

FIFTH NATIONAL REPORT OF LIBERIA TO THE CONVENTION ON BIOLOGICAL DIVERSITY

EXECUTIVE SUMMARY:

The Government of Liberia has embarked on a medium-term economic growth and development strategy, “The Agenda for Transformation” (AfT), in order to guide development activities over the next five years (2012–2017). It provides the roadmap for Liberia’s transformation from post-conflict recovery toward a long-term vision of becoming an inclusive middle-income country by 2030. The Agenda for Transformation sets out precise goals and objectives that the country hopes to achieve in the next five years in order to take the necessary steps toward its long-term socio-economic development goals: to become a more prosperous and a more inclusive society. This AfT is said to support the principles of the Paris Declaration, Accra Action Plan, and the New Deal for Engagement in Fragile States. Liberia is a signatory of these three donor frameworks.

Since 2006, the government has developed various strategies to bring about poverty reduction in the country. Specifically, the PRS was implemented between April 1, 2008 and June 30, 2011 (the end of the 2010/2011 fiscal year). That period was of critical importance as Liberia shifted from post-conflict stabilization to laying the foundation for inclusive and sustainable growth, poverty reduction, and progress toward the Millennium Development Goals (MDGs).

The PRS built on the Government’s first 150-day action plan and its interim Poverty Reduction Strategy (iPRS) and has been formulated through broad-based consultation with Liberian citizens in cities, towns, and villages throughout the country, members of the business community, civil society groups, the Legislature, and international partner organizations. The Government sees the three-year PRS as a beginning of the next step in a process toward long-term development that will continue well beyond 2011, when it will develop the next phase of its strategy.

The Strategy emphasize that Liberia must create much greater economic and political opportunities for all its citizens and ensure that growth and development are widely shared, with the benefits spread much more equitably across the population. It must also directly address the consequences and legacies of decades of destruction, division and distrust, recognize and respond to the structural risk factors that predispose the country to violent conflict, and identify opportunities for institutionalizing peace.

In the phase of the Agenda for Transformation, the strategy of government is to build a strong economy around natural resources extraction/exploitation. The Agenda for Transformation which is the current national blueprint has developed methodologies for the implementation

of the plan. For instance, during the PRS period, government created the Liberia Anti-Corruption Commission (LACC), the Public Procurement and Concession Commission (PPCC) and the Liberia Extractive Industries Transparency Initiative (LEITI) to make government institutions more transparent, capable and oriented toward service delivery, the government created a comprehensive Civil Service Reform Strategy, which reduced the number of civil service employees, and rationalized the functions and mandates of a number of Ministries and Agencies (M&As).

The National Report is used as a monitoring and evaluation component of the national blue print for the implementation of the Convention on Biological Diversity at national level. It is also a critical planning tool which can be used to ensure the mainstreaming of biodiversity into national development and sectoral planning processes. Thus, this report will seek to evaluate progress of the PRS, and how the Agenda for Transformation can address some of the gaps which will be identified since the last reporting period.

Article 26 of the Convention on Biological Diversity obligates parties to develop and submit National Reports at the request of the Conference of the Parties at regular intervals. On the strength of this mandate, the Government of Liberia through the Environmental Protection Agency undertook the task of completing the Fourth National Report in 2010. The report elaborated environmental policies in the country, and evaluated national actions which were implemented in the various environment and natural resources sectors for the conservation of biological diversity.

The report had four chapters: **Chapter One** took a retrospective view of the status, trends and threats to biological diversity and root causes for biodiversity loss; **Chapter Two** took into account the current status of the National Biodiversity Strategy & Action Plan; **Chapter Three** looked at how biodiversity is mainstreamed into planning and national development processes, sectoral and cross-sectoral integration, as well as resources availability concerns and challenges and obstacles to mainstreaming; and, **Chapter Four** considered progress towards the 2010 Targets, conclusions, recommendations, and annexes and appendices.

The Fourth Report was written based on the guidelines provided by the secretariat of the convention as established by Decisions V/19, VI/25, and VII/25 of the Conference of the Parties. It established that Liberia's targets were consistent with the Poverty Reduction Strategy, a three year national development agenda for the country between 2008 and 2011. The report provided conclusion and recommendations which were useful in directing planning of policies, programmes and actions at the national level.

Conclusion under the Fourth National Report:

In the opinion of the consultants, considerable efforts have been made in the overall management of biodiversity in the country; especially in the area of forest biodiversity, but much still needs to be done in other thematic ecosystems, such as Agriculture, Mountains, Coastal & Marine , and Inland Waters, etc.. There is further need to conduct assessment that would make data on par with current realities in all thematic areas.

Recommendations of the Fourth Report:

1. Conduct assessment in other thematic areas other than forest biodiversity;
2. Revise/update the NBSAP to reflect current realities. This should be preceded by an assessment to document the present biodiversity status of the various ecosystems in the country;
3. Strengthen enforcement and monitoring mechanisms for forest biodiversity; especially in protected areas;
4. Make livelihood activities around protected areas sustainable and ensure community leadership. Provision of alternative sources of livelihood must be targeted and realistic for people in and around PAs;
5. There must be consistency in dealing with the cultural, socio-economic and political factors relative to PAs;
6. Complete and implement community rights law;
7. Utilize the SAPO experience and implications to deal with socio-cultural issues in future establishment of protected areas;
8. Complete and implement agriculture policy and action plan and ensure their inculcation into the National Development Programs;
9. Develop sustainable land management policy and action plan to regulate the proper utilization of land resources;
10. Conduct inventory on inland waters and aquatic ecosystems to discover their full potential, and to design strategies and actions to improve the ecosystem;
11. Complete the mountain policy and develop strategies and actions for the conservation of mountain resources;
12. Design strategies and actions to implement wetlands policy; taking into consideration patterns of construction that undermine their integrity;
13. Conduct inventory to gather data on alien and invasive species;
14. Develop mechanisms to strengthen/improve communication of biodiversity information as well as public education and awareness;
15. Develop incentives program for biodiversity management;

16. Complete and implement the MRU Tripartite Agreement on the management of the Mount Nimba Massif, the Wonigizi-Zeama Forest, the Tai-Grebo Forest and the Gola Forest;
17. Develop national actions on Plant and Genetic Resources, the strategic objectives, and improve efforts toward the 2010 target;
18. Take actions to address beach sand mining, and erosion occurring along major cities in the country;
19. Develop mechanisms to deal with wastes in the country. Special attention must be paid to medical wastes, toxic and hazardous wastes, human wastes and construction wastes;
20. Inculcate ECOWAS' Environment Policy and Action Plan into national agenda and programs;
21. Implement AU Environment and Agricultural Programs at national level.

The Fifth National Report which is the current work is being done in accordance with the mandate in Article 26 of the Convention and Decision X/10 of COP. It is building upon the Fourth in that in addition to looking at the performance indicators of the National Biodiversity Strategy & Action Plan and mainstreaming, it will provide a key source of information for the Global Biodiversity Outlook (4), the Ad-hoc Working Group on Review on the Implementation of the Convention, (WGRI-4) and the mid-term review of the implementation of the strategic plan for biodiversity 2011-2020, which will be undertaken prior to the 12th Meeting of the Conference Of the Parties (COP-12). This Fifth National Report will also highlight the latest developments at national level that occurred since the last national report was prepared including progress toward the Aichi Biodiversity Targets.

The Environmental Protection Agency through its Division for Multilateral Environmental Agreements, in anticipation of fulfilling Liberia's obligations under the Convention (CBD) constituted a technical team to draft the Fifth National Report which comprise of three chapters, annexes and appendices.

The First Chapter of this report seeks to provide information on the current status of biodiversity in country, the actions that have been taken since 2004, and challenges which still need to be addressed. It addresses the importance of biodiversity to the country, the major changes that have taken place in the last decade, the main threats and drivers of biodiversity loss, impacts of the changes in biodiversity for ecosystems services and socio-economic and cultural implications of the impacts to human wellbeing, livelihoods, and poverty reduction; as well as the possible scenarios for biodiversity in terms of the impacts of the underlying causes, pressures, etc on human wellbeing.

The Second Chapter takes into consideration what is envisaged in the National Biodiversity Strategy & Action Plan; implementation modalities, and how biodiversity is going to be mainstreamed into national planning and development processes. It will address amongst

others, the targets set or envisaged for the country, how the targets set are influencing mainstreaming, especially in reference to biodiversity integration into broader national plans, programmes, policies, and socio-economic sectors of government; and most importantly how targets will be streamlined to the Strategic Plan for 2011-2020.

The chapter will further review how Liberia has implemented the activities and programs of the convention since the completion of the Fourth National Report. It will take cognizance of the multi-year programme of work under the convention and cross-cutting issues, highlighting policies developed, legislations, institutional, collaborative mechanisms and funding identified for such activities and outcomes; highlight key challenges experienced in implementation, including the lack of capacity, as well as human and financial resources. Chapter Two further addresses the effectiveness of mainstreaming, chiefly, synergies at national level with other multilateral environmental conventions, (including, UNFCCC, UNCCD, RAMSAR, CITES, CMS,) etc; the Millennium Development Goals, Poverty Reduction Strategies, consideration of international and transboundary issues, and South-South Cooperation. In total, it will highlight the extent to which biodiversity plans have been implemented at national level in the last decade.

Chapter Three of this report will look at plans towards achieving the 2020 Aichi Targets and the 2015 MDGs. The chapter will analyze the results of chapters One and Two in regards to achieving the 2011-2020 Strategic Plan, progress made on the MDGs in the past five years, current plans for its revision, and how the implementation of the convention has influenced the MDGs. It will provide clarification on the targets developed, and actions anticipated in the Revision/Updating process of the current NBSAPs and their anticipated outcomes.

Indicators developed in line with both the strategic plan and the MDGs to measure progress in the implementation of the revised/updated plans will be documented. The chapter will finally consider lessons learnt from the implementation of the convention in our country since ratification, highlighting examples of achievements, challenges in dealing with different issues at national, sub-regional, regional and global levels to enhance the implementation of the convention.

Annexes and Appendices will be added to further elaborate information provided in the report where necessary or appropriate. Three Appendices are envisaged: The first will provide information on the Reporting Party and the preparation of the Fifth National Report; The second will provide information on sources of data, website addresses, reports and databases researched; The Third will provide information on the way the convention is implemented at national level, with the thematic programme of work, and other relevant COP Decisions.

The report will provide conclusion on the processes leading to the completion of the report, experts' opinion on the issues covered and challenges in the implementation of recommendation of issues in the fourth and fifth reports with regard to mainstreaming biodiversity into development and national planning purposes. It will conclude with appropriate recommendations that will enhance the implementation of the NBSAP and contribution to Global Biodiversity Outlook (GBO) Fourth Edition and the WGRI-5 (Ad-hoc Working Group on the Review of the Implementation of the Convention (WGRI-5)).

CHAPTER ONE:

AN UPDATE ON BIODIVERSITY STATUS, TRENDS AND THREATS AND IMPLICATIONS FOR HUMAN WELLBEING:

INTRODUCTION:

Biological Diversity is essential for environmental sustainability and socio-economic development. Variability of living organisms provides opportunity for improving the livelihoods of peoples and communities. Liberia is endowed with abundance of biological and natural resources. Like other developing countries, the country is highly dependent on the exploitation of biological and natural resources for the sustenance of the majority of its people; especially those living in rural communities. For instance, Aquatic ecosystems are an important breeding ground for fish, a source of protein for nearly 70% of the populace. Furthermore, it is estimated that nearly 700,000 households directly depend on the country's forest resources and agricultural biodiversity for their livelihoods. Furthermore, Forests, Wetlands and Agriculture Ecosystems contain very essential resources that are making substantial contribution to GDP. However, these ecosystems have the potential to even make greater contribution to livelihood of local people and GDP.

Since the early 1970s the country has experienced increasing pressure on its biological resources leading to rapid decline and degradation. This is attributed to over exploitation and destruction from deforestation, pollution and other anthropogenic activities including settlements.

In response to the threats to biodiversity, the Government of Liberia in 2002-2004 developed its first National Biodiversity Strategy and Action Plan (NBSAP). The NBSAP is a Policy Framework or National Blueprint that promotes the conservation, management/governance and sustainable use of our natural and biological resources and the equitable sharing of benefits from these resources by all sectors of the population. To attain this, the NBSAP pursued six strategic goals. Each of the goals has specific objectives, strategies, activities and expected outcomes.

The specific goals are:

1. To take appropriate measures to protect critical ecosystems against harmful effects or destructive practices for conservation of biological diversity;
2. To create biodiversity awareness among sectors of the society and promote international cooperation;
3. To commit the people to the sound and sustainable use of biological diversity to bring about socio-economic development;
4. To promote rational utilization and conservation of biological diversity;

5. To promote access to genetic resources and the fair and equitable sharing of benefits arising from their utilization
6. To contribute to the fulfillment of the Millennium Development Goals through poverty alleviation, food security, and women empowerment in biodiversity conservation by 2015.

This report was prepared through wide stakeholders' consultation and participation in accordance with CBD guidelines. The overall objective of the report was to provide an opportunity to assess the country's progress towards the 2010 biodiversity targets, drawing upon analysis of the current status and trends in biodiversity and actions taken to implement the Convention at the national level as well as considering what further efforts are needed.

In 2010, Liberia completed the Fourth National Report in accordance with Article 26 of the Convention. The Fifth National Report which is the current work is building upon the Fourth in that while both reports measure targets, mainstreaming into programs and actions, and integration into national development planning processes, it will additionally provide a key source of information for the Global Biodiversity Outlook (4); inform the work of the Fifth Ad-hoc Working Group on Review on the Implementation of the Convention (WGRI-5), and the mid-term review of the implementation of the Strategic Plan for Biodiversity 2011-2020, which will be deliberated at the 12th Meeting of the Conference of the Parties (COP-12). This Fifth National Report will also highlight the latest developments at national level that occurred since the last national report was prepared including progress toward the Aichi Biodiversity Targets.

The Environmental Protection Agency through its Division for Multilateral Environmental Agreements, in anticipation of fulfilling Liberia's obligations under the Convention (CBD) constituted a technical team to draft the Fifth National Report which composed of chapters, annexes and appendices. Moreover, unlike the fourth report which has four chapters, this report has only three chapters:

The First Chapter of this report seeks to provide information on the current status of biodiversity in country, the actions that have been taken since 2004, and challenges which still need to be addressed.

It addresses the importance of biodiversity to the country, the major changes that have taken place in the last decade, the main threats and drivers of biodiversity loss, impacts of the changes in biodiversity for ecosystems services and socio-economic and cultural implications of the impacts to human wellbeing, livelihoods, and poverty reduction; as well as the possible scenarios for biodiversity in terms of the impacts of the underlying causes, pressures, etc.

The Second Chapter takes into consideration what is envisaged in the National Biodiversity Strategy & Action Plan; implementation modalities, and how biodiversity is going to be mainstreamed into national planning and development processes. It will address amongst others, the targets set or envisaged for the country, how the targets set are influencing mainstreaming, especially in reference to biodiversity integration into broader national plans, programmes, policies, and socio-economic sectors of the country; and most importantly how targets will be streamlined to the Strategic Plan for 2011-2020.

The chapter will further review how Liberia has implemented the activities and programs of the convention since the completion of the Fourth National Report. It will take cognizance of the multi-year programme of work under the convention and cross-cutting issues, highlighting policies developed, legislations, institutional, collaborative mechanisms and funding identified for such activities and outcomes; highlight key challenges experienced in implementation, including the lack of capacity, as well as human and financial resources. It will further address the effectiveness of mainstreaming, chiefly, synergies at national level with other multilateral environmental conventions, (including, UNFCCC, UNCCD, RAMSAR, CITES, CMS,) etc; the Millennium Development Goals, Liberia's Poverty Reduction Strategies, consideration of international and transboundary issues, and South-South Cooperation. In total, it will highlight the extent to which biodiversity plans have been implemented at national level in the last decade.

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The chapter will finally consider lessons learnt from the implementation of the convention in our country since ratification, highlighting examples of achievements, challenges in dealing with different issues at national, sub-regional, regional and global levels to enhance the implementation of the convention.

Annexes and Appendices:

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STATUS AND TRENDS: IMPORTANCE OF BIODIVERSITY FOR THE PEOPLE OF LIBERIA

About 70% of the population living in the rural areas depends on the products and services of agricultural, forestry and other extractive industries for their livelihood. Protection and management of national forest areas and reserves have therefore been of greater concern to the communities which depend on the natural resources for livelihood.

Liberia is said to contain approximately 42% of the remnant of the Upper Guinea Forest. This massif comprises about 10 million acres of evergreen forest in the Southeast around the borders with the Ivory Coast and deciduous forests in the Northwest bordering Sierra Leone and Guinea. These forests contain a significant amount of biodiversity including over 2000 different vascular plants (including 225 tree species); 600 bird species; 150 mammal species, and 75 reptile species. Liberia’s forests also produce a wide range of other environmental goods and services that benefit its people and the rest of the world.

Biological resources represent one of Liberia’s most abundant raw material resources. For instance, in the forestry sector, there are more than sixty tree species of economic value. Besides, Liberia is considered one of the 14 centers of global plant endemism holding up to 42% of the Upper Guinea Forest Ecosystem at the beginning of the twenty first century. Recent estimate puts the number between 37-39%. The country has one of the largest protected area networks in the region, about 1.4million hectares of forestland which is estimated to be 30% of the land area of the country.

SPECIES DIVERSITY, ENDEMISM, AND THREAT

Class	Total Species	Total Endemic	Total Threatened
Amphibians	38	4	1
Plants	2,200	103	46

Mammals	193	n/a	17
Birds	590	1	22
Reptiles	67	2	2
Mollusks	n/a	n/a	1
Other Vertebrates	n/a	n/a	1
TOTAL		110	89

Sources: World Conservation Monitoring Centre, IUCN, FAO (NBSAP)

Ecological Values: Apart from the understanding that biological diversity is essential for the functioning of natural processes that in turn ensure human survival on earth, Liberia's six main rivers and many other large water bodies, streams and creeks contribute to improvement in agricultural systems especially soil conservation and climate amelioration. Liberia is yet to assess the socio-economic, cultural and ecological values of its rivers and what their contribution to other processes might be. The country is nearly encapsulated by the Atlantic Ocean.

MAJOR RIVERS OF LIBERIA:

Basin	Area (cm ²)	Annual Flow (cm ³ /sec)
Mano	6,604	251
St. Paul	12,820	512.3
St. John	14,762	n/a
Cavalla	13,726	380
Cestos	10,000	60.3
Lofa	9,194	n/a

Source: Liberia Hydrological Survey, 1998

Economic Values: The biological and natural resources of the country have not in economic term been able to address the general and specific needs of the people. It has been able to only address the subsistence needs. For example, the fruits, seeds and leaves of large number of plants and vegetables provide minimum income for families to survive and pay for portion of school fees and healthcare. The same applies for wild animals and livestock which serve as sources of proteins. Rice and cassava are the main staple food crops, but they can only supply local demands partially. Likewise, rubber, oil palm, and cocoa are the dominant export tree crops, which are exported. Apart from contributing to taxes, finished products are not

manufactured in the country, thus there are no job opportunities to address unemployment and poverty issues, and government support to these parastatals has not been strong since the civil crisis.

Socio-cultural values: Our culture is dependent on biological resources. For instance, plant parts, including tannins, waxes, oils and resins have medicinal values and form the basis of most traditional methods of treatment for many centuries. Certain traditional cultures contribute to the conservation and maintenance of ecosystem diversity. A large number of fauna and flora species possess sociological, cultural and religious values; unfortunately they have not been documented, neither placed in botanicals, nor have their values determined. Programmes and projects to document traditional treatment methods as well as establishing botanicals are necessary for conservation of genetic resources; moreover, determining the values of ecosystems services and establishing mechanisms for payment for services can contribute to capacity development, job opportunities, and poverty alleviation.

Further, Liberia's Mountain Ecosystems contain outstanding resources, both biological and non-biological. There exist valuable plants and animal species, which are representatives of biodiversity species found in the tropical rainforest regions of the world. The fauna species include mammals, reptiles, amphibians, birds, and insects. The flora species include high plants of the deciduous, semi-deciduous and savanna woodland species, riverine plant species, shrubs and herbs. A recent study by Arcelor Mittal has documented the list of species in the East Nimba Nature Reserve. Apart from Arcelor Mittal, the Putu Range and Bong Range have also gathered data which are not yet popular for public consumption.

It must be noted that both indigenous plants and animals were in abundance about sixty years ago. Their status began to change for the worse in mountain communities when mining, shifting agriculture, commercial logging, commercial hunting and uncontrolled burning intensified. With the continual granting of concession agreements for Iron Ore mining, severe threats remain to biological resources in mountain ecosystems.

Moreover, several valuable non-biological resources are also found in mountain communities, including iron ore, diamonds and gold. Thus far, only the first three of these minerals have claimed the interest of the mining industry in Liberia, with iron ore being the most intensively mined. Quite recently, the government introduced County Development Funds from the national budget and Social Development Funds from the exploitation of natural resources. Nevertheless, the impact on local communities is still minimum.

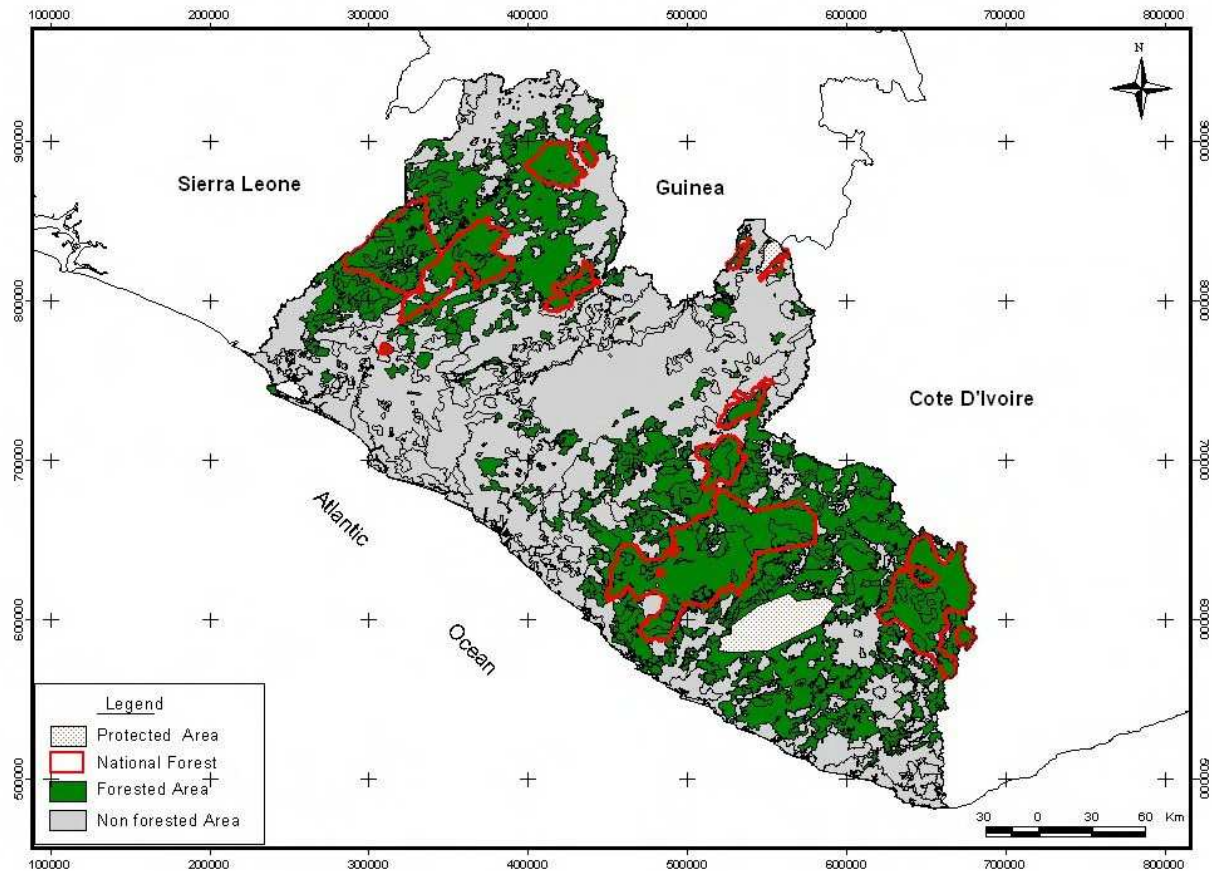
Overall Status of Biodiversity in Thematic Ecosystems:

Liberia is situated in the fragmented band of forest known as the “Upper Guinean Ecosystem”. It is one of the two most significant forest blocks in Africa, the other being the “Congolese Forest”. The Upper Guinean Forest extends from Guinea at the North-Western extreme, down through Sierra Leone, Liberia, and the Ivory Coast and reaching Cameroon at its most easterly extent. While this portion of forest remains very important to the Liberia and the region, no extensive research has been done beyond Mt. Nimba East to capture the resources in the area and document their value to conservation and national development goals.

