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Summary Report of SEIA and HCV Assessment

RSPO NEW PLANTING PROCEDURES 1,570 hectares

LIBINCO Palm Bay Oil Palm Estate of
District # 4, Grand Bassa County, Liberia.

PREPARED FOR

LIBINC Oil Palm Inc LIBINCO

June, 2014



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1. Executive Summary

The new inclusions for New Planting Procedure NPP (with regards to Criterion 7.8) will be incorporated on a later date as this assessment was prepared and compiled prior to the announcement from RSPO dated 1st July 2014. The submission of these reports was delayed by the restrictions imposed due to the Ebola Outbreak in Liberia.

LIBINCO (formerly LIBINC Oil Palm Inc.) Palm Bay Oil Palm Estate is located in District 4 of Grand Bassa County. LIBINC Oil Palm Inc. entered into a concession agreement with the Government of Liberia on December 14, 1965 for the development of oil palm and other related agricultural products in the New Cess area of Grand Bassa County. LIBINC operations in Liberia, after considerable investment, were affected by the civil war in 1989 which destroyed the company's infrastructure and production capabilities. In October 2007, the Board of Directors of LIBINC resolved to transfer its rights in the 1965 Concession agreement to LIBINCO. Following the transfer of rights from the 1965 LIBINC concession and the subsequent ratification of the agreement in 2007, LIBINCO holds a 50 year concession agreement with the Government of Liberia covering 13,962ha. Since the 1960's, this land has been deeded by Palm Bay. However, following the restoration of activities by the company, there was a robust FPIC process conducted with the towns and villages within and surrounding the project area in which consent was given and signed by all affected communities, leading to an MOU for the resurvey and land development processes in the concession area. At the end of the participatory resurvey process, the land area was reduced to 13,006.88 hectares. The agreement also allows LIBINCO to develop an additional 20,234 hectares, of which 50% of this land area needs to be used for an out-growers' scheme.

In December 2010 an ESIA was conducted by Green Consultancy Inc. in keeping with the requirements of the Environmental Protection Agency. Based on this report an Environmental Permit was issued for the project.

An Environmental, Social and Health Impact Assessment (ESHIA) was initiated by the management of LIBINCO. Therefore, in 2012 an ESHIA was conducted by Coastal and Environmental Services (CES) and completed in April 2013. This report has also been permitted by the EPA following a public hearing in which communities members and all in attendance were allowed to give input to the presentation. Inputs and recommendation which were accepted by the body were incorporated into the final report which was permitted by the EPA. In addition communities were engaged in an FPIC process after which they offered their consent through a signed Memorandum of Understanding allowing for the company to conduct a resurvey of the project land. Communities in the new planting area have also been engaged through an FPIC process and they have offered their consent for the development to proceed.

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As part of the ESHIA process, a Draft Environmental Scoping Report (DESR) was compiled by CES in 2012, which was disclosed to all relevant Liberian ministries and/or agencies, as well as to the affected villages during February 2013. The specialist report on Vegetation, Biodiversity and Fauna Assessment; Social impact Assessment; Scoping Level Health Impact Assessment; and Waste Management Study were completed in March 2013, and the result incorporated into the final ESHIA report.

This report covers a total block of 8,370ha from the 13,962ha concession area. Out of this number 1,570 (18.8%) is characterized as new planting areas, with the remaining characterized as ongoing development. The Area of Interest (AOI) for this report is found between latitudes 5°48'3" N and 5°53' N and between longitudes 9°43'30" W and 9°51'30" W, located in New Cess, District 4, Grand Bassa County. While the ongoing development area is covered by redundant oil palms which were abandoned and engulfed by shrubs and other wild woody growth; whereas the new planting area is mostly agriculture degraded land mixed with secondary forest. Most of the secondary forest is found along flowing streams, apart for a fragment of late secondary forest found in the extreme north of the area. The remaining vegetation is mainly young bushes, fallow areas and swamps. The late secondary forest shows signs of human impact from hunting, pit sawing and farming over the last decades. Due to the integrity of the late secondary forest (canopy, diversity and size of trees) and its regeneration potential, the study team has concluded that the forest block be isolated from the new planting area. This will allow for the conservation/regeneration of the forest vegetation and the enhancement of species diversity and connectivity to the adjacent forest landscape north of the area. (Figure 1). The project area is also characterized by seasonal wetlands, the New Cess Rivers and numerous creeks and streams, including Bo, Yana, Zeohn, Kpayekoni and Mak Creeks (see Hydrology Map-Figure 11).

Management for HCV Areas and to Maintain or Enhance Conservation Values Identified.

As a result of the preparation of an HCV National Interpretation for Liberia in January 2013, heavy reliance on the HCVs identification and interpretation is cast on this toolkit. The presence of the below HCVs and conservation significant areas is based on the assessment conducted within the AOI which there were six taxonomy assessments which involved survey on large and small mammals, plants, birds, reptiles, amphibians and fishes. The assessment was conducted within every vegetation type of the project area and took into consideration forest outside the AOI owing to those forests in close proximity to the project area and its potential of significant biodiversity concentration. Thus, the below HCVs are found to be present within the AOI.

HCV 1.2: Concentrations of rare, threatened or endangered species

It is most likely that the vegetation along the Yana, Bo, Kpayekoni and Zeohn Creeks and Kpoi rivers contain rare, threatened or endangered species since other endemic mammals species like the Lesser Spot-nosed Monkey (*Cercopithecus petaurista buettikoferi*) and Maxwell's Duiker (*Philantomba maxwellii*) were found around such area. The presence of the herpetofauna like the

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Nile crocodile (*Crocodylus niloticus*) reported by the locals along these vegetation are indications of habitat characteristic of rare, threatened or endangered species. The presence of two species of birds, the Gray Parrot (*Psittacus erithacus* African) and the Copper-tailed Glossy Starling (*Lamprotornis cupreocauda*) were discovered within the late secondary forest located mainly in the North-east of the new planting block. It is certain that, should an adequate faunal sampling take place in both wet and dry seasons around these sites, many more mammal species would be recorded, especially along the rivers and swamps. In light of this determination and the precautionary principle, HCV 1.2 is deemed to be potentially present

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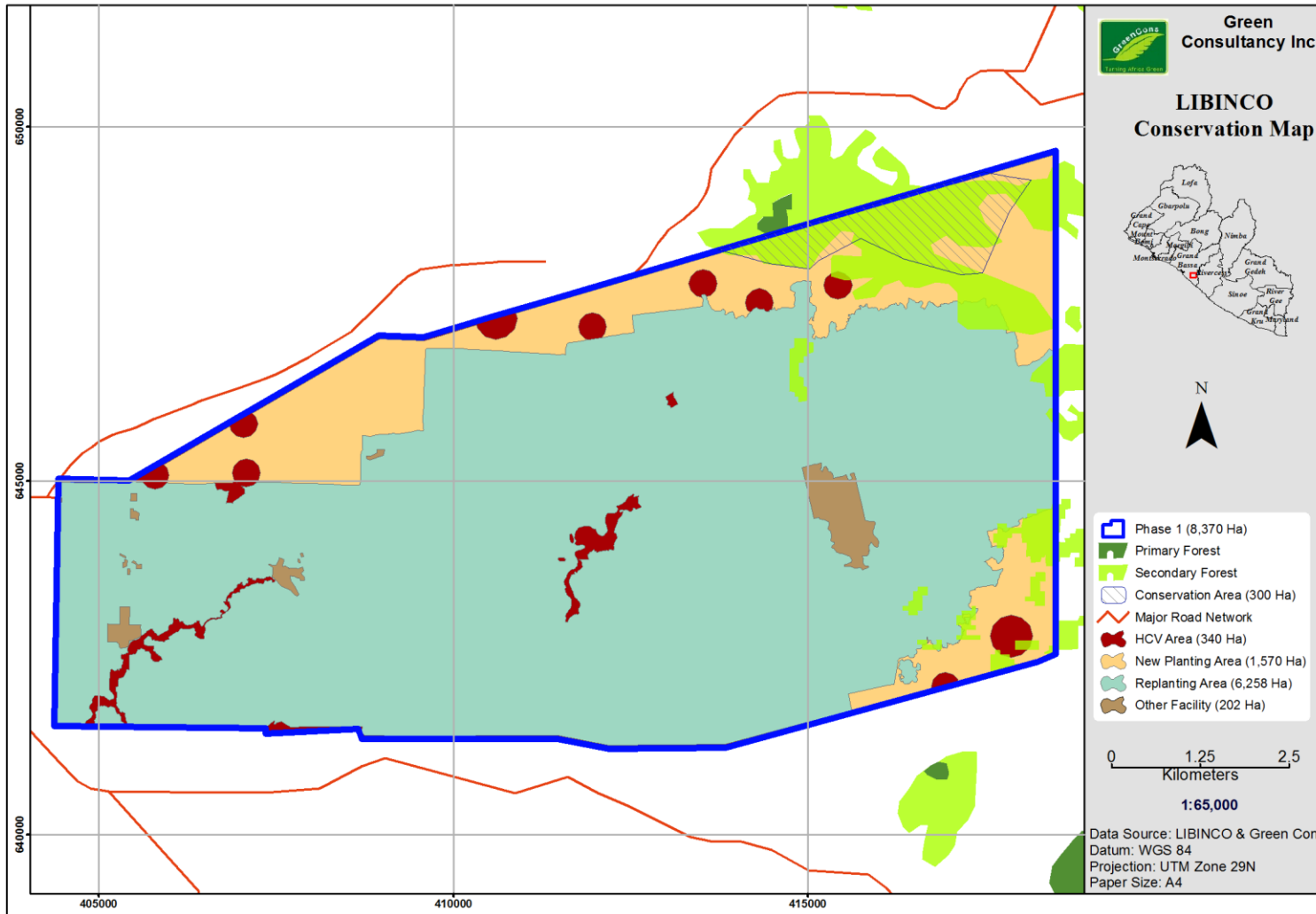


Figure 1: Recommended buffers for biodiversity protection and connectivity

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HCV 1.3: Concentrations of endemic species

An area will have potential HCV 1.3 present according to the Liberia National Interpretation if there are concentrations of endemic species either present Nationally, Regionally or those endemic to the continent of Africa. The Mount Nimba, Cestos-Sankwein River Shed, Lofa-Mano, and Sapo National Park areas contain many endemic species. These four areas are among the 14 centers of plant endemism within the Upper Guinea Hotspot¹.

One endemic mammal species the Lesser Spot-nosed Monkey, (*Cercopithecus petaurista buettikoferi*) was recorded during the site visit to the Palm Bay concession. Reports from locals also confirmed sighting of the Nile crocodile (*Crocodylus niloticus*) along major river and creeks and its surrounding tributaries of the project area.

While none of these endemic fish species were seen, interview with the local communities confirmed and were certain of the presence of the Tilapia coffea in most of the streams and rivers within their areas. With the potential presence of some endemic species it can be concluded that some endemic species are present within the new planting block as well as the rehabilitated estate. It can therefore be concluded that HCV 1.3 is potentially present within the proposed NPB.

HCV 1.4: Critical temporal concentrations of species

The vegetation along the New Cess and Kpoi Rivers could possess suitable habitat for most bird species some of which could be migratory birds. There are area of High sensitivity which have high species richness and are not hugely impacted by current land-use and consequently are not degraded, for instance the vegetation along the Yana Creek, Bo Creek, Kpayekoni Creek and Zeohn Creek, including those found outside of the project area along the Timbo River. In the absence of extensive ground truthing along the swamps, streams and river banks, the precautionary principles can be invoked to accept these areas as area containing habitats for temporary and seasonal use and therefore, HCV 1.4 can be considered potentially present.

HCV 4.1: Areas critical to water catchments

Camp facilities of the proponent within the AOI have access to hand pumps for water supply. However, there is a heavy reliance on rivers, stream and creeks in the area for domestic water supply, including drinking, bathing, washing, fishing and agriculture use. There is relative protection for the existing streams and creeks inspite of some habitat fragmentation. The remaining vegetation shield these water from sunlight and provides some level of protection against erosion and sedimentation during the rainy season.

¹ Liberia's National Biodiversity Strategy and Action Plan, p.39

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There are no wetlands of international significance within the project area; however, the assessment recorded swamps and other riparian areas with species such as *Bambusa vulgaris*, *Lymnophyton angolense*, *osmunda*, *cyper cyperanius*, *Laccosperma*, *Afzelia*, *Amphimas pterocapoides*, *Lymnophyton*, *Lophira alata sclaria*, *Abura*, Liberia Hut MCBride E Hurry roof thatch, *Raphia Hookeri*, *Xylophia*, *fagara*, among others. Many of these species have been harvested heavily by inhabitants in the area mainly for construction purposes. The reliance of the population on these areas demonstrates the presence of HCV 4.1. This requires for the buffering of the streams, rivers and creeks in order to protect these water bodies from continuous runoff. Buffer to rivers and streams or other marshy areas must be considered during clearing and LIBINCO management should ensure that communities understand the company's actions of conservation of these areas.

