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December 9, 2015

The Management
Alpha Logging & Wood Processing Corp.
Rehab Junction
Paynesville

Dear Sir:

We write to submit a copy of the Environmental Impact Statement (ESIS) in favor of your Entity.

Ten copies of this Statement were submitted to the Environmental Protection Agency (EPA) for appropriate actions as required by the Environmental Protection and Management Law of Liberia (EPML).

Kind regards,

Sincerely yours,

Dickson J. Chowoto



Dickson J. Chowoto
Senior Consultant, FERI

djc/bsp

Alpha Logging And Wood Processing Company

Rehab Junction

Paynesville, Liberia

ENVIRONMENTAL SOCIAL AND IMPACT STATEMENT

Prepared by:

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MONROVIA, LIBERIA

December, 2015

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1.0 INTRODUCTION

1.1 GENERAL BACKGROUND

In 2006, the New National Forestry Reforms Law as enacted by the National Legislature provides new mechanism for granting of forest concession and community rights. Under this recent legislative approach, the Alpha Logging and Wood Processing Company was granted a timber harvesting contract, Forest Management Contract (FMC-A) with a total area of 119,240 ha in Salayea District, Lofa County and Bokoma District, Gbarpolu County.

Considering shelter and other basic human needs, the company has decided to set up a logging camp to address the protection of its property as well as personnel and other affected local community members welfare.

1.2 Objective of Action

The purpose of this Environmental and Social Impact Assessment (ESIA) is to provide ample attention on performance objectives actions and procedures to be carried out during the operation of the Alpha Logging and Wood Processing, Inc. to minimize potential environmental impact. The Environmental and Social Impact Statement (ESIS) is the key reference document which identifies actions and commitments to be followed by the Alpha Logging and Wood Processing Company during the operation of the Company. The ESIA shall serve as a benchmark for measuring the effectiveness of environmental Protection and Management during the operation of the Company. This shall be achieved by specifying monitoring, reporting and auditing requirements, with nominated responsibilities and timing to ensure necessary performance objectives are met. This



document also makes provision, as appropriate, for unforeseen events by outlining corrective action which may be implemented in these situations.

To increase the usability of the ESIA, it has been written as a stand along dynamic document which will be reviewed regularly to reflect changes in new processes, controls and procedures.

This Statement is also to ensure specific matters including maintenance of infrastructure, noise management, waste management, water quality management, flood management, fuel handling waste and fire management.

1.3 Work Methodology

The services of Forest and Environment Research Institute, Inc. (FERI) were hired by Alpha Logging and Wood Processing Company to prepare an Environmental and Social Impact Assessment (ESIA) for camp construction on her behalf. This will contain the framework for the construction and operation of the camp facilities and furthermore recommend measures that will minimize potential environmental impacts as well as the socio-economic impact of the project on the environment.

During the studies period, several meetings were held with management of the proposed facilities. The surrounding community was toured to obtain information about biodiversity cultural resources and social economic situation. Water samples of both creeks (Goyah and Ngah) that run closely to the proposed camp site as wells around the closest community (Gblayea Town) were collected and analyzed. Indicating the placement of the facilities were also produced and used in the preparation.



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1.3.1 Health Safety of Employees

During the construction and operations of the logging camp, emphasis will be placed on providing safe and healthy environment for the workers. Safe and comfortable living and working conditions in turn would ensure good rest when off shift, and well-rested employees would result in safer work practices and a reduction in incidents and injuries.

Steps taken to address issues of concern included:

- ❖ A benchmarking exercise with Alpha Logging and Wood Processing Company.
- ❖ The development of a camp safety, health and environment (SHE) files; establish statements for camp set up and use and the training of managers and supervisors in the implementation of these standards to ensure continual provision of safe and healthy living conditions.
- ❖ Regular site visits conducted by management and professionals
- ❖ The development of a safety culture among employees.

1.4 Waste Management

Hazardous Waste Management

Hazardous waste is a solid or liquid waste exhibiting one or more of the following characteristics: Flammability, corrosively, reactivity, and toxicity. Hazardous waste in logging camp operations would consist principally of waste oil and grease, ethylene, clinical and those generated from the workshop and designated collection points. The supervisor at the camp shall be responsible for properly managing the wastes on the camp.



The waste shall be collected through an organized waste mechanism put in place by Alpha Management under the company's Environmental Office. All hazardous waste/materials will be stored in secure facilities to prevent accidental release.

1.5 Report Structure

The main body of the ESIA report is structured under 8 sections. The first section deals with the introductory part; Section 2 discusses about the initial environmental examination and scoping; Section 3 Environmental Legislation and institutional framework that are relevant to the project under consideration. This is followed by the description of the project, which is presented under Section 4. Constitute the Project Description 5. This section deals with the Baseline Environmental Assessment.

Section 6 Environmental impacts Identification, Prediction and Analysis. Section 7 of the report presents Environmental Management Plan for the implementation of the mitigation measures and the proposed Environmental Monitoring Program. Section 8 of the report, Conclusion and Recommend actions.



2.0 Initial Environmental Examination and Scoping

2.1 Collection of Available Information

The documentation process involved the collection and review of published national and regional states Environmental policies, legislations, regulations and guidelines as well as international conventions and protocols ratified by Liberia.

Other Primary data and information on the study area were collected using different tools and techniques including household questionnaires, focus groups interviews, local community representatives' consultations and checklists.

2.2 Field Survey

Site visits were made from May 5th to 12th 2015 to assess the baseline environmental and social conditions of the proposed project area; to define impacted areas and identify environmental and socio-economic components that were likely to be significantly affected by the proposed project. During field survey, basic data and information on the biological resources, socio-economic as well as historical and cultural sites were collected.

2.3 Key Stakeholders Consultations

Discussions with decision making bodies, key stakeholders, sector institutions were made on the very concepts and nature of the proposed project and the importance of the Environmental and Social Impact Assessment, giving emphasis on the levels of public participation, role of key stakeholders and joint contributions of these actors to the success of the project.

In addition, the scope of the proposed project and possible means of maximizing local communities' social, economic and



environmental benefits from the project implementation were underlined.

Key stakeholders and authorities with whom consultations were made at the project study include the following: Hon. James Mulbah, Townchief, and others including youth leader Abdullah, all of Gblayea Town.

2.4 Public Consultations

Public Consultation was undertaken in two phases, one during identifying social and environmental issues (scoping) and the other during impacts assessment study. During the impact assessment, individuals and community members were interviewed and consulted on the project social, economic and environmental impacts. Local community consultation meetings were conducted in Gblayea Village as part of the EIA methodological process. The participants in the discussions were a cross representation of the affected communities.

The participants were community elders, Women all members of Gblayea Village, where the camp is proposed to be constructed.

