

**United Nation Development Programme (UNDP)  
Global Environment Facility (GEF)**

**PROJECT DOCUMENT**

**Government of Sierra Leone**

and

**United Nations Development Programme**

**ENABLING ACTIVITIES FOR THE PREPARATION OF SIERRA  
LEONE'S SECOND NATIONAL COMMUNICATION TO THE  
UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE  
CHANGE (UNFCCC)**

**Brief Description:** The Second National Communication (SNC) of Sierra Leone is the continuation of previous work done as indicated in section three of this document. The project enables Sierra Leone to present the information in a consistent, transparent and comparable as well as flexible manner, taking into account specific national circumstances. All principle aspects from the "Guidelines for the Preparation of National Communication from Parties Not Included in Annex I to the Convention" will be considered in the SNC. Data gaps will be covered and reliability improved *as far as possible*. As against the first communication, in which all sectors and problems were investigated at an equal level, in the second communication different approaches for the different sectors and components according to their prioritization and degree of vulnerability will be used. However, integrated assessment will be the final outcome of the study. The main components of the project are: (1) Description of National Circumstances; (2) Inventories of anthropogenic greenhouse gas emissions and sinks; (3) Mitigation of GHGs; (4) Vulnerability, Impacts and Adaptation Assessment; (5) Capacity-building to assess technology needs, modalities to absorb them and host projects. Beside the preparation of the National Communication, the project aims to continue the enhancement of general awareness and knowledge on climate change related issues in Sierra Leone and strengthen the ability of Sierra Leone to participate in different mechanisms directed to abate the GHG emissions from its territory and to fulfill other commitments to the UNFCCC.

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## ACRONYMS AND ABBREVIATIONS USED IN THE REPORT

AML	-	Abandonment of Managed Lands
ADB	-	African Development Bank
BKPS	-	Bo-Kenema Power Station
BSL	-	Baseline Scenarios
COME	-	Community Movement for Education
CO <sub>2</sub>	-	Carbon Dioxide
COP	-	Country of Parties
CEF	-	Carbon Emission Factors
CFC	-	Chloro Fluorocarbons
CFWB	-	Change in Forest and other Woody Biomass
CH <sub>4</sub>	-	Methane
CMB	-	Coastal Management Board
CO	-	Carbon Monoxide
COP	-	Conference of Parties
CSO	-	Central Statistics Office
DMO	-	District Medical Officer
EF	-	Emission Factor
EI	-	Energy Industries
EJ	-	Exajoule
FAO	-	Food and Agricultural Organization
FGC	-	Conversion of Forest Grassland (Forest and Grasslands Conversion)
FIC	-	Forest Industry Cooperation
GCM	-	General Circulation Model
GDP	-	Gross Domestic Product
GEF	-	Global Environmental Facility
Gal/day	-	Gallons per day
Gg	-	Gigagrams
GOSL	-	Government of Sierra Leone
GVW	-	Gross Vehicle Weight
GHG	-	Greenhouse Gases
ha	-	Hectare
H <sub>2</sub> O	-	Water Vapour
HCFC	-	Hydro-Chlorofluorocarbon
HEP	-	Hydro Electric Power
HFO	-	Heavy Fuel Oil
IEA	-	International energy Agency
IPCC	-	Intergovernmental Panel on Climate Change
IMF	-	International Monetary Fund
IPRSP	-	Interim Poverty Reduction Strategy Paper
ITCZ	-	Inter-tropical Convergence Zone
IVS	-	Inland Valley Swamp
Km	-	Kilometre
LDC	-	Least Development Country
LFG	-	Land filled Gas
LULUCF	-	Land use Change and Forestry
LPG	-	Liquid Petroleum Gas
MAFAPS	-	Ministry of Agriculture, Forestry and Food Security
MAFS	-	Ministry of Agriculture & Forest Section
MCI	-	Manufacturing and Construction Industries
MDG	-	Millennium Development Goals
MFO	-	Marine Fuel Oil
mm	-	Millimeters

MIT	-	Mitigation
MEP	-	Ministry of Energy and Power
MT	-	Metric Tones
MTS	-	Mitigation Scenarios
MP	-	Metal Production
MSW	-	Municipal Solid Waste
MW	-	Mega Watts
NO <sub>x</sub>	-	Nitrogen Oxide
N <sub>2</sub> O	-	Nitrous Oxide
NEAP	-	National Environmental Action Plan
NEPAD-		New Partnership for Africans Development
NEPE	-	Non-Formal Primary Education
NACSA-		National Commission for Social Action
NH	-	Ammonium
NAPA	-	National Action Plan for Adaptation
NCCCC(SL)	-	National Committee on Climate Change (SL)
NGO	-	Non-Governmental Organization
NMVO	-	Non-Methane Volatile Organic Compound
NPA	-	National Power Authority
NPSE	-	National Primary School Examination
NRS	-	National Recovery Strategy
OAU	-	Organization of Africa Unity
O <sub>3</sub>	-	Ozone
OECD	-	Organization for Economic Cooperation and Development
PPM	-	Parts per Million
PET	-	Potential Evapotranspiration
Pg	-	Pentagram
PHU	-	Primary Health Unit
PRSP	-	Poverty Reduction Strategy Paper
R&D	-	Research and Development
RUF	-	Revolutionary United Front
RWSS	-	Rural Water Supply and Sanitation
%	-	Percentage
SALWACO	-	Sierra Leone Water Company
SLRTA -		Sierra Leone Road Transport Authority
S&T	-	Science and Technology
STI	-	Sexually Transmitted Infections
SO <sub>2</sub>	-	Sulphur Dioxide
SB	-	Subsidiary Body
SF <sub>6</sub>	-	Sulphur Hflexafloride
SWDS	-	Solid Wastes Disposal Sites
TBA	-	Traditional Birth Attendant
T/c	-	Tones per Carbon
T/ha	-	Tones per Area
Tg	-	Teragram
TFR	-	Total Fertility Rate
UN	-	United Nations
UNDP	-	United Nations Development Programme
UNECA	-	United Nations Economic Commission for Africa
UNEP	-	United Nations Environmental Programme
UNFCCC	-	United Nations Framework Convention on Climate Change
UNFPA -		United Nations Population Fund
VMT	-	Vehicle Miles Traveled
WHO	-	World Health Organization

## **1. BACKGROUND**

### **CONTEXT**

1. Sierra Leone has an area of 72,325 km<sup>2</sup> and located between latitudes 6°55' and 10°00' North and between longitudes 10°14' and 13°17' West. It is bordered in the Northwest by the Republic of Guinea, in the South and Southeast by the Republic of Liberia and the West by the Atlantic Ocean. The population is estimated to be about 5.43 (5.525) million with a growth rate of 2.6 (2.09) per annum (2003). Sierra Leone has poor health indicators. The situation was worsened by a decade of protracted Civil War from 1991 to 2001 which led to collapse of Social Services and activities in most part of the Country. As a result, it has found itself among the countries with the worse human development index (UNDP).

2. Sierra Leone is reasonably well endowed with abundant natural resources which serve as a basis for the livelihood of its inhabitants. About 80% of the population lives in the rural areas and depends on agriculture and forest related activities for food and income

3. However, unsustainable practices of agriculture, forest exploitation, and mining lead to the degradation of the environment affecting the development of the country.

### **STATUS OF IMPLEMENTATION OF THE UNFCCC IN SIERRA LEONE SINCE RATIFICATION**

4. The United Nations Framework Convention on Climate Change (UNFCCC) was adopted and opened for signature at the Rio Janeiro Earth Summit in June 1992. The Convention entered into force globally on 21 March 1994. Sierra Leone ratified the UNFCCC on 22 June 1995 and subsequently the Convention entered into force in Sierra Leone on 20 September 1995.

5. The ultimate objective of the UNFCCC is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere below a level that would prevent dangerous anthropogenic interference with the global climate system. The level of GHG achieved within a time frame should be sufficient to permit ecosystems to adapt naturally to climate change, to ensure that food security is not threatened and to enable economic development to proceed in a sustainable manner.

6. Kyoto protocol has not been signed yet by the government.

7. The UNFCCC obliges Parties to, among others;

- Prepare their national communications
- Develop, update and publish inventory of anthropogenic emissions by sources and removal by sinks.
- Formulate, implement and regular update of national programmes containing measures to mitigate or adapt to climate change.
- Promote and cooperate in the development, application, diffusion and transfer of technologies.
- Promote sustainable management and enhancement of sinks and reservoirs for greenhouse gases.
- Mainstream or integrate climate change into national development.
- Promote and cooperate in scientific technological technical, socio-economic and other research, systemic observation and development of data archives.
- Promote and cooperate in prompt exchange of relevant scientific, technological, technical, socio-economic and legal information

- Promote and cooperate in education, training and public awareness in issues relating to climate change.

#### **CRITICAL ANALYSIS OF SIERRA LEONE'S INITIAL NATIONAL COMMUNICATIONS**

8. The Initial National communication (INC) was prepared compared to other countries. The communication report was averagely satisfactory base in the circumstances under which it was prepared but lacked some essential details as some aspects were left out during the implementation. To make up for the lapse in the preparation of the SNC a National Self-assessment exercise was conducted.
9. This self-assessment involved stocktaking exercise and stakeholder consultation in order to build upon existing activities, institutions and knowledge, some short comings and gaps were identified which will be useful in the second national communication preparation exercise.
10. As a result of the stocktaking and stakeholder consultation, Sierra Leone is now submitting its proposal to GEF through the UNDP, for the preparation of her second national communication (SNC)

#### **BRIEF DESCRIPTION OF ACTIVITIES CARRIED OUT DURING THE STOCKTAKING EXERCISE**

11. The main objective of the self-assessment exercise performed in accordance with GEF Operational Procedures for the Expedited Financing of national Communications from Non-Annex I Parties (GEF/C.ee/Inf.16) was to undertake a highly consultative and participatory process of needs assessment, to identify and validate the critical priorities for UNFCCC implementation in Sierra Leone in general, and Second National Communication (SNC) proposal in particular. The Climate Change Unit, which is responsible for the implementation of the UNFCCC, conducted a stocktaking exercise to prepare this proposal.
12. A national team comprising of 10 members of experts countrywide was put together by the secretariat including the local coordinators, the Project Coordinators of Climate Change and NAPA key experts from the Ministries, universities and the NGO's to review and analyse all activities carried out under the INC see report attached.
13. The purpose of the review/analysis was to provide a basis for an improved SNC. The task of the team was to identify gaps in the INC, new areas and sectors not covered during the preparation of the above mentioned report. Also the team came up with recommendations of priorities institutional arrangements for the second national communication, synergies between related programme such as desertification and biodiversity conservation and lessons learned from the INC and NAPA.
14. The outcome of the review was presented at a national stakeholder meeting for concurrence and approval of the findings and recommendations.

#### **OUTPUT OF THE STOCK TAKING EXERCISE**

15. The main outputs of the stocktaking exercise form the basis for the Project Proposal for the preparation of Sierra Leone's Second National Communication.