HCV 4.2: Areas critical for erosion control

The assessment identified forests, woodlands, grasslands and other vegetated landscapes that are important for a healthy environment and society. The vegetation overlooking surface water bodies controls erosion, land degradation and discharge of sediments into rivers. These have restricted flooding of farmland, village pathways and sometimes bridges and roads. Besides erosion control, the vegetation along waterways has been critical in terrain stability, landslides, avalanches and downstream sedimentation. The late secondary forest in the area is situated on a steep hill with partially close canopies; while agriculturally degraded forest is mainly found on flat plain and clear area. The flat plain has been mainly disturbed by human activities. Most of the smaller streams and creeks overflow their banks during heavy rains. The steep hills vegetation has been strategic in avoiding massive erosion to the lowland especially during the heavy rain between June-August. Because of these function provided by the vegetation along the waterways, it can be stated that HCV 4.2 may exist within the study area. It is recommended that vegetation along waterways and those on steep hill be identified, demarcated and avoided during land clearing. LIBINCO management should sensitize communities in around hilly areas of the danger posed to them in clearing over these hills for farming or illegal gold mining activities.

HCV 4.3: Areas critical for fire prevention

The Area of Interest has tropical, hot and humid climate. It is located in Grand Bassa County, which is among the wettest counties of Liberia with an annual average rainfall of about 4,000 mm per year. Based on the prevailing precipitation, two seasons are differentiated – rainy and dry. Grand Bassa has a flat coastline. A narrow coastal plain extends inland from the seashore, and the land gradually rises to the hilly hinterland of the County. High elevation regions have forest of evergreen and deciduous trees. As a result of such vegetation and climatic conditions the area has not been prone to fire and therefore HCV 4.3 is absent. However, since even moist

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forested areas can be attracted to wildfire, the management of LIBINCO should prevent any situation which may cause fire eruption. During the dry season increased awareness for fire prevention and alertness should be given to communities especially those found adjacent to the plantation.

HCV 5: Areas fundamental to meeting the basic needs of local communities.

There are about 20 communities located within or surrounding the Area of Interest. Residents of these communities heavily depend on the forest and natural resources for their livelihood to include farming, fishing, hunting, collection of building materials, etc. Additionally, the non forest timber product (NTFP) used by the communities are collected from vegetation along different rivers and creek, and especially wetlands. In the absence of these wetlands, stream, rivers and forest area, communities within the AOI would be pushed to migrate in order to survive, as there will be no areas to be used for their daily livelihood. Species such as the Liberia hut McBride roof thatch, *Musanga cecropiodes*, *Elaies guineensis*, *Raphia hookeri*, *Laccosperma opacum*, *Eremospatha macrocarpa* and *Bambusa vulgaris* are some of the important species used for food and construction materials in the area. As a result of communities' reliance on these forest, wetlands, rivers and streams for livelihood, it can be stated that HCV 5 does exist. Hence, LIBINCO will have to ensure that its operation does not clear the conservation area identified within the project area to allow communities access to construction materials and farmland. Consultations with communities around these areas must be prioritized during clearing and buffering. Reference is made to Figure 1 where 340 ha have been identified in concert with local residents as areas fundamental to meeting the basic needs of local communities.

HCV 6: Areas critical to cultural identity (values)

Several burial ground have been identified and demarcated within the rehabilitated area and the ten towns of which fall within proposed new planting block. This was done by the management of LIBINCO in consultation with the local communities. In addition, some communities have also indicated the presence of sacred sites (Sande) in relation to their community. These sites exist normally in forested areas. The team was unable to collect GPS coordinates for these locations owing to local taboos regarding outsiders getting in proximity to these area. It is highly recommended that the client engages with the villages to establish some means of identifying the locations of these sites for either establishing conservation or allowing continued access to such areas. Complete mapping and demarcation of specific Poro and Sande sites will have to be carried out with the consent and approval of the community. LIBINCO should ensure buffers are left between the land area to be cleared and these sites.



2. Scope of the SEIA and HCV Assessment

Organization information and contact person

Company Name:	Equatorial Palm Oil/LIBINC Oil Palm Inc. (LIBINCO).
Office Address:	Palm Bay Estate, District #4, Grand Bassa County, Republic of Liberia
Nature of Business	Oil Palm
Project Location	latitudes 5°48'3" N and 5°53' N and longitudes 9°43'30" W and 9°51'30" W
RSPO Membership No	1-0040-07-000-00
RSPO Membership Status	Ordinary
Contact Persons	Mr. Sashi Nambiar Head of Operations +231880386594 sn@epoil.co.uk Mr. Jasvinder Singh RSPO Compliance Manager +231770174125 jvs@epoil.co.uk

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List Of Legal Document	Issue By And Through	Date And Code Number
Government of Liberia and LIBINC Oil Palm Inc. Ratified Concession Agreement	Republic of Liberia by Authority Ministry of Foreign Affairs Monrovia, Liberia	Approved May 22, 2008
Business Registration Certificate	Ministry of Commerce and Industry	
ESIA Permit (13,961.61 ha)	Environmental Protection Agency of Liberia (EPAL)	certificate #:EPA/EC/EIS/001-0611 Renewal issued :October 10, 2013 Expiration: September 10, 2015
Import permit for plants or other goods governed by the Phytosanitary Regulation	Ministry of Agriculture (MOA)	RL/ NOES -012612 January 26,2012
Memorandum of Understanding	Management of LIBINCO and Affected Citizens and People of District #4, Grand Bassa County	October 13, 2012
Land Survey Deed	Ministry of Lands, Mines & Energy	
Reliance on other key document of authority nationally was also considered. Among these document include but not limited to the following:		
Document	Authority	Date
An Act Creating the Environment Protection Agency of the Republic of Liberia	Senate and House of Representative of the Republic of Liberia and published by authority Ministry of Foreign Affairs	November 26, 2002
The National Environmental Policy of Liberia	Senate and House of Representative of the Republic of Liberia and published by authority Ministry of Foreign Affairs	November 26, 2002
Document	Authority	Date

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An Act Adopting the Environment Protection and Management Law of the Republic of Liberia	Senate and House of Representative of the Republic of Liberia and published by authority Ministry of Foreign Affairs	November 26, 2002
Document	Authority	Date
The New Forestry Reform Law	Senate and House of Representative of the Republic of Liberia	2006
An Act for the Conservation of the Forests of the Republic of Liberia	Senate and House of Representative of the Republic of Liberia	1953
Act Supplemental to “An Act for the Conservation of the Forest of the Republic of Liberia	Senate and House of Representative of the Republic of Liberia	1957
An Act for The Establishment of A Protected Forest Areas Network and Amending Chapter 1 and 9 of The New National Forestry Law, Part II Title 23 of the Liberian Code Of Law Revise	Senate and House of Representative of the Republic of Liberia	2003
Draft Wildlife and Protected Area Management Law	Forestry Development Authority	2009
Draft Land Right Policy	Approved by the Land Commission	2013

The project area is located in Grand Bassa County, District 4 in the clans of Neetorn, Joghban and Kpowein. The AOI is situated between latitudes 5°48’3” N and 5°53’ N and longitudes 9°43’30” W and 9°51’30” W.

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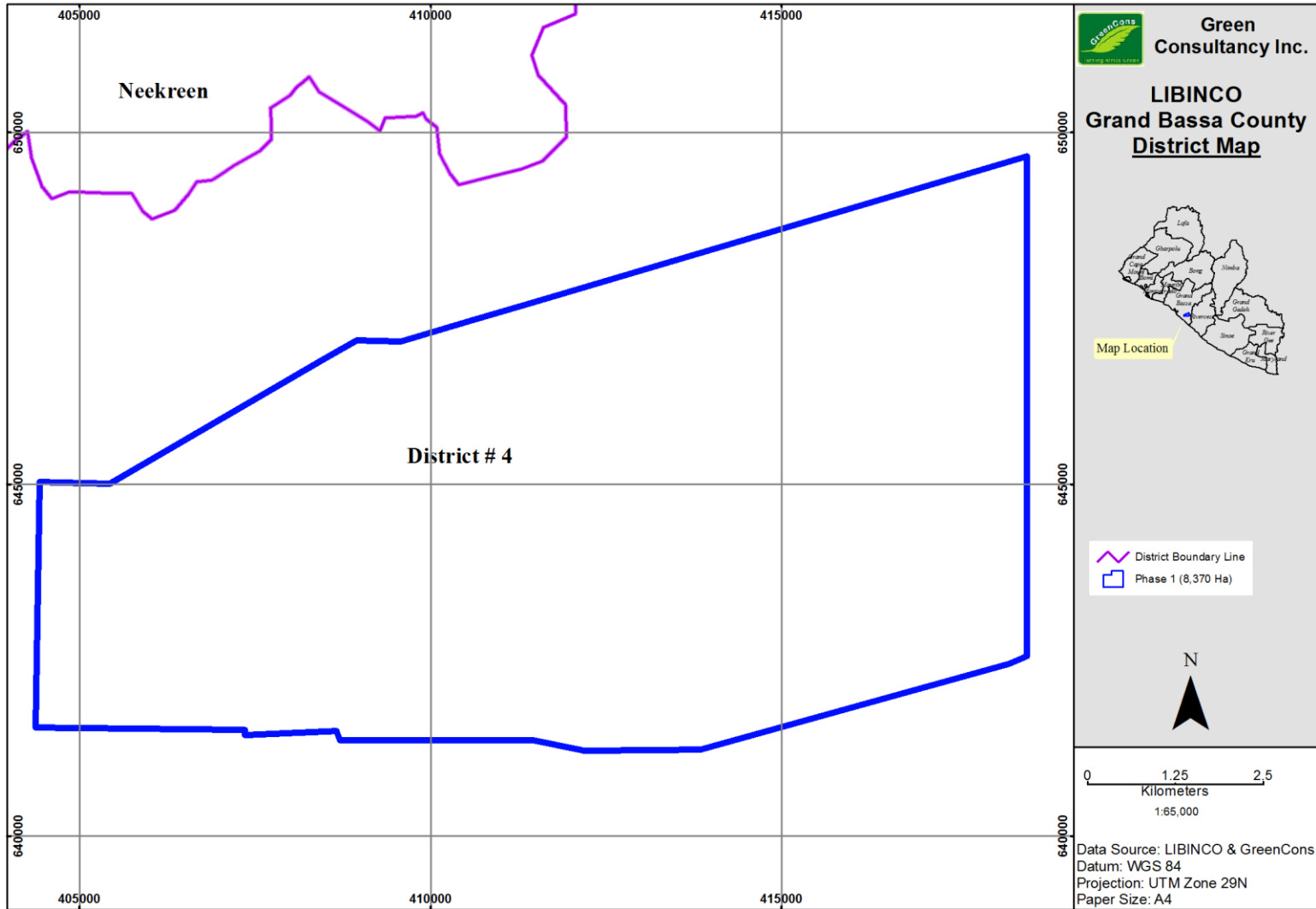


