

1.3 Mapping scales and coverage

The dataset is suitable for ±1:100,000 scale, or coarser spatial modelling applications, with a theoretical minimum feature mapping unit of ± 1 ha.

Figure 1. Illustration of the project area. Land cover was generated from Landsat 8 imagery for the boundary highlighted in red.

1.4 Landsat satellite imagery

The Landsat 8 imagery used to generate the dataset was sourced from the web-based image archives of the United States Geological Survey (USGS). The original image data was sourced in geo-corrected UTM (north), WGS84 projection format, and all land-cover classifications and modelling was completed using this projection format.

The classification is based on single-date image data from within 5 x Landsat image frames. The Landsat 8 imagery used in the mangrove classification was all acquired between December 2014 and January 2015 (Table 3). Cloud free imagery was prioritized in the land cover classification over images that were cloud obscured.

Table 3. Landsat scenes used for this study.

PATH	ROW		ACQUISITION DATE
201	55	*L8*	2015/01/28
200	55	*L8*	2015/01/05
200	56	*L8*	2015/01/05
199	56	*L8*	2014/12/29
198	57	*L8*	2014/01/07

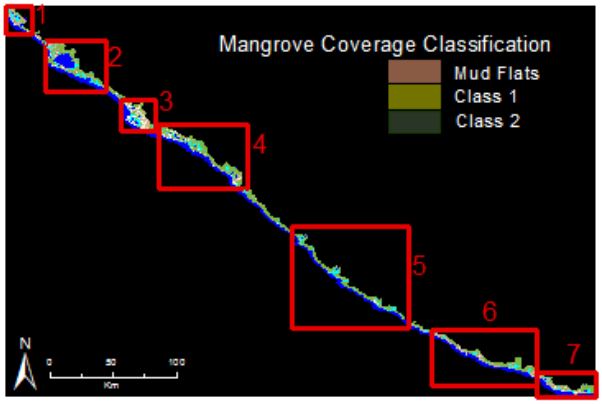
1.5 Land-cover legend and area estimates

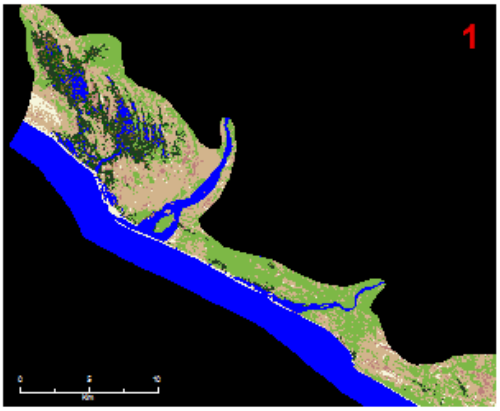
The supplied mangrove classification dataset contains basic land-cover information classes that describe the coastal extent of the landscape in the mapped geographical area listed in Table 4. A map showing the distribution of the land cover classes is included as Figure 2. Total area of the three mangrove land classes (Class 5, 6 and 7) was estimated at 350 km^2 (

Table 5) and is lower than the estimate provided by Spalding *et al*. (1997) in the World Atlas of Mangroves: 427 km^2, but considerably larger than any of the earlier estimates (UNEP: 110 km^2, Sayer *et al*. 1992: 190 km^2, Hammermaster 1985: 188 km^2). The greater portion of this area (311.3 km^2) was made up of Mangrove – Class 1 and Mangrove - Class 2 (areas dominated by mangrove communities), with smaller contributions by Mangrove - Mud Flats/ Sparse Mangrove (39.2 km^2).

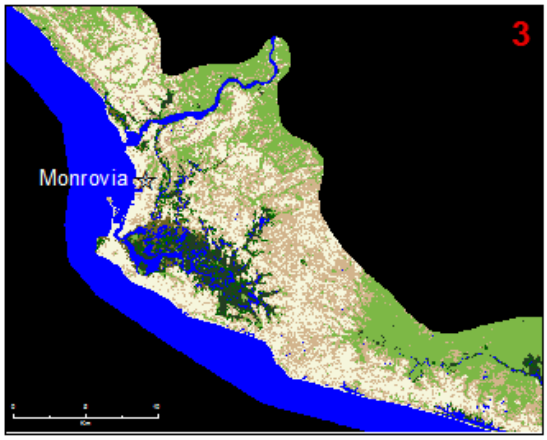
Table 4. Basic land-cover information classes used to describe the landscape in the mapped geographical area.

Class	Class Name	Description
1	1. Open Water	All areas of open water that can be either man-made or natural in origin. Based on the maximum extent of water identified in single-date imagery. Includes sea and estuarine water
2	2. Bare Non-Vegetated	Bare, non vegetated areas *dominated* by loose soil, sand, rock or artificial surfaces. May include some very sparse scattered grass, low shrub and / or tree and bush cover. Can be either natural (i.e. beach) or man-made (i.e. mines or built-up areas).
3	3. Bare/ Sparse Grass / Low Shrubs	Areas that are sparsely vegetated consisting of a mix of low herbaceous vegetation and bare ground. This class may include grassland, low shrubland and bushland communities
4	4. Mud Flats	Areas that appear to be visually saturated, along the coastal plains. This class may include bare non-vegetated surfaces, shallow water and some low vegetation.
5	5. Mangrove - Mud Flats/ Sparse Mangrove	Areas that appear to be visually saturated, along the coastal plains, and lateral to mangrove systems. This class may include bare non-vegetated surfaces, shallow water and some mangrove communities. Mangrove communities appear to be sparse and short in height in this class.
6	6. Mangrove - Class 1	Areas that are dominated by Mangrove vegetation communities. Predominantly in a transitional boundary between Class 5 and Class 7.
7	7. Mangrove - Class 2	Areas that are dominated by Mangrove vegetation communities. Predominately tall dense communities of Mangrove vegetation.
8	8. Other Vegetation	Areas of other vegetation surrounding the Mangroves, bare and lower vegetation communities. This class may include low shrubsland, bushland, and tree-dominated areas.
9	Unclassified - Cloud Obscured	Areas that were affected by cloud cover remained unclassified.