The meeting was intended to allow the participants to air their issues of concern in relation to the proposed company's activities in the area. Following the consultative meetings, participants were made to reduce their concerns and opinions into writing which are incorporated in the statement report



2.5 Environmental Scoping

With the aim of defining the limits of the study area for the project and drawing lists of activities and impacts to be studied during the assessment, the Consultant carried out an initial environmental examination and scoping.

The scoping exercise was carried out with the following main objectives:

- ❖ To define the limits of the study area,
- ❖ To define list of Valued Ecosystem Components within the study area,
- ❖ To define lists of activities, type and magnitude of the proposed project, and
- ❖ To assess and include views and concerns of key stakeholders on the scope of ESIA study.

In order to carry out the above tasks, the Consultant employed different tools and techniques relevant to the proposed project. The process included the use of environmental scoping checklists, consultations with different stakeholders (including project affected communities, local administrators and sector institutions, etc) and informal discussions and talks with prominent individuals, local elders, youth, women groups and general public in the project area.

2.6 Concerns of Key Stakeholders

Views and concerns of key stakeholders were assessed in the Gblayea Village with special emphasis to settlements community within and around the project area which probably could be affected directly or indirectly by the camp construction. The stakeholders' concerns in the implementation of the project are about ensuring community participation, employment opportunity priority for unemployed local community members.



3.0 Environmental Legislation and Institutional Framework

3.1 Legislative Framework

Environmental Management and defense is enshrined in the Constitution of Liberia. Article 7 of the 1986 Constitution indicates environmental protection as a fundamental rule according to which the country must be governed and binned, particularly the legislature and executive to adopt and enact environmental policies and to formulate national development plans that are environmentally sustainable.

There have been adequate environmental legislations, however, over the years; Liberia operated disjointed policies with each public agency governed by its own policies it has set.

In 2003, two cardinal documents essential to the integral management of the environment of Liberia was passed into law: The Environmental Protection and Management Law and the Environment Protection Agency Act. The Environmental Protection Agency Act established the Environment Protection Agency (EPA) and the institutional arrangement that support the Agency. The main bodies created under the act are the Policy Council, the Agency, the Board of Directors, and the counties and Districts Environmental Committees. The EPA is to ensure that all sectoral laws conform to the framework law.

The Environmental Protection and Management Law enable the EPA to protect the environment through implementing the Laws. The Environmental Protection and Management Law arrange the rules, regulations and procedures for Environment Impact Assessment, Auditing and Monitoring. It establishes regulations for environmental quality standards; Guidelines and



Standards for the management of the environment and natural resources. It also addresses the protection of biodiversity, national Heritage and the Ozone Layer.

Others areas covered include international obligations, Information Access, Education and Public Awareness.

International and regional conventions are becoming important vehicle for addressing national trans-boundary environmental issue in Liberia. Liberia has ratified and is currently a part to several international environmental agreements as presented in the table below:

3.2 Institutional Framework

3.2.1 Role of EPA

The Environmental Protection Agency (EPA) is the main Agency and principal authority for the management of environment in Liberia.

The key functions of the EPA are:

- ❖ Coordinates, integrates, harmonizes and monitors the implementation of the environment and the decision of the policy council;
- ❖ Proposes environmental policies and strategies to the policy council and ensures that integration of environmental concerns in the overall national planning;
- ❖ Collects, analyzes and prepare basic scientific data pertaining to pollution, degradation and environment quality, resource use and other environmental protection and conservation matters; undertaking research, prepare and disseminate every two years and report on the state of the environment of Liberia.



- ❖ Ensures the preservation and promotion of important historic, cultural and spiritual value of natural resources heritage and in consultation with indigenous authorities, enhance indigenous methods for effective natural recourse management;
- ❖ Encourages the use of appropriate environmental sound technologies and renewable sources of energy and natural resources.
- ❖ Establish environmental criteria, guidelines, specifications and standards for production processes and the sustainable use of natural resources for health and welfare of future generation.
- ❖ Reviews and approve environmental statement and environmental impact assessment;
- ❖ Initiates and coordinate actions required in a state of environment emergency or any other situation which may pose serious threat to the environment and public health;
- ❖ Functions as the national clearing house for all activities relating to regional and international environmental related conventions, treaties and agreements, and as national liaison with the secretariat for all such regional and international instruments; and
- ❖ Advises the state and participate in the process of negotiating, ratifying or acceding to relevant regional and international environmental agreements.

The EPA has a mandate to work along horizontal linkages with other line ministries and agencies and along vertical linkages with local government. In order to ensure effective environmental management at the local government level, the EPA Act provides for the establishment of counties and districts



environmental committees whose function is to ensure the integration of environmental concerns in plans and projects of local government and the dissemination of environmental information. Along the horizontal linkages the most important institutions, besides the EPA, dealing with the environmental is the Forestry Development Authority (FDA). It has the power to protect, manage and conserve forest resources and wildlife on a sustainable basis.

Other institutions include:

The Ministry of Lands, Mines and Energy besides its pivotal role in mineral resources development, is also charged with the responsibility of administering and regulating public and private land. The Minister chairs the meetings of the Board of Director of EPA.

The Ministry of Planning and Economic Affairs is the formal linkage between implementing ministries and the international community. The Minister chairs the meetings of the National Environmental Policy Council.

The Ministry of Agriculture deals with soil protection, conservation fishery, plantation and animal husbandry. The Minister chairs the Board of Director of the FDA.

Other important stakeholders in the management of environment are the Ministry of Public Works, Ministry of Health and Social Welfare, the Ministry of Commerce, the Ministry of Internal Affairs, the Ministry of Transport and the Water and Sewer Cooperation.

International organizations continue to have important role in the management of Liberia environment. These include: USAID, UNDP, UNEP, UNFAO, UNESCO Conservation International, FFI and the International Tropical Timber Organization.



Liberia is a member of regional bodies that influence the protection and management of the environment including the Economic Community of West African States (ECOWAS), MRU, WARDA and the AU.

3.2.2 Policy Framework

Several pieces of policy, laws and institution relative to environmental management can affect the harvesting of Forest projects and their processing. These include both national and international instruments. In 1992, at the United Nations Conference on environment and development (UNCED) held in Rio De Janeiro twenty-seven environmental Principles were outlined in an attempt to enshrine a charter for the protection of the earth in Agenda 21, a program of action for the 21st Century.

- ❖ Principle 1 states that human beings are at the center of concerns for sustainable development and they are entitled to a healthy and productive life in harmony with nature.
- ❖ Principle 3 mentioned that the right to development must be fulfilled so as to equitably meet development and environmental needs of present and future generation; and
- ❖ Principle 17 states that environmental impact assessment should be a natural instrument that shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment.

The above principles can be seen as a mechanism by which the international community will cooperate to promote sustainable development that can be mentioned indefinitely because it is socially desirable, economically viable and ecologically sustainable. Within this context the government of Liberia has tailored its Environmental Policy to reflect the Principles of Agenda 21.