Figure 2: Map showing the project areas and surrounding districts

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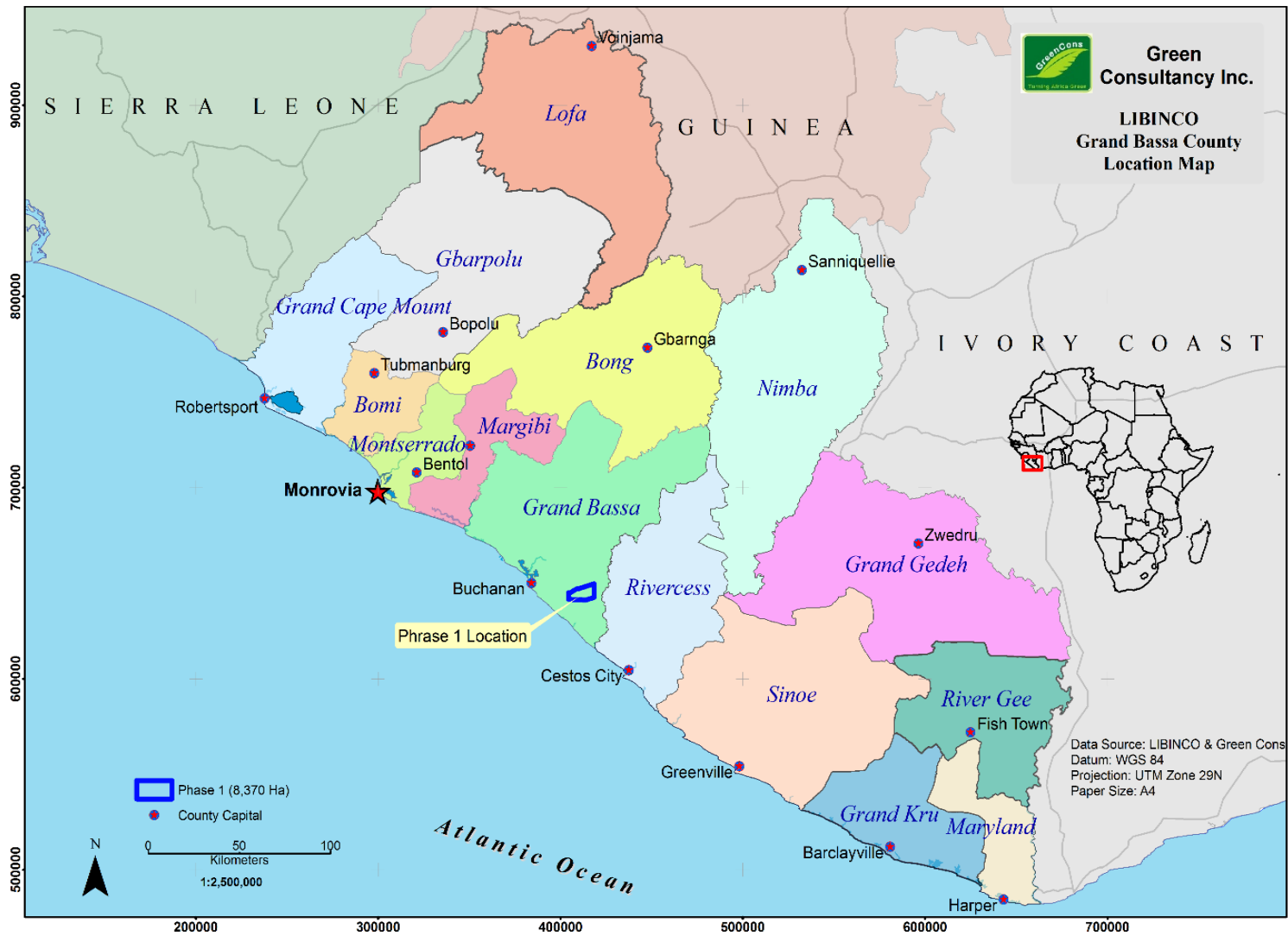


Figure 3: Location of the project area at a broader landscape

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Area of New Plantings and Time-plan for New Plantings

At present the area of ongoing development (rehabilitation and replanting) within the 8,370ha is as follows:

- Immature palm (3126 ha)
- Mature palm (3132 ha) being felled and replanted

The proposed new planting area amounts to 1,570ha, which is the subject of the proposed new planting. LIBINCO has earmarked to begin land preparation and new planting in 2014. Based on the findings and recommendation of the HCV assessment and mapping of other high conservation values by LIBINCO in consultation with the affected communities; the area available for new planting excludes the biodiversity management areas, village buffer zones, burial grounds and riparian buffer zones². Palm seedlings for the planting sites are already being cultivated on previous nursery sites in the developed areas of the plantation, which is covered by the EPA permit.

² Recommended Riparian Reserve for the proposed oil palm plantation

River Width (m)	River Reserve (both river banks)
>40	50m
20-40	40m
10-20	20m
5-10	10m
<5	5m
<3	-

3. Assessment process and procedures

Assessors and their credentials

The assessment covered flora and fauna to include reptiles, amphibian, large and small mammals, birds, and fishes within the different vegetation types of the project area including forest vegetation outside the immediate proposed boundary line of the project area. The study was also conducted for soil identification and profiling, and the use of GIS for identification, demarcation and mapping purposes. The assessment was led by two RSPO Approved HCV Assessors. The list of specialist members of the team and their roles in the assessment is presented below.

Solomon P. Wright, MSc – Team Leader

Solomon holds an MSc in Regional Science and a BSc (Cum-Laude) in General Forestry. He also holds a certificate in Integrated Environmental Management by IAIA, is certified by the EPA of Liberia as a Professional Environmental Evaluator and is a RSPO Approved HCV Assessor. Solomon has conducted ESIA's in every part of Liberia on different projects, led several HCV assessments and associated reporting, and conducted and participated in local and international trainings. Solomon was the team leader for this assessment and specifically responsible for HCV assessment planning, team management, HCV identification and demarcation, recommendations and report writing.

Abraham T. Tumbey Jr., MSc – Co-team Leader and Social Assessment

Abraham has an MSc (honors) in Regional Science and a BSc in Biology/Chemistry. He also holds a Certificate in Social Impact Assessment, is an EPA Certified Professional Environmental Evaluator and is an RSPO Approved HCV Assessor. Abraham has conducted a number of ESIA and HCV assessments in Liberia. He has also conducted environmental training and work in Liberia and abroad. For this assessment he worked alongside the HCV assessment team in his dual role as the ESIA team leader and HCV field team oversight.

Abraham W. Dioh, BSc –Herptofauna

Abraham has a BSc in Biology and Chemistry. He is currently employed by the University of Liberia Department of Biology where he lectures in Biology. Abraham completed the amphibian and reptile baseline study for the HCV Assessments.

Menladi M. Lormie , BSc – Mammal Specialist

Menladi M. Lormie has BSc in Forestry. Menladi is a small and large mammal specialist. She has participated in local and international trainings and assessments of this taxonomic group, including a nationwide chimpanzee and large mammal survey. She possesses practical knowledge and understanding in the identification of chimpanzees. Menladi was responsible for assessing small and large mammals for this assessment.

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Sanco Lysander, MA – Social Scientist

Sanco Lysander holds an MA in Peace Studies and a BA in Sociology and Anthropology. He has extensive experience conducting social impact assessments for community related projects. He has also conducted many research projects geared towards understanding communities and their way of life. Sanco was responsible for the socioeconomic data collection and assessment within the project area.

Mr Anthony Jallah Koigbli -Botanist

Mr Koigbli is a Liberian resident and holds a BSc. in Forestry from the College of Agriculture and Forestry, University of Liberia. He is currently a specialist botanist and research assistant, and is also a part-time lecturer in forestry, botany and dendrology with the Department of General Forestry in the University of Liberia, Monrovia. Anthony has extensive experience of Liberian forests having conducted numerous botanical surveys, assessments and inventories in Sapo National Park and Krahn Bassa, Kpelle and North Lorma National Forests, Liberia. He has made significant contributions to the Tree Atlas of Liberia and other major publications on Upper Guinean Rain Forests and is a frequent collector for herbariums in Liberia and Kew Gardens, London, UK. Recently, Anthony was contracted by Sime Darby Oil Plantation, through Fauna & Flora International (Liberia), to conduct a complete floral inventory of the plantation site as well as identify potential biodiversity and High Conservation Value (HCV) sites, and advice on RSPO guidelines.

Patrick Garteh, Forest Technician - Botanist

Patrick Garteh holds a Forest Technician Certificate in Renewable Natural Resources. He is employed as the botanist and instructor at the Forestry Training Institute (FTI) responsible for all flora (higher and lower plants, including shrubs) identifications, classifications and national and international conservation status. Patrick has conducted flora inventory in Liberia and other West African countries and botanical surveys of medicinal plants and NTFP. He has vast theoretical and practical knowledge in dendrology, and served as the botanist for this assessment.

George Allison, BSc - Forester

George Allison has a BSc in Forestry. He has worked with many ecological projects involving demarcating and mapping sensitive ecological zones and has assisted in the many ESIA's. He has also participated in a number of environmental training. For this assessment, George was responsible for the identification and mapping of vegetation zones and DBH measurements during field surveys.

Patrick Jallah - Wetland Assessor

Patrick Jallah holds a certificate in tree identification, and has extensive practical experience in this field. He has also conducted a number of ecological studies and ground and surface water assessments. For this assessment, Patrick was responsible for identification and mapping of all wetlands within the project area.

Assessment methods

The assessment centered on the evaluations of project communities by specialists and experts in the area of flora and fauna identification (reptiles, amphibian and bird survey, including fish survey), conservation, soil classification, as well as social economic study, GIS and land use planning, including focus group discussion, broad and local level stakeholders meetings and community town hall consultations.

The overall methodology for the assessment included Pre-field, field and post-field assessments respectively, while there were also a number of different methodologies executed by the specialists and experts in conducting their task for the assessment within the phase necessary for their working. The overall goal or objective of the study was to inform National and local stakeholder of the conduct of ESIA and HCV within the project area; educate and ensure that the local communities within the new planting block fully understand the essence of what these studies actually are and with the consent of the local communities, identify all High Conservation Values within the areas.

Pre-field Assessment

Full maps of the area including shape files were requested from LIBINCO. These shape files were overlay with forest cover and vegetation shape files obtained from the FDA. The information obtained from these documents were analyzed and circulated to national stakeholders including NGOs with focus in the areas of study. Also circulated to the stakeholders was a notice of intent regarding LIBINCO intent for developing oil palm in the area. A desk top review of literature and reports related to the project area was conducted. Reports on biodiversity features and landscapes across Liberia and the study area were also assessed in order to enhance the understanding of the team prior to the commencement of the field engagement. Additionally, the team utilize satellite imagery of the area dating 2012. Apart from the Forest Reassessment Program (FRA) which took place in 2003 following the long years of civil conflict, there has been no other detail ground survey of forest land cover in Liberia. Hence, the use of satellite imagery to assess land cover was very essential. The satellite imagery provided the team understanding of the following:

- the vegetation of the project area in real time compared to that shown on vegetation and land cover maps of the project area;
- degree of vegetation cover and vegetation fragmentation across the area;
- different vegetation types for planning of biological field surveys across the area.

Social Economic survey

The study area comprise of around 20 communities including 10 communities that are located within the AOI. These communities rely on the study area for many livelihood needs. It was therefore necessary to gather understanding of the local communities as it relates to the project and its impact upon them. The objective of the social economic survey was as follows:

1. Understand the local communities as it relates to their culture values and way of life and land use patterns;
2. Conduct census of each community and on the number and kind of social infrastructure present and absent;
3. Ascertain and consult with local communities within the concession about their insight and understanding of the project as it relates to the FPIC process conducted by LIBINCO;
4. Inform the local communities about the NPP process and the impact of oil palm during operation;
5. Gather from the local communities recommendations as it relates to the identified HCVs management and monitoring.

The Participatory Rural Appraisal (PRA) method was used in working with community members in the study area to better understand their interests and perspective. A robust public and stakeholder consultations was initiated in order to inform local people and their authorities on the various activities involved in the operation and management of the project. The consultations were meant to solicit views, concerns, comment and inputs regarding the project. A number of identified stakeholders and institutions were written and informed about the project. A Notice of Intent (NOI) for the project was published in local dailies and posted in project surrounding and host communities.

From 11 to 28 November 2012, the study team visited the entire study area and conducted 13 lengthy focus group discussions across the entire concession area. A brief meeting was also held in Compound 4 with the clan and paramount chiefs of District 4. This meeting was held on 19 November 2012. It needs to be noted that fewer women were able to attend these meetings due to other commitments. Although women were requested to represent their villages in an equal number as men, this proved to be very difficult, as women were often involved in other activities during the day, such as wood collection, basket-making, fishing or washing clothes. An attempt was made to have separate women and men focus groups, but no significant difference was noted in the data and contextual information obtained from having different focus groups.

In addition, during February 2013, face-to-face household interviews were conducted with 20 respondents in the initial LIBINCO Palm Bay estate. A simple random sampling methodology

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was employed to select these households in two villages, namely Blayah and Gbar, as well as Yeaway Camp. Data obtained by means of this survey was also used for the SIA.

In terms of analyzing the data obtained through the focus group discussions, a qualitative data analysis approach was adopted. This is fundamentally an unstructured approach used to construct social trends, and identifies socio-economic patterns, relying on participant observation and field notes taken by CES and GreenCons.

Biological Surveys

The biological surveys were characterized by line transects. A total of 7 line transects of 2km each were sampled across the proposed new planting areas of land situated in district 4 of Grand Bassa County. Each transect walk and assessment covered a minimum of four hours. Four of the seven transect surveyed were placed at least 1.3km from a nearby towns while the remaining three transect were conducted almost 3km away from the nearby town, directly in late secondary forest vegetation. The biological surveys consisted of fauna and flora identification and characterization.

The biological survey team received support from two local residents for each transects. During the survey, one local does the cutting of the frontline, being continuously directed by persons with GPS and Compasses; while the herpetologist, mammalogist and others observed and record information on the vegetation, direct and indirect signs of species and human activities within the confines of about 10m left and right, at ground level and above; A well designed data sheet was used to record the presence and absence of all flora and fauna species, including amphibians, reptiles and birds indicating direct or indirect signs which included foot prints, vocalizations, feeding signs, habitat etc. Interviews were conducted within each community, especially from key informants to ascertain about the presence or absence of conservation important species under both national and international law. Photos of encountered available species were taken along line transects locations to gather more information on amphibians and reptiles species.