Mangrove Coverage Classification
Mud Flats
Class 1
Class 2
1
2
3
4
5
6
7
N


1


2
Robertsport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Monrovia


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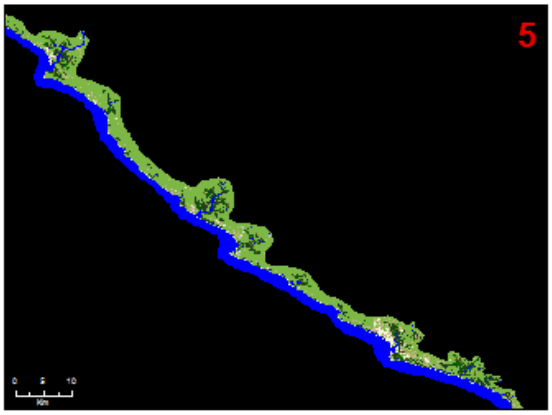
5


6


7
Harper

Figure 2. Mangrove coverage classes along the Liberian coastline generated from single-date 30m resolution Landsat 8 imagery, acquired between December 2014 - January 2015. See Table 4 for information on the landcover classes.

Table 5. Data for various mangrove land-cover classes.

Class	Name	Description	Area km²
5	Mangrove - Mud Flats/Sparse Mangrove	Areas that appear to be visually saturated, along the coastal plains, and lateral to mangrove systems. This class may include bare non-vegetated surfaces, shallow water and some mangrove communities. Mangrove communities appear to be sparse and short in height in this class.	39.2
6	Mangrove - Class 1	Areas that are dominated by mangrove vegetation communities. Predominantly in a transitional boundary between Class 5 and Class 7)	86.7
7	Mangrove - Class 2	Areas that are dominated by Mangrove vegetation communities. Predominately tall dense communities of Mangrove vegetation.	224.6

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Improving Sustainability of Mangrove Forests and Coastal Mangrove Areas in Liberia through Protection, Planning and Livelihood Creation

Report on initial field surveys and stakeholder engagement activities

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TABLE OF CONTENTS

2 INTRODUCTION

Mangrove forests in Liberia are rich in biodiversity and provide habitat for a number of threatened species. Mangroves also hold great significance for local communities who depend on mangrove wetlands for subsistence and local commerce, using the wood to provide energy supplies, food, shelter and other ecological services. Current development trends along the coast are threatening Liberia's mangrove forests and in some cases mangrove degradation and forest loss is higher than in terrestrial forests in the country.

Conservation International (CI), in collaboration with Liberia's Environmental Protection Agency (EPA), is implementing a project preparatory process with the Global Environment Facility (GEF) for a project entitled "Improving Sustainability of Mangrove Forests and Coastal Mangrove Areas in Liberia through Protection, Planning and Livelihood Creation."

The project aims to identify and profile priority mangrove sites in Liberia and establish the necessary conditions for the identification and delineation of two coastal and marine protected areas. The project will reduce pressure on mangroves both within and outside the protected area network through integrated land-use planning, improving local community livelihoods and increasing stakeholders' capacity and awareness.

The following tasks have been identified for this project:

6. Review available literature on the status, distribution and importance of mangroves in Liberia;
7. Identify and profile priority mangrove sites in Liberia using remote sensing data and ground truthing;
8. Assess the social and biological value of these priority mangrove sites including their use by communities, rate of loss, ecosystem services provided, and threats to these ecosystems;
9. Identify a number of mangrove sites as future project sites based on their use by communities and existing threats in consultation with all key stakeholder in Liberia; and
10. Develop and finalise a Project Document and Budget to be submitted to the GEF.

This report addresses part of Task 2 (identification and ground truthing at priority mangrove sites) as well as Tasks 3 and 4 (assessment of threats to, and the value and use of mangrove forest resources at priority sites in Liberia). Results from Task 1 and the remainder of Task 2 are presented in a separate report by Clark & Thompson (2015).

3 STUDY APPROACH

The primary aims of this phase of the project on "Improving Sustainability of Mangrove Forests and Coastal Mangrove Areas in Liberia" was to (1) Ground truth remote sensing data selected for use in Phase 1 of the project (see report by Clark & Thompson 2015 for details on this) , and (2) Engage with stakeholders in Liberia (government agencies, in country experts, government agencies, NGOs, etc.) on the approach to be adopted for the larger GEF project and to identify appropriate target sites for the project, and (3) Assess current levels of use and exploitation of mangroves by coastal communities and other potential threats to mangrove conservation in Liberia.

Engagement with government stakeholder along with other in country experts and NGOs was conducted principally through an expert workshop that was convened in Monrovia immediately before the field surveys commenced (held on 10 November 2015) and a second multi-stakeholder workshop that was convened following the completion of field surveys (held on 24 November 2015). The purpose of the first expert workshop was to discuss the aims and objectives of the project and to identify appropriate field sites that could also serve as the final selected project sites. The purpose of the multi-stakeholder workshop was to validate preliminary findings from the field surveys with key stakeholders and to present a draft set of recommendations on the approach for the larger GEF project for consideration by the wider community.

Six priority mangrove forest sites were identified in the expert workshop (Figure 3.1) based on the remote sensing data (distribution of mangroves in the country) and expert knowledge concerning the status, importance and perceived level of threat in each area. Plans were then made for representatives of the project team to visit all of these over the period 11-23 November 2015. The identified priority sites in order from East to West were as follows:

1. Lake Piso
2. Bomboja
3. Monrovia
4. Marshall
5. Buchanan
6. Harper

The key objectives for the field visits were as follows:

- To engage with rural communities that use mangrove resources for their livelihoods (e.g. as timber, building materials, firewood, source of charcoal, fishing, honey, etc.) in an effort to assess current levels of use and exploitation;
- To assess the potential of different mangrove sites for conservation and livelihood creation; and
- To ground truth the remote sensing and GIS data on the distribution of mangroves in Liberia collected as part of Phase 1 of the study.