Threat to the Mt. Nimba massif exists due to poaching and hunting, subsistence farming, pit-sawing and materials for construction which if not addressed could further destroy important flora and fauna in the area. Enforcing existing legislation can be an important first step in reversing the threat the resources in mountain ecosystems.

The total land area of Liberia is 9.59 million hectares, of which forests cover about 4.39 million hectares equivalent to 45 percent of the land area, including 2.42 million hectares which have been classified as closed dense forest; 1.02 million hectares are classified as open dense forest, and .95 million hectares classified as agriculture degraded forest. The above information confirms that Liberia has fixed assets when it comes to land resources; however, while this asset is available, population is growing while the land is not. Moreover, it is difficult to deal with sustainable management issues and poverty reduction where policies are not clear about land usage, thus making it difficult to translate policies into actual actions on land that would significantly impact on human wellbeing.

Map Showing Legally Gazetted Natural Forest Areas



Despite Liberia's small size, it has a significant amount of biodiversity including: over 2,900 different vascular plants (including 225 tree species), 600 bird species, 150 mammal species, and 75 reptile species. While Liberia accounts for the largest remnant (42 percent) of the Upper Guinea forest of West Africa new research would need to be done to confirm present statistics available, as well as identifying new species. Sapo National Park, Lake Piso and the East Nimba Strict Nature Reserve are the only exclusive conservation areas in Liberia presently. Together, these areas total **193,500** hectares, or approximately 4.5% of Liberia's total forest area and 2.2% of landmass. Gold mining activities within Sapo National Park continue to threaten the integrity of the area though the FDA has made significant progress over the last several years to improve management of the park. The FDA has identified other forest areas for protected area status, but has not officially proposed the areas to the government nor consulted with local communities. To halt the continuous threats, government needs to generate employment opportunities for ex-combatants who are presently in the park through skills training program in addition to job opportunities from concessionaires.

Biologically, Liberia's forest and coastal marine ecosystems are exceptionally diverse, with high rates of endemism and many species that are nearly extinct outside the country. Liberia's

topography features coastal lagoons and mangrove marshlands, rain forest and mountainous plateaus. Liberia's coast runs 350 miles and is home to some of the country's largest cities and conducive to fishing and tourism. The rain forest occupies roughly 45% of Liberia's land and is the source of its timber resources. The plateaus are cultivated for agriculture (27% of land) and the mountains (including Mount Nimba and Putu Mountain) are home to mineral resources—especially iron ore, gold and diamonds. The potential for tourism has not been assessed; neither has studies for documenting species and their values and ecosystems services being fully understood. Liberia also has significant hydraulic resources including the Cavalla River, the St John River and the St Paul River, conducive for the development of hydro-electricity. These rivers remain largely unexploited and their navigational potential still unknown.

Forest Ecosystem:

The aim of the Forestry Policy of Liberia is to conserve and sustainably manage all forest areas, so that they will continue to produce a complete range of goods and services for the benefit of all Liberians and contribute to poverty alleviation in the nation, while maintaining environmental stability and fulfilling Liberia's commitments under international agreements and conventions. To implement these range of activities require number of tools such as strategies, plans, regulations, standards, etc. This section discusses the trend policy implementation has taken over the past decade in the forestry sector.

There are eleven (11) national forests currently under partial protection. These forests are set-aside as production forests, from where concession areas are carved out. Conservation activities such as wildlife management are permitted, but no farming, hunting and human settlements (except logging camps and similar activities) are permitted in the national forests. These forests are situated in the northwest and southeast of the country. They include Krahn-Bassa, Grebo, Gola, Kpelle, Yoma, Lorma, South Lorma, Gbi, Gio, East Nimba, and West Nimba.

Table 3: National Forests

S/N	NATIONAL FOREST	AREA IN ACRES	AREA IN HECTARES
1.	Krahn-Bassa	1,270,000	513,962
2.	Grebo	643,603	260,462
3.	Gola	510,168	206,995
4.	Kpelle	432,000	174,828
5.	Yoma	6,456	2,649
6.	Lorma	176,000	71,226
7.	South Lorma	107,503	43,506
8.	Gbi	81,370	32,930
9.	Gio	165,480	66,969
10.	East Nimba	71,650	28,966
11.	West Nimba	32,000	12,950
	TOTAL	3,496,230	1,415,443

Source: EPA, 2004

However, according to FDA (2013), there are currently ten (10) national forests as indicated in the table below:

Table 4: National Forests 2013

S/N	NATIONAL FOREST	SIZE
1.	Belle	609 km ²
2.	Gbi	607 km ²
3.	Gio	327 km ²
4.	Gola	2,020 km ²
5.	Grebo	2,806 km ²
6.	Kpelle	1,748 km ²
7.	Krahn-Bassa	5,816 km ²
8.	Lorma	987 km ²
9.	Nimba	187 km ²
10.	North Lorma	

Source: FDA, 2013

Conservation Forestry:

It is common knowledge that Liberia contains two of West Africa's three largest remaining rainforest blocks. These blocks contain many plants and animal species that are endemic and whose survival is severely threatened inside and outside Liberia. They have also been identified by international agencies as a biodiversity hot spot and, therefore, a priority for global conservation efforts.

In the assessment of progress towards the 2010 targets, Liberia had only two legally protected areas under partial or total conservation, Sapo National Park (established in 1983); and East Nimba Nature Reserve (established in 2003). These constituted only 4% of the land area. In addition to these, six other protected areas have been proposed and the government has committed to establishing a biologically representative network of protected areas covering at least 30 percent of the existing forest area; but up to 2012, only the Lake Piso Multiple Nature Reserve was added, bringing to three the number of Protected Areas in Liberia. Thus, PAs presently covers roughly 4.5% of the land area. Many of the other proposed conservation areas are yet to be legalized and are under threat of being put under concession agreements unless stronger actions are taken to compel government to match its development objectives with environmental conservation.

NATIONAL PARKS AND NATURE RESERVES

Sapo National Park: Created in 1983, Sapo is Liberia's first national park. The approval of the Sapo National Park Act (*An Act for the extension of the Sapo National Park*) on October 10, 2003 expanded the size of the park to 180,363 ha constituting an increase of more than 37%. The act recognized the park as being "at the core of an immense forest block of the Upper Guinea Forest Ecosystem that is important to the conservation of the biodiversity of Liberia and of West Africa as a whole".

The park is located in the south-central portion of Liberia, and includes lowland rainforest, wetlands, and riparian forests, and represents one of - if not the most - intact forest ecosystem in Liberia. Notable fauna within the park include for elephant (*Loxodonta africana cyclotis*), Jentink's (*Cephalophus jentinki*) and Zebra Duikers (*C. zebra*) and large primate populations, including the Diana monkey (*Cercopithecus diana*), red colobus (*Procolobus badius*), black and white Colobus (*Colobus polycomos*) and the western chimpanzee (*Pan troglodytes verus*). Also found within the park are several populations of the endangered pygmy hippopotamus (*Hexaprotodon liberiensis*). Without effective legislations and enforcement mechanisms, many of these species lie vulnerable, and prone to extinction.

East Nimba Nature Reserve: Created in October 2003, the East Nimba Nature Reserve is dominated by a semi-montane and deciduous forest, and is one of the 14 centers of plant endemism within the Upper Guinea Hotspot. The Mount Nimba Massif is located within the Sanokole quadrangle and is found on the northeastern border of Liberia. Hill and mountain vegetation are the favorite migration and wintering sites of Palearctic migrants such as European pied flycatcher (*Ficedula hypoleuca*), spotted flycatcher (*Muscicapa striata*) and Garden warbler with rock thrushes found in rocky areas. The Nimba slopes between 500 and 700 meters contain a large number of plant species, representing not fewer than 82 genera of trees and brushes. *Piptadeniastrum spp.*, *Heritiera spp.*, and *Lophira spp.* are common. Between 700 and 900 meters *Parinari spp.* becomes increasingly common, as well as *Parkia spp.* and associated species. East Nimba is an important bird area and a designated world heritage site. Arcelor Mittal has conducted extensive research in the area and has identified important species, including ants and toads. Again, species in this area may be vulnerable, and/or face extinction, if sustainable mechanism for conservation of these species is not ensured.

Under the World Bank/GEF's Consolidation of Liberia Protected Area Network Program (COPAN), began in late 2008, aiming to create three additional national parks which are proposed to be added to the protected area network totaling an additional 176,462 ha. These include:

Lake Piso: (48,593 ha). Biodiversity richness in and around Lake Piso includes migratory bird species, sea turtles, hippos, manatees, primates, fish species and medicinal plants, plus a wide variety of habitats and ecosystems such as coastal, marine, forest, mangrove, brackish water, island, and freshwater habitats. The main opportunities for conservation here are based on: i) the very unique marine biodiversity and the presence of mangroves that provide a breeding ground for important marine species; ii) the existence of enough baseline data for establishing a PA and iii) a potential for funding from tourism, research and fishery sectors as well as high interest for investment in the area.

Lake Piso has also been designated as a Ramsar site. The main threats are deforestation of mangroves, unregulated fishing, hunting, farming and settlements on hills, high population due to the presence of a town and the vicinity of Monrovia, port development, erosion of dunes (sand mining) and offshore mining for oil. While this is the case, mineral deposits in the lake makes it very vulnerable and threatened if government proceeds to grant concession agreement for mining there. Initial attempt was foiled in 2008, but the potential to exploit the lake is still high.

Gola Forest (97,975 ha): Gola Forest is endowed with significant biodiversity richness (endemic amphibians, elephants, hippos, birds, plants, etc) and a number of unique habitats such as forests, gallery forest, swamp forest and fram (*Terminalia superba*) bushes. Opportunities include: i) good funding potential based on charismatic fauna (elephants, hippos), transboundary conservation potential, security of border area and eco-tourism potential; ii) lessons learned from Gola in Sierra Leone in terms of management experience, biological data, community exchanges and fund raising experience; and, iii) potential effectiveness of transboundary/peace park management leading to coordinated response to threats. The main threats include: i) the possibility for forest concessions to be reinstated; ii) diverse land uses such as hunting, mining, logging, farming, and transboundary migration of people from Sierra Leone and elsewhere in the region; iii) possibility of opposition from local communities and neighboring countries whose livelihoods might be threatened by PA's establishment (boundaries issues); and iv) lack of FDA management capacity in the area.

Wonegizi Forest (29,894 ha): Biodiversity richness includes chimps and other primates, elephants and pygmy hippo. Wonegizi is a unique habitat for rock fowl (*Picathartes spp.*). Conservation opportunities include: i) opportunity for additional funding support from IUCN, Birdlife, and Great Apes programs; ii) research programs/activities; iii) ecotourism potential (species, culture, scenery); iv) corridor (Wologizi) into Guinea and transboundary nature (peace park); and v) scattered farming communities offer opportunity for integrating community land use practices into protected area management system. The most important threats include: i) mining for iron ore with the possibility of the extension of the Wologizi deposit entailing possible erosion and contamination of water bodies; ii) returning refugees that could increase population density and result in land use change (farming expansion) especially in the next 5 years; iii) legal and illegal logging; and iv) commercial hunting.

Commercial Forestry: The strategy for commercial forestry focuses on improving forest concession management, reforestation and forest plantation development and modernization of the wood processing industry. Forest concession management in Liberia has suffered from a lack of basic information about appropriate forest management and harvesting practices and the rules and regulations governing forest concessions have been poorly designed and weakly enforced. In the 4th National Report, some regulations and policies reported developed had yet to be implemented; in most cases the trend remains largely the same. The awarding of contractual agreements has added to the management issues as can be seen from the concessions granted thus far.

Forestry Concessions in Liberia

S/N	Companies	Concession areas (ha)	Counties
1.	Alpha Logging & Wood Processing Inc.	119,240	Lofa and Gbarpolu
2.	Atlantic Resources Ltd.	119,344	Grand Kru, River Gee & Maryland
3.	EJ & J Investment Corporation	57,262	River Cess
4.	Liberia Tree and Trading Corporation	59,374	River Cess
5.	Geblo Logging Company	131,466	Grand Gedeh&Sinoe
6.	International Consultant Capital	266,910	Grand Gedeh, Nimba & River Cess
7.	Euro-Liberia Logging	253,670	Grand Gedeh& River Gee
8.	Tarpeh Timber Company	5,000	Grand Bassa
9.	Akewa Group of Companies	5,000	Grand Bassa
10.	B & V Company	15,000	Gbarpolu& Grand Cape Mt.
11.	Bargor&Bargor	5,000	Gbarpolu& Bong
12.	Thunder Bird Int'l Liberia	5,000	Grand Cape Mt.
13.	Bassa Timber & Logging	5,000	Grand Cape Mt.
14.	Sun Yeun Corporation	10,000	Grand Cape Mt.

Community Forestry: In addition to the need for greater involvement of local people in all aspects of the forestry sector, the National Forest Policy gives special attention to the potential for forests to contribute more to local people and communities. The policy strategy for community forestry focuses on the production of bush-meat; wood energy and other non-wood forest products, as well as the management of forests by local communities to meet a variety of differing objectives.

For the large number of people who live in rural areas, forests and trees have always been an integral part of their livelihoods. With appropriate management, they can be used both as a sustainable source of forest products and as areas that are protected for important social and cultural uses. The Liberia Code of Law (1956) permitted the creation of government reserves, native authority reserves, communal forests and national parks, but few native authority reserves and communal forests materialized. Consequently, the government managed the entire forest estate and the issues of community forest management were never properly addressed. Community forest management presents a number of challenges in Liberia, because the government and other institutions have very little understanding or experience with the management of common property resources. These issues/concerns are being

addressed partially by the Land Commission’s work, but would require other actions to be more effective.

Land Tenure, Ownership and Land Use Planning: Forests are the most important natural assets for many rural people and access to forest resources is recognized as a crucial element in enabling them to achieve their goals of cultural survival and social and economic development. Insecure land tenure discourages investment in Forest management, encourages over-exploitation and can lead to conflicts over access. Successive governments in Liberia have gradually increased government control over land and natural resources, which has led to many conflicts and disagreements in the past. Competing uses for land include: forestry; agriculture; mining; and urban and infrastructure development. It is generally accepted that there has been inadequate land use planning in Liberia, leading to environmental degradation and conflicts over land use.

Agriculture Concessions in Liberia

S/N	Companies	Concession areas (ha)	Counties
1.	Firestone Liberia Inc.	48,174	Margibi
2.	Sime Darby Liberia Inc.	220,000	Bomi, Cape Mt. &Gbarpolu
3.	Golden Veroleum Liberia Inc.	220,000	Maryland, Sinoe, Grand Kru, River Cess and River Gee
4.	Maryland Oil Palm Plantation	8,800	Maryland
5.	Liberia Agriculture Company	242,915	Grand Bassa
6.	LIBINC Oil Palm Inc.	13,968	Grand Bassa
7.	Liberia Forest Products Inc.	8,014	Sinoe
8.	Cavalla Rubber Corporation	8,097	Maryland
9.	Salala Rubber Corporation	40,488	Bong
10.	COCOPA	10,122	Nimba
11.	Sinoe Rubber Corporation	20,243	Sinoe
12.	Morris American Rubber Plantation	1,377	Montserrado

Mining Concessions in Liberia

S/N	Companies	Concession areas (ha)	Counties
1.	ArcelorMittal	N/A	Nimba
2.	China Union Mining Company Ltd.	61,944	Bong
3.	Western Cluster Ltd.	26,880	Bomi, Grand Cape Mt. & Gbarpolu
4.	AmLib United Minerals Inc.	N/A	Bong, Grand Gedeh & Montserrado
5.	Putu Iron Ore Mining Inc.	N/A	Grand Gedeh & Sinoe
6.	BHP Billiton	N/A	Nimba & Bassa

Quite recently, the Community Rights Law enacted in 2008 was complimented by the Land Use Policy of 2013 which clarifies the various ownership, acquisition, and utilization issues of land resources. However, the misuse of the provisions of both the Community Rights Law and the Land Use Policy in authorizing concessions in the areas reserved for communities is troubling for conservation and sustainable use of community resources.

Bush-meat and Hunting

Liberians have always been very dependent on bush meat as a source of protein and, in recent years, commercial hunting for bush meat has accelerated rapidly. This increase can be attributed to greater demand from urban areas and neighboring countries and the high level of income that can be quickly achieved from hunting. In addition, the civil unrest has weakened the government's ability to control these activities. For example, it is now estimated that prohibited or fully protected wildlife species account for about 35 percent of bush meat sales and partially protected species account for a further 40-50 percent.

The 2006 law mandates the creation of a protected area network of about 1.5 million hectares, covering 30% of Liberia's forests. However, the 1.5 million hectares includes all categories of reserved forest, including multiple-use National Forests. It is unclear at present how much of this area will offer strict protection for wildlife, currently limited to Sapu National Park, East Nimba Nature Reserve and the Lake Piso Multipurpose Nature Reserve. The modalities of wildlife protection in the various categories of reserved and unreserved production forest are not addressed in the 2006 law, and fall under the pending wildlife conservation and protection law. Similarly, the protection and exploitation of wildlife by communities and hunters groups is not addressed, and falls under the community forestry law. It is thus clear from the above that

dealing with bush meat trade is cumbersome and will require strong enforcement mechanisms to achieve the best results.

Wood Energy and Non-Wood Forest Products

Liberia has never been more dependent on wood energy as a source of national and household energy supplies than at present. The continued absence of a functioning national electricity grid or cost-effective alternatives for the majority of both urban and rural people means that the dependence upon fuel-wood and charcoal is unlikely to be lessened in the short term. Likewise, non-wood forest products often fulfill vital safety net functions in rural livelihoods and could further contribute to poverty alleviation as additional sources of household income and small business development initiatives. However, the lack of an adequate regulatory framework and clear access and utilization rights has prevented the rational exploitation of these resources by forest and rural communities, as well as the private sector. In particular the commercialization of charcoal and non-wood forest products has largely been restricted by petty (and often unenforceable) regulations.

Climate Change and Carbon Financing:

The Government of Liberia through the Forestry Development Authority in 2010 received US\$2,000,000 funding from the Forest Carbon Partnership Facility (FCPF) to assist in development of Liberia's Readiness Preparation Proposal, the establishment of an international mechanism to compensate countries for reducing greenhouse gas emissions from deforestation and forest degradation (REDD+) offers an opportunity for Liberia to serve the common interest in managing its forests in a balanced way for long-term sustainable economic growth; to support the livelihood of local and rural communities; and to ensure that its important national and global heritage is conserved. Liberia received a further US\$3.6m grant from FCPF to implement the Readiness Preparation Activities. The grant agreement was signed on June 29, 2012 up to May 30, 2015. The project has four components:

- a) Component One: Support to coordination of the REDD+ Readiness Process and Consultation. This component has five sub-components and will support national readiness management arrangements and activities; information sharing and early dialogue with key stakeholder groups; consultation and participation in REDD strategy development; Consultation and participation process, SESA, and strengthening national feedback and grievance redress mechanisms.
- b) Component Two: Contribute to the design of the national REDD strategy. The FCPF will finance two sub-components: Strategic Environment and Social Assessment (SESA) and finalization of the REDD+ strategy. The SESA will contribute to the REDD+ Readiness process in Liberia by assessing how REDD+ strategy options address environmental and social priorities associated with current patterns of land use and forest management. Gaps identified through this assessment would lead to assessment would lead to adjustments in the REDD+ Strategy options to close the gaps.

- c) Component Three: Develop a Reference Level or Scenario (including forest cover mapping and forest inventory in priority areas). The FCPF will finance consultant services as well as capacity building, workshops, and operational costs to support the development of a reference scenario (including national forest cover mapping and inventory in priority areas).
- d) Component Four: Project management. Under this component, the grant will finance: consultants to support project management; operational costs related to project management; equipment and set up costs; preparation and dissemination of reports; capacity strengthening including financial management and procurement; and, consultant cost of the external audit.

Agriculture Ecosystem:

Liberian agriculture comprises food and tree crops, fisheries, and livestock. The sector accounted for 42.2% of real gross domestic product (GDP) in 2008. The sector is a significant contributor to the economy in terms of employment and foreign exchange earnings, and a primary determinant of nutrition, education, poverty reduction, and rural transformation. Rice and cassava are the main staple food crops, while rubber, oil palm, and cocoa are the dominant export tree crops. Women are major players in the sector, producing over 60% of agricultural products and constituting the majority of smallholder producers and the agricultural labor force.

Approximately half of the population is either food insecure or highly vulnerable to food shortages due in part to low agricultural productivity that in turn is caused by structural impediments, inadequate policies, and prolonged conflicts that displaced farming communities, degraded transport and processing infrastructures, and diminished productive capacities such as assets and skilled personnel. Specific constraints include weak land management and water control systems, limited production intensification and crop diversification, restricted market access due to poor food value chains (i.e., storage, processing, marketing channels, and credit), and low institutional capacity. These constraints have served as disincentives for producing marketable surpluses which would contribute to food security and reducing poverty.

