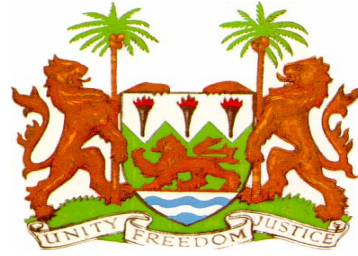




EUROPEAN UNION



SIERRA LEONE

COUNTRY ENVIRONMENT PROFILE (CEP)

SIERRA LEONE

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ABBREVIATIONS

ADB	African Development Bank
CBD	Convention on Biological Diversity
CEP	Country Environment Profile
CBOs	Community Based Organizations
CHEC-SIL	Council for human Ecology in Sierra Leone
CSSL	Conservation Society of Sierra Leone
CSP	Country Strategy Paper
DACO	Development Assistance Coordination Office
DFID	Department for International Development - UK
DoE	Department of Environment
DoF	Department of Forestry
EC	European Commission
EDF	European Development Fund
EIA	Environmental Impact Assessment
EFA	Environmental Foundation for Africa
ENFORAC	Environmental Forum for Africa
EPA	Environment Protection Act
EPD	Environment Protection Department
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FCC	Freetown City Council
FD	Forestry Division
GBS	General Budget Support
GDP	Gross Domestic Products
GEF	Global Environment Facility
GNP	Gross National Products
GOSL	Government of Sierra Leone
GRS	Governance Reform Secretariat
IMBO	Institute of Marine Biology and Oceanography.
LDP	Local Development Plan (1 year cycle)
LGA	Local Government Authority
LWDD	Land and Water Development Division
MDGs	Millennium Development Goals
NACEF	National Commission on Environment and Forestry
MAFS	Ministry of Agriculture and Food Security
MEP	Ministry of Energy and Power
MLCP	Ministry of Lands and Country Planning
MMR	Ministry of Mineral Resources

ABBREVIATIONS CONT'D

MMRF	Ministry of Marine Resources and Fisheries
MTCA	Ministry of Tourism and Cultural Affairs
NAPA	National Adaptation Programme of Action
NAP	National Action Plan
NBSAP	National Biodiversity strategy Action Plan
NEP	National Environmental Policy
NEPAD	New Partnership for Africa's Development
NFAP	National Forestry Action Plan
NIP	National Indicative Programme
NPA	National Power Authority
NRM	Natural Resource Management
NCSA	National Capacity Self – Assessment
NEAP	National Environmental Action Plan
NEPB	National Environment Protection Board
NGOs	Non-Governmental Organizations
NTFPs	Non-Timber Forest Products
I-PRSP	Interim Poverty Reduction Strategy Paper
SALWCO	Sierra Leone Water Company
SEA	Strategic Environment Assessment
SL-PRSP	Sierra Leone Poverty Reduction Strategy Paper
SL-WPBCP	Sierra Leone Wildlife Protection and Biodiversity Conservation
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme.
USAID	United States Agency for International Development
WAFR	Western Area Forest Reserve
WAPF	Western Area Peninsula Forest
WCB	Wildlife Conservation Branch of the Forestry Department
WSD	Water Supply Division

0. Foreword

This Country Environment Profile (CEP) is a basic reference document presenting an overview of the most important environmental issues facing Sierra Leone. It also proposes solutions that address the underlying causes of environmental quality and natural resources degradation in the country. The CEP study was initiated by and carried out on behalf of the European Commission Delegation in Sierra Leone and the Government of Sierra Leone (GoSL) through the NAO and NACEF (National Commission on Environment and Forestry). The study was conducted in July 2006.

One of the objectives of this CEP is to identify and assess environmental issues to be considered during the preparation of the 10th EDF - Country Strategy Paper (CSP) and National Indicative Programme (NIP) for the period 2008 – 2013. In this regard, the CEP also provides priorities for EU cooperation from an environmental perspective relating to programming requirements. Hence, one of the key purposes of this study is, based on the Environmental Profile and discussions with donors and the Government, to give recommendations for mainstreaming environmental concerns in EC cooperation areas, and to suggest areas for EC involvement and funding in the environmental sector.

The consultant wishes to thank all those who contributed in making this mission a success. Special thanks go to the ECD in Sierra Leone and the Chairman of NACEF who provided the necessary support and follow-up for the successful completion of the report.

1. Executive Summary

Sierra Leone is a country endowed with a variety of natural resources. The environmental policy, legislative and institutional framework for environment and natural resources management in the country is underpinned by Sierra Leone's Environment Policy (1994) and supported by the Environmental Protection Act (2001). More recently (July 2005) the GOSL created the National Commission on Environment and Forestry (NACEF). In line with the new institutional setting there is an urgent need to harmonize legislation and create a conducive regulatory and policy framework. Steps are now being taken by relevant donor agencies operating in the country (including the EC) to assist Sierra Leone in this regard. Although Sierra Leone has ratified and commenced coordination and implementation of the international environmental agreements and conventions, more efforts are needed in this respect to keep pace with the international developments. Particular areas of concern remain in identifying ways in which Sierra Leone can promote the obligations of the Climate Change and Biodiversity Conventions. The current study/review raised the following environmental issues:

- **Water Management** is a critical issue. In most regions in Sierra Leone and in particular in the Freetown area water is relatively scarce (there is an acute water shortage). Both in urban and rural areas conflicts of interest between different uses (agriculture, livestock, domestic, industry) are increasingly common. Supplying water to urban and rural areas and thus water management in general, will be one of the key challenges in the near and long term. Where water supply is adequate in quantitative terms, the quality of the water is in serious decline - although the level of industrialisation in Sierra Leone is relatively low, untreated industrial wastes cause significant levels of localised water pollution. Groundwater potential varies from one locality to another as does its development. There is no systematic monitoring of this resource in the whole country.
- **Land Degradation** is already a serious problem in Sierra Leone. Ranked in order of priority, logging, firewood collection and mining have been identified as direct causes of Land degradation in Sierra Leone. The problem is aggravated by natural hazards such as floods and droughts.
- **Vulnerability to Natural Hazards** The country is vulnerable to several natural hazards, including droughts, floods and erosion, and tropical storms. One of the main challenges at the moment is the severe erosion (linked also to the deforestation problems) which have direct implications for electricity and power production

(siltation and reduced storage of dams & reservoirs) in the country as well as significant health and livelihood impacts.

- **Bio-energy** is the main source of fuel for 80 -90% of the country's population (both rural and urban) and accounts for over 75% of the energy consumption in the country. The long-term prospects for sustained supply of firewood and charcoal as a source of energy are threatened by the visible and worsening problems of deforestation and desertification in many parts of the country.
- **The Coast and Marine Environments** is also under threat. Signs of environmental degradation as well as decline in natural biodiversity are becoming obvious in several parts of Sierra Leone's coast and marine environments. This is attributed to the combination of poverty, rapid population growth, as well as increasing land-based activities and sources of pollution such as industrial, commercial (along the Lumley beach for example) and agricultural activities.

'Brown' environmental issues included:

- **Unplanned Settlements:** Mainly as a result of the war, rural/urban migration has increased considerably and Sierra Leone's urban centres (and mainly is capital Freetown) are developing at an unprecedented rate, with corresponding increasing levels of urban dwellings, small-scale business/industrial activities and resulting pollution. In Freetown, there are a significant number of major unplanned settlements accommodating a huge portion of the city's population (approx 2-3million people). There is considerable, urban degeneration due to poor housing facilities, poor coverage of water and sanitation as well as waste management for the poor.
- **Sewerage and Sanitation/Health:** Most urban areas do not have sewerage systems and therefore pollution from sewage is a problem as there is inadequate collection and treatment. 90% of Freetown's residents are served by on-site sanitation with severe problems of overflowing particularly during the rainy seasons.
- **Solid Waste Management:** Only small percentages of the generated solid waste is collected and disposed of resulting into heaps of uncollected waste in open spaces, streets, road side drains, etc. This represents significant health hazards as well as a source of surface and groundwater pollution. New sanitary landfill facilities need to be established with a proper EIA done and more sustainable long-term solutions should be sought after (e.g. recycling, etc).

Other sectors presenting environmental issues included:

- **Mining:** is the most significant and the fastest growing sector in the Sierra Leone economy. Its contribution to GDP is currently over US\$150m per year. While large scale multi-national mining is on the increase and relatively well managed but in the end also require increased monitoring both internally and from Government side, significant environmental (as well as health and safety and human rights) impacts are resulting from small-scale miners entering the sector. Closer cooperation between relevant Agencies and harmonization of legislation are crucial in this respect. The EC is currently providing some support to this sector (mainly support to Sierra Rutile Ltd) which include some environmental aspects;
- **Transport (roads):** Road Transportation is essential to Sierra Leone's economic growth however, there was little EIA or SEA work conducted on major road developments. Considering the capacity building which will take place through NACEF on these environmental instruments it is expected that transport networks will be better planned from an environmental perspective.
- **Trade and environment issues:** Thoughts are that 'millions of US\$' per year is being 'leaked' from the natural resources sector (in particular Diamond mining) in Sierra Leone where this amount represents potential lost revenue for the country. EC provided some assistance in this respect through the UN Kimberley process. In general, trade-related environmental issues and environment-related trade issues are receiving little attention in Sierra Leone.

Issues relating to **Environment and Poverty** include:

- **Forestry** Sierra Leone is climatically a forested country but today the country has lost nearly 70% of its forest cover, with less than 5% of the original forest remaining in isolated forest reserves on tops of mountain and hillsides. There is no accurate assessment of the magnitude of the problem of deforestation but it is generally perceived as a major environmental problem in the country. Forest resources are regarded as being seriously threatened by uncontrolled exploitation, for different purposes such as agricultural expansion, commercial logging, fuel wood extraction, mining, etc. (woodcutting and charcoal burning)
- **Fisheries:** Fish stocks, marine fishing, are currently exploited by mainly artisanal sub-sectors. In the fisheries sector it is expected that further assistance will be needed as this sector has also some potential for further growth. The EC has an on-going TA project to support this sector, which include some environmental & quality components.
- **Wildlife** is important for Sierra Leone of its present and potential revenue generation, as well as for communities in providing food security and income. However, the sector is suffering from loss of revenues due to poor management practices, lack of capacity and limited participation of communities.

Key recommended actions include the harmonization of policies and legislation; institutional development and capacity building support to the NACEF (including the Forestry Department and in particular the Environmental Department); Greater use of economic instruments, the production of the National Environmental Action Plan (NEAP), the revision of the Environmental Policy; education and awareness building. A summary table indicating the key/critical issues is also provided in the chapter on conclusions and recommendations. Possible areas for involvement of the EC and other donors are also considered in this context.

2. Background

2.1 Physical Environment

Introduction

Sierra Leone is a country on the West Coast of Africa and lies between latitude $6^{\circ}00'$ and $10^{\circ}0'$ N and longitude $10^{\circ}16'$ W and $13^{\circ}18'$ W. It has a north-south distance of 331 Km and an east-west distance of 326 Km. It is bounded on the West by the Atlantic Ocean, by Guinea – Conakry on the North and Northeast and by Liberia on the South – East (Fig 1). The country is divided into four administrative regions: Northern, Southern, Eastern and the Western Area on which the capital Freetown is situated. Sierra Leone has 4.96 million people (National Population and Housing Census 2004) at an annual growth rate of 2.5 %, with an estimate of 60% living below the poverty line, and with a very high density compared to any other country in West Africa. Certain regions in the country carry the bulk of the population, including the Freetown peninsula, the Kono, Kenema and Bo districts. The northern part of the country is sparsely populated.



Figure 1: Location map of Sierra Leone

SL lies within the Upper Guinean Lowland Forest Ecosystem with an abundant richness in ecosystem and species biodiversity (lowland rainforests, mountain forests, savannah woodlands, agricultural, freshwater and wetlands). There are 48 forest reserves and conservation areas, representing about 4% of the land area (c. 180,250 ha). The total area of government wildlife reserves is estimated at 173,000 ha. There are over 2000 species of plants including 74 endemic species identified in SL. 15 species of primate, 18 species of antelopes and duikers, 9 bat species and over 500 bird species have been recorded in SL. About 4,837.8 km² of SL is covered by wetlands with vegetation that is typically of freshwater swamp forests, riparian and mangroves.

Geography

Sierra Leone has a land area of approximately 72, 000 km² and is located within the Upper Guinean Rainforest, Ecoregion, a region recognized as one of the hotspots for biodiversity conservation. The country is divided into four main relief regions; coastline, interior lowland plains, interior plateau and mountains, each of which can be subdivided into a number of ecosystems. The coastline or coastal plains is relatively gentle and comprised of estuarine swamps, terraces, alluvial plains and beach ridges. The interior lowland plains extend from the coastal terraces in the west to the east of Sierra Leone, occupying approximately 43% of the land area. At the edge of the lowland plains are the interior plateaus, made up of granite that runs from the northeast of the country to the southeast. In the north and east of the country are found two of the highest mountains, with the Loma Mountains being the highest in West Africa, west of Mount Cameroon. The highest peak on the Loma Mountains is Bintumani, which rises to 1945m, while Sankan Biriwa on the Tingi Hills, rises to 1805m.

All the ecosystems of the Plateaus and Interior Plains account for 84% of the total land area of Sierra Leone, and have a flat to gently rolling topography. West of these two mountains, is the Freetown Peninsula, which is also made up of dissected peaks, with the two highest peaks being Sugar Loaf and Picket Hill. The hills on the Freetown peninsula are unique to this region, and found nowhere else in the sub-region.

Climate

Sierra Leone has a tropical humid climate with two distinct seasons, namely the wet season starting from May-October and the dry season from November to April, each lasting for about six months. Diurnal temperatures vary from 25 degree to 34 degree Celsius although they could be as low as 16 degree Celsius at night during the harmattan. The average monthly temperatures are around 26 degree Celsius.

Rainfall varies both in space and time. The mean annual variability is about 20 %. The average annual rainfall varies from about 2500mm in the drier areas of the north- west and north-east of the country to about 3000mm in the southeast and about 5000mm in

the Freetown Peninsula. The rainfall pattern is unimodal with most of the rainfall occurs from late April to early November. The wettest months in most parts of the country are July and August. The heavy rains in the wet season usually result to high discharges and runoff which ranges from 20% to 40 % of the total annual rainfall. Rivers overflow their banks during this period, though greatly reduced in the dry season from November to March. The heavy rains and maritime influence leads to high humidity. Relative humidity is usually about 90 % in the wet season but drops to about 20 % inland in the harmattan during dry season. Pan evaporation is generally less than 2.0mm day due to high diurnal humidity. Normal wind speed averages 8 knots throughout the year. There is plentiful of sunshine which varies substantially with the amount of cloudiness averaging 6-8 hours per day during the dry season and 2-4 hours per day during the wet season.

2.2 Current Economic Trends

Sierra Leone's economy suffered a major stagnation in the decade leading to the civil war and thereafter. A large number of people live below the poverty line. Nearly 80% of the labour force is engaged in agriculture, largely slash-and-burn, with rice cultivation making up the bulk of the subsistence activity. Industrial development is still in the formative period, with import substitution comprising the major industrial activity. Development in the country has stagnated for too long, with Sierra Leone being frequently ranked as the least under-developed country. Illiteracy is very high, life expectancy low and large sections of the population remain unemployed (especially among the youths).

In 2001, GDP rose 5.4%, increasing investor confidence, promoting greater movement of people, as well as a 74% increase in power supply and greater agricultural output. The Government has strengthened its co-ordination mechanisms including, in July 2001, establishing the National Recovery Committee (NRC) to support the re-establishment of state authority nationwide. Strategy, policy and co-ordination mechanism are being set up in each sector. Following a successful democratic election in 2002, donor confidence and investment by the private sectors have increased considerably. National security has also increased with a newly trained and well-equipped military and police force. Notwithstanding, Sierra Leone is one of the poorest countries in the world. The political upheavals and civil wars of the 1990's impoverished Sierra Leoneans and its legacies continue to weigh heavily on the social and economic recovery of Sierra Leone. In 2002, the per capita GDP was as low as US\$142, life expectancy at birth as low as 38 years, some 12 years below the sub Saharan average and infant mortality rate is 170 per 1000 live births and the child mortality rate is 286.

The economy is largely dependent on the extraction of minerals (such as diamonds, rutile, bauxite and gold) and subsistence agricultural practices. Sierra Leone is a country blessed with abundant mineral resources which include diamonds, chromite, rutile (among the largest reserves in the World), iron ore, titanium ores, bauxite, columbite, pyrochlore, gold, platinum, and monazite. On the other side of the coin, the country is one of the poorest in the world with a number of social and economic indicators below average level. Despite this, Sierra Leone remain focused on and committed to the fight against poverty and to the re-building of social capital, as articulated in its Interim Poverty Reduction Strategy Paper (I-PRSP).

With Sierra Leone currently experiencing political stability and peace now firmly established in the country after just over 10 years of civil conflict, enormous challenges lie ahead, in particular: rehabilitation, reconstruction and development of a vibrant economy based on the exploitation of available natural resources that could provide Sierra Leoneans with a sustainable livelihood and economic prosperity in a healthy environment. Natural resources in Sierra Leone are necessary to promote sustainable economic development but require adequate investment in the development of capacity including investment in human capital that will ensure the proper utilization and management of the natural resource base

3. Review of the Environmental Profile of Sierra Leone

3.1 STATE OF ENVIRONMENT (SOE)

3.1.1 Biodiversity Management

The natural landscape of Sierra Leone is comprised of diverse ecosystems including lowland rainforest, mountain forest, freshwater swamps, mangrove/coastal and marine ecosystems. Nearly 75% of the land area of Sierra Leone comprises arable lands. The most fertile of these are found in low -lying coastal plains including the mangrove swamps and riverine grasslands, as well as inland valley swamps and alluvial/flood plains of our major river systems.

The level of species richness and endemism is incomplete for all ecosystem types in the country, but available data points to the lowland rainforest ecosystem as being biologically diverse in terms of species richness and endemism than all other

ecosystems. Closely associating with the various ecological zones are divers species of plants and animals. Sierra Leone has a very rich biodiversity but over the years, overexploitation to the nation's terrestrial and marine biodiversity has intensified. There are a total of 48 forest reserves and conservation areas in Sierra Leone, representing about 4% of the land area (180,250 ha). Most of them are inadequately protected and managed. Only two of these reserves, Outamba Kilimi National Park (OKNP) and Tiwai Wildlife Sanctuary (TWS), have been elevated to the status of national park and wildlife sanctuary, under the IUCN classification system. Some of the major protected areas include Gola forests, Western Area Forest Reserve, Outamba-Kilimi National Park, Loma Mountains, Tingi Hills, Tiwai Island Wildlife Sanctuary and Kangari Hills.