The field surveys were conducted by a core team of 7 persons, four from Conservation International, and one each from the Environmental Protection Agency (EPA), the Forest Development Authority

(FDA) and the Society for Conservation of Nature in Liberia (SCNL). Additional personnel from the regional FDA and local authority offices joined the core team for some of the site visits.

Figure 3.1. Priority sites identified during the expert workshop

Visits to the five sites in the northeast of the country were to be conducted by vehicle (travelling from Monrovia) while arrangements were made to fly to the sixth site (Harper) owing to the poor condition of the roads in the south-eastern part of the country. Unfortunately the team was not able to make it onto the scheduled flight (flight was overbooked) and the visit to this site had to be cancelled. Visits to the other five sites were successful though, results of which are presented in this report.

A summary of the key finding from the surveys and meetings held with local people at each of the five priority sites that were visited during this study are presented in the sections that follow.

4 LAKE PISO

The project team attended meetings with the following groups at this site:

1. Meeting with local authorities and representatives from the FDA and the Lake Piso Collaborative Management Association (LPCMA) in Robertsport;
2. Meeting with the Paramount Chief from the Lake Piso Area and Chiefs from many of the villages surrounding Lake Piso at Dozon Village;
3. Meeting with the Chief, elders, fishers and women's groups at Falie Village;
4. Meeting with the Chief, elders, fishers and women's groups at Bendu Village; and
5. Meeting with the Chief, elders, fishers and women's groups at Mando Village

Sites visits to mangrove forest stands around each of these villages and at several additional sites around the periphery of the lake were undertaken on foot and using an AUV (drone) (Figure 4.1, Figure 4.2).

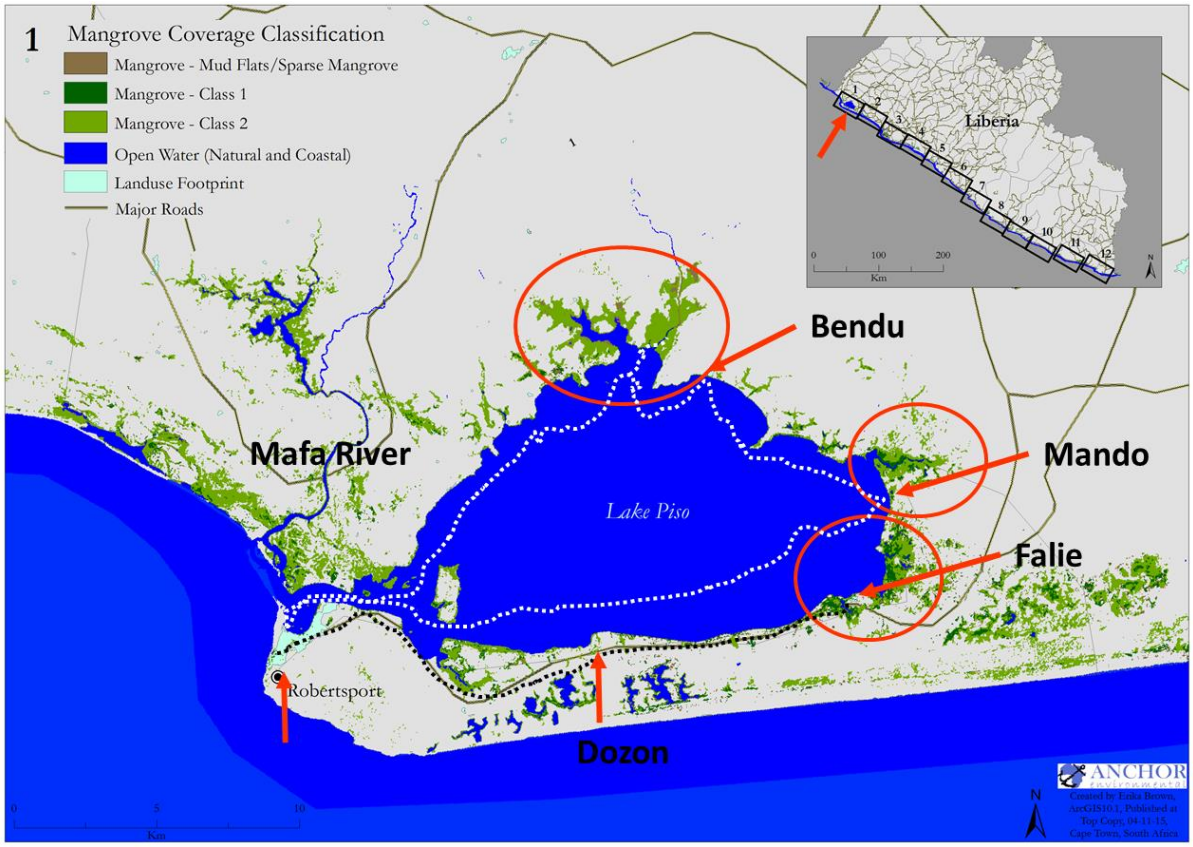

Figure 4.1. Map showing distribution of mangroves at Lake Piso and communities that were visited during the field surveys. Dashed black and white lines indicates the routes followed by vehicle and boat during the surveys.