The MOA has completed a series of strategies between 2010 and 2012 including: The Liberian Seed Policy & Regulatory Framework; National Food Security & Nutrition Strategy; National Rice Development Strategy; Final Draft Strategy for mainstreaming gender issues into Agriculture in Liberia (April 2012), and Food and Agricultural Policy & Strategy, etc. Other strategic goals are defined in the Agenda for Transformation document, but their enforcement remain a strong challenge.

Coastal & Marine Ecosystems: BHP Billiton is one concession institution that has conducted assessment of wetlands. The report has not been made public, but, some data has been

obtained from it which focused the Gbedin Wetlands. The wetland measures approximately 25 hectares or 6 acres. Due to the suitability of the swamp, The Government of Liberia has laid the area out for rice cultivation since the mid-sixties. The Gbedin Swamp Rice Project as it was known was to provide local farmers new alternatives for growing rice for increase yield, as well as for discouraging shifting cultivation. This started as a demonstration project. Today, the site is still being used for rice cultivation by the local communities.

Many of the species currently present at the site are considered “endangered” and vulnerable species. They include: The three-cusped pangolin *manis tricuspis* (CITES App.11); and the endemic Utter Shrew *Micropotamingale lamottci* (EN). Some migratory bird species on the site include the Little Ringed Plover *Charadrius Dubius* (CMS App.11), and Forbes Plover *c. forbesi* (CMS App.11).

Gbedin is a man-made wetland type with irrigation system that includes channels, ditches, dams, and drainages. It provides a good feeding ground for many birds, fish species and wildlife.

Inland Waters Ecosystems: This ecosystem has received very little attention, and there is scanty data available on Inland Waters. Assessment in this thematic area will contribute to the identification of new species in our waters.

Mountain Ecosystems: Comprehensive studies have been undertaken in mountain ecosystems by various concessionaires. The most elaborate and detailed report was submitted by Arcelor Mittal which is operating the East & West of the Nimba Mountains. Species of various types identified are found in the annex to this report. However, government itself will need to invest in this area to understand and value the resources in line with its national development goals and objectives.

There are eleven (11) national forests currently under partial protection. These forests are set-aside as production forests, from where concession areas are carved out. Conservation activities such as wildlife management are permitted, but no farming, hunting and human settlements (except logging camps and similar activities) are permitted in the national forests. These forests are situated in the northwest and southeast of the country. They include Krahn-Bassa, Grebo, Gola, Kpelle, Yoma, Lorma, South Lorma, Gbi, Gio, East Nimba, and West Nimba.

S/N	NATIONAL FOREST	AREA IN ACRES	AREA IN HECTARES
1.	Krahn-Bassa	1,270,000	513,962
2.	Grebo	643,603	260,462
3.	Gola	510,168	206,995

4.	Kpelle	432,000	174,828
5.	Yoma	6,456	2,649
6.	Lorma	176,000	71,226
7.	South Lorma	107,503	43,506
8.	Gbi	81,370	32,930
9.	Gio	165,480	66,969
10.	East Nimba	71,650	28,966
11.	West Nimba	32,000	12,950
	TOTAL	3,496,230	1,415,443

Source: EPA, 2004

However, according to FDA (2013), there are currently ten (10) national forests as indicated in the table below.

S/N	NATIONAL FOREST	SIZE
1.	Belle	609 km ²
2.	Gbi	607 km ²
3.	Gio	327 km ²
4.	Gola	2,020 km ²
5.	Grebo	2,806 km ²
6.	Kpelle	1,748 km ²
7.	Krahn-Bassa	5,816 km ²
8.	Lorma	987 km ²
9.	Nimba	187 km ²
10.	North Lorma	

Source: FDA, 2013

The Yoma and South Lorma national forests have lost their significance; while East Nimba has been gazetted a Nature Reserve; and two (2) new ones including the North Lorma and the Belle national forests have been added to the list.

Dryland & Sub-humid Ecosystems: The implementation of a Sustainable Land Management Project between 2010 and 2012 has been the most important initiative yet on Dryland Biodiversity.

Island Ecosystems: There are few islands in Liberia. Apart from the six islands use for insitu conservation of chimpanzees along the Farmington and Du Rivers, no studies have been

conducted on island biodiversity in Liberia to document species in this ecosystem. This task will need to be conducted.

Impact on Human Health & Wellbeing and the Environment:

According to PRS document, Liberia currently has an estimated Gross National Income per capita of USD 265 and some 64% of the population earning less than the poverty line of one dollar per day. To improve the situation, the state has organized its annual budget around the priorities of the PRSP, as such, it was intended to increase the broad alignment of expenditure with PRS objectives by category in the last three fiscal years from 64% in FY 2008/09 to 73% in FY 2010/11. The primary focus through its Poverty Reduction Strategy (PRS) is governance, rule of law, and peace building and the restoration and expansion of infrastructure and social service delivery to increase the development possibilities of its people.

Importantly, the economy depends on our natural capitals such as iron ores, diamonds, gold, forest, animals/ wide life, waters, petroleum, etc. To have a secured and sustained flow of revenue from these resources, they must be protected and managed properly. In the absence of environmental safe guards, we place huge burdens on our national budget. Unfortunately, support to conservation priorities remains very low, and if the trend continues, resources may be depleted thus crippling development programs.

Real GDP is estimated to have grown by 6.9% in 2011, and is projected to be 8.8% in 2012 and 7.2% in 2013 largely driven by the first full year of iron-ore exports in 2012 and continued FDI. Consumer price inflation is expected to be 8.5% in 2011, mostly reflecting the pass-through of international food and fuel prices and also limited domestic market supply due to poor farm-to-market road infrastructure. Inflation is expected to be moderate at 5.6% in 2012 and 5.7% in 2013.

The agriculture, fisheries, and forestry sectors represented about 72% of GDP in 2011, but this is projected to decrease in the coming years as iron-ore exports increase. Rubber production has been supported by high international prices over the last year and log production increased considerably in 2011 due to new companies engaging in logging operations. The opening of an additional port in Greenville after 2012 will support forestry exports. Recent foreign investments in palm-oil production by Golden Veroleum and Sime Darby should gradually increase their output after 2012. Rubber, timber, palm-oil, and food production will continue to support growth in the medium term.

While the Government of Liberia has developed series of policies, regulations and laws in the environment and natural resources sector, and revenues from natural capital are increasing, they have not significantly impacted the citizenry as poverty statistics continue to remain high.

Population

Today, the population of Liberia is put at 3.6 million as contained in the table curled from the LISGIS 2008 National population and housing census report.

Population, Surface Area and Density (1984 and 2008)

COUNTY	POPULATION		PERCENT		AREA (SQ. M)	DENSITY	
	1984*	2008	1984*	2008		1984*	2008
Bomi	66,420	84,119	3.1	2.4	750	89	112
Bong	255,813	333,481	12.2	9.6	3387	76	98
Gbarpolu	48,399	83,388	2.3	2.4	3741	13	22
Grand Bassa	159,648	221,693	7.6	5.4	3064	52	72
Grand Cape Mount	79,322	127,076	3.8	3.7	1993	40	64
Grand Gedeh	63,028	125,258	3.0	3.6	4048	16	31
Grand Kru	62,791	57,913	3.0	1.7	1504	42	39
Lofa	199,242	276,863	9.5	8	3854	52	72
Margibi	151,792	209,923	7.2	6	1010	150	208
Maryland	69,267	135,938	3.3	3.9	887	78	153
Montsserado	491,078	1,118,241	23.3	32.2	737	666	1,517
Nimba	313,050	462,026	14.9	13.3	4460	70	104
Rivercess	37,849	71,509	1.8	2.1	2160	18	33
Rivergee	39,782	66,789	1.9	1.9	1974	20	34
Sinoe	64,147	102,391	3.1	2.9	3914	16	26
NATIONAL TOTAL	2,101,628	3,476,608	100.0	100.0	37482	56	93

Source: LISGIS, 2008

*The populations used were those that were derived for the respective counties after accounting for boundary changes between 1984 and 2008.

The population statistics above depict significant strains on the immediate environment to deliver services which the NBSAP 2004 didn't address. Much of the population lives in the rural areas and very closed to nature. Their economies and livelihood are tied to the natural resources (forests, games species, soils etc.). In order to ensure development across the country, it will require new approaches and methods that commensurate with the current population structure and dynamics.

Socio-economic Indicators

Economic Indicators	2008	2009	2010	2011	Source
Real GDP Growth Rate (percent)	7.8	6.2	6.1	8.2	MOF/CBL/IMF
Real GDP est. (US million, base year 1992)	630.3	669.3	710.2	768	CBL
Nominal GDP (US million)	1,100.50	1,155.10	1,291.90	1,545.40	CBL
Public sector workforce (active duty civil servants)	48,034	47,506	42830		MOF
Informal Sector Employment	487,000	569,790	742,000		MOL/LISGIS
GDP Per Capita (current US\$)	181.1	188.5	196.2	205.9	CBL
Inflation Rate (est. average percent)	17.5	7.4	7.5	8.5	CBL/LISGIS
External Debt (US \$ Billion)	3.2	1.7	1.24		MOF
Domestic Debt (US \$ Million)	301.4	292.6	281.9	280.5	MOF
National Budget (US\$ Million)	298.1	371.9	347.1	571.7	MOF
Average Lending Rate (percent)	14.4	14.2	14.2	13.8	CBL
Exchange Rate (end of period LD/USD)	64	70.5	71.5	72.5	CBL
Imports (US\$ Million)	813.4	551.6	709.8	1,044.20	CBL
Exports (US\$ Million)	242.4	148.8	222	367	CBL
Trade balance deficit	571	402.8	487.8	677.2	CBL
Capital Adequacy Ratio of the Banking Sector (percent)	20.8	23.8	27.4	22.8	CBL
Socio-Demographic Indicators					
Population size (in millions)	3.5	3.6	3.6	3.7	LISGIS
Population growth rate (percent)	2.1	2.1			LISGIS
Percentage of Population under 15yrs	45	41.93			LISGIS
Life Expectancy at birth	53.9	54.8	55.5		LISGIS/WDI
Illiteracy Rate (percent, 10 years or older)	44.13	44.13			LISGIS/MOE
Percentage of population with access to education	31.46	31.46			LISGIS/MOE
Infant Mortality Rate (per 1000 live births)	80.6	73	73.6		LISGIS/MOH
Under Five Mortality Rate	110	114	103		LISGIS/MOH
Maternal Mortality Rate (per 100,000 live births)	994	890	770		LISGIS/MOH
Proportion of births attended by health practitioner	46	46.3	64.7		LISGIS/MOH
Population below poverty line	63.8	63.8	56.3		LISGIS
Access to Improved Drinking Water	66.1	76.5		73.9	LISGIS/MPW
Access to Adequate Sanitation	11.2	10.4			LISGIS/MPW
HIV/AIDS prevalence rate	1.5	1.5			LISGIS/NAC
Human Development Index	0.319	0.442	0.300	0.329	UNDP
Total Geographic Area (km sq.)	111,370	111,370			LISGIS/MLME
Total Land Area (km sq.)	96,320	96,320			LISGIS/MLME
Coastline (km)	579	579			LISGIS/MLME

Labor and Employment

Unemployment and biodiversity depletion are intrinsically linked. This nexus was missing in the NBSAP 2004. Once the population pushed down poverty, due partly to lack of secured jobs and or the prospects of jobs in the near future, they will turn to their immediate environment for livelihood and survival.

In 2010, the ILO supported Liberia in conducting a national Labour Force Survey. The survey report has recently been released by the Liberian Institute of Statistics and Geo-Information Services (LIGIS). This has been a joint effort by the government and development partners and it is a great achievement for the country. The report provides precious insights that will be used in future development planning and implementation in order to better address labor and decent work issues. Additionally, a National Employment Policy (NEP) has been developed which aims to support private sector growth and economic development with due regard for international labor standards and has established NEP implementation, monitoring, and evaluation responsibilities at the Ministry of Labor.

The level of unemployment has been measured, based on the 'relaxed' international definition of unemployment. The 'strict' definition of unemployment requires that a person should not have done any work in the reference period, should be available for work, and should be looking for work. This last condition has been 'relaxed', and not made a condition for being counted as unemployed. Since most people in developing countries cannot afford to remain unemployed and not do any work at all, the level of unemployment is not a good indicator of the state of the labor market. Using the 'relaxed' definition, the overall adult unemployment was rate is put at 3.7 percent. Unemployment remains a challenge as Liberia seeks to provide secure work for its people.

Since wage employment is low nationally, consumption is used to measure poverty levels. According to the 2007 Core Welfare Indicator Questionnaire (CWIQ), the percentage of people living in extreme poverty (living on less than a dollar a day) was 63.8%. Subsequently, the government's poverty reduction objectives are to reduce absolute and extreme poverty by 4% through alignment of core PRS initiatives to the MDGs, which provide clear internationally accepted indicators for poverty alleviation and development realization.

MAJOR CHANGES HAVE IN THE STATUS AND TRENDS OF BIODIVERSITY OF LIBERIA

The Government of Liberia opened the natural resources sector of the country to concession under the re-activation of economic activities and basic social services pillar of the Interim Poverty Reduction Strategy. This was necessary to generate the needed financial resources to support the national reconstruction initiatives, as well as provision of job opportunities for the population and basic social services. Execution of this pillar opened the natural resource sector to direct foreign capital investment which has implication for environmental resources

management. There are reports of a massive **USD\$16 billion** or more direct foreign investment portfolio in the various sectors of natural resources including forestry, monoculture in agriculture, mining and river sand dredging, oil exploration, oil palm among others. This section of the report intends to discuss the implication these investments have on biodiversity with specific emphasis on the impacts of various ecosystems and human wellbeing.

FOREST ECOSYSTEM: The Forest Reformed Law of 2006 requires a national forest management strategy as pre-requisite for forestland use in the country. The FDA conducted forest management suitability study from 2005 to 2006 to identify the most suitable area for the three categories of forestry which the new law mandates forest practices in the country should be based on (commercial, conservation and community forestry). The study identified a total of 5,705,559 hectares which is equal to 59% of the total land mass of the country.

Distribution of forest land under the three categories of forestry

Category	Forest Land area	In use	Leftover/deficit
Commercial	2.5million hectares.	3,544,498 hectares.	1,044,498 hectares. deficit
Conservation	1.5million hectares.	1, 241, hectares.	259,000 leftover
Community	0.5million hectares.	20,000 hectares.	480,000

Forestry Development Authority 2006

This chart reflects the three categories of forestry practices as mandated by the 2006 Forest Reform Law in term of the quota appropriated for each of the categories. Commercial forestry carries the largest portion of land area. In addition to the division, numbers of concession agreements have been signed in this sector as part of government’s effort to get needed financial resources for economic and social development. Ten (10)Timber Sale contract with maximum of 5,000 hectares; seven Forest Management Contract ranging from 10,000 up to 200,000 hectares, 62 Private Use Permit (PUP) which are greater than timber sale contract, but should be smaller than or equal to forest management contract. Under the PUP, concessions granted amounted to 2,532,501 hectares of forest land which is 23% of the land area of Liberia in addition to the other types of concessions mentioned in a report by a Special Independent Investigating Body in December 2012. The FDA reported that a total of forest land area given in concession under the Timber Sale Contract and Forest Management Contract is 1,011,997 hectares. The total forest area already issued in concession far exceeds the 2.5 million allocated for commercial forestry. The deficit stands at 1,044,498 hectares.

CONSERVATION FORESTRY:

Conservation Forestry under the New Forestry Law is a forest set aside to carry on biodiversity protection programmes, supervise and monitor all activities related to conservation and protected areas management. The Conservation Division of FDA is mandated to formulate policies and regulations for the management of protected areas. This Division has three departments: Wildlife, Protected Areas Management; and Public Awareness, Education, Community Participation and Eco-tourism.

According to the FDA, the 2006 Forestry Reformed Law apportioned 1.5 million hectares of forest land for conservation. Judging by the notion that Liberia still contains 43% of the Upper Guinean Forest Ecosystem in humid West Africa, about 30% of the forest land remaining in the country is placed in protected area management. FDA emphasized that having 30% of forest land area in protection is a plus because the CBD only requires 10%; although forest cover removal has out-weighed reforestation programme. Subsistent agriculture which is estimated to be practiced by 70% of the population of the country consumes nearly 3.9 million ha. With unsustainable logging practices and mining activities on the increase, the conduct of a new inventory of the forest to determine the actual forest cover remaining in the country is a necessity.

The country now has three gazetted and fully operational protected areas, with three other PAs, though not gazetted, are under management with staff fully in place. According to FDA, they anticipate to operationalize three additional ones under the Division's five year plan to take the area of the country under protection to 28%. The strategic plan anticipates by 2018 to have six additional protected areas fully gazetted,, fully staffed with all the legal and technical instruments in place This includes training and equipping of 200 wardens and rangers. By 2020 the plan envisages to have about 30% forest land to be in protected area management with the systemic, institutional and human capacity in place to manage conservation programme.

The plan focuses on having in place legal and technical instruments for protected area management by 2018, but no specific mention of the various areas of human capacity needed to fully manage conservation programmes on the scale required by the Convention.. Another grey area pointed out is funding sources. The current plan places significant proportion if not all on international funding sources or donor organizations instead of considering smart sources for funding at the national level (government, concessionaires, business organizations local communities initiatives, etc).

COMMUNITY FORESTRY: Community Forestry is that which is set aside by the Authority for the exclusive social and economic benefits of local communities. Community Forestry is the way

through which the authority gets the involvement and participation of rural communities in decision-making in matters relating to forest resources. The authority is mandated by the 2006 Reformed Law to involve local peoples at all levels, in the identification, establishment management and governance of community forest reserves. The authority is further directed under the law to formulate policies, regulations, procedures for the management of community forests. This Division of Community Forestry has three departments: Forest Resource Planning, Forest Extension Services and Mobilization and Community Empowerment

PROGRESS MADE:

The Forestry Development Authority has demarcated 7 community forests, developed policy, regulations and guidelines for the management of community forestry as key achievement. Other achievements included training of select number of women in communities around one of the protected areas-Sapo in livelihood improvement (nursery and animal husbandry) both in Sinoe and Grand Gedeh Counties. The major national achievement for this division was the passage into law of the Community Rights Law by the National Legislature and the establishment of the Community Forestry Development Community (CFDC), a committee that represents affected communities where forest concession is in term of benefits to be accrued to those communities.

Prior to the coming into force of the new forestry law, community forestry was not taken seriously and by then only three community forests existed in the whole country. Under the new era, there are seven (7) community forests with most of the management tools in the form of technical guidelines, policy and regulations in place. In term of what is anticipated in the next five years, the FDA strategic plan includes the establishment of 10 community forests, training of personnel and putting in place the institutional framework, technical guidelines and legal regimes in place by 2018.

MAIN THREATS TO BIODIVERSITY

The NBSAP of 2004 documented that the threats to biodiversity in Liberia are due to several anthropogenic factors, prominent among which are poverty and ignorance, shifting cultivation, unsustainable timber exploitation, monoculture plantation development, (rubber, oil palm), poaching and lack of land use planning. These factors have led to the overexploitation and misuse of biological resources. There are also other threats documented from recent research by USAID which are presented below:

Degradation from Illegal and Quasi-Legal Logging: Currently, illegal commercial logging no longer poses a threat to Liberia's forests. However the Government of Liberia's (GOL) domestic timber supply policy appears to be a contributor to forest degradation though poorly regulated

chain sawing practices (known locally as pit-sawing) via a permit system which leads to over cutting, lost revenues and potential corruption, including the illegal export of planks.

Shifting Cultivation: The threat of deforestation posed by shifting cultivation is difficult to measure without taking other factors into consideration. Right now attention tends to focus on the clearing of forest lands (whether secondary or primary), and this is especially noticeable for upland rice cultivation, where fields tend to be large and cleared by multiple families or commercial interests, often with some capital investment. In this context, there seems to be a trend towards more mechanized slash and burn using chainsaws which may impact regeneration in the future as the larger trees which provide a seed source for regeneration are now being cut.

Increases in world rice prices may also drive upland rice expansion in Liberia. In general, however, Liberia's low population density combined with the fact that only 6% of Liberia's land is devoted to agriculture, means that shifting cultivation does not represent a current threat to forests if the lands are subsequently fallowed. Rather, the threat is the overall degradation of forest over time, best measured from successive satellite images.

Mining: The GOL expects industrial and artisanal mining activities to grow rapidly during the Poverty Reduction Strategy period, from near zero production in 2005/06 to 12 percent of GDP by 2010. Indeed the GOL is counting on such growth as a means of contributing significantly to employment, income generation and infrastructure development. There is a high degree of geographic overlap between mineral deposits and exploration permits and the protected area/forest reserve network. If exploitation occurs within these areas as expected, the potential to significantly affect biodiversity and forest cover should be considered very high. Forest destruction will be locally extensive and permanent.

Other potential environmental impacts include: siltation of dams and rivers, ground and surface water pollution, and habitat fragmentation among others. The impact of over 100,000 artisanal miners operating in Liberia, including 6000 operating in Sapo National Park alone, may have individually insignificant effects on biodiversity and tropical forests but cumulatively significant effects.

Agro Industrial Crops: Although the current threat to forests from agro-industrial plantation expansion is currently low, in the past, the conversion of huge areas of Liberia's forests into monocultures of rubber and oil palm accounted for the vast majority of forest loss. As tree crops are an important component of the Liberian economy, accounting for 22 percent of the GDP in 2005, with rubber alone employing 18,500 workers and accounting for 90 percent of total exports, there may be economic pressure to expand the area under tree crops, particularly given Government's interest in bio-fuel (oil palm) production.

Alien invasive Species: Alien invasive species such as *Acacia spp.* and *Chromolaena odorata* are out competing natural forest regeneration in some areas.

THREATS TO COASTAL ECOSYSTEMS

Liberia has a coastline 565 km long and claims an economic zone of 13 nautical miles and a territorial zone of two hundred (200) nautical miles. About 90% of the coastline consists of a narrow sand beach 20-25 meters wide, reaching 60-80 meters in some parts of south eastern Liberia, interspersed with lagoons, estuaries, bays and brackish wetlands. The coastal area consists of swamp-related vegetation, including mangroves forests and reeds that extend up to 25 miles inland. Nearly 58% of Liberia's population lives within 40 miles of the coast which puts extensive pressure on this ecosystem for food, land mineral and other resources. Threats include:

Over-Exploitation of Demersal Fish Species: Although there have been no recent surveys to take stock of existing biomass, the Bureau of National Fisheries (BNF) believes that the demersal species are under threat from rampant pirate fishing that lacks any monitoring, control and surveillance systems. BNF conservatively estimates that there may be upwards of 250 pirate boats operating in Liberian waters, the majority of which are using illegal fishing techniques and operating within the three mile limit reserved for artisanal fisheries, and competing for the same demersal species. BNF reports that there may be an additional 8000 unlicensed foreign artisanal boats operating in Liberian waters, some of which are using undersize nets and more recently dynamite. BNF estimates that Liberia loses approximately \$10-12 million through illegal fishing each year.

Over-Exploitation of Other Species: There are no research facilities to study the dynamics of the ecological factor affecting the fisheries environment- the productivity of ecosystem, pollution levels and nutrient load, species diversity of the various fish communities and harvesting pattern of commercial species. With regard to sea turtles, there are reports that they are hunted secretly for food throughout Liberia. Their eggs are also collected by humans and destroyed by dogs and pigs on the beaches.