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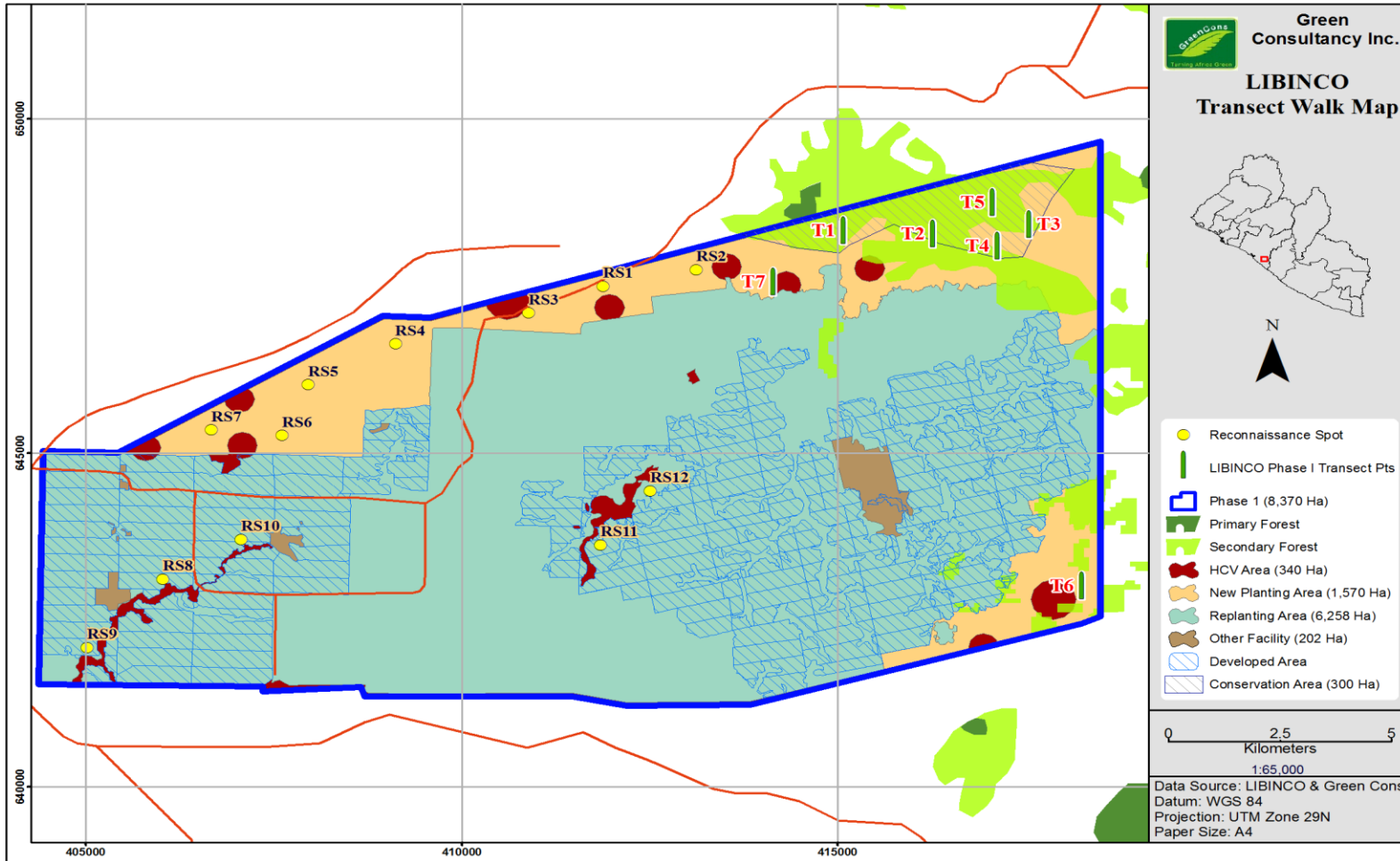


Figure 4: Map showing the distribution of transects across project area

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The flora team was keen to verify and identify the level of flora concentration within and surrounding the immediate vicinity of the project area. The objective of the team addresses:

1. level of flora concentration within and surrounding the immediate project area;
2. the type of plant species (high level plants and low level plants) in the project area and its significance;
3. determination of the Diameter Breast Height(DBH) of large tree species;
4. records of all high level plant and low level plants within the IUCN Red list of rare, threatened and endangered species of conservation status;

These objectives were trickled based on the vegetation and land cover map of the project area including desk study review of the vegetation cover in Liberia. A list of flora and HCV species were used by the flora team as a guide for the assessment. The list included species scientific and common name, order and family, conservation status to include IUCN, CITES, FDA protect status and endemism. Habitats associated with the findings were also recorded.

The objective of the fauna team was to ascertain:

- The level of fauna concentration within the study area and determine its conservation status as well as its abundance;
- To identify the vegetation within which each fauna species is found;
- Understand fauna movement within the project area

The determination was done within the same transect lines used by the botanical team and a list of fauna species specifically known to the project area and the region was used as guide for the field assessment. Method used by the team included direct sighting by the team, observation of single, group or piles of fauna dropping or dungs within the lines and plot, presence of fauna tracks and even scrapes, the calling of fauna species, fallen fruits or flowers within a number of plot, evidence of trapping or snares and hunting. The method also included fauna species reported by the local and those dead ones the team identified with hunters and the locals.

Local hunters were included within every transect walk conducted by the team. Fauna identified were recorded on the transect sheet including the time of its identification, weather condition and description of the identified area.

The scope of the Ornithology survey was to assess all transects areas for the proposed new planting. Objective of the survey was based on determination of the following

- All birds found during the transect walk Identification of habitat for migratory bird species;
- Birds species endemic to the region, Liberia and those which are rare, threatened and endangered and to provide some indices of comparative abundance;

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- Birds species which are associated with special vegetation

Recording of bird calls were also considered during the survey. The expert identified every 250m along each transect as sample plot. At each of these plots, the expert assesses a 50m by 50m terrain making all effort to find any species of conservation concern that might occur in the habitat types present within the plot. At these selected plots, field recording is done. The method considers also walking along the measured route quietly and slowly in an effort to identify bird activity. The number of birds seen in and around the transect plot were recorded. Additionally, point counts was conducted within these sampled plots where by the expert remain in the plot for close to 10 minutes or 15 minutes observing and recording all the birds seen and heard calling. This process was undertaken throughout the observational walk in order to be able to identified as much as possible birds species along the tracks.

The reptile and amphibian assessment was conducted both during night and day. The study objective was to ascertain those reptile and amphibian which are found within the project area in relation to the transect walk covered. The assessment was also meant to identify all reptiles and amphibian species of conservation significance and HCV values. During the assessment, a plot of 50m by 50m at every 250m distance covered was selected and sampled. At each of these sampled plots, survey of the area was made, moving at different section of the areas, considering damp places, places concentrated with old and rotten leaves, etc. All species found during the process were collected and placed in transparent bag so as to be compared with the reptile and amphibian field identification guide. The listening of calling from these species was another method used by the herpetologist for the species determinations.



Figure 5: *Bitis gabonensis* (Gabon Viper) and a frog species (*Amietophrynus togoensis*) in a transparent bag being compare to the photo within the field guide discovered along transects 10 & 4

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An assessment to identify and survey the fish species within the project areas was conducted within the communities and along the Kpoi River and several creeks in the area. The objective was to capture, identify and determine different fish species and their conservation status within the project area. The study was focus on fresh water fishes as the project area has no connection to the Atlantic Ocean. A fish field guide was used for easy field identification. Local community survey was able to quickly identify the kind of fish which are often caught in their rivers. Fishes identified were gathered from fishing baskets, and fish drying within the communities.

Stakeholder consultation (stakeholders contacted, consultation notices and dates)

Local Authority Stakeholders

Several local authorities were consulted prior to and after the meetings with the communities. These consultations were intended to divulge information regarding the project, discuss the terms of reference of the ESIA and HCV studies and to inform the local authorities about the time frame and activities of the study team within their subject local communities. Several key questions were put to the stakeholders regarding their understanding of the project and project area, and development of the region. In addition, the stakeholders were allowed to voice their concerns and issues regarding development. The views of the local authorities regarding the project was undivided; with support for the project and expectations that the development will amount to improve living conditions of the local communities by providing job and social services (health care, education, sanitation). The authorities urge that LIBINCO will move expeditiously to deliver development projects in those areas where they are currently operating in order to encourage neighboring communities to show support for the project. There were also concerns by authorities that some individuals were posing impediments to the project by inciting local communities and spreading negative propaganda as a means of collecting payments from the company. The authorities are opposed to any form of direct payment from the company to individuals as a way of attracting support.

Person Contacted	Position/Contact
Ms Etweda A. Cooper	Grand Bassa County Superintendent Tel:+231 886518660 etwedac@yahoo.com
Honorable Gus Garmondeh	Statutory District Superintendent District #4, Grand Bassa County
Honorable P. Matthew Gibson	District Commissioner of Doegbah, Glaydor Administrative District District #4 [Grand Bassa County
Chief Alfred Barhwon	Paramount Chief, Neesu Chiefdom of District #4 [Grand Bassa County]
Chief James Gataryoh	Paramount Chief, Joghban and Kpowein Clan

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	of District #4 [Grand Bassa County]
Chief Alfred Whion	Clan Chief, Joghban of District #4 [Grand Bassa County]
Chief Hilary Wriehwleah	Clan Chief, Neetor Clan of District #4 [Grand Bassa County]

The SIA has been based upon extensive fieldwork and focus groups undertaken during December 2010, November 2012, February 2013 and April 2014. Focus groups meetings were conducted in Twin Town, Piakar Town, Ganiah/Barkon, Buegbor, Gueh Village, Compound 4, Gbar Village, Charlie Town, Taekpelleh, Korkor David, Debbah Town and Qwrakpojillian.

During the focus groups participants' voice their issues and concerns related to potential or perceived project related impacts, affected community members' positions and viewpoints were recorded so as to be made available for review. Key environmental factors that underline the potentially significant impacts and concerns voiced by communities are largely the long-felt effects of the civil war.

Communities' fears and apprehension about the project stems from historical experiences with indiscriminate agricultural plantation land grabs. This is compounded by the negative publicity generated by some NGO's on palm oil and rubber plantation operations in Liberia.

Based on the focus group discussions and communities meeting, seven major or relevant issues were identified. Four impacts which are highly related include the possible reduction of productive land, increased food insecurity, fire hazards and effects on village-level migration patterns.

Some of the recommendations that emanated from local stakeholders engagement are as follows:

- All affected communities must benefit from the plantation project from funds provided by the concessionaire/developer³;
- Women, youth, elders and community leaders need to have balance representation in engagement and consultation procedures, as well as equitable shares in any benefits accruing to PAC's; to the extent that no group feels particularly marginalized.
- A mediation program (conflict resolution program) should be launched with the intention

³ The concession agreement provides that the developer will contribute 1.0% of its annual gross sale to a community development fund



to resolve any issues/disputes conflicts that might arise as the project increases in size.

National Multi Stakeholders Sector Meeting

The national level stakeholders’ sector meeting involved key sectorial agencies. The meeting was held from February 16, 2014 to May 2014 as follows. These meetings were held during pre-field assessment, on-going field assessment and post-field assessment. The meetings were meant to inform National and local stakeholders of the conduct of ESIA and HCV within the project area; educate and ensure that the project is fully understood by them by presenting to them documentation and map references to the project, solicit their concerns and recommendations.