Key findings from the meetings and surveys included the following:

- Mangrove distribution and extent at this site matched that on maps prepared using remote sensing data as part of Phase 1 of this study (Clark & Thompson 2015) very closely.
- Three species of mangrove are present at this site:
  - Red mangrove *Rhizophora racemosa* (>90%);
  - Black mangrove *Avicennia germinans* (<5%); and
  - Golden leather fern *Acrostichum aureum (<5%).*
- Diversity of associated fauna was low (6 species of water birds were recorded, Table 4.1). This was attributed to the presence of limited mud flat area and limited tidal/marine influence in the Lake.
- Mangroves were almost without exception in very good health.
- No cutting or clearing of mangroves was evident, except around Robertsport (historical).
- Some evidence of shoreline erosion on the lake margin but this was not linked to mangrove clearing; mangroves in fact clearly play a very important role in limiting erosion on the lake margin.
- Local communities were very aware of the importance and value of the mangrove (especially their importance as a fish nursery area) and indicated they while they had been using mangroves for fuel wood and charcoal production in the past, they has ceased doing this based on recent interventions by the FDA.
- Mangroves were used for setting baskets (to catch crabs, crawfish), collection of casemeat (hermit crabs) and for fishing (with nets and lines).
- The Lake Piso Collaborative Management Association (CMA) had been established several years ago and was working well.
- Local authorities and communities were eager to work with CI, EPA and FDA.

Figure 4.2. Clockwise from left: Large mangrove trees (*Rhizophora racemosa*) on the banks of Lake Piso near Bendu , community meeting at Robertsport and one of the drones used for aerial surveys and collected video footage at each of the sites.

Table 4.1. List of waterbirds recorded at Lake Piso.

Species	**Common name**
Actitus hypoleucos	Common sandpiper
Anthreptes gabonicus	Mangrove sunbird
Centropus senegalensis	Senegal coucal
Ceryle rudis	Pied kingfisher
Milvus aegyptius	Yellow bill kite
Gypohierax angolensis	Palm-nut vulture

5 BOMBOJA

The project team attended meetings with the following groups at this site:

1. Meeting with the chief, elders, fishers and women's groups at Bomboja Village.

Site visits to mangrove forest stands around this village, the Lofa River and Mama Lake were undertaken on foot and using a drone (video surveillance) (Figure 5.1, Figure 5.2).

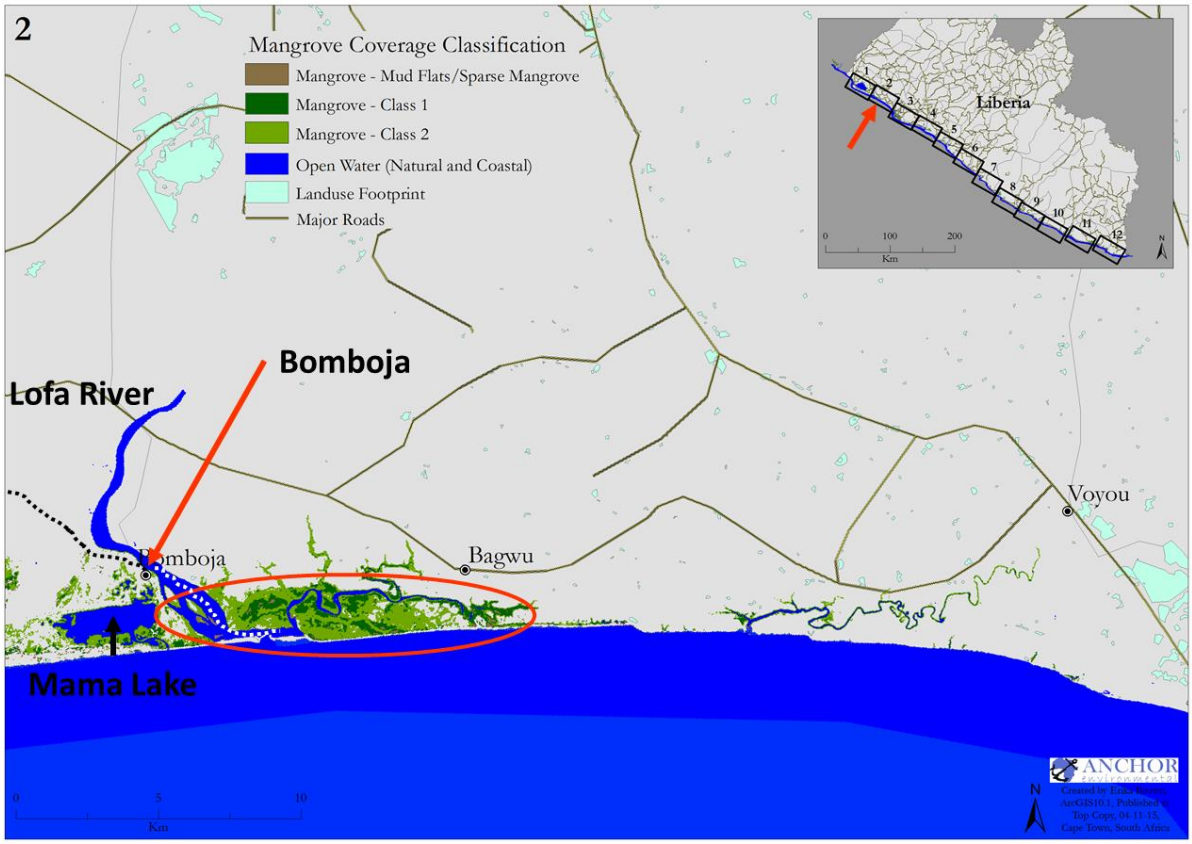

Figure 5.1. Map showing distribution of mangroves at Bomboja and communities that were visited during the field surveys. Dashed black and white lines indicates the routes followed by vehicle and boat during the surveys.