## **2. PROJECT STRATEGY**

16. The project seeks to build capacity and facilitate the process of taking climate change into account in Sierra Leone future plans thus facilitating the country to cope with climate change and its adverse impacts, and to prepare the ground for Sierra Leone's participation in CDM and other project based mechanisms that may emerge in the future.
17. The goal of this project is to prepare and submit the Second National Communication of Sierra Leone to the Conference of Parties of the UNFCCC through its Secretariat in Bonn. The strategy of the project is to build on experience gained during the implementation of previous projects and various studies from 2006 to date, particularly the Initial National Communication of Sierra Leone. By looking back at the efforts made and the achievements gained and, lifting most of the constraints and addressing the gaps registered (see Section 3) during the development of the INC of Sierra Leone, it will be possible to provide an improved Second National Communication with more representative data and information. Issues raised during the Stocktaking exercise and Stakeholder consultations (see Section 3) will be taken on board and given due consideration.
18. Since the submission of the Initial National Communications of Sierra Leone to COP-9 in 2006 a lot of new analytical tools have been produced and are available in the public domain; some carrying service cost. Included in this list are the new guidelines for the development of National Communications from Non-Annex I Parties provided in decision 17/CP.8, 2006 IPCC National Greenhouse Gas Inventory Guidelines which was approved in April 2006, the Good Practice Guidance documents that complement the Inventory Guidelines, new General Circulation Model (GCM) outputs uploaded in the IPCC Data Distribution Centres (CCD) that will be useful for national scenario development and Biophysical Models that include integrated assessment. The most appropriate of these tools for the Sierra Leonean environment will be acquired and executed during the development of the SNC of Sierra Leone.
19. The human and material resources required for the effective implementation of the SNC will be identified and acquired being cognizant of the outcomes of the National Capacity Self Assessment (NCSA) study. The required capacity will be built taking into consideration the available capacity and expertise gained during the implementation of the Initial National Communication and the National Adaptation Programme of Action. Expertise will also be sourced at the national and regional levels, outside of the National Climate Committee that is mandated to implement the project and develop the SNC. Hence, where necessary, the services of national and regional consultants will be sought and utilised.
20. The SNC will assist to strengthen the government activities under the Poverty Reduction Strategy. The three pillars of such a strategy are: Promoting good governance, security and peace, pro-poor sustainable growth for food security and job creation, human development. The proposed activities of SNC will aim at improving the agricultural sector including fisheries and coastal; management which will enhance food security and sustainable livelihoods for poor in Sierra Leone. The mitigation activity will greatly strengthened the energy sector by improving access to high quality energy for the poor using both conventional and alternative sources of energy. The provision of water especially for poor is a serious problem in Sierra Leone. Activities within the SNC will assist to improve this situation.

### **3. GAPS, CONSTRAINTS AND NEW/PRIORITY AREAS OF WORK IN THE SNC**

Most of the information used in the following sub-sections was obtained from the initial national communication, the stocktaking exercise and stakeholder consultations conducted based on the funding from UNDP/GEF for the formulation of the proposal for the SNC.

#### **NATIONAL CIRCUMSTANCES**

21. Relevant national data reported on during the INC will be revisited and updated. New data, using the 2004 population statistics that were not collected in the INC will be collected and reported in the SNC. In particular data on population and its distribution in urban and rural areas will be assessed to provide indication of the implications of population dynamics of various climate change policy interventions that will be proposed.
22. The analysis of the current national development agenda (Growth and Poverty Reduction Strategy) will also be assessed to provide into climate change policy formulation, especially in the development of national climate change adaptation framework. This assessment should also provide the opportunity to identify areas that will need urgent integration of relevant climate change policy interventions. The economic cost of climate change on Sierra Leone's sustainable development will also be assessed.
23. After completion of the INC, there has been a delay in the start of the SNC as a result most of the members of the INC project team have left and are pursuing other activities. Thus it would be necessary to reformulate the project team for the SNC based on Institutional competencies instead of focusing on individual expertise.
24. Based on the available scientific and technical expertise in the country, a Project Steering Committee (PSC) is to be reconstituted under the auspices of the climate change project (CCP) in consultation with the NCCC (i.e. governmental departments, experts and academia, civil society and NGOs included).
25. For the preparation of SNC, lead National Institutions will be identified and made responsible for the components of the National Communication. In particular, the Greenhouse Gas Inventory compilation will require this institutional arrangement since we expect to have at the end of the project a national GHG inventory system in place.

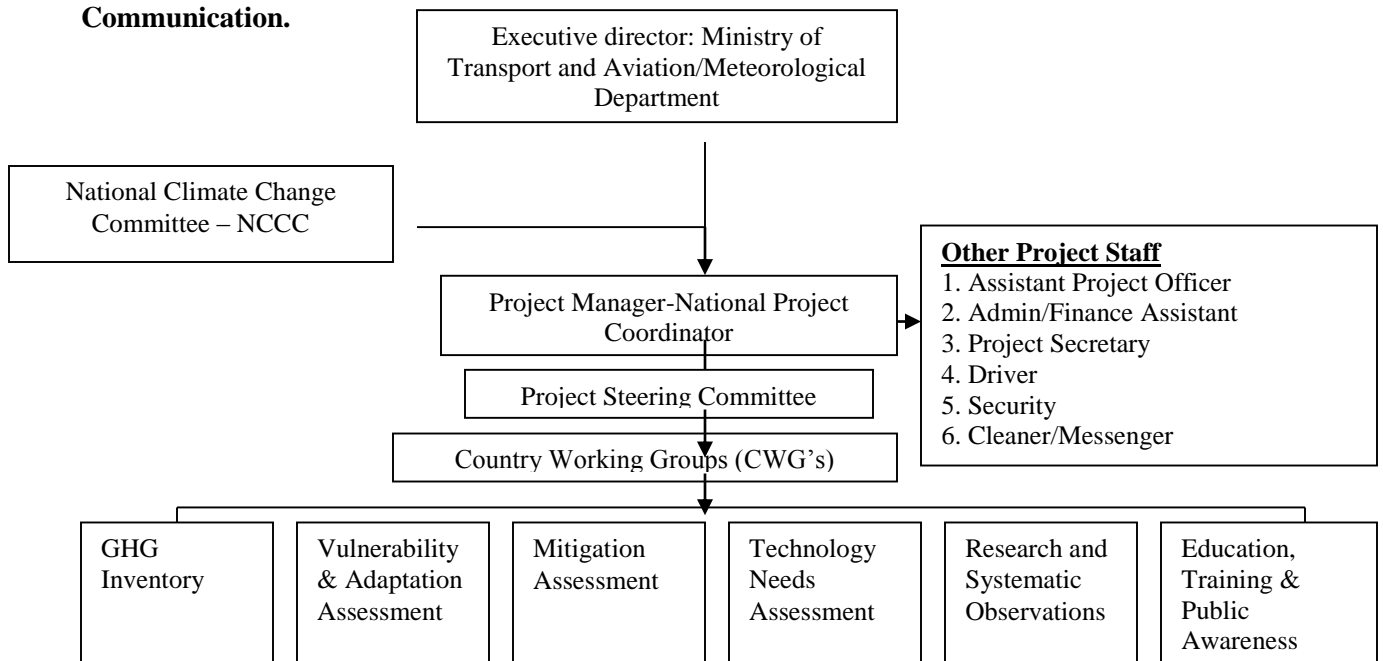
#### **Stakeholder Consultation**

26. A list of stakeholders to be involved in the preparation of the SNC was drawn up during the stocktaking exercise and stakeholders consultations including:-
  - Ministry of Transport and Aviation
  - Meteorological Department
  - Climate Change Project (CCP)
  - Ministry of Lands, Country Planning and the Environment
  - Ministry of Agriculture and Food Security
  - Ministry of Energy and Power
  - Ministry of Marine Resources
  - Ministry of Finance and Economic Development
  - Ministry of Education, Youth and Sports
  - Ministry of Tourism and Culture



- Ministry of Local Government and Community Development
  - Ministry of Mines and Natural Resources
  - Ministry of Health
  - Universities of Sierra Leone (University of Sierra Leone and Njala University)
  - Ministry of Foreign Affairs and International Cooperation
  - Ministry of Trade and Industries
  - United Nations Development Programme (UNDP)
  - Disaster Management Committee (ONS)
  - The Media
  - Sierra Leone Association of Non-Governmental Organisation (SLANGO)
27. The overall coordinating body will be the National Climate Change Committee (NCCC) which is chaired by the Ministry of Transport and Aviation and also house the Secretariat. The CCP will provide technical back-up for the self-assessment exercise.
28. Planning and Management of the Self-Assessment exercise will be carried out by the National Climate Change Committee (NCCC).
29. Related activities, gaps uncertainties under the INC and new areas of work identified will be carried out by the CCP in collaboration with the Focal Point who happens to be the Secretary to NCCC.

**Figure 1: Institutional Arrangement for the Preparation of the Second National Communication.**



## **NATIONAL GREENHOUSE GAS INVENTORY**

30. Sierra Leone has satisfactory activity data in most of the economic sectors of the country e.g. Energy, Industrial, Agriculture, Land Use Change and Forestry and waste management. Some of the equipment used in the industrial sector is “second hand” and obsolete before they arrive in Sierra Leone. Some of the equipment are so old that the labels on them fade out or are non-existent. This makes estimation from the industrial processes difficult. Additional surveys on savannah burning, crop residue management and livestock numbers will be undertaken. Data on fuel wood needs improvement as a result a nation wide survey on fuel wood consumption is to be conducted especially during the wet season to compliment that done during the 1993 dry season.
31. Solvent and other product use category of 1996 revised IPCC guideline has not been reported on because the methodology for this is still being developed. It will become useful in the preparation of the SNC.
32. All emission factors (EFs) used in the Inventory Report contained in the INC were default values presented in the 1996 IPCC Revised Guidelines. The GEF/UNDP Regional Project “Capacity Building for improving the quality of Greenhouse Gas Inventories (West/Central Africa Region)” is working towards the development of some Regional emissions factors. These factors will become very useful in the development of the inventory of the Second National Communications (SNC) thereby improving its overall quality. Sierra Leone is actively considering to developing EFs which are appropriate to the country to improve the SNC.
33. Where feasible, validation of EFs should be conducted for the main emission categories so that the quality and reliability of the GHG inventory is improved.
34. As there is now a new 2006 IPCC guidelines for the development of national Inventories in place, Sierra Leone through the NCCC will take advantage to train the greenhouse gas inventory task force by organizing national workshops with the help of a National and an International Consultant for the Second National Communications (SNC).

## **GREENHOUSE GAS MITIGATION ASSESSMENT**

35. Basic data for the analysis of Mitigation options is available in Sierra Leone. Because of time constraint, the task force assigned with the development of the mitigation study during the INC could not execute some of the available analytical tools (EXCEL, COMAP, LEAP (long range energy alternates planning) and EEPP (energy and environment power planning). The INC training did not cater for a resource person to undertake the economics of climate change and specifically as related to mitigation assessment. The mitigation task force of the SNC will deal with the economic issues of climate change by conducting a national mitigation workshop involving all relevant stakeholders in the country with the assistance of a consultant.
36. Both the GHG Inventory and the Mitigation Assessment will use the same base year. Emissions projections will be assessed to about 2050 and the mitigation analysis will be conducted for the same period. There is also need to update and revise all details made under the INC.
37. Selection of mitigation options will be done by conducting a scoping workshop, which will involve collecting data and information through stakeholder consultations and desk review of literature on mitigation options of GHGs. The outcome will be screened for further analysis. For this purpose criteria will be set and a selection will be based on weighting and ranking system. Criteria for weighting and ranking will be developed through consultations with

various stakeholders. In carrying out the assignments stated above the task force should implement certain scientific tests to supplement data. This means that the requisite equipment should be provided.

38. Having properly identified suitable mitigation measures a programme and strategy for the implementation of these mitigation options found to be cost-effective and meeting national sustainable development objectives will be developed. Barriers, institutional framework and monitoring and evaluation issues will be addressed in the implementation programme and strategy.

#### **VULNERABILITY (IMPACTS AND ADAPTATION) ASSESSMENT**

39. The technical expertise of some members of the NCCC been developed by the International Consultant to execute climate change scenario development tools (GRADS, SENGEM, IMAGE, etc) and biophysical models (DSSAT, WATBAL Holdridge and Forest Gap etc) in the assessment of vulnerability (impacts and adaptation) of the economy to climate change. The SPUR2, DSSAT models were not executed because of limited time and expertise of some of the members assigned for this exercise. In the forestry sector only six of the twelve species identified were simulated. The rest will be done in the SNC study. For a comprehensive vulnerability assessment the technical capacities and skills of experts need to be developed and enhanced beyond those acquired through past workshops. The experts need to be trained on modeling at institutions of higher learning through fellowships and/or internships. The V&A task force did not carryout economic analysis of adaptation measures because of capacity constraint and low expertise. Health, coastal zone and fisheries sectors were not addressed in details in the INC, they need to be taking fully onboard in the implementation of the SNC.
40. New areas or sectors whose vulnerability to climate change would be assessed during the implementation of the SNC project which include the Energy, Tourism, Food Security, livestock, and Biodiversity Resources. Vulnerability and Adaptation to disasters would be assessed and developed. The Vulnerability and Adaptation study under the INC was sector based and contained little information on integration across sectors of the economy. In the SNC study integrated assessment will be conducted using appropriate analytical tools. Capturing the vulnerability of local communities and to propose effective adaptation measures, the Vulnerability and Adaptation task force should seek to work with counterparts in the local government as well as ensure that outputs from the various assessment exercises are validated. Also a country wide survey is recommended for all of the sectors indicated above. Extreme weather conditions (drought and floods) will be looked into as it is now very frequent in our region.