The major threats to biodiversity include the indiscriminate farming practices, wanton exploitation of forest resources, over-fishing, energy production, mining and logging. There are over 2000 species of plants including 74 endemic species identified in SL. Fifteen species of primate, 18 species of antelopes and duikers, 9 bat species and over 500 bird species have been recorded in SL. Of the bird species, 6 are threatened with extinction. The 15 primates are all either endangered or vulnerable. Of the 18 antelopes, 2 are extinct and 16 are threatened.

The country has a high dependence on Agriculture (31 % of GDP, 60% of the population). Also as a result hereof, the utilization of biodiversity has important implications for both food security and poverty reduction in Sierra Leone. The loss of Biodiversity is one of the major problems facing the country. In 2003 the Government of Sierra Leone produced and adopted the National Biodiversity Strategy and Action Plan (NBSAP), a report that highlighted the status of the nation's various ecosystems and biological resources, outlined the threats to the existence and performance of these systems, and provided actions (including the means) for addressing these looming dangers. These actions are short-, medium-, and long-term in nature and are poised to help save the biodiversity (as well as other environmental and ecological goods and services) of Sierra Leone from total collapse, and to maintain the integrity of critical ecological systems in perpetuity.

Aside the thematic strategies that have been outlined by the NBSAP, it also identifies cross-sectoral strategic issues covering policy planning and legislation, capacity building, public participation, participatory monitoring and evaluation, incentive measures, research and training, public education and awareness, access to technology and information, benefit sharing, indigenous knowledge, financial resources, etc. The NBSAP proposes the adoption of participatory approaches to natural resource management, while at the same time seeking to impress on all stakeholders the need for conservation, sustainable use and equitable sharing of "accruing" benefits of biodiversity. Noting the high illiteracy rate, mass poverty and overly dependence of a large section of the population on biodiversity resources, the report stresses on public

education and awareness raising at community level. It also recognizes the need to finance biodiversity conservation activities on a more sustainable and long-term basis and therefore recommends the establishment of a predictable long-term funding mechanism for the sustainable management of protected areas by setting up a trust fund. Unfortunately the Plan never really reached implementation stage due to lack of resources.

The NBSAP further identified eight (8) priority ecological sites of important biodiversity and suggested that urgent actions were needed to restore the integrity and ecological functionality of these systems. These ecological sites are spread over four major types of ecosystems comprising the Arid and Semi-arid; Coastal, Marine and Freshwater; Forest; and Mountain zones. The present state of peace in Sierra Leone together with the increased political commitment and will towards tackling environmental issues in the country provide an enabling environment within which the objectives of this planned project can be achieved; that is, to save Sierra Leone's biodiversity by improving management effectiveness of representative ecosystems described in the NBSAP.

3.1.2 Natural Resources Management

Sierra Leone is well endowed with substantial natural resources of croplands, forests, rangelands, freshwater, wetlands (swamps), biodiversity, wildlife, extensive fisheries and mineral resources-diamonds, gold, rutile, bauxite, iron ore, chrome ore, etc. These resources have continued to determine the path and pattern of economic growth in the country, depending mainly on how they are being valued, used and managed which in turn depends on the economic policies and institutions in place. The irrational use of the environment and natural resources over the years resulted in environmental degradation and the deterioration in the quality of the urban environment.

Land resources

Sierra Leone has a land area of approximately 7.2 million hectares. About 5.4 million hectares of this total are cultivable and of which about 4.3 million hectares are low fertile arable upland and 1.1 million hectares of more fertile arable swamps (Lands and Water Division, 1999). The agricultural sector which provides employment and export earnings in the country relies on land as basic input for crop cultivation, which in turn is affected by how well farmers maintain the soil, water and living resources. The combined effects of poor farming practices such as shifting cultivation, recurrent bushfires and overgrazing, increasing population and ensuing shorting of fallow periods of land have been recorded as contributing factors to soil erosion resulting to land degradation, which is perceived as widespread in Sierra Leone.

Table 1: Direct Cause of Land Degradation in Sierra Leone

CAUSE	Low (a)	Medium(b)	High(C)	Critical(d)	Total	Total (C&d)	Ranking
Logging	24	25	125	25	199	199	1st
Mining	20	47	87	19	173	173	3rd
Wild bush fire	40	35	34	3	112	112	9th
Expansion of Settlements	19	39	65	23	146	146	6th
Shifting cultivation	13	59	60	4	136	136	7th
Refugee Camp Activity	25	38	57	2	122	122	8th
Firewood Collection	8	45	101	28	182	182	2nd
Infrastructure	41	50	18	0	109	109	10th
Charcoal Production	20	43	95	14	172	172	4th
Pollution (Waste disposal)	21	42	42	3	108	108	11th
Tobacco Growing	14	7	5	1	27	27	13th
Tree Crop Plantation	55	40	47	5	147	147	5th
Animal Grazing	37	25	14	0	76	76	12th
Others	0	0	0	0	0	0	14th
TOTAL	337	495	750	127	1709		
% Ranking	19.7	29.0	43.9	7.4			

Source: Koroma A. P., 2004 Causes of Forest Loss and Degradation and Issues of unsustainable Forestry in Sierra Leone

Table 2: Indirect Causes of Land Degradation in Sierra Leone

Indirect cause	Low (a)	Medium(b)	High(C)	Critical(d)	Total	Total (C&d)	Ranking
Weak institutions	40	58	56	14	168	70	6th
Misdirected Subsidies	19	67	35	21	142	56	5th
Corruption	16	14	96	21	147	117	2nd
Poor Administration	51	65	8	7	131	15	10th
Enforcement	77	30	38	16	161	54	9th
Undervaluation of resources	10	74	30	34	148	64	7th
Low Public Awareness	32	35	88	24	179	112	3rd
Extreme Poverty	6	41	86	38	171	124	1st
Inadequate and un-enforced labor rights	44	36	49	12	141	61	8th
Civil Conflict	42	42	84	16	184	100	4th
Total	337	462	570	203	1572		
% Ranking	21.4	29.4	36.3	12.9			

Source: Koroma A. P., 2004 Causes of Forest Loss and Degradation and Issues of unsustainable Forestry in Sierra Leone

Currently some studies are being prepared (under UNDP/GEF) to examine more closely the extent and nature of the problem, provide cost estimates and possible strategies/priorities for intervention. Introduction of appropriate land use planning

models and the resolution of the land tenure are also central issues in efforts for addressing environmental and resource planning.

Mineral Resources (mining activities)

Diamond, gold, Rutile, bauxite and iron ore have been mined on the commercial level for more than 40 years in at least 7 of the 12 districts in the country. Mining activities undertaken by large mining companies to exploit the country's minerals are a major cause of deforestation and land degradation through loss of forest cover of large areas, soil erosion, siltation and contamination of river systems and tidal creeks and displacements of villages. Heavy siltation of river beds and tidal creeks reduce coastal coral and fish populations that feed and breed in it. Small scale or artisanal mining of diamonds and gold in the east and northern parts of the county is also a major cause of loss of forest cover of large areas and land degradation. In both large and small scale mining the top soil is generally lost. The extent to which the land and forest cover has been damaged and what is required to rehabilitate and restore mined out areas to support agriculture or forest cover is still unknown. Therefore, there is urgent need to undertake an assessment for the development of a comprehensive rehabilitation programme for mined out areas, and in particular the small scale mining areas.

Forests resources

Information available has shown that Sierra Leone is climatically a forested country and over sixty percent of its land was originally covered by closed high forest of most evergreen and semi – deciduous types. Today the country has lost nearly 70% of its forest cover, with less than five percent of the original forest remaining in isolated forest reserves on tops of mountain and hillsides, particularly at Gola (77,044 hectares), Kambui (21, 213 hectares) , Dodo Hills (21,185 hectares), Nimini (15,557 hectares), Freetown Peninsula (14,089 hectare), Tama (17,094 hectares) Tonkoli (47,656 hectares), Kasewe (2,333 hectares), Loma (33,200 hectares), Sanka Biriwa (11,885 hectares), Kuru Hills (7,001 hectares and Kangari Hills (8,573 hectares). At present, the forest resources are confronted with increasing deforestation due to the rapidly growing population and consequent demand for more agricultural land, urban requirement for timber and fuelwood, mining for mineral and recurrent bush fires, with past legislation favouring such anthropogenic activities at the expense of forest conservation. With population pressure and commercialization today, the rate of exploitation has far out stripped the rate of regeneration by natural means. The result is deforestation and an immense threat to biodiversity.

Bio-Energy - Firewood Collection and Deforestation

Like several other countries in the African region, no less than 80% of households in Sierra Leone depend on firewood as their main energy source. Of course there are urban-rural disparities. In rural areas the percentage approaches 100%. It hovers around 70% in the municipality of Freetown where alternative energy sources including solar energy, electricity, natural/cooking gas, kerosene and charcoal are available. The demand for biomass energy from fuel wood is increasing with the rapid growth of the population. It is estimated that between 349,000 and 560,000m³ of fuel wood is used per year and this demand is expected to increase at a rate of about 2% per annum. Current practices of the production, transformation and end use of the biomass are inefficient and unsustainable.

3.1.3 Vulnerability

Land degradation in Sierra Leone is also aggravated by some natural disasters such as droughts, floods and tropical storms. Poor people are particularly vulnerable to both natural disasters and changes in environment conditions. This is so because they live directly on natural resources. The natural disasters most commonly experienced in Sierra Leone include:

- *Tropical Storms*: These blow off the roofs of houses, destroy farms, fell trees across roads, damage overhead telephone and electrical cables etc
- *Erosion and Flooding* : These may cause the loss or inundation of farmlands, sweep bridges and houses away, loss of agricultural productivity, damage physical infrastructure (siltation of dams and water ways), and a deterioration of water quality, loss of aquatic ecosystems and the subsistence of local communities.
- *Coastal Erosion*: This threatens the lives and livelihoods of coastal communities.
- *Windstorms, landslides and earthquakes* are natural phenomena: These cause major descriptions to economic life and require avoidance strategies
- *Wildfires*: Cause enormous economic losses, especially if dwelling houses or plantations are consumed
- *Drought*: Often hampers agricultural productivity, livestock management that would lead to loss of livelihood among pastoral communities and even displacement/migration.
- *Desertification*: Often triggered by drought or over-exploitation of plant cover/trees by, for example, bush burning and intensive firewood extraction. This leads to dwindling of farm yields thereby negatively affecting livestock management with the resultant loss of livelihood and subsequent migration.
- *Climate Change Impact*: This is caused by global warming, melting of ice in polar caps to sea level rise. It also causes coastal erosion, inundation of small

islands, saline intrusion into coastal aquifers, and increase in the frequency of coastal storm surges and changes in ocean dynamics. This can impact on fisheries resources and undermine subsistence of local communities.

- *Storm Surges and Changes in Ocean Dynamics:* This can impact on fisheries resources and undermine subsistence of local communities

3.1.4 Water Quality and Resources & Use (including Marine Environment)

Surface & Groundwater resources

Sierra Leone is not a water deficient country. However, both water access and water contamination are serious issues affecting the majority of the population. In Sierra Leone, water is used mainly for domestic purposes, watering livestock, power generation, irrigation and industries. To this end, groundwater plays a major role in meeting the demand of water especially in rural areas. However, groundwater potential varies from one locality to another as does its development. There is no systematic monitoring of this resource in the whole country.

Agriculture is the largest water consumer. In some regions water is relatively scarce. Even where the supply itself is adequate in quantitative terms, the quality of the water is in serious decline. Despite the efforts to improve the situation, water shortages and quality degradation are common problems in Sierra Leone.

Wetlands

About 4,837.8 km² of SL is covered by wetlands with vegetation that is typically of freshwater swamp forests, riparian and mangroves. Running from the uplands in the north to the mangrove estuarine systems along the coast are seasonal wetlands called bolilands. They are important habitats for a diversity of migratory water fowl and water dependent amphibian and mammal species, and grazing lands for buffalo and waterbuck. However, these bolilands are threatened by conversion to rice cultivation and are subject to recurrent anthropogenic bush fires in the dry season. The lake ecosystems of Lake Mape, Lake Mabesi and Lake Sonfon with excellent habitats for many water fowl and waders as well as game species are also under threat.

Water Supply resources

Although Sierra Leone is a tropical country and has ten rivers, the majority of the population does not have access to potable water supply. Data available from the National Population Housing Census (CSO, 1993) revealed that 44% of the population obtained their drinking water supply from rivers, 37% from wells and only 16 % from

pipe-borne. Recent survey reports estimate that only a very small portion of the rural population has access to safe drinking water supply from either water points, gravity fed systems, spring boxes, or rain water harvesting, etc. At present, portable water is available in Freetown, and even here only 32% of the population is connected. Water supply systems in several towns including the capital Freetown is of low quality while the existing provincial water supply treatment facilities are dysfunctional due to lack of spare parts, fuel, chemicals and lubricants as well as physical damage on both provincial water supply installations and rural water supply schemes. Among the challenges currently facing Sierra Leone, perhaps none is more important than the threat to the country's supply of clean, fresh water.

Sewerage and Sanitation - Environmental Concerns

Most urban areas in Sierra Leone do not have sewerage systems except the larger ones whose coverage is very minimal. They mainly depend on on-site sanitation. Basic sanitation coverage is estimated to have been reduced from 30%, in 1990, to less than 20% as of the year 2000. It is estimated that hardly 5% are served by a central sewerage system, 11% use septic tanks and 76% use pit latrines. The use of streams and rivers as outlets for sewage and solid waste disposal, the over crowded and congested living conditions of urban areas particularly Freetown, coupled with the high reliance on pit latrines has increase the incidence of water – borne diseases. One of the key challenges in coming years would be to expand water and sanitation services in rural and urban areas. In rural areas, communities are served primarily by unprotected shallow wells, lakes and rivers. Solid and liquid wastes, human and animal excreta, all contribute to contaminating ground water sources. Siltation in riverbeds and lakes caused by mining activities exacerbates the problem for rural communities in search of potable water.

3.1.5 Coastal and Marine Environment

Coastal and Marine Environment

The shoreline of Sierra Leone has a length of about 560km. It includes the estuaries of three large river networks (Scarcies, Sierra Leone and Shrebo) and four coastal islands. The continental shelf has an estimated area of 25,000 km². Sierra Leone has extensive and rich marine resources comprising the marine fisheries (pelagic and demersal) as well as crabs, shrimps, lobsters, turtles, cuttle fish, squids etc. The coastal and marine resources form a strong and valuable base which contributes significantly to the national economy.

The coastal resources also include mangroves, sand beaches, several river estuaries and fresh water bodies, cliffs, wildlife, cultural and historical sites and landscape. Sierra Leone is endowed with some 172, 000 hectares of mangroves covering about 825

kilometers of coastline and extending 30 to 50 kilometres in the estuaries of the Scarcies Rivers (34,234 hectares), Yawri Bay (24,505 hectares) and Sherbro River (99,854 hectares), (World Bank, 7 February 1994). The mangrove ecosystem serves as a very important ecological function and provides habitat to a diversity of fauna, wood for construction, fuel wood and charcoal, and reduces coastal and river erosion. It is also an ideal breeding ground and nursery area for many species of prawns and sea fish, and supports thousands of migratory and shore birds (CCSL, 1993). Mangrove root system builds up land by sequestering silt and organic matter and purifies water by filtering out heavy metals and organic waste. These mangroves along the coastal creeks have been heavily deforested due to farming, fuelwood collection for fish smoking, housing construction and urban sprawl.

Signs of environmental degradation, as well as decline in natural resources biodiversity, are becoming obvious in some parts of Sierra Leone coasts. This is attributed to the combination of poverty, rapid population growth, as well as increasing land-based activities and sources of pollution such as industrial¹ and agricultural activities. Of these problems the main ones are:

1. Declining harvests of marine and coastal living resources
2. Loss of coastal and Marine biodiversity
3. Coastal pollution
4. Beach (coastal) erosion

There are currently no clear policies and programmes for coastal area management. Data on the extent of mangrove deforestation and land use patterns are scarce and hardly available. There is therefore an urgent need for the development of an integrated coastal zone management plan for the protection of coastal and marine resources.

Fisheries Sector

Fishery resources contributed 11 percent of the Gross Domestic Product (GDP) in 1987/88 and this contribution can be increased if the fishery sub-sector is properly managed. Unfortunately, much of the potential built-up capacity was destroyed during the war period.

The official production figures before the war indicate a peak of catches of around 230.000 tonnes/year (in the period of 1985 to 1990), a drop of total catch during the war to about 60.000 t/year and a slight increase thereafter to a total of 82.623 tonnes in 2003. Artisanal fisheries contributes 80% of this production the remaining being from

¹ Sand mining is another major problem in coastal areas as a result of construction booms in the urban areas.

industrial fishing vessels legally operating in Sierra Leone (1.756 t/y crustaceans, 4.598 t/y cephalopods and 9.549 t/y of demersal fish). The fisheries sub-sector alone contributes 9.4 percent of GDP and is the most important economic activity along the coastline of Sierra Leone.

It can be assumed that the fish resources are in a healthier state than during much of the 1990s, but extensive illegal and uncontrolled fishing operations that continue taking place in offshore and inshore waters severely challenge the existing resources. The overall perception is that fishery in Sierra Leone, although not yet overexploited, is currently threatened to decline due to extensive fishing pressure exercised by vessels operating (mostly illegally) with no effort limitations or access restrictions to fish stocks. Industrial fishery is essentially an offshore operation at present, providing little sustainable development to the country. The Sierra Leone economy is unable to capture much of the fish value, as most of the fleet management functions, logistics and marketing are executed offshore by the foreign partners and records are not even available to the relevant authorities.

The fisheries sector is saddled with major problems of exploitation of fisheries resources and lack of data and accurate information to determine the extent of the fisheries resources. Also, the management of fisheries through monitoring, control and surveillance of the industrial and artisanal fishing activities is currently ineffective. A comprehensive assessment of the fisheries resources is therefore needed. Regular programmes for estimation and improvement in the reporting mechanisms on fish catches can reduce the current uncertainties about catch assessment and the extent of over fishing. The EC is currently implementing a TA project for institutional support to fisheries management.