Beach Sand Mining Beach Erosion: Unregulated beach sand mining is one of the most serious threats to the coastline and marine environment in the country. Sand mining changes in the balance of littoral sand transport, blocking the natural sand drift. The sand pits cause a slight embayment of the shoreline due to localized recession. The embayment serves as a void, which must be filled before the sand moves along the coast. Sand is trapped by the recessions, reducing its westward flow. Sand downstream from the flow is not replaced thus exacerbating shoreline erosion. In some areas, beaches are being lost at an estimated rate of 3 meters/year with concurrent property destruction.

Mangrove Loss: The biggest threat to Liberia's mangroves is urban expansion and accompanying landfills, particularly in Monrovia. This expansion began during the civil conflict when many displaced people having very limited land space to carry out business activities established landfills in Mesurado and Marshall Mangrove wetlands, causing large areas of mangroves to be destroyed (and to be used as dumps or for sewage disposal). The process continues today; Liberia's burgeoning post conflict economy and increased population have

overwhelmed the original planned land area for Monrovia and other beach cities; originally made to accommodate 350,000 persons, Monrovia's now has a population of over 1 million.

THREATS TO FRESHWATER ECOSYSTEMS

There are six major rivers in Liberia. These flow from mountains in the north and empty into the Atlantic Ocean. Most of the rivers are navigable up to 20 miles from the coast, except for Cavalla, which is navigable up to 50 miles. Together, these basins drain approximately 65% of the country. The Mano and Cavalla are shared basins between Sierra Leone and Côte d'Ivoire respectively, while the Lofa, Saint John and Saint Paul drain part of Guinea. Numerous micro watersheds or sub-watersheds also exist.

Potential Threats to Inland Fisheries (Over Fishing): The value and production of inland fisheries is not known but it is an important seasonal subsistence activity. BNF estimates that there are an estimated 8000 boats on Liberia's inland river system with only about 200 registered. According to BNF, there is little control over net mesh size and there is wide use of organic and chemical pesticides, and dynamite. BNF has little capacity to monitor inland fisheries.

Wetlands: There are approximately 600,000 ha of freshwater swampland in Liberia with only about 3% (20,000) ha under cultivation. Although there appears to be very few threats to Liberia's freshwater wetlands, very little is known about the value of freshwater wetlands, from their role in providing medicinal plants and other products, to their role in providing ecosystems services such as water quality enhancement, flood control, and provision of habitat.

Water Hyacinth: Water hyacinth occurs in several waterways but there is no data on its extent and/or its impact on the ecosystem.

Lack of Alternative Financing

According to USAID (ETOA) Report, the lack of direct financial support is a major cause of most of the institutional limitations identified, and a major underlying cause of threats to the environment. Liberia's civil conflict and the resulting shortages in staffing, supplies, and equipment have limited the ability of most GOL agencies to implement their mandates. Although GOL budget contributions should increase as logging, mining and other concessions are granted, FDA and EPA core budgets have not increased proportionally relative to their mandates. In sum, the absence of alternative funding sources particularly for the implementation of field activities continue to curtail government agencies' ability to implement their mandates with respect to environmental and natural resource protection and management over the longer term.

Lack of Capacity

Lack of capacity has been the major underlying cause of environmental degradation. And the institutional profiles for FDA, EPA, LISGIS and BNF confirm this assertion; staff limitations both in terms of numbers and qualifications have hampered the ability of these agencies to implement their mandates. Yet ironically, there are very few donor activities that incorporate a formal capacity building component; most provide only some combination of on the job training and study visits. Options for providing long term training are expensive; advanced degree programs in the U.S. cost about \$50,000/year per participant. Rehabilitating and reinvigorating the University of Liberia is also an expensive proposition but one that will be critical to the future of Liberia.

Weak Law Enforcement

One of the key challenges facing environmental protection and management is the lack of enforcement of the existing laws. There are several reasons for this. First, Liberia's civil conflict, and the resulting shortages in staffing, supplies, and equipment have limited the ability of most GOL institutions to actively implement law enforcement operations. Second, given the post conflict situation and new mandates, there seems to be certain hesitancy among environmental agencies to enforce laws given current socio-political and economic interests and concerns.

Finally, new agencies such as the EPA are only getting their feet on the ground in terms of enforcement and older agencies such as the FDA do not have a strong history of enforcing its laws and legislation. In addition to these issues, there are three major contributing factors to the weak law enforcement problem:

- **Policies and Legislation are far removed from the realities that they are trying to influence.** Liberia's environment/natural resource policies are based on the belief that reality is manageable and that the future is predictable. This view has resulted in technical solutions to environment/natural resource development problems, including overly comprehensive and "unimplementable" policy and legislative mandates. Complicated policies and legislation result in poor understanding and contribute to difficulties in enforcement. The net result of this technical approach is that the majority of policies and associated acts are far removed from the reality they are trying to influence.
- **Low community awareness of policies and legislation.** The problem of weak law enforcement is also exacerbated by the fact that many communities/resource users are unaware of environmental policy and legislation as well as the new integrated forest policy and legislation. For example, although FDA maintains that they have made every effort to consult with communities on the new legislation, the SEA team, during the course of their stakeholder consultations, found that there is relatively little awareness on the details of the new forest legislation and policy and overall lack of understanding of the 3C approach to forest management. The SEA team also found that there is a

general lack of conceptual clarity on community and conservation forestry and an overall lack of understanding of the rules and procedures regarding community decisions on issues such as allowing land for logging and no clarity on what actual decision-making powers they have at the local level regarding forest management decisions.

- The **absence of a law enforcement division** within the FDA also appears to hamper enforcement efforts. The relationship between law enforcement at FDA HQ and day to day enforcement activities in the field is not clear. A separate law enforcement division complete with separate field enforcement personnel reporting directly to the division director would bring FDA in line with the majority of other African conservation/forestry organizations while eliminating the dual role of a conservation ranger as responsible for both enforcement and community/conservation activities.

Lack of Holistic Approach to Environment/Natural Resource Management

In general, both FDA and forest communities tend to view commercial logging as the sole indicator of economic value or activity in the forest sector. There is little appreciation of the economic value of NTFPs (including bush meat), either by the communities or by the FDA in terms of the restrictions posed by the protected areas, community access to NTFPs in logging concessions or an acknowledgement that NTFPs are also a source of economic benefits from forests and wetlands. In most instances, FDA focuses on curtailing negative practices with regard to hunting and the bush meat trade rather than on positive economic ventures that could be properly regulated. Moreover, at the institutional and policy level there has been relatively little work done on NTFPs and there are no estimates of the importance of NTFPs to the national economy or whether there is a regional trade in NTFPs.

There has also been relatively little development of national and international markets for NTFPs, and data about their biological status (stock assessment) is nonexistent. The situation is similar for ecosystem services; no attempt has been made yet to value the role of Liberia's forests in watershed protection, carbon storage, etc. The lack of a holistic approach to environment/natural resource management: i) increases threats to biodiversity; ii) contributes to the compartmentalization of the 3 Cs; and iii) results in lost revenues both for FDA and the communities.

Barriers to Alternative Livelihoods

Although there are few alternative livelihood programs in Liberia, the ones that do exist have had very limited success; the livelihood options presented to communities by these program cannot compete with incomes gained from illegal logging, the bush-meat trade or diamond and gold mining in the parks and forest reserves. A major part of the reason for this is that the livelihoods offered are based on an assessment of what communities want to do rather than

any kind of value chain analysis of several subsectors to identify products and services that show the greatest potential for increasing household income, and what elements along the value chain from access to technical information and capital to market access - act as barriers to alternative livelihood development.

The problem of alternative livelihoods is particularly apparent around Liberia's National Parks. The Forest Act provides a scale for community compensation in timber concession areas. Timber concessionaires will pay a land rent to the government and although the official value has not been published, unofficial sources suggest that it will be about \$US 2.50 per ha per year. Communities will receive 30% of this, with a similar amount going to the counties. Using these figures, a community with 5000 ha in a timber concession could receive about \$US 3750 annually for community development and still maintain any hunting and NTFP rights they have in that forest. Communities that live around strictly protected areas, however, receive no compensation for the loss of rights to forest products but are expected to make up the difference through GOL and donor supported alternative livelihood programs. As these programs fail to generate income, communities continue to illegally log, hunt bush-meat and dig for diamonds and gold.

Insecure Land and Resource Tenure:

Poverty, land, and the environment are inextricably linked. The rural poor of Liberia depend almost entirely upon land and other natural resources for their livelihoods, including their food, fuel, shelter, water and medicines. Unequal access to and ownership of land and other resources have contributed significantly to economic and political inequities and environmental degradation throughout Liberia's history, and have exacerbated tensions and conflict. The existing systems of land acquisition favor the wealthy and the elite.

Women in particular have had limited land and resource rights. The need for and importance of rapidly developing a land tenure policy is becoming increasingly critical, not only for forestry issues but for the country as a whole. The final outcome of the work undertaken by the Land Commission will have major implications for the relationship between the GOL and communities and between the GOL and agro industrial and forestry concessions operators

Absence of Strategy to Address the Compromises between Environment and Economic Development

Sustainable development is based on the notion that growth strategy should take into account environmental and social concerns, as well as the efficient management of resources to achieve long-term prosperity. This concept has been endorsed by the international development declarations and their initiatives, starting with the Rio Summit in 1992 and the

World Summit on Sustainable Development in Johannesburg in 2002, and finishing with the launch of the Millennium Development Goals (MDGs).

Although Liberia's Poverty Reduction Strategy (PRS), addresses environmental concerns such as harmonizing the New Minerals and Mining Law (NMML) with the Forestry Law with respect to mining concession rights and protected zones, environmental issues are relegated to an annex and with exploitation of Liberia's abundant natural resources as the major driver of poverty alleviation in the PRS implementation period and beyond. Moreover, none of the three basic drivers of Liberia's growth strategy - rebuilding roads and other critical infrastructure; reviving the traditional engines of growth in mining, minerals, forestry, and agriculture; and establishing a competitive business environment to help diversify the economy over time - address sustainability issues.

Finally, none of the PRS's five pillars - Consolidating Peace and Security, Revitalizing the Economy, Strengthening Governance and the Rule of Law, and Rehabilitating Infrastructure and Delivering Basic Services make reference to the environment or sustainability. Without a strategy that specifically addresses tradeoffs between the environment and economic development, economic development—in the form of mining and agro industrial concessions - will continue to take precedence over the environment as they have done in the past.

Absence of Land Use Planning

In Liberia, urban land-use planning and zoning regulations are virtually non-existent or ineffective, and the PRS only makes passing reference to both urban and rural planning. Yet the absence of urban land use planning in combination with Liberia's burgeoning post conflict economy and increased population have overwhelmed the originally planned area for many urban centers. As a result, landfills for human habitat have destroyed hundreds of hectares of mangroves, while increased beach erosion due to unregulated and unplanned beach mining is destroying both animal and human habitat. Clearly, the GOL (MCC, MPA, and EPA) needs to develop an urban land use policy and zoning regulations and should seek donor support for this initiative.

The situation at the rural level is similar. There are numerous potentially conflicting land use issues—agro industrial plantations, mining concessions, commercial timber contract areas, protected areas, proposed carbon concessions, community forests—that proliferate in the absence of information on deeded lands, tribal lands, and any other preexisting land encumbrances, locations of mineral deposits and occurrences, and relevance of boundaries for parks, national forests and concessions. Without any national level land use plan to guide resolution of these conflicts, sustainable economic development in Liberia could be hampered.

IMPACTS OF CHANGES TO BIODIVERSITY FOR ECOSYSTEM SERVICES AND THE SOCIO-ECONOMIC AND CULTURAL IMPLICATIONS OF THESE IMPACTS

Liberia's biodiversity is under severe threat with rapid loss and decimation of species and habitats that are jeopardizing future plans for sustainable development of the country. Biodiversity loss in Liberia is of regional concern because Liberia still holds approximately 42% the last remaining two blocks of the Upper Guinea Forest Ecosystem of West Africa.

Although the above statement has remained true over the past decade, Forest Cover in the Upper Guinea Forest Massif has now reduced from the previous 42% documented at the beginning of the millennium (2000) to approximately 37-39% due to the allocation of concession rights to FMC, TSC, and PUP holders. This has impacted land areas under the 3Cs under the Forestry Development Authority.

Increase in concession portfolios places huge strain on forest and agriculture biodiversity, due to habitat loss, vegetation, internally displaced persons and refugees, etc. Moreover, government granting of excessive concessions without the political will to support the enforcement of legislations in the wake of the above can contribute to biodiversity loss in both ecosystems.

POSSIBLE FUTURE CHANGES FOR BIODIVERSITY AND THEIR IMPACTS

Habitat loss as a result of large monoculture concessions in most of the provinces of the country may be a factor for future changes. This, along with overexploitation of resources already threatened or vulnerable is likely to impact biodiversity loss.

Another problem may be Ineffective policies and laws, especially where the legislations cannot be effectively enforced. Significant species loss in coastal and marine ecosystems in addition to what is already known about the forest ecosystems can be a contributing factor.

Poverty & lack of alternative livelihood may also create future conditions for biodiversity management.

CHAPTER TWO

THE NATIONAL BIODIVERSITY STRATEGY & ACTION PLAN (NBSAP), ITS IMPLEMENTATION AND THE MAINSTREAMING OF BIODIVERSITY

Biodiversity Targets Set by Liberia

Liberia has developed a number of targets for the revision/updating of its National Biodiversity Strategy & Action Plan for the next ten years. The Vision for the Strategy states: “To have a society that lives in harmony with its natural environment, assess, maintain and conserve the integrity of the ecosystems in order to achieve the greatest benefits possible for its entire populace”. The vision underscores the fact that resources and their benefits are not a single generation thing; thus, we need a prepared people to respond to the obligation of informing the populace of the importance of their resources and the mechanisms we need to put in place to achieve the vision, as well as the mandate of the CBD.

The **Mission Statement** explains the mechanism by which the vision can be achieved: an educated class of people who understand the importance of the resources, their values, and how to mainstream them into national development processes by emphasizing that the country would “Develop education and information programmes to raise the level of awareness of the population about the importance of biodiversity and place values on ecosystem goods and services through assessments and evaluation. To develop a framework for mainstreaming biodiversity into sectoral, cross-sectoral planning, and national accounting systems, through the development policies, plans and programmes”.

Underlying the Vision and Mission are the Guiding Principles which would underpin the implementation. Liberia has fifteen (15) guiding principles;

GUIDING PRINCIPLES

- I. Ensure the continual monitoring and evaluation of biodiversity status and trends;
- II. Build in Inclusive plan to incorporating widest stakeholders’ participation
- III. Biodiversity programmes must address issues associated with governance, legal and financial modalities for equitable sharing of resources
- IV. Ensure development initiatives with potential adverse effects on biodiversity are subjected to strategic environmental assessment
- V. Set balance between economic development and environmental consideration to ensure sustainability of natural resources;

- VI. Measures to mainstream biodiversity into existing policies, legislations, institutional and development framework as appropriate;
- VII. Build strong mechanism for awareness creation and education;
- VIII. Training and capacity building at all levels for implementation of the NBSAP
- IX. Recognize, promote and uphold traditional and indigenous knowledge, practices and innovations for the sound management of natural resources;
- X. Integrating biodiversity into MEAs at national level;
- XI. Embed Biodiversity values into the national economic accounting system;
- XII. Biodiversity management and decision making will be people-centered approach;
- XIII. Biodiversity management and conservation will take into account economic, cultural and aesthetic values;
- XIV. Special emphasis will be placed on ecosystems and habitats management;
- XV. Promotion public-private-communities partnership in biodiversity management

Overarching Goal:

By 2020, conserve and manage terrestrial and aquatic biodiversity to ensure sustainable use of resources and equitable benefits sharing to the people of Liberia at all times.

SPECIFIC GOALS:

1. Integrate biodiversity issues and concerns into policies at cross-sectoral, sectoral and national levels;
2. Take tangible actions to assess and value national biodiversity resources and ecosystem services to inform policies and decision-making processes.
3. Develop wide-range economic incentives for the general public to promote conservation and sustainable use of biodiversity;
4. Ensure capacity building, technology transfer and resource mobilization for effective and efficient integration and implementation of biodiversity programmes;
5. Build climate resilience ecosystems through effective management of protected areas network;

6. Create awareness to address the underlining causes of biodiversity loss by mainstreaming biodiversity across government (sector institutions levels) and society.

The stocktaking and revision exercises and the presentations from the RIO Pavilion presentations in Hyderabad, India have helped to structure the current target-setting task. Liberia anticipates having strong, smart, measurable, and transparent targets that would reflect national situations.

Setting National Vision, Goals and Targets

AICHI TARGETS	NATIONAL TARGETS	ACTIONS TAKEN	OUTCOME ACHIEVED	INDICATORS	OVERALL ASSESSMENT
Target I: awareness creation	<p>TARGET I: develop communication, education and public awareness and implementation methodologies by 2015;</p> <p>TARGET II: TOT conducted for at least 150 primary and secondary schools, teachers, agriculture extension agents and environmental awareness officers by 2015;</p> <p>Target III: Develop modules and curricula on biodiversity for</p>	<p>I. Developing a CEPA strategy</p> <p>II. Action pending</p>	<p>Strategy development in progress</p> <p>n/a</p>	<p>50% of work completed</p> <p>n/a</p>	<p>Strategy anticipated to be completed by April 30,2014</p> <p>n/a</p>

	increased awareness among primary and secondary schools students	<p>Curricula for Sustainable land management/biosafety for tertiary education in progress;</p> <p>.Extensive awareness creation activities in universities/secondary schools across the country ongoing</p>	MOU signed between EPA/University for said work	<p>70-80% curricula development for SLM in college of Agriculture/forestry University of Liberia completed/20-25% of biosafety for same college completed</p> <p>Awareness activities carried out in 30 secondary schools and four universities</p>	
2. Mainstreaming biodiversity values	Target : Mainstream biodiversity values into national development policy, plans and programmes by 2018	Mainstreaming environmental issues into the Agenda For Transformation(AfT)National development blue print	seven line ministries, agencies and academic institutions are mainstreaming environmental in particular biodiversity issues into their policies, laws, plans/programmes	All of institutions have gone 50-60% of the mainstreaming process	The Ministries of Planning and Finance are yet to understand the issue of mainstreaming environmental issues into national development

3.Addressing incentives	1TARGET : Develop tools including policy, strategy& programmes on incentive measures for sustainable utilization of biological resources by 2016;	1.The Agenda for Transformation, government giving tax break as incentive for concessionaires undertaking biodiversity off programmes	Concessionaires are responding and cooperating with the programme	15 companies and concessions are complying with the measure n/a	
4.Sustainable production	. TARGET: increase innovation and added value for new biodiversity-based products.	With support from government and GEF, Small grant Programme, community organizations across country engage in conservation and biodiversity-based small enterprise initiatives	Local communities' conscious of the value of biodiversity-based products. Business and industry investing in biodiversity-based products	More than fifty local community base organizations engaged innovative initiatives with good financial return; Local industry producing handy craft, furniture increasing market share	Public understanding of biodiversity-based innovation is increasing
5.Halve rate of loss	TARGET: At least 60% reduction in the rate of deforestation in the southeast and northwestern biomes especially those	Development of forest legislations and ESIA regime	Reduction in unsustainable practices in natural resource sector	More than 75 concessions and industries are ESIA compliant	Approval of concessions and industries to operate is conditioned on ESIA

	<p>attributable to subsistence agriculture, forestry and mining activities by 2018;</p> <p>2.Target: Put in place conservation and management programmes for all species (fauna and flora) officially recognized as vulnerable, threatened and endangered within protected area network by 2016</p> <p>TARTEGET III: Significant reduction in illegal trade in fauna and flora species within the borders of the country by 2016</p>	<p>Legislative, policy and institutional framework in place</p> <p>Wildlife law and quarantine regulations in place, CITES administrative & Scientific Committees constituted</p>	<p>Availability of official listing of vulnerable, threatened and endangered species,</p> <p>Instruments enforced</p>	<p>More than 100 species of fauna and flora identified and documented</p> <p>Number of violations prosecuted</p>	<p>compliance</p> <p>Endangered species listing used in primary & secondary schools as instructional materials</p>
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6.Sustainable fisheries	<p>1. Target: At least 25% permanent no-fishing zones established to protect fish stocks by 2016.</p> <p>Target II: Identification and establishment of Marine Protected Areas (MPA) by 2016</p>	<p>National fisheries policy and law completed</p> <p>Potential MPAs identified</p>	<p>Fisheries practices regulated</p> <p>Preparation to legalize their status in progress</p>	<p>Five sites identified</p>	
7.Manage within limits	<p>Target I:Take sustained actions to ensure viability of components of agro-biodiversity that ensure sustainable livelihoods and local food security</p>				
8.Reduce pollution	<p>TARGET I: Take action to address threats to biodiversity from Land based agricultural activities that cause water pollution</p>	<p>ESIA regime Land Police, and NAP NAP(National Action Plan for sustainable land management); Land</p>	<p>Predict threats and appropriate actions to address same</p>	<p>Land Policy defining tenure security/land use plan in place 2012, ESIA regime in place at EPA since 2003 and NAP(National Action Plan for sustainable land management in place</p>	<p>There is policy, legal and technical guidelines and standards in place to address issues of land base pollution</p>

	TARGET II: Take action to control the sources of pollution to water and soil which impacts on biodiversity	Policy defining land tenure/land use plan		since 2012;	caused by agricultural practices
9. Reduce invasive species	TARGET III: Undertake national Programme for the control of alien and invasive species that threaten ecosystems, habitat, or species by 2017;	Environmental framework of law of Liberia, national agriculture law and 2006 Reformed Forestry law	Assignment of personnel points of entry by line by Ministry of Agriculture and Forestry Development Authority	Three sectoral laws and the environmental framework laws along with the ESIA regime in place	There exist legaland technical instruments. The advent of mono-culture especially oil palm present new threats
10.Minimize reefs loss	n/a	n/a	n/a	n/a	n/a
11.Protected areas	Target:10% of forest land areas, remaining biomes and the 5% coastal and marine place in protected area network by 2018.	Wildlife law, protected area Act, regulations, guidelines, programmes and management regime in place, Fisheries Policy, identified potential MPAs	Protected area network already exist and operating; Identified potential MPAs; Trained park ranger/warden assigned in existing networks	Three gazzetted protected areas; three not gazzetted but management regime in place; five potential MPAs identified;	Liberia targeted gazette six additional protected areas between 2006-2013. At current, only one addition was made which is Lake Piso.