#### **TECHNOLOGY TRANSFER**

41. Assessments of technology transfer and technology needs were not fully undertaken during the INC. In the preparation of the Second National Communication for Sierra Leone it is planned to fully implement the activity, focusing on the needs assessment in environmental sound technologies identifying factors for the enabling environments for the acquisition, adaptation and development of those technologies, and the establishment of appropriate mechanisms for technology transfer. The criteria for assessment and selection of priority technologies will be examined. Technologies will be examined technological needs, and cost-effectiveness and opportunities for their adoption, development and application will be revised.
42. A national activity to be undertaken include among others:
  - Technology needs assessment,

- Establishment of an efficient information system in support of Technology transfer,
- Capacity building in the promotion of the widespread dissemination, application and development of environmentally sound technologies and know-how
- Establishment of a database of environmentally sound technologies that include mitigation and adaptation technologies making use of international data bases and clearing houses such as those housed at the UNFCCC and UNDP.

## **RESEARCH AND SYSTEMATIC OBSERVATIONS**

43. Assessment of the status of research and systematic observations was indicated in the INC. a comprehensive assessment will be carried out in the SNC and provision will be included in the SNC.
49. For Sierra Leone to meet its international obligations some important priority activities need to be undertaken at both National and Regional levels. This will enhance effective recording and monitoring of climate data and phenomena leading to improvement of studies and climate change information.
50. It is necessary to prepare and adopt a national programme and strategy for research and systematic observation and early warning system with special focus on natural disasters (drought and floods).
51. The following priority activities need urgent consideration: -
- Strengthening of the climate data base of the national meteorological services and other relevant sister institutions of the country. This can be done by providing up to date computer facilities and train experts in the input and storage of climate related data.
  - Provide automatic recording equipment and instruments for continuous recording of meteorological, hydrological and climatological elements and phenomena.
  - Rehabilitation and expansion of meteorological stations for the collection and monitoring of all categories of data.
  - Capacity building in Human Resource in the Meteorological department should be urgently embarked upon to meet the present and future challenges.
  - Education and sensitization of the public on climate change issues should be intensified and given high priority.
  - Create a National Climate Change Committee which should meet frequently to advice the Government and stakeholders on Climate Change issues.
  - The need to intensify Research on Climate Change issues in collaboration with the universities and other institutions in the country and also with Regional Global organizations/Institutions in the fields of climate change.

## **EDUCATION TRAINING AND PUBLIC AWARENESS**

52. Implementation of Article 6 (Education, Training and Public Awareness) of the UNFCCC requires good financial and Technical resources which is a constraint in Sierra Leone. During the stocktaking exercises and the stakeholders consultations it was noted that national climate change policy is completely absent. Attempts will be made to discuss with the relevant ministries to examine ways justifying some of the results in their university curriculum.

## **CAPACITY BUILDING**

53. Capacity constrains include the inadequate understanding and execution of cost-benefit analysis tools for the assessment of mitigation and adaptation measures and also to develop full projects that will meet the complex funding mechanisms. There is also limited capacity in negotiating climate change issues. Institutional capacity development has so far been limited to procurement of computer hardware and software through projects.
54. Major priority activity is the preparation of a capacity building programme and implementation strategy that, if implemented, would accomplish:-
- The strengthening of the capacity of the national climate change secretariat to effectively participate in the implementation of the Convention and its Kyoto Protocol process.
  - The development and enhancement of the technical capacities and skills of national experts through training on negotiation skills, climate and biophysical modeling at institutions of higher learning through fellowships and/or internships and regular participation in regional international meetings, conferences and other fora for exchange of experiences and information.
  - Creation of climate change research (CCR) programme with collaboration with ministries in Sierra Leone. This centre will coordinate the UNFCCC activities thereby having one agency dealing with Conventions and protocols related to climate change.

## **CONSTRAINTS, GAPS, FINANCIAL AND TECHNICAL ASSISTANCE NEEDS**

55. The implementation of the enabling activity to develop the Second National Communication of Sierra Leone will still be met with constraints, gaps will still exist after the finalization of the document and financial and technical assistance will be needed to implement the programmes developed and presented in the SNC. An in-depth re-analysis of the preparation process and the document will be conducted to identify these constraints, gaps and financial and technical assistance needed for the implementation of programmes contained in the SNC will be conducted.

## **PRIOR AND ON-GOING ACTIVITIES**

Climate change relevant prior and on-going activities include project conducted under the Multilateral Agreements and National Policies/Programmes and Sector Plans:

- NAPA – National Adaptation Plan of Action
- UNCBD-National Biodiversity Strategy and Action Plan (NB SAP);
- UNCCD-National Action Plan for the implementation of the UNCCD;
- POPs-National Implementation Plan for Sierra Leone;

- National Environmental Plan for Sierra Leone
- The National Forestry Plan;
- The Land Degradation Control Project
- The Ozone Project,
- The National Capacity Self-Assessment Programme;

**NAPA-** Preparation of a plan of Action to develop a country-wide programme of immediate and urgent project-based adaptation activities that address the current and anticipated adverse effect of climate change.

**UNCBD-** National Biodiversity Strategy and Action Plan (NBSAP). Sierra Leone ratified the Convention on Biodiversity in 1996. the major threats to biodiversity in Sierra Leone are unsustainable practices of agriculture, livestock farming, forest exploitation, fishing, energy production, mining, infrastructure development and waste disposal. The overall goal of the biodiversity Strategy and Action Plan is to seek conservation measures that provide the solid framework for the sustainable exploitation of the country's biodiversity for the benefit of present and future generations. The project is completed as of December 2003 and the diffusion of the final report is in process. 28 thematic areas were identified and grouped under terrestrial, aquatic, and Cross-cutting biodiversity items. The BSAP report outlines the strategic approach to address those thematic areas.

**UNCCD** – National Action Plan for the implementation of the UNCCD. The country's first report under this convention has been submitted. The Department of Environment is currently initiating a proposal to request GEF funding for a Nation Action Plan for the implementation of the UNCCD.

**POPs** – The Department of environment is awaiting the feedback from a proposal submitted to request GEF funding through UNIDO for a National Implementation Plan for Sierra Leone

## **COMPILATION AND PRODUCTION OF SECOND NATIONAL COMMUNICATION**

56. Compilation and production of the Second National Communication will be carried out by and under the supervision of the National Climate Committee and its Task Forces [Inventory and Mitigation, Vulnerability (Impacts and Adaptation), and Cross-cutting]. The three-year project will commence in 2008 and end in 2010. The proposed work schedule is shown in Table 2. Detailed work plans for each component will be developed by the Team Leader of the component in consultation with the Project Coordinator. Approval of the work plans will be the responsibility of the National Climate Committee, being the highest technical decision making body on Climate Change.
57. A Project Initiation workshop and training workshops for each of the Inventory, Mitigation and Vulnerability (Impacts and Adaptation) components of the SNC will be conducted. Monitoring and evaluation of the implementation of the project will be facilitated by the submission of regular reports by the Task Forces which will be synthesised by the Project Coordinator in the form of quarterly technical reports. The Project Coordinator will submit these reports to the National Climate Committee for review and endorsement after which the reports will be forwarded to the Steering Committee and UNDP.
58. The initial draft of the SNC will be subjected to review at various levels. The subsequent draft will then be subjected to technical review by selected reviewers at the national and regional levels and at UNDP. The final draft will then be discussed up at a Validation

Workshop where important stakeholders will be consulted for their views and acceptance of the report as a national document. The validated document will then be subjected to a Launching ceremony to be signed and declared a national document by the ministry responsible for climate change.

59. The Second National Communication of Sierra Leone will be submitted in a single document in the following format:

Executive summary  
Chapter 1: Introduction  
Chapter 2: National Circumstances  
Chapter 3: GHG Inventory  
Chapter 4: Greenhouse Gas Mitigation Assessment  
Chapter 5: Vulnerability and Adaptation Assessment  
Chapter 6: Technology Transfer and Development  
Chapter 7: Research and Systematic Observation  
Chapter 8: Education, Training and Public Awareness  
Chapter 9: Capacity Building  
Chapter 10: Networking and Information Sharing  
Chapter 11: Constraints and Gaps, and Related Financial, Technical and Capacity Needs  
Chapter 12: Conclusions and Recommendations.

The major output of this component will be a comprehensive SNC to be submitted to the COP through UNFCCC Secretariat in 2010.

#### **4. PROJECT JUSTIFICATION**

##### **PROBLEMS TO BE ADDRESSED**

60. The United Nations Framework Convention on Climate Change was signed in June of 1992 in the Rio “Earth Summit”, the ultimate objective of the Convention is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate. By becoming Parties to the Convention, both developed and developing countries accepted a number of commitments which include inter alia:
61. Develop, periodically update, public and make available to the Conference of the Parties (COP) OF THE UNFCCC national Inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not, controlled by the Montreal Protocol;
62. Formulate, implement, public and regularly update national and, where appropriate regional programmes containing measures to mitigate climate change by addressing anthropogenic emission by sources and removal by sinks of all greenhouses not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change and
63. Communicate to COP information related to implementation of the Convention, in accordance with article 12;
64. As a Least Developing Country (LDC) Sierra Leone does not have the finance and where with all to implement the convention and prepare the SNC to the COP. This is why the Government is requesting assistance from the UNDP/GEF.

##### **EXPECTED END OF PROJECT SITUATION**

65. The SNC of Sierra Leone is the continuation of the work done under the INC (2003 -2006) as well as the application of results obtained through other activities in the framework of the country's commitments under the UNFCCC. It would assist strengthening of capacities built during the implementation of projects and programmes carried out earlier.
66. The preparation of the SNC will enhance the general awareness and knowledge on climate change in Sierra Leone and strengthen her ability to participate in future climate change activities.
67. Institutional arrangements will be established for the compilation of inventory report which will be mainstreamed into the National Development Planning as a result a national climate strategy will be prepared to advise government accordingly.
68. New projects and proposal on adaptation to climate change impact and Mitigation of GHG's will be prepared an also technology and financial needs will be assessed.

#### **TARGET BENEFICIARIES**

69. The project will greatly benefit the government and people of Sierra Leone and will serve as a reference manual for the universities, colleges, schools and all interested individuals in climate change.
70. It will serve as guide to NCCC to enable them advice Government properly on Climate Change issues both locally and internationally.
71. The project will benefit not only Sierra Leone but the whole of Africa and thereby contribute to fulfilling the continents commitment to the UNFCCC

#### **5. PROJECT MANAGEMENT ARRANGEMENTS**

The project will be executed under the **National Execution** modality with the Meteorological Department from the Ministry of Transport and Aviation (MOTA) as the designated **Implementing Partner**. The Implementing Partner is the entity responsible and accountable for managing a project, achieving project outputs, and for the effective use of UNDP resources.

A project manager's post will be advertised by UNDP and the post filled through competitive selection (TOR is detailed in annex 1). The project will recruits other support staff to support the project manager.

The Meteorological department from the Ministry of Transport and Aviation as the designated **Implementing Partner** will appoint the **National Project Director (NPD)**, who will be the focal point for responsibility and accountability for the UNDP-funded project.

Representatives from both relevant institutions and members of the country working group will serve as a project steering committee (**PSC**), which will have an oversight responsibility for organization of the inception workshop and the development of the project output.

The project will be executed through the NEX modality with UNDP Sierra Leone being the implementing agency, providing technical assistance. As the executing agency, Department of Meteorology will be in charge of the coordination of the project (facilitate objectives and plan



results, make efficient and effective use of the resources allocated) in accordance with the project document.

It is envisaged that because of the limited expertise, an international consultant will be recruited during the project's duration to ensure project relevance to global benefits, to support project development and enhance linkage to actual international and regional similar complementary initiatives. Terms of reference are already available in the document and budgeted.

