



Guyana's

National Action Plan (NAP) to Combat Land Degradation

Aligned to the UNCCD's 10-year (2008-2018) Strategy



December 2015

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The Aligned National Action Plan to Combat Land Degradation (NAP) is based on the results, analysis and recommendations of Studies undertaken in 2014 & 2015 under the Project. Both national and international consultants were contracted to undertake the following studies:

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- Ministry of Communities
- Ministry of Agriculture
- Ministry of Education
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- Ministry of the Presidency
- Ministry of Communities
- Guyana Geology and Mines Commission
- Guyana Forestry Commission
- Guyana Livestock Development Board
- Guyana Office of Investment
- Guyana Rice Development Board
- Guyana Water Inc.
- Guyana Sugar Corporation
- Guyana Marketing Corporation
- Ministry of Natural Resources
- Bureau of Statistics
- Protected Areas Commission
- Hydrometeorological Services of the Ministry of Agriculture
- National Drainage and Irrigation Authority
- Central Housing and Planning Authority
- Civil Defence Commission
- Office of Climate Change
- Land Reclamation Committee
- Environmental Protection Agency
- National Agriculture Research and Extension Institute
- Mangrove Restoration Project
- Protected Areas Commission
- Inter American Institute for Cooperation in Agriculture
- Food and Agriculture Organization of the United Nations
- Delegation of European Union

- World Wildlife Fund
- World Bank
- Inter-American Development Bank
- Conservation International
- Iwokrama International Centre for Rainforest Conservation and Development
- United Nations Development Programme, Guyana
- School of Earth and Environmental Sciences

Foreword

The major challenge for Guyana is to get the balance right between - on the one hand, the urgent need for equitable development and improved welfare (including food security and poverty alleviation) and, - on the other hand, the long-term sustainable management of the land and the vast resources, and of course, efforts to adapt to and mitigate impacts of climate change. This will depend on sufficient revenues to fund these investments. Necessarily, this will have to be funded through production, trade and income from the vast potential of our forests and mining areas as well as marine resources.

Guyana is in global demand!

First, the global demands for resources are ever increasing and will only accelerate over the years to come. Guyana needs to be prepared. Second, the natural forests of Guyana play a very important role for the future of the global climate.

It is therefore only reasonable that the global international community - with their vested interest in sustainably managing and conserving our forests – should contribute and invest substantially thereto.

If the full potential shall be harnessed to the benefit of all and without destroying opportunities for the generations to come, a coordinated and balanced approach is needed.

Since Guyana became a signatory to the United Nations Convention to Combat Desertification, the Government of Guyana has made strong progress towards living up to its commitments to the Convention. This Aligned National Action Plan is the manifestation of these continued efforts, not only as a commitment to the UNCCD, but moreover as a commitment to the citizens of Guyana to ensure that its resources will be managed sustainably for the benefit of generations to come.

Common for all natural resources sectors – a very significant improvement in infrastructure is necessary to be able to access and harness all these benefits.

The substantial infrastructure development should, , be designed wisely to avoid the possible negative consequences such as fragmentation and opening up of hitherto protected and remote areas of unique forests and biodiversity.

The Aligned NAP aims to ensure that the agricultural, pasture, mining, forest, coastal and other land uses and resources are managed as sustainable, productive systems that maintain ecosystem productivity and ecological functions while contributing directly to the environmental protection, economic growth and social livelihood of the people of the country.

This Aligned NAP outlines the approach and roadmap towards continuing to enhance the way of managing land and resources in Guyana. The Aligned NAP consists of and is governed by a set of overarching principles: Achievement of Sustainable Development; Land management governance and policy; Education, training and awareness; Knowledge information and research; Evaluation and monitoring and; Partnership and financing.

The Aligned NAP focuses on the primary sectors on which Guyana has depended and will depend upon in the future. The potential of several of these sectors is very big and hitherto largely untapped and will likely undergo rapid development. This Aligned NAP emphasizes equitable access to resources.

This Aligned National Action Plan 2015-2025 for Guyana for the United Nations Convention to Combat Desertification builds on the previous National Action Plan from 2006, and is updated to be aligned with the UNCCD Strategic Plan 2008-2018. This Aligned NAP is aligned with relevant country strategic development and policy plans.

Foreword by the Resident Representative, United Nations Development Programme (UNDP), Guyana Country Office

As described in the Outcome Document of the United Nations Conference on Sustainable Development ('Rio+20'), '...poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development. In the UNDP Strategic Plan 2014-2017, the Area of Work 1: Sustainable Development Pathways, recognises the importance of sustainable land management and restoration of degraded land as a scalable initiative on sustainable productive capacity.

In May 2014, UNDP commenced the project titled "Support the Alignment of Guyana's National Action Plan to the UNCCD's 10-year (2008-2018) Strategic Plan" in collaboration with the Guyana Lands and Surveys Commission (Implementing Partner) and the Global Environment Facility (Trust Fund resources). Through the project, UNDP delivered support to the preparation of the Aligned National Action Plan to Combat Land Degradation (Aligned NAP), which was completed in December 2015.

The Aligned NAP integrates Guyana's obligations under the UNCCD into its national development and sectoral planning frameworks through a renewed and participative process, and in a manner that is in line with the global guidance contained in the UNCCD's Strategic Plan for 2008-2018. The result has positioned Guyana to comply with its international obligations, and also to provide a framework for national response to the economic and social effects of land degradation on land use, livelihood and human development.

The Aligned NAP contributes to the UNDP Country Programme Outcome: Improved functional capacity of key natural resources and disaster risk management institutions, and is aligned to the UN's Sustainable Development Goals 15 – *Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss* – and 16 – *Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels*.

UNDP is therefore pleased to have been part of the development of Guyana's Aligned NAP to Combat Land Degradation and offers congratulations to the Government of Guyana, in general, and the GL&SC, in particular, for the successful completion of the project.

UNDP looks forward to Guyana implementing the specific objectives under the UNCCD Plan for 2008-2018 and adoption of the Performance Review and Assessment of the Implementation Strategy (PRAIS) Reporting Cycle for submission to the UNCCD.

Khadija Musa

UNDP Resident Representative
22 February 2015

Acronyms

ACCC	Adaptation to Climate Change in the Caribbean
ACP	Affected Country Parties
ADP	Agricultural Diversification Programme
CAP	Conservancy Adaptation Project
CARICOM	Caribbean Community and Common Market
CBD	Convention on Biological Diversity
CBO	Community-Based Organization
CCC	Crisis Coordination Committee
CDC	Civil Defence Commission
CDEMA	Caribbean Disaster Emergency Management Agency (ex CDERA)
CDP	Community Development Project
CI	Conservation International
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute for Meteorology and Hydrology
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRG	Cooperative Republic of Guyana
CMO	Caribbean Meteorological Organization
CNIRD	Caribbean Network for Integrated Rural Development
COP	Conference of Parties
CPACC	Caribbean Planning for Adaptation to Climate Change
CRG	Cooperative Republic of Guyana
CRSAP	Climate Resilience Strategy and Action Plan
DCP	Developed Country Parties
DEWS	Drought Early Warning System
DLDD	Desertification, Land Degradation and Drought
DLUPP	Development of Land Use Planning Project
DMP	Drought Mitigation Plan
DNRE	Department of Natural Resources and the Environment
DRR	Disaster Risk Management
EA	Enabling Activity
EC	European Commission
ECLAC	Economic Commission for Latin America and the Caribbean
EDF	European Development Fund
EDWC	East Demurer Water Conservancy
EIA	Environmental Impact Assessment
EITI	Extractive Industry Transparency Initiative
ENSO	El Niño Southern Oscillation
EPA	Environmental Protection Agency

ESIA	Environmental and Social Impact Assessment
EU	European Union
EU-FLEGT	Extractive Industry Transparency Initiative and the European Union Forest Law Enforcement, Governance and Trade
EWC III	Third International Conference on Early Warning
EWS	Early Warning System
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FEWS NET	Food Early Warning System Network
FTCI	Forestry Training Centre Incorporated
GCI	Guyana Citizens Initiative
GCM	Global Circulation Models
GDF	Guyana Defence Force
GDP	Gross Domestic Product
GEF	Global Environment Fund
GFC	Guyana Forestry Commission
GFS	Global Forecast System
GGAC	Guyana Geospatial Advisory Council
GGMC	Guyana Geology & Mines Commission
GINA	Government Information Agency
GINRIS	Guyana Integrated Natural Resources Information System
GIS	Geographical Information System
GLADIS	Global Land Degradation Information System
GLDA	Guyana Livestock Development Authority
GL&SC	Guyana Lands & Surveys Commission
GM	Global Mechanism
GMTCS	Guyana Marine Turtle Conservation Society
GoG	Government of Guyana
GPF	Guyana Police Force
GRDB	Guyana Rice Development Board
GRIF	Guyana REDD+ Investment Fund
GS&RD	Guyana Sea and River Defence Department
GS&WC	Georgetown Sewerage and Water Commission
GTA	Guyana Tourism Authority
GUYSUCO	Guyana Sugar Corporation
GWYA	Guyana Water Authority
GWI	Guyana Water Inc.
HACCP	Hazard Analysis and Critical Control Point
Hydromel	Hydrometeorological Department
IADB	Inter-American Development Bank

ICZM	Integrated Coastal Zone Management
IFAD	International Fund for Agricultural Development
IFRC	International Federation of Red Cross and Red Crescent Societies
IFS	Integrated Finance Strategy
IIC	Iwokrama International Centre
IICA	Inter-American Institute for Cooperation on Agriculture
IIF	Integrated Investment Framework
Indict	Intended Nationally Determined Contribution
INPE	National Institute for Space Research (Brazil)
IPNM	Integrated Plant Nutrient Management
IRI	International Research Institute for Climate and Society, University of Columbia
ISDR	International Strategy for Disaster Reduction
ISM	Integrated Soil Management
ITU	International Telecommunication Union
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
JRC	Joint Research Centre of the European Commission
Kiwi	
LACS	Local Aid Coordination Secretariat
LADA	Land Degradation Assessment in Dry lands
LCDS	Low Carbon Development Strategy
LDN	Land Degradation Neutrality
LRC	Land Reclamation Committee
MA	Millennium Assessment
MACC	Mainstreaming Adaptation for Climate Change
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MEA	Multilateral Environmental Agreements
MIA	Mercury Initial Assessment
MMA-ADA	Mahaica, Mahaicony, Abary Agricultural Development Authority
MNRE	Ministry of Natural Resources and the Environment
MoU	Memorandum of Understanding
MRVS	Monitoring, Reporting and Verification System
MSSC	Multi-Stakeholder Steering Committee
NAP	National Action Plan/ Programme to Combat Land Degradation
NAREI	National Agricultural Research and Extension Institute
NBAP	National Biodiversity Action Plan
NBSAP	National Biodiversity Strategic Action Plan
NCSA	National Capacity Self-Assessment
NDIA	National Drainage and Irrigation Authority

NDC	National Democratic Council
NDS	National Development Strategy
NEAP	National Environmental Action Plan
NEPAD	New Partnership for Africa's Development
NFP	National Focal Point
NFP	National Forest Plan
NGO	Non-Governmental Organization
NIDRMP	National Integrated Disaster Risk Management Plan
NLUP	National Land Use Plan
NMHS	National Meteorological and Hydrological Service
NMMAP	National Mangrove Management Action Plan
NOAA	National Oceanic and Atmospheric Administration
NRDDB	North Rupununi District Development Board
NPAS	National Protected Areas System
NRMP	Natural Resources Management Project
NSC	National Steering Committee
NTFPs	Non-Timber Forest Products
NWIS	National Water Information System
NWP	Numerical Weather Prediction
OAS	Organization of American States
OCC	Office of Climate Change
ODA	Overseas Development Assistance
PAC	Protected Areas Commission
PDA	Public Development Aid
PMP	Pest Management Practices
PPEW	Platform for Promotion of Early Warning - United Nations
PRAIS	Performance Review on Assessment of Implementation Strategy
PRSP	Poverty Reduction Strategy Paper
REDD+	Reduced Emissions from Deforestation and Degradation
RGDP	REDD+ Governance Development Plan
SD	Sustainable Development
SDGs	Sustainable Development Goals
SDMIS	Sea Defence Management Information System
SEEC	Strategic Emergency Engineering Committee
SFM	Sustainable Forest Management
SIDS	Small-Island Developing States
SLM	Sustainable Land Management
SME	Small and Micro Enterprise
SO	Strategic Objective
SRDD	Sea and River Defence Department

TFIR	Task Force for Infrastructure Recovery
ToR	Terms of Reference
TSG	Technical Support Group
UN	United Nations
UN/ISDR	United Nations International Strategy for Disaster Reduction
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UNITAR	United Nations Institute for Training and Research
VPA	Voluntary Partnership Agreement
WOCAT	World Overview of Conservation Approaches and Technologies
WSSD	World Summit on Sustainable Development
WWF	World Wildlife Fund
WUA	Water Users' Association
WMO	World Meteorological Organization

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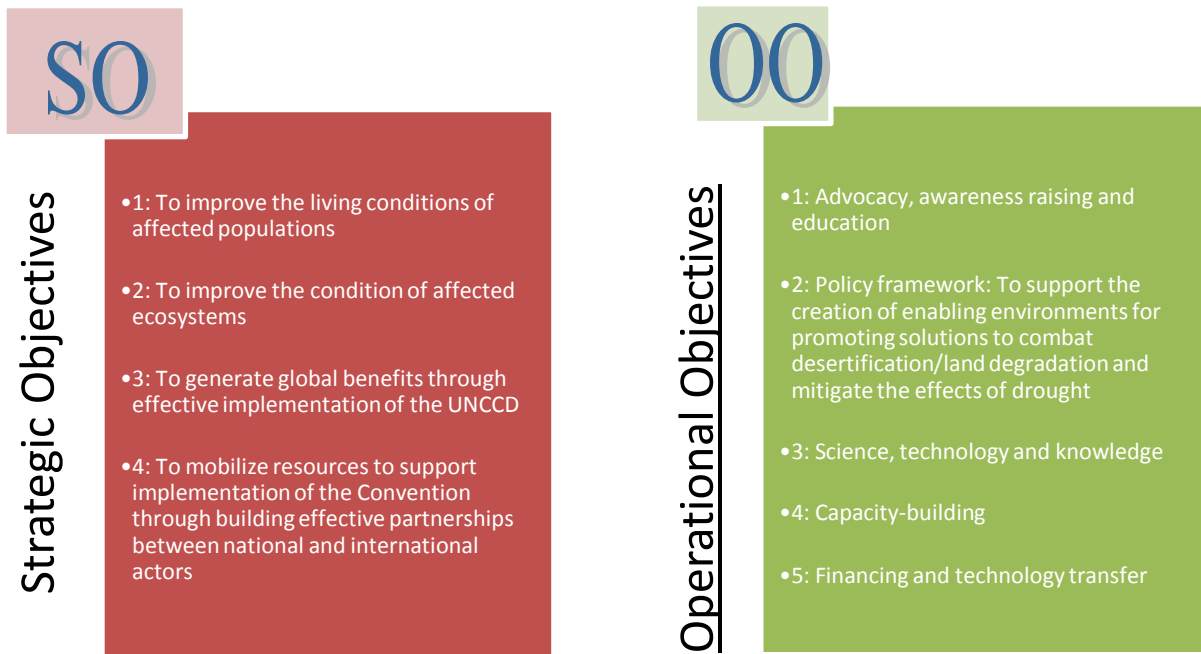
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Executive Summary of the Aligned National Action Programme 2015-2025 for Guyana

The Guyana Lands and Surveys Commission (GL&SC) is Guyana’s National Focal Point Agency to the United Nations Convention to Combat Desertification (UNCCD). Guyana has been actively pursuing efforts aimed at combating the negative economic, social and environmental impacts of land degradation and desertification on the well-being of its people. To this end, overwhelming support towards the implementation of a Project titled ‘Support the Alignment of Guyana’s National Action Plan to the UNCCD 10 Year (2008-2018) Strategic Plan’ was achieved and conducted through a collaborative, cross cutting and inclusionary process. This approach involved inputs from key stakeholders in the natural resources, environmental, agricultural sectors, civil society and other governmental agencies.

The Aligned National Action Plan provides the fundamental principles for guidance and fulfillment of the country’s obligation to align its National Action Plan (NAP) to the UNCCD 10- Year Strategy(2008-2018). The Aligned NAP provides consideration for the need for urgent efforts to integrate and strengthen existing National Policies, Strategies, Action Plans and the planning framework for conservation, promotion of sustainable land management and combating the exacerbated effects of degradation. Thus, the Aligned National Action Plan builds on the Guyana’s previous NAP of 2006. It seeks to mainstream and presents the country’s past and current efforts made towards aligning the National Action Plan and thereafter, implementation and reporting to the UNCCD.

The UNCCD Strategy, aims to guide the actions of all UNCCD stakeholders and partners for the period 2008–2018, through the following strategic and operational objectives:-



As such, both the strategic and operational objectives form the priority baseline for the development of Guyana's undertaking to develop its Aligned NAP. Ultimately, in line with the country's stand on acceding to the ratification of the UNCCD in September 1997, Guyana joined the international community in the recognition that desertification is a major economic, social and environmental problem of concern.

The UNCCD Indicators aim at providing the basis for the Monitoring and Evaluation approach to assess implementation. These Indicators which were agreed to by Member Countries and Guyana at the twelfth Conference of the Parties (COP12) are said to guide and achieve the synergy required by the three Rio Conventions – Desertification, Climate Change and Biodiversity. The Indicators are also utilized to synergize measures to make land resilient to climate change and to halt the biodiversity loss that follows the destruction of ecosystems through land degradation and desertification. To capture the essence of the aligned NAP and its subsequent implementation, the Performance Review on Assessment of Implementation Strategy (PRAIS) has been developed by the UNCCD for monitoring and reporting purposes. Guyana's efforts included the development of an online database system to synchronize and capture data and provide the results to the UNCCD in the PRAIS structured format. This database can be accessed at gyprais.gov.gy.

Based on the assessment done in 2008, although land degradation in Guyana has not reached critical point, there are indications that it is occurring at an increasing rate which corresponds to an increase in the exploitation of natural resource, increased national agricultural drive and increased frequency and intensity of climatic conditions. Guyana's vulnerability from degradation will continue to increase exponentially due to sea level rise, saline intrusion and coastal erosion as a result of its low coastline. The coast comprises 90% of the country's population concentration, major economic hub, most fertile land and extensive social services (NLUP, 2013). Therefore, Guyana's ability to implement effective measures to combat desertification will be significantly bolstered with the successive implementation of the Aligned NAP. Effective implementation of the NAP will be supported by the introduction of a number of projects which are earmarked. However, to bridge the gaps identified and enable the country to achieve the UNCCD's objective, hinges on its ability to access the resources and technical and scientific requirements.

In order to combat land degradation and desertification, the Aligned NAP identifies comprehensive and robust activities to be implemented over time. The Aligned NAP proposes the following activities to address key land degradation issues facing Guyana:

- Produce sound scientific evidence and to determine the relative roles of drivers of Desertification, Land Degradation and Drought (DLDD)
- Conduct a national scientific study on land degradation
- Improvement of the institutional capacity and the collaboration between governmental agencies
- Conduct training in:
 - Remote sensing
 - Geographic Information System (GIS)
 - Multi Criteria Decision Analysis
 - Information management systems/information technology
- Mainstream Desertification, Land Degradation and Drought (DLDD) into relevant national policies, strategies and plans
- Efficiency of knowledge sharing systems, information flow, consistency of the body of national policies
- Finalization of the National Land Policy or Sustainable Land Management (SLM) Policy
- Strengthening the links between the UNCCD and the poverty and livelihoods elements of the sustainable development agenda, including Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) Trans-program integration
- Mainstreaming of Sustainable Land Management (SLM) within educational establishments
- Enhancement of the knowledge and capacity of miners/land users to perform ecologically appropriate land restoration
- Enhance the capacity to cascade regional (international) forecasts of Drought Early Warning Systems (DEWS) to the national context and the analytical capacity of staff working on DEWS
- Conduct awareness of, and training in, specialized areas such as the process of dealing with drought in order to develop appropriate actions in case of unforeseen occurrence
- Enhance the capacity to establish and manage/maintain systematic central databases with quality checks

1. INTRODUCTION

The Aligned National Action Plan (NAP) to Combat Land Degradation was prepared in fulfillment of Guyana's obligation to the United Nations Convention to Combat Desertification and its 2008-2018 Strategy.

This introductory chapter provides an overview of the background and outlines the main goal and objectives for the Aligned NAP. It describes the Aligned NAP both within the global context of Desertification, Land Degradation and Drought (DLDD), and the United Nations Convention to Combat Desertification (UNCCD). It also describes the background to the alignment process, which all signatory countries to the UNCCD have been requested and encouraged to undertake. In addition, it provides an overview of Guyana's commitment to the UNCCD.

1.1 Global Context – Desertification and Land Degradation

The UNCCD statistics (2015) indicate the following:

- Drylands constitute approximately 41 per cent of the Earth's surface and support more than 2 billion people. Between 10 and 20 per cent of drylands are degraded or unproductive. Land degradation affects one third of the planet's land surface and threatens the health and livelihoods of more than one billion people in over one hundred countries.
- Desertification is one of the world's most alarming processes of environmental degradation. Each year, desertification and drought cause an estimated \$42 billion in lost agricultural production. The risks of desertification are substantial and clear. It contributes to food insecurity, famine and poverty, and can give rise to social, economic and political tensions that can cause conflicts, further poverty and land degradation.
- Desertification and land degradation are critical concerns to most countries of the world. Desertification by definition is the degradation of land in arid, semi-arid and dry sub-humid areas and is caused primarily by human activities and climatic variations.
- Desertification does not refer to the expansion of existing deserts. It occurs because dryland ecosystems, which cover over one third of the world's land area, are extremely vulnerable to over-exploitation and inappropriate land use. Poverty, political instability, deforestation, overgrazing and bad irrigation practices can all undermine the productivity of land.
- Land degradation occurs on all continents except Antarctica and affects the livelihoods of millions of people, including a large proportion of the poor in drylands. Some 10-20% of drylands are already degraded.
- Over 250 million people are directly affected by desertification, and about one billion people in over one hundred countries are at risk. These people include many of the world's poorest, most marginalized and politically weak citizens. Persistent, substantial reduction in the provision of ecosystem services as a result of water scarcity, intensive

use of services, and climate change is a much greater threat in drylands than in non-drylands systems.

- Land degradation is a result of a long-term failure to balance demand for and supply of ecosystem services in drylands. The magnitude and impacts of land degradation vary greatly from place to place and change over time. Land degradation has strong adverse impacts on non-drylands as well; affected areas may sometimes be located thousands of kilometres away from the desertified areas. Scenarios for future development show that the desertified area is likely to increase and the relief of pressures on drylands is strongly correlated with poverty reduction. Desertification can be avoided by reducing the stress on dryland ecosystems.
- The global scenarios also show that coping with desertification and its related economic conditions will likely fare better when proactive management approaches are used. On the whole, combating desertification yields multiple local and global benefits and helps mitigate biodiversity loss and human-induced global climate change.

The UNCCD Secretariat aims to resolve the above issues by working with member countries to addressing them.

1.2 United Nations Convention to Combat Desertification

In recognition of the major economic, social and environmental problem posed by desertification to many countries in all regions of the world, the United Nations Conference on Desertification adopted a Plan of Action to Combat Desertification in 1977.

Despite this Plan of Action and other efforts, the United Nations Environment Programme (UNEP) concluded in 1991 that the problem of land degradation in arid, semi-arid and dry sub-humid areas had intensified, although there were "local examples of success".

As a result, the question to combat and reduce desertification was still a major concern for the United Nations Conference on Environment and Development, which was held in Rio de Janeiro in 1992. The Conference supported a new, integrated approach to the problem, emphasizing action to promote sustainable development at the community level through widespread capacity building and development. It also called on the United Nations General Assembly to establish an Intergovernmental Negotiating Committee to prepare, by June 1994, a Convention to Combat Desertification. The United Nations Convention to Combat Desertification (UNCCD) was adopted in Paris on June 17, 1994 and entered into force on December 26, 1996.

Since the adoption of the Convention, some 195 countries have undergone ratification with the importance of capacity building for its effective and efficient implementation being recognized. This recognition has grown stronger and has been reiterated with every passing Conference of the Parties (COP). (<http://www.unccd.int/en/programmes/Capacity-building/CBW/Features/Pages/Capacity-Building-in-the-Action-Programmes.aspx>)

The UNCCD is the only internationally recognized legally binding instrument that addresses the problem of land degradation in dry land rural areas. The UNCCD places human beings at the centre of its concern to combat desertification and mitigate the effects of drought. It recognizes that Governments play a critical role in combating desertification and mitigating the effects of drought and that progress depends on local implementation of programmes in affected areas. Since 1995, June 17 has been observed as World Day to Combat Desertification and Drought and Guyana has been no different in planning commemorative activities.

1.3 Guyana's obligations under the United Nations Convention to Combat Desertification

Guyana ratified the United Nations Convention to Combat Desertification (UNCCD) on June 26, 1997 and effectively joined the international community in the recognition that desertification is a major economic, social and environmental problem of concern on September 24, 1997.

The fundamental obligations to the Convention are: (1) The preparation of an Aligned National Action Plan to serve as the guiding framework for implementing actions to combat desertification/land degradation and promote sustainable land management and (2) To undertake UNCCD reporting.

Guyana's original NAP was prepared in 2006, and takes into consideration the need for integration into and strengthening of the existing national policy and planning framework for sustainable development, as well as the role of non-governmental organisations, the private sector, local communities and civil society at large in its implementation.

Under the UNCCD, the Government of Guyana is committed to the following:

- Give due priority to combating desertification and mitigating the effects of drought, and allocating adequate resources in accordance with circumstances and capabilities;
- Establishing strategies and priorities, within the framework of sustainable development plans and/or policies, to combat desertification and mitigate the effects of drought;
- Addressing the underlying causes of desertification and paying special attention to the socio-economic factors contributing to desertification processes;
- Promoting awareness and facilitating the participation of local populations, particularly women and youth, with the support of nongovernmental organizations, in efforts to combat desertification and mitigate the effects of drought;
- Providing an enabling environment by strengthening, as appropriate, relevant existing legislation and where they do not exist, enacting new laws and establishing long-term policies and action programmes.

Since signing on to UNCCD, Guyana has prepared six (6) national UNCCD reports - in 2000, 2002, 2006, 2009, 2010, and 2012 respectively. These reports contain greater detail on the situation analysis and the current situation regarding land degradation (<http://www.unccd->

prais.com/Data/Reports, <http://prais2.unccd-prais.com/node/508>). This Aligned NAP does not repeat the details of these reports but rather, builds upon them.

The National Assessment of Land Degradation Report (2008) concluded that the state of land degradation in Guyana is minimal compared to other countries, with pockets of degraded areas around the country and closely associated with certain land use types.

The case of Guyana highlights four major issues related to land degradation that must be addressed through the implementation of the Aligned NAP: incidents of floods; droughts; salt water intrusion in particular along Guyana's developed but vulnerable coast; improper natural resource utilization in the mining, forestry and agriculture sectors and; settlement expansion and growth in rural and urban areas.

The NAP for Guyana from 2006 proposed the following actions to address these issues:

- rationalizing the planning and management of land resources
- rationalizing legislative overlaps
- promoting effective coordination and information exchange
- establishing institutional synergies
- securing financial resources and establishing financial mechanisms
- promoting public education and awareness
- undertaking training and capacity building
- addressing issues of food security, management of agriculture and sustainable development
- sustainably managing drainage basins and watersheds
- developing early warning systems and emergency plans to mitigate drought
- utilizing traditional knowledge and
- Promoting regional aspects of preventing land degradation.

1.4 The overarching goal and objectives of the Aligned NAP for Guyana 2015-2025

1.4.1 Goal of the Aligned NAP

The Aligned National Action Programme will facilitate the strengthening and mainstreaming of land degradation issues into national policy and planning, as well as be useful in accessing funds/budgets for priority actions and projects identified within the Aligned NAP.

1.4.2 Objectives of the Aligned NAP

- To align the 2006 NAP with the UNCCD's 2008-2018 Strategy.
- To develop a strategic medium and long term national approach and plan for reduction and mitigating land degradation impacts and promote sustainable land management

1.5 UNCCD Strategy 2008-2018

The UNCCD 10-Year Strategy (2008-2018) was adopted in 2007 at the Conference of Parties Eight (COP 8) with the overall aim of improving the implementation of the Convention. The vision of the Strategy is *“to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability.”*

The Strategy provides a unique opportunity to address some of the Convention's key challenges, to capitalize on its strengths and to create a new, revitalized common ground for all UNCCD stakeholders.

Countries, and in particular Developed Country Parties (DCP) and Affected Country Parties (ACP) who have adopted the Strategy, have committed to operationalizing the Strategy in accordance with their national priorities: to align their National Action Programmes with the Strategy and; to report on progress made in keeping with UNCCD guidelines.

The objectives of the Strategy are two-fold comprising Strategic Objectives and Operational Objectives. The “strategic objectives” are to be achieved over the 10 year period, and the “operational objectives” are to guide the actions of short and medium-term effects of land degradation. Meeting these objectives will contribute to achieving the vision for the future of forging a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability.

1.5.1 Strategic Objectives and the Operational Objectives

The UNCCD 2008-2018 Strategy was designed to achieve several specific objectives, both in the long term and in the short/medium term. There are four (4) Strategic Objectives that will have long-term effects (in ten years or more) which will be evaluated through specific indicators, while 5 Operational Objectives have been defined with short and medium term effects (in three to five years or more).

Strategic Objectives

The Strategic objectives are:

- Strategic Objective 1: To improve the living conditions of affected populations.

- Strategic Objective 2: To improve the condition of affected ecosystems.
- Strategic Objective 3: To generate global benefits through effective implementation of the UNCCD.
- Strategic Objective 4: To mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors.

Operational Objectives

The Operational objectives are:

- Operational Objective 1: Advocacy, awareness raising and education.
- Operational Objective 2: Policy framework.
- Operational Objective 3: Science, technology and knowledge.
- Operational Objective 4: Capacity-building.
- Operational Objective 5: Financing and technology transfer.

The Indicators used to monitor the implementation of the UNCCD Strategic Objectives were also agreed to by Member Countries, including Guyana. The Indicators are also utilized to synergize measures to make the land resilient to climate change and to halt the biodiversity loss that follows the destruction of ecosystems.

- The UNCCD Indicators provide the basis for the Monitoring and Evaluation approach to assess implementation and are intended to guide and achieve the synergy required by the three Rio Conventions – Desertification, Climate Change and Biodiversity.
- The Parties' meeting held in Ankara, 2015 agreed on the scientific definition of what it means to become Land Degradation Neutral and set targets that are on par with the Climate Change and Biodiversity Conventions.
- In addition, COP12 agreed on the set of land-based indicators that will be used to measure progress, which they are also recommending for adoption as the primary measures of Land Degradation Neutrality globally.

Guyana through the Guyana Lands and Surveys Commission has undertaken a Project (Implemented by the United Nations Development Programme & funded by the Global Environment Facility) to align the National Action Plan (NAP) to Combat Land Degradation to the UNCCD 10 Year Strategy. The outcomes of the Project were to undertake NAP Alignment and UNCCD Reporting using the Indicators agreed to by COP12.