Table 1: Multi stakeholders listing

Agency/Organization	Name/Contact of Participant	Issues	Date
Environmental Protection Agency of Liberia 4th Street/Tubman Blvd., Sinkor Monrovia, Liberia http://www.moa.gov.lr	Mr. Jerry Toe Manager-Compliance & Enforcement Environmental Protection Agency 0880662516 Earl Neblett ozoneepal@gmail.com +231 886 546 345 Albert Donnie albertdonnie@yahoo.com +231 886 960 274 Varney L. Conneh clvarney68@yahoo.com +231 653 1029 + 231 777 531 029	The local EPA would monitor the project at every level and ensure that the requirements set by the EPA are upheld The consultant should consult broad base stakeholders and note their input in the final reports	04/22/14
Forest Development Authority Whein Town Mt. Barclay	Mr. Jerry G. Yonmah Acting Manager-Protected	FDA is more concerned about communities that have applied for community	05/21/14

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<p>P.O. Box 10-3010 1000 Monrovia, 10 Liberia http://www.fda.gov.lr</p>	<p>Area Network Forestry Development Authority <u>Tel:+231886462564</u> Email: <u>yonmah1968@yahoo.com</u> Mr. Edward G. Gbaintor Manager-Wildlife Management <u>Tel:+231886782273</u> Madam Comfort Tweh- Sakui Awareness & Education Officer <u>comfortsakui@fda.gov.lr</u></p>	<p>forestry programs within the district where the project is located. Advises management to investigate and that no community forest set aside by a community should be clear for oil palm during expansion programs.</p>	
<p>Ministry of Agriculture Old LPRC Road Somalia Drive, Gardnersville 1000 Monrovia, Liberia http://www.moa.gov.lr</p>	<p>Hon. Chea B. Garley Assistant Minister- Technical Services Ministry of Agriculture <u>Tel:+231886574465</u> <u>cheabrowngarleysr@yahoo.com</u></p>	<p>Farmers sustaining losses from project communities should be fairly compensated based on FPIC and MOA criteria</p>	05/07/14
<p>Ministry of Internal Affairs Capital Hill http://www.mia.gov.lr</p>	<p>Hon. Joseph Jangar Assistant Minister-Culture & Customs Affairs Ministry of Internal Affairs <u>Tel:+231886512055</u> <u>Wiliam Jallah</u> Director Culture & Customs Affairs</p>	<p>All areas of cultural values should be identified and excluded from the development areas in consultation with the local people.</p>	05/20/14

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	<u>0886110447</u>		
Ministry of Labor UN Drive, Monrovia	Hon. Neto Zarzar Lighe Deputy Minister-Manpower Planning & Human Resource Development Ministry of Labor <u>Tel:+231886556399</u>	LIBINCO should ensure fair labor practice and encourage workers to form their labor unions There should be adequate facilities for employees' health and sanitation.	05/20/14
Grand Bassa Superintendent	Hon. Etweda Cooper	It has come to the attention of her office that certain individuals are currently influencing the community people within the project area in order to get money from the company. Recommends that LIBINCO be aware of such individuals and not to heed to any demand made by such characters.	04/15/14
Ministry of Health Congo Town	Mr. Dehwehn Omarly Yeabah Director-Department of Environmental & Occupational Health Tel: +231886669906 Email:	There should be provision for safe drinking water, sanitation facilities and personal protective equipment for all workers	05/23/14

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	doyeabah@yahoo.com	LIBINCO should ensure that chemicals and waste are managed properly through a documented system.	
Land Commission Goodridge Building Jllah 8th Town Road, Sinkor Monrovia, Liberia http://www.lc.gov.lr	Dr. Cecil T. O. Brandy Chairman Ctob51@yahoo.com +231 697 2111	Understands that there is a problem to develop oil palm between communities and the company. Land Commission assist during crisis like these when written communications from LIBINCO management can be sent to the Ministry of Justice (MOJ) and National Investment Commission (NIC) in requesting the Lands Commission to intervene since legally, Lands Commission does not have the authority to get involved during concession formulation. This request will mandate the Lands Commission in getting all governmental parties involved during in the process.	04/22/14
Society for the Conservation of Nature of Liberia www.scnlib.net	Michael Garbo Executive Director Tel:+0886573612	There should be buffer zones between project area and protected areas	05/23/14
Forest cry RLJ Hotel Junction, Paynesville	Mr. Dickson Chowolo Executive Director	No primary forest should be converted for oil palm.	05/21/14

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	<u>Tel:+231886593292</u>		
Conservation International Congo Town	Mr. Borwen Sayon Program Manager <u>Tel:+231886620712</u>	Recommend that Fauna survey especially for Amphibians and Reptiles is conducted during the assessment before developing the area for oil palm since the entire area of concentration is completely degraded. Conservation International (CI) also operates in Grand Bassa County and that our area of interest is far from LIBINCO project site.	05/23/2012
Jagbahn & Neetor Clans Land Committee	<ol style="list-style-type: none"> 1. Mr. Solomon P. Gbargee (Secretary) 2. Joseph Chea Johnson (Senoir Elder) 3. James B. Vakpanolah (Chairman, Land Committee) 	We the representatives on the Land Commission set by both clans do not have additional land available in terms of expansion to develop oil palm plantation. We advise LIBINCO to remain to its original land size as stated in their old concession agreement for which we are satisfy with.	04/15/2014

4a. Summary of assessment findings (for SEIA assessments)

The data collection techniques used during the social assessment includes:

- Focus Group Discussions

Focus group discussions were used to collect primary data. The focus group discussions were intended to grasp information from community about their history, community profile, livelihoods activities, resources accessibility, constraints and problems, local institutions, relation with other forest users and existing conflicts.

- Key Informant Interview

Key informants interviews were used whereby; informal interviews and discussions with the village chief and elders, some government officers, and other resource persons in the area were conducted.

- Field Observation

This method was used to gather additional information from field observations in each of the study communities. Observations such as availability and quality of infrastructure such as roads, schools, health care and community project, traditional use of resources, illegal activities, poaching etc were taken into consideration.

The social assessment considers the following:

Dynamics and Ethnic Structures

The ethnic composition of the population in the study area is dominated by the Bassa people with small elements of other Liberia tribes including Kpelle, Gio and Mano. According to a number of residents, many of the original village founders are from the Bassa ethnic group, and hail from areas such as (present) River Cess County and Bassa County. Some villagers also explain that many villages were established when ethnic groups migrated to this region around the 1900s from (present) Bong and Nimba counties. In actuality, life in these communities is far from simple. Each village is connected through a variety of crucial linkages with other villages, the clan and the larger district. The clan appears to be the centre of traditional identity.

Villages, House Structures and Social Amenities

The villages vary greatly in sizes. The average number of house structures per village can be approximated as 13. Besides the company operated clinic, only two clinics are located in the area. One in compound 4 and the other in New Cess. The clinics are supported by the government. The clinic in compound 4 has on its premises two pit latrines and a solar panel, the last which is restricted to the clinic only. In respect to education, very few villages have primary

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schools with only 12 primary schools counted in the study area. There is no secondary school in the entire area. Most villages have access to football field, places of worship and burial grounds. Majority of the residents rely on streams and creeks for drinking water due to limited access to hand pumps. Sanitation facilities (pit latrines) are also very scarce.

As part of its Corporate Social Responsibility Initiative, LIBINCO provides some services within its management camps and communities within the project area. These include:

- ❖ An Adult Literacy Program opened in 2013 for the estate's employees and also local citizens (Old camp, Neyor camp, New Camp and Yeaway Camp), with more than 170 participants of the 2nd batch for the 2014 period;
- ❖ A clinic and extension services to the surrounding villages;
- ❖ A housing scheme;
- ❖ Clean water supply to its surrounding villages (such as the provision of wells);
- ❖ The erection of communication towers;
- ❖ General road repairs and upgrades in the area; and
- ❖ The construction of culverts and bridges.
- ❖ Contribution to the local village school in Debbah Town

Migrancy Patterns and Social Conflict

Most villages are permanent and have been established around the 1940/1950s, whilst some even date back to the 1920s. Apart from the civil war which disrupted most of the villages and residents' lifestyles, very little social conflict has been noted during the focus groups. The operation of LIBINCO has also spark division across the area with some residents welcoming the development in their communities, while others are opposed to any expansion beyond the phase 1 development area, further east of the new planting area. This has limited LIBINCO new planting operations to phase 1 development area where residents have been receptive and welcoming in the phase 1 development area.

Household Demographics

The female population is slightly more at around 54.4%. The largest section of household members comprises scholars or children under the age of 18 years (just below 40%).

Household Dynamics

The average household size consists of approximately 10.1 members. This is an indication of the poverty extent of the area, as densely populated households' economic dependency ratios are normally high, especially in the absence of formal employment opportunities. It is fair to assume

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that some women in the studied area might be marginalized and vulnerable, especially since heavy duties are often performed by them. Most of the indigenous groups in Liberia are also patrilineal, and have ideologies and cultural practices that reinforce male dominance. In addition, women are also normally responsible for child rearing, and are the first to be confronted and forced to deal with their households' food insecurity or inadequate nutrition.

Religion, Culture and Recreation

Christianity is practiced by most of the households in the study area, whilst men are also engaged in polygamy and inter-marriages. Most villagers are also engaged in secret societies to which many members are affiliated to. In the study area, men belong to the Poro society, whilst women are affiliated to Sande. Most villages have football fields which attract many talented youth members who are eagerly enjoying the sport. In addition, local dance ceremonies (coupled with cultural performances) and masquerades are also performed by village members as recreational activities.

Household Livelihood Strategies

Natural resources usage

With some 70% of Liberian living in rural areas, dependence on the forest and natural resources in the country is very common. All of the residents who were interviewed have demonstrated some degree of reliance on the natural resources for food, construction materials, protein etc. The use of these resources is mainly for subsistence purposes, with some limited amount of income generation activities particularly palm oil, farina and bush meat. The trees in the surrounding forest are used for the provision of building materials since most of the buildings are constructed using wood or wood related products. Fishing and hunting are done at a subsistence basis;

Agriculture

Most households engage in slash-and-burn agricultural farming (more than 50% of household have agricultural fields). More than 60% of all these lands are under cultivation. Those who are engaged in agriculture primarily farm with cassava, rice, maize, plantain, pineapple, sugarcane, peanuts, cocoa, corn and beans. Apart from palm oil production, which is the largest income source in the study area, cassava accounts for the second largest income. In addition, apart from rubber and oil palm trees, many households have banana, coconut and paw-paw trees either next

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to their homesteads or near their villages. Lastly, many households also have livestock including goats, sheep, pigs, chicken and ducks.

Occupations

Few formal employment opportunities are available in the study area. Apart from agriculture and small-scale charcoal-making, the largest income source of households is wild oil palm harvesting and oil production.

Evaluation of positive social impacts

Employment opportunities

The need for employment opportunities has been stressed by all the villagers studied. In light of the estate development in the area, access to arable farmland and natural resources will be reduced. This might force households to diversify their livelihood and income-earning strategies. The value of even having one or two member in a household employed should not be underestimated; as such, income is normally shared between household members and even between households. The local community will be considered in the first instance before migrants. A special effort will be made to provide training in various apprenticeship positions for the trainable youth. This is a positive impact of the project and will go to develop the local community directly.

The project will also provide employment avenues to local contractors/consultancy companies to carry out various project activities such as estates construction, water and electricity provision for estates and offices among others. These will create job opportunities for the local firms.

Improved Local/National Economy

In addition to the direct employment, the project will result in increased trade due to the increased need for goods and services within the communities. Regular monthly earnings for laborers and artisans will give a boost to the local economy. Their purchasing power will be greatly enhanced and members of the community will be in a good position to plan their personal and family lives better. The project will infuse money into the local economy in the form of payment of workers' salaries. Building and construction materials like sand will be obtained locally. Cement will be purchased from Monrovia and Buchanan. The purchase and use of such materials will impact positively on the local as well as the national economy. The deduction of both workers and corporate taxes will enhance the national economy.

Improved Institutional/National Revenue

This project is expected to accrue revenue for the state through levies and taxes applied on the crude palm oil production and tax deductions from workers' salaries and contractor fees. Some government agencies will charge fees which will increase the revenue base of the institution.

Provision of Basic Social Services

Under the ratified concession agreement, LIBINCO is required to undertake initiatives aimed at providing basic social services, such as education and health services, as well as clean water. The provision of such services is also part of a project's Corporate Social Responsibility (CSR), and reinforces a client's commitment to its project affected communities. LIBINCO has made effort for the provision of access to these services in line with its CSR obligations particularly in the communities within the proposed new planting area. However, some village representatives, especially those from the communities out of phase 1 development area have stated that LIBINCO is not providing much needed social services in the area. These refer to wells, schools, clinics as well as the upgrading of roads. This seems to shape opinions that the project has not improved villagers' livelihoods to date, as many seem to have great expectations in this regard. The most pressing need amongst all the village members appears to be the need for improved road access. The project is expected to make a contribution towards social development including feeder roads upgrading and maintenance within the project catchment, sanitation facilities, schools etc. The project is also expected to open up the area through road construction to link the communities and the project site. The project will create incentive for the population in the area to increase. This will provide opportunity for mobile communication and other public utilities to emerge in the area.

Evaluation of the negative social values

Reduced access to and loss of productive agricultural land and farming practices

Subsistence agriculture accounts for the primary livelihood of the entire project affected communities. Some village members have expressed concern that their access to productive farmland might be reduced if the project expands. This concern is coupled with the possibility of economic displacement (i.e. where productive or future farmland might be taken for oil palm plantings). Some of the concerns are based on villages' past experience with the LAC Plantation to the north, as many claim that their villages have undergone relocation to accommodate rubber plantations. Consequently, many fear that the project might restrict them from their agriculturally based livelihood by seizing land for oil palms. Moreover, some villages are engaged in small-scale gold mining (especially along mountain edges and some rivers). For these villages, income from these mining activities is significant, and in some cases supersedes that of wild palm oil. Subsequently, some elements of the population from these villages voiced apprehension that the

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expansion of the project might reduce their access to these gold fields, which are distantly located outside of the concession area. These concerns have limited the amount of land LIBINCO can develop in the area with some communities in the eastern front of the concession rejecting attempts by LIBINCO to develop oil palm in their areas. Hence, LIBINCO is currently engaged with the communities and would only develop plantation in those areas where there is a clear consent from the local people.