3.1.6 Human Settlements – Urban Development

The underlying causes of environmental problems in Sierra Leone are poverty and population increase. Population pressure has a profound implication for deforestation and land degradation. In the rural areas, development of settlements in marginal areas by the farming community has led to high levels of deforestation and soil degradation. In the urban areas, increasing rural-urban migration is exacerbating the problems of overcrowding, poor living conditions and sanitation, inadequate water supply and housing. The just over 10 years civil conflict fought between 1991 and 2002, which affected the quality of life in both rural and urban areas, inevitably had serious repercussions on the environment. Houses and properties were destroyed and a large proportion of the population was displaced and forced to live in camps thereby worsening the complexity of environmental degradation problems.

Urban Development and Peri-urban agriculture:

The cities Freetown Bo, Kenema and Makeni are undergoing rapid expansion. In Freetown, the peri-urban land that is often used for agriculture is being subdivided and sold as housing plots. State lands are sold or given on long-term leases. Tenure for peri-urban farmers is thus insecure, and housing development is not proceeding in a well-coordinated manner. It is therefore possible that landlessness for peri-urban agriculture will in future become a key issue unless measures are identified and implemented.

Human Habitat:

The provision of housing in Sierra Leone is one of the most difficult problems facing the Government. It is estimated that about 50 percent of the population of Freetown lives in sub-standard housing. As better housing leads to a healthy socio-economic and political condition, sub-standard housing can have very serious repercussions on an individual or community as a whole. The most striking features especially in the urban centres are the following:

- Construction of makeshift shelters out of cards boards of scraps of metals:
- Overcrowding which increases the risks of air borne infections
- Inadequate water and sanitation facilities and garbage collection
- High infant mortality rate
- Air pollution
- Vulnerability to flooding and mudslides
- Food contamination
- Increase in pest, and
- Uncollected waste in neighbourhood.

While most people live in their own houses, the materials used for construction are locally produced and not durable. Most of them are constructed with mud walls and thatched roofs made of either grass or palm fronds. Where corrugated sheets are used they are not only expensive but they are not durable and difficult to repair. The introduction of more durable materials has however increased in the last two years with the post-war rehabilitation and reconstruction. The current economic situation however calls for the use of cheap but very durable and locally produced materials.

In the urban areas especially Freetown, Bo, Kenema and Makeni, where the population runs into hundreds of thousands, the physical environment conditions pose a large risk to health overcrowding, noise, inadequate drainage and insufficient ventilation are common features. Contributory to this, especially during and after the war, is insecure tenure for many urban dwellers. Fear of eviction is today a common worry among many urban tenants and residents in illegal settlements. In the squatters and slum areas, NGOs have spent some years trying to improve the health of the poor residents through community-based programmes that address both poverty and the environment.

Solid Waste Management:

Solid waste management services in urban centres in Sierra Leone have received low priority over the years. Due to the degree of mixed industrial/domestic/commercial development in the country's urban centres, solid waste streams are highly mixed causing difficult challenges for the collection and subsequent disposal thereof. Even hazardous and medical/clinical wastes find their way into the general waste streams since there are no specific services for dealing with such toxic wastes. Most of the urban centres operate open rudimentary dump sites with minimal environment protection measures without leachate control which eventually ends up in polluting the water resources. Lots of littering, burning, water pollution etc occurs at the disposal sites which cause further environmental decline. In Freetown there is a clear need for some new sanitary landfills.

The lack of skills for solid waste management within the urban centres has also stunted the service provision. All these shortcomings culminate in the marginal existence of a service rendered by the urban authorities or their representatives. The result of all these has been the flooding of roads, groundwater pollution and escalating outbreaks of cholera and other waterborne diseases. Although a 28 Million HSSP, supported by EC, was attributed to the Ministry of Health and Sanitation responsible for these matters in Sierra Leone, the sanitation aspects received little or no attention in the implementation of these undertakings. Some components of a World Bank project are being carried out for the establishment of a more permanent solution to the city's solid waste management problem.

Energy Production & use

Energy production, supply and utilization have serious implications for Sierra Leone's economy and environment. Bio-energy is the main source of fuel for approximately 75% - 80% of the country's population (both rural and urban). Petroleum, hydropower and coal are the major source of commercial energy in the country. The electricity sub sector contributes about 0.6 per cent of total energy consumption. Blackouts and power rationing as a result of low water levels in the hydro dams are currently common. There is currently an ongoing project on construction of a new hydropower dam at Bumbuna in order to increase the hydro potential capacity.

With the current high prices of electricity and fossil fuels (kerosene) and the underdevelopment of alternative/renewable sources of energy (solar, wind, geo-power, etc), fuel wood and charcoal will continue to provide the bulk of the country's energy needs for the foreseeable future. However, the long-term prospects for sustained supply of firewood and charcoal are threatened by the visible and worsening problems of deforestation and desertification in many parts of the country.

Air Quality:

Air pollution is a major problem but no significant studies on air pollution have been carried out in urban centres in Sierra Leone. Major sources of air pollution in Freetown city are vehicular exhaust emissions, industrial activities, sand and quarry industries, road and building industries, all which produce enormous amounts of pollutants in their vicinity.

Urban activities generate close to 80% of all carbon dioxide (CO₂) as well as a significant amount of other greenhouse gases (GHG). Direct sources of greenhouse gas emissions include energy generation, vehicles, industry and burning of fossil fuels and biomass in households. Emissions from vehicles and transport equipment not only contribute to CO₂ emissions but also to local pollution problems through the emission of carbon monoxide, lead, sulphur oxides and nitrogen oxides. In addition, the reduction of green cover in urban areas reduces a city's ability to reabsorb CO₂ and poor waste management releases CFCs and such gases like methane into the atmosphere.

Currently, a Climate Change Impact Assessment – NAP- National Adaptation Programme, is being drafted by the GOSL which seeks to further address climatic change related vulnerability of key sectors which form the basis of livelihood of rural/urban communities and the backbone of the national economic development and prosperity.

Noise Pollution:

Major sources of noise pollution include traffic noise and road construction. With increased road traffic, noise will affect all those living along the roads. Noise will also be generated during construction of roads in major urban centres like Freetown. Of late, due to power cuts in many urban centres, electric generators have now become significant sources of noise pollution. In many instances industrial generators are used in residential areas hence causing a lot of noise pollution. The other recent trend in many urban centres in Sierra Leone is the introduction mainly in residential areas of nightclubs and discotheques which play loud music since they are not designed in accordance with acoustic standards.

Health impacts:

Some common issues in urban centres which impact upon health are:

Sewage: Overflow of soak-away pits and septic tanks particularly during the rainy season in many of the urban areas impacts directly on public health. Water-borne diseases such as cholera, schistosomiasis are some of those associated with untreated sewage discharges.

Solid waste: Only small percentages of the generated solid waste is collected and disposed of resulting into heaps of uncollected garbage in open spaces, streets, road side

drains, etc. The result of all these is flooding of roads, pollution of groundwater and escalating outbreaks of cholera and other waterborne diseases.

Air pollution: Exposure to excessive concentrations of industrial emissions increases the frequency of human respiratory ailments such as colds and influenza and also worsens existing respiratory diseases such as asthma, tuberculosis and pneumoconiosis

In order to curb the situation, there are on-going continuing efforts in combating diseases including provision of health education, environmental sanitation and the use of safe and clean water. In this context one of the main challenges is to expand water and sanitation services in rural and urban areas.

3.2. ENVIRONMENTAL POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

3.2.1 Environmental Policy and Legislation

The Government has formulated a range of sectoral policies, regulatory and institutional frameworks that deal with natural resource (forestry, wildlife, minerals, fisheries, etc) management, protected area system management and biodiversity conservation. Two key pieces of instruments, namely the National Environment Policy (NEP) and the National Environmental Protection Act (NEPA), were enacted in 1994 and 2000, respectively, to cover environmental management in the country.

The National Environmental Policy

The National Environmental Policy (NEP) was approved by cabinet since 1990 and was subsequently revised in 1994 (GOSL, 1994). The NEP aims at achieving sustainable development in Sierra Leone, through sound environmental and natural resources management. The policy objectives are to:

- *Secure for all Sierra Leoneans a quality of environment adequate for their health and well-being;*
- *Conserve and use the environment and natural resources for the benefit of present and future generation; restore, maintain and enhance the ecosystems and ecological processes essential for the functioning of the biosphere; to preserve biological diversity, and uphold the principle of optimum sustainable yield in the use of living natural resources and ecosystems;*
- *Raise public awareness and promote understanding of the essential linkages between the environment and development and to encourage individual and community participation in environmental improvement efforts*

The NEP also contain among others sector policies on land tenure, land use and soil conservation; forests and wildlife; biological diversity and cultural heritage; mining and mineral resources; coastal and marine resources; settlements, recreational space and greenbelts and public participation. The policy goal for the land tenure, land use and soil conservation is to “use available land in such a way that its quality is conserved so as to enhance its potential for continuous productivity and to prevent degradation”. One of the major strategies which government is now pursuing to achieve the goals of the NEP is “*to make as priority Environmental Impact Assessment (EIA) of proposed activities which may significantly affect the environment and the use of a resource.*”- (GOSL, 1994).

The NEP also has a specific goal and policy for water resource management which ensures adequate quantity and acceptable water quality to meet domestic, industrial, transportation, agricultural and fisheries by accelerating programmes for the utilization of water for the various uses and expending water quality management, monitoring and assessment programmes. Although laws prohibiting pollution of water bodies exist they are hardly enforced.

The National Environment Protection Act: 2000

The Environment Protection Act (EPA) of 2000, which was enacted into law on the 28th February 2000 established the Environment Protection Department (EPD) and authorized the Director of EPD and Minister of the Environment to administer and monitor the implementation of the Act. The Act makes provision for the development of an Environment Impact Assessment (EIA) for certain types of projects to be undertaken within Sierra Leone, which include agriculture, mining, construction, waste disposal, and exploitation of hydraulic resources. In compliance with the Environment Protection Act, the EIA document to be submitted by the Developer must clearly give information on the project of its possible impacts on the ecosystem and its locality; social, economic, and cultural effects that the project is likely to have on the people and society. Information on how the consultative process with the communities; interested parties, and Government Ministries to be carried out; actions or measures taken to avoid, prevent, change, mitigate, or remedy the likely effects on the natural resources, people and society of the project area; plans for decommissioning the project; and other information for proper review of the potential environmental impact of the project should also be provided in the EIA document.

In issuing a license for a project based on an EIA, the Minister also has the authority to establish regulations for national environmental standards pertaining to the use of natural resources, water quality, effluent limitation, air quality, wastes, atmospheric and ozone protection, noise control, pesticide residues, and odours. Internationally banned

chemicals are prohibited in Sierra Leone, as well as the discharge of any hazardous substances into the air, land, and water.

In addition to the Environment Protection Act, comprehensive sectoral legislations cover Surveys and Lands, Minerals and Mining, Agriculture, Forestry, water supply etc, of which some are briefly described below:

The Mines and Minerals Act: 1994

The Mines and Minerals Act of 1994, which came into operation on 4 March, 1994 addresses mining leases and licenses requirement for open – pit and industrial mining. When a Proponent/Miner applies for a mining lease, information on the period of time for which the lease is sought; estimated mineral deposits, reserves, and mining conditions; mining treatment options and those selected for use in the mining project; specific details of the mining operation such as the schedule, nature of production, potential environmental and social impacts, forecast of capital investment, operating costs and revenues, and the anticipated source of financing, proposed mitigation programs and marketing arrangements for the sale of the mineral production should be provided and forwarded to the Director of Mines in the Ministry of Mines and Mineral Resources.

Other requirements under the Mines and Minerals Act include illegal exploitation and disposed of any radioactive mineral except under and in accordance with the terms and conditions granted by the Minister of Mineral Resources.

The New Forestry Act of June 1988

The Act contains special protection provisions under which the Minister is empowered to declare any area to be a “protected area for purpose of conservation of soil, water, flora and fauna”. The legislation stipulates that ‘no person may cut, burn, uproot or destroy trees that are in protected areas or trees that have been declared as being protected.’ It also states that the Chief Conservator/Director of Forest may issue a license or concession to fell and extract a protected tree.

National Land Policy and Land Commission Act, 2004

Currently, a comprehensive Land Policy has been formulated and Lands Commission Act is being formulated by the Ministry of Lands, Country Planning and the Environment and approved by Cabinet. The land policy aimed at ensuring “the judicious use of the nation’s land and its natural resources by all sections of the Sierra Leone Society.” The policy also provides the framework to ‘ensure equal opportunity of access to land and security to tenure in order to maintain a stable environment for the country’s sustainable, social and economic development.’ The land policy if effectively implemented will ensure sustainable land use and enhance land capacity and conservation.

The Lands Commission Act is to establish a commission with its composition and functions and for other purposes including the management of state lands, the execution of a comprehensive programme for the registration of title to land through out Sierra Leone.

The Wildlife Conservation Act, 1972

The Wildlife Conservation Act of 1972 was enacted to help regulate the utilization and protection of wildlife resources, but is outdated and deserves urgent review and update. Notwithstanding the level of comprehensiveness of most of these frameworks, they lack strength because they are out of tune with current best practices and approaches to resource management and conservation. Prescriptions, guidelines and management practices are flouted with impunity also because of weak governance and accountability structures that permeate particularly the state management structures.

In spite of this seemingly impressive array of environmental laws, the legislation has not fully provided a platform for sustainable use of our natural resources and proper management of the environment. This can be attributed to the following reasons:

- Lack of implementation, enforcement and compliance;
- Potential conflicts of interest within sectors by not linking environmental and natural resources management responsibility with other development interest;
- The relative absence of an autonomous Environmental Protection Agency vested with both advisory and executive authority at all levels of government to design, monitor and implement environmental polices;
- Lack of a mechanism that ensures environmental and natural resources management issues in the sectoral ministries and line agencies provide information to the main Environment Department to carry out effective monitoring of environmental policies that are to be implemented by the former.
- Enforcement has been very ineffective, due to institutional weaknesses such as understaffing, inadequate management skills and insufficient funding).

The country has a number of sectoral laws relating to environmental protection. There is an urgent need to harmonize legislation and create an enabling policy framework for effective environment and natural resources management in the country. It appears that much of the current legislation is merely empowering and does not contain specific provisions and detailed criteria for the preservation and/or sustainable harvesting of particular natural resources. It is also proposed that as a matter of urgency, fresh studies be commissioned to update the existing instruments including the NEP, EA, and the NEAP².

² The last NEAP prepared for Sierra Leone dates back to 1992. Key issues in the 1992 NEAP related to strengthen environmental management capacity of different stakeholders, creating an enabling legislative and regulatory framework. Implementation of this NEAP did not realize. The main problems encountered

There is now a clear need for a framework environmental act which would delineate roles and responsibilities of different actors involved in environmental planning and management in Sierra Leone. As a coordination framework, the new framework act should define mechanisms for linkages between different roles as well as legal limitation of each.

3.2.2 Environmental Institutional Framework

The following key agencies and structures currently play an important role as regards environment and natural resources management in the country:

NACEF – National Commission on Environment and Forestry

Until recently, the key public institutions responsible for forestry and wildlife, biodiversity conservation and environmental protection and management were the Forestry and Environment Departments of the Ministries of Agriculture, Forestry and Food Security (MAFFS), Lands, Country Planning and Environment (MLCPE) and Marine Resources and Fisheries (MMRF).

Increasing GoSL concern and increased political commitment and will for environmental issues and problems has prompted the merging of the **Environment Department** (*previously with the MLCPE*) and the **Forestry Department** (previously with MAFFS) with mandates spanning across a majority of natural resource utilization and environmental management to form NACEF. NACEF was created in June 2005 to give the two departments' greater autonomy in the discharge of their responsibilities and it basically takes over the responsibilities overseen by the three Ministries mentioned above.

NaCEF is executive in nature and mandated to provide policy advice and is involved in project implementation, environmental monitoring and priority setting. However NACEF is currently without any organizational structures and has limited office accommodation. It is under-equipped, under-staffed and operating with insufficient budget, with no allocations for development purposes. Lack of resources (human, technical and financial resources) is incapacitating the old and newly created public sector agencies, making them incapable of delivering quality services in the management of the country's natural endowments. In general, there is limited capacities to design, plan and implement good policies and programs, provide policy direction and monitor the sector, enforce compliance and ensure due diligence. Capacity deficiency therefore is

during implementation were lack of coordination, and insufficient human and financial resources to carry out the plans.

recognized as one of the key barriers for effective environment and natural resources management, wildlife protection and biodiversity conservation in Sierra Leone.

The Environmental Department of NACEF is charged with the statutory responsibility of Environmental Protection in Sierra Leone. It comprises of 7 principal members of staff. In effect the Department has been stifled in everyway by a governmental bureaucracy characterized by inertia, lethargy and penury. Linkages with other ministries are vague and not protected by covenants and agreements based on clearly defined roles. This hampers the effectiveness of the Environment Department and as a result environmental compliance is lax in nearly all the sectors. The department currently has several constraints among which, a weak logistical base, a relative absence of regulatory framework, standards and guidelines and an absence of tangible proactive planning and there is an absence of clear lines of communication between the Department and other institutions of government and non-governmental organizations active in the environment and natural resources management arena. The Forestry Department is responsible for the Rational Management of Forest and Forest Reserves and is facing some of the same problems as mentioned above. NACEF is thus urgently in need of capacity building, institutional strengthening and some re-organization in order to make the structure more productive.