1.5.2 Relationship to other Rio Conventions and Land Degradation Neutrality

In 1992, in Rio de Janeiro, the Earth Summit was held. Resulting from this gathering of one hundred and eight (108) Heads of States was the launching of three conventions namely:

- UN Convention to Combat Desertification
- UN Framework Convention on Climate Change (UNFCCC)
- UN Convention on Biological Diversity (UNCBD)

UN Convention to Combat Desertification

- Guyana has made significant progress towards its commitment to the UNCCD since its ratification on June 26, 1997 and which became effective on September 24, 1997.
- The National Focal Point (NFP) Agency is the Guyana Lands and Surveys Commission.
- The role of the NFP is to prepare national reports on the implementation of the UNCCD, and to promote Sustainable Land Management (SLM), reduce and combat land degradation, and support landscape restoration.
- Guyana has taken the initiative to prepare all required UNCCD National Reports, and implement Projects which support local actions to reduce land degradation and promote SLM e.g. Capacity Development and Mainstreaming for Sustainable Land Management and the Alignment of the National Action Plan Project. Both these Projects were implemented by the GL&SC and UNDP with funding from the GEF. Other complementary projects exist in Guyana such as the Land Reclamation Project.
- The Alignment of the National Action Plan Project has been ongoing during 2014-2015 and seeks to prepare an Aligned National Action Plan (NAP) to Combat Land Degradation. The NAP provides a framework to enable Guyana to meet its obligations to fulfill the work of the UNCCD Strategy (2008-2018). The framework provides key priority actions to address the need for policy/institution strengthening, training/education and awareness, financing and technology, synergies with the other Rio Conventions, and reporting needs based on the indicators provided by the UNCCD.
- The Draft Aligned NAP is to be implemented from 2015-2025 (10 years) to support and promote SLM and the implementation of UNCCD Strategy at the local level.
- UNCCD is utilising its Strategic Plan and along with efforts to harmonise with UNFCCC and UNCBD, in order to integrate global to local efforts for a synergized response to deal holistically with the issue of land degradation and droughts. Land degradation and droughts are related to climate change and the work of UNFCCC, and to the impact on biodiversity and the work of the UNCBD.

UNCCD's linkage with Climate Change, the UNFCCC and the UNCBD

After 'silo' actions by the Conventions, the reporting process of UNCCD seeks to collectively address the following of Guyana and other UNCCD Member countries. These objectives have

clearly identified expected impacts which are directly or indirectly linked to climate change as highlighted below:-

- Strategic objective 1: To improve the living conditions of affected populations
 - Expected impact 1.1: People living in areas affected by desertification/land degradation and drought to have an improved and more diversified livelihood base and to benefit from income generated from sustainable land management.
 - Expected impact 1.2.: Affected populations' socio-economic and environmental vulnerability to *climate change*, *climate variability* and drought is reduced.
- Strategic objective 2: To improve the condition of affected ecosystems
 - Expected impact 2.1.: Land productivity and other ecosystem goods and services in affected areas are enhanced in a sustainable manner contributing to improved livelihoods.
 - Expected impact 2.2.: The vulnerability of affected ecosystems to *climate change*, *climate variability* and drought is reduced.
- Strategic objective 3: To generate global benefits through effective implementation of the UNCCD
 - Expected impact 3.1.: Sustainable land management and combating desertification/land degradation contribute to the conservation and sustainable use of biodiversity and the mitigation of *climate change*.
- Strategic objective 4: To mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors
 - Expected impact 4.1.: Increased financial, technical and technological resources are made available to affected developing country Parties, and where appropriate, Central and Eastern European countries to implement the Convention.
 - Expected impact 4.2.: Enabling policy environments are improved for UNCCD implementation at all levels.

Guyana as a signatory to the United Nations Framework Convention on Climate Change (UNFCCC)

- UNFCCC was established in 1992 and Guyana ratified it in 1994
- Kyoto Protocol 1997; 2005
- Guyana is a net sink for carbon
- The time frame associated with Guyana's Intended Nationally Determined Contribution (iNDC) is for the period up to 2025. Guyana prepared to submit its draft iNDC to the UNFCCC in accordance with the Warsaw COP Decision 1/CP.19 and Lima 1/CP.20.
- Adaptation to reduce vulnerability and enhance resilience of ecosystems and human populations to the combined effects of climate change and land degradation requires support to Affected Country Parties (ACP)

Guyana as signatory to the United Nations Convention on Biological Diversity (UNCBD)

Guyana signed the United Nations Convention on Biological Diversity in June 1992 and subsequently ratified the Convention in August 1994.

- Guyana's biodiversity provides an important basis for climate regulation, freshwater, poverty reduction, economic growth and development in areas such as, agriculture, forestry and fisheries, payment for forest climate services, and community based economies, particularly in hinterland communities.
- Loss of biodiversity and any disruption in the provision of ecosystem services would impact negatively on the economy and more particularly on the quality of life in the hinterland and indigenous communities.
- Climate change, deforestation and land degradation have recently received greater recognition as current and future drivers of environmental change and threats to Guyana's biodiversity. These pressures have been increasing over the past decade. In addition emerging threats that will affect biodiversity in the future include (i) overfishing (ii) depletion of the mangrove fringe (iii) expansion of extractive industries.
- The major ecosystems that can be distinguished in Guyana are: (i) forest (ii) savannah (iii) freshwater (iv) wetland (v) coastal and (vi) marine.
- Key Facts:- The ecosystems support diverse species to the extent that as of 2010 Guyana's species status was estimated as 8,000 plant species; 467 fish; 130 amphibian; 179 reptile; 814 bird; and 225 mammal; 1,673 arthropod; over 1,200 fungi; 33 bacteria; 13 nematode; 44 algae; 17 mollusk; and an estimated 30 virus.
- According to the Food and Agriculture Organisation (FAO), Guyana has a total of 1182 native tree species of which 1 species *Vouacapoua Americana* is listed by the International Union for Conservation of Nature (IUCN) Red List as Critically Endangered. Three species; *Trichiliasurumuensis*, *Anibarosaedora*, *Virolasurinmensis* are listed as Endangered and a total of 18 species are listed as Vulnerable.

Threat from Land Degradation

- No Critically Endangered mammals are known to occur in Guyana. The only Endangered mammal listed by the International Union for the Conservation of Nature (IUCN) for Guyana is the Giant Otter (*Pteronurabrasiliensis*). The only Endangered bird species listed in Guyana are: Sun parakeet (*Aratingasolstitialis*); Hoary-throated spine tail (*Synallaxis kollari*); and the Red siskin (*Cardueliscucullata*).
- Guyana has no listed Critically Endangered or Endangered freshwater vertebrates. Of the species known to occur in Guyana, 4.5% of mammals, 0.4% of birds, 3% of amphibians, 3.3% of reptiles and 0.3% of freshwater fish are threatened.

- Land degradation in Guyana is not in the critical advanced stage as is evident in many countries and beckons a preventative and proactive consideration as opposed to a treatment approach.

A Land Degradation Neutrality Agreement

The Land Degradation Neutrality (LDN) Agreement and definition were adopted at the UNCCD Conference of Parties 12 (COP12). The LDN Agreement targets desertification and the restoration of degraded land and soil. Member countries are expected to set voluntary targets to achieve a land-degradation neutral world that ensures that the amount of healthy and productive land remains stable as of 2030.

- The LDN Agreement follows the adoption of the Global Goals for Sustainable Development in New York in November 2015. Sustainable Development (SD) Goal 15.3: “By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world”.
- The key principle of LDN is that the people at a grassroots level, whose everyday decisions and actions affect the condition of land and water resources, have to be involved in designing and implementing measures to halt and reverse land degradation.
- An LDN approach upholds two complementary pathways of action:
 - Sustainable land management and ecosystem restoration which in tandem will help achieve LDN
 - The restoration of natural and semi-natural areas is often key to maintaining the necessary level of ecosystem services for working landscapes as well as urban areas
- Given the adoption of the Land Degradation Neutrality, countries such as Guyana could agree to formulate voluntary targets to achieve LDN, according to their specific National Circumstances and Development Priorities.
- The concept of avoiding Land Degradation is paramount in promoting a Green Economy, and this has been adopted and maintained by the Cooperative Republic of Guyana through the implementation of the Low Carbon Development Strategy, Reduced Emissions from Deforestation and Degradation (REDD+), United Nations Framework on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD).

2 APPROACH FOR DEVELOPING THE ALIGNED NATIONAL ACTION PROGRAMME

This chapter provides an overview of the approach and methodology applied in developing the Aligned NAP, including governance of the alignment process.

2.1 Governance of the Aligned NAP

A National Project Board was established in 2014 with oversight responsibility for the implementation of the NAP Alignment Project and this Board met every three months. The Board comprised representative from the following institutions:

1. Guyana Lands and Surveys Commission (Implementing Agency)
2. Guyana Forestry Commission
3. Ministry of Local Government & Regional Development
4. Department (formerly Ministry) of Natural Resources & Environment, Ministry of the Presidency
5. Ministry of Finance
6. Ministry of Amerindian Affairs
7. Guyana Office for Investment
8. Central Housing and Planning Authority
9. Office of Climate Change
10. Ministry of Agriculture
11. Guyana Geology and Mines Commission
12. Environmental Protection Agency
13. Civil Defence Commission
14. Protected Areas Commission
15. Private Sector Commission
16. United Nations Development Programme

This Board expired when the Aligned NAP has been finalized and approved, while it is anticipated that a new national board or implementation committee would be established and tasked with oversight responsibility for the implementation of the Aligned NAP.

2.2 Methodology for the preparation of the Aligned NAP

The development of the Aligned NAP was conducted through a series of six consultancies (during 2015); the objectives of each are described below.

2.2.1 National Rapid Stocktaking Study

The objectives of this consultancy were:

- To conduct an analysis of Policy and Planning Tools, and Human and Scientific Capacity, for NAP Alignment and implementation, including the existing gaps and obstacles.
- To strengthen the human and scientific capacity of Agencies, and support implementation of the aligned NAP using indicators (new and existing) through formal training.

2.2.2 Drought Early Warning System

The objectives of this consultancy were:

- To inform the NAP Alignment process of an Early Warning System (EWS) Protocol for Drought.
- To review, assess and propose suitable technical solutions and an approved methodology for measuring drought impacts (drought types) and an implementation plan for the EWS on Drought in Guyana.
- To identify resources and training this would strengthen the capacity of Agencies, and support implementation of the EWS for Drought.

2.2.3 Identification and Mainstreaming of Policies to support the implementation of the Aligned NAP

The objectives of this consultancy were:

- To review the existing structures with a view of how best to place NAP implementation.
- To determine how land degradation and the NAP can be integrated and mainstreamed into sectoral policies and work programmes.
- To prepare a NAP implementation plan and identify barriers to implementation.

2.2.4 Integrated Investment Framework (includes Integrated Financing Strategy)

The objective of this consultancy was:

- To develop an Integrated Financial Strategy and Investment Framework, including proposals for projects and activities for resource mobilization for NAP implementation, and overcoming the barriers to NAP implementation.

2.2.5 Database to support the preparation of PRAIS Reports

The objectives of this consultancy were:

- To design and develop an online database for Land Degradation Information in Guyana.

- To prepare standard electronic forms for data collection, monitoring of National Land Degradation and reporting to the UNCCD and Government of Guyana.
- To conduct training for relevant stakeholders on the use, interpretation and analysis of the data and the database.

Drafting the Aligned NAP for approval

The objectives of this consultancy were:

- To conduct stakeholder consultations on the UNCCD reporting process
- To prepare an aligned NAP.

2.3 Stakeholder Engagement and Validation

Stakeholders were consulted as an integral part of all the consultancies mentioned above. Their comments and concerns were incorporated into the respective consultancy reports and ultimately reflected in the present Aligned NAP. Further, the outline and draft versions of this Aligned NAP were widely discussed and adjusted in keeping with inputs made by the various stakeholders. Finally, this report has also been endorsed by the National Action Plan Editorial Working Group and validated by the National Project Board for the NAPA Project.

3 THE DIAGNOSTIC FRAMEWORK AND NATIONAL CONTEXT

This chapter provides an overview of the key national development policies, strategies and plans, as well as an overview of the key relevant national environmental and socioeconomic variables related to desertification and land degradation.

3.1 National Development Strategies, Policies, and Plans

The following provides an overview of the relevant national development strategies, policies, and plans related to desertification and land degradation in Guyana.

3.1.1 Low Carbon Development Strategy, including reference to the Agreement with Norway on REDD+

The Low Carbon Development Strategy (LCDS) 2013 has relevance to the Aligned NAP. Guyana's LCDS was prepared in 2009 and has since been updated in 2013. The LCDS presents Guyana's vision and plan for the country's forest to be protected and maintained in an effort to reduce global carbon emissions and at the same time attract payments and financial resources from developed countries to foster growth and development through a low carbon emissions path. The LCDS is currently in its implementation phase and is being supported through a partnership between GOG and the Kingdom of Norway whereby Norway has committed to providing support to the tune of US\$250 million up to 2015 in support of Guyana's avoided deforestation (REDD+) efforts and the building of a working model of REDD+. At the time of preparing this report, Guyana has earned U.S\$ 190 million¹ as payment for forest climate services under this partnership, representing the second largest interim REDD+ mechanism globally (the Brazil-Norway partnership being the first) and has been able to maintain 99% of its forests. The LCDS also outlined how Guyana intends to ensure that at least 10% of the country's land area would be under some form of protection. Activities have progressed in this area, including the enactment of the Protected Areas Act and the establishment of the Protected Areas Commission (PAC). Guyana's policy objective in this area is to achieve the UNCBD target of having at least 17 % of the country's land and inland water under some form of protection by 2020.

Broadly speaking, the LCDS aims at combating poverty and responding to the impact of climate change by avoiding deforestation and creating a low carbon, climate-resilient economy as the basis for the environmental, social and economic transformation of the country. The LCDS juxtaposes environmental responsibility and accelerated economic growth as complementary rather than conflicting objectives. It does this by mobilizing financial payments for the climate services provided by Guyana's vast standing forests. In this way, incentives are provided for forest preservation, and the proceeds are used to finance investment in infrastructural and social initiatives that target accelerated economic growth along a low carbon path.

Guyana's LCDS is an integrated strategy which encompasses each of the three pillars of sustainable development (SD): it aims to mainstream sustainable development initiatives, including efforts to combat climate change; reduce climate related risk and; propel implementation of measures to adapt to climate change. The LCDS is based on national development needs and priorities, and was developed through a national consultation exercise during which vulnerable groups such as indigenous peoples, forest users and dependent communities, women and youth were engaged in the development of the Strategy. A Multi-Stakeholder Steering Committee (MSSC) was established to oversee and guide the implementation of the LCDS. Guyana is working along with a number of partners to support the implementation of the LCDS.

The Memorandum of Understanding between the Government of Guyana and the Kingdom of Norway (signed November 9, 2009) is being implemented based on three (3) main contextual approaches: a) Regular, systematic policy and political dialogue to facilitate a constructive exchange of views on global climate change and relevant environmental issues such as biodiversity; b) Collaboration, knowledge building, and sharing of lessons learned within the field of sustainable, low-carbon development, with REDD-plus as the key component of this and; c) Collaboration on REDD-plus, including establishing a framework for financial support from Norway into a Guyana REDD-plus Investment Fund. Financial support will be linked to Guyana's success in limiting greenhouse gas emissions from deforestation and forest degradation and establishing institutions and practices to strengthen Guyana's ability to reduce deforestation and forest degradation through the adoption and implementation of a REDD-plus Governance Development Plan (RGDP).

One important aspect of the work on REDD+ is related to the development of a Monitoring, Reporting and Verification System (MRVS) that will provide a performance measurement framework for the REDD+ financing mechanism. This System is implemented by the Guyana Forestry Commission (GFC)

<http://www.prnewswire.com/news-releases/guyana-receives-us40-million-payment-from-norway-for-climate-services-and-continued-low-deforestation-300080282.html>

3.1.2 The National Development Strategy 2001-2010

The National Development Strategy (NDS) represents the highest level of national planning. It is an integrated document outlining the national strategy and policy in a number of priority areas including agriculture, environment, forestry, fisheries, mining, tourism, land management and the eradication of poverty. The Strategy was formulated through a comprehensive national participatory effort and serves as a framework for policy and planning in the respective sectors of the economy.

Chapter 22 of the NDS deals specifically with land by describing the basic features of land management, issues and constraints and identifies broad objectives of land policy and a strategy. Among the key policy objectives identified is the need for better collection and management of

land information and; improving the functioning of institutions with responsibilities for land and to improve the process of making land available for development activities.

3.1.3 The Poverty Reduction Strategy Paper 2011-2015

The Poverty Reduction Strategy Paper (PRSP) is directly linked to the NDS in the areas of economic policy, good governance, infrastructure development and improvement in social services with the objective of reducing poverty. The main goals of the Poverty Reduction Strategy Paper are: (i) Sustained economic expansion within the context of a deepening participatory democracy; (ii) Access to social services including education, health, water and housing; and (iii) Strengthening, and where necessary, expansion of social safety nets.

The NDS and the Poverty Reduction Strategy Paper complement each other in setting out the country's economic and social development in the short and long term. Both strategies take into account environmental and natural resources management, agricultural production, and improvements in the social sectors, amongst others, which are important to combat land degradation directly and indirectly. They have a common objective which is the reduction of poverty. Alleviation of poverty and reversing land degradation goes hand in hand. Both involve improving food security, educating and training people, strengthening the capacity of local communities, and community participation.

A revised PRSP was prepared for the period 2011-2015 and rests on the following pillars: broad-based, low-carbon led job creation; economic growth; accelerated investment in physical infrastructure in support of growth strategy; stronger governance, institutional, and regulatory structures; accelerated investment in human capital and primary health and; special intervention programmes to address regional and demographic pockets of poverty.

3.1.4 National Agricultural Strategy 2013-2020

The National Strategy for Agriculture in Guyana 2013-2020 is based on the F-5 Strategic Approach for Agriculture:

- Food Security – consolidating the End of Hunger in Guyana, ensuring everyone has enough food in every community
- Fiber and Nutritious Food Accessible to citizens – nutrition security for all
- Fuel Production - helping to develop alternative fuel sources, reducing dependency on fossil fuel and creating a bio-energy industry in Guyana
- Fashion and Health Products – An agro-process industry which creates a new industry in Guyana
- Furniture and Crafts – an industry which we expect to grow in importance in Guyana

Environmental sustainability through the agricultural sector is a priority of the Agriculture Strategy, fully recognizing Guyana's lead role in advocacy for and the implementation of programs for global solidarity to stop climate change and its adverse effects. The National Strategy for Agriculture in Guyana 2013-2020 outlines twenty five priorities for achieving success in realizing Guyana's Vision for Agriculture 2020. Included among these are steps to safeguard against desertification and land degradation while at the same time ensuring food security for all of Guyana. It is estimated that 1,740,000 ha of Guyana's land is being used for agricultural purposes, however, only about 200,000 ha (500,000 acres) are used effectively with relatively adequate drainage and irrigation. The National Land Use Plan (August 2013) indicates that 68% of Guyana's land area has soils that can accommodate agriculture, while 32% were considered to have soil not suitable for agriculture.

Priority 19 of the Agriculture Strategy commits Guyana to further develop its Agriculture Risk Reduction and Disaster Management Program and to base its agricultural expansion and sustainability efforts on climate-smart agriculture. This involves adaptation and mitigation initiatives to prevent and manage floods and droughts. The Ministry of Agriculture's Agriculture Sector Risk Reduction and Disaster Management Plan for the period 2012 – 2020, includes among its targets: Institutional capacities for risk assessment, hazard monitoring and dissemination of early warning information for proactive mitigation, preparedness and response among all end users, especially at the community level and; disaster risk reduction and climate change adaptation policies and programmes designed to strengthen resilience to significant hazards particularly among vulnerable groups.

The Flood Prevention and Drought Control Plan 2013-2020 also focuses on reducing and preventing floods and controlling and mitigating drought events while the National Drainage and Irrigation Authority (NDIA) addresses the improving and upgrading of drainage and irrigation services countrywide in ensuring that agricultural land is better protected against adverse weather-related events. Water Security and, thus Water Management is also identified in the Agriculture Strategy as being crucial for success and while a network of sluices and pumps to aid drainage and irrigation exists, it is recognized that this system is still inadequate and that its maintenance has to be improved upon.

Guyana's Strategic Approach to Chemicals Management supports the achievement of the goal agreed at the 2002 Johannesburg World Summit on Sustainable Development of ensuring that, by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health. The National Strategy for Agriculture identifies Soil Health as a major priority in the development of a modern and effective agricultural sector, assuring food security, economic benefits and environmental protection. Soil health is promoted through the prudent utilization of biological, chemical and physical methods in an ecosystem agronomic approach. Guyana's Vision for Agriculture 2020 embraces the concept of

Integrated Soil Management (ISM) and Integrated Plant Nutrient Management (IPNM) and Pest Management Practices (PMP).

A further priority of the Agriculture Strategy is to focus on Farming Systems and Techniques, Biotechnology and Precision-Agriculture in recognition of the significant roles that these play in improving productivity, competitiveness, promoting commercialization and adaptation for climate change. The Ministry of Agriculture acknowledges the need for modernization in Guyana's farm systems and techniques, including the use of biotechnology and precision-agriculture.

3.1.5 Costed Strategic Framework for the Ministry of Natural Resources and the Environment 2013-2018

The goal of the Ministry of Natural Resources and the Environment as described in the Costed Strategic Framework for the Ministry of Natural Resources and the Environment 2013-2018 that was developed in June 2013, is to effectively coordinate and ensure that all of its agencies and commissions are working together harmoniously to achieve Guyana's sustainable development and conservation of its natural resources. The strategic priorities of the Ministry are:

- Effective Institutional Framework and Legislation (with 7 expected results)
- Holistic and integrated planning (that lists 4 expected results)
- Sustainable resource use and monitoring (that lists 7 expected results)
- Cross-cutting issues (with 5 expected results)

3.1.6 Strategic Plan for the Rice Industry in Guyana-2012-2022

Guyana Rice Development Board has a strategic Plan for the rice industry and provides an overview of existing rice cultivated areas, as well as an overall overview of areas suitable for rice production. It also identifies the threats facing rice production in Guyana.

The National Rice Strategy and Plan particularly targets Regions 2, 3, and 6, which are the primary arable and food-producing regions in Guyana.

3.1.7 The Integrated Disaster Risk Management Implementation Strategy and Management Plan 2013

The Integrated Disaster Risk Management Implementation Strategy developed by the Civil Defence Commission (CDC) in 2013, outlines the way forward for implementing the vision, goal, strategic objectives, and expected outcomes of Guyana's National Integrated Disaster Risk Management Plan (NIDRMP) 2013-2023, over a ten-year timeframe. The Strategy is intended to

guide the implementation of projects and initiatives in Guyana – at national, regional and local levels – that are required in order to meet the NIDRMP’s objectives.

The NIDRMP includes: a profile of Guyana in terms of current trends with regard to disaster; overview of Disaster Risk Management (DRM) in Guyana; introduction to and the rationale for NIDRMP; an assessment and gap analysis; and the NIDRMP 2013-2023. The Integrated Disaster Risk Management Implementation Strategy includes: suggested priority activities and projects; proposed structure for DRM in Guyana, Operational Plan and Coordination Mechanisms; the ten-year Implementation Plan; Technical and Financial Resources required and; the Monitoring and Evaluation (M&E) Framework.

3.1.8 Early Warning Systems Framework 2013

The Early Warning Systems Framework developed by CDC in 2013, outlines: the elements of an early warning system (EWS); the approaches and guiding principles for an early warning system; national institutions and stakeholders involved in EWS; pre-conditions and key strategies for EWS in Guyana and; next steps for the way forward for early warning in Guyana.

3.1.9 Disaster Risk Management Policy 2013

The Disaster Risk Management Policy developed by the Civil Defence Commission in 2013 is divided into six sections as follows:

- Section one presents the background and context of the Policy along with key contextual processes foundational to furthering and implementing integrated disaster risk management
- Section two identifies the Policy intent, vision, and details its goals and key strategic objectives. It also identifies key regional and international approaches to disaster risk management (DRM) and Guiding Principles and a Code of Conduct
- Section three addresses the Institutional Framework for DRM in Guyana
- Section four describes Elemental Strategies for Integrated National Disaster Management. It also covers Rehabilitation, Recovery and Reconstruction, along with resource mobilization for disaster risk management
- Section five outlines Cross Cutting Capacity Building for Furthering DRM
- Section six outlines the Way Forward which calls for robust commitment and policy implementation as being essential for building trust and commitment among Guyana’s population in enforcing the policy

3.1.10 Draft National Land Use Policy, 2015

Guyana's National Land Use Policy was last revised in May, 2015. The Draft National Land Use Policy presents a good opportunity for harmonization of legislation and institutional framework for sustainable land management and land use planning.

A review of the Draft Policy, done under the SLM Project recommended that SLM principles be integrated into the Draft Land Use Policy while at the same time offering an overarching framework for a SLM Policy as another option.

3.1.11 National Forest Policy Statement (2011)

The National Forest Policy Statement was issued in 2011. The overall objective of the Policy is the conservation, protection, management and utilisation of the nation's forest resources, while ensuring that the productive capacity of the forests for both goods and services is maintained or enhanced. Its specific objectives are to:

- (a) Promote sustainable and efficient forest activities which utilise the broad range of forest resources and contribute to national development while allowing fair returns to local and foreign entrepreneurs and investors;
- (b) Achieve improved sustainable forest resource yields while ensuring the conservation of ecosystems, biodiversity and the environment;
- (c) Ensure watershed protection and rehabilitation: prevent and arrest the erosion of soils and the degradation of forests, grazing lands, soil and water; promote natural regeneration, afforestation and reforestation and; protect the forest against fire, pests and other hazards; and
- (d) Identify and quantify environmental services to generate forest incentives for national development.

With regard to REDD+ the Guyana Forestry Commission is committed to support:

- a regular, systematic policy and political dialogue to facilitate a constructive exchange of views on global climate change and relevant environmental issues, such as biodiversity
- collaboration, knowledge building, and sharing of lessons learned within the field of sustainable, low-carbon development, with REDD-plus as the key component of this
- collaboration on REDD+

3.1.12 National GIS Policy (2014)

In Guyana, geographic information use is concentrated in the natural resources and environmental sectors for use in land boundary demarcation, overlays and monitoring. Guyana's National Policy on Geographic Information provides the necessary framework for identifying

key datasets needed for socio-economic development, and specifies the mechanism for data collection, storage and dissemination.

The development of Geographic Information Systems (GIS) in Guyana has seen relatively significant growth since July 1995 with the assistance of the Natural Resources Management Project (NRMP). There has been significant deployment of GIS within the operations of the Guyana Geology and Mines Commission (GGMC), Guyana Forestry Commission (GFC), Environmental Protection Agency (EPA) and the Guyana Lands and Surveys Commission (GL&SC). Many other private and public organisations outside of the natural resources sector have also embraced GIS technology to varying degrees.

The GIS policy will have direct impact on increased use of the geospatial technologies in many vital sectors such as health, education, rural and urban development, infrastructure, business, etc. The policy will also further the use of GIS in areas of governance, planning and decision support.

For the successful implementation of the Policy, a national body, the Guyana Geospatial Advisory Council (GGAC), will need to be established to enforce the data sharing agreements, data standards, etc.. This body should encompass agencies both within and outside of the natural resources sector.

3.1.13 National Biodiversity Action Plan 1999

The National Strategy for the Conservation and Sustainable Use of Guyana's Biodiversity was completed in 1997 as an initial step to define the national position on biodiversity. The Strategy was preceded by the Country Study on Biological Diversity, which was undertaken in 1992. The National Biodiversity Action Plan (NBAP) of 1999 is a product of national policy to elevate concern for biodiversity to the level of planning and action. It recognizes biodiversity as an important national asset that offers the country manifold economic options. The basis of the productive sectors of agriculture, fisheries, forestry and wildlife is biodiversity, in which the maintenance of diversity offers considerable opportunities and advantages.

The NBAP is consistent with the general direction of the National Development Strategy and both documents harmonise in respect of matters relating to place and use of biological resources for development activities. The Plan promotes both the conservation and the responsible use of biodiversity and biological resources. It comprises a number of programme areas under which various actions are identified for execution.

Among its objectives is recognized the importance of maintaining high water quality and preventing serious flooding in part by protecting watersheds from erosion or down-stream sedimentation and pollution. It recommends that as part of the ecosystem approach to biodiversity management sectoral entities should be encouraged to adopt integrated land and

watershed management and prepare integrated management plans. The NBAP has been in the implementation phase since 2000, with the EPA coordinating its activities.

3.1.14 National Environmental Action Plan (2001-2005)

The National Environmental Action Plan (NEAP) of 2001-2005 is a follow-on from the NEAP of 1994 which summarizes the national environment policy and focuses on coastal zone management, natural resources management including land resources, biodiversity, wildlife, forestry and ecotourism, waste management and pollution control, and mining. It also takes into consideration the role of public awareness and education in addressing environmental problems. The NEAP also identifies and recognizes the roles and functions of relevant stakeholders including private sector and non-governmental organizations in environmental management. The NEAP states that "in order to conserve and improve the environment, the Government of Guyana will endeavour to:

- Assure all people living in the country the fundamental right to an environment adequate for their health and well-being.
- Achieve a balance between the use and conservation of the nation's resources to meet the needs of economic development and improved standards of living.
- Conserve and use the environment and natural resources of Guyana for the benefit of both present and future generations, based on the principle of the exercise of sovereignty.
- Maintain ecosystems and ecological processes essential for the functioning of the biosphere to preserve biological diversity and to observe the principle of optimum sustainable yield in the use of renewable natural resources and ecosystems, both on land and the sea.

3.1.15 National Multi-Hazard Disaster Preparedness and Response Plan, (2013)

The overall aim of the National Multi-hazard Preparedness and Response Plan developed by CDC in 2013, is to detail arrangements to cope with the effects of natural and/or man-made disasters occurring in Guyana. It seeks to assign responsibilities and to provide coordination of emergency activities connected with major disasters, in general and specific ways.

The purpose of the Plan is to enhance the country's ability to manage all disasters using a comprehensive disaster management approach. It is also to ensure the timely and effective assistance to the affected in a coordinated manner, ensuring the greatest protection of life, property and health. The Plan defines the administrative structure in times of disaster and it includes: a profile of Guyana; hazard/disaster risks in Guyana; disaster management system;

disaster preparedness functions; disaster response functions; early recovery plan and; key next steps.

3.1.16 National Mangrove Management Action Plan (2001)

The National Mangrove Management Action Plan (NMMAP) of 2001 has been prepared to foster a more coordinated approach in planning, policy formulation, inter-institutional cooperation and the implementation of actions. It serves as the framework of an evolving plan for effective mangrove management in Guyana, including guiding the work of key stakeholders involved in the utilisation and protection of mangrove resources. The Guyana Forestry Commission coordinated the development of the Action Plan and is the overall coordinating and implementing agency. The NMMAP has been endorsed at the Agency level.

The NMMAP is a product of the National Forest Plan and Integrated Coastal Zone Management Action Plan, recognising mangrove forests as an important coastal and riverine ecosystem and seeks to elevate concern for mangrove forests, thereby fostering a more coordinated approach to policy formulation, planning, inter-institutional cooperation and implementation of actions with regard to mangroves. A number of key actions are proposed within the Plan, principal among them being (1) reviewing policy and legislation to address the conservation of mangrove forests; (2) reviewing zonation of mangrove forests; (3) develop minimum operating standards for mangrove harvesting; (4) research; (5) raising of education and awareness; (6) rehabilitation and restoration of mangrove sites and (7) monitoring and enforcement.