Key findings from the meetings and surveys included the following:

- Mangrove distribution and extent at this site matched that on maps prepared using remote sensing data as part of Phase 1 of this study (Clark & Thompson 2015) very closely as was the case for the other sites.
- Three species of mangroves were observed at this site:
  - Red mangrove *Rhizophora racemosa* (>90%)
  - Black mangrove *Avicennia germinans* (<5%)
  - Buttonwood Mangrove *Conocarpus erectus (<5%)*

- Diversity of associated fauna was moderate (10 species of water birds, Table 5.1) and was attributed to the presence of abundant mudflat habitat and strong tidal/marine influences.
- Mangroves were mostly in good health, but there was some (limited) evidence of cutting possibly for fuelwood.
- There was evidence of acute shoreline erosion near the mouth of the Lofa River, but mangroves were still playing a very important role in limiting erosion elsewhere.
- Local communities were mostly aware of the importance and value of the mangroves (notably as a fish nursery area) but indicated they were still using mangroves to some extent for fuel wood and charcoal production. Fishers (men and women) also indicated that they were cutting channels through mangroves to set nets and to access the water, and that they cut the mangrove roots when collecting oysters
- Mangroves also used for setting baskets (to catch crabs, crawfish), collecting oysters and for fishing (nets and lines).
- LPMUR Collaborative Management Association (CMA) was not represented (or seemingly welcome) in Bomboja area.
- The community was eager to work with CI, EPA and FDA on a mangrove conservation project though.

Table 5.1. List of waterbirds recorded at Bomboja.

Species	**Common name**
Actitus hypoleucos	Common sandpiper
Ardea cinerea	Grey heron
Arenaria interpres	Ruddy turnstone
Calidris minuta	Little stint
Ciconia episcopus	Woolly-necked stork
Gypohierax angolensis	Palm-nut vulture
Milvus aegyptius	Yellow bill kite
Tringa nebularia	Common greenshank
Tringa ochropus	Green sandpiper
Tringa stagnatilus	Marsh sandpiper

Figure 5.2. Clockwise from top left: Photos from the Bomboja area showing project team surveying mangrove stands along the banks of the Lofa River using a dugout canoe, mangroves that have been killed and toppled due to erosion of the shoreline by wave action, and crab traps in the mangroves at low tide.

6 MONTSERRADO (MONROVIA)

Sites visits to mangrove forest stands around Monrovia city were undertaken using vehicles, on foot, by boat and using a drone (video surveillance) (Figure 6.1 and Figure 6.2). No meetings were held with local people at this site owing to its urban setting.

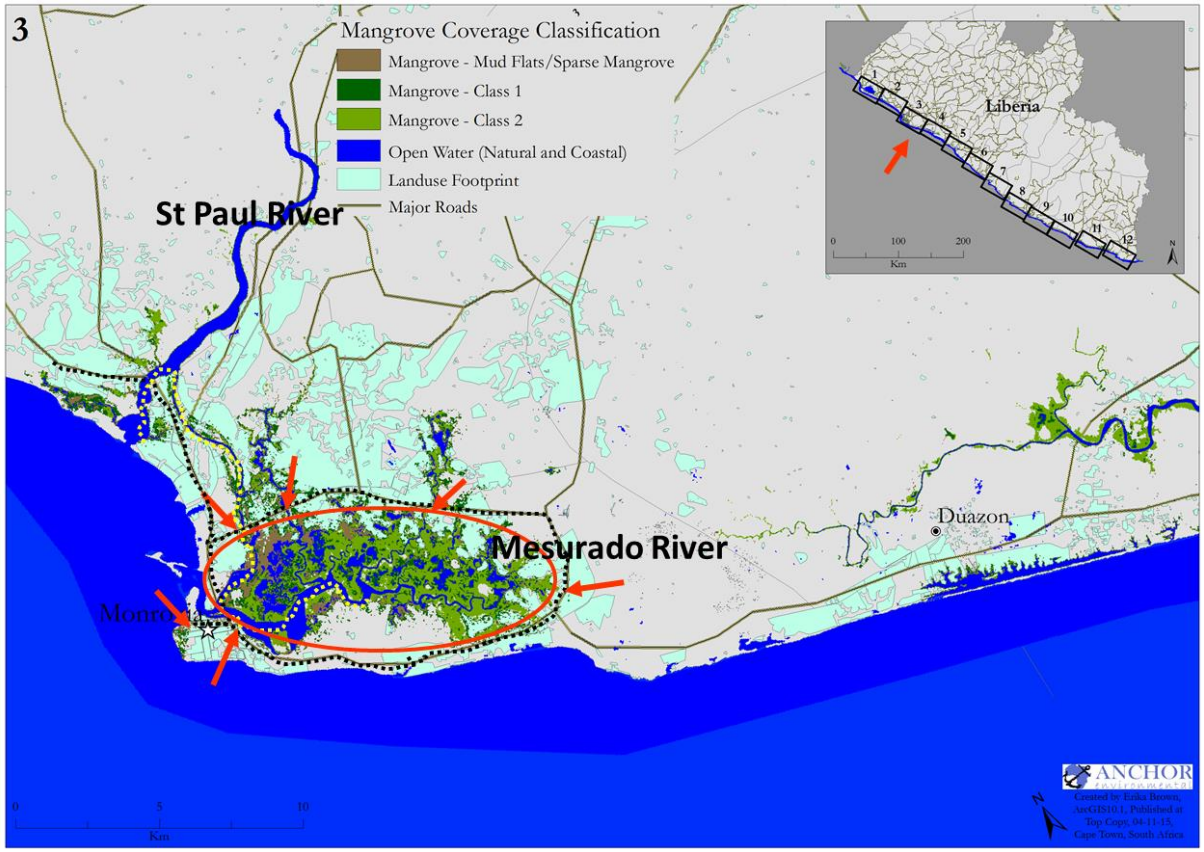

Figure 6.1. Map showing distribution of mangroves around Monrovia. Dashed black and white lines indicates the routes followed by vehicle and boat during the surveys, red arrows indicates sites where surveys of the mangroves were undertaken.