## **MONITORING AND EVALUATION**

72. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.
73. **Day to day monitoring** of implementation progress will be the responsibility of the Project Coordinator, Consultant, and the CTA based on the project's Annual Workplan and its indicators under the supervision of the NCCC. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.
74. **Periodic monitoring** of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.
75. **Project Monitoring Reporting**  
The Project Coordinator in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.
76. (a) ***Inception Report (IR)***  
A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year Work Plan divided in quarterly timeframes detailing the activities and progress indicators that will guide implementation during the first year of the project. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.
77. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.
78. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

79. ***(b) Quarterly Progress Reports***  
Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team.
80. ***(c) Technical Reports***  
Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

#### **AUDIT CLAUSE**

81. The Government will provide the Resident Representative with certified periodic financial statement, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

#### **LEGAL CONTEXT**

82. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Sierra Leone and the United Nations Development Programme, signed by the parties. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.
83. The UNDP Resident Representative is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:
- a) Revision of, or addition to, any of the annexes to the Project Document;
  - b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
  - c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
  - d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

#### **6. INPUTS**

84. As an enabling activity related to the submission of national communication obligation of Sierra Leone under the UNFCCC, the "agreed full costs" of the project are eligible for GEF funding.

85. As in-kind contribution to the project, the government of Sierra Leone has agreed on following:

- Contribution of 30,000 US\$.
- Establishment of a project steering committee consisting of senior officials from the relevant ministries, institutes and universities qualified to provide assistance to the project manager and the national expert and counterparts.
- Offers facilities at the meteorological direction for the project manager, the assistant project officer, and a secretary.
- Support staff and logistic support to the project staff for the implementation of the project activities

86. UNDP/GEF will make cash contribution of US \$405,000 for the three year project.

## **7. RISKS**

### **Environmental Risks**

None

### **Ineffective Government/Non-Governmental Coordination**

The project approach involves very close cooperation between government, academic institutions, non-governmental organizations and the private sector. There is a risk that effective cooperation may. This risk may be minimized by designating a government institution with the proper roles assigned from the start of the project and by careful attention to such problems by the Project Coordinator and Project Consultant, and working with different organizations in the project and address them when they occur.

### **National Commitment**

If the country fails to live up to its commitments as outlined in the inputs listed Section E, the project will fail to achieve the long-term capacity building the project envisaged. Though it is difficult to compel the government to comply, the project staff will use formal and informal contacts to persuade government to do so being a small country.

### **Personnel/Administrative performance**

Performance of the Project Coordinator in coordinating and managing the project and that of the Project Consultant in providing regular technical advice will be very important to the success of the project. The project is formulated to give discretion to perform with minimum obstacles.

### **Sustainability of the Projects**

There is the risk that the core activities started during the project may continue after termination of the project assistance. However, with the country's compliance to the UNFCCC the activities of the project will be further developed and government will continue to play more active role.

There is also the risk of project staff trained not using the experience acquired in the project

This risk can be minimized by using appropriate criteria for selection of trainees, and the use of long-term contracts.

## **8. PRIOR OBLIGATIONS AND PREREQUISITES**

## **Prerequisites**

87. Governments will allocate funds in national budgets as indicated in Section F as Government inputs.
88. Government will designate suitably qualified individuals within the Implementing Institution to provide government focal point to project activities. If these individuals fail to perform adequately, government will provide suitable replacements.
89. Government will assist in the formation of the Steering committee and the working group by assigning senior and qualified personnel to represent government ministries. The participation of qualified staff from academic institutions and non-governmental organizations will also be encouraged.
90. Government will ensure free movement of national project staff, consultants and other personnel as may be required by the project implementation.

## 9. PROJECT PLANNING MATRIX

**Table 1: Matrix of Objectives, Activities, Outputs and Indicators**

The development objective of this proposal is to enable Sierra Leone to prepare and submit its Second National Communications to the COP of the UNFCCC as required by Article 12 of the Convention and based on the COP 8 Guidelines for National Communications of Non Annex 1			
Immediate Objectives	Outputs	Activities	Indicators
1. Creation of the institutional framework required for the preparation of the SNC	An operational institutional framework is in place for the preparation of the SNC	<ol style="list-style-type: none"> <li>1. Provision of Office premises and setting up of the Project Management Unit (PMU)</li> <li>2. Appointment of a Project Coordinator and other staff of the PMU</li> <li>3. Constitute the Steering Committee and the Task Forces of the components of the SNC</li> <li>4. Development of the Work plans of the various components and the main work plan of the Project</li> </ol>	<ul style="list-style-type: none"> <li>• An operation PMU</li> <li>• A Steering Committee and</li> <li>• Task Forces in place</li> <li>Operational work plans</li> </ul>
Provide a detailed and representative description of the National Circumstances of Sierra Leone	A detailed and representative description of the National Circumstances of Sierra Leone is included in the Second National Communications to COP.	<ol style="list-style-type: none"> <li>1. Compile and use information gathered during stock taking exercise and stakeholder consultations in the description of the National Circumstances</li> <li>2. Describe and present national and regional development priorities and programmes based on information contained in the PRSP, VISION 2025 and sectoral policies and programmes of Sierra Leone;</li> <li>3. Describe the ways and means in which the development priorities and programmes presented in activity 1 will be affected by climate change and/or address the adverse impacts of climate change;</li> <li>4. Provide recommended steps to taken at the national, regional and global level to address possible impacts of response measures on the economy;</li> <li>5. Describe steps to be taken at the national, regional and global levels for the continuous and sustainable development of future National Communications of Sierra Leone to the UNFCCC COP;</li> <li>6. Provide a summary table of the information generated and presented in activities (1) to (5) above</li> </ol>	<ul style="list-style-type: none"> <li>• Updated population and socio-economic information and data</li> <li>• Updated baseline and climate change scenarios based on work being done by the IPCC</li> <li>• A report and a Chapter on the National Circumstances of Sierra Leone</li> </ul>
Develop and communicate to the COP a National Inventory of anthropogenic emissions by sources and removals by sinks of all GHG from Sierra Leone for the year with the best activity data set.	A strategy to improve first National Inventory of the INC and institutionalize the process of development of the inventory on a continuous and sustainable basis is developed and implemented.	<ol style="list-style-type: none"> <li>1. Assess level of data availability for each key GHG emission category of the economy for the period 1995 to 2005;</li> <li>2. Select the year with the best available data as the Inventory year;</li> <li>3. Complement the available data with data gathering surveys to make the data for the year as complete as possible;</li> <li>4. Conduct training workshop on the execution of the 2006 National Greenhouse Gas Emission Inventories Guidelines with special emphasis on the Good Practice Guidance (GPG) requirements</li> <li>5. Identify, collect and use the required activity data, emission factors and coefficients, taking into consideration outputs of the Regional Project) and use appropriate defaults where ever national and/or appropriate regional statistics are lacking;</li> </ol>	<ul style="list-style-type: none"> <li>• Sustainable Inventory development System institutionalized</li> </ul>
Develop and communicate to the COP major steps taken or envisaged by Sierra Leone in	A programme and strategy containing measures to mitigate climate change is	<ol style="list-style-type: none"> <li>1. Based on the analysis of source category conducted during the inventory process identify the leading emitter/remover of greenhouse gases;</li> <li>2. Conduct training for the Task Force on Mitigation assessment</li> <li>3. Develop national emissions trends particularly for key sources categories;</li> </ol>	<ul style="list-style-type: none"> <li>• Updated baseline and mitigation scenarios,</li> <li>• Critical mass of trained staff to conduct</li> </ul>

implementing the Climate Change Convention.	developed and included in the SNC of Sierra Leone	<ol style="list-style-type: none"> <li>4. Assess opportunities or measures for reducing emissions or enhancing sinks in the identified categories;</li> <li>5. Identify and utilized cost-effective/efficient and cost-benefit assessment tools to rank and prioritise the opportunities or measures to reduce emissions or enhance sinks;</li> <li>6. Develop a programme of projects containing measures to mitigate climate change;</li> <li>7. Write the Report on the mitigation assessment and include it in the SNC for submission to the COP.</li> </ol>	mitigation assessment
	A programme and strategy containing measures to adapt to climate change is developed and included in the SNC	<ol style="list-style-type: none"> <li>1. Acquire, adopt and utilize appropriate methodologies and guidelines for assessing vulnerability of the major sectors of the economy of Sierra Leone to climate change;</li> <li>2. Conduct a workshop to train the Vulnerability Assessment Task Force on the tools, methodologies and guidelines;</li> <li>3. Assess vulnerability of the national economy to climate change and develop climate change adaptation measures suitable for Sierra Leone;</li> <li>4. Develop a programme of projects containing measures to adapt to climate change;</li> <li>5. Write the Report on the vulnerability and adaptation assessment</li> </ol>	<ul style="list-style-type: none"> <li>• Appropriate tools are selected by the Task Force,</li> <li>• Critical mass of vulnerability assessors is in place</li> <li>• Viable adaptation options and projects.</li> <li>• Viable disaster management strategies.</li> <li>• A V&amp;A Report and Chapter in the SNC</li> </ul>
Provision of additional information relevant to the achievement of the objective of the convention and facilitation of the formulation and implementation of sustainable development programmes	A report containing information on activities relating to the transfer of, and access to, environmentally sound technologies and know-how, the development and enhancement of endogenous capacities, technologies and know-how, and measures relating to enhancing the enabling environment for development and transfer of technologies is included in the SNC.	<ol style="list-style-type: none"> <li>1. Develop a list of available endogenous technologies that could be adopted and utilized in the implementation of the Climate Change Convention;</li> <li>2. Develop a list of potential environmentally sound technologies that could be acquired, adopted and utilized in the implementation of the Climate Change Convention in Sierra Leone;</li> <li>3. Determine a set of locally, nationally and regionally-driven criteria to be used in analysing and prioritising those technologies offering greatest opportunities and applicability for the implementation of the Convention;</li> <li>4. Using the determined criteria, analyse the lists of technologies identified in (1) and (2) above and developed a prioritised list of technologies that offer the greatest opportunities and applicability in the implementation of the Convention;</li> <li>5. Develop a national programme, a strategy and the legal and institutional framework for the continuous access to sound technologies and further development of endogenous technologies in Sierra Leone;</li> <li>6. Develop a national data base of environmentally sound technologies making use of the UNFCCC/EGTT data based and TTCLEAR and other existing similar facilities;</li> </ol>	<ul style="list-style-type: none"> <li>•</li> </ul>

	<p>A report containing information on climate change research and systematic observation is included in the SNC of Sierra Leone</p>	<ol style="list-style-type: none"> <li>1. Assess the amount and type of climate and other environmental data that needs to be exchanged between Sierra Leone and, regional and global stakeholders;</li> <li>2. Assess the current human and institutional capacities available to meet these requirements;</li> <li>3. Identify the gaps in human and institutional capacities required to meet the optimum level of research and systematic observation for regional and global needs;</li> <li>4. Assess the existing agro-hydro-meteorological system for crop early warning and determine steps to improve and strengthen the system</li> <li>5. Determine the risks and barriers inherent in the implementation of the activities, and identify appropriate measures to lift these risks and barriers;</li> <li>6. Develop a programme and strategy containing relevant activities for strengthening the status of research and systematic observation of Sierra Leone and to effectively participate in the regional and global data and information exchange efforts.</li> </ol>	<ul style="list-style-type: none"> <li>• Major convention equipment replaced and upgraded to digital equipment</li> <li>• Strengthened observation networks</li> <li>• Enhanced data collection, processing and achieving capacity</li> <li>• Human resources and institutions</li> <li>• capacity strengthened</li> <li>• Draft National strategy for Research and systematic observation prepared.</li> <li>• Climate information networking at regional and international organization strengthened</li> </ul>
	<p>A report containing information on activities relating to climate change education, training and public awareness conducted or envisaged is included in the SNC.</p>	<ol style="list-style-type: none"> <li>1. Review all activities conducted on this theme and assess information contained in the Stocktaking and Stakeholder Consultations conducted in preparation of the SNC.</li> <li>2. Determine all the gaps and data and information requirements of Sierra Leone to implement the SNC project and also implement the Climate Change Convention.</li> <li>3. Compile the gaps, data and information gathered, including any risks and barriers arising from legal and institutional frameworks.</li> <li>4. Develop a web-site on Climate and Climate Change issues to be located at the Climate Change Focal Institute – Climate Change Project (SL).</li> <li>5. Develop a programme and strategy for the future implementation of education, training and public awareness in Sierra Leone.</li> </ol>	<ul style="list-style-type: none"> <li>•</li> </ul>
	<p>A report containing information on steps taken to implement capacity building activities at national, sub-regional and region levels as contained Decision 2/CP.7.</p>	<ol style="list-style-type: none"> <li>1. The Cross-cutting Task Force of the NCC will review all activities conducted on capacity building and assess information contained in the NSCA and the Stocktaking and Stakeholder Consultations conducted in preparation of the SNC.</li> <li>2. The sub-committee will determine all the capacity building gaps and data and information requirements of Sierra Leone to implement the SNC project and also implement the Climate Change Convention.</li> <li>3. The sub-Committee will compile the gaps (technical and institutional capacities), data and information gathered, including any risks and barriers arising from legal and institutional frameworks;</li> <li>4. Develop a programme and strategy for the future implementation of capacity building needs for the implementation of the Convention in Sierra Leone</li> </ol>	<ul style="list-style-type: none"> <li>• A national programme implementation strategy on building.</li> <li>• A Report on capacity achievements and further the SNC</li> </ul>