3.1.17 Integrated Coastal Zone Management Plan (2001)

Integrated Coastal Zone Management (ICZM) is an ongoing process that seeks to promote the wise use, development and protection of coastal and marine resources; foster greater collaboration among sectoral agencies and enhance economic development. In 1999 an Integrated Coastal Zone Management committee was established to foster a more integrated approach to coastal zone management by coordinating and facilitating the work of agencies already directly involved in coastal zone management. In 2001 an Action Plan for Integrated Coastal Zone Management was produced. The Plan, which has been approved by Cabinet, addresses policy development, analysis and planning, coordination, public awareness building and education, control and compliance, monitoring and measurement and information management. Other activities to be undertaken are the strengthening of the institutional setup for integrated coastal zone management; the creation of a dynamic public awareness campaign to bring about deeper and more meaningful appreciation of the vulnerability of the coastal zone to sea level rise and climate change; the creation of a database of coastal resources to facilitate improved integrated coastal zone management.

3.1.18 National Forest Plan (2011)

The National Forest Plan (NFP) takes into consideration the National Forest Policy Statement of 1997 and proposes a range of activities under five programme areas including land use, forest management, research and information, forestry training and education, and forest administration and governance. The overall objective of the National Forest Policy Statement (2011) is the conservation, protection, management and utilization of the nation's forest resources, while ensuring that the productive capacity of the forests for both goods and services is maintained or enhanced.

One of the three specific objectives of the Policy is to: ensure watershed protection and rehabilitation; prevent and arrest the erosion of soils and the degradation of forests, grazing lands, soil and water; promote natural regeneration, afforestation and reforestation and; protect the forest against fire, pests and other hazards.

The Policy recognizes that the country's forests provide important services to the country's inhabitants: they protect the soil from erosion; they regulate and purify the nation's water supplies and; perhaps of greatest importance, they ensure environmental stability. It states that forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems, and by so doing, maintain the ecological functions and integrity of the forests.

The National Forest Plan has been endorsed at the Agency level with the Guyana Forestry Commission taking the lead in coordinating activities.

3.1.19 Guyana Lands & Surveys Commission Strategic Plan (2013-2017)

The GL&SC Strategic Plan (2013-2017), under Strategic Objective 1, includes reporting on compliance with international commitments such as the UNCCD. This does not make reference to the NAP however the NAP does support the achievement of 2 other strategic objectives of the Commission's 2013-2017 Strategic Plan: Objective 2 of the Commission's Strategic Plan is to make informed land management decisions based on accurate (most recent and reliable) information. The NAP provides an update on the status of activities aimed at promoting land management as well as recommends new activities/projects which can be used to achieve same. Objective 4 of the Strategy seeks to optimize benefits from the land by facilitating maximization of productive use, through observance of sustainable land management principles and ensuring compliance with intended and legal land use. Under this objective, the Commission has committed itself to develop clear guidelines that can be used to determine productive use of land and ensure that all lands are allocated in accordance with principles of sustainable land management. The NAP identifies SLM best practices which are key in the preparation of these guidelines.

3.2 Other relevant action plans and programmes

3.4.1 Ministry of Communities, Local Democratic Organs Act (1980)

The Ministry of Communities (formerly the Ministry of Local Government and Regional Development) is the primary Government Agency which links the various authorities with the Central Government. It facilitates, coordinates, and monitors the execution and implementation of a number of projects, programmes and activities in the various local government arms/organs and ensures that these activities are in conformity with the legal framework and the policies of the Government. The Mission of the Local Government and Regional Development is to supervise and maintain the legal regulatory framework of the system of local and regional administration and to encourage and facilitate the socio-economic development of all the administrative regions of Guyana. For this purpose the Ministry supports the development of local governance by building Local Government capacity and maintaining an appropriate legislative, fiscal and regulatory framework for local governance. The Ministry's guiding principles are to: promote accountability at all Local Government levels to their constituencies and; promote and support a partnership between Central and Local Government and Civil Society, while maintaining a high degree of professionalism, effectiveness, efficiency and equity.

3.2.2 Guyana Livestock Development Authority (GLDA) Programme

The Guyana Livestock Development Authority (GLDA) is a semi-autonomous agency under the Ministry of Agriculture. Its thrust is to “promote greater efficiency in the livestock product industry and to provide enhanced services in livestock husbandry, livestock health and research so as to make provision for effective administration and regulation of trade, commerce and export of livestock or livestock products and for matters related and incidental.” The GLDA delivers public services related to animal production, animal health, animal genetics, marketing, training and extension services as well as regulatory services. The agency is also governed by the Guyana Livestock Development Agency Act.

Among the programmes planned and implemented under the GLDA's mandate is one that involves protecting the gains of animal production and genetics through the provision of timely veterinary interventions and minimizing the threat of disease from internal and external sources. Veterinary drugs and the importation of animals are also regulated under this programme. A second programme involves infusing local animal stock with new genetics to enable farmers to benefit from higher productivity. Techniques of artificial insemination and embryo transfer form part of the GLDA's strategies. Superior genetics is supported by a third programme that is designed to catapult farmers into higher levels of animal husbandry through better nutrition, housing and access to authentic and validated information.

The GL&SC issues leases for grazing which are premised on certain conditions given the potential for causing land degradation due to overgrazing of livestock.

3.2.3 Solid Waste Management Programme.

The general objective of the Georgetown Solid Waste Management Program is to contribute to the improvement of the environmental conditions and quality of life of the population in Georgetown and its environs. Its purpose is to implement sustainable solutions to solid waste management in these areas. The Program addresses solid waste disposal through the implementation of a sanitary landfill at Haags Bosch with private sector participation.

In the attempt to provide a sustainable solution to the solid waste collection and disposal problems in Georgetown and participating National Democratic Councils, the program focuses on: strengthening the capacity of the Municipal Solid Waste Management Department of the Municipality of Georgetown to manage and dispose of solid waste and improve collection logistics and cost recovery; raising public awareness within Georgetown and the NDCs for a better management of solid waste among households, industries, commerce, etc.; Implementing the Haags Bosch Sanitary Landfill, with the participation of a specialized operator; providing resources to study and define technologies to treat health care health services and hazardous waste; implementing a more efficient waste collection at the National Democratic Councils participating in the project; providing additional resources to rehabilitate and close the Mandela landfill.

3.2.4 GFC's Code of Practice for Forest Operations (2014)

The Code of Practice for Timber Harvesting Operations sets out the principles, policies and guidelines for improved forest management and timber harvesting practices. The Code contains practices and sets standards, which have been developed based on ongoing research and practical experience locally and abroad. The Code assists in minimizing negative impacts of timber harvesting, through effective implementation of reduced-impact logging guidelines, participation in the planning process by all stakeholders, and integration with other sustainable forest management instruments.

The first draft of the Code of Practice was produced in 1994, and the first Code of Practice for Forest Operations became operational on a voluntary basis in October 1998. The Code is under regular review and the results of research; field experience and public input will be used to make progressive improvements so that environmentally sound, socially responsible and economically acceptable production forestry can be maintained.

Approximately 60% of the State Forests have been allocated to timber harvesting concessions:

- Timber Sales Agreement: are granted for up to twenty-five (25) years for areas more than 24,000 hectares
- Wood-cutting lease: are granted for up to ten (10) years for 8,000-24,000 hectares
- State Forests permission: are granted for two (2) year period for areas less than 8,000 hectares

The Code of Practice sets minimum operational standards including requirements to plan for selection of trees, tree fall direction, skid trail layouts and the sub-division of concessions into blocks which are managed on 25-60 year cutting cycles.

GFC has a Code of Practice for Forest Operations 3rd Edition for State Forest Permission Holders (Small-Scale Forest Operators), and Code of Practice for Forest Operations, 3rd Edition For Timber Sales Agreement and Wood Cutting License Holders.

Code of Practice for Forest Operations – Timber Sales Agreement and Wood cutting License Holders is implemented by the GFC to promote harvesting practices to improve standards of utilization, reduce environmental impacts, and promote sustainable forest utilization.

3.2.5 Monitoring, Reporting and Verification System

Under the framework of the LCDS, a national system referred to as Monitoring, Reporting and Verification System (MRVS) to monitor/measure, report and verify emissions or removals of carbon from the forest sector was developed by the GFC and is currently being implemented. The MRV system provides the basis for reporting in accordance with the principles and procedures agreed to by GoG in relation to reducing emissions from deforestation and forest degradation. In addition to the MRVS there are other forest governance initiatives being pursued under the LCDS which are intended to improve sustainability and enforcement of standards to prevent environmental degradation and excessive forest loss. Some of these measures include the country's commitments to the Extractive Industry Transparency Initiative and the European Union Forest Law Enforcement, Governance and Trade (EU-FLEGT) programme (<https://eiti.org/guyana>).

3.2.6 European Union Forest Law Enforcement, Governance and Trade (EU-FLEGT)

The GoG sought to align domestic standards in the forestry sector with those of a global body to support the long term development of trade in sustainable forest products. To that extent, the Government aligned with the EU-FLEGT initiative. The GoG and the European Union (EU) are

working towards concluding negotiations on a Voluntary Partnership Agreement (VPA) by 2016, with specific deadlines being:

- ✓ By March 2016, finalise technical aspects of the VPA
- ✓ By June 2016, finalise legal aspects of the VPA
- ✓ By September 2016, formally ratify the agreement

The document “Roadmap for Guyana” highlights the EU FLEGT VPA Process

<http://www.forestry.gov.gy/wp-content/uploads/2015/09/Roadmap-for-Guyana-EU-FLEGT-VPA-Process-Final-January-2013.pdf>

3.5 Acts and Regulations

3.5.1 Mining Act (1989)

The Mining Act of 1989, last amended in 2010, is the main legislative instrument for managing mining in Guyana including its health and safety and environmental impacts. The Act makes provisions with respect to prospecting for and mining of metals, minerals and precious stones, for regulating their conveyance and for matters connected therewith. It stipulates the procedures, terms and conditions relating to: the right to guardianship of minerals; prospecting and mining on large-scale; prospecting licenses; steps after discovery of mineral; mining licenses; cancellation of license and force majeure; enlargement of prospecting or mining area section; prospecting and mining of medium and small scale; financial aspects pertaining to mining; export of radioactive minerals; safety in mines and health and welfare of workers; restriction on rights of holder of license or permit and surface rights; quarry license; geological and geophysical survey; registration and licensing of dredges, etc.; forfeiture of aircraft, etc.; special provisions relating to Amerindians section; repeals, savings and amendments of certain enactments and; miscellaneous matters.

The Guyana Geology and Mines Commission (GGMC) is the statutory body that processes all applications for mineral properties in Guyana.

3.5.2 Mining Amendment Regulations (2005)

Included as part of the Mining Act of 1989, are Mining Amendment Regulations which stipulate which regulations were amended and what the amendments were. These Regulations denote fees for a total of twenty two prescriptions. These fees include annual rents, application fees, certification of documents, etc. The Regulations made under the Mining Act stipulate the rules governing: the use of poisonous substances; requirements for environmental management for large and medium scale mining; requirements for environmental management for small scale mining; protected areas; pollution control; offences and penalties and; definitions of closed areas and state mining reserves.

3.5.3 Forest Act (2009; amendment 2010)

The Forest Act Chapter 67:02 promotes the use of sustainable forestry, through participation with local communities. It also provides for the declaration of Protected Areas within the framework of the Environmental Protection Act, along with the establishment of a code of practice which can be amended as required. The Act increases coordination with mining, introducing the requirement for a consultation before the granting of any license for mining or petroleum prospecting or production.

The Act was unanimously passed by Parliament in 2009 and it replaces the previous 1953 Act, amended in 1972, 1979 (which established the Guyana Forestry Commission), 1982 (which introduced large-scale harvesting concessions), and 1996 (which introduced timber exploratory permits).

3.5.4 Environmental Protection Act (1996)

Recognizing the critical importance of the environment in development, the GoG enacted the Environmental Protection Act in 1996, which unified legislation on environmental protection in Guyana. The Environmental Protection Act identifies and confers responsibilities to the Environmental Protection Agency (EPA) in various areas of environmental management including monitoring, public awareness, enforcement and conservation of natural resources. The EPA, through agreements (Memorandum of Understanding), has influenced environmental management capacity to be streamlined and strengthened at other natural resources management institutions.

3.5.5 Environmental Authorization Regulations (2000)

The Environmental Protection (Authorizations) Regulations 2000 contained in the Environmental Protection Act 1996 stipulate the terms and conditions for granting environmental authorizations to any requesting applicant. Upon the evaluation of an application, the applicant is required to furnish any relevant document, information or environmental impact assessment as required by the Environmental Protection Agency (EPA). Upon approval of an application, the holder of an authorization is required to take all reasonable steps to: establish an environmental monitoring programme; avoid all adverse environmental impacts which could result from the activity; minimize the adverse environmental impact where the avoidance is impractical; mitigate the impact where the impact cannot be avoided; avoid cross media transference and; compensate for impacts.

Every holder of an environmental authorization is required to maintain the records stipulated by the Regulations, including those pertaining to environmental monitoring, for a period of not less than three years. These records are to be made available to the Agency as required, to determine compliance with the environmental authorization or whether cause exists for modifying, varying, suspending, revoking or re-issuing the authorization. It is the duty of the Agency to ensure that the activities authorized by the Environmental Authorization do not cause pollution of the environment or harm to human health.

The following are Environmental Authorizations and guidelines to prevent and reduce land degradation which must be complied with by developers in order to obtain a permit from the EPA:

- Environmental Guidelines for Transportation, Storage and Occupational Handling of Chemical/Industrial Hazardous Waste (approved September 2011)
- Environmental Guidelines for Storage, Transportation and Occupational Handling of Biomedical Waste (approved September 2011)
- Environmental Guidelines for Preparation of an Environment Management Plan (approved March 2013)
- Environmental Guidelines for Removal, Treatment and Disposal of Oily Sludge (approved September 2011)
- Environmental Guidelines for Poultry Rearing (approved March 2013)
- Environmental Guidelines for Spray Painting Operations (approved September 2011)
- Environmental Guidelines for Swine Rearing (approved September 2011)

3.5.6 Protected Areas Act (2011)

The Protected Areas Act was passed by Guyana's National Assembly in July 2011. The Act provides for the protection and conservation of Guyana's natural heritage and natural capital and maintenance of ecosystem services, as well as sustainable use of biodiversity. It provides for the establishment of a protected areas commission, the creation of national protected areas system and the establishment of a protected areas trust fund.

Enshrined in the Act are penalties for individuals who invade a protected area without the permission from the Commissioner or the Minister. Second time offenders are liable to be fined between G\$100,000 to G\$ 2,000,000 based on the severity of the crime while third-time offenders can face up to five years imprisonment.

The Protected Areas Legislation paved the way for the establishment of the Protected Areas Commission (PAC) in 2012. The PAC is responsible for 'protection and conservation of Guyana's natural heritage and natural capital through the coordination and management of the National Protected Areas System (NPAS)'. Prior to the establishment of the PAC, the Environmental Protection Agency (EPA), which is the country's focal point for the Convention on Biological Diversity, solely coordinated the National Protected Areas Systems (NPAS). Under the NPAS, four areas of extraordinary biological value were designated legally Protected Areas: Kaieteur National Park, Shell Beach, the Kanuku Mountains, and the Iwokrama International Centre for Rainforest Conservation and Development (IIC). Konashen, a community owned Conservation Area, is intended to be instituted under the NPAS. Other areas proposed for protection include Mount Roraima and Orinduik Falls. These areas ensure effective protection and sustainable

management of ecosystems within Guyana through a national system of protected areas which is self-sustained, transparent, decentralised and managed through partnerships.

3.5.7 Draft Environmental Protection Compliance and Enforcement Regulations

These regulations are the national governing standards for acceptable levels of noise, air quality and water quality respectively, as well as the regulations for enforcing these regulations. The Enforcement Regulations serve to enforce the environmental regulations. In addition, new regulations will enforce wildlife, mining, forestry and other regulations via environmental authorizations granted.

3.5.8 Environmental Protection Litter Enforcement Regulations (2013)

Litter is defined as any solid or liquid material or product or combination of solid or liquid materials or products including but not limited to bottles, tins, derelict vehicles, packaging materials, paper, glass, food, garbage, animal remains, waste, etc. and any other material or product that is designated as litter by the Minister of Natural Resources and the Environment. Under the Environmental Protection (Litter Enforcement) Regulations 2013, it is an offence to: deposit litter in a public place; dispose of litter from a motor vehicle or trailer; fail to provide a receptacle for litter as the owner of a bus and; litter the premises of another person. Litter Prevention Wardens, officially appointed by the relevant authorities, are authorized to enforce the provisions of the Litter Enforcement Regulations. Such authority includes the power to arrest any person guilty of an offence under the Regulations. Penalties for littering include the imposition of fines ranging from G\$ 15,000 to G\$ 100,000 by the court; an order to clean the area littered and; payment of cost for the removal of litter.

3.5.9 Wildlife Management and Conservation Regulations (2013)

The Wildlife Management and Conservation Regulations provide for the management and conservation of wildlife to regulate the capturing, gathering, collecting, hunting, killing or taking of wildlife, for any purpose or use, including bush meat, scientific research and medicinal use. It also determines the wildlife areas and the classification of wildlife, including the determination of whether a species is vulnerable, endangered, or critically endangered. In addition, the Regulations stipulate the prohibited wildlife collecting devices and methods. The Environmental Protection Agency is responsible for the administration of these Regulations and any person who is found guilty of committing an offence is liable to pay a fine ranging from G\$ 30,000 to G\$ 750,000 and a period of imprisonment ranging from three months to a year, depending on the severity of the offence.

As part of Guyana's obligation to the UNCCD, the country is tasked with reporting on trends in biodiversity-related indicators specific to the global Aichi Targets. The most recent National Biodiversity Strategy and Action Plan 2012-2020 was recently prepared and approved by Cabinet in May 2015. Within this document, priority actions are identified that will contribute to attainment of the various Aichi Targets. While these priority actions and corresponding targets are included in the document, no indicators have been specified. Considering the recent completion of the document, implementation of new objectives under the plan has not yet commenced. (The Plan also indicates initiatives that are ongoing as part of the mandate of the respective sector agencies). The Fifth National Report to the Convention on Biodiversity (approved by Cabinet in May 2015) includes a table on progress of achievement of the Aichi Targets. Information for Target 7 can be found in Table 12: page 74-76 as well as from page 58-64 of this document).

Indicators used to measure progress towards the Aichi Biodiversity Targets

Target: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity. In achieving this, the following have been proposed for the country (National Biodiversity Strategic Action Plan (NBSAP), page 46):

- Implementation of a well functioning REDD + framework-Lead Agency-GFC
- Development of a National Conflict Resolution Strategy for REDD + -Lead Agency-GFC
- Development of guidelines for responsible recreational fishing and best practices in ornamental fish collection and handling- Lead Agency-Ministry of Agriculture.

Target: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks have been enhanced through conservation and restoration, including restoration of at least 15 % of degraded ecosystems, thereby contributing to climate mitigation and adaptation and to combating desertification. (NBSAP, pages 45-46). In achieving this, the following has been proposed for the country:

- Restoration of mined out sites - Identification of priority hotspots and three (3) priority sites for intervention and structural and vegetative reclamation intervention were outputs of the Land Reclamation Project – Lead Agency, Department of Natural Resources and the Environment.
- Reclamation of mined out sites (Puruni, Baramita) - Lead Agency, Guyana Geology and Mines Commission
- Restoration of mangrove belt- Lead Agency, Ministry of Agriculture (Mangrove Action Committee, National Agricultural Research and Extension Institute

3.5.10 Guyana Lands & Surveys Commission Act (1999)

The Guyana Lands and Surveys Commission (GL&SC) was established in 1999 with its primary function to have charge of and act as guardian over all public lands, rivers and creeks of Guyana. Its functions also include to; execute cadastral and geodetic surveys; publish maps; maintain records and provide access to land records; advise on land policy and; prepare land use plans. With this in mind and recognizing that the Commission has superior authority of all state lands in the Country (70% of all lands), the NAP and further the Aligned NAP informs GL&SC's role as guardian by ensuring that lands are not only administered efficiently and effectively, but furthermore ensures that land undergoes only productive use after being administered to the public. The alignment of the NAP aids in the development and documentation of Sustainable Land Management guidelines, adherence to which would ensure the productive use of the land. Given the Commission's capacity to inform policy, it is well positioned to carry out this function through the eventual implementation of the Aligned NAP, the development of which employed a strong multi-sectoral approach capturing and storing information from various key stakeholder agencies.

3.5.11 Amerindian Act (2006)

The Amerindian Act provides for “the recognition and protection of the collective rights of Amerindian Villages and Communities, the granting of land to Amerindian Villages and Communities, and the promotion of good governance within Amerindian Villages and Communities”.

The Amerindian Act establishes a procedure for land claims to be settled, and transfers authority from the Government to Amerindian Villages and Village Councils. The Amerindian Act thus supports and facilitates local governance, thereby allowing Amerindian Villages to make decisions related to land occupancy, sustainable use, and, traditional activities.

Once a title is transferred to an Amerindian community, the community owns the forest resources on that land. Under the Amerindian Act, the community has a right to decide who can use the forest. With regard to mining, the Act provides two very important rights for Amerindian Communities. First, Amerindians have traditional privilege to mine. Second, Amerindians have a veto over small-scale and medium-scale mining by external parties on their titled lands except if there is a larger scale project in the public interest. The Amerindian Act also established the National Toshias Council which plays a crucial role in the development of Low Carbon Development Strategy and the involvement of Amerindian communities.

3.3.12 Sea and River Defence Act (1933)

The Sea Defence Act makes provision for the maintenance and construction of the sea defences in Guyana. It also specifies the boundaries of the sea defence districts within the country. The

Sea Defence Board is charged with the care, maintenance, management and construction of the sea defences. In constructing any new sea defence, a plan and an estimate of cost is prepared and the relevant land is surveyed for the construction of the sea defence. After the Minister grants approval for the construction, provision has to be made for funding and the expenditure has to be sanctioned by Parliament. In cases of imminent threats posed by breaches in the sea defence, the Minister grants approval for immediate action to mitigate any inundation. Any person who commits any act that impairs the efficiency and operation of the sea defence is liable to be fined and/or imprisoned.

3.3.13 Water and Sewerage Act (2002)

The Water and Sewerage Act 2002 provides for the regulation, ownership, management, control, protection and conservation of water resources, the provision of safe water, sewerage services and advisory services. The National Water Council oversees the development, review, management and coordination of the National Water Policy. The Council also conducts analyses of national and regional water use, including threats to water resources. The National Water Policy was developed with due consideration given to the principles that: water is a natural resource and should be used to meet the needs of the present generation without compromising the needs of future generations; water resources should be equitably allocated for the social and economic benefit of the people of Guyana and; water resources should be protected, conserved and used sustainably.

3.3.14 National Drainage and Irrigation Act (1941)

The Drainage and Irrigation Act establishes the Drainage and Irrigation Board and defines its duties and powers. The Board has the sole control and management of drainage and irrigation works in Guyana. The Act also specifies the drainage and irrigation areas in Guyana, their boundaries, and the fees for process and transport.

3.4 National Context: Geography, Climate/Weather, Natural Resources, Land Cover and Productivity.

This section provides summary national data on key relevant variables in relation to Desertification, Land Degradation and Drought (DLDD) for Guyana, and more broadly on the relationship between DLDD and sustainable development.

3.4.1 Geography

Guyana is a tropical country, situated on the northeastern coast of the continent of South America between 1 degree and 9 degrees north latitudes, and 56 degrees and 62 degrees west longitudes. It is bounded on the north by the Atlantic Ocean, on the east by Suriname, on the

south and southwest by Brazil and on the west by Venezuela. It occupies a total landmass of approximately 216,000 square km and has a coastline that is about 434 km long and varies in width from 5 to 40 km with a continental extent of about 724 km. About 35 percent of the country - the area approximately below 4 degrees north latitude – lies within the Amazon Basin. There are three main rivers – the Essequibo, Demerara and Berbice, all of which drain into the Atlantic Ocean.

Guyana has close relations with Caribbean countries because of its similarities due to its past British Colonial influence and its membership to the Caribbean Community and Common Market (CARICOM), which is headquartered in Georgetown, the capital city of Guyana.

Guyana has four main natural geographic regions: the Coastal Plain; Hilly Sand and Clay Region; Highland Region and; the Rupununi Savannahs. The Coastal Plain lies about 1.4 meters below mean high tide level and is protected by natural and man-made sea defences. Most of the population resides on the coastal plain (see Figure 1 below).which consists of the most fertile lands in the country.

The Hilly Sand and Clay Region occupies the north-eastern section of Guyana. This undulating upland varies in height from 2 meters to 400 meters. This geosynclinal trough of sediment is thickest (2000m) in the Berbice Region, increasing towards the Corentyne River and continues into Suriname. Of Pliocene-Pleistocene age, the unconsolidated material comprises 85 percent white quartz sand with pockets of brown and yellow sand. The high porosity enhances infiltration and leaching of the thin layer of dark humus of the topsoil, giving stream water a reddish tint.

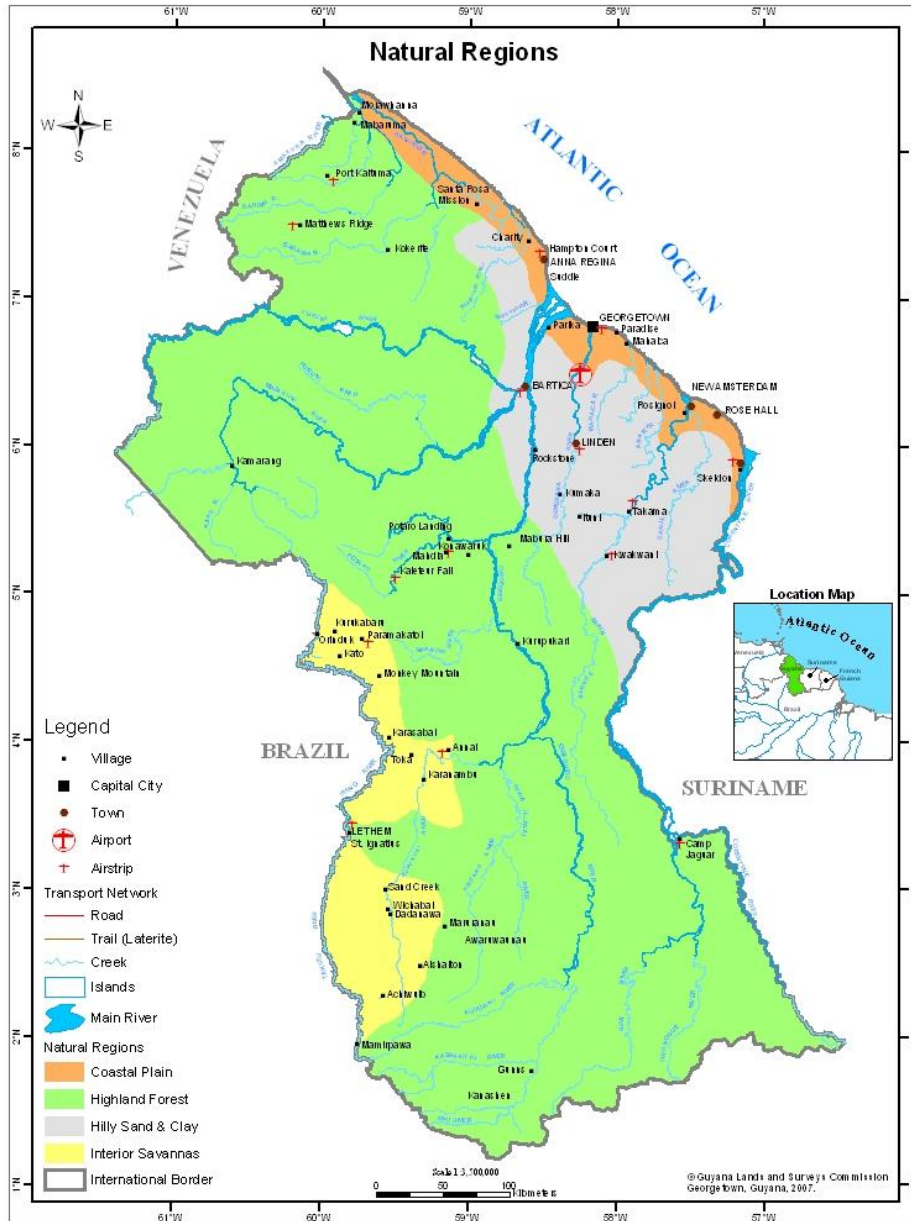
The Highland Region comprising the Pakaraima Mountains, forms a part of the extensive Guiana Highlands that covers an area of 1,300,000 km in Guyana, Venezuela and Brazil. It comprises a series of horizontal beds of quartzitic sandstone, conglomerate and intrusive rocks of almost Pre-Cambrian age. Varying in height from 500m to 2777m at Mt. Roraima, this formation comprises a series of plateaus and tablelands with sharp edges and precipitous escarpments. The plateaus are dissected by many streams and gullies thereby creating deep gorges and waterfalls.

Large tributaries of the Essequibo rise in this upland namely the Cuyuni, Mazaruni and Potaro Rivers which have gold and diamond deposits. The Potaro is well known for the world-famous Kaieteur Falls, which at 225 m is the highest sheer-drop waterfall in the world.

The Savannahs consist of the Intermediate Savannah and the Hinterland or Rupununi Savannah. The Intermediate Savannah, in the eastern part of the country, lies between the Coastal Plain and the Hilly Sand and Clay region. The larger interior or Rupununi Savannah is located in the southwest and is divided into the North and South Savannahs by the Kanuku mountains. The

North Savannah is hillier than the South Savannah and grasslands characterize both areas. Cattle ranching and farming are two of the main activities in the Interior Savannah.

Figure 1: Natural geographic regions of Guyana



3.4.2 Climate/Weather

Guyana's climate has traditionally been uniform and characterised by high temperatures, humidity and heavy rainfall with temperatures along the coast of an average high of 32°C and a low of 24°C; humidity is around 70% year round and rainfall averaging 250 cm annually with

two rainy seasons on the coast (May-June and December-January) and one in the southernmost region (April-September). The major weather system is the Inter-tropical Convergence Zone and the major climate system is the El Niño Southern Oscillation (ENSO).

However, within the last two decades, Guyana has experienced unpredictable changes in weather patterns characterised by severe El Niño in 1997-8 and extreme levels of precipitation on the coast in 2005 and 2006 resulting in widespread flooding along the coast to the extent that several areas were declared disaster areas. Guyana’s threats from natural disasters come mainly from flooding due to the low-lying nature of its coast.

Table 1: Droughts in Guyana and their relation to El Niño

Drought	Pacific Ocean
March 1987	El Niño
January 1988	El Niño
October 1997	Severe El Niño
April 2003	Immediately after El Niño
September 2006	El Niño
February 2007	Immediately after El Niño
November 2009	El Niño
January 2010	El Niño

Source: Desinventar and NOAA

3.4.3 Natural Resources

Guyana is well endowed with natural resources including fertile agricultural lands, diverse mineral deposits, and an abundance of tropical rain forests. The agriculture sector (mainly sugar and rice) which is estimated to be in excess of 95%, is concentrated on the coast and is one of the most important sectors to the economy in terms of the sectoral composition of real Gross Domestic Product (GDP). The agriculture sector contributed 22.8%; marginally higher than 22.1% at the end of 2013. (Source: BOG Annual Report, 2014, page 141).