Key findings from the field surveys included the following:

- Mangrove distribution and extent at this site matched that on maps prepared using remote sensing data as part of Phase 1 of this study (Clark & Thompson 2015) very closely as was the case for the other sites.
- Five species of mangroves were present at this site (highest diversity of the five areas surveyed):
  - Red mangrove *Rhizophora harrisonii (~70%)*
  - Red mangrove *Rhizophora racemosa* (~20%)
  - Black mangrove *Avicennia germinans* (<10%)
  - Golden leather fern *Acrostichum aureum (<5%)*

  - Buttonwood Mangrove *Conocarpus erectus (<1%)*
- Diversity of associated fauna was also high (17 species of water birds, Table 6.1) and was attributed to the presence of extensive mud flats and strong tidal/marine influence.
- Mangroves were mostly in poor health, due to extensive cutting and clearing, sand mining, pollution, refuse, water hyacinth, and land reclamation for housing and roads.
- There is an area of mangrove on the northern bank of the Mesurado River (Figure 6.3 and Figure 6.4) that was in reasonably good health, which stood in marked contrast to mangroves in much of the remaining area.
- There was some fishing activity in evidence (gill nets, lines, baskets).
- Evidence of acute shoreline erosion was present especially in areas where mangroves had been cleared. However, mangroves were still playing a very important role in limiting erosion where they existed (Balli Island, area between Stockton Creek & Mesurado River)

Figure 6.2. Reclamation and destruction of mangroves for urban and industrial development around Monrovia city.

Figure 6.3. Areas of intact mangrove around Monrovia city.

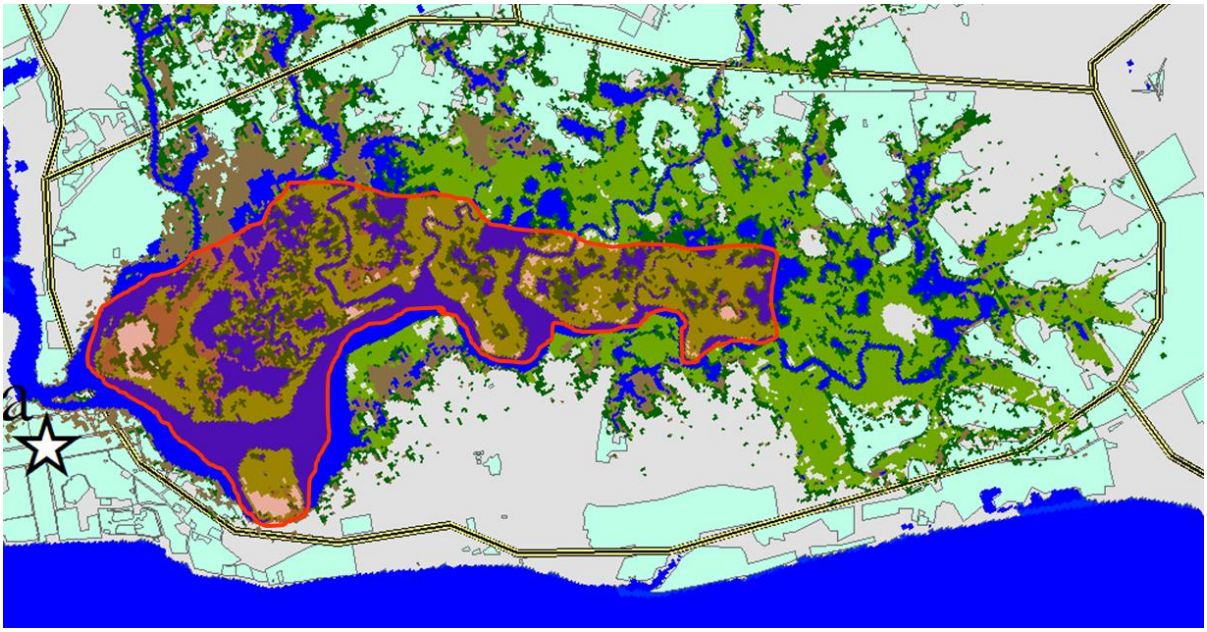

Figure 6.4. Area of mangroves (mostly *Rhizophora harisonii)* that are largely intact around Monrovia city.

Table 6.1. List of waterbirds recorded at Monrovia.

Species	**Common name**
Actitus hypoleucos	Common sandpiper
Alcedo leucogaster	Malachite kingfisher
Ardea cinerea	Grey heron
Ardea purpurea	Purple heron
Bubulcus ibis	Cattle egret
Butorides striata	Green-backed heron
Ceryle rudis	Pied kingfisher
Dendrocygna viduata	White faced duck
Egretta ardesiaca	Black heron
Egretta garzetta	Little egret
Gallinula angulata	Lesser moorhen
Gypohierax angolensis	Palm-nut vulture
Megaceryle maxima	Giant kingfisher
Milvus aegyptius	Yellow bill kite

Milvus aegyptius	Yellow bill kite
Phalacrocorax africanus	Reed cormorant
Tringa nebularia	Common greenshank

7 MARSHALL

The project team attended meetings with the following groups at this site:

1. Meeting with local authorities and representatives from the FDA in Marshall;
2. Meeting with the Chief, elders, fishers and women's groups at Dozon Village
3. Meeting with the Chief, elders, fishers and women's groups at Bendu Village
4. Meeting with the Chief, elders, fishers and women's groups at Bentown Village

Sites visits to mangrove forest stands around each of these villages and at several additional sites along the Little Massa, Junk and Farmington Rivers were undertaken by vehicle, boat, on foot and using a drone (video surveillance) (Figure 7.1; Figure 7.2).