12.Prevent extinction	To be develop				
13.Conserve gene pool	<p>Target I: Establish gene bank, Pollen storage, Tissues, and Meristem culture facilities by 2017;</p> <p>Target II: Establish two botanical and one zoological gardens by 2018</p>	<p>Two seed banks established at Central Agriculture Research Institute(CARI)</p> <p>n/a</p>	<p>CARI providing improved seed varieties to farmers</p> <p>n/a</p>	<p>Farmers producing crops with more yield at present</p> <p>n/a</p>	<p>Currently only the two seed banks serving farmers. We yet to establish modern facilities including gene banks, Pollen storage, Tissues, and Meristem culture facilities or to establish Botanical and Zoological gardens</p>
14.Restore ecosystems	<p>Target II: Develop program to increase Capacity of ecosystems to deliver goods and Services for end users by 2018.</p>				
15.Enhance resilience	Not yet developed				

16.Implement Nagoya Protocol	Target I: Ratification of Protocol by 2014 Target II: complete National Legislations for implementation of Protocol by 2015	1.Developed draft ABS law 2.development of regulations and guidelines in progress	1. Draft law validated stakeholders; 2. Protocol's Instrument presented to National Legislature for ratification	1.draft validated by stakeholders	
17.Revise NBSAP	Complete revision of the NBSAP by middle of 2014	Revision and updating NBSAP nearing completion	Inventory and stocktaking completed Fifth National Report nearing completion	Stocktaking and inventory completed Second draft of Fifth National report presented by UNEP& CBD	
18.Respect and conserve TK	n/a	n/a	n/a	n/a	
19.Improve Knowledge	n/a	Appointed for IPBES	Liberia participating IPBES' activities
20.Mobilize resources	To be completed after completion of strategy				

National Biodiversity Strategy & Action Plan: updating, Incorporating Targets and mainstreaming biodiversity into Sectoral/Cross-sectoral Programs

The National Biodiversity Strategy & Action Plan has been updated building on the 2010 Targets and Strategic Plan, and interlining them with the Aichi Targets and the Strategic Plan for 2011-2020. Already, the Stocktaking and Inventory Exercises have helped to clarify reasons why the previous NBSAP did not score high, and what can be done during the revision to overturn the gaps. As seen in the above table, our targets addressed all thematic areas under the convention, including ecosystems and habitats as well as crosscutting areas covered under the Aichi Targets. Thus, the targets identify how the strategy will help sectoral institutions to mainstream biodiversity considerations into their policies, plans and programs.

One of the gaps identified in the old NBSAP was the inability to emphasize how to mainstream the strategy into development and planning processes. As revealed by the current stocktaking and inventory exercises, target setting without consideration for the CBD thematic areas was one of the weaknesses in the 2004 NBSAP. Addressing these will make mainstreaming easier, effective, and strong.

Actions taken to implement the Convention since the Fourth Report and the outcomes of these actions

Liberia has made some efforts in the implementation of the convention since the completion of the Fourth National Report. There have been a number of actions taken to institutionalize the implementation of the convention at the national level; critical among them are the following:

- a. The EPA has developed number of regulations, standards and guidelines for the implementation of environmental and social impacts assessments in line with Environmental Protection & Management Law and the National Environment Policy; (www.epaliberia.org/lr)
- b. The Ministry of Lands, Mines & Energy is completing the revision of its legislation, policy, regulations and guidelines to improve management and enforcement of environmental and social impact assessment concerns in the mining sector; (www.molme.gov.lr)
- c. Forestry Development Authority is reviewing the regulations and guidelines on Private Use Permit to bring that aspect of the forestry to best practice /standard. It has also developed a ten core best practice Code of Harvest. (www.fda.gov.lr)

- d. The Ministry of Agriculture has completed (FAPS) policy on nutrition and food security, and have undertaken other studies in the sector; (www.moa.gov.lr)

All of these actions have been done with the involvement of relevant stakeholders including the local population with funding from the Government of Liberia and donor organizations. These instruments are being developed and revised based on major changes observed in each of the key sectors.

In spite of these gains, a number of challenges continue to plague effective institutional coordination and collaboration geared toward implementation of the convention at national level:

- inadequate institutional collaboration among line ministries and agencies continues to be a hindrance to implementation of the convention; especially, where sectors cling to mandates and cannot see the bigger picture;
- issuance of mining exploration licenses by the Ministry of Lands, Mines and Energy in protected areas where the FDA has already declared as an area under protection;
- encroachment by local communities on protected Areas network; and refusing to recognize the legislations establishing those Protected Areas due largely to their noninvolvement in the governance structures;
- Reluctance of the Forestry Development Authority and the Ministry of Lands, Mines & Energy to pay attention to the Environmental Protection Agency's warning about multiple issuance of logging concessions under the Private Use Permit and issuance of mining permits in Pas or in areas intended for PAs.

This poor collaboration spirit is due to line ministries arrogance to recognize EPA's authority as the umbrella institution for sustainable environmental and natural resource management.

Effectiveness of biodiversity mainstreaming into relevant sectoral and cross-sectoral strategies, plans and programmes

Under the Fourth National Report, Chapter Two dealt with how biodiversity has been mainstreamed into the national development and planning processes. According to the document, biodiversity was a cross-cutting issue covered in the Poverty Reduction Strategy of 2008-2011. Under this arrangement, Liberia:

- Reported conducting social-biological surveys of proposed protected areas and allocated 950,000 hectares for said purpose with at least 100,000 hectares allocated per year up to December 2010. Currently, Liberia has increased the figure to more than a million hectares and anticipates reaching 1.5 million hectares mark by 2018.
- Efforts have been made to complete the legal status of three additional protected areas to add to the existing three. Lake Piso was gazetted as multiple use protected area in 2011 and the government plans to gazette two additional ones (Gola and Grebo Protected Areas) in 2014 and 15 respectively.
- It was reported in the Fourth National Report that Liberia was using community forest management techniques to identify viable economic activities for local communities from forest resources. Consistent with the new forestry legislation that mandates local involvements in forest resource management; local people are now involved in decision making and benefit sharing arrangement under the new law. As a result, 62 community forest concessions were received. 12 have been vetted while the rest are still undergoing due diligence process. Additionally, for every logging concession issued and operating, local communities are now negotiating their entitlement to the share of the proceeds accrued there from especially stumpage and land rental fees consistent with the provision of the new forestry law and community land rights legislation.
- **AGRICULTURE BIODIVERSITY:** The Ministry of Agriculture working with NGOs and civil society groups reviewed the mandates of existing agricultural Parastatals as well as encourage, promote and strengthen 100 farmers' based organizations as the primary institutions for farmers' cooperatives.
- Currently, the government has taken number of actions to actualize the commitment made during the preparation of the Fourth National Report. The Cooperative

Development Agency (CDA), the national regulatory agency for farmer cooperatives has been revitalized to carry out its mandate. The Ministry of Agriculture has trained and deployed agriculture extension agents in 15 counties to advise farmers on modern methods of farming. The Central Agriculture Research Institute (CARI) has commenced distribution of improved seeds and other planting materials to increase food production and ensure food security.

- Government is also promoting lowland farming (wet paddy) as a way of reducing the pressure of vegetation removal brought by the perennial shifting cultivation farming practices.
- The government of Liberia has established food security monitoring system to observe food security and nutrition indicators and provide early warning of potential emergency. During the reporting period, the Ministry of Agriculture has also developed food security and monitoring strategy and program. It has also established a national food security task force to implement the food security programme and to monitor food security and nutrition. What remains to be done is the implementation of the strategy and programme nationwide.
- The Ministry of Agriculture has further committed during in the Fourth National Report to review and implement incentive measures for private sector investment consist with the investment code and as well as tax and revenue laws by 2011. In compliance with this promise, the Ministry of Agriculture has developed private sector implementation strategy and programme in the agriculture sector by the end of the second quarter of 2013. Implementation is the next challenge anticipated to commence in the near future.

INLAND WATERS:

Government institutions including: Ministry of Land, Mines and Energy, Liberia Water and Sewer Corporation, Ministry of Health, EPA, Ministry of Public Work etc, to establish quality testing facilities nationwide with trained staff and necessary equipment. Apart from the Standard Laboratory established in 2012 by the Ministry of Commerce with adequate trained human resource and equipment, there is no other record on laboratory established for water quality testing nationwide.

INCREASE ACCESS TO SAFE DRINKING WATER: The government planned to increase access to safe drinking water from 25 to 50% including 45% for rural population by 2011. The government set this goal in 2004; however, it has not been achieved thus far. Also the pledge to develop, improve, or procure hydro-geological information system cannot be confirmed.

Implementation status of national biodiversity strategy and action plan

Sectoral institutions have made good efforts to develop laws, regulations, strategies, policies, and plans for management of natural resources. However, results in implementation has been mixed due to the dichotomy between development planners and environmentalists; thus **Goal 7** dealing with environmental sustainability cannot be said to be adequately addressed.

The NBSAP of 2004 did not have a financial mechanism or a resource mobilization strategy; thus the strategy was largely donor dependent. Moreover, government support to natural resources management has not been strong, leaving the implementation of the strategy problematic. Sector institutions did what they could with their limited resources to make the gains reported in this report. We can safely put the overall rate at 35%.

CHAPTER THREE: PROGRESS TOWARDS THE 2015 AND 2020 AICHI BIODIVERSITY TARGETS AND CONTRIBUTIONS TO THE RELEVANT 2015 TARGETS OF THE MILLENNIUM DEVELOPMENT GOALS (MDGs):

Implementation Progress of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Targets

The mandatory implementation of environmental impact assessment regime by the Environmental Protection Agency which requires every developer to identify their activities' impacts on the natural environment including biodiversity and requirement to mitigate impacts is one major contribution made by the country toward the realization of the strategic goal **(EPA LAW Sections 6-33)**.

Besides, the country has undertaken number of enabling activities as mandated by COP including the development of the Biodiversity Strategy and Action Plan, implementation of enabling activities projects to address poverty and governance Issues in protected areas management, the conduct of needs assessment (systemic, institutional and individual) for readiness management of In-situ and Ex-situ Conservations and the TEMATEA Approach, the Third and Fourth National Reports and finally, the implementation of a National Self Capacity Needs Assessment for the implementation of the Rio Conventions. Liberia also completed in 2012 Sustainable Land Management Project which resulted into promulgation of the country's first NAP

Contribution of actions to implement the Convention towards the achievement of the relevant 2015 Targets of the Millennium Development Goals in Liberia:

Liberia was among the 189 nations that signed the Millennium Declaration which obliged signatories to work toward achieving fundamental values to make the world a better place for everyone. The signatories therefore set themselves 2015 as the target date to meet some of these basic needs amounting to eight goals (primary education, water and sanitation, maternal health care, environmental sustainability etc.

Liberia's endeavor to achieve the targets as a post-conflict nation is not without difficulties. According to the MDG Interim Report released by the Ministry of Planning and Economic Affairs 2012, the country is on track to achieving targets such as promoting gender equality and empowering women; and achieving development of global partnership for development. Achieving the remaining goals remains a critical challenge. Whilst efforts continue to be directed towards goals such as eradicating extreme poverty and hunger; reducing child mortality,

improving maternal mortality and combating HIV/AIDS and other diseases, the gaps to overcome between now and 2015 is quite wide and the efforts needed are huge.

The 2012 report released in 2013 is the evaluation of national actions since 2000 to ascertain measures taken at national level geared toward meeting the goals. The following analysis focus on each goal, status and trend contained in the interim report as indicated in the charts below as the 2015 deadline looms. It is however a general conclusion of the Government of Liberia that she will not meet most of the goals except those ones already mentioned. Effort to address the rest will continue under the new development action plan known as AfT (Agenda for Transformation) a medium range development plan for the country that runs from 2013-2017.

PROGRESS INDICATOR MATRIX OF THE MDGs GOALS & TARGETS

Status at a Glance				
Indicator	Base 2001/2002 ¹	Current	Target	Achieve
Goal 1: ERADICATE EXTREME HUNGER AND POVERTY				Likely
Proportion of population below \$1 (PPP) per day	76.2(2001)	56.3	38.1	Off track
Poverty gap ratio	24.4(2007)	21	12.2	Off track
Share of poorest quintile in national consumption	8.78(2007)		4.39	X
Prevalence of underweight children under five years of age	6.8(2001)	19.2	3.4	
Proportion of population below minimum level of dietary energy consumption	70(1997)	41	35	On track
Goal 2: ACHIEVE UNIVERSAL PRIMARY EDUCATION				Unlikely
Net enrollment ratio primary education	0.35(2001)	0.44	1	Off track
Primary completion rates	31.2(2001)	92	80.6	On track
Literacy rates of 15-24 year olds	34.7(2001)	79.3	80	On track
Goal 3: PROMOTE GENDER EQUALITY AND EMPOWER WOMEN				Likely
Ratio of girls to boys in Primary Education	0.69(2002)	0.88	1	On track
Ratio of girls to boys in Secondary Education	0.69(2002)	0.78	1	On track
Ratio of girls to boys in Tertiary Education	0.38(2002)	0.59	1	On track
Share of women in wage employment in the non-agricultural sector	11.4(2002)	47	50	On track
Proportion of seats held by women in national legislature	11.1(2002)	12.5	25	Off track
Goal 4: REDUCE CHILD MORTALITY				Unlikely
Under-five mortality rate (per 1,000 live births)	194(1999)	103	64	On track
Infant mortality rate (per 1,000 live births)	117(1999)	73.6	39	On track
Proportion of 1-year old immunized against measles	69(1999)	66.1	100	Off track
Goal 5: IMPROVE MATERNAL HEALTH				Unlikely

¹ While the base year for Goal 1 is predominantly 2001/2002, the proportion on dietary minimum consumption started from 1997.

Maternal mortality rate (per 100,000 births)	578(1999)	770 ²	145	Off track
Proportion of births attended by skilled health personnel	89.1(1999)	79.2	100	Off track
Adolescent birth rate (percent)		141		Off track
Goal 6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES				Unlikely
HIV prevalence among adults (15-49) (percent)	1.5(2007)	1.5	0.75	Off track
HIV prevalence among pregnant women (15-49) (percent)	12.9(2000)	2.6	2.0	On track
Condom use as contraceptive prevalence rate (percent)	16.8(1999)	25.2	50.4	Off track
Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS (percent)	23.5(2007)	23.5	70	Off track
Proportion of population with advanced HIV infection with access to antiretroviral drugs	19(2009)	27	62.1	Off track
Prevalence rates associated with malaria (incidents per 100,000)	56900(2000)	36404.7		
Death rates associated with malaria (deaths per 100,000)		54		
Prevalence rates associated with tuberculosis (incidents per 100,000)		282	141	
Death rates associated with tuberculosis (deaths per 100,000)		62	31	
Proportion of tuberculosis cases detected and cured under directly observed treatment short course (percent)		88	90	
Goal 7: ENSURE ENVIRONMENTAL SUSTAINABILITY				Unlikely
Proportion of land covered by forest (percent)	59(2007)	59		On track
Proportion of people with sustainable access to improved water sources (percent)	26(2001)	73.9	63	On track
Proportion of people with access to improved sanitation (percent)	36.3(2001)	10.4	67.9	Off track
Goal 8: DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT				Likely
Public sector external debt outstanding (medium and long term) incl. arrears (\$billions)	4.7	0.238		Achieved
Public sector external debt outstanding incl. arrears percent of GDP	639.6	20.6		Achieved
Public sector external debt outstanding incl. arrears of Exports				
External public debt services charges percent of GDP		0.19		

Aid per capita (current US\$)	101.2	115.2		
Internet users (per 100 people)	0	2.9		
Mobile cellular subscription (per 100 people)	17	57		

Ministry of Planning and Economic Affairs Interim report on MDG 2012

Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day

Poverty is one of the menaces to sustainable peace, security and development in post conflict countries including Liberia. The country has a population of 3.7million with annual growth rate of 2.1. It has 1.6 million or 44.5% residing in urban centers while 2.0 million or 55.5% live in rural areas. The proportion of the population that live in absolute poverty is put at 2.1 million about 56.3% from 76.2% in 2001/2002 to 63.8% in 2007. Rural poverty stands at 56.9% from 67% in 2007. Seventy percent (70%) of the rural population depend on subsistence agriculture for livelihood. Dependency ratio stands at 82.9% from age range of 0-14 and above 65.

Indicator	2001/2002	2007	2010	TARGETS
Proportion of population below \$1 (PPP) per day	76.2	63.8	56.3	38.1
Poverty Gap Ratio (in %)		24.4	21	12.2
Share of the poorest quintile in national consumption		8.78		4.39

Source: MDGs Report 2004; CWIQ 2010; World Bank Poverty Note; DHS 2007

Another key reason why Liberia will not meet this goal is support to agriculture reform remains grossly inadequate coupled with low level of productivity in the sector and near lack of farm-to-market roads, limited access to credit, market and weak coordination of various intervention initiatives. As a consequence, the country recorded reduction in the sector's contribution to real GDP from 46.0-27.1% between 2005 -2012(Central Bank of Liberia 2011, World Bank Poverty Note).The indication is it will be difficult for Liberia to meet the target of 38.1% before 2015 (2010CWIQ).

Goal 2: ACHIEVE UNIVERSAL PRIMARY EDUCATION

Indicator	2001/ 2002	2007	2008	2009	2010	2011	Targets
Net Enrollment Ratio in Primary Education	0.35	0.33		0.42	0.40	0.44	1
Primary Completion Rates	31.2	69.1	62.3	83		92	80.6
Literacy Rates of 15-24 Year Olds	34.7	73.86	69.2	75.6	79.3		80

Source: National School Census 2010/2011 Report, LDHS 2007, NPHC 2008 and United Nations Statistics Division.

In 2002, the 51st Legislature passed the new education law requiring the government to apportion 25% of the national budget toward education in an attempt to put Liberia in a position to address the perennial inadequacy in education financing which continue to serve as serious impediment to making education accessible and affordable for those who need it most.

Available statistics from the Ministry of Education indicate that access to universal primary education began in 2006 and increased net enrollment from 33% in 2007 to 44% in 2011. Also, primary education has substantially increased from 69.1% in 2007 to 83% in 2009 and 92% in 2011. Literacy rate for age 15-24 increased from 73.8% in 2007 to 79.3% in 2010 (National School Census Report 2010/2011). To further complement the 2002 Education Act, in August, 2011, the President approved the new Education Reform Act which has re-enforced gains made in free and compulsory primary education by extending it to junior secondary education.

While these steps led to huge increase in enrollment in free primary education and junior secondary schools, it has come without basic preparation to sustain the enrollment. There exists inadequate class rooms and seating capacity. The ratio of students to teachers has increased from 45: 1 in the early 80s to 100:1 despite the lack of seating capacity.

There also exists complete lack of supporting facilities such as library and laboratory facilities in public schools in the country coupled with chronic shortage of qualified teachers. The problem is not helped with the perennial problem of irregular payment of salaries to public school teachers. Some of the teachers in the service do not get paid for a period of four to six months. These exigencies are serving as disincentive not only to attract qualified teachers to the service but improve the quality of the education offer in public school system. Achieving the Aichi Target One requires awareness and education at all levels. With the environment not built into curricula, much remains to be done to achieve quality results from our education programs. It is therefore difficult according to the interim report for this goal to be achieved at the 2015 target date (National School Census 2010/2011 Report, LDHS 2007, NPHC 2008 and United Nations Statistics Division).

Goal 3: Promoting Gender and Empowering Women

Liberia like many other countries in the world is male dominated society and the coming of MDGs in particular set the tune for advocacy for women to have a level playing field. Whilst women got universal suffrages in 1948, the politic and other national activities remained male until the turn of the 21st century. Despite the look of things, women continue to hold key positions in both government and the private sector. What is clear is their representation in those sectors has always been unstable due to the trend of events in the socio-cultural and political arena.

Target 3: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015

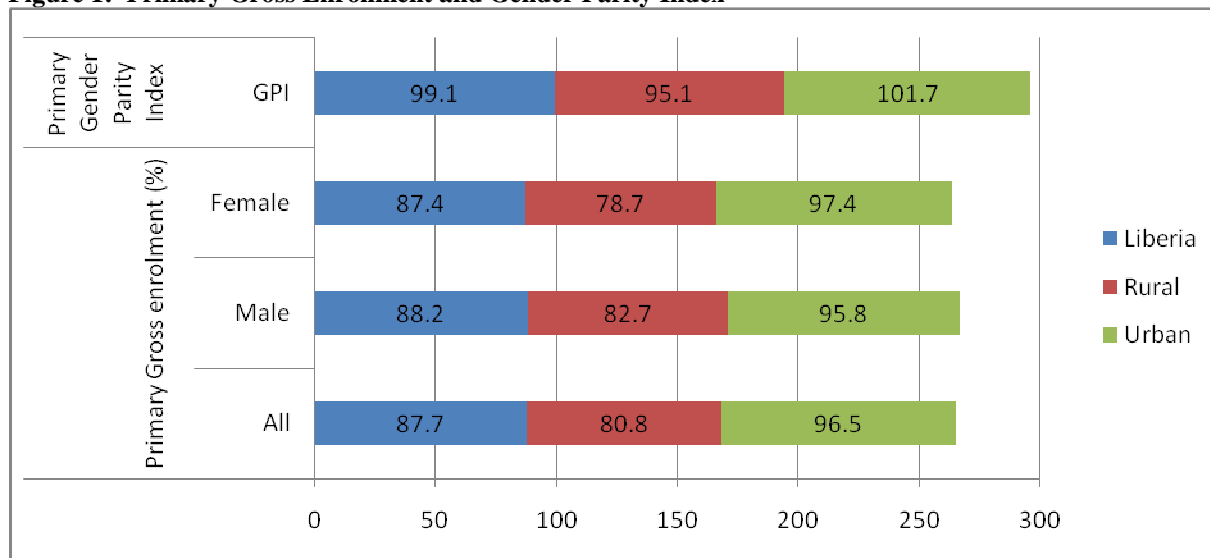
Indicators	2001	2007	2008	2009	2010	2011	2015
Ratio of girls to boys in Primary Education	0.69	0.88	0.92	0.87		0.88	1
Ratio of girls to boys in the Secondary Education	0.69	0.75	0.73	0.75		0.74	1
Ratio of girls to boys in the Tertiary Education	0.38			0.52		0.59	1
Share of women in wage employment in the non-Agricultural sector	11.4		47			39	50
Proportion of seats held by women in national Legislature	11.1	13.8	13.8	13.8	13.8	12.0	25

Source: 2010 Liberia MDG Report, 2007 CWIQ LISGIS, 2008 National School Census Report (MOE), 2011 NEC results & UN Statistics Division/MDG Report 2012 and Gender Equality measure by Ministry of Gender and Development 2012

MDG goal to eliminate disparities between men and women is helping to mitigate the harsh cultural reality women have experienced over the years in Liberia. Girls now have equal access to primary, secondary and tertiary education as boys. They also actively participate in the non-agricultural sector and there is a radical shift in the proportion of women holding key positions in government since 2006. While women held good number of seats in the national legislature between 2006-2011 there was shift in that progress when most of the women candidates lost their seats to their males opponents in the 2011 elections. However the outlook is still good in term of percentage at the national level. Example, the proportion of seats held by women in the Legislature in 2001 was 11.1% and increased to 13.8% in 2006. Currently, it stands at 12% after the 2011 general and presidential elections which most of the female candidates lost to their male counterparts.