	<p>A report containing information on the efforts to promote networking and information sharing among and within countries and regions will be developed and included in the SNC for submission to COP</p>	<ol style="list-style-type: none"> <li>1. Assess the information technology needs of the country in the area of climate change and other development and environmental areas</li> <li>2. Using information technology, particularly the internet/electronic media, assess and catalogue all national, regional and global institutions and agencies that keep relevant climate, climate change and other environmental information;</li> <li>3. Develop linkages between the web site to be developed and located at CCPSL with important and relevant national, regional and global web sites of institutions identified in (2) above;</li> <li>4. Assess and catalogue all national, regional and global institutions and agencies that promote, encourage and offer networking programmes</li> <li>5. Establish contacts with these institutions and agencies and indicated interest in networking with them.</li> <li>6. Develop a programme and strategy for establishing and enhancing these networking activities on a continuous and sustainable basis.</li> <li>7. Write a report on the efforts achieved during the period of the implementation of the SNC and also other activities envisaged in the future and included this report in the SNC.</li> </ol>	<ul style="list-style-type: none"> <li>•</li> </ul>
<p>Provide, as complete as possible, information on constraints and gaps and related financial, technical and capacity needs of Sierra Leon in the implementation of the Convention</p>	<p>A report on constraints and gaps, and related financial, technical and capacity needs of Sierra Leone in the implementation of the Convention is included in its SNC to COP</p>	<ol style="list-style-type: none"> <li>1. Describe in detail activities conducted in overcoming the gaps and constraints identified in the INC and the report of the Stocktaking and Stakeholder Consultations;</li> <li>2. Describe, further, any remaining constraints and gaps, and related financial, technical and capacity needs;</li> <li>3. Provide information on financial resources and technical support from national sources, bilateral and multilateral institutions, and GEF;</li> <li>4. Develop and provide a list of projects including pilot and/or demonstration adaptation projects proposed for financing in preparation for arranging the provision of technical and financial support.</li> </ol>	<ul style="list-style-type: none"> <li>•</li> </ul>



## 10. INDICATIVE ACTIVITY BUDGET

<b>Award ID: 00046795</b>									
<b>Award Title: PIMS 3941 EA: Sierra Leone Enabling Activities for the preparation of its Second National Communication to the UNFCCC</b>									
<b>Project ID: 00055915</b>									
<b>Project Title: PIMS 3941 EA: Sierra Leone Enabling Activities for the preparation of its Second National Communication to the UNFCCC</b>									
<b>Executing Agency: Meteorological Department, Ministry of Transport and Aviation</b>									
Expected Outcome	Expected Outputs	Responsible Party	Planned budget						
			Source of Funds	Budget Code	Budget description	Year 1 US\$	Year 2 US\$	Year 3 US\$	Total Budget
<b>Sierra Leone Second National Communication (SNC) under the UNFCCC</b>	Output 1: National Circumstances	NEX	62000	72100	SERCT	500	0	0	500
		NEX	62000	71300	PERLOC	4,000	1,000	1,000	6,000
		NEX	62000	74500	MISC	2,000	1,000	1,000	4,000
		NEX	62000	72500	SUPPL	2,500	0	0	2,500
					<b>Sub-Total</b>		<b>9,000</b>	<b>2,000</b>	<b>2,000</b>
	Output 2: National Greenhouse Gas Inventories	NEX	62000	71300	PERLOC	35,000	8,500	6,500	50,000
		NEX	62000	71600	TRVINT	3,500	2,500	2,000	8,000
		NEX	62000	71600	TRVLOC	5,000	1,500	0	6,500
		NEX	62000	72100	SERCT	24,000	0	2,000	26,000
		NEX	62000	74500	MISC	2,000	2,000	1,500	5,500
				<b>Sub-Total</b>		<b>69,500</b>	<b>14,500</b>	<b>12,000</b>	<b>96,000</b>
	Output 3: Climate Change Adaptation and Mitigation Programmes	NEX	62000	71200	PERINT	7,500	6,000	6,000	19,500
		NEX	62000	71300	PERLOC	30,000	35,000	30,000	95,000
		NEX	62000	71600	TRVLOC	4,000	5,000	2,000	11,000
		NEX	62000	71600	TRVINT	2,000	2,000	2,500	6,500
		NEX	62000	72100	SERCT	5,000	3,000	2,000	10,000
		NEX	62000	72200	EQUIPMT	5,000	0	0	5,000
		NEX	62000	74500	MISC	0	2,500	1,500	4,000
				<b>Sub-Total</b>		<b>53,500</b>	<b>53,500</b>	<b>44,000</b>	<b>151,000</b>
	Ouput 4: Other Relevant Information	NEX	62000	71200	PERINT	0	4,000	0	4,000
		NEX	62000	71300	PERLOC	3,000	4,000	3,000	10,000
		NEX	62000	72400	SERCT	0	0	4,000	4,000
		NEX	62000	72500	SUPPL	1,000	500	500	2,000

				<b>Sub-Total</b>	<b>4,000</b>	<b>8,500</b>	<b>7,500</b>	<b>20,000</b>
Output 5: Constraints and Gaps	NEX	62000	71300	PERLOC	0	3,000	3,000	6,000
	NEX	62000	72100	SERCT	0	0	4,000	4,000
				<b>Sub-Total</b>	<b>0</b>	<b>3,000</b>	<b>7,000</b>	<b>10,000</b>
Output 6: Technical Assistance	NEX	62000	71200	PERINT	3,000	2,000	0	5,000
	NEX	62000	71600	TRVINT	2,500	1,500	1,000	5,000
				<b>Sub-Total</b>	<b>5,500</b>	<b>3,500</b>	<b>1,000</b>	<b>10,000</b>
Output 7: Compilation, production of SNC	NEX	62000	71300	PERLOC	0	5,000	4,000	9,000
	NEX	62000	72100	SERCT	0	0	6,000	6,000
				<b>Sub-Total</b>	<b>0</b>	<b>5,000</b>	<b>10,000</b>	<b>15,000</b>
Output 8: Project Management	NEX	62000	71300	PERLOC	16,000	16,000	16,000	48,000
	NEX	62000	72100	PERDAM	9,000	9,000	9,000	27,000
				<b>Sub-Total</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>75,000</b>
Output 9: Monitoring and reporting	NEX	62000	71200	PERINT	0	3,000	0	3,000
	NEX	62000	71300	PERLOC	0	2,000	1,500	3,500
	NEX	62000	71600	TRVINT	0	2,000	0	2,000
	NEX	62000	72100	SERCT	2,000	2,500	2,000	6,500
				<b>Sub-Total</b>	<b>2,000</b>	<b>9,500</b>	<b>3,500</b>	<b>15,000</b>
<b>TOTAL</b>					<b>168,500</b>	<b>124,500</b>	<b>112,000</b>	<b>405,000</b>

Summary of Funds:				
<b>GEF</b>	<b>168,500</b>	<b>124,500</b>	<b>112,000</b>	<b>405,000</b>
<b>Govt (in kind)</b>				<b>30,000</b>
<b>Total</b>	<b>168,500</b>	<b>124,500</b>	<b>112,000</b>	<b>435,000</b>

**Appendix A**  
**Summary Report of the Self-Assessment Exercise**  
**Report on the SAE for the SNC for Sierra Leone**

The climate change project secretariat in collaboration with National climate change committee (NCCC) and focal point of climate change in a bid to improve the overall quality of the national initial communication report (NIC). As a result a national taskforce comprising of 10 members was established headed by Professor Ogunlade R. Davidson who happens to be the local consultant for both climate change and NAPA projects. Included in this Taskforce were the focal point UNFCCC, Director of Meteorological Department and Government Technical adviser for both projects. The Focal Point GEF/ Director of Environment, and the Coordinators of the Climate Change and NAPA projects. Also included in the group are leaders of the GHG Inventory, Mitigation Assessment and Vulnerability and Adaptation groups.

The NIC report consists of nine chapters including the Executive Summary Acronyms and Abbreviations, tables' figures, Conclusions and recommendations.

The mandate of the team was to identify, shortcomings, gaps and to suggest new areas for further inclusion in the report.

***GAPS identified were as follows:-***

***Vulnerability and Adaptation (V&A)***

***1. Sector – Climate Change Scenarios***

- Data and information on soil and earth temperatures left out in the report but is expected to be included in the report.
- The mean annual rainfall be projected, calculated and analyzed.

***2. Agriculture Sector***

It was observed that assessment on the agricultural sector was based mainly on expert judgment.

- Certain simulation techniques were not used due to lack of data and unavailability of the DSSAT3 model.
- Data and information on Agricultural crop production and socio-economic activities need to be collected for the use of the DSSAT3 biophysical model to run simulation impacts of climate change crop production and food security. The data requirements for the agriculture sector have already been identified.
- Data can help to simulate water balance parameters (transpiration, rainfall, drainages, runoff etc.) and total dry matter produced for certain crops.
- Data can help to estimate the use of (nitrogen intake, nitrogen leached, nitrogen fix)
- Plant growth parameters of certain crops can be estimated to assess impacts of climate on crop production.

**The following data listed below are required for the agriculture sector:-**

- (i) Soil classification for each site to be selected (e.g. shallow, medium or deep silty day, silt loam, sandy loam or sand)
- (ii) At least 30 years of daily weather data for each site, for maximum and minimum temperatures, rainfall, solar radiation and sunshine hours.
- (iii) Location data – latitude and longitude of the site.
- (iv) Crops data – most common variety of crops sown, plant population, row spacing, sowing depth, planting dates and socio-economic crop data for validation.
- (v) for calibration and validation of the DSSAT3 model, regional experimental data for a site is required.

3. ***Forest Sector***

Six of the twelve species identified are simulated under the climate change scenarios developed. There is need to simulate the remaining six species to see the various impacts of climate change among the twelve species in terms of biomass production, diameter increment total based area production etc.

The Holdridge and forest Gap Models are not integrated to examine the general agreement between predicted patterns of changes in the vegetation cover from the Holdridge model with changes in species composition predicted from the Forest Gap Model and to examine the rates of expected changes for the predicted changes in vegetation cover from the Holdridge model. This integrated analysis will estimate the temporal dynamics associated with the predicted shift in vegetation cover which are very important in developing adaptation strategies and assessing economic impacts.

Economic analysis of the impacts of climate change on forest resources was not carried out. It requires information on both the impacts of supply and subsequent impacts on pricing of timber and other forest products. The Forest Gap Model should have been used.

4. ***Coastal Zone and Resources***

Proper assessment need to be undertaken to accurately determine the risk zone of the coastal areas in the country. Therefore, more data and information required are to be collected.

5. ***Fisheries Sector***

Assessment of the effects of precipitation, temperature and dissolved oxygen on habitat suitability still has to been done due to the absence of appropriate data and habitat suitability index under current climate and climate change scenarios.

6. ***Human Health Sector***

Lack of data in the health sector restricted the study to scoping measures in terms of the availability of facilities and capacity of these facilities both in human and material resources. The section of the report gave a broad view of the health sector within the country.

However, baseline data and information required to conduct impact/vulnerability assessment on the health sector was not provided. Therefore, simple mapping, simulation techniques, GIS and remote sensing and integrated modeling techniques are not used for any assessment.