Agriculture contributes almost 20% to Guyana’s economy with almost 40% of Guyana’s export earnings coming from agriculture. Agriculture Sector is one of the largest areas for investment in Guyana’s economy with more than \$50B invested in current expenditure each year by small scale and large farming enterprises. Mining (gold, diamond and bauxite) and forestry also contribute significantly to the GDP which has continued to grow over the last decade.

The natural resource base of Guyana is dominated by forests which cover some 87% (18.3 million ha)(GFC Forestry Policy Statement, 2011) of the land area and includes wet evergreen forest, dry evergreen forest, semi-deciduous forest and tall to low scrub. Non-forest vegetation areas are found on the coastal plain, the intermediate and Rupununi savannahs and in the Pakaraima highlands). The forests contain extensive biodiversity with a rich variety of plant and animal life, including endangered wildlife, endemic species and unique ecosystems.

Mineral deposits are also extensive: mainly bauxite, gold and diamonds are exploited. The other principal elements of the natural resource base include abundant quantities of freshwater, agricultural land, and extensive fisheries resources.

These valuable natural resources form the basis of economic activity in Guyana. The impacts of human activities on these resources, either in quality or quantity, are of socio-economic and environmental importance. In this respect, the Government of Guyana has established complementary organisational infrastructures to manage the operational programmes in the following sectors in an environmentally sustainable way:.

3.4.4 Land Cover and Productivity

(SO2-1): Estimates, and trends in the distribution of the main land cover classes at the national level (e.g., forests, shrubs, grassland and sparsely vegetated areas, cultivated areas).

Table 2 provides an overview of the estimates of the distribution of the main land cover classes in affected areas in Guyana (extent in square kilometers, and proportion of the area covered by each class in percent of the total extent of affected areas) based on Guyana Lands and Surveys Commission’s National Land Use Plan, Guyana Sugar Corporation Field Reporting System, Guyana Rice Development Board, New Guyana Marketing Corporation, and MRVS (2014).

Table 2: Estimates of Land Productivity Within Each Land Cover Type

Default data are derived from the Global Land Cover-SHARE database of the FAO and refer to the arid, semi-arid and dry sub-humid classes of the UNEP aridity index for the period 2012 - 2015. URL: http://www.glcn.org/databases/lc_glcshare_en.jsp

Natural and semi-natural vegetation				Cultivated areas		Other areas			
Forests		Shrubs, grassland and sparsely vegetated areas		Cropland		Wetlands and water bodies		Bare land and other areas	
Km ₂	%	Km ₂	%	Km ₂	%	Km ₂	%	Km ₂	%
185,716	87.79	14,328	6.77	3180	1.50	3052	1.44	122	0.06

Local Data sourced from the 2013 National Land Use Plan

3.5 Status of Land Degradation and Drought

(SO 3-1).

This section describes the status of land degradation and drought in Guyana, including the identification of ‘affected areas’.

3.5.1 Areas affected by Desertification Land Degradation and Drought

According to the UNCCD, land degradation is the “reduction or loss, in arid, semi-arid and dry sub-humid areas, of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns, such as: (i) soil erosion caused by wind and/or water; (ii) deterioration of the physical, chemical and biological or economic properties of soil; and (iii) long term loss of natural vegetation;”. Simply put, land degradation is a natural process (such as wind and water erosion, salt water intrusion, floods etc.) or a human activity (such as mining, logging, unsustainable farming practices etc.) that results in the land not being able to sustain properly its economic functions or the original ecological functions (ISO 1996, FAO 1998).

The following provides an overview of the drought, land degradation and deforestation in Guyana from an overall national perspective. Broadly speaking, there is not yet a consolidated detailed spatial overview or scientific study of land degradation in Guyana. Therefore, it is important to acknowledge and recognize that the true extent of land degradation may be higher than hitherto thought, and that there is a need for improved surveillance of areas with emerging land degradation threats, such as in or near prospective mining areas.

3.5.2 Methodology used for identifying affected areas

The methodology used to identify areas affected by land degradation was informed by a variety of methodologies that allowed a team of analysts that did an assessment of land degradation in Guyana to capture the complex and diverse nature of data required for a study of this nature. The methodologies included:

- Consultation with Implementing and Executing Agencies and Stakeholders
- Review of documents/reports
- Training/institutional capacity building
- Flyover exercise

The National Assessment of Land Degradation Report (2008) reported that land degradation ranged between 150,000 and 160,000 hectares, with a potential projected increase to between

200,000 and 250,000 hectares within a 10-year period. Figure 2 shows the locations of specific areas and points across the country which have been classified as being affected by DLDD.

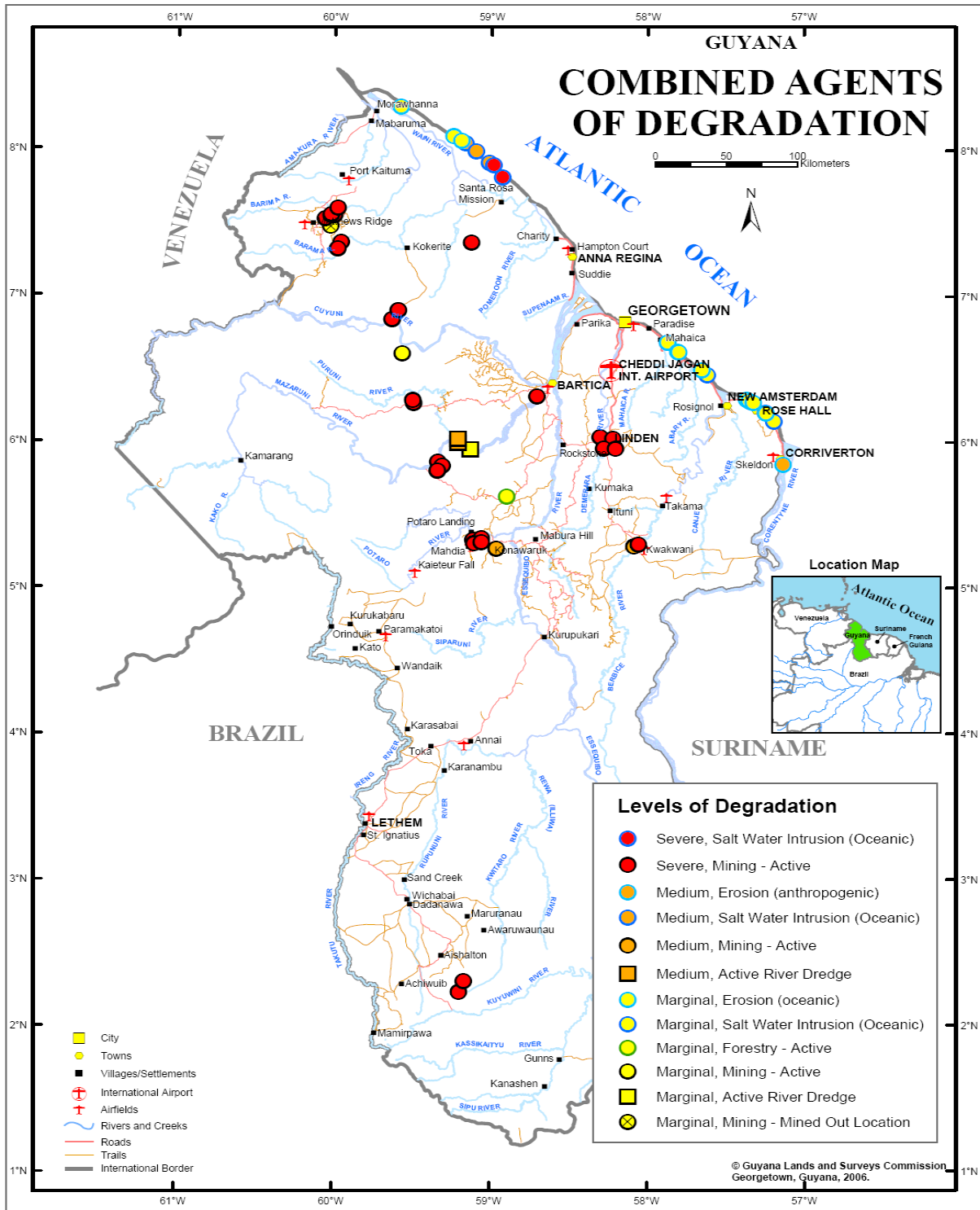


Figure 2: Areas classified as being affected by DLDD

3.5.3 Drought

Drought is a normal part of climate and occurs in virtually all regions of the world. Recent droughts have illustrated the vulnerability of South America and the Caribbean to extended periods of precipitation deficiency. Drought preparedness planning has become a widely accepted tool for governments at all levels to apply to reduce the risks to future events.

Because of drought's slow onset characteristics, monitoring and early warning systems provide the foundation for an effective drought mitigation plan. Drought differs from other natural hazards in several ways. First, since the effects of drought often accumulate slowly over a considerable period of time and may linger for years after the termination of the event, the onset and end of drought is difficult to determine.

Another distinguishing feature of drought is its duration. Droughts usually require a minimum of two to three months to become established but then can continue for months or years. The magnitude of drought impacts is closely related to the timing of the onset of the precipitation shortage, its intensity, and the duration of the event. As with other natural hazards, drought has physical, social, and economic components. Well-conceived policies, preparedness plans, and mitigation programs can greatly reduce societal vulnerability and, therefore, the risks associated with drought.

There are many challenges to improving the management of droughts. Because of its slow onset characteristics and lack of structural impacts, it is often disregarded. This lack of recognition of the importance of drought as a natural hazard by some actors has been an impediment to obtaining adequate financial support and, in many instances, an obstacle to building awareness among policymakers at the local, national, regional, and international level. This lack of awareness, in turn, has resulted in an under-appreciation of drought and its far-reaching impacts. It has also perpetuated the process of dealing with drought in a crisis management mode.

3.5.4 Drought in Guyana

Drought is ranked very low as a hazard affecting Guyana. The majority of agencies identified flooding as the major hazard. This is due largely to fact that the incidence of drought has been intermittent with main events recalled for 2009-10 and 1997-98. Low ranking is attributed to low visibility of drought risks and the fact that surface water sources are plentiful. It is also noteworthy that there is no map showing drought prone areas.

Guyana has suffered meteorological, agricultural, hydrometeorological and socio-economic drought in the last two major drought events which caused economic losses of about US\$43.7 million. In 1997/98 drought resulted in forest fires in Guyana, water rationing, cessation of logging and river transport in some places, about 35 % of rice fields were uncultivated, and affected more than 1500 Amerindian families in Southern Guyana. During the 2009-10 drought,

the Government of Guyana (GoG) spent US\$1.3 million to bring relief to farmers in Region 2 and US\$16,000 daily in Region 5 on water services. The water level at the East Demerara Water Conservancy dropped below safe limit for irrigation and there were incidences of diarrhea which was attributed to use of unsafe water that were reported. These impacts underpin the importance of having an effective Drought Early Warning System (DEWS).

However, with climate variability and change, drought may become more frequent as rainfall is projected to become uncertain, with most models predicting a decrease in annual precipitation in the Caribbean region of 5 to 15 % with the greatest change during June to August. The sector most affected by drought is agriculture which accounts for 33 percent of employment and about 50% of export earnings (Source: BOG Annual Report, 2014). The likely impact on production has implications on export earnings from mainly rice and sugar due to reduced irrigation capacity, volume of food imports to mitigate the shortfalls, livestock production (causes livestock death, reduces fertility, forage production, reduces livestock productivity, and off-take).

The impact of drought on livelihoods (e.g. crop production, aquaculture, micro and small scale enterprises, etc.), is recognized especially for farmers in the hinterland. This is more so for the small to medium scale farmers who are more vulnerable to drought because of their dependence on rain-fed agriculture and creeks which would dry up during the dry season. As a consequence, they face much greater relative loss of assets.

Other sectors affected include natural resources (especially forestry as drought affects transportation of logs, biodiversity), public works, health, mining, inland navigation. Drought is recognised as one of the disaster risks that Guyana faces in both the EWS Framework (CDC 2013) and the Multi-hazard Disaster Preparedness and Response Plans (CDC 2013) but the response plans are only designed for emergencies associated with rapid onset hazards and disasters. The National Integrated Disaster Risk Management Plan and Implementation Strategy for Guyana (CDC 2013) identify the development of a National Drought Response Plan as a priority.

Because various sectors are affected by drought, monitoring and impact assessment will include agricultural production, depletion of water resources, livestock production, land degradation, deforestation and human health.

Data for monitoring impact of data is readily available. However, in most agencies the data is scattered and not contained in an institutional database. This needs to be addressed in order to facilitate monitoring of indicators and to establish historical trends.

3.5.5 National Context

3.5.5.1 Geography - Coastal Zone

Sea level rise, destruction of mangroves, and coastal subsidence are among the principal pressures on the coastal sea defences. In the aftermath of the January 2005 floods, while significant strides have been made to improving the system of drainage and irrigation, these efforts are still challenged by issues of managing solid waste, operational efficiency of key drainage and irrigation infrastructure such as kokers and the continual clearing and maintaining of waterways.

The threat to natural sea defence is ever present with the use of mangrove forest not being monitored or regulated. While there have been efforts to develop an Integrated Mangrove Management Plan there is a lack of data on status and use in terms of distribution, extent and removal. Apart from its role as a natural barrier to the sea, mangroves are an important ecosystem and their destruction represents a loss of habitat for wildlife and fish.

3.5.5.2 Biodiversity and Conservation

Guyana is a signatory to the Convention on Biological Diversity (CDB), which commits nations of the world to conserve biological diversity and to ensure that biological resources are used sustainably. The GoG adopted its National Biodiversity Action Plan (NBAP) on 30 November, 1999 and is making progress in the implementation of several programme areas such as research, administrative and legal framework, public awareness and ex-situ and in-situ conservation. The establishment of protected areas is in Programme Area 6 of the NBAP and a Protected Areas Secretariat was established under the EPA to coordinate the establishment of a protected areas system in Guyana while the World Bank GEF Guyana Protected Areas System Project is moving forward with support from KfW. Some aspects of environmental protection and natural resource conservation are also laid out in the National Environmental Action Plan (NEAP, 2001-2005). The success of all of these programmes depends on the availability of institutional, human and financial resources, which are being sought. The GoG also established collaborative agreements with several institutions that work on biodiversity such as the Smithsonian Institution, Conservation International, Iwokrama International Rainforest Programme, World Wildlife Fund, and Flora & Fauna International.

3.5.5.3 National Land Use Plan (2013)

The GoG has recognized that effective land use planning is of vital importance to the sound management of Guyana's vast natural resources. The National Land Use Plan (NLUP) was approved by Cabinet in 2013 and provides land use options for multiple land uses based on resources. In addition to the NLUP, seven Regional Land Use Plans have been prepared. The NLUP is a living document and it is considered the primary national planning instrument.

The NLUP report includes maps of land availability and regional development options along with potential infrastructure links and potential development 'hotspots'. This Aligned NAP

should serve to inform the NLUP concerning land degradation issues and thus fine tune and adjust planning stipulated by the NLUP.

Table 3: Summary of the National Land Use Plan

<p>Rationale for the National Land Use Plan</p>	<ul style="list-style-type: none"> • Land is a fixed resource which should be managed optimally • For direction and guidance on the best use of the land, both to meet the needs of today but also to ensure that the future generation have the resources they need for their lives • Land has overlapping resources and the land users have conflicts - loggers and miners, foresters and cultivators, housing developers among others. Land Users want to be near to Georgetown or on the Coast. The Plan identifies land based on characteristics for various uses and conflicts can be avoided • The National Land Use Plan presents the Current Situation – maps and data of resources, what exists, where they exist, and how they are currently used and managed with information. One of the useful resource maps in the National Land Use Plan was the Land Capability and Limitation to Agriculture and National Land Use/ Land Cover Map (See Appendix 3, Land Use/ Land Cover (LULC) Map)
<p>National Level Planning</p>	<ul style="list-style-type: none"> • The National Land Use Plan brings together and analyses existing information with the layers of data • Consultations were held in every Region of the country, and comments and suggestions have been taken into consideration in preparing the final National Land Use Plan • Seven (7) Regional Land Use Plans at GL&SC have been developed which are more detailed than the National Plan, and involved more intensive consultations with communities. Again, this information is incorporated into the National Land Use Plan • The National Land Use Plan is not an abstract document. It is a non-prescriptive plan for Guyana which presented analyses for decision/ policy makers, provided information for everyone to access national data and can be accessed on www.lands.gov.gy
<p>Information analysed for presentation in the National Land Use Plan</p>	<ul style="list-style-type: none"> • The National Land Use Plan mainly used existing information from credible sources, such as the Guyana Forestry Commission (GFC) and Guyana Geology and Mines Commission (GGMC) and other Agencies • Spatial information – that is, information related to location and area stored in a Geographic Information System (GIS). As it relates to analysis of the information, different themes or layers provided location information that informed the content of the Plan. Such as, where investors or the public can find available land, available land suitable for agriculture, proposed transportation networks, proposed areas for development options
<p>Some key findings</p>	<ul style="list-style-type: none"> • 98% of Guyana is still under natural vegetation. The impact of humans is minimal away from the coast • 88% of the population lives on the coastal plain. Poverty is highest in

	<p>interior areas</p> <ul style="list-style-type: none"> • Forests cover over 88% of Guyana; deforestation is only 0.06% per year, mostly due to mining • 37-42% of Guyana has no land use claim on it and is ‘available’; of this available land, 88% is forested. (See Appendix 3 Land Availability Map) However, there is land pressure on the coastal plain, but this could be relieved by continuous enforcement of land lease policies • Key current land uses are forestry leases (33% of Guyana), mineral prospecting leases (19%), titled Amerindian areas (15%) protected areas (8%), GL&SC leases (2.5%), and mining leases (2%). Mining and forestry leases frequently overlap, causing conflicts • There are about 3.3 million hectares of good (Class I & II) agricultural land. Beyond the coastal plain, this is concentrated in Regions 1, 6, 7 and 10. About 79% of this agricultural land is currently forested • Mining and agriculture are much more profitable per hectare than forestry and other uses • Hydropower potential is high, with 67 potential sites identified. Guyana’s current energy demand (about 160 MW) is less than 5% of potential hydropower production (4 to 7 GW), offering opportunities for export
<p>Output of the National Land Use Plan: Development Options for Guyana</p>	<ul style="list-style-type: none"> • Land Use options overlap in that they use the same areas of land. Four key areas, or ‘hotspots’, where competing land uses are particularly severe and/or provide transport links and/or power sources, were identified and are shown on the map (See Appendix 3, Development Options Map) • <i>Mathews Ridge/ Port Kaituma</i>, with high potential for forestry, mining and agriculture. The constraints are access and power. Access could be developed from Aurora through Kokerite to Mathews Ridge, and power generation if the Eclipse Falls Hydropower (4 Megawatts) is developed • <i>Bartica- Linden</i>, with its forestry and mining uses, has potential for agriculture, especially because of its position as a centre linking areas of production to transport links and coastal port(s). Mined out land around Linden could be developed for industry and export processing • <i>Intermediate Savannahs - Canje Basin</i>, has potential for agriculture, livestock and plantation forestry or biofuels, coupled with an expansion in bauxite mining. Development will require linkages with processing centres, such as Linden and export ports such as New Amsterdam, and potentially with Venezuela and Suriname. The Tiger Hill (15MW) hydropower site on the Demerara River could power agro-processing industries • <i>North Rupununi- Savannahs area</i> is suitable for large-scale farming (requiring high capital costs), livestock rearing, and plantation forestry. There is easy market access to northern Brazil or to Georgetown and New Amsterdam as roads are developed. The area also has potential oil deposits. The area is important with potential for conservation and

	<p>tourism. Potential road developments, providing connections to all parts of the country, the development hotspots, potential hydropower sites, tourist areas, and export points were prepared</p>
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Methodology

The analysis of information and data gathered was undertaken in the knowledge that the output of the NLUP would be a series of development options both nationally and for different areas of the country. The evaluation of development options was undertaken following the assessment of the current situation, the identification of problems and an evaluation of options guided by an analysis of sectoral opportunities and constraints while keeping in mind the issues raised by local land users in the stakeholder discussions within a framework of government policies and strategies.

Consultations for land use planning were of two types; institutional and community stakeholder consultations. The institutional consultations were undertaken mainly in Georgetown and followed the pattern of an initial consultation to introduce the aims of the Project followed by a longer consultation to gather information, discuss issues and obtain any available data. Other institutional consultations were also conducted in easily accessible Regions and during the course of a country-wide field trip in September 2011. The majority of institutional consultations were undertaken between February and September 2011 although follow-up consultations continued until the end of the Project when the need arose.

Community stakeholder consultations were undertaken in each Region of the country between February and May 2012. The aim of these consultations was to gain an insight into what the regional land use and planning issues were so that these could serve as a guide at the strategic level of the national land use plan. Participants for the consultations varied among Regions but usually included representatives of National Democratic Councils (NDCs) (or Community Development Councils in the case of Region 10), Water Users Association, Co-ops and land users such as rice, cash crop and livestock farmers, aquaculture operators and the like. In regions with Amerindian Areas, Toshaos and other Amerindian representatives were invited. In Regions where municipalities existed, the relevant representatives were invited. Regional representatives of major land use agencies such as GFC, GGMC and GL&SC were also invited.

3.5.5.4 Forestry

Forest lands occupy about 18.3million ha, some 87% of the total land area of the country. Of this, 12.8 million ha (74%) is State Forest land (GFC Forestry Policy Statement, 2011). The utilisation of

this vast resource has implications for sustainable land and resource management. In the forestry sector, the GoG has recognized the importance of establishing sustainable harvesting techniques and guidelines. The Guyana Forestry Commission (GFC) has produced a National Forest Policy Statement (1997) and a Code of Practice for Timber Harvesting that outline sustainable use of timber and major non-timber forest products. Several proposals are also included in the National Development Strategy -2001-2010 (NDS) that promote forest conservation. Apart from the above initiatives, the GFC is engaged in a forest zonation process, which could have implications for land-use planning in Guyana. A National Forest Plan has been prepared and endorsed at the Agency level. The forestry sector is increasingly challenged by the scarcity of traditional commercial species, poor production planning and harvesting methods, insufficient monitoring, and perhaps most significant, the threat to the forest resources and ecosystems from small scale mining activities (MRVS 2014).

3.5.5.5 Agriculture

Agriculture is a major pivot of the economy of Guyana. Ninety-five percent of Guyana's agricultural activities are concentrated on the coast with the sector contributing as much as 118149 Million Guyana Dollars to the GDP (Bank of Guyana Report, 2014) and is boasted as one of the main employers in Guyana with the Guyana Sugar Corporation being the largest employer in Guyana). The threat as a consequence of flooding and drought cannot be overemphasised. At present there are efforts to diversify the agriculture sector to introduce non-traditional crops as well as improved technology and land management practices. It is the most dominant activity on the coastal zone because of its favourable soil and climate for lowland crops such as sugar cane, rice, and vegetables. A fairly comprehensive soil survey of Guyana was completed in the 1960's through a joint effort of the GoG and the Food and Agriculture Organization (FAO). In recent times, however, there has been a call for agricultural expansion and diversification in the hinterland.

3.5.5.6 Mining

Mining is the sector which is said to contribute significantly to environmental impacts and land degradation, especially in the hinterland. Gold and diamond mining activities have been on-going in Guyana for more than 100 years and has evolved over the years with the introduction of improved technologies which are permitting larger operations and greater area coverage with consequential adverse environmental implications. Mining essentially involves the removal of vegetation and topsoil so that the underlying deposits can be mined. This represents both a direct migration and at times loss of biodiversity and destruction of habitats, the cumulative impacts of which are not yet known though there are increasing reports of adverse downstream impacts on water quality, aquatic flora and fauna and most importantly local communities. Moreover, maintaining the health of rivers in the face of increasing pressure from the mining industry is a principal challenge.

To combat these impacts, the government has published a mining policy, and has developed strict mining laws and regulations. These regulations, referred to as the ‘Mining Amendment Regulations 2005’ were passed in Parliament in March 2005. Work is ongoing on other Regulations regarding mining and a Multi-stakeholder Technical Committee, headed by GGMC, is spearheading these efforts.

Guyana and Canada have collaborated on a project since October 1998 towards environmentally friendly mining. This has led to an upgrade of the Environmental Unit (functional since January 1996) at GGMC to an Environmental Division which, together with other sections of GGMC, monitors mining operations. There is also a drive to promote environmental and public awareness among miners and stakeholders. Furthermore, large-scale mining operations, those which use cyanide in their operations, and those in sensitive areas have long had the requirement of Environmental Impact Assessments (EIA) to be conducted. Mining companies are required through their permits to observe the prescribed environmental guidelines as set out in the Regulations. In addition, there are ongoing activities by the GGMC to register all dredges and mining activities.

3.5.5.7 Wildlife

Currently, there is no wildlife policy for Guyana but the Government has been consistently taking steps to adequately manage this resource. There is a Wildlife Conservation and Management bill to be tabled in Parliament in 2016, which will assist the Wildlife Management Authority to better manage the resource. Access to genetic material and research on wildlife has been regularized and specific guidelines such as the species protection regulations have to be followed. The Species Protection Regulations (1999) have been enacted to regulate the wildlife trade and Guyana is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This Convention seeks to protect endangered species from over-exploitation by tightly controlling trade in live or dead animal parts through a system of permits.

For management of the Wildlife Trade, the Wildlife Management Authority and a Wildlife Scientific Authority are responsible for setting quotas, closed seasons, providing licenses to exporters and generally regulating the Wildlife Trade of the country. Guyana has indicated its desire to work with Suriname to combat smuggling and illegal trade in wildlife. There are also Wildlife Conservation and Management Regulations that look holistically at wildlife resource management in Guyana. These regulations are currently the subject of national consultations.

3.5.5.8 Fisheries

The fisheries sector of Guyana is comprised of three primary components: marine fisheries, inland fisheries and aquaculture. Most of the marine fishing occurs in the shallow waters of the continental shelf. Freshwater or inland fishing is done in rivers, creeks, lakes, reservoirs, canals, flooded fields, and in savannah areas. The development of aquaculture has been slow but two forms of aquaculture are practiced in the country: traditional extensive brackish water culture and freshwater pond culture. The Draft Fisheries Bill and associated Draft Aquaculture Bill are at the final stages of the law-making process. These together, introduce provisions to implement the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas and the Agreement for the Implementation of the United Nations Convention on the Law of the Sea.

3.5.5.9 Tourism

Tourism in Guyana is promising, especially nature based, since the country has large areas of pristine natural tropical rain forests, natural, cultural and heritage sites, rich biodiversity and biological resources and a varied ethnic, religious and cultural diversity. The Government through the Tourism Authority Act in 2003 created the semi-autonomous, Guyana Tourism Authority. In 1998, an Ecotourism Development Plan was prepared with assistance from the Organisation of American States (OAS). Aspects are currently being implemented by the Guyana Tourism Authority (GTA). The National Development Strategy recognizes that protected areas are essential in the promotion of tourism; “the according of special status to areas known to possess unique natural characteristics, is fundamental to the development of tourism in Guyana”. GTA, in collaboration with the Guyana Bureau of Standards has been developing standards for tour operators, hotels, and interior resorts. In the field of formal education, the University of Guyana offers a degree and diploma programme in Tourism Studies.

From the above review on national circumstance, it is apparent that Guyana has valuable natural resources to be utilised for the development of the country and its people. At the same time it illustrates the range of sectors and stakeholders that are involved in land planning and management.

Land degradation in Guyana, while perhaps not as visible at this stage, has been increasingly occurring and the potential exists for it to expand. Apart from the interior forest belt, even within the coastal zone and adjacent white sands region, forest cover has been lost to activities such as sand and bauxite mining, agriculture, human settlements, and harvesting for fuel wood and poles. While these represent the main known contributing factors to land degradation there is still to be a comprehensive assessment of land use and degradation in Guyana.

3.5.5.10 Demographic distribution and socioeconomic information

Generally, the livelihood of people living in or near areas affected by DLDD is often adversely affected. Under some circumstances, the communities are considered the cause of the very degradation itself. Often, however, communities living in affected areas are particularly vulnerable to disturbances to the ecosystems upon which they depend for their livelihoods.

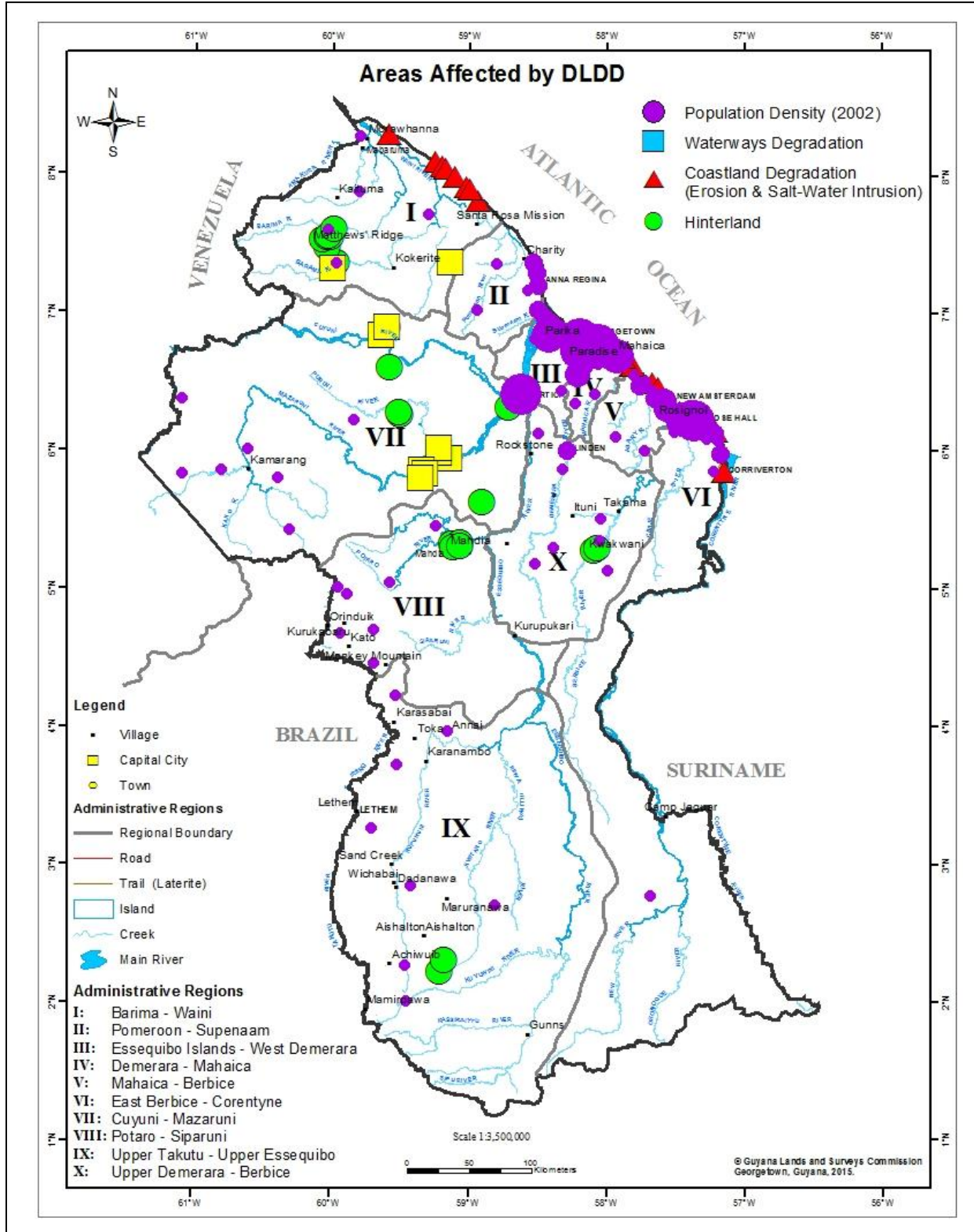
Therefore, it is particularly important to ensure a good understanding of the demographic distribution in the context of Guyana's strides towards poverty alleviation and to meet the broader targets of MDGs and SDGs.