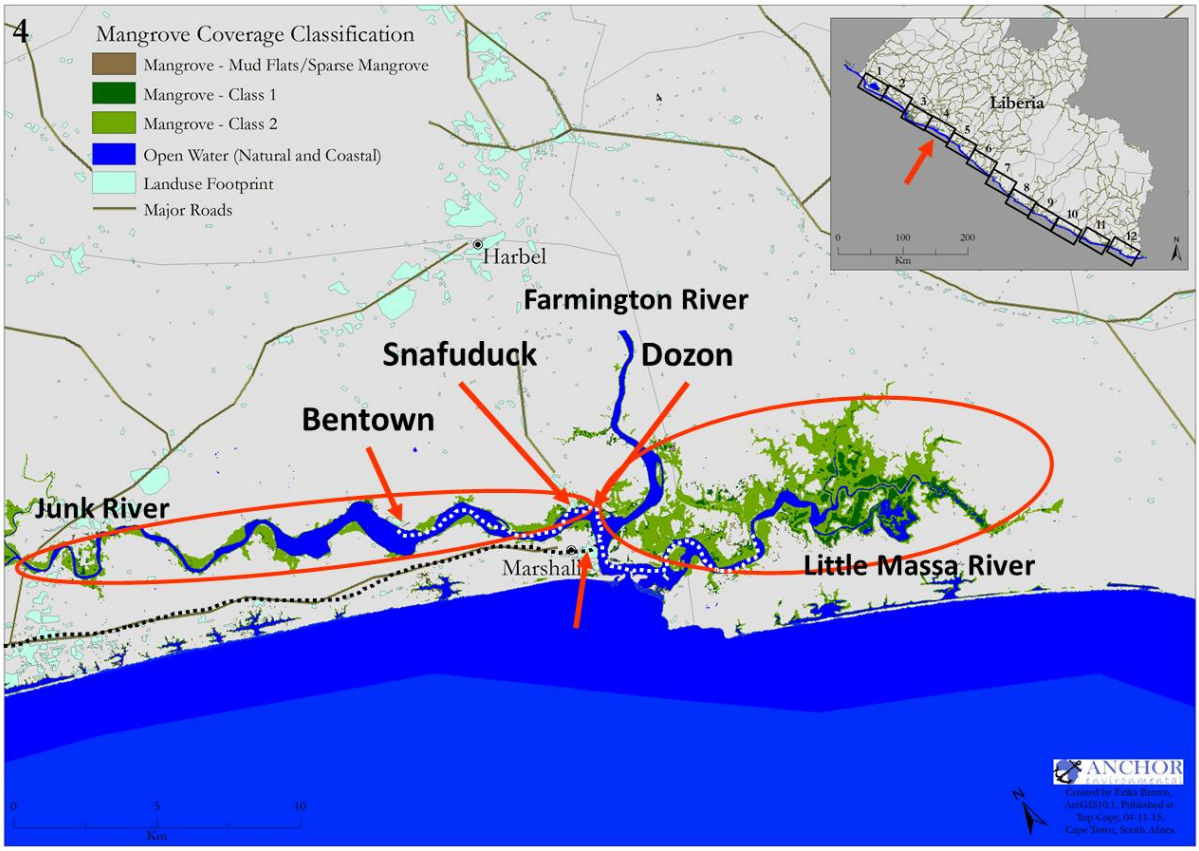

Figure 7.1. Map showing distribution of mangroves in the Marshall area. Dashed black and white lines indicates the routes followed by vehicle and

boat during the surveys.

Key findings from the meetings and surveys included the following:

- Mangrove distribution and extent at this site matched that on maps prepared using remote sensing data as part of Phase 1 of this study (Clark & Thompson 2015) very closely as was the case with the other sites.
- Three species of mangroves were recorded at this site:
  - Red mangrove *Rhizophora racemosa* (>90%)
  - Black mangrove *Avicennia germinans* (<5%)
  - Buttonwood Mangrove *Conocarpus erectus (<5%)*
- Diversity of associated fauna was modest (9 species of water birds, Table 7.1) and was attributed to the presence of significant mudflat area and strong tidal/marine influence.
- Mangroves were mostly in good health, but there was some evidence of cutting possibly for fuelwood. Extensive areas along the river bank had also been cleared for development (mostly private homes).
- Local communities were aware of the importance and value of the mangrove (particularly as a fish nursery area) but indicated they were still using mangroves for fuel wood and charcoal production. Fishermen also reported cutting channels through the mangrove to set nets and to access the water, and cutting of mangrove roots when collecting oysters. Mangroves are also reportedly used for setting baskets (to catch crabs, crawfish), collecting oysters and for fishing (nets and lines).
- Village elders (including the chief) expressed a willingness to sell land to private individuals and/or developers.
- Community was eager to work with CI, EPA and FDA on a mangrove conservation project.
- Motorised boat(s) are essential to access mangroves and villages in this area.

Figure 7.2. Clockwise from top left: Photos from the Marshall area showing stands of large *Rhizophora racemosa*, juxstaposed with large areas that have been cleared for erection of riverfront homes and channels cleared to provide access to the river channel and for laying fishing nets.

Table 7.1. List of waterbirds recorded at Marshall.

Species	**Common name**
Actitus hypoleucos	Common sandpiper
Anthreptes gabonicus	Mangrove sunbird
Ardea cinerea	Grey heron
Bubulcus ibis	Cattle egret
Ceryle rudis	Pied kingfisher
Gypohierax angolensis	Palm-nut vulture
Megaceryle maxima	Giant kingfisher
Milvus aegyptius	Yellow bill kite
Numencius arquata	Eurasian curlew

8 BUCHANAN

The project team attended meetings with the following groups at this site:

1. Meeting with local authorities (the Mayor) in Buchanan
2. Meeting with the Chief, elders, fishers and women's groups at Bleeuwin Village
3. Meeting with the Chief, elders, fishers and women's groups at Newcess Village
4. Meeting with the Chief, elders, fishers and women's groups at Edina Village

Sites visits to mangrove forest stands around each of these villages and at several additional sites around the periphery of the lake were undertaken by vehicle, on foot, and by boat (Figure 8.1; Figure 8.2). Loss of the drone at the previous site meant it was not possible to collect video footage at this site.