7. ***INTEGRATION APPROACHES***

There is no integrated assessment of the various sectors using simulation techniques. This can enable us to know a change in one sector (resulting from climate change impacts) can have on the other sector.

2. ***New Areas Identified For Inclusion into the National Communication Report***

The following are the new areas which have been identified for incorporation into the NIC report:

**A. *FOOD SECURITY***

Food Security should be added to the Agriculture Sector to read as Agriculture and Food Security Sector. The Agriculture Sector should not be limited to crop production. One of the Millennium Development Goals (MDGs) is to reduce poverty and food insecurity which climate change has great impacts on. Socio-economic data and information required need to be identified for the development of socio-economic scenarios in assessing the vulnerability of the agriculture and food security sector to climate change.

**B. *BIODIVERSITY AND WIDLIFE***

Sierra Leone is very rich in biodiversity and wildlife. Climate change impacts on habitat and animal species can be known not just forest resources. The Habitat Suitability Index (HIS) model can be used. Therefore, data and information required for this sector need to be identified.

**C. *LIVESTOCK RESOURCES***

Climate change has impact on livestock resources and this contribute towards food insecurity. The data and information required have already been identified. The SPUR2 livestock model can be used in this study.

**D. *SOCIO-ECONOMIC SCENARIOS***

There is need to develop socio-economic scenarios (e.g. population and income scenarios) and environmental scenarios (e.g. pollution levels, land use and ecosystem health) that can be used in the impact assessment of climate change on sectors such as agriculture and forestry

***Greenhouse Gases (GHG)***

***The energy category***

In the Republic of Sierra Leone, energy sector activities that contribute directly to the emissions of greenhouse gases have been identified as electricity production, transportation, Domestic consumption of energy, and industrial and agricultural processes. The emissions consist of direct greenhouse gases from energy consumption (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, NO<sub>x</sub>, CO and NMVOC) and SO<sub>2</sub>. Emission from energy systems are calculated from fuel combustion, including fuel wood. It is assumed that all fossil fuel imported and all wood fuel gathered are consumed. Details of the methodologies can be found in the national Inventory (NCC, 2002).

***Gaps in Understanding***

***Data Gaps***

Republic of Sierra Leone has collected a good set of activity data for the development of the national inventory of emissions of greenhouse gases in the energy sector. Between the development of the 1993 inventory in 1994 and 1999 discrepancies have been found in the quantity of fuel imported. The values collected during this study have been confirmed as the most accurate and have been computerized. Data on fuel wood needs improvement. In 1993 the National Climate Committee conducted the only nation-wide surveys on fuel wood consumption. As this was conducted during the dry season it has become necessary to conduct another survey during the wet season so as to eliminate the effect of seasonal variation on fuel wood consumption.

***Filling the Gaps/Recommendations/Need for***

For sustainability of the data collection system and development of the inventory it is necessary that the Sierra lone Climate Change Project Office signs a memorandum-Of-understanding (MOU) with the relevant sectoral institutions that are involved in this project. By signing the

MOU, concerned institutions will commit themselves to make data available to the Inventory Team through the Climate Change office as and when required.

The climate Change Project Office will also agree, through the signed MOU, to provide the participating institutions with the training and material resources (computers, models and software) to continuously participate in the development of the National Inventory and the implementation of the Climate Change Convention on a continuous basis.

### ***Training Requirements***

About 10 members of the Task Team on the development of the National Inventory of Sierra Leone have been trained on the execution of the Revised 1996 IPCC Guidelines and software. The training was conducted during the national workshop on inventories of GHGs and included activity data needs and collection, emission coefficients and factors, hands-on-exercises on the recording of the data in the worksheets, and reporting of the results. With the continued use of the software the critical mass needed for the continuous development of the National Inventory of Sierra Leone.

### ***Need to develop country-specific emission factors***

Due to the lack of country-specific emissions factors and coefficients default values provided in the IPCC Guidelines are used in this inventory. It is recommended that the inventory Team should, as a matter of priority, develop country specific emission factors and coefficients where found necessary. This aspect is a national priority and the National Communications Support Programme in New York and UNDP have understood it that way and have included Republic of Sierra Leone in the Regional project on improvement of Inventories through the development of regional and national emissions factors.

### ***Omissions***

Sub-category B (fugitive emissions from fuels) of category 1(one) (energy) is not reported on. Estimation of fugitive emission could not be conducted because there no fuel produced yet in Republic of Sierra Leone. Primary fuels do not exist and oil and gas activities such as coal mining and oil refining are not conducted.

### ***Sector Activities Contributing directly to GHG Emissions***

#### ***Industrial Processes Category***

The industrial sector in Republic of Sierra Leone is underdeveloped. Breweries and cottage industries produce alcohol and food on a relatively small scale and data is not easy to come by especially in relation to food items such as bread and cakes. Therefore, only emissions from beverage and food production are assessed for the Industrial Process Category. Presently, only the alcohol Beverage and Food Production sub-modules of the industrial sector of Republic of Sierra Leone can be assessed. Data on all other sub-modules but this ended up being a useless exercise for this Inventory development process.

### ***Gaps in Understanding***

#### ***Data Gaps***

The data has not been properly recorded or not recorded at all. Some of the equipment are so old that labels have faded or non-existent. The industrial Processes category is likely to be a big emitter because most of the equipment used is obsolete. These include used refrigerators, freezers, air conditioners, and compressor units that are leaking even at the time of importation.

It is recommended that a complete data gathering and collection study should be conducted for the Industrial Processes category in Republic of Sierra Leone. Since this is the first time this category is being assessed in the Republic of Sierra Leone. Historical data needs to be assembled in the data bank. Based on the collected data, it will be possible to extrapolate emissions for past years.

All emissions factors used are those from the 1996 Revised IOCC guidelines on development of national Greenhouse Gas emissions (IPCC. OECD, IEA.UNEP, 1997).

### ***Omissions***

The bulk of the emissions from category: Industrial Processes could not be estimated. Production of metal, soda ash, adipic and nitric acid, pulp and paper, and ammonia do not exist. Cement production, lime/limestone production and use, carbide and glass production, and road paving with asphalt are conducted and will be taken into consideration in the training and in the development of the Inventory. Asphalt roofing and concrete plumise stone production are conducted but data is lacking and documentation is inadequate for use in the development of a credible national inventory. Consumption of halocarbons and sulphur hexafluoride from refrigeration assembly, operation and disposal could not be quantified due to inadequate labeling, documentation and age of the equipment that enter the country. Similarly, data on foam products, fire extinguishers, solvents, aerosols and propellants, and equipment containing SF6 are not readily available. Some study is necessary because the equipments are found in most public places, commercial facilities and residential properties.

### ***Solvent and other Product Category***

The solvent and other product use category of the 1996 Revised IPCC Guidelines has not been reported on because the methodology for this category is still being developed.

### ***The Agriculture Category***

Agricultural activities that contribute directly to emissions of greenhouse gases through a variety of different processes include enteric fermentation in domestic animals, animal waste management, rice production, and non-CO<sub>2</sub> emissions from savannah burning and field burning of agricultural wastes. Each of these activities is considered in this report and the results of analysis from the worksheets are also presented.

### ***Constraints in development of the inventory or the agriculture sector***

1. Data on flood duration and water depth in rice production ecology should be determined. Local emission factors and coefficients to be used in the calculation of emissions from rice production should be developed locally or in collaboration with other regional institutions.
2. Only one survey has been carried out on crop residue burning, and to establish a trend that will be usable with limited bias, more surveys should be conducted as crop production varies with climate.
3. There is no country specific data on savannah burning. Figures used were adopted from the CSE satellite image covering the period 1990, 1991 and 1993. Default conversion factors from IPCC guidelines were used.

### ***Land-Use Change and Forestry Category***

According to IPCC, OECD, IEA, (1997) land-use changes that result in alterations in the amount of biomass on the land produce a net exchange of greenhouse gases between the atmosphere and the land surface. The primary land-use changes that result in greenhouse gas emissions and uptake are conversion of forests to non-forest (e.g., conversion of forests to pasture or cropland) and conversion of non-forests to forest (e.g., establishment of plantations). Land-use changes also result in greenhouse gas emissions through disturbance of forest soils. When forests are converted to croplands, an average of about 25-50% of the soil carbon is released as CO<sub>2</sub>, primarily through oxidation of organic matter. Loss of forest may also result in increased net CH<sub>4</sub> emissions to the atmosphere since forest soils are a natural sink of CH<sub>4</sub> i.e.; forest soils absorb atmosphere CH<sub>4</sub>.

### ***Waste Management Category***

Domestic, agricultural and industrial waste is generated in the form of solid and liquid. There is no form of waste management or separation in Sierra Leone. Solid waste is collected from residential properties and commercial services, markets, recreational areas, government offices and institution (schools and hospitals), fish and poultry processing plant, industries, hotels, etc. the waste constitutes the following: leftover food, paper, grasses, construction wastes and other cuttings.

***From the data collected on the total annual waste produced in Sierra Leone the following observations can be made.***

1. Waste produced is not sorted;
2. Lack of adequate resources to collect all the waste in major towns and municipalities makes the results a gross underestimation;
3. All the waste dumped at the disposal sites are not managed;
4. The location of existing disposal sites are inappropriate in terms of environmental sanitation;
5. There is no information on the proportion of the various constitutes that make up household waste, and from waste from institutions;
6. Fire out break is common at the disposal sites;
7. Scavengers collect any material that may be useful to them;
8. Animals graze around the disposal site;
9. There is inadequate data and information on waste management;
10. There is lack of strong legislation to enforce proper waste management; and
11. Administrative and legal frameworks together with institutional and financial commitments are needed to develop an effective management system.

***In view of the facts mentioned, the following are recommendations given:-***

1. A solid waste strategy needs to be developed for Sierra Leone;
2. Proper landfill sites should be selected;
3. There is need to design and operate municipal landfills;
4. Authorities responsible for the collection of solid waste should develop their own solid waste disposal plan and submit it to the NEA for approval;
5. A monitoring strategy for the emissions (CH<sub>4</sub> and SO<sub>2</sub>) and the leachate from the dumpsites should be developed;
6. Tree planting around the dumping sites should be encouraged so that they can serve as wind breaks, to prevent the spread of waste into non-dumping sites, as well as to serve as CO<sub>2</sub> sink;
7. Public awareness about waste management should be increased; and
8. The capacity of the personnel on waste management in the municipalities and Area Councils should be increased.



### ***Training of the Inventory Task Team of Sierra Leone***

The Consultant provided training to the Inventory Task Team in the form of a Workshop that consisted of Power Point presentations (see annex III) and stop-by-step instructions on completing the worksheets in the Software (hands-On-Exercises). Discussions and the exercises followed presentations on each source category.

### ***Recommendation to Improve the Management of the Inventory Process and the Second National Communications Project***

***Through this Consultancy, it is recommended that:-***

1. The Inventory Team uses the most up-to date information to develop the National Inventory of Sierra Leone;
2. Where there are no national emission factors and coefficients available the Team should use most appropriate default values presented in the IPCC Guidelines;
3. The team should provide references of all data and explain clearly the default values used in the development of the Sierra Leone National inventory;
4. The National Team should source financial support to conduct specific surveys/studies to upgrade the data bank for the National Inventory Development. These surveys should include remote sensing survey on savannah burning, various uses of crop residues, and fuel wood collection.

### ***Greenhouse Gas Mitigation Assessment***

The sectors addressed in this INC report are the energy, industrial, energy for domestic cooking, transportation, agriculture and waste management. It was identified that two broad sectors are the energy Sector (demand and supply) and the non-energy sector (land-use change and forestry sector etc.) the bottom-up approach is adopted for both the energy and non-sectors in Sierra Leone.

For the energy sector, the long range energy and alternative planning system model (LEAP) could not be used to carry out energy sector mitigation analysis due to the unavailability of the relevant data.

The reviews were carried out using the work plan and Terms of Reference (TOR) for the Self Assessment Exercise (SAE) attached, also considered government development issues and priorities.

There were problems and a delay in the running of the SAE project due to some administrative reasons beyond our control, which I hope would be taken care off in the SNC.