Heightened food insecurity

Current agriculture production in the project affected communities are very much limited due to limited agriculture extension and support services, lack of seeds and farm inputs, threats posed by pests and rodents and climate change⁴. The conversion of farm land to oil palm plantation could reduce the amount of land available for agriculture. As mentioned earlier, most villagers are subsistence farmers. Few household members are employed, whilst commercial agricultural is very limited across the study area. Food insecurity might become an issue for several reasons. These include a reduction in the local agriculture labor force with many locals showing preference for employment with LIBINCO, which might result to low food production. The influx of job seekers in the area will also result in increase on demand for food. Additionally, the oil palm development will limit the amount of land available for agriculture activities for those communities that are within the development area. LIBINCO have engaged the affected communities in a consultative process for the setting aside of reserve land for farming activities within the development area to enable local farmers to continue to farm on lands that are contiguous to their communities and avoid displacement.

Reduced access to natural resources

Conversion of forest areas to oil palm would result in the clearing of valuable forest products that are essential to community livelihood, or that village members might be restricted from accessing such resources. Dependence on the natural resources is significant, and without this access, the livelihoods of these villagers are compromised, as most do not have access to regular income or alternative livelihood strategies. At present, the villages' lifestyles are culturally interwoven with the collection of plants and fruits, as well as hunting. Many villages near the LAC Plantation seem to bear witness to how the rubber plantations have already reduced the natural resources. Such recollection produces concern among many that this issue will be

⁴ Traditionally, local farming activities such as clearing, burning and planting have been associated with seasonal calendar with which local farmers have become accustomed. Recent changes in the local climate resulting to irregular shift in the calendar for the rainy season or dry season (irregular rainfall, flooding, drought, temperature variation); and the lack of climate forecast information has left farmers vulnerable in respect to the timing of their farming activities, which has resulted to poor land preparation, crops failures and poor harvest (Liberia National Adaptation Programme of Action-2006).

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replicated by the expansion of the oil palm estate. There is also concern that the project could result to possible reduction in forested areas, villagers fear that they might not have access to natural oil palms any longer. Many harvest natural oil palms in the forests, and are dependent on this income; the highest sources of incomes amongst all the villages. It is anticipated that the proposed outgrower's scheme will compensate for this possibility.

Loss of cultural sites

Under the ratified concession agreement, the protection of the environment and continued community access to public spaces and culturally significant sites are stressed. The agreement states foremost that operations will proceed in accordance with the Forestry Law, as well as the Environmental Protection and Management Law of Liberia. Moreover, it has been agreed that all trails across the production area, used immemorially by the population, shall remain open to free use by the public, whilst tribal reserves, or sacred tribal land (or sites) shall be set aside for the communal use of any tribe in the area.

With the reduction of forest areas, there are concerns that the forested areas might be reduced. This, it is feared, might reduce the areas available for local people's sacred sites. Secondly, another associated impact is that of the loss of graveyards. Amongst the studied villages, some graveyards are very sacred and embody the spirits of ancestors for whom much respect is garnered. LIBINCO has already identified and mapped out grave yards within the affected communities. These will be isolated from the development areas and be managed as HCVs in concert with the communities.

Community Values

Community and social values can be compromised by the establishment of the plantation dwelling, Crime, use of alcohol and disagreeable behavior by workers are all problems that can arise. The introduction of these workers together at the project area has the potential to create some social concerns. There is the potential for an increase in criminal activities, and abuse of alcohol as a result of additional income. In addition, since the workers will be housed at the same campsite there is the potential for conflicts through disagreements. Recreational activities such as sports will also be promoted by the Company. Every effort must be made by the company to ensure that it does not promote alcoholism.

Increase in volume of traffic: There may also be project infrastructure and project activities which cause safety risks. This may increase the potential for accidents. Transportation of the Fresh Fruit Bunch to the palm oil mills and of the palm oil to the port respectively by tractors and trucks and the workers' transportation vehicles, will impact the traffic activities by generating dust and noise pollution.

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Water Pollution: The land clearing activities may impact on water quality of the rivers, streams and creeks due to the release of suspended sediments through erosion; and release of contaminants associated with the sediments. Leaching of agrochemicals, runoff, sewage, and hydrocarbon contamination can affect water and can be significant impacts of oil palm cultivation if mitigation measures are not implemented. These can however become negligible with the implementation of plantation best practices such as observing riparian reserves, and efficient waste and agro-chemical management practices.

Increased noise levels are expected from:

- machinery use during vegetation clearance;
- movement of heavy duty vehicles; and
- Operations of earthmoving equipment.

The removal of vegetation and construction spoils can be a nuisance and create insanitary conditions and aesthetic problems. These include: The agrochemicals: (Fertilizers, Pesticides, Insecticides, fungicides, etc); the hydrocarbon products for the generators, cars, tractors and trucks, etc., such as diesel fuel, oil and grease, lubricants, etc...

Increase in population in the area will exert pressure on the weak sanitation systems in the communities with increase in the use of open pit latrines and bushes. This means people may come in direct contact with rivers and streams, which can lead to faecal contamination. Limited access to clean water and poor sanitation include diarrheal diseases which can lead in severe cases to cholera outbreaks. These diseases present a high risk to vulnerable persons such as children or those with pre-existing health conditions.

There is potential that areas available for cultural practices and graveyards might reduce or be lost. It is important to note that local people's connection to their sacred site is critical to their livelihood and existence.

Workers health and safety can be impacted during the operation of the project. The main impacts likely are:

- Risk of accidents from the operation of mills and heavy-duty machines,
- Exposure to excessive noise and fumes from the operation of machines; and
- Exposure to vector borne diseases (already high).
- Increase in community injuries and fatalities due to road traffic accidents

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- Deterioration of community health due to exposure to contaminated water supply
- Deterioration of community health due to degradation of air quality from particulate matter arising from unpaved roads likely, with the introduction of increased traffic in the area as project operations intensifies

Reduced access and loss of productive agricultural land, forest and wildlife: The project development would mean that the available land for agriculture would be reduced. Additional, community access to the proposed area for the purpose of collecting NTFP, hunting, fishing and agriculture production will be lost due to areas established as plantation areas and biodiversity areas.

Description of the biological and physical environment

The ecological survey identified the predominant vegetation types, characterized the landscape in terms of vegetation types, ecological processes, and determined the faunal species associated with each vegetation type and the ecological state of these vegetation types in relation to functional land use. During the botanical inventory the species composition of each vegetation type was examined and used to define the different vegetation types across the study area. The vegetation identified within the area, which is the subject of this report can be classified as:

- Late Secondary Forest (+ 20 years)
- Secondary Forest (1 -15 years)
- Wetlands
- Riparian Forest
- Palm plantations (indigenous or improved cultivars, active or neglected)
- Agricultural land

Each of the vegetation type was assessed in terms of its sensitivity and conservation value using the High Conservation Value National Interpretation for Liberia (Draft) 2012.

Late Secondary Forest (+ 20 years)

Most of the study area is marked by existing palm plantations. The remaining forest areas have been extensively logged in the past, leaving behind fragmented forest patches, logging trails and regenerating forests. These areas that were logged, but never been completely cleared for oil palm, constitute the late secondary forest.



Figure 6: Late Secondary Forest with evidence of historic logging

Although partially disturbed, these areas are still relevant owing to the fact that they provide suitable habitat for significant populations of mammals, reptiles and amphibians, as well as very high levels of bird diversity. These areas may be vital in providing refugia for animals already hunted extensively for bushmeat in other parts of the area. This vegetation is very typical of primary forest except it does not possess the large trees (>30 metres high and >75cms wide) which have been removed either by commercial or local scale logging. They however contain many of the same species as the primary forests. In this vegetation many of the invasive species associated with the younger secondary forests (1 – 15 years) have been colonized by the indigenous vegetation.

Secondary Forest (1 -15 years)

This type of forest contains the pioneering forest species which develop immediately after the forest have been cleared either due to local subsistence farming or conversion to oil palm. This vegetation develops very fast and can reach up to 20m but lacks large trees (< 30cm in diameter). The main species present in the early years include both indigenous and invasive species. The species composition include the indigenous *Afromomum spp*, *Anthocleista nobilis*, *Anthoclesita vogelii*, *Macaranga ceropoides* and *Dicranopteris linearis* as well as large number of the invasive *Chromolaena odorata*. As the forest becomes older (6 -15 years), much the same species composition exists, with increased numbers of herbaceous species in the understory and much taller trees, reaching up to 30m. These forest types also contain large numbers of bird species and may well provide valuable habitat for small mammals, reptiles and amphibians. The species composition at this level will include the very typical *Musanga cecropioides*, as well as *Hallea stipulosa* (Abura), *Erythrophloem saureolens* (Tali), *Terminalia catappa* and the widely

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used medicinal plant *Xylopiya aethiopica*. These tree species would grow into trees large enough for logging if left undisturbed to continue to grow.



Figure 7: Photograph of vegetation succession from regenerating vegetation on fallow agricultural land in the foreground, with a layer of Secondary Forest (1 – 15 years) in the middle and Late Secondary (possibly Primary) on the hill in the background.

Wetlands

These are open water logged terrains that are associated with the rivers, stream and creeks that flow in the area. These areas are dominated by aquatic species including *Nymphaea*, the invasive *Eichhornia crassipes* and *Raphia hookeri*.

Riparian and Swamp Forest

These are forests occurring along the river banks and within tributaries of the Newcess Rivers and other streams that are classified as Swamp Forest. Riparian forests are important vegetation habitats in the area as they form important corridors for faunal species allowing them to move between feeding and breeding areas. They also play an important role in protecting the surrounding countryside from flooding as well as bank erosion. The riparian vegetation can extend more than 50 meters inland and this zone is frequently characterized by large specimens of tree species, and has relatively high diversity and high biomass. The forest edges are short and abrupt due to agricultural pressure and frequent fires, confining the forest to the river banks.

Palm plantations

Palm plantations consist mainly of oil palm, both indigenous (*Elaeis guineensis*) and an “improved” or productive cultivar (*Eleais* sp.) The former are not extensive palm estates, but rather small pockets of land planted to palm species which are limited to areas located adjacent to or near villages. They fall into two categories: actively cultivated and harvested plantations, and those which have been neglected and abandoned (left fallow). The majority of the palm plantations were actively planted and being maintained as a crop. Plant species diversity in these plantations is low, consisting of small herbaceous shrubs.

Agricultural Land

These are secondary habitats and agriculture degraded farmlands. Vegetation of this nature contains many forest species which grow immediately after clearing associated with subsistence agriculture by the locals through their crop rotation cycle.

Physical Environment

Climate

The existing weather is strongly influenced by location in the Coastal zone which gives rise to wet and dry seasons. The long wet season usually runs from April to October and the dry season from October to April. Rainfall in Liberia decreases from coastal to inland areas but increases again in the highlands. The coastal area experiences the heaviest annual precipitation and ranges from 3,937 mm per annum to 4,445 mm per annum in the western part of Liberia and 2 540 mm in the southeast. Average daily temperature is 25.9 degrees Celsius and the annual variation in average daily temperature is approximately 2 degrees Celsius while the average diurnal variation

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is about 6 degrees Celsius. The average sunshine amounts to 45% of the total daytime while the dry season periods have lower cloud cover and thus have higher sunshine hours. A relative humidity of 90% to 100% is common during the rainy season. During the dry season, it decreases between 80% and 85%.The warmest month is November while the coolest month is February.

Geology

The geology of the project area comprise of the rocks of the post-Pre Cambrian Age, which extends along the coastal belt. These are crystalline rocks (igneous and metamorphic) that are very useful for construction purposes.