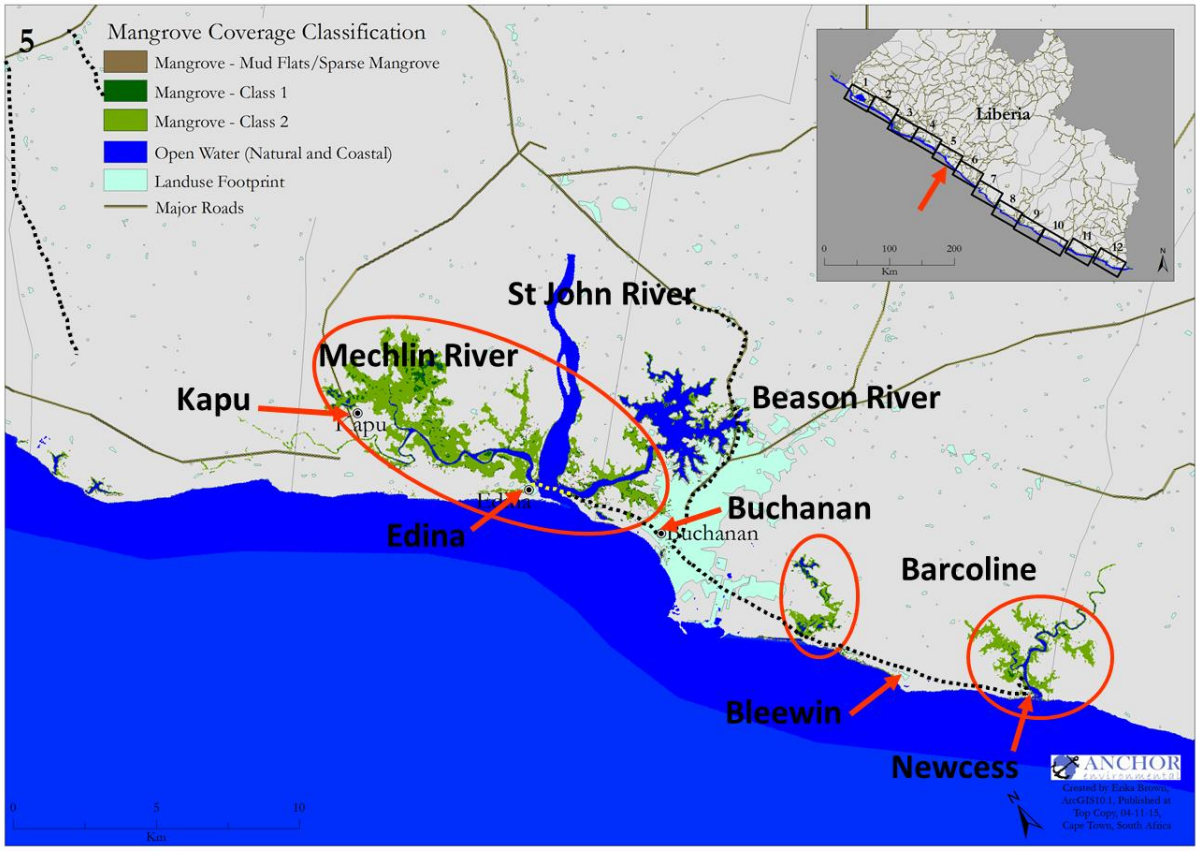

Figure 8.1. Map showing distribution of mangroves in the Buchanan area. Dashed black and white lines indicates the routes followed by vehicle and boat during the surveys.

Key findings from the meetings and surveys included the following:

- Mangrove distribution and extent at this site matched that on maps prepared using remote sensing data as part of Phase 1 of this study (Clark & Thompson 2015) very closely as was the case for the other sites.
- Three species of mangroves were recorded at this site:
  - Red mangrove *Rhizophora racemosa* (>90%)
  - Red mangrove *Rhizophora racemosa (<5%)*
  - Black mangrove *Avicennia germinans* (<5%)
- Diversity of associated fauna was low (7 species of water birds) and was attributed to the presence of limited mudflat area, and limited tidal/marine influence.
- Mangroves were mostly in good health, but there was some evidence of cutting possibly for fuelwood, but no evidence of clearing for development.
- Local communities were mostly aware of the importance and value of the mangrove (particular as a fish nursery area) but indicated they were still using mangroves for fuel wood and charcoal production. Fishermen also cut channels through the mangrove to set nets and to access the water, and also cut mangrove roots when collecting oysters (it is difficult to remove the oysters without doing this).
- Mangroves also used for setting baskets (to catch crabs, crawfish), collecting oysters and for fishing (nets and lines)
- The community was eager to work with CI, EPA and FDA on a mangrove conservation project.
- Motorised boat(s) are again essential for accessing mangroves and villages in this area.

Figure 8.2. Clockwise from top left: Photos from the Buchanan area showing very steep banks on the edge of the channel where mangroves have been cleared; dense stands of *Rhizophora racemosa*; area of mangroves that have recently been cleared for housing development; use of stone to stabilise the shoreline in an area where mangroves have been previously cleared and coastal erosion is threatening coastal properties.

Table 8.1. List of waterbirds recorded at Buchanan.

Species	**Common name**
Actitus hypoleucos	Common sandpiper
Egretta garzetta	Little egret
Gypohierax angolensis	Palm-nut vulture
Milvus aegyptius	Yellow bill kite
Numencius arquata	Eurasian curlew
Phalacrocorax africanus	Reed cormorant
Tringa ochropus	Green sandpiper

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