The following are some of the key institutions with environment-related functions in Sierra Leone:

- i. Ministry of Agriculture and Food Security (MAFS)
- ii. Ministry of Lands and Country Planning (MLCP)
- iii. Ministry of Works and Technical Maintenance (MWTM)
- iv. Ministry of Transport and Communications (MTC)
- v. Ministry of Health and Sanitation (MOHS)
- vi. Ministry of Social Welfare and Gender (MSW&G)
- vii. Ministry of Youth and Sports (MYS)
- viii. Ministry of Mineral Resources (MMR)
- ix. Ministry of Information and Broadcasting (MIB)
- x. Ministry of Development and Economic Planning (MODEP)

Other Partners include

- Private sector/NGOs/CBOs (see description below)
- Ministry of Works and Technical Maintenance (MTM)
- Road Transport Authority (RTA)
- Sierra Leone Roads Authority (SLRA)
- Ministry of Labour & Social Security (MLSS)
- Ministry of Energy and Power (MEP)
- National Power Authority (NPA)

- Sierra Leone Maritime Administration (SLMA)
- Ministry of Transport and Communications (MTC)
- Civil Aviation Department (Civil Aviation Authority)

In the absence of strong institutional framework, it would be difficult to implement government policies and laws for effective environmental management. As of June 2005, with the Establishment of NACEF, there seems to be an overlap and the inadequacy of the existing administrative structure and how the stakeholders interact among themselves. As institutional arrangement traces its source from the EPA Act of 2000 which established and empowered the Environment Department, through the Ministry of Lands, Country Planning and the Environment (MLCPE) there is an urgent need to review and harmonize the environment and natural resources management framework. Hence, the environmental institutional framework in Sierra Leone needs to be reviewed urgently

The involvement of civil society, the private sector in environmental management

There has been substantial deterioration in the environment and resource base in Sierra Leone. Yet there is still a lack of awareness among large sections of the population on the environmental issues facing the country, the role they should play in the protection and improvement of the environment. The introduction of environmental education in the educational system in the country has also been limited. There is a strong NGO sector in Sierra Leone responsible for creating public interest in environmental issues. The most active NGOs on the ground in areas related to environmental and natural resources management are:

The *Conservation Society of Sierra Leone (CSSL)*, which promote the conservation and sustainable use of Sierra Leone's natural resources through research, education, advocacy and support to site management groups. CSSL also undertake campaigns for the protection of wildlife, parks and sanctuaries. The *Environmental Foundation for Africa (EFA)* mission in Sierra Leone is to restore and protect the environment and its natural resources. It has acquired experience in terms of operation in conflict zones, humanitarian and refugee operations, post-conflict reconstruction and rehabilitation. The *Commonwealth Human Ecology Council (CHEC-SIL)* promotes conservation of the ecology through education and disseminates environmental information through the mass media. It also supports the Government of Sierra Leone (GOSL) in promoting, through education, policy implementation and project execution. The *Organization for Research and Extension of Intermediate Technology (OREINT)* promotes self-sustaining rural development through the promotion of agriculture and appropriate technology to enhance and improve the socio-economic status of the people in rural areas. *Green Scenery and Friends of the Earth* is other local NGOs that are actively involved in tree

planting and awareness raising campaigns on the protection and management of the environment and natural resources.

Generally, capacity among local NGOs may be low as compared to their international counterparts, most of which work through local organizations.

In general, the *private sector* does not have the capacities for effective management of natural resources, although some major mining companies operating in SL are gradually increasing capacity for handling environmental matters of their operations. These limitations within the private sector do not offer opportunities for either a wholesale outsourcing of management responsibilities or a public-private-partnering. Till recently no conscious efforts were made by Government to include the private sector in resource management except in licensed exploitations. *Research and academia* have an acceptable level of human and technical resources to assist in developing and managing effectively and on sustainable basis the natural resources of the country. The two main universities Fourah Bay and Njala run courses in agriculture, forestry, wildlife and fisheries management and environmental studies and research into various aspects relating to natural resources management. Lack of financial resources has been the limitation in how far they can engage.

3.2.3 A review of the international obligations undertaken by the country

Sierra Leone has also endorsed and signed several international Conventions and Protocols including:

- Convention on Biodiversity (CBD),
- United Nations Framework Convention on Climate Change (UNFCCC),
- United Nations Convention to Combat Desertification (CCD),
- Convention on International Trade in Endangered species of Wild Fauna and Flora (CITES),
- Convention on Wetlands of International Importance (Ramsar),
- Convention on Bio-safety, United Nations Convention on the Law of the Sea (UNCLOS),
- Bassel Convention, Vienna Convention, and Montreal Protocol.
- Stockholm Convention on Persistent Organic Pollutants

These Conventions and Protocols are at different stages of implementation but in general implementation is slow as many have not been ratified or harmonized with the laws, policies and programmes of Sierra Leone. As a result Sierra Leone trails far behind in the implementation of the provisions of these conventions.

Table 3 - Summary international/regional treaties and their Implementation

Convention/ Treaty	Adoption date	Ratification Date	Objectives	Implementation Programmes/projects
1. Convention on Biological Diversity (CBD)	June, 1994	12 th Dec., 1994	<ol style="list-style-type: none"> Promote Conservation of Biological Diversity Sustainable use of its components Fair and equitable sharing arising out of the utilisation of genetic resources 	1. Development of National Biodiversity Strategic Action Plan (NBSAP).
2. The Cartagena Protocol on Biosafety to the Convention on Biological Diversity	Jan, 2000	2003	<ol style="list-style-type: none"> To contribute to ensuring an adequate of protection in the field of living modified Organisms resulting from modern biotechnology 	<ol style="list-style-type: none"> National Biosafety Framework Project launched in 2002 Establishment of Biosafety Clearing house
4. United Nations Convention to Combat Desertification	June 1994	25 th Sept. 1995	<ol style="list-style-type: none"> To combat desertification and mitigates the effect of drought in countries experiencing serious droughts and or desertification 	<ol style="list-style-type: none"> Development of National Action programme (NAP). Development of Medium Size Projects (MSP) to combat land degradation
5. The United Nations Framework Convention on Climate Change	May 1992	April 1996	<ol style="list-style-type: none"> To achieve stabilisation of green house gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climatic system 	1. Initial Communications to Fulfil the Country's Obligations to the UNFCCC.
6. Kyoto Protocol	Dec. 1997	(Advanced stage)	<ol style="list-style-type: none"> To strengthen the commitment of developed country Parties with a view to reduce their overall emissions 	1. National Capacity Self Assessment
7. The Vienna Convention on Protection of Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer	Sep. 1987	Apr. 1993	<ol style="list-style-type: none"> Protect human Health and the environment against adverse effects resulting from modifications of the ozone layer from anthropogenic emissions of substances proved scientifically to have high ozone depleting potential 	<ol style="list-style-type: none"> Phasing out of Ozone Depleting Substances (ODS) by 2010. Capacity building of Institutions dealing with ODS
8. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Mar. 1989	Apr. 1993	<ol style="list-style-type: none"> To reduce trans- boundary movements of hazardous and other wastes to a minimum consistent to their environmentally sound management To treat hazardous wastes and other wastes To minimise the generation of hazardous wastes. 	
9. Protocol on liability and compensation on damages resulting from trans-boundary movements of hazardous waste and their disposal	Dec 1999	Not yet	<ol style="list-style-type: none"> To provide for a comprehensive regime for liability and for adequate and prompt compensation for damages resulting from the trans-boundary movements of hazardous wastes and their disposal including illegal 	

Convention/ Treaty	Adoption date	Ratification Date	Objectives	Implementation Programmes/projects
			traffic of those wastes	
10. Bamako Convention on the ban of the import into Africa and the control of trans- boundary movements of hazardous wastes within Africa (Bamako convention)	Jan 1991	April. 1993	<ol style="list-style-type: none"> 1. To protect by strict control the human health of African population against adverse effects which may result from hazardous waste by reducing their generation to a minimum in terms of quantity and or hazard potential 2. To adopt precautionary measures ensure proper disposal of hazardous waste and to prevent dumping of hazardous wastes in Africa. 	
11. Stockholm Convention on Persistent Organic Pollutants (POPs)		9 th Sept. 2003	<ol style="list-style-type: none"> 1. To strengthen National Capacity and to enhance knowledge and understanding amongst decision makers , managers, industry and the public at large on POPs 2. To develop a National implementation Plan (NIP) to manage the elimination of POPs. 	<ol style="list-style-type: none"> 1. Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Sierra Leone.
12. Abidjan Convention And Protocol on Management And Protection Of Coastal and Marine Environment In The Sub-Region		7 th June, 2005	For the Cooperation in the Protection and Development of the Marine and Coastal Environment of west African Region.	Guinea Large Marine Ecosystem to Combat Living and Fisheries Marine Depletion
13. Ramsar Convention On Wetlands		7 th June, 2005	<ol style="list-style-type: none"> 1. To manage wetland systems so that the human uses of these areas are undertaken In such a way as to retain their natural capital for future generation. 2. To encourage and support countries to develop and implement national policy and legislative frameworks, education and awareness raising programmes, as well as inventory, research and training projects. 	

Regional Cooperation

Sierra Leone is member of the Mano River Union (with Liberia, Guinea), the Economic Community of West African States (ECOWAS) and the African Union (AU). Relations

have significantly improved among the MRU states after the resignation of Charles Taylor in August 2003. ECOWAS's main objective, to establish a common market among member countries to promote free movement of people and goods, has not moved very far. With regard to the AU, Sierra Leone has not yet signed up to the Governance Peer Review within the New Economic Partnership for Africa (NEPAD).

The overall regional security situation has improved with the general elections and subsequent installation of a new government in Liberia and political developments in Guinea. The reconstruction of the road connecting Guinea and Sierra Leone is a sign of positive cooperation. While factors destabilising the region have been reduced, there is a long way to go to achieve close cooperation between the countries concerned, this including the cooperation on transboundary environment matters.

4. EU and Other Donor Co-operation with the Country from an Environmental Perspective

4.1. Current EC involvement in relevant sectors in Sierra Leone

Focal Sectors under the 9th EDF are the rehabilitation of priority infrastructure (transport & social) and good governance/institutional strengthening, both of which are a logical continuation of areas of intervention of previous NIPs and all in consistence with the policies and priorities laid down by the Government in its interim poverty reduction strategy paper (I-PRSP). The 8th EDF infrastructure activities are focussing on road rehabilitation, while funds from the 7th EDF were supporting road and power infrastructure. The € 144 million under the A-envelope of the 9th EDF covers the following two-key focal areas: (i) the rehabilitation of basic infrastructure (transport and social) and (ii) institutional support aimed at the improvement of key functions of public administration, including finance (iii) Macro-Economic Support in the framework of ongoing economic reforms. The following indicative breakdown was provided as part of the response strategy: (i) Rehabilitation of Priority Infrastructure (€ 70 M), (ii) Good Governance and Institutional Support (€19 M), (iii) Macro-Economic Support (€ 50 M), (iv) Non-focal sectors (€ 5 M)

For many years, and in particularly during the decade-long war, little focus was given on environmental issues. Although further exact data on the general state of the environment and sustainability of natural resources is pending, it is generally believed that the country's environmental wealth is threatened by poor natural resource management and that critical developments and priorities need to be addressed urgently. As far as current EC activities are concerned, environment is considered a cross-cutting issue (together with Gender and HIV/AIDS) and at the moment there are both strengths and weaknesses associated with the EC assistance to Sierra Leone from an environmental perspective. On the one hand, as part of its infrastructure development undertakings, environmental and social assessments are systematically being conducted (in many cases as part of the feasibility studies) for any programme/project with a potential impact on the environment. On the other hand, it could be concluded that environment had not been adequately mainstreamed in the current Country Strategy Paper and that environment expertise at the delegation was not utilised effectively. Much attention is placed on short-term impacts while long term environmental impacts are not sufficiently addressed (e.g. Strategic Environmental Assessment of the transport sector for example). It is felt that the environment activities could be furthered mainstreamed taking into consideration current government priorities in the sector.

The EC Development Policy Declaration identifies six areas of concentration for Development Cooperation. Environment is considered a cross-cutting issue which needs to be integrated into all of these six themes to make development sustainable.

The six core areas are:

1. Trade and Development
2. Regional Integration and Co-operation
3. Support to macro-economic policies linked to social sector programmes
4. Transport
5. Sustainable rural development and food security
6. Institutional capacity building, good governance and the rule of law.

In November 2005, a new European Union Development Policy (“The European consensus on Development”) was adopted. In contrast to the previous policy, the new policy includes environment and natural resources as a priority area. The new policy recognises the importance of environmental programmes/projects (specific support to the environment sector) as well as mainstreaming the environment into other development programmes/projects, if the environmental aspects of development cooperation are to be comprehensively addressed. However, to a considerable degree, the extent to which the new priority given to environmental expenditure is actually implemented depends on whether beneficiary countries select environment and natural resources as a focal area. In Sierra Leone this focus and priority is reflected through the integration of the environment in the PRSP and the establishment and phasing of activities in this sector through NACEF. In looking at the current needs as regards environmental matters in the country, there is a clear opportunity to ensure a match between political priorities and spending on development assistance for the upcoming 10th EDF/CSP/NIP process.

Within this context there are currently three urgent needs in terms of mainstreaming the environment which are: *(i) Providing institutional support to NACEF aimed at improvement of key functions (ii) a need to review national and sectoral natural resource utilization and environmental policy and legislation with a view to address, reform or harmonize gaps and overlaps as appropriate (iii) Environmental sustainability – performance measurement; a need to establish long-term sustainable mechanisms for natural resource utilization and environmental management Sierra Leone., (e.g. donors and the GOSL could make the passing of environmental legislation one of the poverty reduction strategy objectives, etc). The fact that environment would as such be prioritized and better mainstreamed in the PRSP could offer new opportunities for the EC to strengthen their assistance in the environment sector. This, both in terms of environment projects and the mainstreaming of environment in the sectoral activities.*

1st Focal sector - Infrastructure; Transport Sector (Roads)

The general state of basic infrastructure remains a major bottleneck for the development of the country. Currently, rehabilitation of roads and other basic infra-structure is being undertaken with donor support in all parts of the country. The EC and the World Bank are the main donors in the road sector. Transport activities however, could impact (direct impacts) on the quality of our air, water, and land, and on the quality of human life, if not properly managed. The main road sector environmental issues are: loss of biodiversity; loss of natural resources; land degradation; deforestation; pollution; resettlement, induced development, and social, economic and cultural issues. Hence considerable attention needs to be devoted to the mitigation of potential impacts in the road building exercise. From GoSL side, there is a National Transport Strategy and Investment Plan 2003-2007 being implemented through the SLRA.

Although there are some items being considered at certain stages e.g. environmental requirements, such as the obligation to rehabilitate the borrow pits in road construction projects which are also included in works and supervision contracts, there is no systematic and comprehensive government strategy to improve the efficiency of the sector as a whole and reducing environmental impacts (both short term and long term) of road building. Efforts should be made for systematically integrating environmental considerations into the SLRA and Ministry of Works' road sector activities, decisions, policies and programmes (so that long-term impacts could also be taken into consideration). Hence, *a sustainable development Strategy for Environmental Management in the Road sector together with Environmental assessments and management guidelines for the road sector should be established*. The purpose of these guidelines would be to establish a systematic and logical way of incorporating environmental issues into all activities undertaken in the Road Sector. The main strategy is to integrate environmental and social-economic concerns from the project planning phase to the maintenance.

From the EC side, there are indeed some EIA being performed as part of the feasibility studies, however these need to *be systematically follow-up and the proper monitoring* should be done. Same is valid for the power supply activities. As mentioned earlier, *the EC should also support a strategic environmental assessment of the sector*.

Power supply is still basically restricted to the major towns, and even there it is irregular and does not provide for minimum requirements. Hopes for improvement focus on the finalisation of the Bumbuna Hydro Power Plant which was abandoned during the war. The Bumbuna plant could provide for the energy needs of the whole country. In the power sector, the Emergency Rehabilitation of Transmission and Distribution System (7 ACP SL 99, € 1.99m) project provides emergency support to the National Power Authority in rehabilitation of the electricity distribution.

Social Sector: Expand Facilities in Rural communities)/Rural Development

The rehabilitation of priority social infrastructure entails mainly rural health and education infrastructure, in particularly rural areas. This is done in accordance with Government priorities and in cooperation with other donors and programmes. Some water and energy initiatives are both captured in the ongoing programme of cooperation, comprising rural water supply on the community level and emergency support to the rehabilitation of power supply systems (some non-NIP or non-EDF).

Health – In terms of Health policy and the EC funded Health Sector Support Programme (HSSP) some aspects for the protection of environment are considered (e.g.; procedures for the management of hospital waste, etc). However the programme does not go far enough in terms of systematically integrating environment and does not provide the necessary capacity building to handle the matters.

Education - The education sector strategy and policy has an overall goal of creating and bringing about the development of society through education. Support to the education sector is primarily given by the World Bank and the African Development Bank. The Much of the input in the education sector focused primarily on the basic education level and infrastructure needs. In general, currently little or no attention is given to issue of environmental education.

Agriculture - is an important primary sector in the rural development context. Further development would require policy that encourages and supports local production as well as improvement of cultivation methods, the provision of road infrastructure, markets, functioning extension services and improved crops. Rapid population growth, over harvesting of timber, and slash and burn agriculture is pushing communities into using less suitable land, resulting in loss of soil fertility and lowering of yields. There are several environmental issues e.g. land degradation, loss of fertile land, etc., which needs to be addressed urgently in this sector. Through several projects (also under Food security initiatives, etc.,) the EC and several NGO's are trying to do address the situation in this respect.

2nd Focal Sector - Decentralization and Good Governance

As the second priority, the EC is supporting the efforts of the GoSL to consolidate a decentralized democratic system characterized by an effective social service delivery throughout the country. This on-going decentralization process could also offer a unique opportunity for environment and natural resources management at the local and community level. One of the key aspects in this regard is the integration of environment components in local developments plans and to ensure that sufficient resources are made available to follow-up with concrete actions. In this context, and complementary to this decentralization process, it would be appropriate *to design and implement a*

Decentralization and Environmental Management Project (DEMP) which should create the necessary awareness on environment and natural resources management issues and also build and support the necessary technical capacity at the district and community level to deal successfully with these issues.

Macro-Economic Support

The EC is supporting the macro-economic reform programme of the GoSL with special attention given to poverty reduction, particularly with a view to ensuring equitable access to social services. In this context the government remains committed to increasing expenditures in social sectors consistent with its PRS. Nevertheless, environmental aspects are not systematically and in a global fashion integrated in the macro-economy of the country. The environmental costs associated with environmental degradation are not incorporated in current financial flows of the public budget. *Greater attention should be paid to mainstreaming environment and incorporating environmental costs at the budgeting process. More use should be made of tools such as environmental cost accounting & national environmental accounting (economic instruments).*

Non- Focal sectors - Mineral (Mining) sector

Sierra Leone is one of the world's largest producers of rutile and bauxite with mines located in three districts of southern Sierra Leone. Mineral exports remain Sierra Leone's principal foreign exchange earner. Annual gem quality diamond production estimates range between \$250-300 million. However, only a portion of that passes through formal export channels. Before the war these mines operated without compliance to policies related to Environmental Impact Assessment (EIA). Full EIA studies have now been undertaken for the resumption of mining of bauxite and rutile. With the 25 M€ rutile mine project funded from the 9th EDF (9 ACP SL 6) and the related Technical Assistance to the Ministry of Mineral Resources (9 ACP SL 15), the EC is becoming one of the major partners in the mining sector in Sierra Leone. With the EC support, Sierra Rutile Mine is expected to be one of the major export earners and employers in Sierra Leone again from 2006. The conditions of the EC loan ensure that strict environmental and social conditions could be fulfilled but continuous monitoring of the situation would be necessary.