The national Environmental Policy of Liberia, 2002 has as its ultimate aim to ensure that improvement of the physical environment, present and future generation and to reconcile economic development and growth with the sustainable management of natural resource.

3.2.3 Policy of Alpha Logging and Wood Processing Company

The policy of Alpha Logging and Wood Processing Company is in consonance with the National Environmental Policy and its objectives are anchored on the following:

A. Occupational Health and Safety

Alpha Logging and Wood Processing Company is committed to the principles of sustainable development and continual improvement throughout all phases of its activities, from initial development, construction, operation and decommissioning and post closure.

The company is also committed to developing a culture and management system that supports its Safety and Health Values by encouraging behaviors and implementing processes that ensure the safety and health of all employees, contractors, customers and communities associated with its operations. Further, the Company is committed to working closely with the local community to promoting independent sustainable economic development.

B. Employees Housing and Recreation

The employees shall be well housed with adequate utility and service that will guard against environmental degradation. Appropriate infrastructure for recreation and relaxation shall be provided.



C. Hazardous Waste Management

"Hazardous Waste" is a solid or liquid waste exhibiting one or more of the following characteristics: Flammability, corrosively; reactivity, and toxicity. Waste oil and solvents are included in this definition.

This Policy is designed to ensure that every effort is made to minimize the generation of hazardous waste and that all hazardous waste are properly managed and disposed.

This policy is applied to all Alpha Logging and Wood Processing Company employees and contractors who may generate hazardous wastes including personnel in the harvesting operations and transportation of goods and services.

The Office of Environment (OE) has oversight responsibility for the hazardous waste management program, including waste pickup, segregation, labeling, storage, disposal, inspection, road keeping and training. This waste is responsible for properly managing its area. The department accumulation area must be carefully maintained and inspected weekly. Each area must be equipped with a containment tray or tub to separate incompatible waste streams.

Hazardous waste will be collected by the OE and stored at central accumulation area. This area must be secured, marked with signs and inspected weekly. In the event of a spill or accidental release, spill kits will be kept on site to facilitate a timely response and cleaning.

The OE shall conduct hazardous waste training for all the Company's employees and contractors who may generate work with/or near hazardous waste. Each employee covered by this program must be trained annually.



Record will be kept for all permits, licenses, hazardous waste shipping document, inspection logs, training documentation and agency correspondence. These documents will be kept on file for at least three years.

D. Petroleum Product Management

This policy is designed to ensure that Petroleum storage tanks maintained by the Management of Alpha Logging and Wood Processing Company are managed to protect the environment and the people of the Community. This policy applies to all underground and above ground petroleum storage tanks.

The Administrative Manager is responsible for tank installation, modification closure and removal of out-of-service tanks in collaboration with the OE. He/she is also responsible for the operation of all tanks including maintenance, repairs, annual inspections and record keeping. The office of the Environment is responsible for spill prevention and notifying the County Coordinator of the Environmental Protection Agency. The OE shall periodically conduct accident prevention briefing.

E. Air Quality Control

This policy is designed to ensure that Alpha Logging and Wood Processing Company air emission sources are operated to protect the environment and control its air pollution. The Policy applies to all emission sources including: Generators, heavy-duty machineries, vehicle and other auxiliary activities.

The management shall take steps necessary for the effective management of the natural environment. The intent of this action is to ensure the sustainability of the environment and to promote the participation of the members of the public in the process of integrating environmental concerns in the planning operations as well as to ensure that any activity which may cause an adverse effect on the natural environment be



assessed before such activity is commenced and that such adverse effect be taken into account in deciding whether or not such activity should be implemented.

The policy of Alpha Logging and Wood Processing Company embodies principles of environmental management such as:

- ❖ The "Precautionary Principle" where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing measures to prevent environmental degradation.
- ❖ The "Avoidance Principle" is preferable to avoid environmental damage, as it can be impossible or more expensive to repair rather than prevent damage.
- ❖ The "State of Technology Principle" measures protecting the environment are restricted by what is technologically feasible and as technology improve, the improved technology shall be used to prevent and repairs environmental damage.

F. Environmental Education

The objective of this policy is to deliver effective and integrated environmental education that will build the capacity of people in the employ of the Company and the settlements within its Contract area to move towards more sustainable behaviors; having an informed, aware and motivated staff with sufficient training to perform their duties in a way which minimizes risks to the environment and work place.



G. Biodiversity

The policy objective here is to have integrity and diversity of the flora and fauna and the natural landscape of the Alpha Logging and Wood Processing Company project Area sustainably managed.



4.0 Project Description

4.1 Camp Location and Size

Alpha Logging and Wood Processing Company camp is located 1.52km away from Gblyea town and 100m west of Nyah creek. On the south west lies another creek known as Goyea that runs from the south and connect with Nyah on the west. The physical site area for the camp is 1.03km. This figure took into consideration the given design of shelter arrangement and size of household plot in order to avoid clustered layouts.

4.1.2 Biological Environment

Liberia is within the upper Guinea Biodiversity hotspot which extends from Guinea to Togo.

Liberia has 43% of the forest cover within the West African region. The forest can be classified into four types: Namely – the Coastal Mangrove Swamps, the tropical evergreen forest, the ringing forest and the transitional deciduous forest.

The forest ecosystem can further be divided into four classes:

- a. Climax Secondary Forest
- b. Primary Dense Forest
- c. Young Secondary Forest; and
- d. Other mix vegetation

Biologically, Liberia is exceptionally different with high rate of endemism and has many species that are nearly extinct outside the country. Liberia is home to approximately 125 mammal Spp. 590 bird Spp. 162 native fish Spp. 74 reptiles and amphibians and more than insect Spp. Liberia is also thought to contain over 2000 flowering plant including 240 timbers Spp. And other unclassified biological forms.



4.2 Reclamation

When the 25 years life span of the company expires, reclamation may not necessarily be the case of an established logging camp. But attention should be drawn to the future use of those services that has been established on the site. For example, water supply, amenities like clinics, housing units, etc. Later just abandoning these for reclamation site, local communities may take over these facilities as their benefits.

4.3 Description of Present Land-use of the Camp area

4.3.1 Housing

Although there is no specified number of housing units to be built, several permanent and semi-permanent structures will be built to house anticipated number of 200-300 work force. The camp shall comprise a permanent accommodation unit for Camp Manager, Guest House with offices attached, and semi-permanent accommodation for 3-4 supervisors. There will also be a small workshop for the maintenance of machines built with concrete floor. Additionally, other accommodation unit/quarters will be constructed to house lower level employees.