3.5.5.11 Absolute and relative (proportion) numbers of people living in areas affected by DLDD

(SO1-1).

There is not yet any detailed statistics on the numbers of people and the proportion of Guyana's population living in areas affected by DLDD. In Guyana, the majority of its people live in affected areas (, primarily on or near the coastline. Figure 3 shows that there is a general spatial overlap between population density and locations identified as being affected by and at high risk of DLDD. The urban areas are predominantly located along the coast, and approximately 93% of Guyana's population lives in urban areas.

Figure 3: Areas affected by DLDD



3.5.5.12 Socioeconomic data/information of communities/people living in affected areas

There is not yet any data/information on the relative income, income inequality and poverty severity. Baseline data and statistics on this would be desirable, in order to be able to monitor trends and changes in proportions of people living below the formal poverty line in the affected areas. (SO1-1).

3.5.5.13 Other livelihood aspects of people in affected areas

Table 4 below shows the population data on those using and/or having access to an improved drinking water source available at the national and regional level Source: 1.) Guyana Water Inc. (GWI) Customer Information Database 2.) 2013 Preliminary Census Report 3.) Population Census 2002 - by Regions). (SO1-2).

Table 4: Proportion of population (by region) using an improved drinking water source for the period 2012-2014

Region	Total Population	Population using an improved source of drinking water source	Proportion of Population using an improved source of drinking water source
Region 1	26,941	20,615	0.77
Region 2	46,810	43,255	0.92
Region 3	107,416	103,000	0.96
Region 4	313,429	311,002	0.99
Region 5	49,723	46,885	0.94
Region 6	109,431	107,467	0.98
Region 7	20,280	13,881	0.68
Region 8	10,190	6,938	0.68
Region 9	24,212	22,888	0.95
Region 10	39,452	33,790	0.86
Total	747,884	709,721	0.95

Source: GWI 2015

The data shows that the majority of the population has access to improved drinking water.

4 ACHIEVEMENTS AND PLANS FOR ADDRESSING DESERTIFICATION, LAND DEGRADATION AND DROUGHT

The GOG has fully acknowledged the potential socioeconomic impact of DLDD on the country, including in particular on its economic development.

This chapter describes the efforts which the GOG has embarked on to combat DLDD in Guyana, and also provides an overview of the continuous plans to adapt to address land degradation. Approaches applied by the Government of Guyana, and, key results from a range of ecosystems and sectors, as well as efforts on governance and institutional levels, and finally awareness and capacity building, are described.

4.1 Guyana's achievements in addressing Land Degradation and Drought

The key responsibility for leading and coordinating the complex implementation of the NAP rests with the GL&SC which collaborates with a range of key natural resources and environmental management institutions in executing this function.

In particular, this level of collaboration occurred through the National Steering Committee (NSC) of the UNCCD. The NSC has oversight responsibility for the implementation of the UNCCD activities and comprises the following institutions: (i) GL&SC, (ii) GFC, (iii) Guyana Geology & Mines Commission (GGMC), (iv) Environmental Protection Agency (EPA), and (v) Civil Defence Commission. The Committee provides guidance and advice, as well as, overlooks the planning of activities related to the preparation of the NAP.

Since 2008, Guyana has made progress to strengthen its environmental policy framework through the implementation of critical initiatives that directly and indirectly addresses land degradation issues in key sectors. These include Guyana's Low Carbon Development Strategy that provides the overall framework and the national system to monitor, report, and verify emissions or removal of carbon from the forest. Guyana's commitment to the Extractive Industry Transparency Initiative (EITI) and the EU-FLEGT are intended to further improve sustainability and enforcement standards.

In addition, the implementation of Guyana's Land Use Plan and the finalization of its National Land Use Policy will further enhance and strengthen the land use policy framework to address land degradation.

Several synergies and mechanisms emerged during the stakeholder engagement process to prepare the Aligned NAP and critical among these were (i) inter-agency collaboration, (ii) sharing of human resources among the key natural resources institutions (to bridge the technical capacity gap in the short term), (iii) technical assistance, and, (iv) capacity building and training. The institutional arrangements for Aligned NAP implementation were recognised as critical and

over the years a few changes were made to these arrangements. The institutional arrangements are further elaborated on in Section 7 of this report.

Strengthening of institutional arrangements for natural resources and environmental management was achieved through the creation of the Ministry of Natural Resources and the Environment. This Ministry was created to facilitate the efforts of Government to continue to focus on expanding and diversifying the economy on the basis of rational use of Guyana's natural resources. The Ministry has the responsibility to coordinate activities in the forestry, mining, environmental management, wildlife, protected areas, and land use planning sectors. In addition, the Ministry has overall responsibility for the following institutions: GFC, GGMC, Guyana Gold Board, GL&SC, EPA, Wildlife Management Authority, National Parks Commission and PAC to allow for greater coordination among the principal natural resources agencies. MNRE has prepared a Strategic Plan for the period 2013 - 2018 which outlines measures for improvement in institutional arrangements and coordination.

The range of institutions involved in land management is complex in Guyana, with GL&SC being the key institution. The GL&SC is cooperating with GFC and GGMC to integrate all aspects related to desertification in order to effectively address SLM. There is regular communication within the institutional architecture to properly combine efforts and mobilize resources, although it may be possible to improve interactions between these institutions.

The role of each actor involved in land management is clearly identified in the attempt to achieve maximum cohesion amongst the stakeholders and to ensure that their individual efforts foster synergistic results. These dynamics could be further strengthened by improving institutional capacities and mobilizing the resources necessary for roles to be executed effectively.

An important aspect of the responsible institutions is the capacity of their human resource base. With regard to the GL&SC it would be useful to create a UNCCD National Secretariat and Coordinating Committee to oversee the implementation of the Aligned NAP.

The existence of a functioning mechanism for dialogue and coordination amongst the relevant stakeholders is also a keystone for the success of the UNCCD Strategy. This needs to be strengthened to ensure that there is the required coordination across sectors, among stakeholders involved in the task of combating desertification.

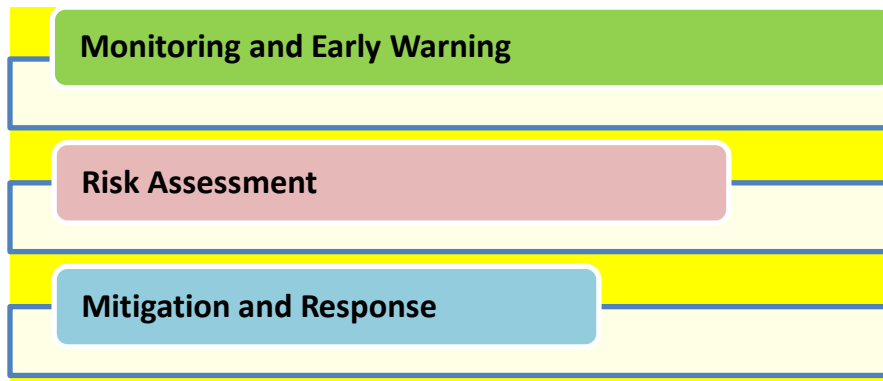
Cross sectoral committees such as the Land Reclamation Committee and the Mangrove Action Committee are also being created to implement specific activities within the sector. Non-Governmental Organisations (NGOs) and Community Based Organisations (CBOs) are also actively participating and contributing, thus enhancing the institutional capacity.

4.2 Protocol for Drought Early Warning System

A Drought Early Warning System (DEWS) is a system for monitoring drought to provide timely information for decision makers to take measures to mitigate the impact. (Protocol for Drought Early Warning System, 2015). The success of a DEWS depends eighty percent on the capacity of the country to detect a drought several months in advance, allowing the dissemination of the news and preparedness to mitigate the effects. The early warning component of a drought plan is essential because it provides the foundation on which timely decisions can be made by decision makers at all levels.

A drought protocol has three components: monitoring and early warning; risk assessment; and mitigation and response. The monitoring and early warning component of a drought plan is essential because it provides the foundation on which timely decisions can be made by decision makers at all levels.

Figure 4: Components of a drought protocol



The DEWS should be able to detect emergence of rainfall deficits which is normally the best indicator of approaching drought period. Effective drought early warning requires the adoption of a protocol that includes the application of tools and indices in monitoring and forecasting and evaluation of potential impacts in specific sectors. It includes mechanisms and procedures for the collection and analysis of data and dissemination of the early warning messages on drought onset, progression, end, and severity to a broad group of users in a timely manner so that it can be applied in decision making.

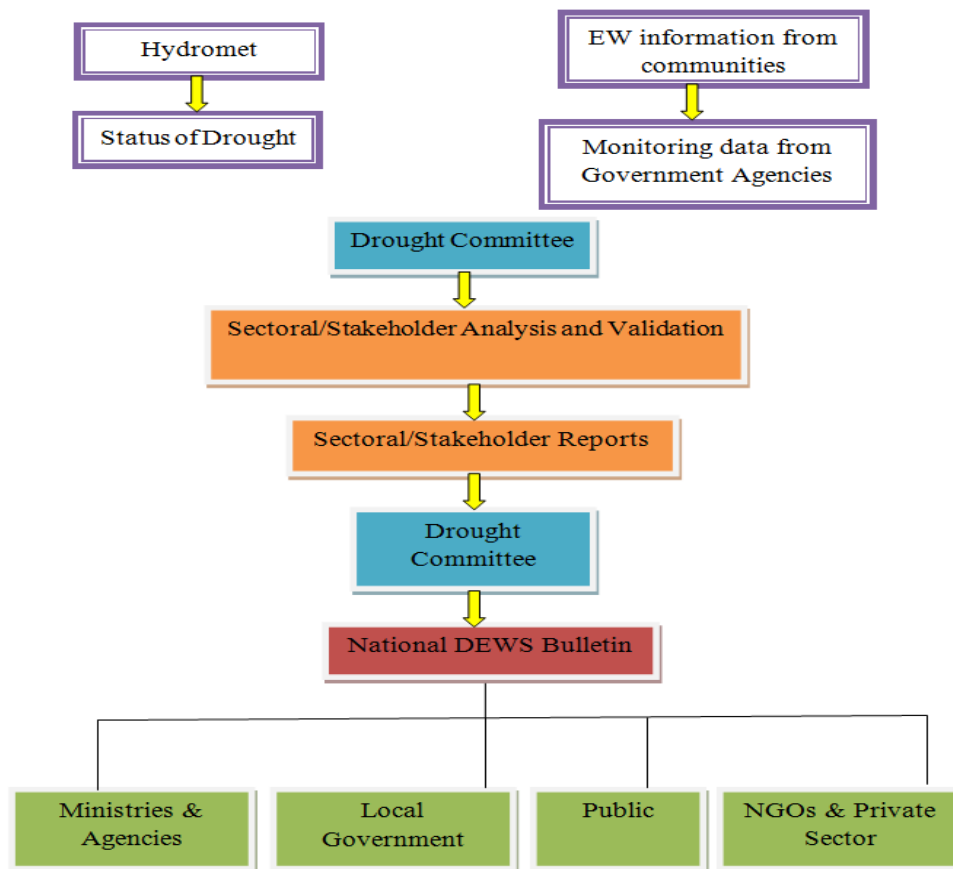
Sector heads and CDC can issue early warning information and this is also provided for in the EWS framework (CDC 2013). This has the potential to cause confusion among the public which can build mistrust. However, it is important that the EW information be issued by only a single national agency with the requisite political authority (UNISDR 2006, United Nations 2006) such as the CDC. This is essential for public confidence if decision-makers and other recipients are to trust an EWS and act on the information received (Bailey 2013).

Much of the weather information available is for short periods and best suited for monitoring meteorological drought. However, for a functional DEWS, seasonal forecasts with typically three

month lead period are an essential addition. Integrating weather/climate information with data and information collected by other agencies allows for better monitoring of the occurrence of the other types of drought and their likely impact. This is useful for decision making on appropriate mitigation measures.

The EWS framework for Guyana is based on a multi-hazard approach and provides for participation of the institutions required for functioning of the DEWS. However, improvement is needed in sector collaboration and coordination. Collaboration is also necessary with neighbouring countries and regional institutions such as Caribbean Institute for Meteorology and Hydrology (CIMH) to benefit from technical support in terms of training, equipment, research, investigations, and the provision of related specialised services and advice (Protocol for Drought Early Warning System, 2015).

Figure 5: A Simple Model for the DEWS Protocol for Guyana



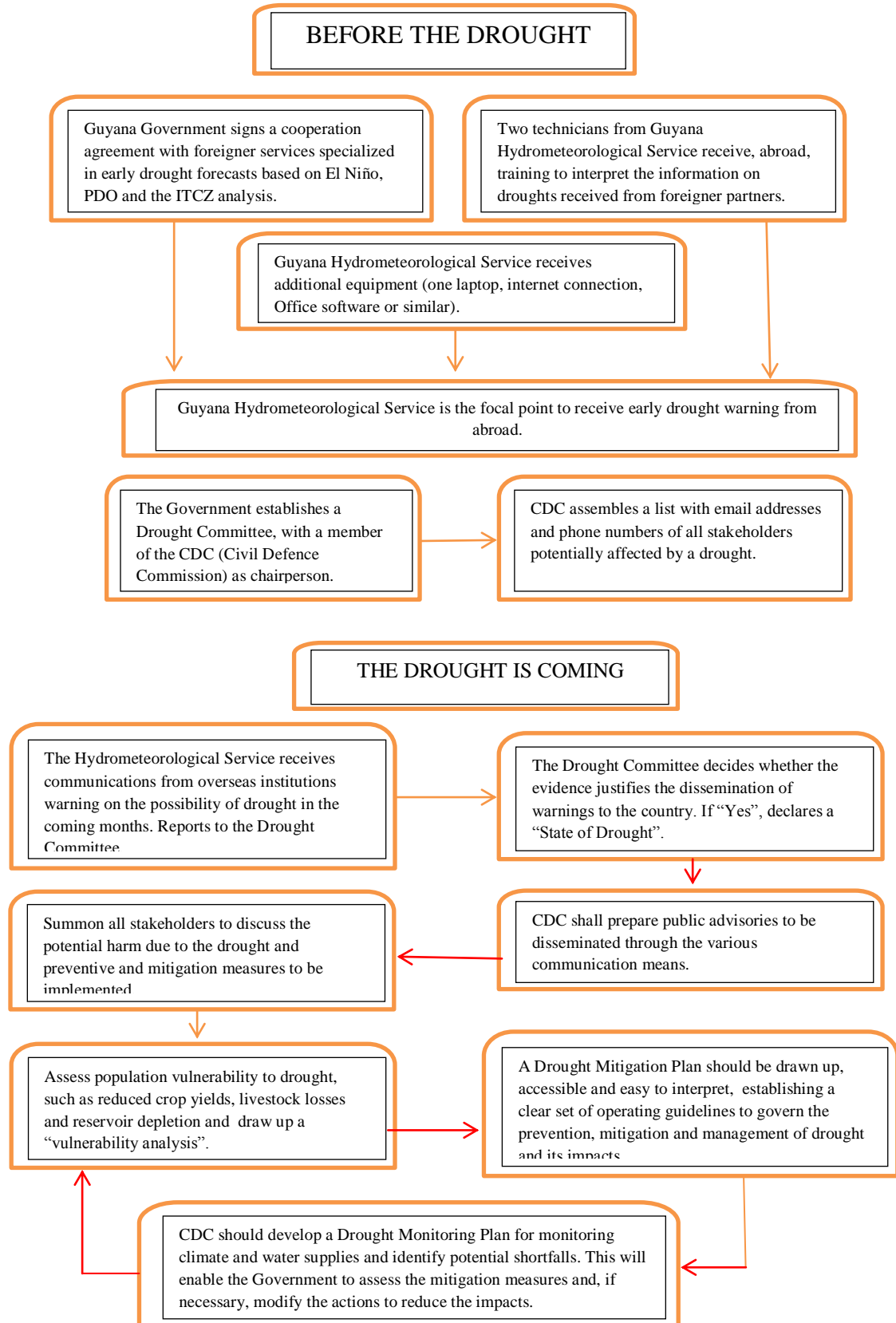
Source: Protocol for Drought Early Warning System, 2015

The goal of the DEWS protocol is to allow the authorities to forecast well in advance, prolonged drought and take preventive measures to reduce or mitigate the impacts. The model does not have the sophistication of the models used in countries more advanced than Guyana in terms of financial or human resources, but it has the virtue of being able to be implemented immediately, with very low cost and with high reliability.

The DEWS is relatively new to the Guyanese population and as such, there is need to be as clear and detailed as possible on every aspect of it. The main purpose of having a DEWS is to protect lives and livelihoods from droughts, minimizing negative impacts on economy and environment. An effective DEWS constitutes one of the key elements of any disaster reduction approach. Devising measures to help the citizens of Guyana to be previously informed about the coming drought and adjust through adaptations efforts is a foundational concept.

Figure 6 shows actions to be taken before the onset of the drought.

Figure 6: Actions to be taken before the onset of a drought



The Drought Committee

A Drought Committee should be formed, whose function is to receive the Hydrometeorological Service warnings about possible droughts and decide whether the evidence justifies the dissemination of warnings to the country. It is suggested that the Committee's chairperson should be a member of the Civil Defence Commission (CDC), because it is the agency most involved with natural disasters.

The committee should include, at minimum, representatives of the following agencies:

- Hydrometeorological Service (monitoring & warning);
- Government Information Agency (GINA) (communication);
- Civil Defence Commission (CDC) (communication, dissemination, preparedness & response);
- Guyana Lands & Surveys Commission (GL&SC) (knowledge);
- National Drainage and Irrigation Authority (NDIA) (knowledge);
- Sea and River Defence Department (SRDD) (knowledge);
- Guyana Bureau of Statistics(knowledge);
- Guyana Red Cross(knowledge and skills);
- Environmental Protection Agency (EPA) (knowledge)

The Drought is Coming

The Hydrometeorological Service has the mandate to advise policy makers of any drought which has occurred or which is likely to occur. After the Hydrometeorological Service receives two communications from overseas institutions warning or the usual source on the possibility of drought in the coming months, it should report the fact to the Drought Committee. The Committee should adopt a workable definition of drought that could be used to phase in and phase out levels of actions in response to drought.

When a meteorological drought is detected, before a drought period is declared, the Committee should, in a meeting, analyze the situation, based essentially on the water storage levels in some reservoirs, particularly multi-purpose reservoirs and the imbalance between water availability and water demand prediction.

If the decision of the Committee is for the presence of a drought, this Committee shall propose to the Government to declare a "State of Potential Drought" and a Drought Mitigation Plan should be drawn up. The Committee must make its information accessible and easy to interpret, and it must deliver a clear, consistent message to decision makers so that they can act on this information.

Dissemination of the Information

People need to be warned of coming drought as soon as it is detected, but often are not. Information needs to reach people in time for them to use it in making decisions. In establishing

information channels, the Drought Committee needs to consider when people need various kinds of information.

Based on the information received and the approval of the Office of the President, the Civil Defence Commission (CDC) shall prepare public advisories to be disseminated through the various communication means: print, radio, television, mobiles, internet, etc.

As the dissemination about drought needs a skillful entity who knows how to interact with the population, it is suggested that the dissemination of the drought forecast be done by the CDC, in coordination with the GINA. It is important to highlight that one, and only one body should be responsible for the dissemination of drought warnings to other stakeholders.

The CDC shall assemble a list with email addresses and phone numbers of all entities, from the government and civil society, which have a stake in programs for the mitigation of the effects of the drought. When a State of Drought is declared, all entities on the list will be informed by telephone, email, text, WhatsApp and other media about the fact. All stakeholders shall be informed. The press, NGOs and social networks should be part of the list of entities that will receive the alert.

Each stakeholder should have a focal point, whose function will be to receive and internally disseminate the information received from CDC within his/her organization. As there is no formal system to determine whether advisories were actually received by the general population, the messages should be accompanied by a warning such as "if you do not reply that you have received this message, your organization will be disconnected from the drought forecasting system". Only high probability of droughts messages should be publicly disseminated. The extent of the risk is usually determined by meetings among the relevant agencies.

Although low and medium probability messages are generally avoided, as there are no existing criteria for the determination of the magnitude of a particular risk, it is recommended that these low and medium probability messages be disseminated, at least, within the governmental institutions, at least.

The CDC is already making progress in incrementing the use of computer technologies for communications, but an Information and Communication Technologies (ICT) policy and stronger human capacities are needed.

The Role of the Civil Defence Commission

The Civil Defence Commission (CDC) plays the lead role in national disaster preparedness and response. CDC chairs the National Disaster Platform which has the participation of all key agencies and stakeholders. At the local level there are ten (10) Regional Democratic Councils (RDCs) that are responsible for preparing their respective disaster preparedness and response plans under the supervision of the CDC. The preparedness and response plans of the RDCs also include the community-level (Neighborhood Democratic Councils).

As it is a technical entity which deals more closely with droughts, and for the sake of speed

dissemination, it is recommended that for a DEWS, the CDC be the authorizing body for issuing the warning, which contradicts with the current national EWS Protocol. CDC has a small staff base, however, with training and more resources it can be the leader on information on drought forecast. It is recommended that the CDC improves the Multi-hazard EWS, which has little mention of drought, through the adoption of this proposed DEWS.

Summoning all Stakeholders

In practical terms, after an alert of possible drought is released, meetings with all stakeholders should be summoned to discuss the potential harm due to the drought and preventive and mitigation measures to be implemented. The meetings should be held in the most practical venue e.g. the capital, and should have the participation of representative leaders of various economic and social sectors. The purpose of the meetings is to inform about the possibility of a new drought, get reports about the losses suffered in previous droughts and ask for suggestions on how to mitigate the impacts of the next drought. Stakeholders should include government agencies, businessmen's and farmers' associations, NGOs, social movements, representatives of the nine Regions and municipalities, among others.

Vulnerability Analysis

Little attention has been given to preparedness, mitigation, and prediction/early warning actions (i.e., risk management) that could reduce future impacts and lessen the need for government intervention in the future. Because of this emphasis on crisis management, society has generally moved from one disaster to another with little, if any, reduction in risk. In fact, many response measures instituted by governments, international organizations, and donors have actually increased vulnerability by increasing dependency on internal or external assistance.

After the summoning of stakeholders, the CDC should have sufficient data to perform a vulnerability analysis. The CDC, along with the other entities of the National Government shall draw up a “vulnerability analysis”, the result of which will guide the development of preventive and mitigating measures to deal with the coming drought. The purpose of vulnerability analysis is to provide government with an effective and systematic means of assessing drought impacts, developing mitigation actions and programs to reduce risk in advance of drought, and developing response options that minimize economic stress, environmental losses, and social hardships during drought.

The vulnerability analysis provides a framework for identifying the human, social, economic, political, physical, and environmental causes of drought impacts. It directs attention to the underlying causes of vulnerability rather than to its result. Hence, a vulnerability analysis should begin by asking why significant impacts have occurred (or why they might occur). It is important to realize that a combination of factors (e.g., environmental, economic, and social factors) or underlying causes (e.g., livelihoods at risk, incentive preferences, and inappropriate crops) might produce a given event. The government team responsible for the vulnerability analysis should

define the scope of the analysis, the most drought-prone areas and most vulnerable economic and social sectors.

The Drought Mitigation and Monitoring Plan

The need for the development of a drought protocol and mitigation plan is vital for the implementation of an effective DEWS. Timely forecasting, preparedness and mitigation are central components of disaster risk reduction, and are more important than relying solely on ad-hoc emergency response measures. A combination of top-down and bottom-up approaches is required for development and implementation of effective preparedness and mitigation measures;

After the vulnerability analysis, coordinated by the CDC and other sectors of the Government, a “Drought Mitigating Plan” should be drafted. This is not a fixed plan, but a conglomerate of actions to be taken and discussed with stakeholders and authorities.

The Drought Mitigation Plan (DMP) should establish a clear set of principles or operating guidelines to govern the prevention, mitigation and management of drought and its impacts as well as the development of a preparedness plan that lays out a strategy to achieve these objectives.

The DMP shall specify the respective roles of the national and the regionals government, local communities and land users, and the resources available and required to implement appropriate drought risk reduction activities (Protocol for Drought Early Warning System, 2015).

4.3 Stakeholder Engagement

A comprehensive strategy and approach for stakeholder engagement to ensure that the Aligned NAP is inclusive of relevant stakeholders will be developed, so that CSOs, NGOs and STIs can increasingly be engaged in the implementation of DLDD projects/programmes, with specific targets. This will further highlight the need for a National Communication Strategy (See recommendations 1 and 2 in Table 10 of this report - Assessment of Operational Objectives and Expected Outcomes against Guyana’s NAP).

4.4 Education/training, and awareness

(Consolidated-OO-3).

This section provides an overview of approaches and activities to enhance DLDD-related education and training. Activities under this programme area are intended to promote public education and public awareness and increasing capacities to ensure implementation of the NAP.

Actions in the past have included:

- A Gap Analyses was conducted as a part of the National Capacity Self-Assessment(NCSA) Strategy and Action Plan (see section 4.11 on “Capacity Building” in this report) and a brochure was designed to increase awareness of the Focal Point to the UNCCD. The NCSA Strategy and Action Plan also included a skills assessment with specific focus on the UNCCD.
- The SLM Project increased awareness of SLM through consultation workshops, training, distribution of reports, etc. Efforts were also made to have SLM integrated into the school curriculum, including the preparation of a Teachers Kit and a Training Video.
- The use of existing tools to promote SLM is being utilized. This includes the usage of the GL&SC website, publishing of materials by the EPA on land degradation and the UNCCD and the creation and distribution of brochures which report on activities within the mining sector by GGMC. GFC also promotes SLM through sustainable resource use on its website, and through brochures and posters.
- Some training was conducted at the regional and local levels including Disaster Risk Management. NGOs and Community Based Organisations (CBOs) involved in natural resources and conservation activities were engaged in activities relating to the promotion of SLM.
- Hinterland communities are from time to time, educated on sustainable use of the forests to address issues of forest fires and conservation practices through the efforts of the GFC and NGOs/CBOs. In addition, Amerindian communities receive on an annual basis Presidential Grants for community development projects as well as financing from the Ministry of Amerindian Affairs for their community development projects (CDPs). Further, forested Amerindian Villages have the option of op-in under the low carbon development strategy which would see those communities receiving monies to not harvest forest.
- Specific training initiatives were conducted and programmes available to promote SLM. This included training workshops conducted by the SLM Project which covered a wide range of SLM areas including Land Degradation Assessment in Drylands Methodology, EWS, Watershed Management, Resource Valuation and Teachers Training Kit. Capacity was developed in the areas of national land use planning, updating of the regional land use methodology and spatial planning. GIS Training was also completed by the Land Use Policy and Planning Section, GL&SC.
- Programmes offered by the University of Guyana cover some of the target areas and contribute to SLM. These include the Bachelor of Science (B.Sc.) Degree in Environmental Sciences, Bachelor of Arts (B.A.) Degree in Geography, and Postgraduate Diploma/Master of Science (MSc) Degree in Environmental Management. The Geography programme includes Land Use Planning, GIS, Physical Geography, Land Evaluation and Urban and Regional Planning. Two specialisation streams are offered at the University in Natural Resources Management and Climate Change and Disaster Management in programmes offered by the Faculties of Agriculture and Forestry, Technology and Natural Sciences.
- Specialized training courses for the forestry and mining sectors are offered by the Forestry Training Centre Inc. and the Guyana Mining School and Training Centre Inc.

- A Climate Change Manual was prepared and distributed by Conservation International and Iwokrama and training of trainers commenced.
- Other training conducted by NGOs including the World Wildlife Fund (WWF), Iwokrama, Conservation International (CI), and other institutions such as Bina Hill Institute, contributes to SLM.

A National Communication Strategy should be developed to facilitate more effective mechanisms to reach and interact with relevant stakeholders on land degradation and other related environmental issues (See recommendations 1 and 2 in Table 10 of this report - Assessment of Operational Objectives and Expected Outcomes against Guyana's NAP).

4.5 Cross-sectoral institutional mechanisms for national coordination and mainstreaming.

Improving the current coordination structure is key for Guyana, to facilitate a viable mechanism for managing the stakeholder dialogue in land management. The ability of the coordinating mechanism to develop cooperation across all sectors in government, communities, non-governmental organizations, and landowners in the decision making process is a vital goal of the Convention.

The continuous process for the implementation of the UNCCD and mainstreaming of SLM requires strong institutional capacities across sectors (forestry, agriculture, mining, etc.). Since SLM requires the cooperation of several institutions, the responsibilities have a tendency to overlap across sectors. For Guyana, there lies a challenge in achieving cohesion amongst the varying institutions (GL&SC, GGMC and GFC) and engaging the participants under the convergent platform of combating desertification and sustainable land management. The coordination mechanism should be responsible for unifying the sectors but there is still a need for a strong institutional architecture for implementing the activities.

Institutional mechanisms which can serve to enhance integration amongst stakeholders and eliminate overlaps and conflicts, include the creation of task forces, committees and/or boards as appropriate. Further, as desertification, land degradation and drought are closely linked, and drought severity and frequency are increasing, a sub-working group or special taskforce need to be established as part of the Agricultural Sector Working Group (see recommendation 4 in Table 10 of this report - Assessment of Operational Objectives and Expected Outcomes against Guyana's NAP).

4.6 Knowledge sharing

The development of a knowledge sharing system with the specific purpose of addressing and enhancing efforts to combat DLDD is a high priority for the Cooperative Republic of Guyana

(CRG). This will assist and further enhance the efforts already undertaken by the NSC and the National Focal Point for the UNCCD.

4.7 Integration and alignment with the National Development Strategy and Plan, and relevant sectoral plans and policies

The Aligned NAP must be integrated into and aligned with Guyana's National Development Strategy and Plan and the relevant sectoral plans and policies in order to effectively combat National DLDD.

Key relevant sector agencies have participated in the development of the Aligned NAP through their membership on the National Coordinating Board.

In addition, the broader public will be impacted through the broader mainstreaming efforts of DLDD.

4.8 Regional integration and collaboration

Regional collaboration initiatives outlined in the Aligned NAP include linkages and participation in the Regional Action Programme and participation in regional initiatives such as EWS and Information Network for land management. Actions undertaken include linkages with the Regional Action Programme occur through participation in training and reporting. There is also other participation in the Regional Action Programme when participation is required. The Hydrometeorological Department has attended one regional initiative on EWS in Latin America.

Regional support is available through an NGO and Caribbean Network for Integrated Rural Development (CNIRD). CNIRD is a NGO originating in Trinidad and Tobago and is aimed at supporting regional partnership to realize UNCCD implementation and support training of Caribbean member countries.

Guyana is part of the Caribbean Planning for Adaptation to Climate Change (CPACC) project. The CPACC is a Global Environment (GEF) funded project being implemented in Caribbean countries by the Organisation of American States (OAS). CPACC is supporting Caribbean countries to cope with the potential adverse effects of global climate change, particularly sea level rise in coastal areas, through vulnerability assessment, adaptation planning and capacity building. CPACC has come to an end and the next phase, the Mainstreaming for Adaptation to Climate Change (MACC) is expected to commence with World Bank support. In the interim, through CIDA support, an Adaptation to Climate Change in the Caribbean (ACCC) project is underway to continue activities. Under the CPACC initiative, Guyana was able to conduct a socio-economic assessment of sea-level rise as part of a wider vulnerability assessment and developed a Climate Change Adaptation Policy and Implementation Strategy for coastal and low-lying areas.