## ***Appendix B***

### **Objectives, Outputs, Activities and Indicators of the Project**

#### ***Development Objective***

The development objective of this proposal is to enable Sierra Leone to prepare and submit its Second National Communications to the COP of the UNFCCC as required by Article 12 of the Convention and based on the COP 8 Guidelines for National Communications of Non-Annex I Parties (decision 17/CP.8).

#### ***Immediate Objectives, Outputs, Activities and Indicators***

##### ***Immediate Objective 1:***

Creation of the institutional framework required for the preparation of the Second National Communication

##### ***Output of Immediate Objective 1***

An operational institutional framework is in place for the preparation of the Second National Communication

##### ***Activities for the achievement of Output of Immediate Objective 1***

1. Provision of Office premises and setting up of the Project Management Unit (PMU)
2. Appointment of a Project Coordinator and other staff of the PMU
3. Constitute the Steering Committee and the Task Forces of the components of the SNC
4. Development of the Work plans of the various components and the main work plan of the Project

##### ***Immediate Objective 2:***

Provide a detailed and representative description of the National Circumstances of Sierra Leone in the SNC.

##### ***Output of Immediate Objective 2:***

A detailed and representative description of the National Circumstances of Sierra Leone is included in the Second National Communications to COP.

##### ***Activities to achieve Output of Immediate Objective 2:-***

1. Compile and use information gathered during stock taking exercise and stakeholder consultations in the description of the National Circumstances
2. Describe and present national and regional development priorities and programmes based on information contained in the PRSP, VISION 2025 and sectoral policies and programmes of Sierra Leone;
3. Describe the ways and means in which the development priorities and programmes presented in activity 1 will be affected by climate change and/or address the adverse impacts of climate change;
4. Provide recommended steps to be taken at the national, regional and global level to address possible impacts of response measures on Sierra Leone economy;
5. Describe steps to be taken at the national, regional and global levels for the continuous and sustainable development of future National Communications of Sierra Leone to the UNFCCC/COP;
6. Provide a summary table of the information generated and presented in activities 1 to 5 above.

***Immediate Objective 3:***

Develop and communicate to the Conference of the Parties a National Inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases (GHGs) from Sierra Leone for the year with the best activity data set.

***Output 1 of Immediate Objective 3:***

A strategy to improve first National Inventory of the INC and institutionalize the process of development of the inventory on a continuous and sustainable basis is developed and implemented.

***Activities to achieve Output 1 of Immediate Objective 3:***

1. Identify the major sectors and institutions holding data and information required for inventory development process;
2. Assess their institutional and technical capacities to fully participate in the inventory development process
3. identified areas where data gaps and capacity issues are lacking or weak and improve them;
4. Discuss, agree and sign MOU with the institutions detailing roles and mandates for full participation in the inventory process; and
5. Institutionalize arrangements for continuous and sustainable inventory system

***Output 2 of Immediate Objective 3:***

An improved National Inventory of greenhouse gas emissions by sources and removal by sinks of Sierra Leone is presented in the Second National Communication to COP

***Activities to achieve Output 2 of Immediate Objective 3:***

1. Assess level of data availability for each key GHG emission category of the economy for the period 1995 to 2005;
2. Select the year with the best available data as the Inventory year;
3. Complement the available data with data gathering surveys to make the data for the year as complete as possible;
4. Conduct training workshop on the execution of the 2006 National Greenhouse Gas Emission Inventories Guidelines with special emphasis on the Good Practice Guidance (GPG) requirements
5. Identify, collect and use the required activity data, emission factors and coefficients, taking into consideration outputs of the Regional Project) and use appropriate defaults where ever national and/or appropriate regional statistics are lacking;
6. Select and execute the most appropriate inventory methodology (tier system) taking into consideration the level of available national activity data;
7. Conduct key sources analysis;
8. Execute the methodologies selected; and
9. Write the National Inventory Report (NIR) describing:-
  - (a) The procedures and arrangements undertaken to collect and achieve the data and information;
  - (b) Methodologies used to develop the Inventory;
  - (c) Areas where data may be further improved and proposed cost-effective national or regional plans and programmes to develop or improve country-specific or regional emissions factors and activity data.
  - (d) Anthropogenic emissions by sources of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), non-methane volatile organic compounds (NMVOCs),

hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and sulphur oxides (SO<sub>x</sub>);

- (e) The level of uncertainty associated with inventory data, their underlying assumptions, and the methodologies used for estimating these uncertainties.

***Immediate Objective 4:***

Develop and communicate to the COP major steps taken or envisaged by Sierra Leone in implementing the Climate Change Convention.

***Output 1 of Immediate Objective 4:***

A programme and strategy containing measures to mitigate climate change is developed/improved and included in the Second National Communication of Sierra Leone to the COP of the UNFCCC.

***Activities to achieve Output 1 of Immediate Objective 4:***

1. Based on the analysis of source category conducted during the inventory process identify the leading emitter/remover of greenhouse gases;
2. Conduct training for the Task Force on Mitigation assessment
3. Develop national emissions trends particularly for key sources categories;
4. Assess opportunities or measures for reducing emissions or enhancing sinks in the identified categories;
5. Identify and utilized cost-effective/efficient and cost-benefit assessment tools to rank and prioritize the opportunities or measures to reduce emissions or enhance sinks;
6. Develop a programme of projects containing measures to mitigate climate change;
7. Write the Report on the mitigation assessment and include it in the SNC for submission to the COP.

***Output 2 of Immediate Objective 4:***

A programme and strategy containing measures to adapt to climate change is developed and included in the SNC of Sierra Leone.

***Activities to achieve Output 2 of Immediate Objective 4:***

1. Acquire, adopt and utilize appropriate methodologies and guidelines for assessing vulnerability of the major sectors of the economy of Sierra Leone to climate change;
2. Conduct a workshop to train the Vulnerability Assessment Task Force on the tools, methodologies and guidelines;
3. Assess vulnerability of the national economy to climate change and develop climate change adaptation measures suitable for Sierra Leone;
4. Develop a programme of projects containing measures to adapt to climate change;
5. Write the Report on the vulnerability and adaptation assessment describing in detail:
  - (a) Approaches, methodologies and tools used.
  - (b) Baseline and climate change scenarios used in the assessment of impacts of, and vulnerability and adaptation to, climate change.
  - (c) Uncertainties inherent in these methodologies and tools used.
  - (d) evaluation and monitoring of, strategies and measures for adapting to climate change, in
  - (e) the use of policy frameworks, such as national adaptation programmes, plans and policies for developing and implementing adaptation strategies and measures.

***Immediate Objective 5:***

Provision of additional information relevant to the achievement of the objective of the convention and facilitation of the formulation and implementation of sustainable development programmes

***Output 1 of Immediate Objective 5:***

A report containing information on activities relating to the transfer of, and access to, environmentally sound technologies and know-how, the development and enhancement of endogenous capacities, technologies and know-how, and measures relating to enhancing the enabling environment for development and transfer of technologies is included in the SNC. The report will specifically contain information on the technology needs assessment conducted, the data base on environmentally sound technologies and programme for strengthening the human and institutional capacities of Sierra Leone to adopt and develop relevant technologies;

***Activities to achieve Output 1 of Immediate Objective 5:***

During stocktaking exercise, it was found that a database for ESTs, including technologies for adaptation (Watershed Management, Water Resource Management, Integrated Pest Management, etc.) to and mitigation of climate change, should be adopted in accordance with the national conditions. Activities include:-

1. Through literature review and based on the national circumstances of Sierra Leone, determine and develop a list of available endogenous technologies that could be adopted and utilized in the implementation of the Climate Change Convention;
2. Through literature review and based on the national circumstances of Sierra Leone, develop a list of potential environmentally sound technologies that could be acquired, adopted and utilized in the implementation of the Climate Change Convention in Sierra Leone;
3. Determine a set of locally, nationally and regionally-driven criteria (cost-effectiveness, sustainable, overcoming poverty, enhancing adaptive and or mitigation capacity, inline with national development programmes, etc) to be used in analysing and prioritising those technologies offering greatest opportunities and applicability for the implementation of the Convention;
4. Using the determined criteria, analyse the lists of technologies identified in (1) and (2) above and developed a prioritised list of technologies that offer the greatest opportunities and applicability in the implementation of the Convention;
5. Develop a national programme, a strategy and the legal and institutional framework for the continuous access to sound technologies and further development of endogenous technologies in Sierra Leone; The national programme and strategy will contain information and actions to lift constraints and address specific financial, technical and institutional needs for capacity-building on technology transfer.
6. Develop a national data base of environmentally sound technologies making use of the UNFCCC/EGTT data based and TTCLEAR and other existing similar facilities;

***Output 2 of Immediate Objective 5:***

A report containing information on climate change research and systematic observation, research relating to programmes containing measures to mitigate climate change; programmes containing measures to facilitate adequate adaptation to climate change; and the development of emission factors and activity data is developed and included in the SNC of Sierra Leone.

***Activities to achieve Output 2 of Immediate Objective 5:***

Sierra Leone operates a national network of stations and facilities to receive satellite data and information. However, the observation system is operational much below normal because of frequent breakage of instruments and equipment, inadequate telecommunications facilities and in many stations the lack of electricity supply. Hence the contribution of Sierra Leone in terms of regional and global data exchange is severely limited. It is now planned to conduct the following activities under the SNC.

1. Assess the amount and type of climate and other environmental data that needs to be exchanged between Sierra Leone and, regional and global stakeholders;
2. Assess the current human and institutional (scientific, technical, equipment and logistics) capacities available to meet these requirements;
3. Identify the gaps in human and institutional capacities required to meet the optimum level of research and systematic observation for regional and global needs;
4. Assess the existing agro-hydro-meteorological system for crop early warning and determine steps to improve and strengthen the system and to include other environmental and climate elements (such as droughts, floods, etc.) and improve the status of seasonal weather forecasting in Sierra Leone and the region;
5. In the assessments to be conducted in (1) to (4) above determine the risks and barriers inherent in the implementation of the activities, and identify appropriate measures to lift these risks and barriers;
6. Develop a programme and strategy containing relevant activities for strengthening the status of research and systematic observation of Sierra Leone and to effectively participate in the regional and global data and information exchange efforts.

***Output 3 of Immediate Objective 5:***

A report containing information on activities relating to climate change education, training and public awareness conducted or envisaged is included in The Second National Communication of Sierra Leone.

***Activities to achieve Output 3 of Immediate Objective 5:***

A comprehensive report on activities related to education, training and public awareness was included in the INC of Sierra Leone. Since then much has happened and more work is planned. In collaboration with the UNDP Public Awareness Unit in Geneva, the National Climate Committee through its Cross Cutting and Media sub-Committee is implementing an Outreach project that will enhance public awareness in climate change. The Second National Communication will contain an updated report with information on all activities conducted since 2003 and those envisaged after submission of the SNC. Activities under this project that will culminate in such a report include:

1. The Cross-cutting and Media sub-Committee of the NCC will review all activities conducted on this theme and assess information contained in the Stocktaking and Stakeholder Consultations conducted in preparation of the SNC.
2. The sub-committee will determine all the gaps and data and information requirements of Sierra Leone to implement the SNC project and also implement the Climate Change Convention.
3. The sub-Committee will compile the gaps (technical and institutional capacities), data and information gathered, including any risks and barriers arising from legal and institutional frameworks;

4. Develop a programme and strategy for the future implementation of education, training and public awareness in Sierra Leone. The programme and strategy will contain activities such as review of school curricula with the concept of including climate change issues, strengthened human, scientific, technical and institutional capacities, development and dissemination of outreach materials, development of a web page on public awareness, and participation of members of the sub-Committee in regional and global for a on education, training and public awareness;

***Output 4 of Immediate Objective 5:***

A report containing information on steps taken to implement capacity building activities at national, sub-regional and region levels as contained in the capacity building framework for Non-Annex I Parties (Decision 2/CP.7).

***Activities to achieve Output 4 of Immediate Objective 5:***

The Initial National Communications of Sierra Leone provides an extensive discussion on the level of achievement in building the capacity of the National Climate Committee. This level of capacity building has been achieved through training workshops and provision of data processing equipment to undertake assessments of the potential impacts of climate change on the national economy and the level of emissions of greenhouse gases. However, it should be noted that capacity building is not gained through a *one-time shot* but through a continuous, progressive and iterative process.