The logging Camp is located in the Gblayeah Community. The rainfall regime forests luxuriant plan growth. Epiphytes and lianas of various types are found here. Climax vegetation or old secondary growth predominates; young secondary growth dominates the site where the camp is going to be constructed. Presently local vegetable and rice farm cover some portion of the proposed camp site. The vegetable growing at the site include bitter ball, pepper and rice.



4.3.2 Wildlife

No significant large animals has been observed in the area recent times. The hunting activities of the community resident have had significant effect on the animal's population in the project area.

4.4 Electricity

For electrification of the camp, the power source will derive from two generators, 250-300kva respectively. All efforts will be exerted as much as possible to reduce health risk resulting from power generations. Those two machines will be housed at the camp border; well ventilated housing unit with high roofing and a well mixture concrete floor.

4.5 Clinic

In an effort to improve the living condition of staff and ensure good work performance, the company's management will construct a clinic inside the camp. The clinic shall address every health concern of employees and make referrals where necessary.

4.6 Education

No school will be built on the camp mainly due to its small size. However, the company will provide support for already existing school in Gblayea, Gblayea town school is located in Gblayea town and is best situated for the company's support due to its proximity.



4.7 Description of Affected Environment

4.7.1 Physical Environment

Liberia is located in the gulf of the West Coast of Africa where the general North-South tendency of the coast abruptly changes into a West-East orientation. The coastline of Liberia is about 560km long and has approximately a N.W-S.E. direction. The total area of the country which is enclosed by the meridian 7° 30' west and 11°30' west and the parallels west and the parallels of 4°18' North and 8° North is about 111,370km².

4.7.2 Geographic Features

Liberia has four topographical regions at different attitudes, each has different physical features: Along the sea coast is the coastal plain of 560km. This is followed by a belt of undulating plateau, then a belt of high lands in the north and finally rolling hills in the northwest. Most mountains are located in the northern part of the country and include the: Bong, Nimba, Wenigizzi, Bomi, and the Putu Ranges.

The major rivers in Liberia obtain their source from the mountains in Northern Highlands meandering slowing over the plain and widen their estuaries. The major rivers basins drain the country in general in a northeast to southwest direction to the Atlantic Ocean. The exception to this pattern is the cavalla and Dugbe in the East of the country which flow parallel to the coast in the middle reaches.

The camp site is located an elevated land, well drained, and the site was previously used by (KLC or AL) for camp. In the South-west direction lie the Goyah creeks which join the Yan creek in the west and thereby flow in the western direction. The vegetation or the camp site is mostly secondary forest.



4.7.3 Geologic Features

Liberia is divided into 10-quadrangles and named according to principal settlements within the quadrangle. The project site is located in the quadrangle which is within the Guinean shield of West Africa and part of the Liberian age provinces. Most of the bedrocks on the area consists of Leucocratic granites rocks that range from granite to quartz diorite in composition massive to gneissic in texture.

Amphibolites, schist, quartzite, and iron-formation form lenses and elongate zones with in and between gneissic units.

Gneiss units of heterogeneous composition (gn1) occupy three quarter of the camp site. Granitic gneiss is the dominant rock, but the range of composition include granite, syenite, granodiorite, quartz diorite, diorite, melanocratic gneiss, amphibolite, quartzite, quartz-muscovite schist, and migmatite. Along the Goyah creek, a good amount of mylonitic gneiss is exposed.

Soil texture of the camp site is loamy and highly mixed with considerable amount of gravel.

Vegetation of the Camp Area

The logging Camp is located in the Gblayeah Community. The rainfall regime forests luxuriant plant growth. Epiphytes and lianas of various types are found here. Climax vegetation or old secondary growth predominates; young secondary growth dominates the site where the camp is going to be constructed. Presently local vegetable and rice farm cover some portion of the proposed camp site. The vegetable growing at the site include bitter ball, pepper and rice.



4.7.4 Climate

The equatorial position and the distribution of low and high pressure belts along the continent of Africa and the Atlantic Ocean determine the climate of Liberia. Because of this position and the moderating influence of ocean, fairly warm temperatures with high humidity are common through out the year. The country experiences low humidity usually from the end of December to January and at time till February, during this time dry dust with wind from the Sahara Desert reach Liberia; carrying large amount of dust and fog with low cool temperatures especially night time. The sun is over head at noon throughout the year giving rise to intense insulation in all part of the country. The temperature over the country ranges from 27-32 degrees Celsius during the day and from 21-24 at night. The highest temperature occurs between January and March and the lowest is between August and September each year.

The country has two seasons: The Rainy and the Dry Seasons. The Rainy season lies between May and October while the Dry season runs from November to April each year.

The average annual rain fall along the coastal belt is over 4,000mm and declines to 1300mm at the Forest Savanna boundary in the north, the months of heaviest rain fall are June, July and September.

4.7.5 Rainfall

The project area is situated within one of the high rainfall receiving areas of the country. The annual rainfall varies from 34 to 495mm and the average is estimated to be 234.8mm followed by virtual dry season from October to April. The five wettest months cover 68.3% of the total annual rainfall.