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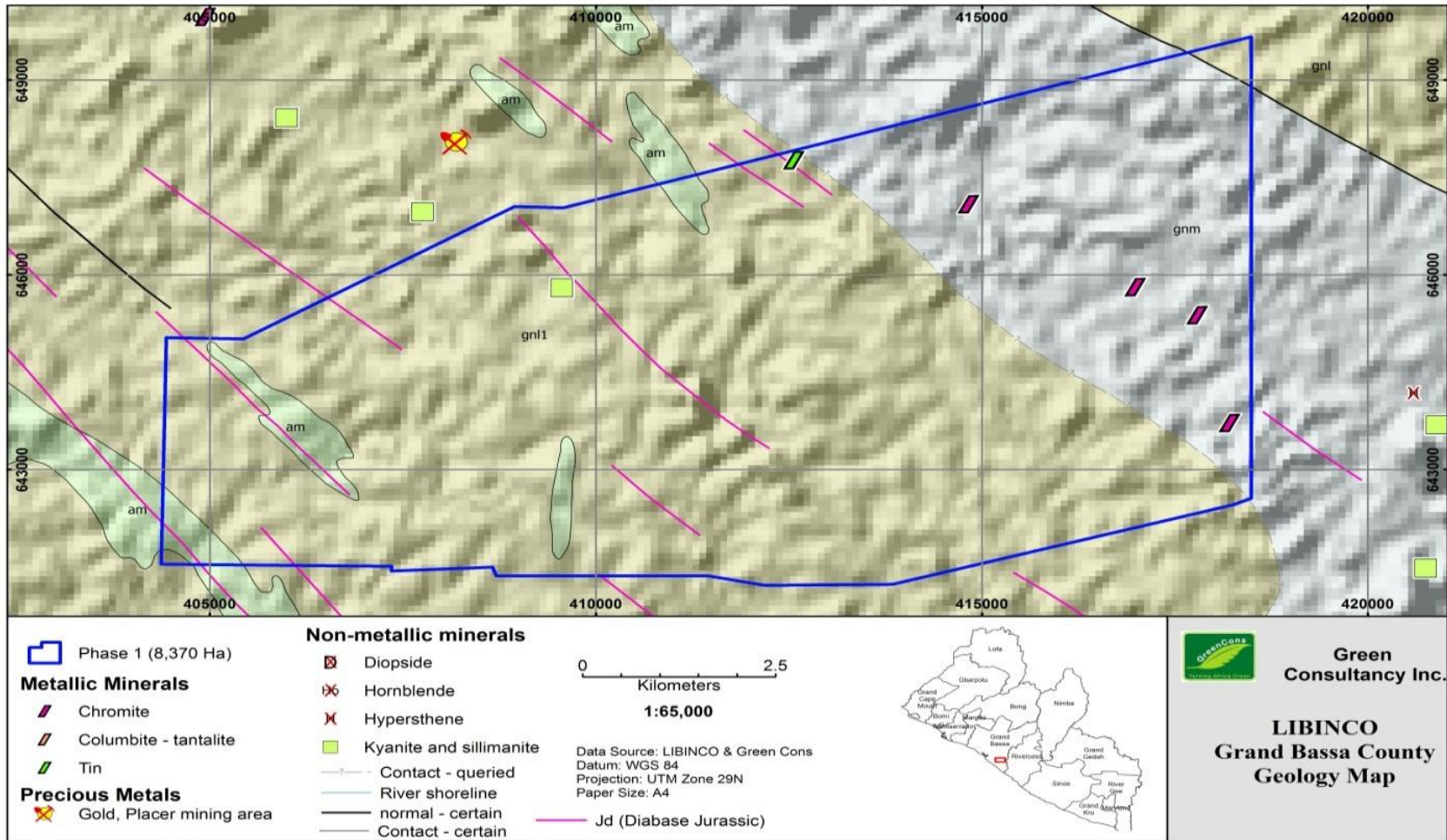


Figure 8: Geology map of LIBINCO rehabilitated and proposed NPB

Soils

The soil in the project area is generally a mixture of lithosols and some laterite (ferralsols), which is reddish brown in color containing aluminum, iron oxide and low in nitrogen concentration; swamp soil occurring in swampy areas, high concentration of humus with layers consisting of biodegradable materials; and alluvial soil with a high nutrient concentration which is suitable for agriculture. As a result of increase in slash and burn agriculture activities within the area, soil erosion and land degradation can be seen in many places along some transects lines. These slash and burn activities practices degrades the forest and remove vegetation cover leading to soil erosion by both wind and intense rain. The result is infertility of top soil and deep gullies formation. These soils are also suitable for tree crops such as oil palm, rubber, coffee, and cocoa. These soils have strongly eluvial profiles. It is characteristic of them to have highly resistant material—largely laterite and quartz sand—concentrated in the surface horizons.

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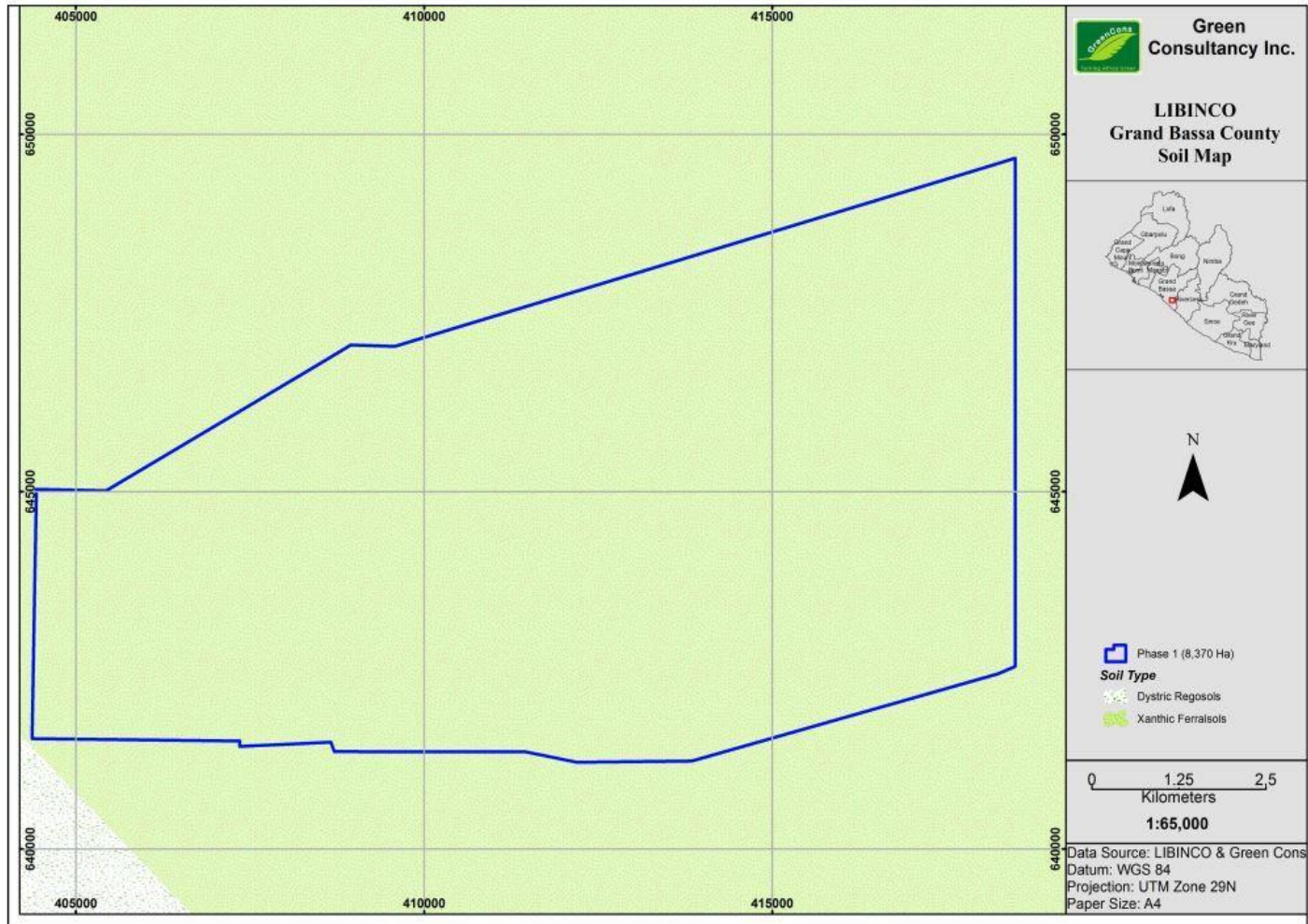


Figure 9: Soil map

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Topography and land capability

The topography of the area is mainly flat to undulating and hilly, showing characteristics of the coastal plains and rolling hills. The rolling landscape supports tropical rainforest which has been heavily altered over the years by shifting agriculture. Most of the land is characterized by lower foothill slopes which are suitable for wildlife; forest tree crops; cultivated tree crops and pasture; annual crops in long rotations with permanent cover crops.

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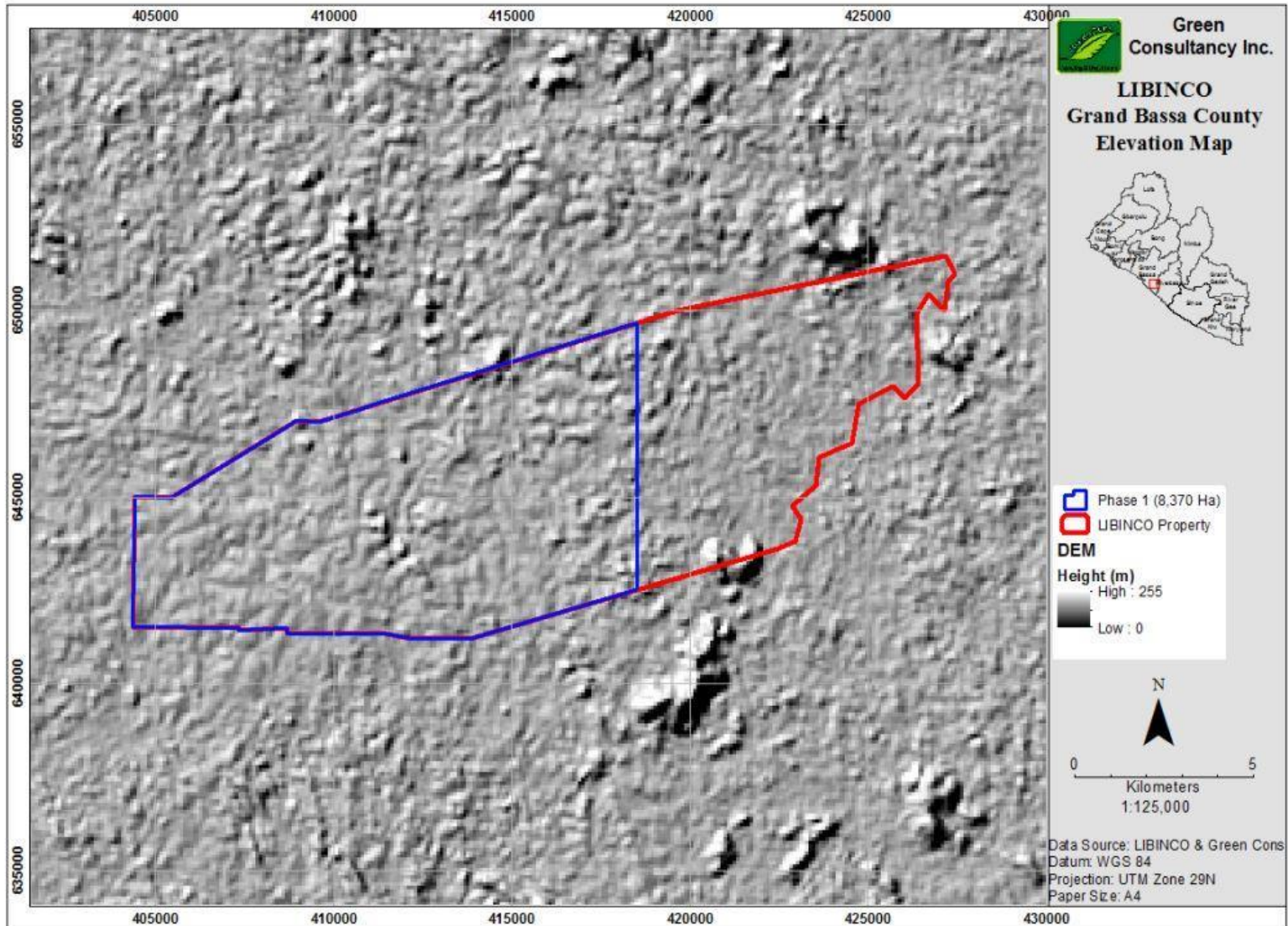


Figure 10: Elevation map

Hydrology and Drainage

The area features several streams and creeks including the Yana Creek, Bo Creek, Kpayekoni Creek and the Zeohn Creek; most of which are tributaries of the New Cess River which drains the area. These streams and tributaries, some of which bisect the study area connect the terrestrial and riparian vegetation between the Timbo and Newcess rivers which are out of the project area. These ecological corridors provide important refugia for water dependant, riverine and forest species and provide intermediate link between the two catchment areas. These corridors are necessary for faunal movement and genetic mixing of a range of organisms.