4.9 Sustainable development

A key programme area of the Aligned NAP is the need for sustainable management of natural resources, drainage basins and watersheds. Actions in this regard include promote and support sustainable management in forest and mining, restoration and protection of biodiversity and watersheds conduct ground and surface water situation analysis and strengthen and expand the drainage and irrigation system. Progress on activities under this programme area are described in the following sections.

The GFC/DNRE is currently collaborating with the Ministry of Amerindian Affairs and United Nations Development Programme (UNDP) on the Amerindian Land Titling Project which is an initiative of the Government of Guyana designed to advance the process of titling Amerindian communities, demarcating Amerindian Villages and demarcating extensions to Amerindian villages. The project seeks to enable Amerindians to secure their lands and natural resources with a view towards sustainable social and economic development. It is expected that titling of communities will strengthen land tenure security and the expansion of the asset base of Amerindians, enabling improved long term planning for their future development. It is also expected to enhance the opportunities for villages to op-in to the REDD+ and LCDS.

4.9.5 Enhancing livelihoods and the socioeconomic benefit of combating land degradation

The NAP included actions to contribute to the alleviation of poverty and improving the quality of life through identifying and implementing alternative livelihoods initiatives and diversifying agriculture practice with value adding and promote efficient multiple land use. Some specific actions in this regard include:

- Alternative livelihoods were identified and initiatives are being implemented. These include:
- Alternative livelihood in mangrove areas such as tourism, bee keeping, etc., through the Guyana Mangrove Restoration Project.
- Community Based Tourism, especially in Amerindian communities such as Surama and those of the North Rupununi.
- Promotion of Non-Timber Forest Products (NTFPs)
- The GEF Smalls Grant Project is also promoting alternative/sustainable livelihoods by providing funding for projects such as savannah farming instead of shifting cultivation and planting crops in the savannah instead of clearing forests

- Promoting farming via hydroponics and traditional methods in mining areas such as in Mahdia targeting the miners and the Mahdia Secondary School Students.

Several NGOs and CBOs are involved in activities promoting alternative and sustainable livelihoods. These include the North Rupununi District Development Board, the Konashen Community, South Central People's Development Association, Kanuku Mountain Community Representative Group, Village Mangrove Action Committees, etc.

The Amerindian Development Fund, which was established under the LCDS, aims to provide support for the socio-economic and environmental development of Amerindian communities and villages through community development projects. 160 communities are to benefit from this project.

Agricultural diversity is being pursued and much emphasis is placed on this in the National Agriculture Strategy, for both crop and livestock. In addition, agro-processing and value-added is being pursued to become a new growth pole for agriculture in the Agriculture Vision 2020. A Crop Development Unit was established at the National Agriculture Research and Extension Institute (NAREI) to assist with crop development and a Livestock Development Unit established at the Guyana Livestock Development Authority (GLDA) to assist with the livestock industry.

4.9.6 Food security and sustainable agriculture

The NAP outlines a number of actions for achieving food security and sustainable development and management of agriculture. Several initiatives are being undertaken in these areas through the work of several agencies under the Ministry of Agriculture and other institutions, including NGOs. Some of these actions are outlined below:

Agricultural research is being conducted by institutions within the Ministry of Agriculture including the NAREI, the Guyana Rice Development Board (GRDB), etc. There has been significant progress in this regard, for example, the GRDB has been producing newer and improved varieties of rice to be cultivated, while promoting new techniques and measures to aid with improved crop management and increased productivity. GGMC is also aiding in agricultural research by promoting the growth of vegetables via hydroponics in Mahdia for the students of the Mahdia Secondary School.

The Ministry of Agriculture's National Strategy for Agriculture in Guyana focuses on a wide range of activities including the diversification of agriculture. Initiatives include the promotion of other crops in the coastal areas and large scale agricultural development in the savannah regions. There is the Agricultural Diversification Programme (ADP) which aims to promote diversification in the agriculture sector through non-traditional crops and other means. It is a three-year project that should increase export competitiveness and employment in the fruits/vegetables and tilapia aquaculture sectors. Downstream processing of agricultural produce is also occurring through processing and packaging plants.

GL&SC continues to contribute to expanding agricultural production by opening up new areas for leasing. These include areas in the Canje Basin and in the Intermediate and Rupununi Savannahs. Coastal areas are also being considered, such as those under the Aurora Land Development Project.

Expanded community-based agriculture initiatives are being promoted and implemented such as initiatives by Inter-American Institute for Cooperation on Agriculture (IICA), Canadian International Development Agency (CIDA), organic cocoa, etc.

The importance of soil health is being recognized, which will contribute to the promotion of soil conservation and management. Soil health is a main priority area in the National Agriculture Strategy which states that it should be promoted through the prudent utilization of biological, chemical and physical methods in an eco-system agronomic approach. The Strategy states that Guyana will ensure implementation of affordable and practical Integrated Soil Management which will emphasize the management of nutrient flows, but will not ignore other important aspects of soil health, such as maintaining organic matter content, soil structure and soil biodiversity. Some agricultural activities, such as those practiced by Guyana Sugar Corporation (GUYSUCCO), already integrate land management.

4.9.7 Sustainable Forest Management, REDD+, MRVS/VPA, EU FLEGT, LCDS

Several initiatives are being undertaken to promote sustainable management in the forestry sector. The forest sector is highly regulated to ensure that activities do not contribute to significant forest loss and impact biological resources. The GFC has implemented several measures to ensure Sustainable Forest Management (SFM) of state forest. Some of these measures are as follows:

- Developed principles, policies and guidelines for improved forest management and timber harvesting practices. This is reflected in the National Forest Plan and the Forest Act and management and operational guidelines.
- Forest concessionaires are required to obtain Environmental Authorisation from the EPA and prepare Forest Management and Annual Operational Plans for their operations. Larger concessionaires are required to conduct Environmental and Social Impact Assessments and prepare Environmental Management Plans. All large concessions must allocate 4.5% of the total area to biodiversity conservation during the life of the concession.
- Embraced the principles of Reduced Impact Logging and has developed a Code of Practice for Timber Harvesting which outlines measures for compliance by operators within the sector.
- Logging activities must be conducted by a cycle ranging from 40-60 years and harvesting is done only in approved blocks. There is an annual allowable cut for each concession.

- Training in Reduced Impact Logging and other measure are being provided through the Forestry Training Centre Inc. GFC monitors each operation to ensure compliance with the required measures.
- Guyana has embraced the REDD+ framework at a national scale and through this mechanism the country is consistently developing its efforts to reduce deforestation and forest degradation and in particular through the application of sustainable forests management.
- A national system to monitor [measure], report and verify emissions or removals of carbon from the forest sector was developed by the GFC and is currently being implemented. The MRVS provides the basis for reporting in accordance with the principles and procedures agreed to by GoG in relation to reducing emissions from deforestation and forest degradation.

Strong forest governance that exemplifies the principles of sustainable forest management, forest legality, and sustainable development of forest resources, and concurrently balances the social, economic and environmental dimensions, has been a top priority for the Government of Guyana (GoG) and the Delegation of European Union. As part of executing this common mandate, Guyana and the EU are currently negotiating a Voluntary Partnership Agreement (VPA) under the existing EU FLEGT Action Plan with the objective of concluding negotiations by 2016. Guyana and the EU anticipate that the conclusion and effective implementation of the VPA will contribute to the sustainable management of Guyana's forests, rural employment and economic development. A VPA will be legally binding on both parties once negotiations are completed and the agreement is concluded. When fully operational, the system will provide the assurance to the EU buyers that Guyana's timber products were legally sourced (Joint statement on a Voluntary Partnership Agreement (VPA) on Forest Law Enforcement, Governance and Trade (FLEGT) between Guyana and the European Union, Georgetown, 2012. http://eeas.europa.eu/delegations/guyana/documents/press_corner/euguyanaflegt.pdf)

In addition to the MRVS and the VPA there are other forest governance initiatives being pursued under the LCDS which are intended to improve sustainability and enforcement of standards to prevent environmental degradation and excessive forest loss. Some of these measures include the country's commitment to the Extractive Industry Transparency Initiative, Independent Forest Monitoring and preparation of a NLUP. Other measures include institutional strengthening and capacity building of regulatory agencies in the natural resources sector.

Further, in 2009, the Governments of Guyana and Norway signed a Memorandum of Understanding which set out how the two countries will “*work together to provide the world with a relevant, replicable model for how REDD-plus can align the development objectives of forest countries with the world's need to combat climate change.*” This agreement has resulted in significant steps being undertaken to ensure deforestation is reduced and degraded forest land restored, some of which are described above.

4.9.8 Mining and land reclamation/restoration

In the mining areas, the focus is on reclamation of previously mined out areas while ensuring current mining practices include mine rehabilitations. There are abandoned mining areas across

Guyana which require some form of reclamation and restoration. In the past, efforts were made to reclaim some of these sites as pilot projects. The Government now plans to intensify these efforts through a Land Reclamation Project which is focused solely on reclamation of mined out areas. The initiative will support the country's commitment to REDD+ and sustainable forestry management and the implementation of the LCDS. A Land Reclamation Committee was recently established to focus on reclaiming of areas degraded by mining activities.

Some reclamation efforts to date include accessing the mined-out pits in Region Seven (Cuyuni-Mazaruni) and Region Eight (Potaro-Siparuni) and conducting studies and surveys in the most recent mined-out areas while replanting trees and other protective vegetation in the old mined-out areas. These exercises, which are primarily carried out by the GGMC, had recently focused on replanting some 10 hectares of mined-out white sand covered land in Mahdia, Region Eight with the *Acacia mangium*, a multi-purpose plant that facilitates soil fertility by fixing nitrogen in the soil. Replanting efforts are also currently ongoing at Isseneru, Noitgedacht, Aranka, and Arakaka. These activities will be extended to other areas. At Noitgedacht, GGMC has been utilising the mined-out land for three purposes: the planting of *Acacia mangium* and cultivating crops between the *Acacia mangium*; utilising the old mining pits as fish ponds for sport fishing and; the construction of a recreational facility for the benefit of the youths in the area.

The MNRE Land Reclamation Project has thus far identified several sites to conduct reclamation activities, including gold and bauxite mined out areas. Efforts are also being made to have miners comply with the environmental requirements, reclaim mined out areas and practice progressive reclamation. This will be done through enforcement by the GGMC. The Mining Amendment Regulations 2005 require mining operations to prepare Reclamation and Closure Plans and conduct reclamation and closure activities. Large scale mining operations are already rehabilitating mined out areas as part of their Closure Plan.

Guyana has also signed on to the Minamata Convention on Mercury and has commenced activities through the GGMC, which is the country's focal point of the Convention. A draft Phase Out Plan for mercury was prepared in 2014 and work is currently being done to assess the impact of mercury on the mining sector.

Assessments are also being conducted to determine the impacts of mining on the ecology in mining areas. One recent exercise was conducted in September 2014 with the EPA, GGMC and WWF collaborating in undertaking an Ecological and Physio-chemical Assessment of the Konawaruk and Mazaruni Rivers. Water quality monitoring is also being done quarterly by GGMC within the six mining districts.

4.9.9 Pipeline projects that will impact Guyana's efforts to combat DLDD

1) Cross Cutting Capacity Development Project

The key areas for the GL&SC as National Focal Point to the UNCCD are as follows:

- Strengthening capacity for indicator-based reporting.
- Strengthening capacity for monitoring and evaluation related to desertification and land degradation.
- Improvement of capacities for knowledge management including traditional knowledge, best practices and success stories.

The three Rio Conventions call for the building of capacities of relevant individuals and organizations (resource users, owner, consumers, community and political leaders, private and public sector managers and experts) to engage proactively and constructively with one another to manage a global environmental issue.

The project “Strengthening Technical Capacities to Mainstream and Monitor Rio Convention Implementation through Policy Coordination” is a Medium Sized UNDP Project which seeks to harmonise the work of the Focal Points in ensuring that Guyana meets its implementation needs under the UNCCD, UNFCCC and UNCBD. The executing agency is Department of Natural Resources and the Environment with implementation support from the National Focal Points, GL&SC, EPA and Office of Climate Change (OCC).

The proposed project addresses the obligations that Guyana has to fulfill to the three Rio Conventions related to assessing and integrating global environmental priorities into national development frameworks under the UNCCD, UNFCCC and CBD. The Project has three (3) Components, Component 1: Strengthening technical capacities for mainstreaming and monitoring Rio Conventions, Component 2: Strengthening institutional capacities to mainstream and monitor Rio Convention implementation through development policies, programmes and plans, and Component 3: Improving awareness of global environmental values. The Project would address various challenges and barriers to the implementation of the Conventions such as:

- Fragmented administrative/institutional arrangements for implementing specific activities under the Rio Conventions.
- Low public awareness and education on issues related to the Rio Conventions.
- Weak engagement of NGOs in the planning and management of the Rio Conventions.

- Limited public sector resources (human, financial and technical) to allow effective retention of skills needed for managing the Rio Conventions on biodiversity and land degradation.
- Lack of strategies and plans that outline national commitment for implementing obligations under the conventions.
- Weak overall communication and consultation between and among secretariats responsible or having a stake in natural resources and the environment, in particular coverage of Rio Convention obligations.
- Lack of monitoring mechanisms to ensure that obligations under conventions are achieved.

In particular, the project will contribute to the development of cross-cutting capacity under the Programme framework “Integrating global environmental needs into management information systems and monitoring”. It aims to develop capacities of individuals and organizations to plan and develop effective environmental policy and legislation, related strategies, and plans based on informed decision-making for global environmental management. In particular, there will be strengthening of monitoring, and data and information management and sharing. Overall, this project will strengthen the institutional and technical capacities, and facilitate mainstreaming and monitoring to integrate Rio Conventions into policies, programmes, and plans.

2) *Minamata Initial Assessment*

This project is being undertaken in Guyana by UNDP following a UN agreement reached in January 2013 for the establishment of a globally legally binding Convention on Mercury - “The Minamata Convention on Mercury”. The Convention was adopted and opened for signature on 10 October 2013, at a Conference of Plenipotentiaries (Diplomatic Conference) in Kumamoto, Japan.

The Minamata Convention is a global treaty to protect human health and the environment from the adverse effects of mercury. The major highlights of the Minamata Convention on Mercury include a ban on new mercury mines, the phase-out of existing ones, control measures on air emissions, and the international regulation of the informal sector for artisanal and small-scale gold mining. To date, 128 countries have signed the Convention, while 10 countries have ratified it. The Government of Guyana signed the Convention in October 2013 and ratified it in September 2014. The Convention will enter into force 90 days after it has been ratified by 50 nations.

A Mercury Initial Assessment (MIA) will provide a basis for any further work towards implementation. As such the development of a country’s MIA will assist a country in: taking its decision to notify the convention in accordance with article 7; developing its National Implementation Plan in accordance with Article 20 and; preparing a national plan to reduce

emissions of mercury in accordance with Article 8. The Project's objective is for the Government of Guyana to undertake a Mercury Initial Assessment (MIA) to establish a national foundation to undertake future work towards the implementation of the Convention.

The project's expected outcomes will be a description of the following: (a) National Mercury profile, including significant sources of emissions and releases, as well as inventories of mercury and mercury compounds; (b) Structures, institutions, legislation already available to implement the Convention; (c) Barriers that would hinder or prevent implementation and; (d) Technical and financial needs for implementation of the Convention, including resources from the GEF, national sources, bilateral sources, the private sector and others.

The Enabling Activity (EA) project has been organised into two components:

- Enabling environment for decision-making on the implementation of the Minamata Convention;
- Development of the National Mercury Profile and Mercury Initial Assessment Report

3) Climate Resilience Strategy and Action Plan

The Climate Resilience Strategy and Action Plan (CRSAP) is being developed under the LCDS by the Government of Guyana through the Office of Climate Change (OCC) to provide a comprehensive framework for addressing climate change adaptation and resilience in Guyana. This framework will help Guyana to address direct and indirect impacts associated with extreme events, as well as emerging, indirect, slow-onset climate impacts and hazards. The project is being developed in partnership with Conservation International Foundation Guyana (CI-Guyana) with support from the Kingdom of Norway. Acclimatise, a UK based consultancy group has been contracted to develop the CRSAP.

The CRSAP is a key project that is being funded under the Guyana – Norway agreement. The agreement continues to make significant progress and in October 2014, Guyana earned US\$ 35 million as its fourth performance based payment under the Partnership. This brings Guyana's total earning to US\$ 150 million since the Partnership started in 2009. These earnings are being channelled into priority investments, such as the CRSAP, which aims to assist Guyana in achieving its long-term developmental goals.

The CRSAP is especially timely given that Guyana has already begun to feel the devastating impacts of climate change such as hotter days and more intense rainfall. In recent years, the country has experienced extreme weather events that have resulted in high levels of flooding along the coast and in some inland areas. It was close to a decade ago that Guyana experienced

the highest rainfall record since 1888, which resulted in the most severe flooding in the country's history.

Making the economy resilient to climate change and reducing Guyana's vulnerability and exposure to climate change is one of the key goals of the Low Carbon Development Strategy (LCDS). Climate change adaptation and resilience building were identified as priority under the LCDS projects and a series of measures were identified. The CRSAP supports this vision and will, inter-alia, help to identify current climate risks and determine options for building resilience and adapting to climate change. In addition, the CRSAP will help to prioritise adaptation and resilience projects.

4) National Biodiversity Strategy and Action Plan

Measures to protect biodiversity are outlined in the recently revised National Biodiversity Strategy and Action Plan and several initiatives are being undertaken including education and awareness, policies and legislation, institutional strengthening, implementation of projects, etc.

Guyana has over the years implemented measures to ensure the conservation and protection of the biological and other natural resources. The LCDS outlined how Guyana intends to ensure that at least 10% of the country's land area would be under some form of protection. Guyana's policy objective is to achieve the UNCBD target of having at least 17% of the country's land and inland water under some form of protection by 2020.

5) Protected Areas Initiatives

Protection and conservation efforts have a long history, stretching back to 1929 and the creation of the Kaieteur National Park, which was one of the first protected areas in the region. Since then Guyana has made steady progress in conservation and protected areas development. Key accomplishments include the establishment of the Iwokrama International Centre in 1996 and the creation of the community owned conservation area at Kanashen in 2006. These achievements ultimately paved the way for the Protected Areas Act of 2011, which was a watershed moment for protected areas in Guyana. For the first time, Guyana has in place a national legislative framework that allows for the establishment, management and growth of an effective system of protected areas.

The passage of the Act was followed by the legal establishment of two new protected areas in the Kanuku Mountains and Shell Beach. These areas joined the existing Kaieteur National Park and Iwokrama Rainforest Reserve, and the Community Owned Conservation Area at Kanashen, which together account for approximately 8.6% of Guyana's landmass. The system also includes the National Park, Zoological Park and the Botanical Gardens.

With the Act in place, 2012 saw the appointment of Protected Areas Commission (PAC) Board, recruitment of staff members, establishment of the PAC Office and finally the opening the Commission in November of 2012. The initial focus was on operationalizing the legal and institutional framework, raising awareness in communities on the new legislation and the work of the PAC, and preparing management plans for the areas within the National Protected Areas System.

Progress was made possible in part through a number of long-standing partners for Guyana's protected areas, including the EPA, the Government of Germany, CI, WWF, Flora and Fauna International and the Guyana Marine Turtle Conservation Society (GMTCS). The PAC is now working to create new partnerships. One example is the signing of a MoU with Panthera, which paves the way for future collaborations with the private sector and corporate groups.

Current activities are focused on the rehabilitation of the National Park, Zoological Park and the Botanical Gardens under the Three Parks Initiative, facilitating the creation of the National Protected Areas Trust Fund, developing a Strategic Plan for the PAC, a systems plan for the protected areas system, management plans for individual protected areas, and establishing a field presence in these protected areas. Partnerships will also be strengthened with local communities, the private sector, NGOs and other important stakeholders in-country and overseas.

In addition to the national efforts, conservation is also practiced at local levels, mainly through the initiatives of NGOs and CBOs. Some of these measures include sustainable resource extraction and alternative means of livelihood including sustainable tourism operations. The Iwokrama International Centre for Rainforest Conservation and Development is currently managing a reserve of 371,000 hectares of rainforest as a protected area to ensure lasting ecological, economic and social benefits and is working with communities within and around the forest to develop sustainable practices in resource management and use.

Conservation International (CI) is involved in several initiatives to ensure conservation, including supporting the establishment of the Kanuku Mountains Protected Area and the establishment of the Kanashen Community Owned Conservation Area.

Currently, WWF is also involved in several initiatives in Guyana to promote conservation, including biodiversity assessments, supporting the establishment and management of protected areas, supporting the concept of green economies and payment for ecosystem services, pollution abatement in the gold mining sector, and promoting marine turtle conservation and sustainable fisheries. The GMTCS executes the marine turtle conservation programme at Shell Beach and is involved in the direct monitoring of sea turtles nesting.

There has also been an increase in activities from CBOs relating to conservation. The Kanashen Community Owned Conservation Area which was established by the community and is now the largest protected area in the country and is managed exclusively by the community. This effectively brings more than one million acres of rainforest under sustainable management while ensuring the continued development of the Wai Wai people and their traditional way of life.

Karanambu Trust is involved in activities to ensure the conservation of the Rupununi savannah and wetlands ecosystem. The North Rupununi District Development Board (NRDDB) also promotes conservation through its activities, and is involved in several initiatives such as sustainable community tourism, community monitoring, reporting verification system, training and awareness, natural resources management, etc. The South Rupununi Conservation Society is working to protect the endangered Red Siskin (*Carduelis cucullata*), a bird that was trapped to near extinction to supply the cage bird trade. Other communities in the Rupununi are involved in the sustainable management of their traditional lands and resources while some coastal CBOs are engaged in sustainable utilization of resources from mangrove areas.

4.9.10 Drainage and irrigation

The National Strategy for Agriculture in Guyana 2013-2020 indicates that drainage to prevent flooding is being improved with the construction of the East Demerara Northern Relief Structure (Hope Canal) and the proposed rehabilitation of the Cunha Canal. Expansion of the current drainage and irrigation system is also being pursued, including the Aurora Land Development Project, Phases 2 and 3 of the MMA-ADA Project, additional drainage canal such as the one at Cottage, acquiring of more pumps, etc. To supply irrigation water improvement in conservancies are also being pursued such as the Conservancy Adaptation Project (East Demerara Water Conservancy) and extending these initiatives to the Boeraserie and Tapakuma Conservancies.

The National Agriculture also indicates that the improvement in the management of the country's water resources is also being pursued. In 2013 a National Integrated Water Resources Management Policy and Roadmap was prepared to ensure water resources are managed in a manner to safeguard the health, safety and welfare of Guyana's citizens and ecosystems and to ensure effective, efficient, and equitable use of water resources consistent with the sustainable development goals of the nation. In 2014 a National Wastewater Strategy was prepared and outlined the approach to sustainably manage wastewater over the period 2014-2034 and to reduce land-based pollution to terrestrial and coastal waters from untreated wastewater thus allowing Guyana to meet the requirements of the LBS Protocol.

The National Agriculture Strategy states that the participation of farmers and farming communities in the management of drainage and irrigation systems, such as the Water Users' Associations (WUAs) is to be optimized so that management of water, drainage and irrigation

can be improved. The WUAs have been assisting with the maintenance of the secondary drainage and irrigation systems in key farming areas.

4.10 Synergies

4.10.5 Joint Planning and Programming for the Rio Conventions

(CONS-O-7).

This section discusses the progress being made by the GOG to improve joint programming and planning for the three Rio Conventions, using the Sustainable Development Goals for guidance.

Implementation of the three key Multilateral Environmental Agreements (MEAs) is divided among various agencies. Given the current shortage of human capacity within these agencies the opportunity to develop the national knowledge management capacity for synergies between the three conventions will be given priority. Information can be collected, saved, processed and exchanged between institutions, professionals and policymakers through a knowledge management network. This knowledge management network will act as a tool for unified monitoring and reporting to the three conventions.

Three relevant efforts are note-worthy:

- GFC is establishing and implementing a well-functioning REDD+ framework, which will affirm the importance of REDD+ as a strong potential means to access funds for combating land degradation
- GFC has also established a national Conflict Resolution Strategy for REDD+
- Ministry of Agriculture has led the development of guidelines for responsible recreational fishing and best practices in ornamental fish collection and handling

The DNRE and UNDP are currently preparing a Medium Sized Project to synergise the Rio Conventions, CDB, UNCCD and UNFCCC. These are all examples of initiatives supporting the implementation of one convention, with strong linkages and benefits to the other conventions.

The most recent National Biodiversity Strategy and Action Plan 2012-2020 was approved by cabinet in May 2015. Within this document, priority actions are identified that will contribute to attainment of the various Aichi Targets. While these priority actions and corresponding targets are included in the document, no indicator has been specified. Considering the recent completion of the document, implementation of new objectives under the plan has not yet commenced. The Plan also indicates initiatives that are ongoing as part of the mandate of the respective sector agencies: restoration of mined-out sites; restoration of Mangrove Belt and; establishment of legally Protected Areas.

The Land Reclamation Committee established under the Department of Natural Resources and the Environment is responsible for targeting restoration of mined out areas (information on this can be found on page 55-56 of Guyana's Fifth National Report to the CBD. Progress towards attainment of this target can also be found from pages 55-64 and in table 12 of this document).

4.10.6 Cross-Cutting Projects

Cross-cutting projects related to the three Rio Conventions include those listed in table 5 below.

Table 5: Cross-cutting projects related to the Rio Conventions

Name of project	Project Duration	Funding Source	Budget (USD)
Ongoing projects			
Enhancing biodiversity protection through strengthened monitoring, enforcement and uptake of environmental regulations in Guyana's gold mining sector (MSP)	2014-2017	GEF	880,000
Strengthening technical capacities to mainstream and monitor Rio Convention implementation through policy coordination (PPG)	2015-2016	GEF	50,000
Assessment and monitoring of land degradation and the promotion of sustainable land management practices in the natural resources sector (PIF)	2015	UNDP	98,000
Support the alignment of Guyana's national action plan to the UNCCD's 10-year (208-2018) strategic plan (EA)	2014-2015 (possible extension to 2016)	GEF	136,986
Minamata Initial Assessment for Guyana (EA)	2015-2016	GEF	200,000
Amerindian land titling	2013-2016	GRIF	10,755,990
Amerindian development fund	2014-2017	GRIF	6,259,414.32
Guiana Shield Facility	2010-2015	EU; Dutch Government	3,811,944
Pipeline projects			
Strengthening technical capacities to mainstream and monitor Rio Convention implementation through policy coordination (MSP)	2016-2018	GEF	1,000,000
Mainstreaming biodiversity in mining, including assessment and monitoring of land degradation (FSP)	2017-2020	GEF	4,030,000
Climate change mitigation	2017-2019	GEF	2,060,000
Mainstreaming disaster risk management in agriculture	2016-2017	Government of Japan	300,000
Japan-Guyana Climate Change Partnership	2015-2017	Government of Japan	1,000,000

4.10.3 Operational mechanisms

(CONS-O-7)

Outreach and awareness on synergies between conventions and other initiatives being implemented in Guyana, need to be enhanced. One such example is the Conservancy Adaptation project³¹ where among the outputs was a hydrologic baseline, including a comprehensive hydrological and topographical dataset for the improved understanding of how to increase the discharge capacity of the flood control system.

Further, most institutions lack the technical and practical knowledge for financial and technical resources mobilisation to implement projects and programmes dealing with synergies between the three conventions. Since financial constraints are often cited as a major challenge to implementation, this is a critical area for capacity development. Integrated resource mobilization can go a long way in minimising overlaps and maximising the benefits from international and other aid sources.

4.11 Capacity Building

(CONS-O-13)

The Cross-Cutting Capacity Development Project which is currently in the pipeline in Guyana (see section 4.18.5 of this report) is in keeping with the requirement that countries would undertake bottom up consultation to address the assessment of individual, institutional and systemic capacities to implement and sustain global environmental outcomes and commitments by countries to the Rio Conventions. This project will be done under the updating of Guyana's NCSA (see also section 4.4 of this report that addresses "education, training and awareness")

4.12 Sustainable Land Management

This section focuses on activities undertaken to implement the specific actions to address SLM in Guyana (Source: Environmental Management Consultants, Rapid Stocktaking Report, Alignment of NAP Project (GL&SC/ UNDP/ GEF), 2014).

A National Land Degradation Assessment was conducted in 2008 and this presented the extent and drivers of land degradation. In addition to the National Assessment, a Pilot Area was also assessed (Local Area Degradation Assessment), with the pilot site covering an extensive area within Region # 10, including Linden. These assessments were done under the Capacity Development and Mainstreaming for Sustainable Land Management (SLM) Project.

The draft National Land Use Policy which was prepared in 2004 is yet to be finalized but was revised in 2007. The Policy aims to streamline land use planning and to create conditions

necessary to achieve types of land uses which are sustainable, socially desirable and environmentally compatible on state lands and provides the framework for coordination among land uses, as well as, facilitates integration of land use.

A report was prepared in 2012 recommending integration of Sustainable Land Management into the draft Land Use Policy. The National Land Use Plan was prepared and approved in 2013 and implementation has commenced. This Plan provides support to decision-making by looking at development options and constraints throughout the country. It was compiled by assessing current land use, potential constraints and stakeholders' concerns. It also provides the methodology and data for preparation of three Regional Land Use Plans. The GL&SC Strategic Plan 2013–2017 under Strategic Objective 1 includes reporting on compliance with international commitments such as the UNCCD. Neither the National Land Use Plan nor the GL&SC Strategic Plan makes reference to the NAP.

A methodology was developed for Regional Land Use Planning by the Natural Resources Management Project (NRMP). Updating and demonstration of the methodology was completed and a Land Use Planning System of tier levels of planning was prepared as a Paper by the Development of Land Use Planning Project (DLUPP). In addition, a Legal Framework Report prepared on Land Use Planning and regulation was drafted to strengthen the process of regional land use planning, and a Discussion Paper on a Land Use System was prepared to support the system of planning at the national, regional and local level. To date regional land use plans were prepared for:

- Lethem - Linden Road Corridor
- Soesdyke – Linden Highway
- Region # 6 (East BerbiceCorentyne)
- Region # 9 Sub Region 1 (Rupununi)

The Land Use Coordinating Committee was approved and is now functional.

Soil health is a main priority area in the National Agriculture Strategy 2013-2020 which states that it should be promoted through the prudent utilization of biological, chemical and physical methods using an eco-system agronomic approach. Some measures to promote soil conservation and stringent management through sustainable agricultural practices occur indirectly through the Environmental Impact Assessment and Management Planning for medium and large agricultural development. Companies pursuing large scale agricultural activities are required to outline measures to prevent land degradation in their Environmental Management Plan.

Legislation within the environment and natural resources sector were passed, including some which contribute directly to the prevention and mitigation of land degradation such as the Mining

Amendment Regulations 2005 made under the Mining Act 1989, the Forest Act 2009, the Protected Areas Act 2011, Environmental Protection Litter Enforcement Regulations 2013, the Wildlife Management and Conservation Regulations 2013, and the draft Environmental Protection Compliance and Enforcement Regulations. These compliment previously existing legislation, including the Environmental Protection Act 1996 and the Environmental Protection Regulations 2000.