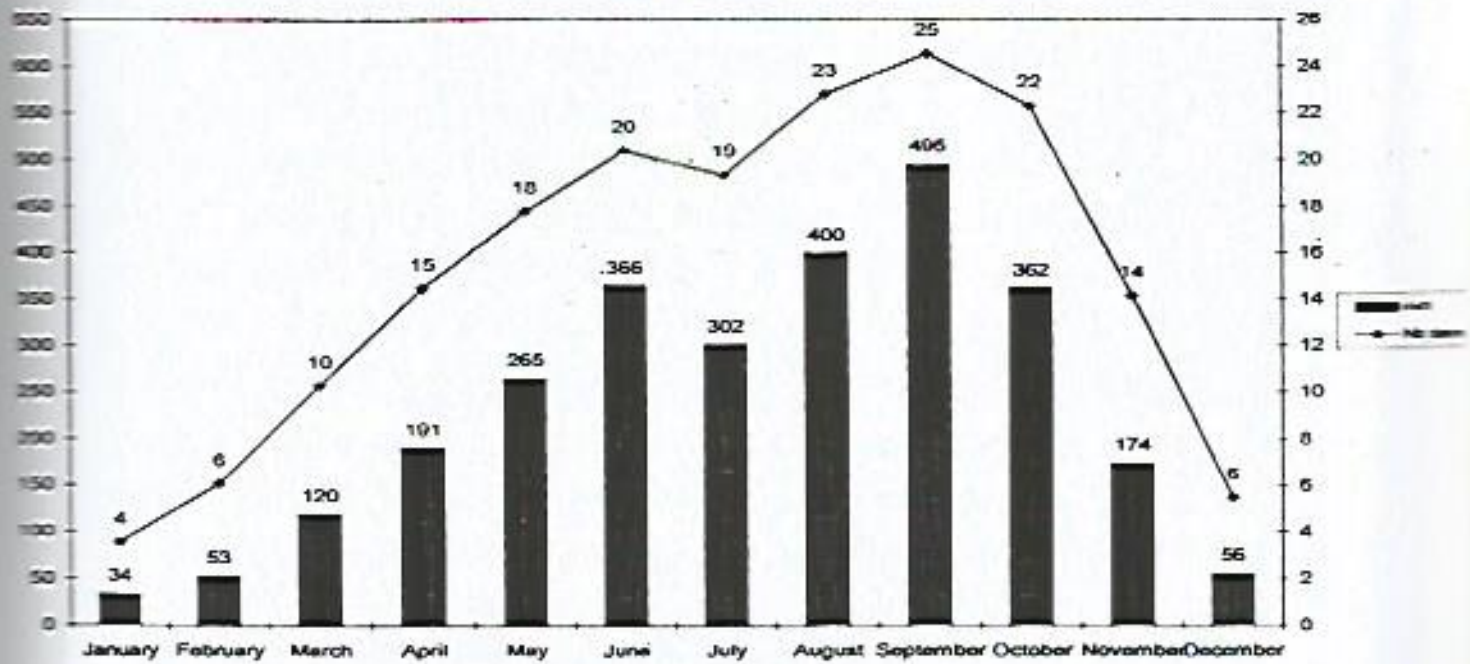


September month receives the heaviest rainfall record, while January shows the lowest moisture record. (See table- below).

The project area experiences rainfall throughout the year. However, from June to October the project area experience the heaviest rainfall. The five wettest months cover 68.3% of the total rainfall. September month receives the heaviest rainfall record, while January shows the lowest.



All estates average rainfalls from 2000 to 2007



5.0 Baseline Environmental Assessment

5.1 Water Quality

Three surface water samples were taken across the camp site: Two samples of the main creek (Nyah); One in the West, directly below the proposed camp site and one farther west (down stream) in (Gbloyea Village) the place where the villager collect water for drinking. One sample was also taken from a smaller creek (Goyah) in the South-west director and this creek joint "Nghah" at a point.

One sample of ground water was taken from a hand pump in (Gblayea Village) west of the camp area. Analytical test were performed on he samples to determine the bacteriological content, chemical and physical characteristics. The water samples were collected, kept under cool condition and brought to the Laboratory in Monrovia in eight hours for chemical analysis. The results of the analysis of surface and ground water sample are presented in tables below:



Table 1:

WATER QUALITY REPORT

LABORATORY UNIT

Result

Location :
 Type : GOYAH Creek
 Coordinate : 29N 0432427
 UTM 0816998
 South-west Direction
 Date collected: November 13, 2015
 Date Analyzed: November 14, 2015

Parameter	Result	Test method	WHO guideline/Liberia water Quality Standard
Temperature	29.9		
Ph	6.23	pH meter	6.5-8.0
Conductivity	164.5 $\mu\text{S}/\text{cm}$	Conductivity meter	N/A
Turbidity	1.68 NTU	Absorptometric Method	<5
Nitrite	0.03 mg/L $\text{NO}_2^- \text{N}$	Diazotization method	≤ 1.0
Nitrate	0.3 mg/L $\text{NO}_3^- \text{N}$	Diazotization method	≤ 40.0
Phosphate	0.01 mg/L PO_4	Orthophosphate method	≤ 0.01
Sulfate	0.00 mg/L SO_4	Sulfa Ver 4 method	≤ 150.0
Ammonia	0.45 mg/L $\text{NH}_3 \text{N}$	Salicylate method	≤ 1.0
COD	0 mg/L	Colorimetric Determination method	N/A
Total coliform	0	Membrane Filtration	0/100ml
E. coli	0	Membrane Filtration	0/100ml
Salmonella typhi & shigella	0	Culture Medium	0/100ml



Table 2:

LABORATORY UNIT
Result
Sample #2

Location : YAA Creek (Below the Camp) West of the camp
 Type : Creek
 Coordinate : 29N 0432192
 UTM 0817235
 South-west Direction
 Date collected: November 13, 2015
 Date Analyzed: November 14, 2015

Parameter	Result	Test method	WHO guideline/Liberia water Quality Standard
Temperature	29.9		
pH	6.23	pH meter	6.5-8.0
Conductivity	164.5 $\mu\text{S}/\text{cm}$	Conductivity meter	N/A
Turbidity	1.68 NTU	Absorptometric Method	<5
Nitrite	0.56 mg/L $\text{NO}_2^- \text{N}$	Diazotization method	≤ 1.0
Nitrate	0.3 mg/L $\text{NO}_3^- \text{N}$	Diazotization method	≤ 40.0
Phosphate	0.01 mg/L PO_4	Orthophosphate method	≤ 0.01
Sulfate	0.00 mg/L SO_4	Sulfa Ver 4 method	≤ 150.0
Ammonia	0.44 mg/L $\text{NH}_3^- \text{N}$	Salicylate method	≤ 1.0
COD	0 mg/L	Colorimetric Determination method	N/A
Total coliform	0	Membrane Filtration	0/100ml
E. coli	10	Membrane Filtration	0/100ml
Salmonella typhi & shigella	0	Culture Medium	0/100ml



Table 3:

LABORATORY UNIT

Result
Sample #3

Location : (Gblayea Village Drinking Spot)
 Type : YAA Creek
 Coordinate : 29N 0432209
 UTM 0818305
 South-west Direction
 Date collected: November 13, 2015
 Date Analyzed: November 14, 2015

Parameter	Result	Test method	WHO guideline/Liberia water Quality Standard
Temperature	29.9		
pH	6.23	pH meter	6.5-8.0
Conductivity	164.5 $\mu\text{S}/\text{cm}$	Conductivity meter	N/A
Turbidity	1.1 NTU	Absorptometric Method	<5
Nitrite	1.03 mg/L $\text{NO}_2^- \text{N}$	Diazotization method	≤ 1.0
Nitrate	1.6 mg/L $\text{NO}_3^- \text{N}$	Diazotization method	≤ 40.0
Phosphate	0.01 mg/L PO_4	Orthophosphate method	≤ 0.01
Sulfate	0.00 mg/L SO_4	Sulfa Ver 4 method	≤ 150.0
Ammonia	1.0 mg/L $\text{NH}_4^+ \text{N}$	Salicylate method	≤ 1.0
COD	0 mg/L	Colorimetric Determination method	N/A
Total coliform	0	Membrane Filtration	0/100ml
E. coli	10	Membrane Filtration	0/100ml
Salmonella typhi & shigella	0	Culture Medium	0/100ml



LABORATORY UNIT

Result

Sample #4

Location : Gblayee Village
 Type : Hand Pump
 Coordinate : 29N 0432354
 UTM 0818787
 South-west Direction
 Date collected: November 13, 2015
 Date Analyzed: November 14, 2015