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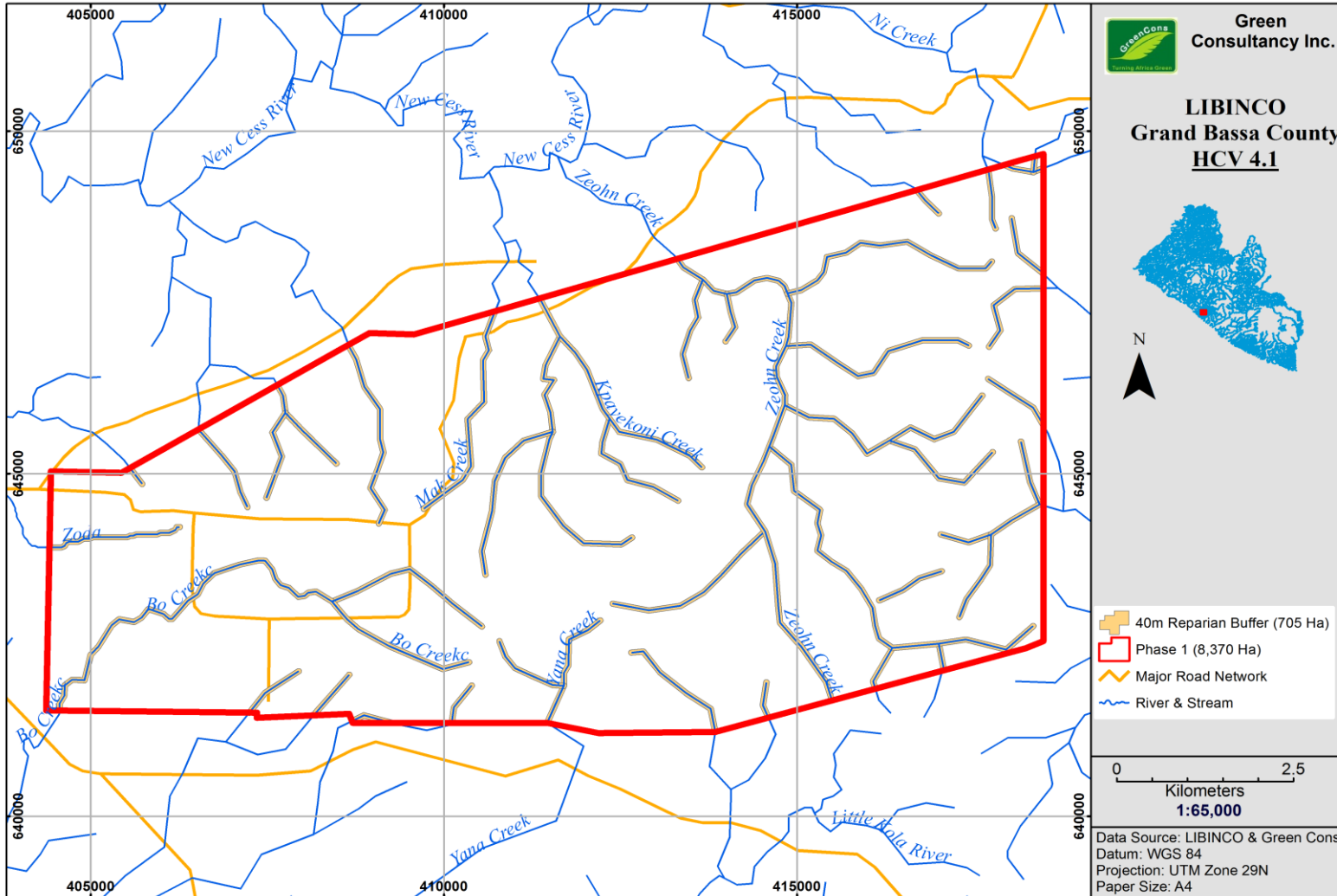


Figure 11: Hydrology map

Water Quality

The natural surface and ground water of the area can so far be described as being soft with very low concentrations of calcium carbonate. It can be concluded that water quality in the area is generally good. Samples were collected and recorded from the Kpoi River⁵. Additionally, water sampling has been conducted on an annual basic by LIBINCO in reference to the EPA environmental compliance requirements. Two sampling reports have since been submitted to the EPA.

Air Quality

The major source of air pollution in the area currently is indoor air pollution due to the reliance of the village household on woody biomass for energy (cooking and heating). The operation of the mill is likely to introduce air pollutants in the area which have not existed prior to the project. Dust emissions associated with transport activities during the dry season is also a source of air pollution

Noise Conditions

As there is no industry in the area, the biggest noise in the villages likely is from the road transport activities. Additionally, the operation of the mill will increase existing noise levels. In the main time, noise levels recorded at sampling points within the communities of the project area never exceeded 50 decibels. The prevailing sound environment throughout the area is considered almost totally by sounds of nature.

⁵ The Kparyekoni Creek has locally being referred to as the Kpoi River by the residents within the project area and been accepted by many locally; but it still maintains its name within the national hydrology database.

4b. Summary of assessment findings (for HCV assessment)

The HCV assessment report was guided by the draft HCV National Interpretation for Liberia. The result of the HCVs and conservation significant areas is based on the assessment conducted within the phase 1 LIBINCO assessment areas which include the replanting and rehabilitated area and the proposed new planting area. The assessment identified four HCVs to be absent from the phase 1 project area. The four include HCV 1.1, HCV 2.0, HCV 3.0 and HCV 4.3. There were also four HCVs that were categorized as potentially present, HCV 1.2, HCV 1.3, HCV 1.4, and HCV 4.2. The HCVs present were HCV 4.1, HCV 5 and HCV 6.

HCV 1.1 Protected Areas

Status of this HCV was found to be **ABSENT**

HCV 1.2: Concentrations of rare, threatened or endangered species

This HCV can be considered to be **POTENTIALLY PRESENT**

HCV 1.3: Concentrations of endemic species

It is logical to indicate that HCV 1.3 is **POTENTIALLY PRESENT**.

HCV 1.4: Critical temporal concentrations of species

It can be concluded from the study that HCV 1.4 is **POTENTIALLY PRESENT** within the project area.

HCV 2.0: Landscape - level ecosystems and mosaics

Assessment of this HCV is that it is **ABSENT**.

HCV3: Ecosystems and habitats

There is no mountain forest within or adjacent to the project area. As a result of lack of montane forest. There is also no large mangrove swamps, HCV 3 can be concluded to be **ABSENT**.

Summary of HCV area for LIBINCO phase 1 development area

No.	Area	HCV	Hectare
1.	Vegetation along Kpoi river	1.2, 1.3, 1.4, 4.1, 4.2 & 5	39.37
2.	Vegetation along Kpias	1.2, 1.3, 1.4, 4.1, 4.2 & 5	35.40
3.	Late secondary forest conservation area	1.2, 1.3, 1.4, 4.1, 4.2 & 5	300.38
4.	Villages buffer area	5 & 6	262.83
5.	Gravesite at J/K block boundary	6	2.03
		Total HCV area	640.01



Management and Mitigation Plan for HCVs present: 1.2, 1.3 and 1.4

The company should institute a no hunting policy within the plantation; including the buying, selling and eating of bush meat which are not pests on the premises of the concession. Also discourage the selling of live fauna species on the concession by workers and ensure harsh punishment for violators.

Demarcate, protect and maintain all buffer zones; ensure periodic erosion control practices for all areas with slopes especially areas near any surface water with the involvement of the local community. Conduct regular meeting with local communities on the management of designated HCVs and acknowledge their participation in the management of the HCVs.

Demarcate and map all specified HCVs and ensure visible signs are posted around the HCV. Provide HCV maps to land preparation team prior to clearing of any block and ensure that the team understand and knows how to read and interpret the map.

Monitor periodically all land clearing activities and ensure that all areas to avoid recommended in the HCV report are adhered to. Encourage the protection of HCV areas by rewarding communities, team and persons responsible for ensuring such areas are maintained, community project, such as hand pump, bridges, etc. and ensure that persons directly working with LIBINCO who are found in violation of abusing the sanctity of designated HCV areas are penalized.

The monitoring program should be implemented as follows:

1. Operational monitoring: This will follow those parameters described in the specific ESHIA Plans and Regulations Table
2. Monthly internal monitoring reports: Internal reports will be provided monthly (Environmental and social activities reports, Grievances report, HR report). Review in monthly management meeting.
3. Quarterly monitoring reports: Summary of the monthly reports and a management conclusions section will be produced, including for stakeholder dissemination. Review in quarterly stakeholder meetings (timing may be subsequently adjusted).
4. Annual monitoring report: Per Liberian regulations, there will be an annual review of the Company's adherence to the environmental permit issued by the Environmental Protection Agency of Liberia and the Environmental permit will be subject to review. Review by EPAL and in annual seminar.

HCV 4.1 Area critical to water catchments

HCV 4.1 is **PRESENT**

HCV 4.2 Areas critical for erosion control

This HCV 4.2 is **POTENTIALLY PRESENT** within the AOI.

4.3: Areas critical for fire prevention



This is found to be **ABSENT**

Management Plan for HCVs present: 4.1 & 4.2

Protect all sources of water to ensure that communities’ access to quality water for their livelihood purposes is unhindered; and manage riparian forests to ensure that they maintain their function in controlling erosion. Set aside recommended buffers for all rivers and streams as follows:

Stream/River Width	Min. Width
>40m	50m
20m – 40m	40m
10m – 20m	20m
5m – 10m	10m
3m – 5m	5m
<3m	-

Hold regular meeting with local communities and encourage their participation in the management of the HCV based on information sharing and awareness. Riparian reserves should be identified, established and mapped with communities’ involvement. These should be documented and respected

Measures should be put in place for the protection and maintenance of buffer zones, erosion control practices for all areas with slopes especially near any surface water. Visible signs should be posted around the HCVs and maps provided to land preparation team prior to clearing of any block. The team should be required to adhere to the map provided and avoid any impact to NO GO area. Land clearing activities need to be monitored and accounted for periodically. Penalties to be established for staff abusing the sanctity of designated “no go” areas.

HCV’s should be periodically monitored with the involvement of representatives of host communities, other stakeholders and the company.

Heavy equipment should be prevented from passing through major river by placing culverts to all points of river/stream crossing, in the event where it seems almost impossible within the immediate time period

Conduct monitoring as per the program indicated above.

HCV 5: Areas fundamental to meeting the basic needs of local communities
It is certain that HCV 5 is **PRESENT**.

HCV 6: Areas critical to cultural identity (values)

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Due to the involvement of the communities in identifying places of cultural heritage values it can be confirmed that HCV 6 is **PRESENT**.

Management Plan for HCVs present: 5 & 6

- All clearing blocks and HCV 5 and 6 areas are surveyed, demarcated and mapped in coordination with the local community representatives and other relevant stakeholders :
- To facilitate the establishment of a company community HCV team along with the host communities and to provide them clear explanations concerning HCV identification and mapping process in order to guarantee their full participation and involvement.
- Record all meetings, attendance, minutes and approval documentation commencing and ending the process;
- Notice boards / signboards representing and indicating each category of HCV must be demarcated along with the host community and posted around the given area. They shall be made visible and explained to the local communities to facilitate clear understanding.
- Maps provided to land preparation team prior to clearing of any block. The team is to adhere to the map provided and avoid any impact to “NO GO” area.
- Photo and other records relating to the lack of any identified area or the presence of identified areas needs to be taken and recorded;
- Any negotiations entered into between the host communities and the company over the removal and subsequent relocation of any area relating to this HCV needs to be documented and recorded with photos and attendance of all present including other stakeholders;
- Identify all streams that are used by the community for major domestic needs like drinking and cooking and avoid possible contamination from plantation and especially POM operations. Plantation must refrain from washing equipment, especially for spraying and vehicles etc. in stream.
- Ensure proper mechanism for the management of water provided to the community, including hand pumps, wells and stream, by setting along with the community a water sanitation committee.
- While some of the creeks used by communities may be distance away from it, always have a noticeable HCV board identifying the actual usages of the water body;
- To engage the community periodically in understanding their concerns about these HCV.
- Monitoring of all sites demarcated needs to be periodically carried out by the company and the host communities’ representative in order to ensure appreciation of the site. Periodic monitoring of water level and quality

HCV	Specific Status
1.2	POTENTIALLY PRESENT
1.3	POTENTIALLY PRESENT
1.4	POTENTIALLY PRESENT
4.1	PRESENT
4.2	POTENTIALLY PRESENT
5.0	PRESENT
6.0	PRESENT

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Internal Responsibility

Formal signing off by assessors and company

Herein is the Summary of the SEI Assessment and HCV report of 8,370 hectares Palm Bay AOI located District #4, Grand Bassa County, Liberia. This has been accepted by the Management of LIBINCO for strict adherence to the RSPO Principle and Criteria of the New Planting Procedure.

On behalf of the approved assessors



Solomon P. Wright MSc
Green Consultancy Inc.
June 2014

On behalf of LIBINCO



Sasi Kumar
GM, LIBINCO