There is some progress in the harmonization and strengthening of institutional arrangements for land planning and management with the creation of the Ministry of Natural Resources and the Environment (MNRE) in 2011. MNRE was created to facilitate the efforts of Government to continue to focus on expanding and diversifying the economy on the basis of rational use of Guyana's natural resources. The Ministry has the responsibility to coordinate activities in the forestry, mining, environmental management, wildlife, protected areas, and land use planning sectors. In addition, the Ministry has overall responsibility for the following institutions: GFC, GGMC, Guyana Gold Board, GL&SC, EPA, Wildlife Management Authority, National Parks Commission and PAC to allow for greater coordination among the principal natural resources agencies. MNRE has prepared a Strategic Plan which outlines measures for improvement in institutional arrangements and coordination. Further, institutional arrangement for land use planning was prepared to respond at divisional level of operation (awaiting approval by MNRE).

A National Project Board was established in 2014 with oversight responsibility for the implementation of the NAP Alignment Project and this Board meets every three months.

Land Information Systems were strengthened with networking access and continued data extraction and updating using satellite imagery. Data include national land datasets from GL&SC and other agencies. There was also the creation of a centralized GIS Unit by the MNRE which collects information inclusive of activities which result in land degradation. This should also contribute to improved harmonization. Inventories are being conducted such as the GFC inventory on coastal mangroves conducted in 2011.

Cross sectoral committees are being created to implement specific activities within the sector, such as the Land Reclamation Committee and the Mangrove Action Committee. NGOs and CBOs are also actively participating and contributing, thus enhancing the institutional capacity.

4.13 Best Practices in Sustainable Land Management

Table 6 provides an overview of selected SLM practices which exemplify good and sustainable approaches to governing, managing and utilizing natural resources. Best practices for those sectors which pose particular challenges and opportunities for combating DLDD are prioritized.

Table 6: Best practices/regulations available

Sector	Best Practice/Regulations Available	Agency
Mining	<ul style="list-style-type: none"> • Code of Practice for Mercury Use • Code of Practice for Mine Reclamation • Code of Practice for Mine Effluents • Code of Practice for Contingency and Response Plans • Code of Practice for Mine Waste Management and Disposal • Code of Practice for Tailings Management 	GGMC
Fisheries	Sustainable Fishing Best Practices	Ministry of Agriculture; Department of Fisheries
Agriculture	Promoting Agro-Processing and Value Added Products: Hazard Analysis and Critical Control Point (HACCP) Global Regulations	Ministry of Agriculture
Forestry	<ul style="list-style-type: none"> • Timber Harvesting Code of Practice 2002 • Code of Practice for Forest Operations 	GFC
Land	Regional Land Use Planning Methodology (2002)	GL&SC
Agriculture	<ul style="list-style-type: none"> • Organic Cocoa- Region 1 • Organic Pineapple Region 2 	Amcar
Environment	<ul style="list-style-type: none"> • Draft Compliance and Enforcement Regulations, 2014 • Wildlife Regulations • Litter Regulations • Hazardous Waste Regulations • Water Quality Regulations • Biomedical Waste Guidelines • Chemical & Industrial Wastes Guidelines • EMP Guidelines • Oily Sludge Guidelines • Poultry Rearing Guidelines • Spray Painting Guidelines • Swine Rearing Guidelines 	EPA

4.14 Monitoring systems dedicated to DLDD

4.14.1 LADA, WOCAT, GLADIS

(CONS-O-8).

There is a need to establish a national monitoring system dedicated to DLDD. At the national level, Land Degradation Assessment in Drylands (LADA) and World Overview of Conservation Approaches and Technologies (WOCAT) have been used. LADA is a scientifically-based approach to assessing and mapping land degradation at different spatial scales – small to large – and at various levels – local to global. It was initiated in drylands but the methods and tools have been developed so as to be widely applicable in other ecosystems and diverse contexts with minimal required adaptation.¹ The LADA programme was financed by the Global Environment Facility (GEF), implemented by the United Nations Environment Programme (UNEP), and executed by the Food and Agriculture Organisation (FAO) in close cooperation with national institutions in Argentina, China, Cuba, Senegal, South Africa and Tunisia.

To avoid a negative bias due to a focus only on land degradation, LADA also assesses and maps land improvement or sustainable land management (SLM) using WOCAT tools. The LADA-WOCAT set of tools and approaches provides balanced information and mapping capabilities on land resources status and trends in any given area, as well as on their causes, impacts and the actual and potential future responses.

LADA's main objective, using its mapping and assessment tools, is to identify and understand the causes of land degradation and the impacts of land use, including the effectiveness of current/recent responses. LADA provides a global monitoring and assessment system and an interlinked national and local level assessment and decision- support system on land degradation and improvement. It enables stakeholders (national multi-sectoral teams) and agencies with land users at local level to identify and prioritize required national planning and policy interventions and actions on the ground for promoting the wide adoption of sustainable land management (SLM).

In addition at the global level, LADA developed a Global Land Degradation Information System (GLADIS), which facilitates analysis of the change in the provision of ecosystem goods and services resulting from land management practices. The main components analysed are: biomass, soil health, water quantity, biodiversity, economic benefit and social benefit. GLADIS is based on an assessment of the status and trends of ecosystem goods and services, including the impacts that changes have on local populations. GLADIS summarizes findings in the form of radar diagrams aggregating broad groups of ecosystem goods and services – biomass, soil health,

¹FAO 2013. Land Degradation Assessment in Drylands. Authors Riccardo Biancalani, Freddy Nachtergaele Monica Petri, Sally Bunning. Editor Anne Woodfine. <http://www.fao.org/docrep/017/i3241e/i3241e.pdf>

water quantity, biodiversity, also social and cultural impacts, considering their changes over a period of about 15-25 years. GLADIS has undergone a consultative process with the six LADA pilot countries, and a preliminary scientific peer review. Following the review, the system has been updated and it is undergoing a further scientific and country based review.

Preliminary GLADIS results are available for the entire globe, also for each country, or for specific land use systems within a country.² FAO and its LADA partners also developed DISforLADA which is a Land Degradation Indicator System.³ Some of the indicators included in the database are aridity index, biodiversity conservation, burned area, deforested area, cultivated sloping land, ground water level, crop yield.

In Guyana, apart from the GFC which collects information on forest degradation through the MRVS, no other Agency is known to be collecting land degradation information in a systematic manner though institutions may collect data on a regular basis which may be related to land degradation e.g. extent of areas degraded from mining activities.

It is proposed that GL&SC consider the following:

- Review the outputs of the LADA project and GLADIS results as it regards Guyana;
- Consider implementation of the LADA methodology and determine what would be suitable indicators for Guyana;
- Conduct a stakeholder engagement process to solicit inputs on the defining and refining of these indicators for use by Guyana;
- Examine the extent to which information related to the agreed indicators are being collected in Guyana, where it exists and the status and condition of this data;
- Establishing a database for land degradation to be housed at the GL&SC;
- Establish protocols with other Agencies and organizations for the collection and sharing of data related to the indicators;
- Dedicate and mobilise resources for the continuous updating and management of this database.

4.14.2 Assessment of sites for observation and monitoring of land degradation

The WOCAT programme has over the past 20 years developed a standardized and harmonized methodology for (sub) national and local-level assessment of soil and water conservation. This methodology provides a framework for documenting and assessing sustainable land

²FAO.Global Land Degradation Information System (GLADIS).

http://www.fao.org/nr/lada/index.php?option=com_content&view=article&id=161&Itemid=113&lang=en

³FAO.DISforLADA Database .http://dis-nrd.uniss.it/index.php?_mod=view

management. It has built up a global database of over 200 SLM technologies and over 100 so-called “approaches” (the ways and means to successfully implement a technology on the ground).

WOCAT has developed three questionnaires – technologies⁴, approaches⁵, categorisation system⁶ which can be entered into the WOCAT database and used to generate information related to sustainable land management. The categorisation system questionnaire can be used for example to categorise land use type, conservation measures, degradation types and main causes of land degradation.

In 2008, the GL&SC commissioned a report⁷ on land degradation in Guyana which concluded that land degradation was not a widespread phenomenon and identified the main drivers as being mining, logging, agriculture and settlement expansion with mining seemingly the most severe and visible driver.

In 2012, the Government of Guyana established a Land Reclamation Committee (LRC) which has the overarching objective of coordinating national level efforts for the reclamation of mined-out areas and to provide guidance to the MNRE and the GGMC. Under the Land Reclamation Project being overseen by the LRC there is a scientific basis for the selection of areas for rehabilitation and this involves the application of a Decision Tool which includes size of clearance; availability of rehabilitation materials etc.

As part of the consultancy, two sites were selected and visited by the team and GL&SC representatives. These sites are located at Profit in the Abary area in Region 5, and the Dakoura Mines at Linden in Region 10. The sites were selected from two different areas to represent and observe different drivers of land degradation, with the site at Profit degraded from erosion and salt water intrusion and the Dakoura Mines having the effects of bauxite mining. In addition to these, there are several other areas in Guyana which can also serve as suitable locations to observe and monitor land degradation.

It is proposed that GL&SC consider the following:

- Review the tools developed under LADA⁸ and WOCAT⁹ to determine whether they could be adapted to the Guyana context.

⁴ WOCAT. https://www.wocat.net/fileadmin/user_upload/documents/QT_and_QA/TechQuestE.pdf

⁵ WOCAT. https://www.wocat.net/fileadmin/user_upload/documents/QT_and_QA/AppQuestE.pdf

⁶ WOCAT. https://www.wocat.net/fileadmin/user_upload/documents/QT_and_QA/CategorisationSystem.pdf

⁷ GL&SC (2008). National Assessment of Land Degradation in Guyana – Diagnostic Report

⁸ LADA manuals. http://www.fao.org/nr/lada/index.php?option=com_content&view=article&id=152&Itemid=168&lang=en

⁹ WOCAT. <https://www.wocat.net>

- Utilise the mechanism of the LRC and working closely with the land reclamation project and key stakeholders, identify suitable locations to monitor/assess land degradation.
- Apply the modified LADA/WOCAT tools, map, observe and monitor land degradation at these sites.

The outputs from these efforts can assist in developing and implementing a programme for the monitoring of land degradation.

4.15 Policy framework

4.15.5 Assessment of relevant policies

During 2015, an assignment was conducted on The Identification and Mainstreaming of Policies to support an Aligned National Action Plan to combat Land Degradation. The findings indicated that legislation within the environment and natural resources sector were passed, including some which contribute directly to the prevention and mitigation of land degradation. These include the Mining Amendment Regulations 2005 made under the Mining Act 1989, the Forest Act 2009, the Protected Areas Act 2011, Environmental Protection Litter Enforcement Regulations 2013, the Wildlife Management and Conservation Regulations 2013 and the draft Environmental Protection Compliance and Enforcement Regulations. These compliment previously existing legislation, including the Environmental Protection Act 1996 and the Environmental Protection Regulations 2000.

4.15.6 National coordination and mainstreaming

The findings of the above 2015 assignment on “The Identification and Mainstreaming of Policies to support an Aligned National Action Plan to combat Land Degradation” also indicated that with regard to the mainstreaming and integrating NAP activities into existing national strategies and national plans, there exist ample strategies and national plans that are currently ongoing, which have similar activities and actions plans as the NAP, where mainstreaming can occur. Land resource planning and management is cross-sectorial and correspondingly, implementation of the NAP activities would require participation of all the agencies and commissions under the Ministry of Governance. The Department of Natural Resources and the Environment(DNRE) will be responsible for coordinating the activities. The assessment also indicated that institutions in Guyana have sufficient capacity in terms of planning and implementing the NAP activities and that there exist adequate institutional coordination and synergies in the country to implement NAP activities which in many instances, would require coordination and synergies.

4.15.7 Synergies

The GOG is making substantial progress in the harmonization and strengthening of institutional arrangements for land planning and management with the creation of the Ministry of Natural Resources and the Environment (MNRE). Further, institutional arrangement for land use planning was prepared to respond at divisional level of operation (awaiting approval by MNRE).

With respect to synergies between the GOG's efforts to address combat DLDD, climate change adaptation and mitigation, and biodiversity conservation, there is a need for further research and evidence into the connection between DLDD, climate change and biodiversity. This type of research would provide information on the interactions among these factors, including the degree to which DLDD exacerbate the effects of climate change (and vice versa), etc., which would guide the development of institutional mechanisms and more efficient and cost effective ways of addressing these challenges.

5. INTEGRATED INVESTMENT FRAMEWORK WITH INTEGRATED FINANCIAL STRATEGY FOR ALIGNED NAP IMPLEMENTATION

(CONS-O-14) (CONS-O-16)

This chapter is based on conclusions, strategic framework and the action plan emanating from the Integrated Investment Framework (IIF) and Integrated Finance Strategy (IFS) study conducted as part of the process of alignment of the NAP. It also includes a forecast of adequacy, timeliness and predictability of external resources, particularly bilateral assistance required to implement it.

The IIF and IFS are reflective of both global, regional and national developments since Rio 1992 and the original establishment of the UNCCD. Some of constraints and challenges facing the deployment of the UNCCD are similar to those facing the UNCBD and the UNFCCC. But compared to its two Rio sister conventions, the UNCCD has been and is particularly affected by insufficient financing, a weak scientific basis, insufficient advocacy and awareness among various constituencies, institutional weaknesses, and difficulties in reaching consensus among Parties of the Convention.

Guyana has been affected by the changing policy environment since Rio, particularly so with: the adoption of the Millennium Development Goals (MDGs); the outcomes of the World Summit on Sustainable Development (WSSD); increased support to the least developed countries; stronger commitment for climate change mitigation and adaptation; prospects of global agricultural trade liberalization and; growing numbers of environmental migrants in other parts of the World.

The Millennium Assessment (MA) has advanced the scientific basis and understanding of the impacts of land degradation on human and ecosystem well-being through research on biophysical and socioeconomic trends.

5.1 Global Environment Facility

The financing environment has changed profoundly within the last decade. With the Global Environment Facility (GEF) becoming a financial mechanism for the UNCCD, official development assistance (ODA) flows began increasing again after a decade of stagnation and declining resources for rural development and agriculture. Donors have refocused their financing strategies to support country-driven priorities, based on Poverty Reduction Strategy Papers (PRSPs) and other country-led development planning instruments. Various innovative financing instruments have also come to life, including payments for ecological services and carbon finance.

The development of National Action Plans for the UNCCD is intended to foster initiatives to help prevent, control and reverse land degradation and drought. The Global Mechanism, i.e., the

entity that is assisting countries to mobilize financial resources and increase investments for sustainable land management, is aligned to the Strategy objectives by promoting resources that enhance actions to implement the UNCCD through the Strategy. In parallel, the Global Environment Facility, which finances several initiatives linked to climate change adaptation or mitigation, also includes the UNCCD Strategy within its priorities and framework.

GEF 6 Cycle (GEF-6 PROGRAMMING DIRECTIONS, Extract from GEF Assembly Document GEF/A.5/07/Rev.01, May 22, 2014) provides the details of the land degradation focal area programs and activities for the four years for covering July 1, 2014 to June 30, 2018. The mandate of GEF is to invest in global environmental benefits from production landscapes, as it pertains to its role as a financial mechanism of the UNCCD.

The Land Degradation Focal Area provides the framework for eligible countries to utilize GEF resources for implementing the Convention and its 10-year (2008-2018) Strategy which aims “to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability.”

A Memorandum of Understanding between the UNCCD COP7 (Decision 6) and the GEF Council has paved the way for direct support to affected country parties eligible for GEF financing through enabling activities. GEF-6 would support affected country Parties in achieving the objectives of the 10-year UNCCD Strategy, which “will involve long-term integrated strategies that focus simultaneously in affected areas, on improved productivity of land and on the rehabilitation, conservation, and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level.”

The amendment of the GEF instrument in 2010 has formally designated the GEF as a financial mechanism of the UNCCD at the Fourth GEF Assembly held in May 2010 in Punta del Este, Uruguay, and formally amended the GEF Instrument.

The GEF-6 strategy will directly support three of the four UNCCD strategic objectives on achieving long-term benefits for affected populations (SO 1), affected areas (SO 2), and for the global environment (SO 3). The GEF-6 replenishment phase (2014 – 2018) coincides with the final four years of the UNCCD 10-year strategy. The alignment will ensure that countries appropriately channel Land Degradation Focal Area investments to deliver targeted outcomes and catalyze support for combating land degradation.

5.1.1 Goal and Priorities of the GEF-6 Cycle Land Degradation Focal Area

The goal of the land degradation focal area is to arrest and reverse current global trends in land degradation, specifically desertification and deforestation, by promoting good SLM practices. The primary approach for GEF-6 funding would be to address priorities that represent the best opportunity for supporting agriculture, livestock management, and forest landscape restoration to

underpin rural livelihoods. This will directly address the need to: a) reinforce SLM for enhancing resilience in agro-ecosystems; b) harness and maintain ecosystem services for agro-ecological intensification; c) promote integrated management of production landscapes; and d) mainstream SLM in sustainable development.

5.1.2 GEF Land Degradation Focal Area Objectives, Program Priorities and Expected Outcomes

Table 7: GEF Land Degradation Focal Area Objectives, Program Priorities and Expected Outcomes

Objectives	Program Priorities	Expected Outcomes and Indicators
<p>LD 1 Agriculture and Rangeland Systems:</p> <p>Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods</p>	<p>1) Agro-ecological Intensification</p> <p>2) SLM for climate Smart Agriculture</p>	<p>Outcome 1.1: Improved agricultural, rangeland and pastoral management.</p> <p>Indicator 1.1: Land area under effective agricultural, rangeland and pastoral management practices and/or supporting climate smart agriculture.</p> <p>Outcome 1.2: Functionality and cover of agro-ecosystems maintained.</p> <p>Indicator 1.2: Land area under effective management in production systems with improved vegetative cover.</p>
<p>LD 2: Forest Landscapes: Generate sustainable flows of forest ecosystem services, including sustaining livelihoods of forest dependent people</p>	<p>Program 3: Landscape Management and Restoration</p>	<p>Outcome 2.1: Support mechanisms.</p>
<p>LD 3: Integrated Landscapes: Reduce pressures on natural resources from competing land uses in the wider landscape</p>	<p>Program 4: Scaling-up sustainable land management through the landscape approach</p>	<p>Outcome 3.1: Support mechanisms for SLM in wider landscapes established</p> <p>Indicator 3.1: Demonstration results strengthening cross-sector integration of SLM.</p> <p>Outcome 3.2: Integrated landscape management practices adopted by local communities based on gender sensitive needs.</p> <p>Indicator 3.2 Application of integrated natural resource management practices in wider landscapes.</p>
<p>LD 4: Maximising transformational impact: Maintain land resources and agro-ecosystems services through mainstreaming at scale</p>	<p>Program 5: SLM Mainstreaming in Development</p>	<p>Outcome 4.1: SLM mainstreamed in development investments and value chains across multiple scales.</p> <p>Indicator 4.2: Increased investments in SLM.</p>

5.2 Resource Mobilization

The following section discusses the potential domestic, external and innovative sources of financial resources. The country's ownership of development priorities, a focus on results, the forging of inclusive development partnerships, and transparency and accountability in the use of resources, are all deemed critical for the successful implementation of the IIF.

5.2.1 External sources of funding

This component discusses external sources of funding, including bilateral and multilateral donors, multinational corporations, charitable foundations, etc. While bilateral and multilateral funding sources have traditionally contributed to the majority of project or program financing, international funding is increasingly identified as supplementary resources. Increasingly, international funding is now dependent upon the level of domestic resources which Guyana is able to generate from its domestic budgets as well as, upon the level of co-financing from other domestic and international donors/investors.

A better understanding of the international donor community is hence key, in addition to mechanisms for increasing the mobilization of funding from external sources. Mobilizing funds from external sources requires knowledge of the best possible development partners, their priorities, goals, interests, policies, and budgets. Although international donors differ from one another in terms of preferred intervention areas, financial instruments, and funding pre-requisites and conditions, there remain several similarities among them. A number of strategic actions could be taken in Guyana to aid in the improvement of resource mobilization from donors. Similarly, some of these measures, such as specific reforms, may also be conducive to increasing mobilization of funds from other external sources.(see OO5 in Table 10 of this report - Assessment of Operational Objectives and Expected Outcomes against Guyana's NAP).

Major funding sources are the World Bank, EU, International Fund for Agricultural Development (IFAD), USA, Netherlands, Germany, Japan, Italy, Canada and Denmark. UNDP, FAO, GM (Global Mechanism) and UNESCO are the UN agencies involved in natural resources. In addition, several foreign NGOs are involved, together with CSOs. In addition to the bilateral coordination between the foreign institutions and Guyanese institutions, the Local Aid Coordination Secretariat (LACS) and its local development forum, four strategy groups and sector working groups are the coordination mechanisms of technical assistance and foreign support. Of direct relevance are the water, agriculture and environment sector working groups. Each sector-working group consists of local and foreign institutions and is co-chaired by national and foreign institutions.

Prioritization of budget allocation and donors support is a function of donors' own strategies and policies, national and macro policies and sectoral strategies and policies. As Guyana is a member

state of the United Nations, it can access several funding sources provided by the UN. However, accessing international financing sources is of particular importance. The key policy recommendations relevant to external financing sources are listed below:

- Land and agricultural production are of vital importance. As such, donors and international agencies should give protection, sustainable use and management of natural resources high priority.
- As desertification, land degradation and drought are closely linked, and drought severity and frequency are increasing, a sub-working group or special taskforce needs to be established as part of the Agricultural Sector Working Group.
- Donors should consider matching-funding and sharing with the Guyanese private sector and Guyanese Funds, in support of sustainable land management.
- Donors should use debt swap mechanisms to promote and finance sustainable land management interventions.
- Non official development assistance such as Foreign Direct Investment (FDI), private foreign investment, NGOs and CSOs should be explored and accessed.

Bilateral lending agencies

The most important source of bilateral aid for Guyana is Europe, with both the European Commission and the Government of Norway providing significant revenue streams.

European Commission

Assistance through the European Commission (EC) under the 10th European Development Fund (EDF) will concentrate on macro-economic support as well as continued support to the Guyana sea defences and coastal management. A specific target of the 10th EDF programme will be capacity building within the sea defence administration to prepare for the final hand-over of responsibility for the maintenance of this crucial infrastructure from the EC to the national authorities.

The EC's total allocation (2008-2013) for Guyana to address sea defence and coastal management, amounts to €55.4 million. The sea defence project under the 9th EDF added a contribution of €20 million to an already ongoing programme. The sea wall is critical to safeguarding the investments in infrastructure and improved agricultural production in Guyana's coastal belt where 90% of the population lives. It particularly serves to protect the poor who often live close to the sea and whose livelihoods depend on agriculture (mainly rice and sugar). The severe flood in January 2005 and the resulting loss of life and economic capacity, stressed the continued importance of sea defences for Guyana's sustainable development.

Government of Norway: Guyana REDD+ Investment Fund

The Guyana REDD+ Investment Fund (GRIF) was established in October 2010 and is the financial mechanism for the ongoing cooperation on climate change between Guyana and Norway. The fund will receive up to US\$250 million from Norway in performance-based payments for the period up until 2015, based on an independent verification of Guyana's deforestation and forest degradation rates and progress on REDD+ enabling activities. Guyana will invest the payments it receives, and any income earned on them, in implementing its Low Carbon Development Strategy (LCDS).

The GRIF will provide grant financing for goods, works or services for an investment, technical assistance or capacity building activity or activities as approved by the Steering Committee in accordance with the GRIF Governance Framework Document. The GRIF will however not provide financing for budget support. The GRIF has allocated a budget of \$250 million for up to 2015.

Forest payments will be invested to support the creation of new low-carbon economic opportunities for small and micro enterprise (SME) sectors and vulnerable groups. This will take the form of grants, a mutual guarantee fund, skills development and capacity building in agencies responsible for SME development and vulnerable groups.

Multi-lateral lending agencies

Global Mechanism

Mandated by the UNCCD to increase the effectiveness and efficiency of existing financial mechanisms and to promote actions leading to the mobilization and channeling of substantial financial resources, the Global Mechanism (GM) supports developing countries to position SLM as an investment priority. In addition, the GM provides countries with specialized advice on accessing finance for SLM from a range of public and private sources, both domestic and international.

Since beginning its operations in 1998, the GM has been housed by the International Fund for Agricultural Development (IFAD), one of the world's leading international financial institutions in promoting smallholder agriculture and “enabling poor rural people to overcome poverty”.

The GM represents a major contribution for IFS design by financially supporting it and all the initiatives linked to Sustainable Land Management. While the IFS suggest a finance strategy, the GM, as well as the GEF 6th Focal Area, supports these activities by delivering financial support.

The World Bank and the Inter-American Development Bank (IDB) are important sources of finance (including loans, grants and technical assistance) for development projects in Guyana. Some of the projects currently or recently financed by these agencies and which contribute to sustainable development of natural resources in Guyana are presented below.

Conservancy Adaptation Project (CAP)

The objective of the Conservancy Adaptation Project (CAP) is to reduce the vulnerability of catastrophic flooding in Guyana's low-lying coastal area that is currently threatened by sea level rise resulting from global climate change. The project activities focused essentially on providing technical engineering baseline for future interventions designed to reduce flood vulnerability.

A specific investment loan of up to \$5 million has been allocated to this project.

Amaila Falls Hydroelectric Power Project

The Amaila Falls Hydroelectric Power Project is a proposed construction of a 165 MW (installed) hydroelectric power generation facility and associated infrastructure to be located in west central Guyana, immediately upstream from the confluence of the Kuribrong and Amaila Rivers, approximately 250 kilometers southwest of the capital, Georgetown. Access to the Project consists of approximately 85 km of new roads to be constructed, and about 122 km of existing roads to be upgraded. This is a key project for Guyana as it has the potential for a unique transformational effect on the country by converting its base load fossil fuel electric generation capacity to clean hydro-generation.

Loan operations, private sector loan and ordinary capital of up to \$200 million have been allocated to this project.

Strengthening of Iwokrama Phase II

Strengthening of Iwokrama Phase II is a project designed to continue the Iwokrama International Centre's (IIC's) climate change science program at Iwokrama together with the extension of IIC's core business such as ecotourism, sustainable forest management, development of forests' natural services and the advancement of local community programs.

This project has been implemented thanks to the World Bank and a budget of \$500 000 has been allocated through non-reimbursable technical cooperation and ordinary capital.

Other projects related to agriculture, environment and sustainable land management have been facilitated in Guyana by international agencies and other external financing sources.

5.2.2 Domestic sources of funding

This section describes the efforts being made to identify and access domestic funds.

GOG considers domestic sources of funding to be the 'first door of financing' for any program or project in combating desertification and sustainable land management. As such, it will strive to raise its own domestic funds to combat DLDD, prior to these being supplemented by donor funds. The aim is to foster Guyana's capacity to raise domestic financial resources and propose means for improving the mobilization of these internal resources.

An analysis was done in the form of a medium term investment plan and the main sources of domestic funding were identified. The means of increasing the mobilization of resources to be used in combating desertification and sustainable land management were identified and the decision-making process for resource allocation was outlined.

The annual national budget, administered by the MOF, is the major domestic budget source to combat DLDD. All ministries and autonomous departments request their annual budget allocations based on the operational budget and the development budget, respectively. The former includes salaries, rents, and running costs, whereas the latter covers the financing of projects, programmes and other developmental activities.

Both the Ministry of Agriculture and Ministry of Natural Resources and the Environment are institutions dealing directly with issues of relevance to SLM and DLDD. Local government units and the private sector do not currently fund activities of direct relevance to combating DLDD, except for farmers' investments in agricultural activities and practices.

The following are key policy recommendations and directions of the GoG:

- To ensure proper management and coordination of funds allocated within different national institutions.
- To foster an enabling environment that attracts and promotes investment in issues of relevance, including tax incentives, subsidies and partnership with private sector.
- To consider desertification and land degradation issues when plans and interventions are being developed. This will include training, awareness raising, incentives and development of regional land use plans.
- To request the donor community and international agencies to place support for combating desertification, land degradation and drought high on their agendas and strategies
- To adjust and link appropriate/relevant initiatives to serve and match the strategy and the objectives of the Aligned NAP.
- To ensure that those companies investing and dealing with natural resources (particularly agriculture, forestry, and mining) support and adopt sustainable land management measures and practices, and avoid any negative impacts on natural resources and the environment
- To establish an open dialogue with relevant stakeholders with regard to benefiting from and accessing funding mechanisms.

Environmental bonds as a source domestic funding

For small-scale mining the environmental bond is set at GYD 25,000 (approximately 122 USD), while for medium and large-scale mining, this amount is determined by the Commissioner (generally established at 100,000 GYD or approximately 500 USD). According to "Project Document, Land Reclamation Project (LRP), June 2014", information sourced (from "A Full Cost and Alternative Bonding from Land Reclamation – Bond Review and Implementation - K.

Ramdass and V. Manoo 2013) indicated that the current bonding structure and system must be reviewed to realistically integrate land reclamation intervention both at the institutional level, as well as the operational plans of miners.

The study indicated that current practices suggest a willingness among parcel/claim holders to internalize this bond cost, by forgoing the prescribed environmental bonds, thus reneging on pre-existing obligations to reclaim disturbed areas. At the time of the publication (2012), it was observed that of the 8410 medium scale mining properties, only 22 bonds were repaid to parcel holders. This translated to some 8.7 million dollars of forgone environmental bonds. Upon cancellation or relinquishment of the property, the cost of debilitation is then transferred to the GGMC.

Considering that annual commodity prices increase, in addition to the reduced time value of currency, the actual land reclamation costs are substantially greater than the current costs reflected in environmental regulations. This presents a financial burden and environmental challenge for ensuring sustainable land management practices.

It was thus proposed that both the blanket and parcel bonds be revised to reflect the true cost (Direct and Indirect) of the respective stages of land reclamation, as well as serve as a disincentive for less than acceptable environmental practices by miners. The proposed options are as follows:

- An increase of the “total site bond” for land parcels ; or
- An alternative “standard sectioned bond” which covers various sections of the site.

In anticipation of the substantial increase in bond, it was recommended that the appropriate measures be put in place to offset the financial burden to miners. This would be achieved through a strategic payment plan over a 5-year period, or full payment where possible.