Parameter	Result	Test method	WHO guideline/Liberia water Quality Standard
Temperature	21.9		
pH	5.23	pH meter	6.5-8.0
Conductivity	164.5 $\mu\text{S}/\text{cm}$	Conductivity meter	N/A
Turbidity	5.0 NTU	Absorptometric Method	<5
Nitrite	0.90 mg/L $\text{NO}_2^- \text{N}$	Diazotization method	≤ 1.0
Nitrate	2.3 mg/L $\text{NO}_3^- \text{N}$	Diazotization method	≤ 40.0
Phosphate	0.06 mg/L PO_4	Orthophosphate method	≤ 0.01
Sulfate	0.00 mg/L SO_4	Sulfa Ver 4 method	≤ 150.0
Ammonia	1.3 mg/L $\text{NH}_3 \text{N}$	Salicylate method	≤ 1.0
Total coliform	10	Membrane Filtration	0/100ml
E. coli	5	Membrane Filtration	0/100ml
Salmonella typhi & shigella	0	Culture Medium	0/100ml

5.2 Human Environment

The population of Liberia is 3.5 million. More than 60% of this lives in rural areas. The country's population is young; in LIGIS 2008 it was estimated that 60% of the population was younger than 35 years of age.

The female population is larger than the male but there are more literate males than females; the illiteracy level is about 63%. About 50% males and 76% of females are illiterate. In the rural areas 50% of the males and 69% of the females had not completed any formal education. The high level of illiteracy



amongst the population can be attributed to inadequate access to educational facilities, unavailability of functional schools and economic deprivation of people in most parts of the country.

Over 82% of the population depends on wells, ponds and rivers for drinking water. Access to health services is skewed in favor of urban areas. According to a recent survey there is only one doctor for 56,000 inhabitants and one midwife to every 28,000 inhabitants (NHSW, 2002).

Unemployment stands at 85% with 1.4 million people living in abject poverty (US\$0.50/person/day). About 60% of the most productive age group (24-44 years) falls below the poverty line; most of these people depend on environmental goods and services for livelihood.



6.0 Environmental Impacts identification, Prediction and Analysis

6.1 Pre-Construction Phase Impacts

Potential negative impacts associated with the clearing of the new camp site and the activities of the project include loss of vegetation.

Loss of Farming Land

The project is situated in Gblayeah Community with a stock of tropical trees species which community clear for farming activities. As the site is being turned over to Alpha Logging and Wood Processing Company for logging camp construction and operation, the previous land-use is changed from gardening to settlement.

6.2 Construction Phase Impacts

The construction phase of the project involves clearing, land leveling, and transportation of construction materials, construction of access roads, and installation generator and other facilities. Potential adverse impacts associated with these activities of the project are:

- ❖ Removal of vegetation, landscape and land use pattern alteration,
- ❖ Impact on Air Quality,
- ❖ Impact on wildlife
- ❖ Nuisance Noise,
- ❖ Work place accidents.



6.2.1 Removal of Vegetation, Landscape and Land use Pattern Alteration

Land clearing and removal of the existing vegetation resulting from the activities of Alpha Logging and Wood Processing Company project can be a cause for the alteration of landscape integrity, grasses, perennial vegetation and change in land use pattern in the project area.

6.2.2 Impact on Air Quality

Land degradation due to earth moving operation during the site preparation and land leveling and other pre-construction activities are the main air quality concern of the project during the construction stage. As the impact that can arise from the problem is localized, the contribution of the project construction to air quality degradation is not significant. However, as the dust storm can have visibility impact on site operation and decrease breathing because of the suspended particles in the air, the problem is an important issue that requires consideration.

6.2.3 Impact on Flora and Fauna

Removal of vegetation and cutting trees during land preparation for the construction activities, transportation and installation facilities will affect the biodiversity of the area. Potential impacts include those associated with the loss of flora and fauna communities, and increase in natural instability of the communities. However, the project site is an old camp site with few early colonizers, therefore may have insignificant impact.

6.2.4 Nuisance Noise

Construction operation involves the use of machinery and vehicles. As a result, some noise pollution is expected in and



close to the project site. Though the construction operation doesn't involve the use of explosives or blasting machines, that bring about significant noise effect, due care will be taken to minimize negative noise effect.

6.2.5 Work Accident

Traffic load in the process of delivering supplies to the construction site coupled with the concentration of casual labor can potentially increase accident. Moreover, visibility problem that may be caused by dust storm during clearing and land leveling may create accident problem in the site operation. Work accident during construction activities may be due to lack of training, personnel protective equipment (PPE) and experience.

6.3 Operation Phase Impacts

6.3.1 Impact on Ground Water

Accidental spillage of Petroleum products that may leach into the soil from fuel handling, in the construction area may be the main pollution sources that can cause a likely significant impact on the ground water bodies found in the project area.

6.3.2 Impact on Soil erosion

Soil erosion is another impact that can arise from construction activities as rainfall and runoff will therefore be higher. Moreover, the slope of the camp area undulating giving rises to erosion.



6.3.3 Impacts on terrestrial fauna and flora

Since the project site is already depleted, (old camp) void of vegetation, and wildlife population, the camp construction will not have a significant environmental impact.

6.3.4 Loss of sites of cultural and/or religious values

The camp site has no cultural/religious significant to the community this is why they had always given it to loggers for camp construction.

6.4 Health Care Facilities and Health Programs

Alpha Logging and Wood Processing Company will construct a small clinic on the camp for treatment and send major cases to referral hospitals.

6.5 Pollution from Solid and Liquid waste from Camps and other facilities

Alpha Logging and Wood Processing Company will generate effluents arising from washing, camps and other facilities which could affect the environs if not well managed the Company will manage the waste water appropriately.



7.0 Environmental Management Plan

7.1 Mitigation Measures for Removal of vegetation,

The following mitigation measures are proposed to minimize and/or prevent the anticipated impacts.

- ❖ Maintaining some trees of ecological importance while clearing lands for preparation of construction of residential camps.
- ❖ Soil removed from the construction site will be redistributed for the use of landscaping.
- ❖ Creating awareness on the value of conserving biodiversity in general and indigenous species trees in particular among the workers engaged on the construction activity. In this regard, training will be conducted for workers prior to commencement of construction activities.

7.2 Mitigation Measures for Impact on Air Quality

To avoid any adverse consequence of visibility loss due to dust creation during operation, the practical option is to reduce vehicular speed in the project area, creation of speed breaks and regular maintenance of equipment in line with Environmental Health and Safety (EHS) and Obligated Health and Safety (OHS) guidelines, applicable for project staff and contractors.