Since the submission of the INC much has happened including the National Capacity Self Assessment (NCSA) which was conducted in collaboration with UNDP and all the National Task Forces responsible for the implementation Multilateral Environmental Agreements on Biodiversity, Desertification and Climate Change. Information in this NCSA report and the Stocktaking and Stakeholder Consultations will be assessed and utilised. Thus, the Second National Communication will contain an updated report with information on all activities conducted since 2003 and those envisaged after submission of the SNC. Activities to be conducted under this project and that will culminate in such a report include: -

1. The Cross-cutting Task Force of the NCC will review all activities conducted on capacity building and assess information contained in the NSCA and the Stocktaking and Stakeholder Consultations conducted in preparation of the SNC.
2. The sub-committee will determine all the capacity building gaps and data and information requirements of Sierra Leone to implement the SNC project and also implement the Climate Change Convention.
3. The sub-Committee will compile the gaps (technical and institutional capacities), data and information gathered, including any risks and barriers arising from legal and institutional frameworks;

***Output 5 of Immediate Objective 5:***

A report containing information on the efforts to promote networking and information sharing among and within countries and regions will be developed and included in the SNC for submission to COP.

***Activities to achieve Output 5 of Immediate Objective 5:***

Specific activities to be undertaken to determine and develop a report that provides the required information and networking and information sharing include:

1. Assess the information technology needs of the country in the area of climate change and other developed and environmental areas

2. Using information technology, particularly the internet/electronic media, assess and catalogue all national, regional and global institutions and agencies that keep relevant climate, climate change and other environmental information;
3. Develop linkages between this web site to be developed and located at the Climate Change Focal Institution with important and relevant national, regional and global web sites of institutions identified in (2) above;
4. Assess and catalogue all national, regional and global institutions and agencies that promote, encourage and offer networking (staff exchange visits, internship, industrial training and attachments, etc.) programmes
5. Establish contacts with these institutions and agencies and indicated interest in networking with them.
6. Develop a programme and strategy for establishing and enhancing these networking activities on a continuous and sustainable basis.
7. Write a report on the efforts achieved during the period of the implementation of the SNC and also other activities envisaged in the future and included this report as part of the SNC.

***Immediate Objective 6:***

Provide, as complete as possible, information on constraints and gaps, and related financial, technical and capacity needs of Sierra Leone in the implementation of the Convention.

***Output 1 of Immediate Objective 6:***

A report on constraints and gaps, and related financial, technical and capacity needs of Sierra Leone in the implementation of the Convention is included in its SNC to COP.

***Activities to achieve Output 1 of Immediate Objective 6:***

***Proposed activities included:***

1. Describe in detail activities conducted in overcoming the gaps and constraints (financial, technical, institutional and capacity) identified in the Initial National Communication and the report of the Stocktaking exercise and Stakeholder Consultations leading to the proposal for the development of the Second National Communication.
2. Describe, further, any remaining constraints and gaps, and related financial, technical and capacity needs associated with the implementation of activities, measures and programmes envisaged under the Convention, and with the preparation and improvement of national communications on a continuous basis;
3. Develop and provide a list of projects including pilot and/or demonstration adaptation projects proposed for financing in preparation for arranging the provision of technical and financial support.
4. ***Prove information on:***
  - i. Opportunities for the implementation of Adaptation measures,
  - ii. Barriers to the implementation of adaptation measures.
  - iii. Country-specific technology needs and assistance received from developed country Parties and the financial mechanism of the Convention
  - iv. How they have utilized this assistance in support of the development and enhancement of endogenous capacities, technologies and know-how.
  - v. Other relevant needs and/or areas for capacity-building



## **Appendix C: Terms of Reference**

### ***Term of reference of the National Coordinator/Project Manager***

Responsibilities of the Project Coordinator will include the following: -

- To establish an office of the Project Coordinator and prepare detailed work plans for the duration of the project (office already established)
- Select candidates for nomination as team leaders for the CWG's and specify terms of reference for them.
- Re-establish a Project Steering Committee (PSC) comprising the Consultant, Coordinator and very senior representatives for the relevant Government Ministries, the Universities, Sierra Leone Associations of NGO'S, Chamber of Industry and Commerce. The PSC will provide the overall policy guidance to the project execution and completion.
- Organise a project inception workshop with participants from all project relevant sectors to resent the objectives of the project.
- Supervise the Assistant Project Officer, and Administrative/Finance Assistant, Secretary and all other project staff.
- Prepare detailed annual works plans for submission to PSC.
- To chair the working groups and ensure that activities are done smoothly and effectively.
- To co-ordinate with the various experts groups and ensure that the activities are appropriately managed.
- To organize and manage the implementation of seminars, workshops and study tours nationally, regionally and internationally.
- To be responsible for the recruitment of consultants and procurement of project equipment.
- To approve the allocation of funds for consultant, travel and workshops under the guidance of the PSC and in accordance with UNDP procedures.
- To communicate with other institutions in the African region and out the region working on climate change issues.
- To submit project performance evaluation reports, technical reports and other reports in accordance with UNDP procedures.
- To undertake any related activities that will facilitate the satisfactory implementation of the project

### ***Project Consultants***

The responsibilities of the Project Consultants will include the following:-

- To provide technical advice to the Project Coordinator and the entire project.
- To work with the Project Coordinator to organize and manage the implementation of seminars, workshops and study tours nationally and internationally if required by the PSC.
- To work with the Project Coordinator in the allocation of funds for consultants, travel and workshops under the guidance of the PSC and in accordance with UNDP procedures if required to.
- To provide technical resource to the expert groups and act as resource person for the various seminars, workshops of the project.

## **Generic terms of reference for scoping and implementing the V&A component of the National Communication**

These generic terms of reference for the preparation of the V&A studies identify the basic set of activities that the V&A expert/consultant will be responsible for under the supervision of the National Communication's Coordinator. It is important to note that these generic terms of reference do not intend to limit the work of the expert but to guide countries on the general profile of the V&A expert and on the activities generally expected to be carried out.

### **Profile of the V&A expert/consultant**

The V&A expert should be very knowledgeable and with hands-on experiences on V&A issues, have a solid understanding of the gaps and needs for developing/improving vulnerability assessments, and have technical expertise in the formulation of adaptation options. The V&A expert should be able to scope technical studies in the V&A area and design an implementation strategy to carry out the different V&A activities within the framework of the NC. He/She should also have a solid understanding of the institutional arrangements and resources required to carry out the V&A work.

Although the NC project document already provides the framework for the V&A studies, the expert should be able to advise on any adjustments if needed, both at the organizational and technical levels, for a successful implementation of the V&A studies.

### **Activities**

In general, the V&A expert/consultant should be responsible for ensuring that the following set of activities is carried out. Emphasis on different activities will depend on the scope of the work already described in the NC project document and/or on the specific activities the V&A expert would be assigned to.

### **Policy and institutional issues**

1. Identify the key policy issues the V&A study of the SNC project aims to address, e.g.,
  - a. to scope the scale of risks associated with projected climate change;
  - b. to aid in the identification of priorities for adaptation;
  - c. to support the development of a national adaptation strategy.
2. Identify the expected output of the V&A study of the SNC project on the basis of the project document, e.g.,
  - a. impacts assessment at the sectoral level for the given priorities identified in the project document;
  - b. a national adaptation strategy, including policies, programs and projects.
3. Develop a clear strategy to link the V&A outputs to national development planning. This would include, among others:
  - a. assessment of institutional arrangements/stakeholders engagement required to facilitate linking the outcome of the V&A studies to sectoral or national planning;
  - b. framework for assessing how the above linkage can be monitored and measured in the short and long terms, for instance through the development of practical indicators.

## **Technical issues**

### ***Scope of the V&A study***

4. Elaborate on the scope (geographic, thematic, sectoral coverage, time horizon) of the V&A study, e.g.,
  - a. designing a strategy to build on but advance what was done within INC, and while applicable, NAPA project;
  - b. elaborating on the scope of studies to address sectors/regions not covered by INC, sectors/regions identified as sensitive/vulnerable to climate change, as per the NC project proposal;
  - c. preparing a detailed workplan for each of the study to be carried out, including a strategy to involve the relevant stakeholders, timeline, etc.;
  - d. designing a strategy, as applicable, to link the V&A studies with previous and ongoing related projects/activities (e.g., land degradation, biodiversity, international waters.)

### ***Methodological framework***

5. Elaborate on the overall methodological framework for the V&A study as per the project document and in consultation with the project coordinator. In doing so, the V&A expert should ensure that:
  - a. The proposed methodological framework is the most appropriate given the policy questions to be addressed, the characteristics of the study (e.g., sectoral focus, spatial and temporal scales, stakeholders involved, and data requirement, etc.), and data availability;
  - b. In-country expertise required for such a methodological framework is available. If needed, the V&A expert should develop a strategy to address technical capacity gaps. For instance, by exploring the possibility of applying another framework in which more in-country expertise exists, or by designing a training/technical backstopping strategy, etc.

### ***Scenarios development***

6. Identify the types of scenarios required to conduct the V&A assessment, e.g., climate, socio-economic, sea level, adaptive capacity, technology, land-use land-cover.
7. Identify the temporal and spatial resolution needed for these scenarios (e.g., national, sub-national, watershed, community, farm level, multi-decadal average, annual, monthly, daily, mean conditions, extreme events, etc.). In doing so, the expert should justify the choices.
8. Develop the strategies for developing such scenarios, e.g., model-based, expert judgment, etc.

In the preparation of the scenarios development strategy, the expert should assess the feasibility of the scenario needs and the methods for developing these scenarios, given the characteristics of the studies, and data availability. For instance, the expert would be expected to advice on alternative options to running regional climate models or other resource intensive and time consuming exercises. The V&A expert would also assess whether there is enough in-country expertise to develop such scenarios and/or identify options to address the needs for additional expertise.

***Sectoral assessment (to be considered by each of the sectors to be covered in the V&A study)***

9. Elaborate on the methods and tools, as per the project document, chosen to undertake sectoral assessments, e.g., numerical models, elicitation of expert views, stakeholder consultations, focus groups, etc. In doing so, the expert will advise on any adjustments needed to the options identified in the project document.
10. Provide justifications for the selection of the methods/tools considering the research questions, characteristics of the study, and requirements of data and technical expertise of these methods/tools.
11. Assess in-country expertise required to apply the selected methods/tools and prepare training/technical backstopping strategy as required.
12. Develop a strategy to integrate findings from sectoral assessment, as needed. For instance, by applying an integrated model, synthesizing sectoral information, etc.

**Technical assistance needs**

13. Develop a technical backstopping/training strategy to strengthen the national capacity needed to carry out the different V&A studies, This would include details on the type of support needed (training courses on particular methodological frameworks/tools, guidance material, technical documents and good practice) and the, timeline for such support.

## SIGNATURE PAGE

Country: Sierra Leone

UNDAF Outcome(s)/Indicator(s):

By 2010, Governance and Human Rights practices have been advanced at all levels and enforcement arrangements are in place

*(Link to UNDAF outcome, if no UNDAF, leave blank)*

Expected Outcome(s)/Indicator (s):

Strengthened national capacities to achieve sustainable development through environmental management & adaptation to climate change

*(CP outcomes linked t the SRF/MYFF goal and service line)*

Expected Output(s)/Indicator(s):

Functional institutional framework established and functional; updated and disseminated database; strategies for mitigation and adaptation adopted and in use

*(CP outcomes linked t the SRF/MYFF goal and service line)*

Implementing partner:

Ministry of Transport & Aviation (Meteorological Department)

*(Designated institution/Executing agency)*

Other Partners:

Ministry of Lands and the Environment; Office of National Security

*(Formerly implementing agencies)*

Programme Period: 2008 - 2010  
Programme Component: Community Recovery & Preventive Development  
Project Title: Enabling Activities for the preparation of Sierra Leone's Second National Communication to the UNFCCC  
Project ID: PIMS 3941/Atlas00055915  
Project Duration: 3 years  
Management Arrangement: NEX

Budget	\$405,000
Allocated resources:	
• Government	
• Regular (GEF)	\$ 405,000
• Other:	
In kind contributions	
• Government	\$ 30,000

**Agreed by (Government): Ministry of Finance and Economic Development (Development Division)**

**Agreed by (Implementing partner/Executing agency): Ministry of Transport and Aviation**

**Agreed by (UNDP: Country Director**