Small-scale gold and diamond mining are carried out in about six districts in the country. Large and small-scale mining activities in Sierra Leone are raising a wide range of issues related to land degradation, deforestation and loss of vegetation, soil erosion and contamination of water sources, health and safety of the mining communities. There are regulations, even though not enforced, on the rehabilitation of mined out lands.

The GoSL has adopted a new Core Mineral Policy (CMP) to modernise the mining sector. In addition to assisting the mining industry in attracting foreign and local private funds, the CMP emphasises environmental protection and the distribution of benefits of the mining industry to the local communities. Donors, particularly UNAMSIL, DFID, USAID and the World Bank have supported the GoSL in the development of the policy and donor inputs are foreseen for its implementation as well. Some recent visits (NACEF, EU consultant, NGO's) to key mining areas in the country concluded that in general mining is being undertaken with little or no environmental considerations. Even those with purported EIAs are not consistently implementing the mitigation plans. Monitoring the activities of mining companies is poorly done. *Some of the key issues to be done in the sector are coordination of legislation (Ministry of Mineral resources and NACEF); a strategic Environmental Assessment should be carried out for the whole sector. Better procedures should be put in place for the acquisition of environmental impact assessment license and proper monitoring and enforcement should be done, this also in close cooperation with local communities and local authorities (Decentralized environmental management).*

Trade and Environment issues: The European Union is Sierra Leone's main trading partner accounting for approximately 70% of exports and 45% of Imports. Both import and export are expected to grow in the near future. Trade liberalization will offer additional opportunities for the promotion of foreign trade. Thoughts are that 'millions of US\$' per year is being 'leaked' from the natural resources sector (in particular Diamond mining) in Sierra Leone where this amount represents potential lost revenue for the country. EC provided some assistance in this respect through the UN Kimberley process. *In general, trade-related environmental issues and environment-related trade issues are receiving little attention in Sierra Leone. Hence, more assistance will be needed under the trade and environment umbrella.*

4.2. EC and other Donor Cooperation

Development Partners Group (DPG) Cooperation with Sierra Leone in the Environment sector.

In the environment and natural resources sector, it was observed that a limited number of donors are active in this sector in Sierra Leone. The majority of donors present are following a sector budget support approach with an integration of the environment as a cross-cutting issue. In addition, those active (World Bank, African Development Bank, UNDP, Islamic Development Bank, USAID, DFID, EC, etc) are supporting environment mainly through several actions which are integrated in some of the areas of concentration while some environmental NGO's playing a supporting role in this context. Some of the past and recent activities are summarized under appendix II- 2.

There is currently no specific support to the environmental sector as far as the donors are concerned (although that might be changing soon with some activities now in the pipeline of the EC). Many of the donors currently active do require environmental impact studies as part of their approval process, however there are some common difficulties in these studies:

- EIA is loosely integrated in the feasibility studies and there is no sufficient involvement and consultation of the communities concerned
- With the exception of maybe the World Bank, the EIA as part of the post-closure evaluation several years following the project, are rare and not systematic.
- There is not enough follow-up of the EIA, which should in fact serve as a basic reference document on the part of the donors, government and the private sector
- Not enough synergy and no standards or common guidelines for the studies
- Overall, greater use should be made of strategic environmental assessment to assess the impacts of policies and programmes on the environment

Overall donor co-ordination in Sierra Leone is being led by the government through bi-monthly meetings of the Sierra Leone Development Partnership Committee (DEPAC), chaired by the Vice President, comprising government and its development partners. Regular dialogue takes place outside of the formal structures with the main donors and specifically with member states present: UK, Ireland, Germany and France.

Currently, there is no pro-active mechanism for harmonization of interventions in the environment arena. There are efforts underway to form an environment working group as a mechanism for coordination of environment matters in the country. In this context, there is the expectation among the other partners, that the EC will take the lead (Chef de File) on environment matters in the country. In the case of Sierra Leone, it would be worthwhile exploring and important to recognise that policy dialogue, planning of interventions and monitoring of results should be achieved through some kind of SWAP for the environment sector. Where good dialogue is established through SWAPS or sector baskets, this could improve donor coordination in the sector, even as aid modalities shift towards GBS (General Budget support).

5. Conclusions and Recommendations

5.1. General & Specific

On the basis of the state of the environment and situation presented in previous chapters the areas in which the EC and other partners can support the GOSL in its objective of reaching sustainable growth are (analyzed) summarized here. The recommendations are designed to be an important analytical tool for both the government and donor community. The recommendations (recommended actions) include environmental policy measures, legal measures, institutional measures, funding/investments, education, and awareness building and some general criteria which could be taken into consideration in preparing actions, programmes and plans (e.g. NEAP). It should be observed that the more specific recommendations which meet the specific needs for EC programming as requested in the TOR are included in the EC action plan for mainstreaming which is provided in chapter 5.2.

GENERAL

Sector/themes	Problem/Issues or Source	Policy Recommendations / Illustrative Interventions
BROWN AGENDA (Management of the Built Environment)		
Rural and Urban (Settlements)	<ul style="list-style-type: none"> • Water contamination • Water availability/scarcity • Living Conditions • Illegal settlements 	<ul style="list-style-type: none"> • Develop and implement Strategic Urban Development Plans • Develop and implement Village, Town and City Physical Plans • Ensure community ownership of water resources and sanitation projects
Water Resources/ Management	<ul style="list-style-type: none"> • Water pollution • Water scarcity • Water use conflicts • Access to safe drinking water • Poor sanitation 	<ul style="list-style-type: none"> • Integrated water resources management • Enhance water basin management principles • Public-private partnerships • Water supply and sewerage master plans/projects • Closer cooperation between key ministries in Sanitation issues
Solid waste management	Uncontrolled disposal of solid waste Public Health hazards	<ul style="list-style-type: none"> • Implementation solid waste management programmes • Promotion of waste reduction practices and recycling activities • Review Environmental health issues
Air and Noise	Green House Gases Environmental health hazards	<ul style="list-style-type: none"> • Awareness raising • Forest conservation programmes • Innovative climate change projects

Energy (Climate change)	<ul style="list-style-type: none"> • Power shortages • Excessive Use of firewood, Charcoal • Insecure and unreliable energy supplies 	Enhance energy accessibility, equity, conservation of non renewable energy, alternative sources of energy, management of adverse impacts of energy development project
Industry	Effluent pollution Waste disposal	<ul style="list-style-type: none"> • Cleaner production concept • Promoting more efficient/environmental friendly technologies
GREEN AGENDA (Natural Resources Management)		
Biodiversity, Natural and Cultural heritage	<ul style="list-style-type: none"> • Loss of biodiversity 	<ul style="list-style-type: none"> • Review wildlife act and harmonization of legislation • Review institutions • Implementation of protected areas programmes • Enhance operationalisation of Wildlife Management Areas
Coastal and Marine Resources	<ul style="list-style-type: none"> • Declining harvests of marine and coastal living resources • Loss of coastal and Marine biodiversity • Coastal pollution • Beach (coastal) erosion 	<ul style="list-style-type: none"> • Protection of marine resources • Implementation of the integrated coastal zone management project • Investigate alternatives to use of sand in construction
Fisheries & Marine resources	<ul style="list-style-type: none"> • Decline of fisheries stock 	<ul style="list-style-type: none"> • Review fisheries act/Decree • Revisit deep sea fishing issues • Review artisanal fishing issues
Forestry	<ul style="list-style-type: none"> ▪ Deforestation ▪ Forest degradation ▪ Biodiversity loss ▪ Mangrove loss ▪ Illegal logging ▪ Weak forest governance 	<ul style="list-style-type: none"> ▪ Enhance Participatory Forestry Management, including formation of Village Forest Reserves ▪ Regulate use of commercial charcoal burners and promote the use of efficient wood burning stoves ▪ Strengthen forest fires control measures ▪ Study and promote use of non-wood forest products ▪ Promote better forest law enforcement ▪ Innovative climate change projects
Mining	The impact of mining on environment (efficient use of energy and water, impact on human health, landscaping issues, etc)	<ul style="list-style-type: none"> ▪ Application of regulations ▪ Environmental monitoring and enforcement ▪ Cleaner production practices

Agriculture	<ul style="list-style-type: none"> • Land degradation • Loss of agro-biodiversity • Biosafety (potential risks to human health, etc) 	<ul style="list-style-type: none"> • Reduce the use of water and agro-chemicals in agriculture. Increasing agriculture production per unit area; • Reducing agricultural risks to the health of air and the atmosphere; • Reducing agricultural risks to the health of water resources; • Reducing agricultural risks to the health of soils; and • Ensuring compatibility between biodiversity and agriculture
Land Resources	<ul style="list-style-type: none"> • Desertification • Land degradation 	<ul style="list-style-type: none"> • Undertake a detailed assessment of the land resources base • Study the land tenure system • Prepare land use plan • Conserve and improve soil fertility • Assess range land activities

SPECIFIC

Policy & Legal Measures

- In line with the new institutional setting there is an urgent need to harmonize legislation and create a conducive regulatory and policy framework.
- Review national and sectoral natural resource utilization and environmental policy and legislation with a view to address, reform or harmonize gaps and overlaps as appropriate
- The production and implementation of the National Environmental Action Plan
- Capacity building for implementation of 2001 Environment Protection Act/or a new framework environmental law
- Environmental Institutions be given powers to prosecute violators;

Institutional Measures

- Providing institutional support to NACEF aimed at improvement of key functions
- Review and enhance roles of different institutions
- Restructure environmental institutions
- Institutional capacity building
- Support NGOs, CBOs and private institutions dealing with environment
- Development of a Decentralization and Environmental Management Project - Enforcement mechanisms on environmental aspects should further be decentralized;
- Pay attention to environmental monitoring and enforcement ((in particular issues related to environmental enforcement)

Education and awareness building

- Enact access to information legislation
- Establishment of Central Environmental Information System
- Review of Poverty Monitoring System to include environmental indicators
- Extend public information: Awareness raising at different levels on environmental standards and effects of environmental pollution. Public awareness raising should be strengthened through outreach materials and integration of environmental education in education programmes.

Investments/Funding

- The main donors should continue support the sector with probably the EC taking the lead in the environment sector. DPG should establish a functional architecture/mechanism for cooperation in environmental matters with partners taking the lead on specific issues/themes on a rotational scheme basis.
- Macro-economic budget support could continue, but it is advisable that in this context conditionalities should be attached to funding requirements in order that a sufficient percentage of the envelope is destined to meet long-term sustainable development objectives (e.g. improvement of living standards of the population affected by the preservation of the natural resource base, etc).
- Possibilities for establishing an Environmental Trust Fund should be examined and be made operational as soon as possible.
- The system of national environmental accounting should be developed. In this framework, the further development of reliable statistics on environmental expenditures should start as soon as possible in the interest of improved decision-making by ministries and other State bodies that are active in environmental protection and management.

5.2. CSP Preparation and EC involvement in the Sector

Elements - EC Action Plan/Programme on Environment mainstreaming

In line with its development policy and further EC cooperation assistance in the environment sector, it is recommended that the EC continue this path of dialogue, co-ordination and cooperation with all relevant partners i.e. GOSL, other donors, civil

society, private sector (e.g. Rutile mines, etc), etc. This will only increase the opportunities for integrating environmental soundness in the CSP preparation process and create a good enabling environment for its implementation. In designing this action plan it suggested that the delegation also closely follows the recommendations of the international mission (Worldbank, UNEP/FAO/UNHabitat) while also keeping in line with government priorities and its own operational framework objectives for mainstreaming environment. In the light of the analysis of the current country situation and recent developments, the following issues and/or initiatives should be included or enhanced during the CSP/10th EDF:

1. Long-term sustainable development view focuses on environment development linkages and addressing national and global environmental priorities while, striking a good balance in tackling issues of both the brown and green agenda.
2. On the green side apart from further involvement in mining, transport, fisheries, wildlife, EC should give serious consideration to other rural development projects; access to land and land fertility issues, access to forests, access to wood for cooking are key topics. On the brown side, further involvement in water supply, sanitation and sewerage projects should be encouraged.
3. Emphasis on poverty reduction and environment linkages and strengthening governance, following PRSP and preparation and harmonization of the environmental legislative framework should be undertaken with a continued focus on the general budget support (crucial that this approach is successful), governance, transport (roads) sector, and the trade and environment, and mining. The water sector and energy should be given increased attention due to the different acute problems in these areas.
4. Results depend also on donor communities, building partnerships with other donors and other agencies. *(DPG policy briefs – accompanied by a joint action plan with other donors. Other briefs that might be worthwhile developing in the coming period are e.g. Effective water governance, Access to sustainable energy services, Sustainable land management to combat desertification and land degradation, etc)*
5. More systematic use of environmental management and monitoring tools in safeguard policy; SEA, SIA, environmental performance and monitoring audits, etc and greater EC financial involvement in environmental projects.

The view is that some tangible interventions should be designed based on current work of the EC delegation in Sierra Leone. In the Table 4 below some of the relevant activities are indicated. It should be observed that these activities would be complementary and closely follow an urgent environment and natural resources management³ programme

³ The Government has just appointed a commission for the environment protection (NaCEF). The commission for the environment is being preparing a plan of action for the management of natural

which is currently in preparation in the ECD, in close cooperation with the GoSL under the 9th EDF commitments.

resources namely: land and forest degradation, sources of water, wildlife protection. The European Commission has allocated an amount of € 1,0 million to support this sector. Preparatory studies for the implementation of a project is planned to start late 2006 early 2007.

Table 4: EC Action Plan/Programme on Environment Mainstreaming

EC Focal Sector	Critical Issue	Recommendations for EC mainstreaming / Strategy	Objectives	Involved Institutions
<ul style="list-style-type: none"> ▪ Good Governance, ▪ Sectoral programme support (Trade, Fisheries) 	<ul style="list-style-type: none"> ▪ Structural barriers ▪ Market failures ▪ Loss of biodiversity ▪ Poverty reduction ▪ Breaking link between Environmental Degradation 	<ul style="list-style-type: none"> ▪ Analyze in-depth the sustainable development impacts of forestry, agriculture, trade and fisheries policies ▪ Assistance in complying with international standards ▪ Support programmes in relevant sectors (following DPG briefs) 	<ul style="list-style-type: none"> ▪ Poverty and environment synergies better exploited ▪ Capacity of governance systems for environment integration approved ▪ Coherence issues with other EC policies better understood and identified 	NACEF, line ministries
<p>Good Governance and the rule of law</p> <p>Direct Budget Support; support to macro-economic policies linked to social sector programmes</p>	<ul style="list-style-type: none"> ▪ Need of a framework Environmental Act ▪ Lack of Environmental Regulations ▪ Promotion of economic instruments ▪ Lack of environmental monitoring and enforcement 	<ul style="list-style-type: none"> ▪ Support to creating an enabling policy and legislative framework ▪ Review of institutional framework ▪ Review of already drafted EIA regulations and development of complementary norms and standards ▪ Capacity building training programmes 	<ul style="list-style-type: none"> ▪ Capacity of governance systems for environment integration approved 	NACEF, line Ministries

Good Governance, Direct Budget Support	Lack of Institutional capacity	<ul style="list-style-type: none"> ▪ Support to environmental capacity building of key environmental institutions ▪ Support the preparation and implementation of a Decentralization and environmental management Programme (DEMP) ▪ Implementation of training programmes 	<ul style="list-style-type: none"> ▪ Poverty and environment synergies better exploited ▪ Capacity of governance systems for environment integration approved 	NACEF,
Trade and development	Trade and environment capacity building	Organize joint capacity building workshop/training programmes on this issue as regards natural resources products	<ul style="list-style-type: none"> ▪ Environment aspects are better mainstreamed into regional integration and cooperation programmes 	West Africa community, NACEF
Education	Environmental awareness Involvement of civil society	<ul style="list-style-type: none"> ▪ Baseline studies on environmental awareness ▪ Development of curricula and training Environmental assessment seldom perceived as a priority. Educational demonstration projects, creation of a school yearly award for the best project ▪ Strengthen NGO work in this area ▪ Assurance of public and vulnerable community's involvement in development projects as a conditionality. 	<ul style="list-style-type: none"> ▪ Awareness raising ▪ Improve consultation process ▪ Partnership building ▪ Supporting civil society ▪ Coherence issues with other EC policies better understood and identified 	Several stakeholders
Direct Budget Support	Resource and Capacity constraints, Effectiveness of development aid for Environment (Trust Fund?)	<ul style="list-style-type: none"> ▪ Take a lead role in among donors on specific themes/issues ▪ Coordination with donors 	<ul style="list-style-type: none"> ▪ Co-ordination, complementarity and coherence with Member State, other donors and civil society enhanced 	VPO, Ministry of Finance, NACEF
Transport (roads)	Environment, economic and sectoral integration of	<ul style="list-style-type: none"> ▪ Carry out an SEA of the transport policy ▪ Carry out EIA of all projects funded by the 	<ul style="list-style-type: none"> ▪ Transport sector (roads) made more environmentally 	Ministry of Transport

	development activities Capacity constraints, institutional strengthening	delegation ▪ Training programmes	sustainable	
Mining	Environment, economic and sectoral integration of development activities Capacity constraints, institutional strengthening	<ul style="list-style-type: none"> ▪ Carry out an SEA of the mineral policy ▪ Carry out EIA of all projects funded by the delegation ▪ Training programmes 	<ul style="list-style-type: none"> ▪ Support to monitoring and encouraging sustainable development practises in the Mining Sector 	Ministry of Mineral Resources ECD

Some additional Suggestions/ Recommendations as regards EC Delegation programming /mainstreaming initiatives in Sierra Leone