Another indicator for success for this goal is the ratio of girls to boys in primary education which has increased from 69% in 2001 to 88% in 2011 indicating 19 points increment in a decade. Similarly, the ratio of girls to boys in secondary education increased from 69% to 74% and tertiary education grew from 38% to 49% from 2001 to 2011 respectively. Also a percentage share of women in wage employment in the non-agriculture sector increased from 11.4% in 2001 to 47% in 2008 indicating 35.6% increment in seven years. The share of women slightly declined from 2008 to 2011 due to global financial crisis that affected investment in the country as it was around the world. With these gains, it is likely that goal 3 target will be achieved by 2015.

Figure 1: Primary Gross Enrollment and Gender Parity Index



Source: CWIQ 2010 Report

Goal 3: Promoting Gender and Empowering Women

Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015

Indicators	2001	2007	2008	2009	2010	2011	2015
Ratio of girls to boys in Primary Education	0.69	0.88	0.92	0.87		0.88	1
Ratio of girls to boys in the Secondary Education	0.69	0.75	0.73	0.75		0.74	1
Ratio of girls to boys in the Tertiary Education	0.38			0.52		0.59	1
Share of women in wage employment in the non-Agricultural sector	11.4		47			39	50
Proportion of seats held by women in national Legislature	11.1	13.8	13.8	13.8	13.8	12.0	25

Source: 2010 Liberia MDG Report, 2007 CWIQ LISGIS, 2008 National School Census Report (MOE), 2011 NEC results & UN Statistics Division/MDG Report 2012 and Gender Equality measure by Ministry of Gender and Development 2012

Liberia has been a strong chauvinistic society. Its custom and practices have been skewed in favor of men than towards women. For example women were only considered to play the role of house wives and prohibited from publicly participating in issues that even affected their welfare. Overtime, women became disadvantaged as many of them did not have the opportunity to actualize their potential.

MDG goal to eliminate disparities between men and women is helping to mitigate the harsh cultural reality women have experienced over the years in Liberia. Girls now have equal access to primary, secondary and tertiary education as boys. They also actively participate in the non-

agricultural sector and there is a radical shift in the proportion of seats held by women in national legislature as well as their representation in appointed public positions.

Wage Employment

The World Bank has set a 66% of Liberian female, age 15 and older, participating in some form of employment (World Bank Report, 2010). Most of their employment is in the informal sector. However, the Gender Equality measure by the Ministry of Gender and Development of 2012 in the below table indicates that government has employed more females in senior management positions that are non-agriculture sector. The latest figure is from the World Development Indicators which put the percentage at 11.4 which is much lower than average 32% in the Sub Saharan Africa

Women Participation in Legislature and Leadership Positions/Government

Appointed/Nominated Positions	No. of Positions	No of Appointed/Males	No. of Appointed Females	Percentage Female
Ministers	19	13	6	31.57%
Deputy Ministers	55	40	15	27.27%
Assistant Ministers	85	63	22	25.88%
Heads of Public Corporations	25	18	7	28%
Deputy Heads of Public Corps.	43	32	11	25.58%
County Superintendents	15	10	5	33.33%
Assistant Superintendents	15	12	3	20%
Commissions	5	2	3	60%
Other Government Agencies	3	2	1	33.33%
House of Representative & Senate	103	91	12	12%
Associate Justices	4	3	1	25%

Source: Gender Equality measure by Ministry of Gender and Development 2012

According to the National Elections Commission report of 2011, the elections experienced a significant drop in female representation in parliament. Women obtained 12 out of 103 elected positions in 2011 election, compare to 2005 results where they obtained 14 out of 94 seats, indicating a 12 percentage point. Liberian women continue to make strides in attaining gender

parity in key decision-making positions. There have been some downward and upward trends in other areas

The ratio of girls to boys in primary education increased from 69% in 2001 to 88% in 2011 indicating 19 points increment in a decade. Similarly, the ratio of girls to boys in secondary education increased from 69% to 74% and tertiary education grew from low 38% to 49% from 2001 to 2011 respectively. This is a significant gain that makes Goal 3 highly likely achievable. A percentage share of women in wage employment in the non-agriculture sector increased from 11.4% in 2001 to 47% in 2008, indicating 35.6% increment in seven years.

The Environmental Protection Agency has recently established a Gender Desk in the Division of Multilateral Environmental Agreements which working to mainstream gender considerations into sectoral and cross-sectoral planning. The development of a strategy from the natural resources perspective is in the making to drive the environmental agenda for the country. Knowledge about natural resources to which women are inextricably linked would contribute significantly to the overall goal of women empowerment.

GOAL 4: REDUCE CHILD MORTALITY

Target 4: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate

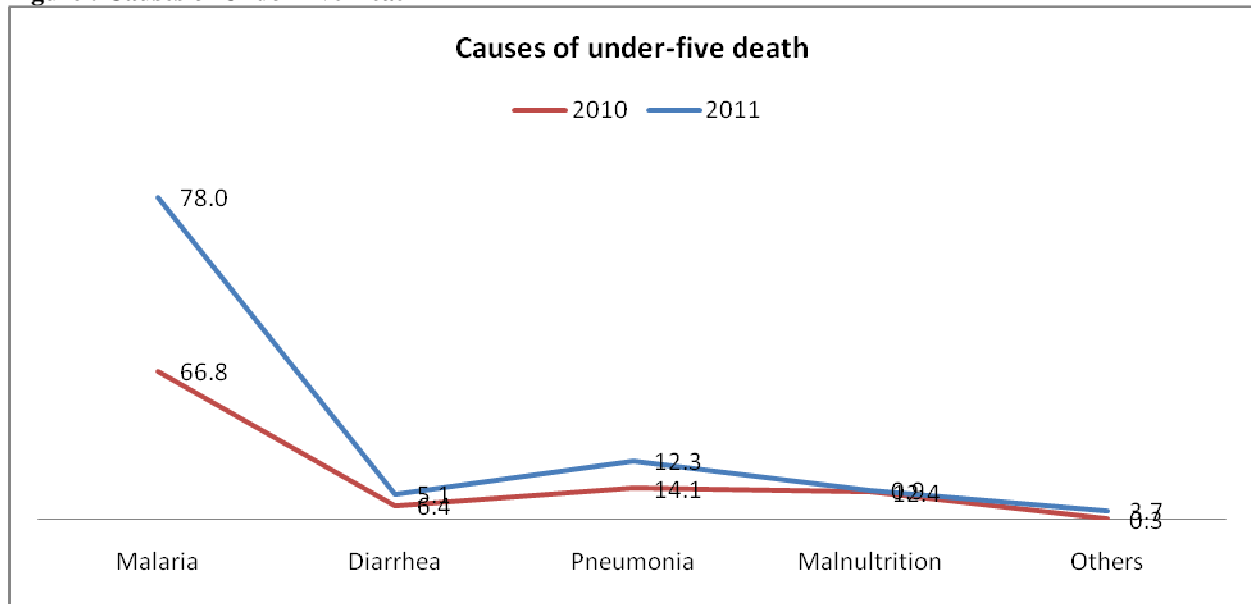
Infant and child mortality rate is one of the critical challenges Liberia faces in her post conflict development endeavor. In 2000, the country has a mortality rate of 194 per 1,000 live births which is one of the highest in the world. Significant improvement has been made with a decline to 103 in 2010, which is 47% decline in a decade. According to the interim report released by the Ministry of Planning and Economic Affairs, to meet the target, under-five mortality rate has to be reduced from 114-64/1,000 by 2015 with an average annual decrease of 10/1,000, reduce infant mortality rate from 73 to 39/1,000 by 2015 with an average annual decrease of 6.8/1,000; and finally, increase in portion of 1-year old immunized against measles from 59.7% 2008 to 100% by 2015 with an average increase of 8.06 percentage points.

INDICATORS	2000	2007	2008	2009	2010	2012	2015
Under-five mortality rate (per 1,000 live births)	194	110	114	109	103		64
Infant mortality rate (per 1,000 live births)	117	71	80.6	73	73.6		39
Proportion of 1-year old immunized against measles	69	52.6	59.7	60		66.1	100

Source: 2007 Demographic and Health Survey (DHS), Malaria Indicator Survey 2009, World Development Index (Retrieved November 2012)

The 2012 interim report maintains that Liberia is likely to achieve these targets judging by the investment government is making in the health sector especially the successful transition from humanitarian emergency which was dominated by Aid Agencies to patient care and service delivery by the national health service led by the Ministry of Health and Social Welfare in all 15 counties of the country.

Figure : Causes of Under-five Death

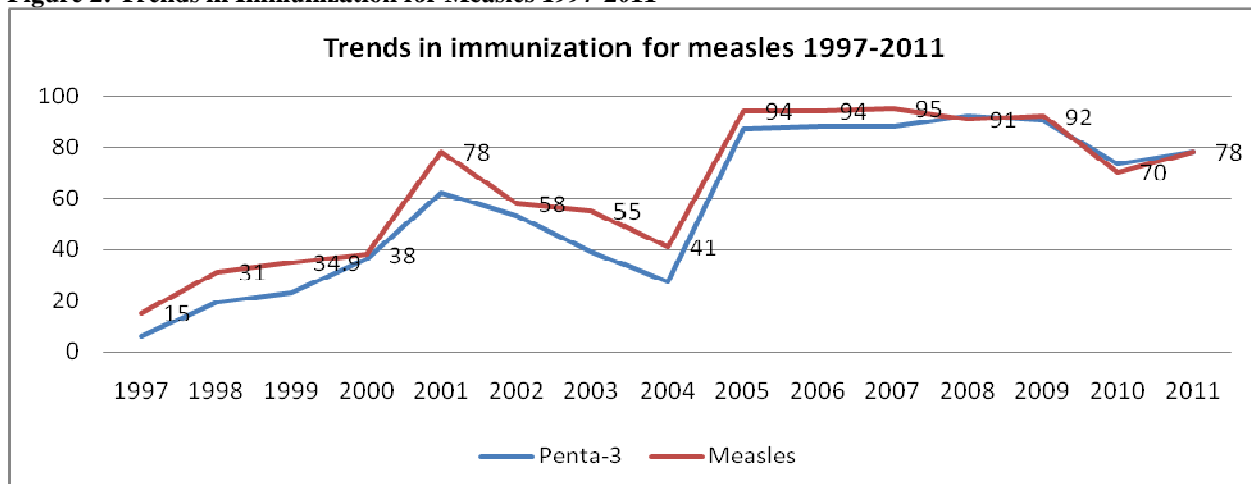


Source: Ministry of Health and Social Welfare 2010-2011 Annual Report

Despite these improvements, the report pointed out that Liberia may not succeed in meeting the target for immunization which target for 2015 is 100% and current target is only 66.1%. Available statistic on immunization from the Ministry of Health says the rate of immunization was 59.7% in 2009 and reached to 66.1% in 2012(2012 EPI Cluster survey). The World Development Indicators confirming Liberia inability to reach the target says, childhood immunization rates were 63% in 2000 and has only increased at current to 64% which is below the 100% needed to meet the target for 2015.

It is difficult to imagine a society contributing to the management and sustainable use of natural resources when the health of the populace is at risk. Although the Ministry of Health & Social Welfare has been a key partner in environmental programmes, mainstreaming knowledge gained into its strategies and programs is found wanting. Policy makers in the health sector needs to raise actions in the sector to compliment the national environmental agenda, including the achievement of MDGs targets four to six.

Figure 2: Trends in Immunization for Measles 1997-2011



Source: Ministry of Health & Social Welfare Annual Reports 2008-2011

Other challenges that impeding meeting this goal include human, capital and physical resource constraints, malnutrition due to poverty, incidence of communicable and non-communicable diseases, management of increased operation as the new health action plan roll out plans and activities. The general conclusion is the country will not meet this target by 2015 given the underlined reasons indicated above.

GOAL 5: IMPROVE MATERNAL HEALTH

Maternal mortality ratio increased sharply from 260 per 100,000 live births in 1986 to 994 in 2007. The civil conflict was largely blamed for the increase which is one of the highest in Sub-Saharan Africa.

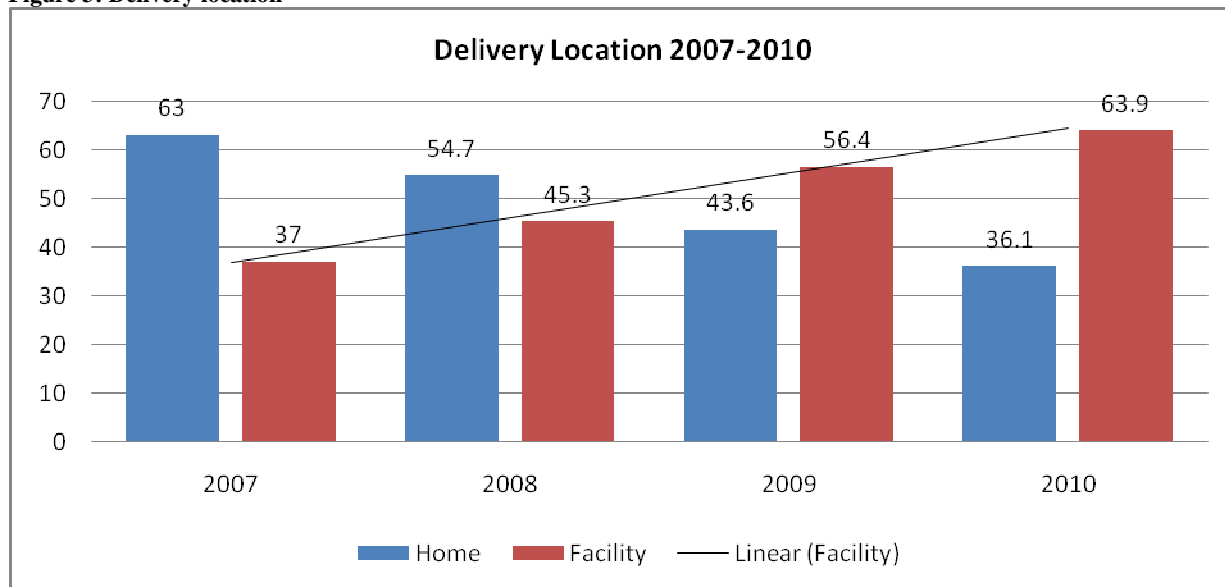
Target 5: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

STATUS OF PROGRESS							
Indicators	2000	2007	2008	2009	2010	2011	2015
Maternal mortality rate (per 100,00 births)	578	994	890		770		145
Proportion of births attended by skilled health personnel	89.1	46	46.3	-	64.7	-	100
Contraceptive prevalence rate (percent)	16.8	11.4	-	-		-	60
Adolescent birth rate (percent)		141	-	38	-	-	-

Sources: LDHS 2007; Census 2008; Trend in maternal mortality: 1990 to 2010, WHO, UNFPA, UNICEF& World Bank

The 2012 report says Liberia is making progress toward goal 5 but it is not enough to reach the 2015 target of 145.

Figure 3: Delivery location



Source: LDHS 2007, HMIS 2008-2010

The population and household census conducted in 2008, put maternal mortality ratio at 890 and a joint estimate released by WHO, UNICEF, UNFPA and the World Bank in 2010, put it at 770 per 100,000 live births. It was therefore concluded that Liberia will not meet the target by 2015 and actions need to continue in post 2015 to meet the 2015 target.

GOAL 6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES

HIV prevalence rate among the general population aged 15-49, as reported by the 2007 Liberia Demographic & Health survey (LDHS) is 1.5%. By region, the HIV prevalence rate in urban areas is three times greater than that of rural areas (2.5vs. 0.8) with Monrovia, the capital accounting for the highest 2.9%. by gender, women carry the highest 1.8% as compare to 1.5%among men. The greater disparity is among young people aged 15-24 with the rate among females being 1.3% and males 0.4% respectively.

Target 6A: Have halted by 2015 and begin to reverse the Spread of HIV/AIDS

Indicators	2000	2007	2008	2009	2010	2011	2015
HIV prevalence among adults (15-49) percent		1.5					0.75
HIV prevalence among pregnant women (15-49) percent	12.9	5.4	4.0			2.6	
Condom use as contraceptive prevalence rate (percent)		25.2					50.4
Proportion of population aged 15-24 years with comprehensive/correct knowledge of HIV/AIDS (percent)		23.5					70
Proportion of population with advanced HIV infection with access to antiretroviral drugs	17		20.5	22.2	30.6		62.1

Source: Liberia Demographic & Health Survey (LDHS) 2007.

The establishment of the National AIDS Commission by an Act of the National Legislature in 2010 and the development of a four-year (2010-2014) National Strategic Framework to guide the National response to HIV and AIDS prevention, has increased the profile of National response to HIV and AIDS in the country. It is however clear that Liberia is nowhere near meeting the target by 2015.

Contraceptive Acceptors according to Age range & Types of Contraceptives

Contraceptives	Below 20 years	Above 20 years	Total
Oral Pills	5,107	8,518	13,625
Depo-Injection	3,856	6,324	10,180
Male Condoms	5,407	7,058	12,465
Female Condoms	43	46	89
Total	14,413	21,946	36,359

Source: Liberia Demographic & Health Survey (LDHS) 2007.

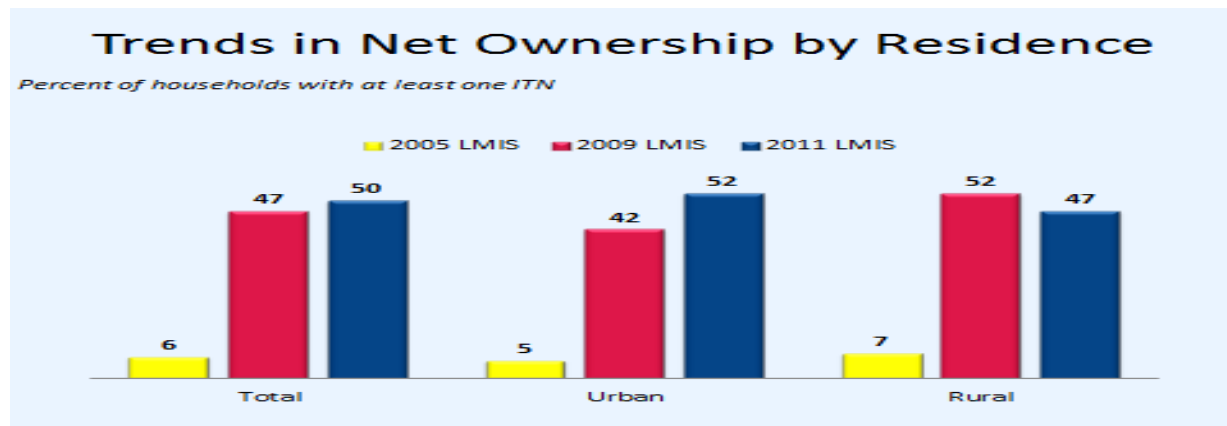
By the above data on contraceptive use, it shows a huge gap for contraceptive use in Liberia with a percentage as low as 11% of a population of 3.7 million as of 2010.

MALARIA

Malaria remains one of the major threats against the improvement of health services in Liberia. Seven out of ten under-five suffer from Malaria (NMCP 2001). A key success toward fighting this disease was the development of a national policy to eliminate the spread of malaria by targeting the source to improve the environment and sanitation. As parts of the strategy, mosquito nets have been distributed to every household mainly in rural and slums communities. Per statistic, HIV/AIDS prevalence rate in rural areas is relative low as compare to urban centers.

Given its mortality rate, malaria is a danger to sustainable development; example, 33% of all impatient deaths and 41% of impatient deaths among children under age 5 are attributable to

malaria (NMCP 2009). While the country has developed a national malaria strategic plan for 2010-2015, one can conclude based on the available data that Liberia cannot meet goal 6 by 2015.

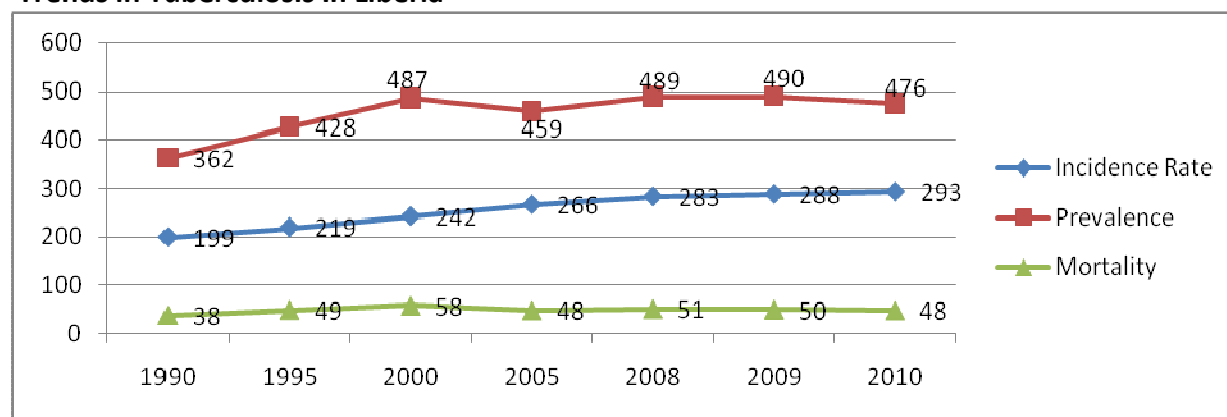


Source: Liberia Malaria Indicator Survey 2011. Monrovia, Liberia; LISGIS and ICF International

Target 6.C: Halt and begin to reverse the incidence of malaria, prevalence and death rates associated with tuberculosis

TB which is target C of goal 6 is another major public health concern with the prevalence rate of 476 per 100,000 populations in 2010 compared to 487, 459 and 489 in 2004, 2005 and 2008, respectively. There is expansion of TB diagnostic and treatment services to all parts of the country. However, the reversal of the disease is occurring at a slow pace. The emergence of MDR-TB and the increasing incidence of TB/HIV have created a challenge in reducing death due to TB. Mortality data remain a challenge as the vital registration system does not include all TB deaths.

Trends in Tuberculosis in Liberia



Source: WHO Global Tuberculosis Report 2011

There has been a gradual increase in the proportion of TB cases detected from 2005 to 2010. There has been a sustained increase in the case detection rate of 74 percent in 2008 for smear positive cases, 91 percent in 2009 and 88 percent in 2010. As the program expands, diagnostic and

treatment services through provision of free treatment and training of health workers, more cases are being notified through the health information system.