7.3 Mitigation Measures for Impact Wildlife

Though the impact on flora and fauna loss is minimal, in order to avoid damages during the construction activities and keep the greenness of the environment, the following measures are recommended:



- ❖ Limit clearing and soil disturbance in the sites in such a way that vegetation is maintained.
- ❖ Limit and control movement of trucks and construction machineries during construction in a manner that trucks will not damage vegetation.
- ❖ Create an awareness for the local people and workers in every opportunity about the importance of vegetation cover for soil and water conservation
- ❖ Grade disturbed areas and restore landscape.
- ❖ No hunting will be allowed in the Camp/workers

7.4 Mitigation Measures for Nuisance Noise

- ❖ Conducting construction at the time where most of the people are in the field
- ❖ Using modern machineries that have less nuisance noise effect

7.5 Mitigation Measures for Work Accident

The following proposed measures mitigate the impact:

- ❖ Train and equip some of the workers to voluntarily serve as a traffic service person during the beginning and end of daily work
- ❖ Aware and train workforce on the safety issues during site operation and on road safety
- ❖ Put in place necessary signpost on site and near the gate
- ❖ Develop a Traffic Management Manual
- ❖ After implementing the above preventive mitigation measures, the liquid wastes expected to be generated by the project will be relatively small in amount and will not be allowed to contaminate nearby water sources.



7.6 Mitigation Measures for Impacts of Oil Spillage

The majority of organic solid wastes, fuel spillage that are generated during the project implementation will be handled appropriately.

The procedures will ensure that pesticide application rates do not exceed those recommended. It will also maintain accurate records of date and conditions of application, rate applied and effectiveness in order to guide future decisions. The project will undertake chemical application only when environmental conditions are such that the risk of movement into waterways through spray drift is minimal. The application of the agrochemicals could be delayed near watercourses if environmental conditions are not favorable. The use of chemical is to minimize insect pests' infestation with in project area.



8.0 Conclusion & Recommendations

8.1 Conclusions

The objective of the government of Liberia is for the promotion of the forestry sector through which it will stimulate rapid development through its contribution to the development of the export base and rural development. The Government is constantly on the lookout to identify constraints to the development of the sector and advise on the best course of action to facilitate investment in the sector.

The government of Liberia has been actively working to create an investment climate that encourages investors through the creation of a friendly and conducive investment climate.

The private sector development on forestry has contributed to the above objectives in the following ways:

- ❖ Generation of foreign exchange. Liberia's export of forest products is one of the leading sources of foreign exchange earnings,
- ❖ The sector would create employment for thousands of citizens, contributing millions of dollars in wages to the rural economy.
- ❖ Provision of new opportunities for forestry professionals and experts to develop technical skills and careers in modern logging technology that is environmentally sound.
- ❖ Contribution to the government's objective of widening the tax base,
- ❖ Contribution to rural stability through provision of jobs, incomes, public services and amenities to villages surrounding logging sites.



- ❖ Contribution to the development of other commercial activities in areas adjacent to logging projects areas; construction, building blocks, restaurant, farming, etc.
- ❖ Development of local expertise through on-the-job training of personnel,
- ❖ Contribution to reducing rural-urban migration.

In view of the above facts, it is clear that the project has clear social and economic benefits and will contribute to the reduction of poverty.

Some of the project products will be exported and thus generate foreign exchange revenue, and contributing to promotion of economic development in the country.

The main adverse environmental impacts potentially that will arise from issues associated with logging during these periods would be minimal. Impacts will be related to the use, handling and maintenance of heavy equipment and petroleum products. The management of all of the above is intended to provide a conducive occupational health and safety conditions for contractors and employees of the company. Mitigation measures are available for all of the anticipated environmental impacts and will be implemented during the project life span. The company shall mainstream the environmental management issues in its overall environmental management system.

Generally, the project will have a positive impact on the environment, although there are some temporary adverse impacts during the project implementation process.

On balance, the project has overall beneficial effects. To properly manage those environmental impacts and to tackle unforeseen situations that could occur during the Project lifecycle, the company shall adhere to Environmental Protection Agency of Liberia monitoring regime and work on



proposed mitigation measures so that recommended mitigation measures are implemented and remain effective.

8.2 Recommendations

- ❖ The company should assist the local community by offering employment opportunities.
- ❖ The proponent should develop environmental management system at its company level.
- ❖ The company shall implement the environmental plan as enshrine in this ESIA by collaborating with relevant agencies, allocating adequate budget and recruit appropriate local experts.
- ❖ That all employees, contractors, visitors to the company respect and abide by the cultural practices of the Gblyeah Village Community.
- ❖ That the company assists in the provision of basic social services and infrastructure (schools, clinic, hand pumps, roads & bridges, etc.)



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Appendix 1

Concerns of Affected Communities



En Gaele

ah m. Kama - Y. Leader

Kaka

sumus Kollie

B. Elomo

Gray Flor

Saxsay

Tokpah

Sulonteh

Gray Flor

Kollie

Kpuh

Sulonteh

Kakila

mulbah - 10

Kollie

Sulonteh

Tokpah

Kama

Kama

Kollie

P 4 - 0

23. Ostic mulbah

24. Yomou Dowlo

25. Vehile Kollie

26. Samney Kollie

27. Gormu Kakila

28. Kabbah John

29. Nowah Kollie

30. Henry Begiman

31. Larpu mulbah

32. Kabbah mulbah

33. Siaka Koto

34. mulbah Tokpah

35. matten Tokpah

36. Gertudo mulbah

37. Konna For Kpa

38. Kanto For Kpa

39. Eric Kollie

40. Gormai Sulonteh

41. Mai Tokpah

42. Nana sulonteh

Appendix 2

Legal Documents of Alpha Logging and Wood Processing Company



Appendix 3

Resumes of Individual Performing The Environmental Studies



CURRICULUM VITAE (CV)

Name of Staff: Dickson J. Chowolo

Profession: BSc. General Forestry, Diplomas, Forest Management

Date of Birth: November 16, 1953

Nationality: Liberian

Membership in Professional Societies:

Society of Liberian Foresters, Society for the Conservation for the Nature, Liberia, SCNL (Board Member)

Key Qualifications:

Bachelor of Science in Forestry, University of Liberia, Diplomas in General Forestry, Certificates in Environmental Impact Studies

Study Tour on: Forestry in Sierra Leone, September, 1978; Community Forestry in Ghana, 2008 & 2009.
Seminars on: Trans-boundary Conservation in Sierra Leone, Ivory Coast and Guinea 2007, 2008 and 2009.

POSITION HELD	AGENCY / ORGANIZATION	DATE
Executive Director	Forest Cry Liberia, INC. FCL	2004 - Present
Senior Consultant	Forest and Environment Research Institute (FERI)	2011 - Present
Divisional Superintendent (Contract)	Firestone Plantation Rubber Company	2000 - 2001
Coordinator, Urban Forestry	Forestry Development Authority, FDA	1998 - 2000
Supervisor, Urban Forestry	Forestry Development Authority, FDA	1988 - 1998
Supervising ranger, Plantation establishment and forest research	Forestry Development Authority, FDA	1979 - 1988

Education:**A. Liberia**

- University of Liberia: Bachelor of Science in Forestry, 1998
- Union Forestry Training Institute, UFTI, now FTI in Tubmanburg, Bomi County 1979.