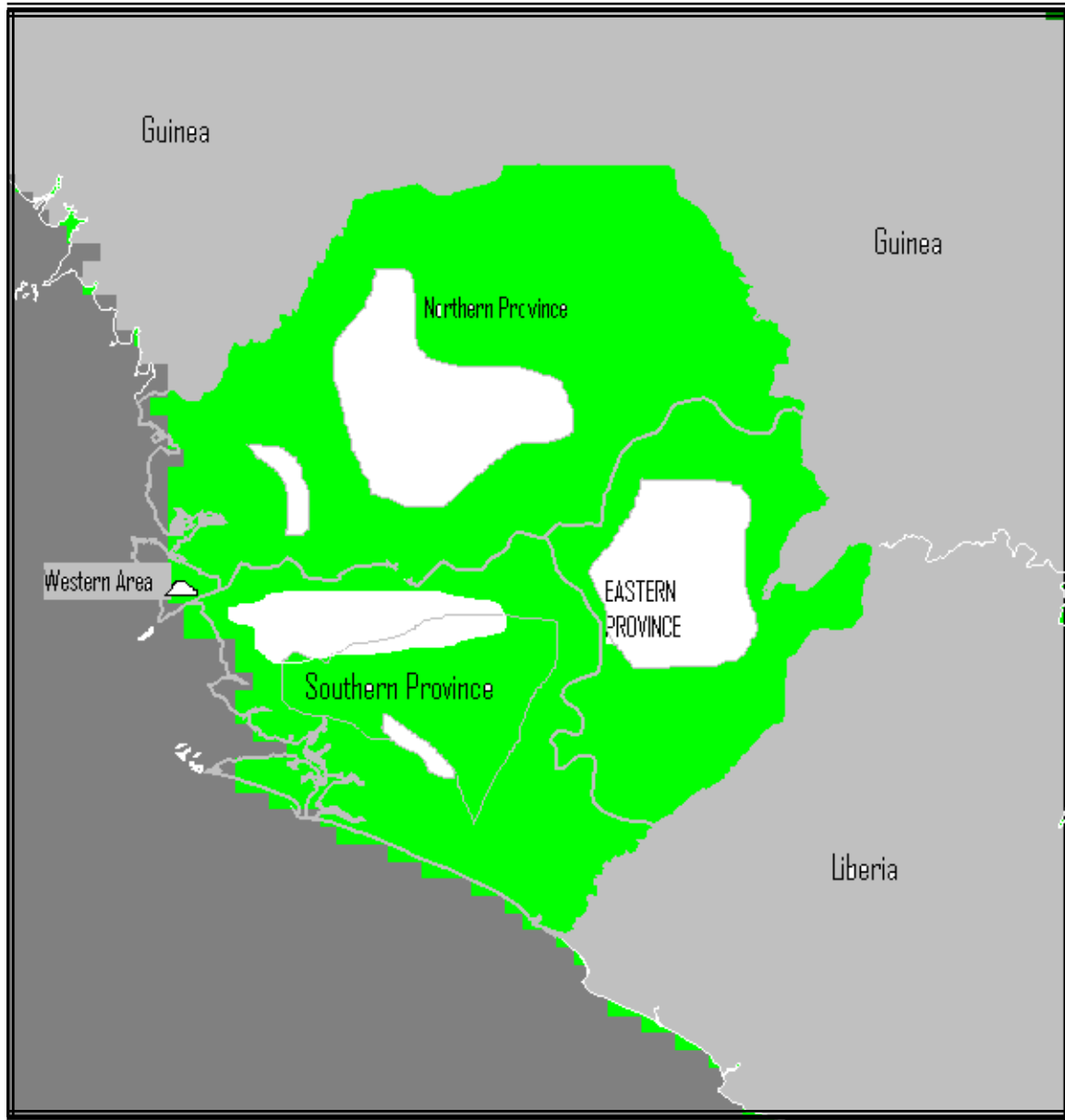
Guidance for EC development cooperation mainstreaming as it relates to programming, sector support, budget support and at the project approach is captured in relevant sections of the Environment Integration Handbook for EC development cooperation (Final Draft 23/12/2005). This handbook guidance is considering the actual ecological footprint of EC activities, as well as key planning and reporting tools. In following this draft handbook and taking into consideration the new European Development Policy, some strategic guidelines relevant to the EC Delegation Sierra Leone are summarized hereunder.


Some General Guidelines:

- Environmental mainstreaming at the country EC Delegation level would imply that environment objectives and synergies with social and economic objectives are reflected into the CSP and Indicative programme.
- Advised should be given on the environmental soundness of programmes and dialogue promoted with GOSL in order to influence institutions, policies, and expenditures.
- Priorities and targets should be set in close consultation with line ministries.
- Ensure that the traditional counterpart stakeholders are adequately sensitised and that the line management agencies have the necessary capacity to understand how their function relates to the overarching donor framework of poverty reduction.
- Ensure that mainstreaming happens at the level of country programming as well as at the individual project level.
- Increase or (put in place) internal management capacity and incentives to ensure that the environmental policy and safeguards are vigorously implemented, and an evaluative framework to assess effectiveness at regular intervals is put in place.
- Successful environmental mainstreaming requires regular expressions of commitment and support from the Senior Management, providing the necessary support, and setting priorities for the organisation;
- Such commitment and support is necessary to secure adequate financial resources, and as a backdrop to the establishment of effective internal routines, information systems, etc.; (In this context, effort should be made to fully utilize and tap from other available resources available within EU. For example, Trust Fund to Finance Infrastructure (EIB), Water Facility, Energy Facility)

- Currently, the systematic assessment and follow-up of environment impacts is not well developed in the preparation/follow-up of projects in the EC Sierra Leone delegation. In general all projects should be subject to EIA. The extent and details of the EIA (screening, scoping, etc) will depend on the sector and the potential impact that the activity would have on the environment.

Appendix 1: Technical Appendixes

Fig. 1 Overview of Land Degradation in Sierra Leone**Legend**

 Less degraded areas

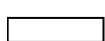
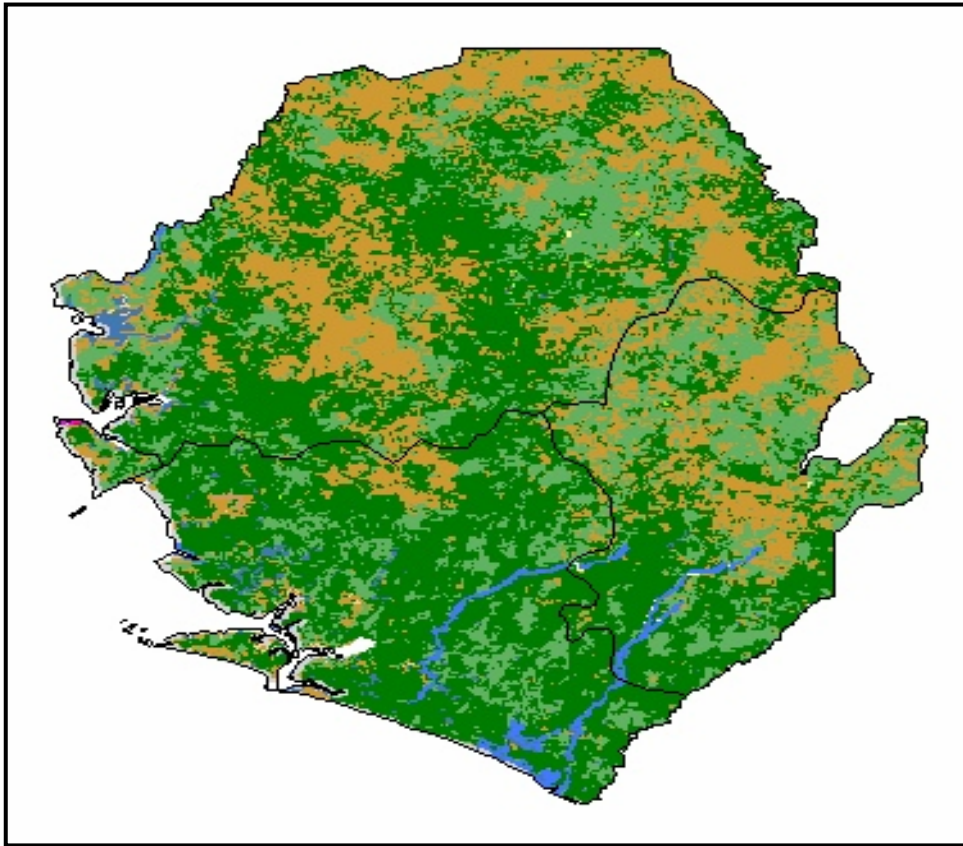









 Heavily degraded areas

Fig. 2 Land Cover Map Of Sierra Leone



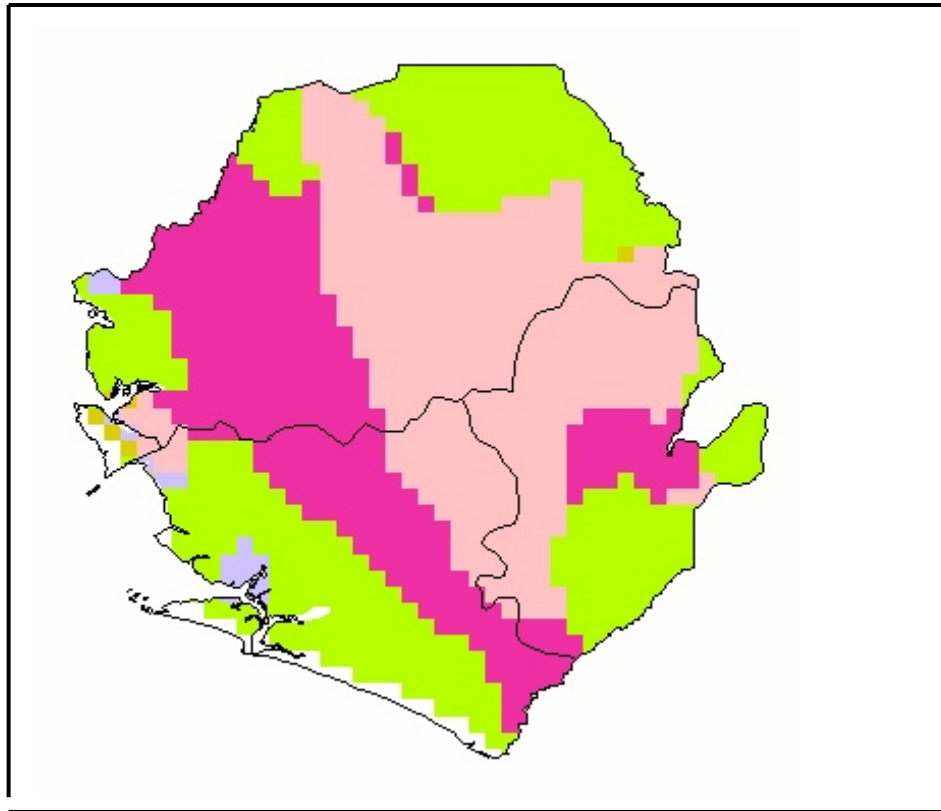
Source: FAO Country Profiles

	Shrub land/Grassland
	Savanna
	Developed
	Dry Cropland & Pasture
	Irrigated Cropland
	Cropland/Grassland
	Cropland/Woodland
	Grassland
	Shrub land

Legend

	Evergreen Broadleaf Forest
	Evergreen Needle leaf Forest
	Mixed Forest
	Water
	Herbaceous Wetland
	Wooded Wetland
	Partly Developed
	Unclassified

Fig : 3 Environmental Constraints Map Of Sierra Leone



Source: FAO Country

Legend






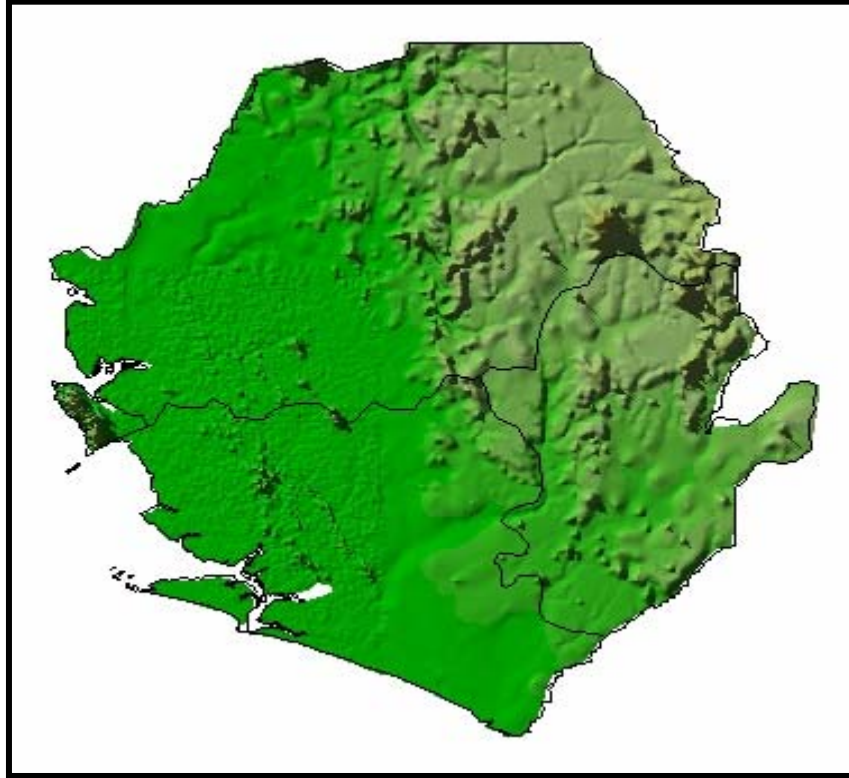







Environmental Constraints	
	Low soil suitability
	Erratic rainfall and cold stress risk
	Steep slopes and mountains
	Severe and very severe land degradation
	High climatic production potential

Fig 3 : Relief of Sierra Leone

Source: FAO Country Profiles

Legend

Hill shade	
Relief (Elevation in Meters)	
	0 - 100
	100 - 200
	200 - 300
	300 - 400
	400 - 500
	500 - 700
	750 - 1000








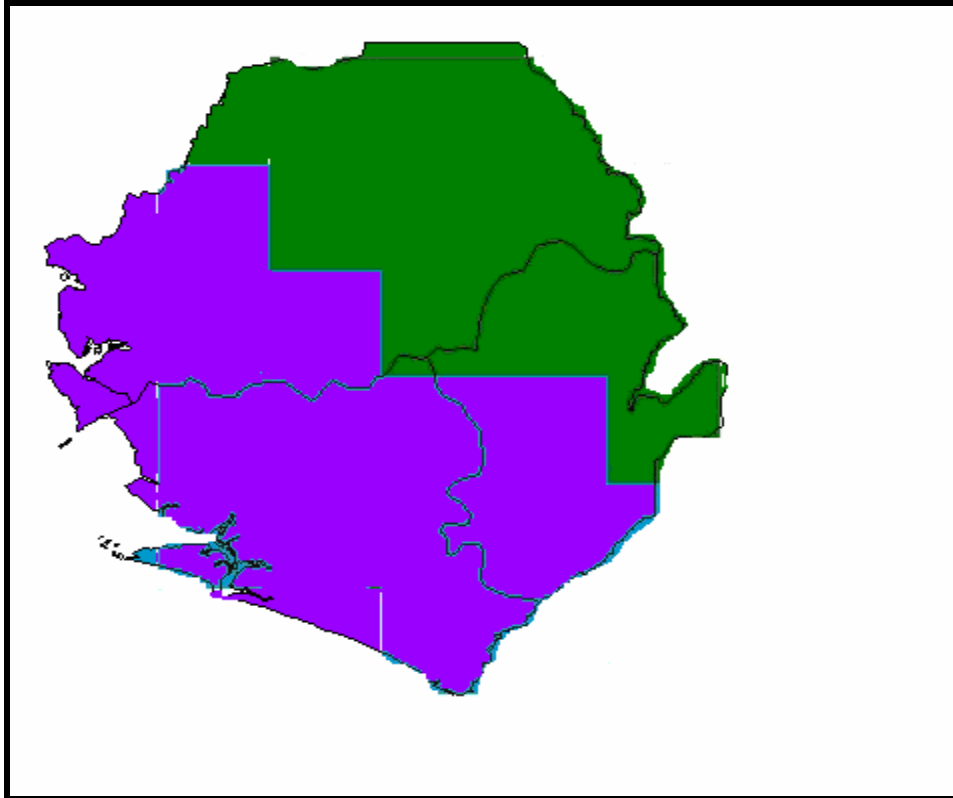




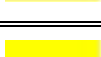
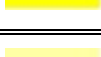
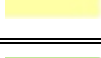
	1000 - 1500
	1500 - 2000
	2000 - 3000
	3000 - 4000
	4000 - 5000
	>5000
	Below Sea Level

Fig 4: Precipitation Map Of Sierra Leone



Source: FAO Country Profiles

Legend

Precipitation mm/year	Ave
	0 - 24
	25 - 74
	75 - 124
	125 - 224
	225 - 274
	275 - 374
	375 - 474


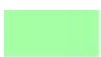







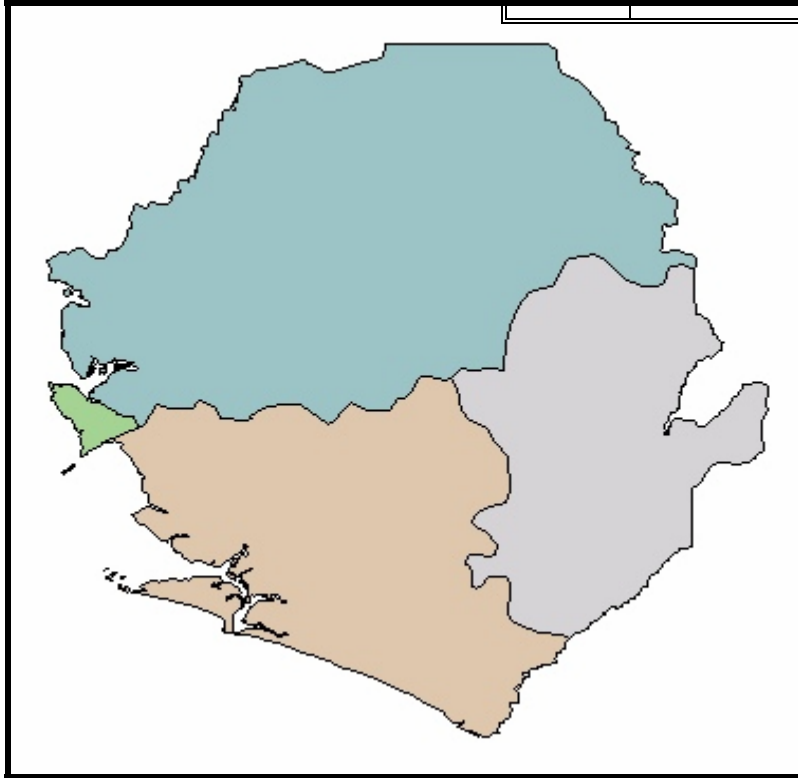
	475 - 724
	725 - 974
	975 - 1474
	1475 - 2474
	2475 - 4974