Proportion of tuberculosis cases detected and cured under directly observed treatment short course

Year	2005	2006	2007	2008
Population	3304735	3362026	3419317	3476608
All TB cases	3456	4514	4511	5007
Smear +ve	2167	2906	2826	3042
CDR all cases	0.43	0.37	0.48	0.53 [¶]
CDR Smear +ve	0.58	0.55	0.69	0.74 [¶]
Notification rate- all cases*	105	138	132	144
Notification rate- Smear +ve*	66	87	83	87
Est. Incidence- all cases*	243	362	277	272
Est. Incidence –Smear +ve*	113	157	120	118
Est. Prevalence*	378	435	343	326
Mortality*	25	37	28	28

Source: Liberia Malaria Indicator Survey 2011. Monrovia, Liberia; LISGIS and ICF International

Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources

Indicator	2005	2007	2009	2011	2015
Proportion of land covered by forest (%)	31	59		45	

Source: Forestry Development Authority, FAO

Liberia is endowed with more natural resources that are helping to accelerate social and economic development. However, inadequate information on the environmental impact remains one of the many challenges in the management of the natural resources. The Environmental Protection Agency (EPA) and other relevant agencies concern have not developed monitoring or assessment and reporting mechanism in place to track progress on environmental sustainability. Currently, 44.9 percent of the land is covered by forest compared to 57 percent in 2007 (FAO Report 2010). Prior to 2006, the extractive industries were managed without taking into consideration the needs of the future generation. The Liberia Extractive Industry Transparency Initiative (LEITI) was established to ensure compliance with international standard and transparency in the management of the extractive industry. Unfortunately, the enthusiasm to utilize its fertile environment towards meeting its development objectives has led to some environmental challenges. Investment undertaken in Liberia since the Poverty Reduction Strategy I, “Lift Liberia”

regime has somehow ensured that safeguards are put in place to strike a balance on how the environment is utilized today with the interest of future generation not being jeopardized. In 2009, Liberia put in place National Forestry Policy to conserve and sustainably manage all areas, so that they will continue to produce a complete range of goods and services for the benefit of all Liberians and contribute to poverty alleviation in the nation. However, the country continues to lose more of its forest to what is considered as “Private Use Permit” under the Forestry Law and shifting cultivation activities. The forest coverage of Liberia is divided into three main categories: mangrove swamps and beaches along the coast; wooded hills and semi-deciduous shrub lands in the middle belt; and tropical forest. The extent of tropical rain forest cover is 4.52 million hectares (i.e. 43 percent of the total land area).

At present, there are eleven National Forests, one National Park and one Nature Reserve in Liberia. The total area of the permanent forest estate comprises approximately 1.7 million hectares. The forest in Liberia is concentrated in two large blocks: evergreen lowland forests in the southeast; and the semi-deciduous mountain forest in the northwest.

Indicator: Forest land covers GIS-study“Current State of the Forest Cover in Liberia”:

Class	Surface area (ha)	percent³
2.2 Agricultural area with small forest presence	3,042,091	31.7 %
2.3 Mixed agriculture and forest area	1,317,873	13.7%
Sub. Total: agricultural influence	4,359,964	45.40%
3.1 Agriculture degraded forest	949, 615	9.9%
3.2 Open dense forest	1,013,993	10.6%
3.3 Closed dense forest	2,424,078	25.3%
Sub. Total: typical forest strata	4,387,686	45.80%
Total	8,747,650	

Deforestation rates for Liberia

Source	Time period	Total deforestation	Annual deforestation rate
World Bank- FRM 2004	1979 – 2004	15%	0,65%
CI - SDSU ⁴ (Christie et.	1986 – 2000		0,20%

³The percent is based on the total land area of 9595,11 sq.km due to the GIS study

al. 2007)			
CI - SDSU (Christie et. al. 2007)	2000 – 2006		0,35%
WRI	1990 – 1995		1,30%
FRA 2005	1990 – 2005	22%	1,64%

Source: P. Hess, S. Trainer, FIL-Report No.2, May 2006

GOAL 8: DEVELOP GLOBAL PARTNERSHIP FOR DEVELOPMENT

Liberia has made great strides to foster global partnership for development from 2006 to present; at the end of December, 2011, the total debt stock was US\$531.7 million from US\$4.7 billion at the end of June, 2007. Additional effort which propelled this achievement was the institution of robust policy reform that eventually qualified her under the HIPC initiative for the poverty reduction growth facility that accelerated debt relief for the country. By June 2010, the country has benefited debt cancellation totaling US\$4.6 billion dollar (multilateral and bilateral). At the end of December 2011, the profile of total external debt stock by creditor category showed that US\$120.6 million or 22.7 percent of the total debt was owed to multilateral creditors; US\$132.3 million or 24.9 percent owed to bilateral creditors; and US\$0.25million or 0.05 percent owed to commercial creditors.

Target: D Deals comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term

Indicator	2007	2008	2009	2010	2011
Public sector external debt outstanding (medium and long term) incl. arrears (US\$b)	4.732	2.063	1.772	0.242	0.238
Public sector external debt outstanding incl. arrear as percent of GDP	639.6	242.5	201.5	24.6	20.6
External public debt service charges as percent of GDP	0.16	0.09	0.58	0.4	0.19

Sources: Ministry of Finance and Central Bank of Liberia

There is great acceleration in governance reforms with the conduct of free and fair democratic elections, landscape national decision-making, policy and institutional reforms all gear towards building an open society. The country launched its medium and long terms national development plans known as AfT and Vision 2030 with MDGs being an integral part. Foreign direct investment has grown two-fold especially in the extractive and agricultural sectors. One major concern remain in the growth rate of foreign direct investment is it negative impacts on the natural environment and biodiversity particularly the plantation agriculture such as the oil palm concessions, forestry

⁴ CI – Conservation International; SDSU - South Dakota State University;

and mining sectors. Given these prospects, it is a conclusion that Liberia will meet the MDGs target for building global partnership development not necessarily sustainable one.

According to the 2012 MDG Report, overall, the country is on track to achieving targets such as: access to universal primary education, promoting gender equality and empowering women; and achieving development of global partnership for development. Achieving the remaining goals remains a critical challenge. Whilst efforts continue to be directed towards goals such as eradicating extreme poverty and hunger; reducing child mortality, improving maternal mortality and combating HIV/AIDS and other diseases, the gaps to overcome between now and 2015 is quite wide and the efforts needed are huge. With less than three years to achieve the MDGs, the challenges associated with some are far higher than the improvements to be made rendering the gaps insurmountable. It will also require building supporting institutions and empowering them to address epidemics such as HIV/AIDS and other diseases that remain a potential threat to the youthful population while also raising the living standard of the people. Essentially, for Liberia to achieve all MDGs targets by 2015, the current strategy and capacity in addressing the deficits needs to be elevated by manifold.

Population:

Liberia has a population of 3.6 million people in 2010 with the growth rate of 2.1 per annual, of which 1.6 million or 44.5% reside in the urban areas and 2.0 million or 55.5% reside in the rural. The proportion of people in absolute poverty is estimated at 2.1 million or 56.3%, from 76.2% in 2001/2002 to 63.8% in 2007 (CWIQS 2010). About 2,891,723 million or 83.2% of the population is between the ages of 0-39 years meaning Liberia has a youthful population (Census 2008).

70% of the population depends on agriculture for subsistent. Due to the near lack of investment in the sector, it has collapsed thus increasing already bad situation. As a consequence, rural poverty remains very high even though it has a downward trend making movement from 67.7% in 2002 to 56.9 in 2010(CWQ2010). The percentage of the population that depends on their relations for survival is at a staggering percentage of 82.9% and age range from 0-14 and 65 and above. These population categories depend largely on age range of 15-64 for survival (population and housing census 2008).

Besides conditions of poverty, the population has challenges of inadequate social services such as health, water and sanitation Health situation in particular is more challenging than many other sectors in the development paradigm. Recent study says 17,000 Liberians are attended to by one nurse, clearly indicating that more than 40,000 Liberians are medically cared for by one doctor. Many of the more than 550 doctors trained in the late 70s and early 80s to serve in the National Health Service, left the country to seek family and financial security in the developed world.

Another critical impediment to obtaining the MDG that will provide headache for policy makers and the health service in post 2015 is the growing rate of HIV/AIDs infection rate which currently stands at 1.5%. According to the Ministry of Health, this percentage when translated into figure is estimated to be 35,000 persons out of a population of 3.7million according to the Liberia Institute Statistics and Geo-information Service (LISGIS).

Economic Performance

Since 2006 the Government of Liberia (GoL) has instituted robust reforms that fostered economic recovery and sustained growth which also led to improved performance across all sectors of the economy. Per capita GDP declined from US\$524.7 in 1987 to US\$54.5 in 1995 during the heat of the civil war. In 2005, the real GDP was US\$401.7 million and later grew to US\$630.3 million in 2008. Similarly, RGDP in 2011 increased to US\$768.0 million and estimated at US\$835.1 million in 2012. Liberia's post-war annual national budget was recorded at US\$80 million in 2006 and has grown to US\$572 million in 2012, indicating an increase of 615 percent which has expanded the national fiscal space in support of national development that has strongly driven the MDGs implementation in the short period. The strong growth over the period was driven by policy reform framework under the Poverty Reduction Strategy (PRS), *Lift Liberia* (2008-2011) that led to sustained support to the agriculture and the forestry sectors which accounted for 53.0 percent. These reforms have strengthened the private sector and particularly to Liberia's business sector which has also led to strong growth in the service sector (**Poverty Reduction Strategy 2008; National Budget; and Central Bank Annual Report 2011**).

This growth also positively impacted the Gross Enrollment Rate (GER) of Primary Education from 86.3 % in 2007 to 88 % in 2010. It facilitated the extension of compulsory primary education to junior secondary education, and has also contributed to reducing infant mortality rate from 114 % in 2000 to 73 % in 2010, under five mortality from 194 per 1,000 live birth in 2000 to 103 per 1,000 live birth in 2010 and maternal mortality from 994 per 100,000 births in 2007 to 770 per 100,000 birth in 2010 (**CWIQ 2010; WHO, UNICEF, UNFPA and World Bank 2010**).

There is also marked improvement of Women participation in government and all aspect of the economy. Furthermore, the Government has introduced the Local Economic Development Strategy and the County Development Fund into the National Budget for local governments and enacted into law the Public Financial Management Act geared towards achieving the MGDs.

While Liberia recorded these strong growths in GDP occasioned by increase in investment portfolio in the extractive industries, it has not had quantum effect on the lives of the population. The increase in the investment portfolio in the natural extractive industries is not supportive of sustainable resource management which could have supported human development and environmental sustainability including biodiversity management/governance at the national level. As the development economists put it, GDP growth in post conflict Liberia as it was in the past, has not translated into economic gains by the population and the attending infrastructural development to accelerate poverty alleviation and ensure food security.

One classic example is the Agriculture Sector which majority of the rural population depends on for livelihood. This sector continues to be conducted on subsistent level with inadequate services that could stimulate development such as farm to market road, access to credit, markets, improved seeds, extension programs etc. The Central Agriculture Research Institute (CARI) and College of Agriculture and Forestry remain shadows of themselves lacking any meaningful research activities these institutions were noted for. In the case of CARI which could boast of \$24.985 million dollars between the periods of 1987-1989, today her share of the National Budget is one million dollars (\$1million) not even enough to pay the salaries and benefits of the skeleton team maintaining the facility.

Lessons learned from the implementation of the Convention in Liberia

Since 2001 when Liberia begun to implement the convention, there have been mix lessons ranging from development and implementation of policies and programmes to strategies and actions and overlapping institutional mandates and programmes.

Liberia does not have biodiversity law, policies, guidelines or regulations as standalone instrument for the management and governance of biodiversity. While there exist laws, policies and other legal instruments in sectoral institutions that highlight biodiversity issues, they are however inadequate to cover all thematic ecosystems, biomes, species and habitats. For instance, the forestry law and policy, highlight the environmental and social impact issues, they are not clear how to deal with forest species and habitats. Also, the same applies to the environmental framework laws of Liberia. While these laws have comprehensive action plan dealing with environmental and social impacts issues, sections 83-87 only generally mention issues related to forest ecosystem and inland waters.

It is nevertheless important to report that there exist active sectoral laws, policies and regulations in place; however, they do not impact the overall implementation of the convention. Example, there are no specific laws dealing with biodiversity and climate change issues, nor are there any law on oil exploration and biodiversity etc.

Liberia developed good strategy and action plan between 20002-2004. The strategy while embracing broad themes of biodiversity conservation, was little over ambitious and did not establish financial mechanism or a resource mobilization plan that support the implementation of actions developed under the strategy.

The Government of Liberia established the Environmental Protection Agency as an umbrella institution on natural resource management in the country; however sectoral institutions continue to hold to their individual mandates and therefore implement independent programmes in contravention of the mandates of the EPA. Moreover, government's political endorsement of the strategy does not match with financial support to implement the strategic plan.

CONCLUSION AND RECOMMENDATIONS

The Consulting Team believes that the Fifth National Report is a monitoring and evaluation tool for the implementation of the Convention at national level. As a critical planning tool, it has helped to ensure the mainstreaming of biodiversity into national development planning processes. With its focus on biodiversity status and trends, the aim of identifying the extent to which the quest for development has impacted biodiversity conservation, management and sustainable use were clearly identified.

The report proceeded with gap analysis across the thematic areas of biodiversity and the MDGs as to whether targets and actions developed actually addressed issues of concern. It was established that biodiversity loss at the biomes, species and habitats levels continue to increase despite what appear to be an improved opportunity for sustainable management. Threats were particularly seen to come from increased poverty with more than half of the population consumed by activities of mining, forestry and plantation agriculture; with oil palm concessions especially accounting for more than 4 million hectares of the land area of the country. The general picture is development initiatives including concession management and biodiversity conservation has no common boundary in place therefore development programmes continue to contribute to biodiversity loss at biome, species and habitat levels etc.

The inappropriate or near exclusion of EPA in the formulation and implementation of national development agenda and concession agreements negotiations, prior to implementation as well as the inadequate political will to implement its mandates particularly the EIA regime are key to problems existing in biodiversity management. Another issue is the inadequate investment in agriculture programmes to address food security and livelihoods is contributing to biodiversity loss in a significant way. We realize that without adequate investment in this area, poverty will continue to impact on biodiversity, because when there is no action poverty would continue to be a perennial threat to sustainable biodiversity management.

Analysis of national reform measures especially on the new development blueprint known as the Agenda for Transformation “Aft”, and the results of implementing the PRS indicate that the intent and purposes have the carrying capacity to accelerate poverty alleviation, superintend sustainable development including biodiversity management and transparent system of governance; but huge deficit remains, especially with 56.3% of the population living below the poverty line at national level and 68% poverty at the rural level where close to 70% of the population living there depends on natural resources for livelihood.

Meeting the various targets set in the 5th national report therefore remains a distant dream as is the case with MDGs meeting deliverables by 2015. These failures were observed to be due largely

to inadequate investment made in biodiversity conservation and the challenges presented by poverty and foreign direct investment which places little value on sustainable environmental and natural resources management.

The consultants are convinced that despite these challenges, there exist windows of opportunities especially for the improvement in the capacity of biodiversity related institutions and human capacity through the ongoing revision exercises of the NBSAP (the setting of new targets, strategies, actions and programmes). This development presents a unique opportunity to turn a new chapter couple with increase in national consciousness for transparent and accountable system of governance for sustainable environmental and natural resources management.

Finally, the consultants observed that some thematic areas under the convention lacked adequate data and would require assessment, especially in the areas of Inland Waters, Island Biodiversity, Mountain Ecosystems and Coastal & Marine Biodiversity. These studies/assessments would strengthen work on the development of the NBSAP Strategy for 2020 as well as the Aichi Targets.

Recommendations:

1. Conduct rapid assessments to collect data for the thematic areas identified in the report;
2. Develop strategy to improve public understanding about natural resources in the country, and their benefits for both human-wellbeing and development.
3. Ensure that targets for SDGs under development and the new targets under MDGs are consistent with goals and targets set under the Aichi Targets and the Strategic Plan 2011-2020.
4. The Environmental Protection Agency should be involved in the negotiation of concession agreements in order to protect the environmental concerns prior to signing of contracts with the Government of Liberia;
5. Invest in food security through research and extension programmes to deal with the issue of land removal

APPENDIX 1:

Information concerning reporting Party and preparation of national report

A. Reporting Party

Contracting Party	LIBERIA
NATIONAL FOCAL POINT	
Full name of the institution	ENVIRONMENTAL PROTECTION AGENCY
Name and title of contact officer	JONATHAN W. DAVIES/ FOCAL POINT
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CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	ENVIRONMENTAL PROTECTION AGENCY
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SUBMISSION	
Signature of officer responsible for submitting	ANYAA VOHIRI Executive Director/GEF Operational Focal Point
Date of submission	APRIL 2014

APPENDIX 11: FURTHER SOURCES OF INFORMATION:

- Liberia's National Biodiversity Strategy & Action Plan (NBSAP) 2004
- Liberia Agriculture Sector Investment Program (LASIP) Report, September 2009: *Prepared in Partial Fulfilment of the Requirements for the Comprehensive African Agriculture Development Programme (CAADP) Compact;*
- Stocktaking & Inventory Study Reports (NBSAP)*
- www.epaliberia.org/lr;
- www.molme.gov.lr;
- www.fda.gov.lr;
- www.moa.gov.lr;
- www.arcelormittal.com;
- Liberia's Fourth National Report 2009/10;
- Liberia: Poverty Reduction Strategy 2008-2011;
- Lift Liberia: The Agenda for Transformation 2012-2017;
- Liberia's MDGs Report 2012;
- Liberia's Threats & Opportunities Assessment (**ETOA**) USAID, September, 2008;
- Liberia Institute Statistics & Geo-information Services (LISGIS) Reports
- Ministry of Planning Strategic Plan 2008-2011

APPENDIX 111: National implementation of the thematic programmes of work and plan under the Convention on Biological Diversity or Decisions of the Conference of the Parties related to cross-cutting issues.

This section reflects a case study on Arcelor Mittal, a concessionaire in Liberia which has undertaken extensive studies on the Mount Nimba Ecosystem and documented information on a lot of species and habitats in the region. Below are some of the data retrieved from five volumes of reports submitted to the Environmental Protection Agency. Volume Three documents information on fauna and flora found in the massif. These can be found on the company's website: www.arcelormittal.com.

Vulnerable Plant species:

Vascular plant species of conservation concern according to the IUCN

Name/group	Scientific name	Tokadeh	Gangra	ENNR	IUCN
Sapotaceae	<i>Neolemonniera clitandrifolia</i>			x	En
Euphorbiaceae	<i>Amanoa bracteosa</i>	x	x	x	Vu
Flacourtiaceae	<i>Homalium smythei</i>	x	x	x	Vu
Lauraceae	<i>Anthonotha vignei</i>			x	Vu
	<i>Copaifera salikounda</i>	x	x		Vu
	<i>Guibourtia ehie</i>	x	x	x	Vu
Meliaceae	<i>Guarea cedrata</i>	x	x	x	Vu
	<i>Lovoa trichilioides</i>	x	x	x	Vu
Moraceae	<i>Milicia regia</i>	x	x	x	Vu
Ochnaceae	<i>Lophira alata</i>	x	x	x	Vu
Putranjivaceae	<i>Drypetes afzelii</i>	x	x	x	Vu
Sterculiaceae	<i>Cola reticulata</i>	x	x		Vu

Key: x = Presence confirmed, EN = Endangered; VU = Vulnerable;

As an alternative means of assessing the conservation value of vegetation communities, a bio-quality approach has been initiated as this was originally developed in the GWFA and has recently been used in Guinean Nimba. Under this approach, plant species are assigned categories (stars) relative to their global rarity, and vegetation communities are then scored according to their various star components. Black stars are the highest rating and are assigned to species restricted to a small part of the world, generally occurring in less than two degree squares. They are very high conservation priority species, and their possible local decline, due to mining or other factors would represent a serious conservation concern.

Vascular plant species of high conservation priority using bio-quality categories

Name/group	Scientific name	Tokadeh	Gangra	ENNR	Bio-quality Category
Balsaminaceae	<i>Impatiens nzoana</i> subsp. <i>nzoana</i>			x	Black
Euphorbiaceae	<i>Uapaca chevalieri</i>		x		Black
Lauraceae	<i>Guibourtia leonensis</i>	x		x	Black
Melastomataceae	<i>Heterotis jacquesii</i>	x			Black
Rubiaceae	<i>Chassalia bicostata</i>		x		Black
	<i>Psychotria ombrophila</i>	x	x	x	Black
	<i>Psydrax manensis</i>	x			Black
Acanthaceae	<i>Asystasia scandens</i>	x	x	x	Gold
	<i>Justicia guineensis</i>		x	x	Gold
Anacardiaceae	<i>Trichosypha smythei</i>		x		Gold
Apocynaceae	<i>Hunteria simii</i>	x		x	Gold

	<i>Landolphia membranacea</i>	hbm	x		Gold
Aristolochiaceae	<i>Pararistolochia leonensis</i>	x			Gold
Celastraceae	<i>Tristemonanthes nigrisilvae</i>		x		Gold
Commelinaceae	<i>Buforrestia obovata</i>	x	x	x	Gold
Connaraceae	<i>Cnestis rademosa</i>	x	x		Gold
Cyperaceae	<i>Mapania coriandrum</i>			x	Gold
Dracaenaceae	<i>Dracaena adamii</i>	x	x	x	Gold
Euphorbiaceae	<i>Amanoa bracteosa</i>	x	x	x	Gold
	<i>Hymenocardia lyrata</i>	x	x	x	Gold
Flacourtiaceae	<i>Homalium smythei</i>	x	x	x	Gold
Lauraceae	<i>Anthoноtha vignei</i>			x	Gold
	<i>Cryptosepalum tetraphyllum</i>	x	x	x	Gold
	<i>Tessmannia baikieoides</i>	x		x	Gold
Marantaceae	<i>Hypselodelphys velutina</i>		x		Gold
Melastomataceae	<i>Warmeckea golaensis</i>			x	Gold
Meliaceae	<i>Trichilia djaloni</i>		X		Gold
Rapateaceae	<i>Maschalocephalus dinklagei</i>			x	Gold
Rubiaceae	<i>Ixora nimbana</i>	x	x	x	Gold
	<i>Morinda geminata</i>	x	x	x	Gold
	<i>Pauridiantha schnellii</i>		hbm	x	Gold
	<i>Pausinystalia lane-poolei</i>	x	x	x	Gold
	<i>Pavetta platycalyx</i>	x			Gold
	<i>Psychotria rufipilis</i>		x	x	Gold
	<i>Schizocolea linderi</i>	x	x	x	Gold
	<i>Stelecantha ziamaeana</i>	x	x	x	Gold
Rutaceae	<i>Glenniea adamii</i>	x	x	x	Gold
Sapotaceae	<i>Neolemonniera clitandrifolia</i>			x	Gold
Zingiberaceae	<i>Aframomum longiscapum</i>		x		Gold

Key: x = Presence confirmed; hbm = historic herbarium record

Three plant species were found that might be new to science: a *Rungia* species (Acanthaceae) at Gangra, a *Chrysobalanaceae* species, also at Gangra, and an *Allophylus* species (Sapindaceae) at both Gangra and ENNR. Though all three have also recently been encountered in Guinean Nimba, they are likely to have limited geographical distribution and are thus of conservation interest. In addition the woody climber *Vernonia doniana* and the small shrub *Chassalia bicostata* can be considered to be of conservation interest because they were not known to occur in the Nimba area before this survey was carried out.