B. Republic of Cyprus

- Six Month- Post Diploma course in Forestry, 1988 - 1989

Languages:

Language/s	Speak	Write	Read
English	Excellent	Excellent	Excellent



G.ERIC DOETEIN**BIODATA**

Name : G. Eric Doetein
Date of Birth : November 15, 1975
Place of Birth : Gbondoi Town, Bong County
Nationality : Liberian

EDUCATIONAL BACKGROUND

2007 – 2008 : Bachelor of Science in General Forestry
(B.Sc./Fore) University of Liberia

OTHER ACHIEVEMENTS

: EIA Evaluator Licensure, Environmental Protection Agency, Liberia – June 2009

WORKING EXPERIENCE

2008 – Present : Field Assistant /EIA Evaluator
Forest Cry Liberia, (FCL)
Paynesville, Liberia
October 8,2010- : Field Assistant to Dr. Elizabeth Greengrass
(Founa and Floura International)

AFFILIATION

Member : Seventh Day Adventist (SDA) Church
Paynesville
- : Society for the Conservation of Natural of
Liberia (SCNL)



Aaron S.M. Wesseh**BIODATA**

Name: Aaron S.M. Wesseh
Date of Birth: April 18, 1968
Place of Birth: Flewroken, River Gee County
Nationality: Liberian
Marital Status: Married
Education: BSc. Forestry/ MSc.

EDUCATION

2008 - Candidate MSC. Regional Science
University of Liberia

2000 - BSc. Forestry
University of Liberia

1987 - Diploma & WAEC Certificate
LAMCO Area School System (LASS) High School
Yekepa, Nimba County

JOB EXPERIENCE

2009-Present - Director of School; Korto J.P. Vagar School system
Lower Johnsonville, Montserrado County, Liberia

2004-2009 - Project Manager; Charles K. Vagar Housing Estate
Montserrado County, Liberia

2000-2004 - Farm Manager; Captan Farm
Careysburg, Montserrado County

1994-1998 - Head Polister; infotech Consultant, Inc.
Monrovia, Liberia

1992-1994 - Pollster Consultant, Inc.
Monrovia, Liberia

OTHER EXPERIENCES

June 2011-Nov. 2011 Member, National Campaign Committee for
Re-election of Madam Ellen Johnson-Sirleaf
Unity Party, Monrovia, Liberia



June 2011-Present	Re-elected National Chairman, Liberia National at 3 rd National Convention in Tubmanburg, Bomi County
July 2005-May 2006	Elected Chairman United Democratic Alliance (UDA) An Alliance of 3 registered Political Parties in The 2005 presidential and legislative elections
May 2005-June 2011	Elected National Chairman, Liberia National Union (LINU) At 2 nd National Convention, Buchanan, Grand Bassa County
March 2004-Feb. 2005	Acting National Chairman Liberia National Union (LINU) Monrovia, Liberia
June 1997-March 2004	Elected National Secretary General Liberia National Union (LINU) Monrovia, Liberia
1996-May 1997	Secretary General Organizing Committee, Liberian National Union (LINU), Monrovia, Liberia
Address:	Jacob Town, Paynesville Monrovia, Liberia
E-mail	smwesseh@yahoo.com
Cell No.	077059282/0880658318



Robert D. Boakai Snr.,

NAME

Robert D. Boakai Snr.

Address

Area F, Hs. # 34
Barnesville Estate, Montserrado County
Monrovia-Liberia

E-mail

rdboakai1@yahoo.com

Contact

+2316551127

NATIONALITY

Liberian

Age

43yrs

MARITAL STATUS

Married with five Children

EDUCATIONAL BACKGROUND

2010

BSc Degree, Civil Engineering
Stella Marie Polytechnic
Catholic Mission
Monrovia, Liberia

1984

Certificate; Aircraft Mechanic
Israel Aircraft Industry

1980 - 1983

Ben-Gurion Airport, Israel

Associate Degree in Mechanical
Engineering Technology in Applied Science, Harper, Maryland County**WORKING EXPERIENCE**

2006 Feb- June

Operations and Maintenance Manager
P A E- Team Darfur

Darfur, Sudan

2001-2005 Safety Health & Environment/Operations Superintendent
Mobil Oil Liberia, now Total Liberia Inc.

Bushrod Island, Monrovia

1999-2001

Environmental Health & Safety/Terminal

Superintendent

Mobil Oil Liberia

1998-1999

Bushrod Island, Monrovia

Aviation Supervisor

Mobil Oil Liberia

1986-1995

Bushrod Island, Monrovia

Generator Mechanic

Liberia Electricity Corporation

1984-1985

Bushrod Island, Monrovia

Aircraft Mechanics



Air Liberia
James Springs Payne's Airport Monrovia, Liberia

<u>YEAR</u>	<u>TRAINING/WORKSHOP DESCRIPTION ATTENDED</u>	<u>VENUE</u>
2009	June E I A Evaluator Licensure Protection	Environmental Agency
	Monrovia, Liberia	
2004	Tank Entry Training Dakar, Senegal	Exxon Mobil
2004	Smith Defensive Driving Training Monrovia, Liberia	Exxon Mobil
2004	Permit to work Monrovia, Liberia	Exxon Mobil
2004	First Aid Training Monrovia, Liberia	Exxon Mobil
2004	Fire Drill Training Liberia	Exxon Mobil Monrovia,
2003	Work Control Training Accra, Ghana	Exxon Mobil
2002	CS Fleet Road show Abidjan	Exxon Mobil Cote D'Ivoire
2002	Product Control Manual Training (PCM) Accra, Ghana	Exxon Mobil
2002	Product Control Manual Training (PCM) La Cote de' Ivoires	Exxon Mobil Abidjan,
2002	Fleet Row show OIMS- CS	Exxon Mobil Abidjan, La Cote D'Ivoire



2001	Defensive Driving (Smith Systems)	Exxon Mobil Monrovia, Liberia
2000	Operations Integrity Management Systems Training	Exxon Mobil Abidjan, La Cote de' Ivoires
2000	Operations Integrity Management Systems Training	Exxon Mobil Abidjan, Cote de' Ivoires
2000	Delegation of Authority Guide Training	Mobil Liberia Monrovia, Liberia
2000	Defensive Driving	Mobil Liberia Monrovia, Liberia
1999	Aviation operations workshop	Mobil Senegal Dakar, Senegal
1999	Environmental Health and Safety Training (EHS)	Mobil Accra, Ghana
1998	EHS-Basic Fuels/Lubes Operations	Mobil Egypt, Cairo, Egypt