Fig 5 : Sierra Leone -

	4975 - 7474
	7475 - 10004
	> 10005
	No Data

Administration



Source: FAO Country Profiles

Legend



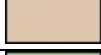

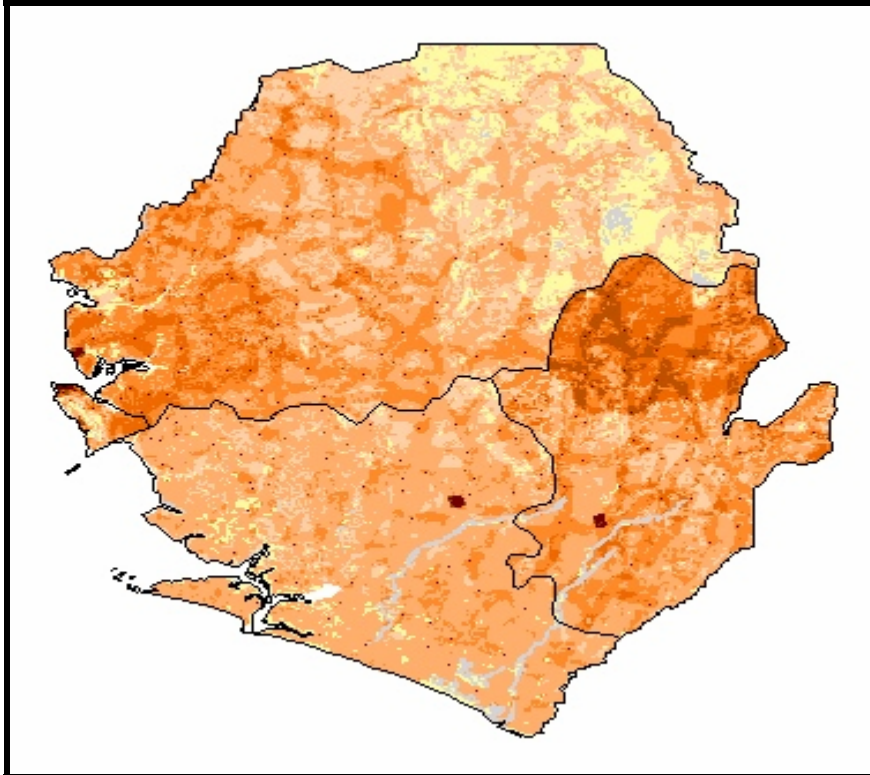









Administration	
	Eastern Province
	Northern Province
	Southern Province
	Western Area

Fig 6: Sierra Leone – Population Total

Source: FAO Country Profiles

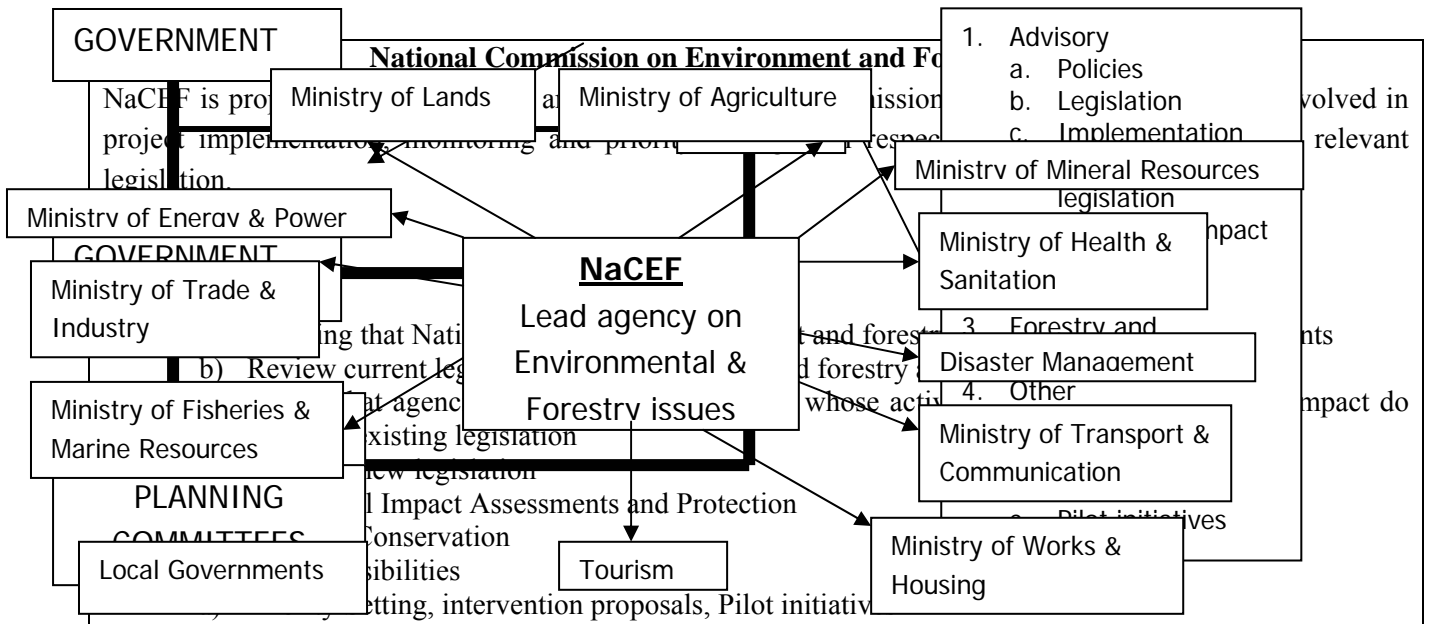
Legend

Population (People per Sq Km)	
	0 – 2
	3 – 10
	11 – 20
	21 – 50
	51 – 100

	101 – 200
	201 – 500
	501 – 1000
	>1000

Protected Area	Area (ha)	Category	Ecosystem Type	Proposed or Existing Status
Sacred Groves	?	Secret societies	Diverse ecosystem	
Loma Mountains Forest Reserve*	33,201	National park	Montane	National Park
Tingi Hills) Forest Reserve*	10,519	Game reserve	Montane	Game Reserve
Gola Forest (North, East & West)*	76,100	Forest reserve	Rainforest	Strict Nature Reserve
Kambui Hills	21,228	Forest reserve	Rainforest	
Kangari Hills*	8,573	Game reserve	Rainforest	
Tiwai Island*	1,200	Game Sanctuary	Rainforest	
Western Area*	17,688	National park	Rainforest	National Park
Nimini South Forest Reserve		Forest Reserve	Rainforest	
Dodo Hills Forest Reserve		Forest Reserve	Rainforest	
Bo Plains	2600	Game Sanctuary	Savanna	Game Sanctuary
Kuru Hills Forest Reserve		Game reserve	Savanna	
Outamba-Kilimi*	110,900	National Park	Savanna	National Park
Bagru-Moteva Creek		Game reserve	Wetland	Game Reserve
Bonthe Mangrove Swamp	10,100	Strict nature reserve	Wetland	
Bumpe Mangrove Swamp	4900	Game Sanctuary	Wetland	Game Sanctuary
Kpaka (Pujehun)	2500	Game reserve	Wetland	National Park
Lake Mabesi*	7500	National park	Wetland	National Park
Lake Mape*	7500	National park	Wetland	National Park
Lake Sonfon	8,072	National park	Wetland	
Mamunta-Mayoso*	1,000	Game Sanctuary	Wetland	Strict Nature Reserve
Sewa-Waanje	10,000	Game Reserve	Wetland	Game Reserve
Sulima Mangrove Swamp	2600	Strict nature reserve	Wetland	Strict Nature Reserve

Protected Area	Area (ha)	Category	Ecosystem Type	Proposed or Existing Status
Yawri Bay*	33,605	Game reserve	Wetland	Game Reserve
Nimini North Forest Reserve		Forest Reserve	Rainforest	
Gboi Hills Forest Reserve #1		Forest Reserve	Rainforest	
Gboi Hills Forest Reserve #2		Forest Reserve	Rainforest	
Lalay Forest Reserve		Forest Reserve	Rainforest	
Gori Hills Forest Reserve		Forest Reserve	Rainforest	
Tonkolili Forest Reserve		Forest Reserve	Rainforest	
Tama Forest Reserve		Forest Reserve	Rainforest	
Farangbaia Forest Reserve		Forest Reserve	Rainforest	
Wara Wara Hills Forest Reserve		Forest Reserve	Rainforest	
Malal Hills Forest Reserve		Forest Reserve	Rainforest	
Kasewe Forest Reserve		Forest Reserve	Rainforest	
Bojene Hills Forest Reserve		Forest Reserve	Rainforest	
South Kambui Forest Reserve		Forest Reserve	Rainforest	
Moyamba Forest Reserve		Forest Reserve	Rainforest	
Waterloo Forest Reserve		Forest Reserve	Rainforest	
Singamba Forest Reserve		Forest Reserve	Rainforest	
Port Loko Forest Reserve		Forest Reserve	Rainforest	
Occra Hills Forest Reserve		Forest Reserve	Rainforest	
Mongheri Forest Reserve		Forest Reserve	Rainforest	
Taba Forest Reserve		Forest Reserve	Rainforest	
Yelibuya Island	3900	Strict Nature Reserve	Wetland	Strict Nature Reserve



NaCEF: Interagency Linkages

Institutional Role

Advisory	Reporting		
		Advisory	Supervisory
		Informing	Reporting
		Enforcement	
		Advisory	Supervisory
		Informing	Reporting

Enforcement

Table 5: Donor Matrix & Selected Project/Programmes implemented for Environment

Donors/Areas	Infra-structure	USm\$	Social Sectors	USm\$	Good Governance	USm\$	Budget Support	US\$	Economic sectors, agriculture; others;	USm\$
DfID: Poverty Reduction Framework Agreement (10ys)	Community Reintegration Program; Infrastructure reconstruction program;		Support to NACSA; Support to PRSP; reproductive health; immunisation;		Police Support Program; Law Development Pro-gram; Decentralisation and Local Government; Security Sector Reform; Anti-Corruption Comm; Media development Project; Public Service Reform; Local elections;		Programm Aid (exact amount depends on performance)	Approx 15/ year over 3 years	Diamond sector Program; Civil society support; Youth in Progress;	
US AID: Transition Strategy Phase II (3 districts)			Community reintegration of children; child survival program; HIV sensitis.		Transparency of Mining Sector				Food for peace, food for work, Community recovery; civil society support;	

									youth reintegration	
World Bank: Transitional Support Strategy	Transport sector development	35	Health Sector Support and development Rehabilit. of basic educat. sector support HIV/AIDS program	20 20 15	Public sector management support; in 2004: Institut. Reform and Capacity Building (PFM and decentralisation);	3,5 25	ERRC II	30	National Social Action Project	35
ADB: CSP 2002-2004			Basic educat. improvement	10,5	Multi-sector capacity building;		Economic rehabilit. and recovery program;		Marine fisheries and agricult. program reconstruct. of communities	
UNDP: Country Program (2004-2007)					Rule of law decentralisation; elections; public sector reform; capacity building; citizen empowerment				National biodiversity action plan Security sector reform; PRSP-support national recovery and peace building	

Europe. Comm.: 9 th EDF CSP NIP and programs under previous EDFs	rehabilitation of priority infrastructure, feeder roads, social infrastr. TA to SLRA	€80	Health sector support program (8 th EDF)	€ 28m over 5 years	Decentralisation Accountability Local Elections NSA-support	€ 6m € 5m € 2m € 4m	Budget support	€50m	NAO-support TCF Rutile Mines LRRD	€3,2m € 1,8m € 25m €25m
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Proj/Prog	Objective	Activities	Implementing Agencies	Donor/ Funding Agencies	Stake-holders	Duration	Budget
1. Important Bird Area (Conservation Project (IBA))	Carry out practical conservation activities in out important bird areas (IBA). Promote sustained long-term conservation of IBAs. Strengthened NGO-Government Partnership for biodiversity conservation. Promote greater involvement of other stakeholders especially the local communities in the management of IBAs.	Awareness raising and sensitisation of communities. Reforestation through tree planting. Advocacy and lobbying Training of local communities Organising local communities into groups to monitor sites. Awareness Raising. Reforestation	CCSL, Forestry Division and UNDP	GEF	GOSL, NGOs Local communities adjacent to IBAs	Five Years	US\$15,000

(2) Regent No.2 River biodiversity conservation and community development project.	To ensure the proper management of Western Area Forest Resources. To raise awareness among stakeholders about the importance of the Natural Resources. To establish for Eco-tourism To protect important land marks and Natural resources of the forest	Awareness raising. Establishment of Eco-tourism and research facilities. Protection of Important Landmarks Monitoring human activities in the forest	Conservation Society of Sierra Leone(CSSL)	Special self help project US Embassy	Natural Resource Users e.g. Charcoal burners, woodcutters, hunters etc.	1 (One) year	US\$ 16,000
(3). Chimpanzee Rescue/Rehabilitation and Protection of Forest Reserve Programme	To protect the Chimpanzees and their habitat/forest reserve. To implement CITES regulations and national wildlife laws for the protection of Chimpanzees classified as endangered species. To provide sanctuary for confiscate animals with the Freetown Forest Reserves. To protect the Congo Dam catchment areas	Preserve Western Area Forest, Chimpanzees and other animals. Hold seminars/workshops to educate the community on the preservation and conservation of the forest. Confiscate illegally kept animals and provide safe sanctuary. Provide income alternatives to poachers. Sensitize school children on sites visits	Wildlife unit of the Forestry Division and Conservation Society of Sierra Leone.	European Union IPPL WSPA Step by step personal funding raising activities.	Project staff, the community students, Researchers, the Endangered species e. g Chimpanzees	40-50	US\$ 30,000 per annum
(4) Restoration of Lion Mountains	To Restore the lost biodiversity on the Lion Mountains.	Identification of degraded and Nursery sites by MAF&MR. Soil collection, Potting,	Catholic Relief Services (CRS)	The local,CRS, Forestry	3(three) years		

	To facilitate the community participation in Afforestation. To gainfully employ youth groups. To raise seedlings and plants in degraded sites. To offer training programmes to participating youth groups.	tending of young seedlings. Planting of tree seedlings in the field Fire protection in the plantation. Harvesting of trees sustainably by community, supervised by Forestry staff		Division and the communities			
(5) Gola Rain Forest conservation Programme	To establish representative conservation areas of faunal and floral populations To maintain sustainable level of production of timber and non-timber forest products for economic development both protective and environmental roles of the forest. Maintain and conserve forest biodiversity system Satisfy the needs of local communities	Division of Forest Reserves into zones. The purchase and assemblage of working tools and labour on site. Sensitisation of the committee living around the forest	Royal Society for the Protection of Bird Life International and other conservation organization, UK	Local communi-ties, Conserva-tion Society of Sierra Leone, Bird-Life International and other conservation organizations	On going		
(6) ADB Funded Sierra Leone Artisanal Fisheries Development	To increase household and national food security and incomes from sustainable exploitation of fisheries resources.	Development of artisanal fisheries. Provision of credit facilities. Carry out institutional strengthening and capacity	ADF,GOSL	Artisanal fisher folks	5 years	11,900.90(UA'000)	

Project	To increase artisanal fish production in a sustainable and environmental friendly manner	building in the public sector. Strengthening the rational management of fish resources. Establish a PMU Unit for proper project implementation					
(7) Sierra Leone's National Biodiversity Strategy and Plan(BSAP) Project	To assist Sierra Leone in developing a National Biodiversity Strategy and Action Plan(BSAP). To	Define the current status of biodiversity of the country to ensure conservation, sustainable use and equitable sharing. To build on the existing knowledge base to elaborate the BSAP through participatory planning and stakeholder consultation. To allow Sierra Leone to meet its obligations under the conservation on biological diversity(CBD) by preparing its first country report to the conference of parties(COPS)	Hire the services of national and international consultants experienced in biodiversity issues. Conduct familiarization tours to all biodiversity stakeholders in the country. Provide training by organizing 2 national workshops involving key biodiversity	UNDP GOSL	GEF	2004 - 2025	1yeUS&275000ar

			stakeholders				
(8) Mud Stove Programme at Displaced Camps	<p>To reduce the rate of deforestation in the Western Area</p> <p>To increase the awareness of people about environmental impacts of the deforestation</p> <p>To increase their willingness and readiness for tree planting activities to control the environmental degradation around the camps. To provide efficient means of cooking to the displaced persons</p>	<p>Construction of 89 kitchens and 658 mud stoves for displaced persons at Grafton and Clay Factory displaced camps.</p> <p>Provide training workshops for 346 participants in the construction use of mud stoves</p> <p>Construction of one house cum office for forest guards and ranger at Grafton</p>	Forestry Division, FAO	University NAO	Grafton and Clay Factory displaced persons, Staff of Forestry Division.	6 Months	Le 27,000,000

3. Report of Field Visit Bo Diamond Mining Area – Sierra Rutile Company

REPORT ON THE TWO-DAY FIELD VISIT TO MINING AREAS IN THE SOUTHERN REGION OF SIERRA LEONE BY THE EU CONSULTANT AND THE REGIONAL ENVIRONMENT OFFICER – SOUTH

BACKGROUND/PURPOSE OF VISIT

As part of the preparation of CEP a field visit was undertaken to mining areas in the Southern region. Due to the potential environmental impacts of mining on the environment there was a need to visit some mining areas in order to have a first hand feel of mining operations in the country. During the two-day field visit to the southern region the Consultant was accompanied by the Regional Environment Officer.

DEPARTURE FROM FREETOWN AND MEETING WITH THE REGIONAL MINING ENGINEER AND FIELD VISIT TO SEMBEHUN 17 AREAS IN THE BO DISTRICT (JULY 11, 2006)

The southern region consists of four districts namely Bo, Moyamba, Bonthe and Pujehun district. Artisanal and small-scale diamond mining activities are carried out predominantly in the Bo and Pujehun districts whilst large scale rutile and bauxite mining are undertaken in the Moyamba and Bonthe districts. This region was chosen as visiting area to observe the diamond, bauxite mining and rutile mining operations, in which the EU is currently injecting €25 million.