Primate species recorded or suspected in the BioPA study area

Name/group	Scientific name	Tokadeh	Gangra	ENNR	IUCN status	Liberian Protected status
hominoid ape						
West African chimpanzee	<i>Pan troglodytes verus</i>	x	x	x	EN	WNPA 1988
anthropoid monkey species						
Western black-and-white colobus	<i>Colobus polykomos polykomos</i>	x	?	?	VU and decreasing	WNPA 1988
Sooty mangabey	<i>Cercocebus atys atys</i>	x	x	x	VU	
Diana guenon	<i>Cercopithecus diana diana</i>	?		?	VU and decreasing	WNPA 1988
Olive colobus	<i>Procolobus verus</i>			?	NT and decreasing	WNPA 1988
Campbell's guenon	<i>Cercopithecus campbelli campbelli</i>	x	x	x		

Greater spot-nosed monkey	<i>Cercopithecus nictitans stampflii</i>	?	?	?		
Lesser spot-nosed monkey	<i>Cercopithecus petaurista buettikoefferi</i>	?	x	x		
Western potto	<i>Perodicticus potto</i>	x	x	x		
Demidof's bush baby	<i>Galagoides demidoff</i>	x	x	x		
Thomas' bush baby	<i>Galagoides thomasi</i>	?	?	?		
Northern lesser bush baby	<i>Galago senegalensis</i>	x	x	x		
Total primate species		7-11	7-10	7-12		

Key: x = Presence confirmed ? = Presence suspected, EN = Endangered; VU = Vulnerable; NT = Near-threatened; L/c = Least Concern, WNPA = Protected in Liberia under the Wildlife and National Parks Act 1988

: Large mammal species recorded or suspected in the BioPA study area

Name/group	Scientific name	Tokadeh	Gangra-Yuelliton	ENNR	IUCN Status	Liberian Protected Status
ARTIODACTYLA						
Jentink's duiker	<i>Cephalopus jentinki</i>		?	?	EN	WNPA 1988
Pygmy	<i>Choeropsis liberiensis</i>	Wider Area of Influence (possible induced effects)			EN	WNPA 1988
Zebra duiker	<i>Cephalopus zebra</i>		?	?	VU	WNPA 1988
Bongo	<i>Tragelaphus</i>		?	?	NT	WNPA 1988
Ogilby's duiker	<i>Cephalopus ogilby</i>	?		x		WNPA 1988
Yellow-backed duiker	<i>Cephalopus silvicultor</i>	x	x	x		WNPA 1988
CARNIVORA						
Liberian mongoose	<i>Liberiictis kuhni</i>	?	?	?	VU	
Leighton's linsang	<i>Poiana leightoni</i>	?	?	?	DD	
Bourlon's genet	<i>Genetta bourloni</i>	?	?	?	NT	
Leopard	<i>Panthera pardus</i>	x	x	?	NT	WNPA 1988
African golden cat	<i>Profelis aurata</i>	?	?	x	NT	WNPA 1988
PHOLIDOTA						
African white-bellied	<i>Phataginus tricuspis</i>	x	x	x	NT	
RODENTIA						
Western palm squirrel	<i>Epixerus ebii</i>	?	?	x	DD	
AFROSORICIA						
Pygmy otter-shrew	<i>Micropotamogale lamottei</i>	?	?	x	EN	
Numbers of species recorded or suspected to be present (all species, not just those of conservation concern):						
Total species recorded		21	26	31		
Total species suspected		26	28	22		
Total (regardless of status)		47	54	53		

Key: x = confirmed present; ? = suspected to be present; IUCN Categories En = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, DD = Data Deficient. WNPA 1988 = Protected in Liberia under the Wildlife and National Parks Act 1988.

Small mammal species recorded in the BioPA study area

Name	Scientific name	Tokadeh	Gangra	ENNR	IUCN status
Bats					
Number of bat species (regardless of status)		0	7	6	
Insectivores					
Bottego's shrew	<i>Crocidura bottegi</i>	x	x	x	DD
Doucet's musk shrew	<i>Crocidura douceti</i>	x		x	DD
Büttikofer's shrew	<i>Crocidura buettikoferi</i>		x	x	NT
Number of insectivores (regardless of status)		5	9	7	
Rodents					
Number of rodents (regardless of status)		9	13	14	
Total small mammal species (regardless of status)		14	29	27	

Key: x = Presence Confirmed; IUCN categories CR = Critically Endangered; VU = Vulnerable; NT = Near-threatened; L/c = Least Concern; DD = Data Deficient

REPTILES AND AMPHIBIANS

Reptile and amphibian species of global conservation concern recorded in the study area

Common name	Scientific name	Site			IUCN status
		Tokadeh	Gangra	ENNR	
Reptiles					
Dwarf crocodile	<i>Osteolaemus tetraspis</i>	Wider area of influence			VU
Serrated Hinge-backed Tortoise	<i>Kinixys erosa</i>			x	DD
Total number of species of conservation concern recorded		0	0	1	
Total species recorded (regardless of status)		4	4	7	
Amphibians					
Ringed river frog	<i>Phrynobatrachus annulatus</i>			x	EN
	<i>Kassina arboricola</i>	x			VU
Allen's slippery frog	<i>Conraua alleni</i>	x	x	x	VU
	<i>Amnirana fonensis</i>	x	x		DD
	<i>Ptychadena submascareniensis</i>	x	x	x	DD
	<i>Bufo togoensis</i>			x	NT
	<i>Kassina cochrae</i>	x		x	NT
	<i>Leptopelis macrotis</i>		x	x	NT
Sierra Leone water frog	<i>Petropedetes natator</i>	x	x	x	NT
	<i>Phrynobatrachus alleni</i>			x	NT
Guinea river frog	<i>Phrynobatrachus guineensis</i>		x	x	NT
Liberia river frog	<i>Phrynobatrachus liberiensis</i>	x	x	x	NT
Total number of species of conservation concern recorded		7	5	9	
Total species recorded (regardless of status)		24	29	33	

Key: x = Presence Confirmed; IUCN categories EN = Endangered; VU = Vulnerable; NT = Near-threatened; DD = Data Deficient

Surveys of amphibians were made using a standardized protocol whilst reptiles were recorded opportunistically. A total of 42 species of amphibians belonging to seven families including Bufonidae (true toads), Ranidae (true frogs), Arthroleptidae (commonly known as squeaker frogs), Astylosternidae (Cameroonian stream frogs), Petropedetidae (African water frogs), Hyperoliidae (African reed frogs) and Rhacophoridae (bush frogs) were recorded from the three BioPA sites including 14 species endemic to the Upper Guinea Forest Eco-region. Five species are classified by IUCN as being globally threatened (one Endangered, two as Vulnerable, one as Data Deficient and six as Near-threatened). Nine species of reptiles were identified of which one – Serrated Hinge-backed Tortoise (*Kinixys*) – is listed as Data Deficient. *Osteolaemus tetraspis* (Dwarf Crocodile) is classified as Vulnerable and was found at Vanyanpa village (circa 5km west-north-west of Mount Tokadeh, longitude 530464, latitude 825526) where it was in the possession of a villager and destined for the pot. It (and others) had been captured locally. Dwarf crocodiles are habitat specialists in small freshwater streams through rain forest, but may also enter adjacent freshwater rivers (Kofron, 1992). It could therefore potentially be found along any streams in the less disturbed forests fringing Tokadeh, Gangra and Yuelliton and in the ENNR. Local inhabitants may be able to provide more precise distribution data.

BUTTERFLIES AND MOTHS

Species identification is incomplete because some species require a detailed examination by dissection to confirm their identity with certainty. Others require long and detailed bibliographical researches. Analyses to date have confirmed the presence of a total of 742 species, confirming that this is a particularly diverse taxonomic group for the BioPA study area. Most of the species found are specific to the forest/savanna transition zone, with a clear dominance of sylvan species (species typically found in woodland).

In terms of differences between reference sites, the summit area of Tokadeh was the poorest in terms of numbers of species of butterfly and moth. There were relatively few species here, and those recorded were largely ubiquitous species. Some species found at Gangra-Yuelliton were indicative of good quality forest, as were a lower number at Tokadeh. The surveys confirmed the importance of the ENNR, which supports a relatively high proportion of species of conservation interest.

There were also two species endemic to the Liberian forest sub-region (Sierra Leone, Liberia and western Côte d'Ivoire): *Pentila abraxas* and *Hypolimnas aubergeri*. Some species were found in these surveys which had never been found in the Nimba massif before. An entirely unexpected species was *Geritola subargentea continua*, which, until recently, was considered to be confined to Central African forest. The only other records are one in Ivory Coast and this one. This may represent a generally low intensity of survey effort, but could also be indicative of the relative importance of the Liberian part of the Nimba massif for this group.

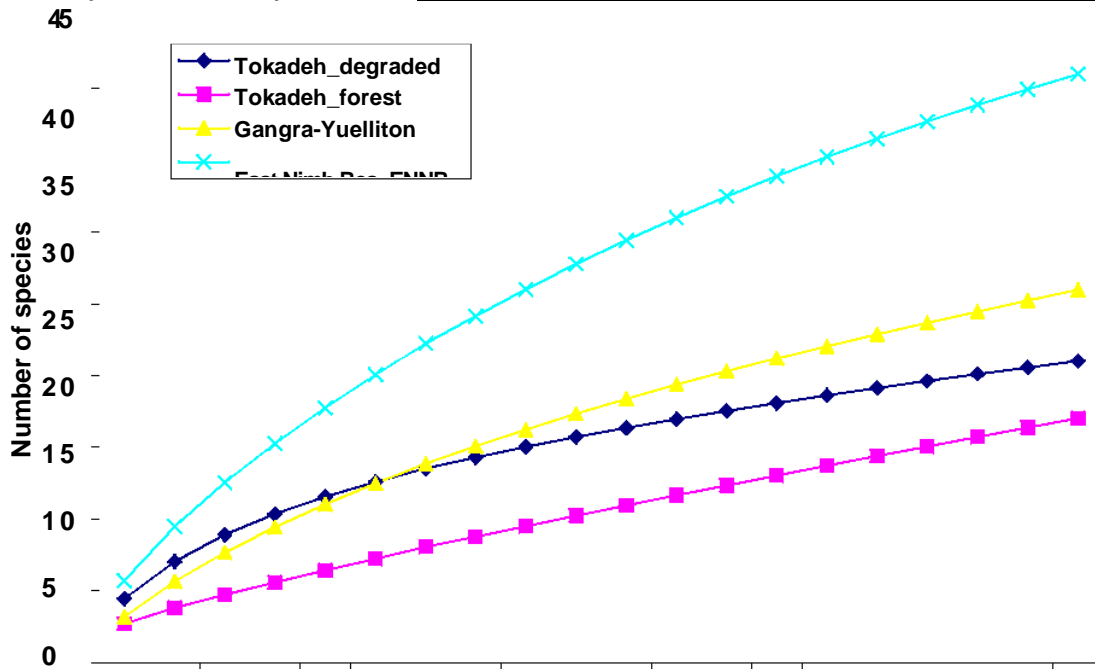
ANTS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Number of samples

ANTS AND TERMITES

Ants

Subfamilies	Genera	Species	Tokadeh	Gangra-Yuelliton	ENNR
Dorylinae	Dorylus	<i>Dorylus sp.01</i>	0	3	1



		<i>Dorylus sp.04</i>	4	0	0
Cerapachyinae	Cerapachys	<i>Cerapachys sp.01</i>	0	1	1
Dolichoderinae	Tapinoma	<i>Tapinoma sp.01</i>	5	0	0
		<i>Tapinoma sp.02</i>	1	0	0
	Technomyrmex	<i>Technomyrmex sp.01</i>	15	5	3
Formicinae	Anoplolepis	<i>Anoplolepis sp.01</i>	1	0	0
	Lepisiota	<i>Lepisiota sp.01</i>	4	0	0
		<i>Lepisiota sp.02</i>	6	0	0
		<i>Lepisiota sp.06</i>	1	0	0
	Paratrechina	<i>Paratrechina sp.03</i>	1	0	0
		<i>Paratrechina sp.04</i>	0	0	1
		<i>Paratrechina sp.05</i>	0	0	1
	Oecophylla	<i>Oecophylla longinoda</i>	1	0	0
Camponotus	<i>Camponotus acvapimensis</i>	8	0	0	
Myrmicinae	Carebara	<i>Carebara (Oligomyrmex) sp.01</i>	0	0	3
		<i>Carebara (Oligomyrmex) sp.3</i>	0	0	2

	<i>Carebara sp.04</i>	0	0	1
Cardiocondyla	<i>Cardiocondyla emeryi (sp.02)</i>	1	0	0
Microdaceton	<i>Microdaceton tibialis (sp.01)</i>	0	0	1
Pyramica	<i>Pyramica sp.02</i>	0	0	2
	<i>Pyramica sp.03</i>	1	2	0
Strumigenys	<i>Strumigenys sp.02</i>	0	1	0
Tetramorium	<i>Tetramorium flavithorax</i>	0	2	0
	<i>Tetramorium sericeiventre</i>	11	0	0
	<i>Tetramorium sp.04</i>	0	1	0
	<i>Tetramorium sp.06</i>	1	0	3
	<i>Tetramorium sp.07</i>	0	0	5
	<i>Tetramorium sp.08</i>	0	0	1
	<i>Tetramorium sp.09</i>	1	1	0
	<i>Tetramorium sp.13</i>	1	3	3
	<i>Tetramorium sp.14</i>	1	0	0
	<i>Tetramorium sp.15</i>	2	0	0
	<i>Tetramorium sp.17</i>	1	3	0
	<i>Tetramorium sp.18</i>	0	1	0
	<i>Tetramorium sp.19</i>	0	3	0
	<i>Tetramorium sp.20</i>	0	1	4
	<i>Tetramorium sp.22</i>	0	1	0
	<i>Tetramorium sp.23</i>	0	0	2
	<i>Tetramorium sp.24</i>	0	0	1
	<i>Tetramorium sp.25</i>	0	0	1
	<i>Tetramorium zambezi</i>	0	0	3
	Pheidole	<i>Pheidole sp. 16</i>	1	1
<i>Pheidole sp.08</i>		1	0	1
<i>Pheidole sp.09</i>		1	0	0
<i>Pheidole sp.10</i>		0	1	0

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Subfamilies	Genera	Species	Tokadeh	Gangra-Yuelliton	ENNR
		<i>Pheidole sp.11</i>	2	0	7
		<i>Pheidole sp.17</i>	2	0	0
Myrmicinae	Pheidole	<i>Pheidole sp.18</i>	5	0	0
		<i>Pheidole sp.19</i>	12	4	0
		<i>Pheidole sp.20</i>	1	10	16
		<i>Pheidole sp.21</i>	0	1	2
	Crematogaster	<i>Crematogaster sp.13</i>	1	0	12
		<i>Crematogaster sp.18</i>	1	0	1
		<i>Crematogaster sp.20</i>	0	1	1
	Monomorium	<i>Monomorium invidium</i>	0	0	2
		<i>Monomorium sp.01</i>	1	0	0
		<i>Monomorium sp.11</i>	5	0	0
<i>Monomorium sp.12</i>		0	2	1	
Meranoplus	<i>Meranoplus sp.01</i>	1	0	0	
Pristomyrmex	<i>Pristomyrmex orbiceps</i>	0	0	1	
Ponerinae	Anochetus	<i>Anochetus sp.02</i>	1	1	1
	Centromyrmex	<i>Centromyrmex sellaris</i>	0	1	1
	Hypoponera	<i>Hypoponera sp.01</i>	0	0	1
		<i>Hypoponera sp.02</i>	0	0	1
	Leptogenys	<i>Leptogenys sp.02</i>	0	0	2
		<i>Leptogenys sp.03</i>	0	1	0
		<i>Leptogenys sp.04</i>	0	0	1
	Odontomachus	<i>Odontomachus assiniensis</i>	0	0	2
	Pachycondyla	<i>Pachycondyla brunoii (sp.06)</i>	0	0	1
		<i>Pachycondyla sp.10</i>	2	0	0
		<i>Pachycondyla sp.11</i>	0	0	1
		<i>Pachycondyla tarsata</i>	38	12	16
	Phrynoponera	<i>Phrynoponera gabonensis</i>	1	1	2
6	27	74			

Termites

Families	Subfamilies	Genera	Species	Tokadeh	Gangra/Yuelliton	ENNR
Termitidae	Termitinae	Basidentitermes	<i>Basidentitermes potens</i>	0	1	1
		Cubitermes	<i>Cubitermes sp.1</i>	1	1	1
		Pericapritermes	<i>Pericapritermes appellans</i>	0	1	2
			<i>Pericapritermes chiasognathus</i>	1	0	3
	Macrotermininae	Acanthotermes	<i>Acanthotermes acanthothorax</i>	1	1	2
		Macrotermes	<i>Macrotermes bellicosus</i>	0	1	0
		Microtermes	<i>Microtermes havilandi</i>	0	0	1
		Odontotermes	<i>Odontotermes sp.7</i>	0	0	4
			<i>Odontotermes sp.08</i>	0	2	2
	<i>Odontotermes sp.9</i>		1	0	1	
	Nasitutermitinae	Nasitutermes	<i>Nasitutermes arborum</i>	0	1	2
			<i>Nasitutermes elegantulus</i>	1	0	1
	1	3	8	12		

In the three sites, 74 ant species belonging to 27 genera and 6 families were collected. Comparison of species richness between sites (Figure 16) showed that ENNR had the richer ant fauna (41 species) while Gangra-Yuelliton had the poorest (26). In Tokadeh we collected 37 species of which 17 were found in the forest and surprisingly 21 species were found on top of the degraded mountain.

A comparison of ant communities revealed that assemblage found on Mount Tokadeh is totally dissimilar to that of the other sampling sites as it shares very few species with these sites. Indeed this degraded mountain bears typically savannah ant species such as *Tetramorium sericeiventre*, *Cardicondyla emeryi* and most species belonging to genera Lepisiota, Tapinoma and Paratrechina.

Twelve termites species were collected, belonging to 8 genera, 3 subfamilies and 1 family. As for the ants, ENNR was the richest site (11 species), followed by Gangra-Yuelliton (7 species); and Tokadeh was the poorest (5 species). Most termite species collected in Tokadeh and Gangra-Yuelliton, were also found in ENNR and the species composition didnot differ between the sites situated within the mining footprint. There was no striking seasonal variation for either taxonomic group, though it is important to mention that one conspicuous forest ant (*Odontomachus assiniensis*) present in all forest sites during the rainy season was not found in the dry season. This species forages in leaf litter and seems to be sensitive to moisture. During the dry season, particular attention was paid to valley forests within the mining footprint. The results showed that ant and termite communities do not fundamentally vary from those living in mountain forests. These results are evidence for the potential role that such forests can play during the mitigation process.

MOLLUSCS

The Liberian part of the Nimba massif had never been previously surveyed comprehensively. Two species of freshwater mollusc were found and 76 species of terrestrial molluscs. The latter belonged to ten families, but most of the species found belong to just three of these, the Subulinidae, Streptaxidae and Urocyclidae. Two species which have not yet been identified are considered likely to be new to science. Surveys at Gangra-Yuelliton yielded eight species that were not present in the other two reference sites, while Tokadeh had 13 such species and ENNR had two such species.

Gangra-Yuelliton yielded 55 species, Tokadeh 65 species, and the ENNR 41 species. Seventy-four species were recorded at Gangra-Yuelliton and Tokadeh together, which is more than 97% of the total number of species found. In contrast, the ENNR had only about 54% (41 species). The relatively low molluscan species richness recorded at the ENNR can probably be explained by variations in soil conditions in particular soil erosion and landslides. For molluscs it is particularly challenging to ensure a wide sampling coverage at sufficient intensity

FULLY PROTECTED ANIMALS OF LIBERIA

Source:

<http://www.fda.gov.lr/content.php?sub=Conservation%20Forestry&related=Conservation%20Forestry>

Under Section 9.12 of the Act Adopting the National Forestry Reform Law (GoL, 2006), certain species are protected. Hunting, capturing or prosession of such protected species is prohibited unless specific authority has been received from the Forest Development Authority.

Common Name Scientific Name Local Name

Common Name	Scientific Name	Local Name
PRIMATES		
West African Chimpanzee	<i>Pan troglodytes verus</i>	Baboon
Black & white colobus	<i>Colobus ploykomos</i>	King monkey
Red colobus	<i>Piliocolobus badius</i>	Red monkey
Olive colobus	<i>Procolobus verus</i>	
Diana monkey	<i>Cercopithecus Diana Diana</i>	
Mona monkey	<i>Cercopithecus mona cambellii</i>	
Lesser spot-nosed monkey	<i>Cercopithecus (cephus) petaurista</i>	
Sooty mangabey	<i>Cercocebus atys</i>	Jackal
Lesser galago	<i>Galago senegalensis senegalensis</i>	
PROBOSCIDEA		
Elephant	<i>Loxodonta Africana cyclotis</i>	Elephant
ARTIODACTYLA		
Bongo	<i>Boocerus euryceros</i>	Elk deer
Forest buffalo	<i>Syncerus caffer nanus</i>	Bush cow
Ogilby's duiker	<i>Cephalophus ogilbyi</i>	Black back
Jentink's duiker	<i>Cephalophus jentinki</i>	White antelope
Yellow-backed duiker	<i>Cephalophus silvicultor</i>	Yellow back
Zebra duiker	<i>Ceophalophus zebra</i>	Marking deer
Royal antelope	<i>Neotragus pygmaeus</i>	Tricky jack
Water chevrotain	<i>Hyemoschus aquatiqucus</i>	Water deer
Red river hog	<i>Potamochoerus pocus</i>	Red hog
Giant forest hog	<i>Hylochoerus meinertzhageni</i>	Black hog
Pygmy hippopotamus	<i>Hexaprotodon liberiensis</i>	Water cow
CARNIVORA		
Leopard	<i>Panthera pardus</i>	Leopard
Liberian mongoose	<i>Liberiictis kuhni</i>	
Golden cat	<i>Felis aurata</i>	Bush cat
PHOLIDOTA		
Giant pangolin	<i>Smutsia gigantean</i>	Big ant bear

Long-tailed pangolin	<i>Uromanis temmickii</i>	Ant bear
Tree pangolin	<i>Phataginus tricuspis</i>	Ant bear
SIRENIA		
West African Manatee	<i>Trichechus senegalensis</i>	Sea cow
REPTILES : Crocodilus		
Nile crocodile	<i>Crocodylus niloticus</i>	Alligator
African slender-snouted crocodile	<i>Crocodylus cataphractus</i>	Alligator
African dwarf crocodile	<i>Ostelaemos tetraspis</i>	Crocodile
REPTILES : Squatamala		
Rock python	<i>Python sebae</i>	Boa constrictor
Ball python	<i>Python raius</i>	Boa constrictor
REPTILES : Chelonia		
Green sea turtle	<i>Chelonia mydas</i>	Green turtle
Loggerhead sea turtle	<i>Caretta caretta</i>	Sea turtle
BIRDS		
All birds of prey		
All hornbills		
All turacos		

September 2009

Common Name	Scientific Name	Local Name
Picathartidae		
Bare-headed rockfowl		
Grey-necked rockfowl		
White necked rockfowl		
All parrots		
White-breasted guineafowl	<i>Agelastes meleagrides</i>	Guineafowl