The team arrived in Bo town as the first port of call and held a brief meeting with the Mining Engineer. The Mining Engineer informed that there exist artisanal and small-scale diamond miners in his region and noted the presence of the Sierra Leone Diamond Exploration Company (SLDC) and the Sierra Rutile Limited. Small scale diamond miners normally operate in areas of acreage average 5 whilst artisanal miners have plots of sizes less than 1 acre. Licenses for small-scale miners are issued in Freetown whilst artisanal mining licenses are issued by his office in Bo. The staffing within the mines department in the region is divided into main divisions, monitoring and technical. There are presently 19 mine wardens, 2 senior mine wardens and 1 Assistant Superintendent in the technical division and 36 mines monitoring officers (MMOs) in the monitoring division. These officers in general have not received any training on environmental issues related to mining thereby highlighting the need for capacity building and institutional strengthening of the sector.

All small-scale miners make a commitment to undertake rehabilitation of their licensed plots after mining as enshrined in both the Mines and Minerals Act and the

Environment Protection Act. Licensed artisanal miners pay a fee of Two hundred thousand Leones (Le 200,000.00) which is deposited in a special national fund to be utilized for projects aimed at rehabilitating mined out areas in the country. All the various mining licenses are issued for a period of twelve months subject to renewal based on the fulfilments of obligations under the various Acts. However, compliance by licensees in the artisanal sector has over the years proved difficult resulting in the incidence of high illegal mining.

The existence of conflicts within the mining sector and also with other sectors over the use of land was discussed and it emerged that majority of conflicts was between exploration licenses and artisanal miners. Exploration licenses are given without consideration of present artisanal licenses. The EU consultant informed that these conflicts occur in situations where there are no centralized database systems of all licenses exist and that the World Bank and EU would be willing to fund a study in this area. The Mines Engineer detailed two mines warden to accompany the team to the mining areas around Sembahun 17 and held some discussions with the miners. The Team saw low terrace and swamp mining operations using locally constructed equipments and especially noted the prevalence of illicit miners and the massive areas of abandoned mined-out pits in the entire area. Due to the limited timeframe and the distances between mining sites the team could not visit a small-scale diamond operation within the region and departed for the Sierra Rutile mines.

MEETING WITH THE CHIEF OPERATIONS OFFICER, THE MINING ENGINEER AND CONDUCTED TOUR AROUND THE RUTILE FACILITY AND RETURN TO FREETOWN (JULY 12, 2006)

The team held a brief meeting with the Mining Engineer to brief him on the purpose of their visit. The COE welcomed the mission and informed that he is just about 8 weeks old in the office and he is currently involved in reassessment of key responsibilities within the mines with a view of ensuring efficiency and productivity. As a corporate organization Sierra Rutile's fundamental policy is to conduct their business in a responsible manner designed to protect and develop their employees, the environment, and the surrounding communities. He further informed that the company will adhere to the best industry practices and principles of sustainable development in all exploration and mining activities and all applicable safety, health, and environmental laws, regulations and Guidelines. The company will protect the environment by limiting impacts from mining operations; providing efficient use of energy, water, and other resources; limiting waste generation and disposal; and disposing of wastes responsibly.

He informed that the Sierra Rutile Limited (SRL) is the owner and operator of the Sierra Rutile Project, located in the Southern Province of Sierra Leone approximately 135 kilometres (km) southeast of the capital Freetown and approximately 30 km east

from the Atlantic Ocean. The Project lies within the Upper and Lower Banta Chiefdoms of the Moyamba District and the Imperi and Jong Chiefdoms of the Bonthe District. The Project is an existing dredge mining and processing operation that commenced operations in 1979. The project operated more-or-less continuously from 1979 until 1995 when the rebels attacked the mines. The civilian government was reinstated in February 1998 and the government and RUF reached a peace agreement in May 1999. With the government stabilizing, SRL recommenced actions to reopen the mine including the development of an Environmental and Social and Action plan and shipment commenced in February of this year. The team next met with the Mining Engineer and the Environment Officer at the plant site. The Mining engineer gave a brief rundown of the entire operations of the mines and with the took the team through a detailed tour of the mining plant starting from the Dredge D1 to the Nitti Harbour where exportation of the rutile, ilmenite and bauxite is done.

Mining Method

The rutile deposits are excavated using conventional dredge mining techniques. This mining method consists of constructing reservoirs of water over the ore deposit and then using a dredge, or floating barge, to pick up the ore from the pond bottom for processing. The dredge is equipped with a movable ladder that has a series of buckets that rotate around the length of the ladder. The ladder is lowered into the water and the rotating buckets excavate the ore at the end of the ladder from the pond bottom and dump it into the processing system that sits on the barge platform.

The reservoirs are built by constructing engineered dams across local streams. Stream base flow and surface runoff from precipitation events are collected in the reservoir until there is enough water to allow the dredge to operate.

Dredge D1, which consists of the dredge and a floating Wet Plant that follows behind the dredge, are currently operating. Once ore is excavated and introduced into the processing plant on board the dredge, the large particle-size gravel (greater than 1mm in size) is mechanically separated out and placed back into the pond. The fine material containing the valuable rutile product is sent to the Wet Plant via a floating pipeline where additional physical separation of material is completed to further concentrate the rutile product. The ore material that is concentrated by the Wet Plant is sent via a pipeline to the shore for dewatering and subsequent truck haulage to the Land Plant.

Waste material from the Wet Plant process consists of sands and slimes (fine powder), which are deposited separately back into the dredge pond or along the shoreline. Because the valuable rutile, ilmenite and zircon product is heavier than the non-valuable waste materials, the process is accomplished by physical sizing and gravity separation using water from the pond. No chemicals are added in this process

Dredge D2 was under construction when the rebels overran the site. The Malaysian Company hired to construct the Dredge D2 currently has a skeletal staff on the ground and it is anticipated that D2 will be completed within 12 months. D2 has the additional property of having the Wet Plant attached to it.

Mineral Processing

The dewatered concentrate from the dredge ponds will be transported by truck to the Land Plant, located at the west end of Mogbwemo Dredge Pond. Concentrate are fed through the Feed Preparation Plant; physical separation and conventional flotation methods are used to remove waste material including sulphide-containing materials. Chemicals mainly potassium amyl xanthate (PAX) is added to the flotation process to promote the efficient separation of the product from the waste.

Product from the Feed Preparation Plant, containing the valuable heavy minerals, are then introduced to the Dry Plant where the concentrate is dried and screened and then sent through electrostatic separators where the rutile and ilmenite conductors are separated from the zircon and quartz non-conductors. The next stage separates the non-magnetic rutile from the magnetic ilmenite by magnetic separation. No chemicals are added in this process. The resultant rutile and ilmenite products are stored in separate silos for transportation by fully enclosed tanker trucks to Nitti Port. Wastes are mixed with the Feed Preparation Plant wastes and disposed of in the Total Tailings Facility. Certain chemicals are introduced in the Feed Preparation Plant to promote efficient separation of the rutile from the tailings. Tailings from the Feed Preparation Plant and Dry Plant are mixed and pumped from the individual circuits to the Total Tailings Facility, located about 0.5 km southeast of the Land Plant.

SRL operated a zircon recovery circuit in the Dry Plant between 1991 and 1992 that further processed the tailings from the ilmenite process. Chemicals were added in this process, and the resulting tailings were placed into the Chemical Tailings Facility. This facility is located between the Total Tailings Facility and the Mogbwemo Dredge Pond. SRL has no current plans to restart the zircon recovery circuit.

Environmental concerns observed

- The increased presence of sulphur in the Total Tailings Facility due to the continuous presence of sulphide containing compounds in crude rutile ore is of great concern. The Total Tailings Facility is situated close to some villages and birds and other wildlife are known to visit the area. Urgent steps are to be taken to device a mechanism of either treating the Total Tailings for sulphur containment of Total Tailings is not an option since the water is recycled and

used by the plant. Knight Piésold and Company is expected to visit the plant site late this year to help design a treatment system for the Total Tailings.

- The resettlement of villagers in Foindu should be carried as prescribed in the ESA.

CONSITUTION OF THE TEAM

Name	Designation
1. Mr Leslie Blinker	EU Consultant
2. Mr. Lahai S. Keita	Regional Environment Officer – South

PERSONS CONTACTED DURING THE VISITS

A. Visit to Bo

1. Mr. Lahai Kabba	Mining Engineer – South
2. Mr. V.C Young-williams	Area Superintendent

B. Visit to Sierra Rutile Limited

1. Mr. Alex Macdonalds	Chief Operations Officer
2. Mr Hadji Dabor	Mining Engineer
3. Mr. Allie D. Yumkella	Environment Officer

Appendix 2: Administrative Appendixes

Detailed Workplan and Provisional workprogramme

This detailed workplan and provisional workprogramme were only indicatives at the start of the programme and were later altered according to the needs of the mission

Activity	Organization of resources and Expected Results	Place/Duration
Travel to Sierra Leone	Mission Preparation and travel to Sierra Leone	Paris – Sierra Leone 1 day
Briefing and start of mission at ECD	<ul style="list-style-type: none"> - Meeting with ECD, NAO - Detailed discussions of expected results of the mission – TOR review - Discussions of list of key people to meet - Preparatory discussions of field visits - Discussions of some specific projects - Collection of relevant documentation -Finalization of calendar of work programme logistical arrangements 	Sierra Leone 2 days
Review of Documents, Analyses and Synthesis	<p>Literature review/Document Research:</p> <ul style="list-style-type: none"> -Review of the CEP, CSP, Annual reports, Mid-term reports on economic development and cooperation, sector policy, plans and programmes, environmental policies, regulatory and institutional framework, etc -Set-up list of key people and organization of logistics - Elaboration of a consultation note for meeting with key resource persons - Preparation of report structure (standard format), and structure for the debriefing sessions 	Sierra Leone 3 days
Collection of supplementary information and follow-up with review, analyses and synthesis of the relevant data	<ul style="list-style-type: none"> - Logistical arrangements for field visits (or eventual workshop), review of environmental legislation, regulations, policy documents -Review of appropriate environmental indicators - Evaluation of performance and start drafting recommendations 	Sierra Leone 3 days
Meeting with key stakeholders and resource persons	<ul style="list-style-type: none"> - Meeting with stakeholders (civil society, Government official's private sector and donor agencies) active in the environment arena in Sierra Leone. - Obtain a good overview of the situation based on accurate and recent data. 	Sierra Leone 3 days
Field visits (outside Freetown)	Visit to sites with relevant environmental issues of concern, meeting with local authorities and decentralized administrations responsible for environmental matters (<i>Depending on the distance and road infrastructure</i>)	Sierra Leone 4 days
Report Writing	Drafting of report summarizing the key recommendations and conclusions of	

	the mission	<i>3 days</i>
Debriefing of end mission	Debriefing, end of mission ECD, Government authorities	<i>0.5 days</i>
Preparation and submission of Draft report	Draft report preparation and submission (three days before the departure of the Expert from SL)	<i>0.5 days</i>
Travel to Europe	Sierra Leone – Paris	<i>1 day</i>
Final report preparation	Integration of comments (condition: within two weeks after the departure of the expert from SL, comments of draft report will be received from the ECD)	<i>1 day</i>

Total 23 days

Provisional Work Programme

Part 1 of the Mission (26 June – 24 July 2006)

Date	Activities	Location/Comments
Mo 26 June	Travel to Sierra Leone (Airport)	Helicopter ride to reach mainland <i>(Freetown)</i>
Tu 27 June	Briefing in EC delegation – TOR/Document Review	<i>Sierra Leone</i>
We 28 June	Discussions with stakeholders NACEF, NAO, etc	NACEF
Th 29 June	Discussions with stakeholders UNDP, WorldBank, NACEF, DFID, etc	<i>Sierra Leone</i>
Fr 30 June	Desk Analysis Document Review	“
Sa 1 July	Desk Analysis, Document review	“
So 2 July	Desk Analysis, Document review	“
Mo 3 July	Consultations Local Stakeholders Dept. Environment	“
Th 4 July	Consultations Local stakeholders	“
Wo 5 July	Discussions with stakeholders UNDP, WorldBank, NACEF, DFID, etc	“
Th 6 July	Draft report preparation	“
Fr 7 July	Discussions with stakeholders UNDP, WorldBank, NACEF, DFID, etc	“
Sa 8 July	Field Visit Mining site (Kono)	“
So 9 July	“ (Kono)	“
Mo 10 July	Local consultations	“
Tu 11 July	Field Visit Industrial plant	“
We 12 July	Draft report preparation	“
Th 13 July	Debriefing Workshop ?	<i>Hotel Cape Sierra</i>
Fr 14 July	Desk Analysis Document Review	“
Sa 15 July	Draft report preparation	“
So 16 July	Draft report preparation	“
Mo 17 July	Travel from Sierra Leone	<i>(Mission in SL extended)</i>
Mo 24 July	Final report preparation	<i>Home office of expert</i>

Part 2 of the Mission (17 July – 24 July 2006) - Mission extended for one-week to prepare DFP

Date	Activities	Location/Comments
Mo 17 July	Data Collection/meetings for Preparation of draft Financial Proposal (DFP)	<i>Sierra Leone</i>
Tu 18 July	Preparation of DFP	“
We 19 July	Drafting of DFP	“
Th 20 July	Drafting of DFP – Discussions at NACEF	“
Fr 21 July	Presentation Draft Financial Proposal ECD	“
Sa 22 July	Review DFP/incorporation of comments	“
So 23 July	Review DFP/incorporation of comments	“
Mo 24 July	Meetings at ECD – NACEF Travel from Sierra Leone/Paris	“
Tu 2 August	Final report preparation	<i>Home office of expert</i>

2. Consultants Itinerary

Date	Activities	Comments
Mo 26 June	Travel to Sierra Leone (Airport)	Needed a helicopter ride to reach mainland (<i>Freetown</i>)
Tu 27 June	Briefing in EC delegation – TOR/Document Review	Meeting Head of Delegation, Chief, Rural Development & Environment Dept, etc
We 28 June	Discussions with stakeholders NACEF	NACEF - National Commission on Environment & Forestry
Th 29 June	Discussions with stakeholders UNDP, WorldBank, NACEF, NAO, DFID, etc	Introductory meeting, planning mission, preparation of logistics,
Fr 30 June	Desk Analysis Document Review	Review of Country Environment Profile prepared under PRSP
Sa 1 July	Desk Analysis, Document review	Review 9th EDF, CSP, NIP, etc
So 2 July	Desk Analysis, Document review	Review and re-evaluation, Gaps, needs Analyses
Mo 3 July	Consultations Local Stakeholders Dept. Environment/ Dept. Forestry	Data collection at Environment Department, Review of Reports establishing NACEF
Th 4 July	Consultations Local stakeholders - Doc Collection & Review /Dept Environment	Review report Previous UN Mission (UNEP, UNHABITAT, FAO, etc)
Wo 5 July	Discussions with stakeholders	Meeting with UNDP, Review documents at

	UNDP, WorldBank, NACEF, DFID, etc	documentation Centre
Th 6 July	Desk Analysis Document Review	-
Fr 7 July	Discussions with stakeholders UNDP, WorldBank, NACEF, DFID , etc	Contacts sought with local NGO's
Sa 8 July	Field Visit to Bo plant (Report preparation in hotel)	Visit postponed due to heavy rains
So 9 July	Draft CEP report preparation	Outlines draft report
Mo 10 July	Local consultations, Ministry of Tourism, Transport, Local Government,	Meetings scheduled according to time schedules of local officials
Tu 11 July	Departure field visit to Western Mining Areas (Diamond, Bauxite, Rutile)	Visit Artisanal and small-scale mining operations
We 12 July	Field Visit to Siera Rutile Ltd.	Visit to large scale mining operations – Bauxite and Rutile
Th 13 July	Debriefing key stakeholders	Presentation of findings
Fr 14 July	Draft report preparation	Zero-Draft report
Sa 15 July	Draft CEP report preparation	Zero-Draft report
So 16 July	Draft CEP report preparation	Zero-Draft report
Mo 17 July	Data Collection/meetings for Preparation of draft Financial Proposal (DFP)	Mission extended for one-week to prepare DFP
Tu 18 July	Preparation of DFP	Outline DFP
We 19 July	Drafting of DFP	Zero-draft
Th 20 July	Drafting of DFP – Discussions at NACEF	Consultation and input from Government Officials
Fr 21 July	Presentation Draft Financial Proposal ECD:Validation Meeting	Feedback from ECD and NAO
Sa 22 July	Review DFP/incorporation of comments	Incorporation of comments
So 23 July	Review DFP/incorporation of comments	
Mo 24 July	Meetings at ECD – NACEF Travel from Sierra Leone	
Tu 25 July	Arrival in Paris, France	Home
Tu 2 August	Final report preparation	Home office of expert

3. Persons Met/Contacted/Consulted

Date	Person	Organisation	Position	Contact Details
26-06-06	Mr. Andreas Laggis	EC Delegation		
26-06-06	Mr. Dauda Kamara	EC Delegation	Project Officer – Food Security & Rural Development	+232 22 236422 Dauda.KAMARA@cec.eu.int
	Mr. Georges Dehoux	EC Delegation		
	Ms. Lea Vuori	EC Delegation	Head of section Infrastructure	+232 22 234060 Lea.vuori@cec.eu.int
05 – 07 - 06	Mr. Bengt Ljunggren	UNDP	Senior Programme Officer	+232-22-234603 Bengt.ljunggren@undp.org
05 – 07 - 06	Ms. Lorna French	UNDP	Programme Specialist	+232-22-234603 Lorna.french@undp.org
28-06-06	Mr. Stephen Jusu	Environment Division	Chief Environment Officer	+ 22 33 511706 +232 76 630784
	Mr. Lahai Keita	Environment Division	Assistant Env. Officer	+232 76 640113 Kta2369sink@yahoo.com
	Mr. Kai Banya	Country Planning Division	Town Planning Officer	
	Mr. Edwin Baimba	Environment Division	Environment Officer	
	Mr. Samuel A. Lappai	Environment Division	Assistant Env. Officer	
	Mr. Mark White	DFID	Deputy Programme Manager	+232 22 233620/+232 76 801354 m-white@dfid.gov.uk
07-07-06	Mr. James Sackey	World Bank	Country Manager	+32 22 227555/232 76607854 jsackey@worldbank.org
05-07-06	Ms. Christine Schecker	US Embassy	USAID	+232 76612118 (Telephone conversation)
	Prof. J. Balachandra	Energeon Inc. Power Systems and High Voltage Engineering	President & CEO	
28-06-06	Mr. B.Kamara	Forestry Department	Chief Forestry Officer	+232 76607425
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	Mr. Lahai Kabba	Ministry of Mineral Resources, Mines Divison	Mining Engineer-South	+ 232 76 640 323

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Appendix 4: CV of the Consultant