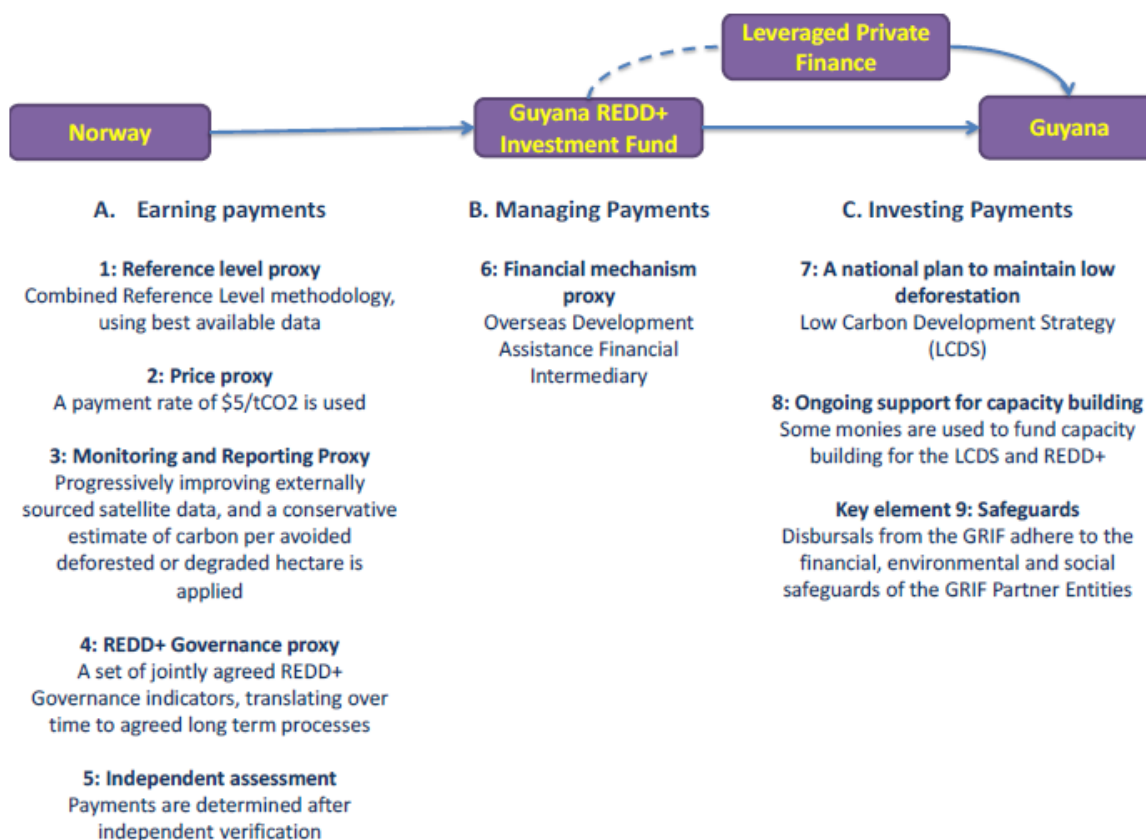
5.2.3 Innovative sources of funding

Innovative sources of funding represent potential and non-traditional modes of financing, a new supplementary approach aimed at increasing the amount of resources available and ensuring better predictability of aid flows. This has been recognized as a particularly important condition for maximizing the impact of ODA. In recent years, innovative financing mechanisms are increasingly being seen as a stable and sustainable funding source that is not interrupted by changes in political dynamics or donor modalities. Innovative resources are mobilized through financial mechanisms and instruments where the principles of combating desertification and sustainable land management are incorporated. The funds from innovative sources can be earmarked to fund SLM activities.

Innovative financing sources include:

- Financing instruments and mechanisms: GCF, Adaptation Fund, etc.
- Bilateral initiatives: International Climate Initiative of Germany, Hatoyama Initiative of Japan
- New funds: United Kingdom Environmental Transition Fund, World Bank Climate Investment Fund

Figure 7: Innovative sources of funding



5.3 Partnership Building and Technology Transfer

The UNCCD advocates the establishment of partnerships as a means to foster comprehensive and widespread cross-sector collaboration to ensure that sustainable development initiatives are imaginative, coherent and integrated. Partnership building is central to resource mobilization due to the cross-sectoral nature of combating desertification and sustainable land management, and the multitude of actors involved in it. Partnerships can be established at various levels as follows:

Local level

Establish coalitions in order to succeed in carrying out local projects. This partnership should encompass all the forces and competences at work in the local area, from municipal services, through decentralized government services, civil society and NGOs, economic and industrial settings, research centers or universities. Opportunities at the local level include collaboration with Iwokrama, the North Rupununi District Development Board (NRDDB) and the Kanuku Mountains group. An assessment conducted of the climate of Guyana with a focus on Iwokrama, attempted to collate and analyse climate/hydrology data related to the Iwokrama Centre and the surrounding regions. The project provided a valuable opportunity to establish relationships with a network of all the major data providers not only in Guyana and the Caribbean region, but globally as well.

The Forestry Training Centre Incorporated (FTCI) is as a result of a partnership between the Guyana Forestry Commission, the Forest Products Association of Guyana and the Tropical Forest Foundation with funding from the International Tropical Timber Organisation, the Department for International Development (UK), and the World Wildlife Fund (Guianas). The FTCI was established primarily to provide field operatives in Guyana and the wider region with training in reduced impact logging through exposure to a model logging operation. The model logging operation provides trainees with hands-on training in an actual timber harvesting setting and targets forests managers and supervisory staff, inventory team leaders, chainsaw operators, heavy duty machine operators, students, representatives of forest based communities and non-governmental organizations.

National level

These partnerships serve to build strategic alliances at the policy level. The National Meteorological and Hydrological Service (NMHS) of the Ministry of Agriculture provides hydrological, meteorological, oceanographic and related data and information. It also prepares and communicates forecasts and warnings and investigates and provides advisory services on both national and international scales. In 2011, the Ministry of Agriculture in collaboration WWF and Japan International Cooperation Agency (JICA), launched the National Water Information System (NWIS). This system is an internet based, user-friendly programme that aims to coordinate data dissemination and data sharing between data collectors and decision-makers, centralise and standardise data collection across the multiple agencies and sectors involved in water management. It provides easier access to timely information to assess a country's water resources for decision-making. Partnerships with the Ministry and WWF could build very beneficial synergies in combating desertification and sustainable land management

Regional level

The establishment of partnerships is necessary for the success of regional integration. The New Partnership for Africa's Development (NEPAD) is a perfect illustration. It is an initiative based on an integrated and comprehensive vision and strategic framework for development. Partnerships between different African stakeholders are the established mode of functioning for development activities on the African continent.

International level

These partners often provide direct or can facilitate project or program financing, technical assistance, political lobby, exchange of expertise, exchange and dissemination of experiences, and networking support among others. Partners may co-finance an ongoing program or complement a planned program by another partner. Through the new LCDS Project areas on Climate Resilience, Adaptation and Water Management, the upcoming Climate Resilience, Adaptation and Water Management Initiatives will allocate up to US \$100 million for a once-in-a-generation effort to upgrade Guyana's ability to cope with climate change. In response to a growing awareness of the potential adverse effects of climate change and the particular vulnerability of developing countries to this process, a significant increase in adaptation action has been witnessed in recent years in Latin America and the Caribbean.

Of particular interest to combating desertification and to sustainable land management are South-South partnerships. In 1999, with the medium term policy for Public Development Aid (PDA), aid for South-South cooperation was deemed an integral part of effective methods of assistance. In particular, the contribution of experts and the organization of training session are supported mainly by South-South cooperation.

5.5 Action Plan for the IFS

The Action Plan for the Integrated Financing Strategy and Investment Framework summarizes the main interventions to reach the outcomes and outputs of the strategy. The Plan uses indicators in the form of a simple scorecard to identify the baseline situation as well as the intended target result. Steps to reach the target are identified.

Aligned National Action Plan to Combat Land Degradation, Guyana

*Table 8: Logical Framework for the development of an Integrated Financing Strategy and Investment Framework in support of Guyana's Aligned National Action Plan to Combat Land Degradation
Priority Areas for Aligned NAP Implementation*

CONSOLIDATION TRACK		Indicator	Target	CHALLENGES/BARRIERS	PHASE	ESTIMATED COSTS (USD)
1. POLICY AND GOVERNANCE	To improve the institutional capacity and the collaboration between governmental agencies	Reinforcement of intra-governmental coordination	-To allocate new resources -To assess the identified strategies for mainstreaming NAP activities (implementation status, progress) and remedy failed ones	To jeopardize the implementation of the aligned NAP	Phase 1 (3 years)	\$263,000
	To undertake staff training in: - Remote sensing -Geographic Information System (GIS) - Multi Criteria Decision Analysis - Information management systems/information technology	Staff expertise in state-of-the-art geological-data management technologies	Improve staff expertise and build-up resilience	To remain at a sub-optimal level of staff training and accumulate delays	Phase 1-2 (3 years)	\$754,000
	To mainstream Desertification, Land Degradation and Drought (DLDD) into relevant national policies, strategies and plans	Efficiency of knowledge sharing systems, information flow, consistency of the body of national policies	-To set up websites, training, and the distribution of reports to relevant agencies -To enable the National Focal Point to share relevant DLDD information products with stakeholders at the national level -To launch a communication strategy addressing DLDD, including synergies with climate change and biodiversity conservation	To fail to address DLDD to the extent and in the timeframe that it requires	Phase 2-4 (2 years)	\$104,000

Aligned National Action Plan to Combat Land Degradation, Guyana

CONSOLIDATION TRACK						
		Indicator	Target	CHALLENGES/BARRIERS	PHASE	ESTIMATED COSTS (USD)
	To finalize the National Land Policy or Sustainable Land Management (SLM) policy		-To establish an authoritative policy advisory body for SLM -To mainstream SLM within government agencies	Unfulfilled SLM policy	Phase 2-4 (short-term)	\$60,000
	To strengthen the links between the UNCCD and the poverty and livelihoods elements of the sustainable development agenda, including Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs)	Trans-program integration	To harmonize policy efforts to the service of the development agenda	Inefficient integration of development policy initiatives	10 years	\$49,000
2. CAPACITY BUILDING, AWARENESS AND TRAINING	To strive for a mainstreaming of Sustainable Land Management (SLM) within educational establishments		To improve and enhance the knowledge base on SLM	Lack of SLM information and knowledge in the education establishments for future land users/ managers	Phase 1-3, (7 years)	\$287,000
	To enhance the knowledge and capacity of land users to perform ecologically appropriate land restoration	Constituency-level monitoring of land degradation	Capacity-building among direct land users	To cause damage at the micro-level	Phase 1-2, (1-5 years)	\$680,000
	To acquire the capacity to cascade regional (international) forecasts of Drought Early Warning Systems (DEWS) to the national context and analytical capacity of staff working on DEWS	Data appropriation and interpretation Data management skills	Enhanced synergy with overarching DEWS Capacity-building	Sub-optimal use of internationally-generated knowledge Sub-optimal generation and use of scientific data	Phase 1, (6 months)	\$93,000

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CONSOLIDATION TRACK						
		Indicator	Target	CHALLENGES/BARRIERS	PHASE	ESTIMATED COSTS (USD)
	To conduct awareness of, and training in, specialized areas such as the process of dealing with drought in order to develop appropriate actions in case of unforeseen occurrence	Environmental readiness	Capacity-building	Apathy to risk of drought	Phase 1, (6 months)	\$115,000
	To enhance the capacity to establish and manage/maintain systematic central databases with quality checks	Degree of centralization and management of data	In all agencies under the Department of Natural Resources and the Environment and in all benefitting from training on UNCCD Reporting (Alignment of NAP Project)	Sub-optimal flow of scientific data	Phase 1-4 (10 years)	\$98,000
3. R & D	To produce sound scientific evidence and to determine the relative roles of drivers of Desertification, Land Degradation and Drought (DLDD)		Analysis of biophysical and socioeconomic drivers of DLDD	Insufficient grasp of DLDD and dire consequences on mitigation policies	Phase 1-2, (4 years)	\$287,000
	To conduct a national scientific study on land degradation		Undertake a national scientific study on DLDD and interactions with climate change, and biodiversity	To ignore long-term environmental risks	Phase 2, (2 years)	\$220,200

5.5 Barriers to implementing the financial strategy for SLM

Several additional barriers may jeopardize the implementation of the financial strategy for SLM activities in Guyana and these will need to be addressed. Table 9 identifies these barriers.

Table 9: Barriers to implementing the financial strategy for SLM

<p><i>Limitations of the institutional framework</i></p> <p>These include:</p> <ul style="list-style-type: none"> • Fragmented policy and legislative environment • Lack of an overarching policy and programme framework for SLM • Overlapping mandates amongst agencies • Limited understanding of roles and responsibilities amongst stakeholders • Insufficient co-operation and co-ordination between institutions with common objectives or with complementary functions • Lack of guidelines for SLM in the energy, livestock transport and housing sectors • Limited capacity to monitor and enforce SLM practices
<p><i>III-defined property rights</i></p> <p>Absence of appropriate forms of property rights or tenure. Security plays a key role in controlling access to natural resources. It also defines responsibilities for actions needed to ensure their sustainability. Where security of tenure is absent, or where property rights are poorly defined, this may lead to unregulated exploitation of resources by multiple users (e.g. miners and loggers), each with competing objectives. This also makes it difficult to penalise those who degrade natural resources or reward those who enhance or protect them.</p>
<p><i>Economic barrier</i></p> <p>Start-up and transaction costs pose a barrier to implementing SLM. The fact that the benefits of SLM are likely to accrue mainly in the medium and long term, make individual action to engage in SLM less attractive and, given the levels of poverty in Guyana, often impossible.</p>
<p><i>Public good dilemma</i></p> <p>Most of the land in Guyana is State owned, which means that the land is commonly seen as a public good. This has led to a squatting phenomenon with inadequate infrastructure provision, which has led to land degradation. In addition, squatters do not own the land and are therefore unlikely to invest in it through SLM.</p>
<p><i>Income inequality</i></p> <p>The large income inequality in Guyana may drive degradation in particular areas such as along</p>

the coastal strip and in the hinterland areas by forcing those in poverty to eke out a living on the only resource available to them: the land.

Failure to value non-market benefits of land

Although ecosystem services provide and contribute to global public goods, many of these goods, because of their nature are not generally traded in the marketplace. As such, they are not generally ascribed a price and are thus regarded, to all intents and purposes, as free. This apparent absence of value can create problems of unregulated use and over-exploitation. Thus, while markets tend to assign value to the production of private goods and services, these prices seldom capture the full costs (or benefits) of production decisions, including the social and environmental impacts or unintended by-products (or externalities) and ecosystem damage.

6 UNCCD REPORTING PROCESS FOR THE ALIGNED NAP

This chapter describes Guyana’s efforts to upgrade its reporting capability and process to the UNCCD.

A concerted effort to enhance the ability of Guyana to report to the UNCCD is being undertaken. This effort emphasizes and addresses the specific challenges which the GOG has faced when reporting to the UNCCD.

6.1 Performance Review and Assessment of Implementation System (PRAIS)

Reporting on the comprehensive set of impact and performance indicators for the strategic and operational objectives of the UNCCD Strategy, requires the involvement of many stakeholders, in particular government agencies from the different sectors. This requires strong coordination by the Guyana Lands & Surveys Commission.

One of the current challenges with reporting is the difficulty to ensure that agencies report on the specific indicators for which they possess the necessary data. In order to enhance GL&SC’s ability to coordinate and facilitate the collection of data for reporting to the UNCCD, a new data base, PRAIS, is being constructed through a process led by GL&SC. The database (which can be accessed at gyprais.gov.gy) enables GL&SC to coordinate the collation of specific data/indicators from the relevant/respective agencies. Both Stakeholder and Administrator manuals are available for the use of this database

Figure 8: Home Page of PRAIS Database



7 IMPLEMENTATION FRAMEWORK AND SCHEDULE

This chapter lays out the broad framework for implementation of the Aligned NAP. This framework takes into consideration existing frameworks, which the Aligned NAP builds upon and integrates into since the NAP is intended to be seen within the broader context of Guyana's national development efforts.

Implementation of the NAP is being done through projects and programmes executed by agencies which fall under the MNRE. For example, the NLUP was prepared by the GL&SC with funding from the Delegation of European Union and the National Land Degradation Assessment Study was undertaken by the Capacity Development and Mainstreaming for SLM Project. This Project also completed other priority actions required by the NAP such as EWS, Watershed Management, Valuation of resources and public awareness.

Other projects also contribute to activities relating to the NAP, for example projects under the Amerindian Development Fund and the GEF Small Grants Project. NAP relevant activities are also being supported by NGOs.

7.1 Coordination, Communication, Synergies

The operationalization and implementation of the Aligned NAP will require coordination, communication, and synergies.

The GL&SC, as the National Focal Point Agency to the UNCCD, is mandated by inscription '1.5' of the GL&SC's Strategic Plan 2013-2017 to honour its obligations to the UNCCD. This mandate is also incorporated in the annual work plan of the Land Use Planning and Policy section in order to be effectively achieved. Resulting from this commitment, the country's national reports have been compiled and submitted to the UNCCD's secretariat over the past years.

The approach in completing reports is participatory and cross sectorial and requires inputs from a wide cross section of stakeholders at the various ministries and departments, sister agencies in the natural resources and environmental sectors, NGOs, the public and other relevant stakeholders (see Acknowledgements section of this report). The GL&SC aims to accomplish this cross sectorial involvement through meetings, focus group sessions, workshops and other feedback and participatory mechanisms as appropriate.

This Aligned NAP emphasizes the need for enhanced data sharing across sectoral agencies. This will enable timely and improved access to reliable and high quality data to inform the decision-making process, reduce duplication of efforts and improve knowledge sharing in a robust and

responsive environment. More importantly, improved data sharing will ultimately contribute to efficiency and effectiveness across agencies.

A strategic communication strategy is critical, both for effectively engaging stakeholders, and for being able to mainstream the objectives and efforts related to combating DLDD, into national and local policies, strategies, programmes and projects, as well as more broadly to be able to reach the broader set of society/stakeholders.

GOG recognizes the strong need to synergize its commitments and efforts to combat DLDD with those to conserve and sustainably use its biodiversity, as well as those to mitigate and adapt to climate change.

7.2 Gap Assessment in the implementation of the NAP and priorities for the Aligned NAP

The Gap assessment below examines the progress of the NAP implementation against the Operational Objectives of the UNCCD Strategic Plan and provides the priorities to be dealt with for the aligned NAP. At this stage, the results of the Rapid Stocktaking Study were used to complete the assessments and implementation schedule as presented in Table 10 below.

Table 10: Assessment of Operational Objectives and Expected Outcomes against Guyana’s NAP

Operational Objectives (OO)	Expected Outcomes (EO)	Guyana’s Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
OO 1 Advocacy, awareness raising and education: <i>To actively influence relevant international, national and local processes and actors in adequately addressing desertification/land degradation and drought-related issues.</i>	EO 1.1 Desertification/land degradation and drought issues and the synergies with climate change adaptation/mitigation and biodiversity conservation are effectively communicated among key constituencies at the international, national and local levels.	The NAP programme area on public education and awareness focused on assessing the capacity gaps for sustainable land management and designing education and awareness programme to address these issues, in particular through the National Capacity Self-Assessment Process.	Guyana’s progress as regards sustainable land management is also reported nationally and internationally through the country’s performance-based reporting mechanism on enabling activities specified in the Joint Concept Note of the MoU between the Governments of Guyana and Norway.	There is a lack of adequate, consistent and targeted communication, public awareness and education activities for critical sectors contributing to land degradation and the population centers in these “hot spot” areas.	<ul style="list-style-type: none"> • Prepare a DLDD Communication Strategy (CS) focused on specific and/or critical areas of the aligned NAP. • The CS should contain an action plan and targeted population, and examines synergies with the other Rio Conventions, present adequate resources for implementation and allows for collaboration with national stakeholders and civil society to promote SLM. (CONS-O-1). • Establish knowledge sharing systems, to enable the National Focal Point to share relevant DLDD information products with stakeholders at the national level. • A Special Taskforce needs to be established with civil society (including vulnerable communities); private and public institutions to campaign for SLM Practices in DLDD affected areas and conservation practices.
	EO 1.2 Desertification/land degradation and drought issues are addressed in relevant international forums, including those pertaining to agricultural trade, climate change adaptation, biodiversity conservation and sustainable use, rural development, sustainable development and poverty reduction.	Public awareness activities were project based and targeted national and local communities, including schools and teachers. Information was communicated using tools such as newsletters, brochures, posters and on the GL&SC website.	The UNCCD reporting process allows for communicating progress at the international level. Thus far Guyana has submitted four national reports to the Secretariat.	Inadequate collaboration among the focal point institutions for the Rio Conventions to address issues holistically and to build on synergies.	
	EO 1.3 Civil society organizations (CSOs) and the scientific community in the North and the South are increasingly	Collaboration were made with sector agencies and local NGO’s involved in natural resources and conservation activities as it relates to		Limited public awareness on NAP especially for key sector agencies. The lack of adequate awareness and education by civil society on land degradation and drought.	

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
	engaged as stakeholders in the Convention processes and desertification/land degradation and drought are addressed in their advocacy, awareness raising and education initiatives.	implementing the SLM project.			<ul style="list-style-type: none"> • Build capacity through education programmes for land users to perform ecologically appropriate landscape management and restoration, working on DLDD (LADA Methodology, Land Management), and technical staff to monitor and analyze DLDD using satellite imagery and remote sensing. • Develop a Training Programme for SLM for University of Guyana, targeted short courses and workshops in areas such as GIS, LUP, EIA, and others.
OO 2 Policy framework: <i>To support the creation of enabling environments for promoting solutions to combat desertification/land degradation and mitigate the effects of drought</i>	EO 2.1 Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to sustainable land management are assessed, and appropriate measures to remove these barriers are recommended.	Drivers of land degradation and barriers to sustainable land management were assessed and outputs prepared under the project Capacity Development and Mainstreaming for Sustainable Land Management. Drivers of land degradation were identified inclusive of assessments of pilot		Lack of updated data on the extent of land degradation. Lack of data related to land degradation in the agriculture sector.	<ul style="list-style-type: none"> • Integrate SLM interventions into the national land use plan and key sector plans recognizing these sectors contribute to land degradation. • Mainstream DLDD into relevant national policies, strategies and plans, including description of time frames, instruments, and, division of roles and

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
		<p>sites.</p> <p>A draft National Land Use Policy was prepared and implementation commenced on a National Land Use Plan to address drivers for land degradation and barriers to sustainable land management.</p> <p>In particular a Land Use System of tier levels of planning was prepared and methodologies for regional land use planning developed.</p>			<p>responsibilities. The Focal Point Agency should provide incentives and services to those actors willing to adapt their programs and policies.</p> <ul style="list-style-type: none"> • Strengthen Environmental and Social Impact Assessment (ESIA) requirements, focusing particularly on monitoring and enforcement of mitigation measures set out in environmental management plans. • Establish an authoritative policy advisory body for SLM, and develop a National Land Policy. (The Policy should provide guidance for the revision of the National Land Use Plan and mainstream as the key national planning tool). • Harmonize and strengthen institutional arrangements for land planning, central database for drought management and management, natural resources, environmental management, and for disaster preparedness and
	<p>EO 2.2 Affected country Parties revise their national action programmes (NAPs) into strategic documents supported by biophysical and socio-economic baseline information and include them in integrated investment frameworks.</p>	<p>The process to revise and align Guyana's NAP with the 10-year Strategic Plan has commenced.</p> <p>At that stage it is expected that the aligned NAP will include biophysical and socio-economic baseline information and included in the integrated investment framework.</p>			
	<p>EO 2.3 Affected country Parties integrate their NAPs and</p>	<p>In 2012 the Guyana Lands and Surveys Commission prepared a</p>		<p>Lack of a fully functional land use policy to guide</p>	

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
	sustainable land management and land degradation issues into development planning and relevant sectoral and investment plans and policies.	report with recommendations to integrate sustainable land management into the draft land use policy.		sustainable land management or an overarching land policy.	response especially drought.
	EO 2.4 Developed country Parties mainstream UNCCD objectives and sustainable land management interventions into their development cooperation programmes/projects in line with their support to national sectoral and investment plans.	A report was prepared in 2012 that recommended integration of Sustainable Land Management into the draft Land Use Policy.		Lack of sustainable land management interventions integrated into sectoral plans of critical sectors driving land degradation. Lack of direct involvement of the tourism sector recognizing that ecotourism is an emerging activity.	
	EO 2.5 Mutually reinforcing measures among desertification/land degradation action programmes and biodiversity and climate change mitigation and adaptation are introduced or strengthened so as to enhance the impact of interventions.			There is lack of structured coordination among the focal points responsible for the Rio Conventions.	

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
OO 3 Science, technology & knowledge: <i>To become a global authority on scientific and technical knowledge pertaining to desertification/land degradation and mitigation of the effects of drought.</i>	EO 3.1 National monitoring and vulnerability assessment on biophysical and socio-economic trends in affected countries are supported.	National monitoring and vulnerability assessments were executed during the assessment of land degradation project.	Extensive forest monitoring by the GFC is undertaken annually and in particular to advance the national system to monitor, report and verify emissions and removals of carbon from the forest. Vulnerability Assessments were conducted for the national communications on climate change. Guyana's second national communication was prepared in 2012 and the country has commenced the process of preparing its Third National Communication	Limited coordination with key agencies/institutions responsible for biophysical and socioeconomic monitoring. Lack of adequate baseline data readily available in a useable format for reporting.	<ul style="list-style-type: none"> • National monitoring and vulnerability assessment of the integrity of the biophysical and socio-economic environment. • Develop sound scientific evidence to undertake the following:- <ul style="list-style-type: none"> ○ determine the drivers of DLDD, conduct analysis of biophysical and socioeconomic drivers of DLDD ○ the interactions with climate change, DLDD, and biodiversity.(CONS-O-10) • Conduct a National Scientific Land Degradation Study and a programme of research for land planning and management. This should include monitoring of watershed areas/aquifers. • Undertake a comprehensive economic analysis of the costs of the loss of ecosystem services due to land degradation and drought. • Develop DLDD projects which include climate
	EO 3.2 A baseline based on the most robust data available on biophysical and socio-economic trends is developed and relevant scientific approaches are gradually harmonized.				
	EO 3.3				

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
	Knowledge on biophysical and socio-economic factors and on their interactions in affected areas is improved to enable better decision-making.				change adaptation, drought mitigation and restoration of degraded land, and develop tools to assist decision-making. <ul style="list-style-type: none"> • Develop a mechanism to document / store traditional and local technical knowledge, best practices and success stories.
	EO 3.4 Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making.		Restoration of degraded lands in the mining sector is currently being undertaken through a Land Reclamation Project.	Specific reference to interactions between climate change adaptation, drought mitigation and restoration of degraded land were not undertaken.	
	EO 3.5 Effective knowledge-sharing systems, including traditional knowledge, are in place at the global, regional, sub regional and national levels to support policymakers and end users, including through the identification and sharing of best practices and success stories.	The NAP programme area on traditional knowledge included developing a mechanism to gather local knowledge and information on a regular basis, developing database and inventoring best-practices, and incorporating traditional and local knowledge best practice into the system for land planning and management. Some of the initiatives include: (i) storing best practice information in PRAIS reports and other reports from GGMC's Land		The lack of a fully functional, repository or knowledge sharing system to support decision-makers information such as successes and best practices.	

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
		Reclamation Project ; (ii) developing and implementing a community monitoring, reporting and verification (MRV) system in the North Rupununi for integration onto the wider national Monitoring, Reporting and Verification System, managed by the GFC, is based on local knowledge and will provide a "best practice" model for communities across the country; (iii) preparing management plans for Amerindian areas and these are developed by communities such as the recently produced management plan for the South Central Rupununi Area (Wapichan Territory).			
	EO 3.6 Science and technology networks and institutions relevant to desertification/land degradation and drought are engaged to support UNCCD		Engagements with the University of Guyana were limited to education and capacity building and pilots related to re-vegetation of mined out sites.		

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
	implementation.				
<p>OO 4 Capacity building: <i>To identify and address capacity-building needs to prevent and reverse desertification/land degradation and mitigate the effects of drought.</i></p>	<p>EO 4.1 Countries which have carried out the national capacity self-assessment (NCSA) implement the resulting action plans to develop the necessary capacity at the individual, institutional and systemic levels to tackle desertification/land degradation and drought issues at the national and local levels.</p>	<p>Guyana conducted a national capacity self-assessment process and prepared a gap analyses and skills assessment focusing on the UNCCD as a part of the NCSA Strategy and Action Plan. A number of recommendations were made to address the capacity gaps both at the intuitional level and through the engagements with other intuitions. In this regard, a number of training activities were conducted at the regional and local levels including Disaster Risk Management and training to promote good practices in sustainable land management. Training workshops were also conducted under the SLM project covering a range of topics such as land degradation assessments in dry lands, methodology early</p>	<p>Capacity gaps were addressed through initiatives outside of the GL&SC and these include (i) training for hinterland communities on sustainable use of the forests to address issues of forest fires and conservation practices through the efforts of the GFC and NGOs; (ii) programmes offered by the University of Guyana covers some of the target areas and contribute to SLM. These include SEES Bachelor of Science (B.Sc.) Degree in Environmental Sciences and Bachelor of Arts (B.A.) Degrees in Geography and Postgraduate Diploma/Master of Science (MSc) Degree in Environmental Management, with two specialisation streams in Natural Resources</p>		<p>Continue to implement the recommendations outlined in the NCSA Action Plan (and updated NCSA) for the UNCCD.</p> <ul style="list-style-type: none"> • Undertake Gap Analyses for SLM

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
		warning systems watershed management, resource valuation and GIS.	Management; and Climate Change and Disaster Management and other programmes offered by the Faculties of Agriculture and Forestry, Technology and Natural Sciences; (iii) specialized training courses for the forestry and mining sectors offered by the Forestry Training Centre Inc. and the Guyana Mining School and Training Centre Inc.; (iv) training conducted by NGOs (World Wildlife Fund (WWF), Iwokrama, CI, and other institutions such as Bina Hill Institute contributes to SLM.		
	EO 4.2 Those countries which have not previously undertaken capacity needs assessments engage in relevant assessments processes to identify capacity needs for tackling desertification/land degradation and drought at the national and local levels				Not applicable

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
OO 5 Financing & technology transfer: <i>To mobilize and improve the targeting and coordination of national, bilateral and multilateral financial and technological resources in order to increase their impact and effectiveness</i>	EO 5.1 Affected country Parties develop integrated investment frameworks for leveraging national, bilateral and multilateral resources with a view to increasing the effectiveness and impact of interventions.	A medium term Investment Plan for Sustainable Development was prepared that set out the framework for investments and identified multiple sources of financing.			<ul style="list-style-type: none"> • Increase efforts to mobilize financial resources from international financial institutions, facilities and funds, including Foreign Direct Investment (FDI), private foreign investment, NGOs and CSOs, and GEF (Integrated Financing Strategy (IFS) Report). Adequate Funding should be allocated for training, particularly in the areas of remote sensing, GIS, Multi Criteria Decision Analysis, and, Information management systems. • Encourage donors to use debt swap mechanism to promote and finance sustainable land management interventions. • Networking to access adequate financing for effective economic and policy incentives and technical support, notably within the framework of South-South and North-South cooperation.
	EO 5.2 Developed country Parties provide substantial, adequate, timely and predictable financial resources to support domestic initiatives to reverse and prevent desertification/land degradation and mitigate the effects of drought.				
	EO 5.3 Parties increase their efforts to mobilize financial resources from international financial institutions, facilities and funds, including the GEF, by promoting the UNCCD/Sustainable land management (SLM) agenda within the governing bodies of these institutions.	The Medium Term Investment Plan for Sustainable Land Management identified a number of funding sources including market mechanism, government financing, bilateral and multilateral, as well as, mechanism such as UNCCD, UNFCCC, and CBD.			
	EO 5.4 Innovative sources of finance and financing				

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Operational Objectives (OO)	Expected Outcomes (EO)	Guyana's Status		Gaps	Recommended Action
		Addressed through NAP	Addressed outside of NAP		
	mechanisms are identified to combat desertification/land degradation and mitigate the effects of drought, including from the private sector, market-based mechanisms, trade, foundations and CSOs, and other financing mechanisms for climate change adaptation and mitigation, biodiversity conservation and sustainable use and for hunger and poverty reduction.				
	EO 5.5 Access to technology by affected country Parties is facilitated through adequate financing, effective economic and policy incentives and technical support, notably within the framework of South-South and North-South cooperation.				

7.3 Proposed priority actions to combat DLDD and promote sustainable land management

The process undertaken by the GOG for the preparation of the Aligned NAP has identified a set of priorities which individually and combined, will ensure that DLDD and SLM are firmly addressed in policies, strategies, programmes and projects in Guyana. The approach to determine and select these priorities is qualitative and non-scientific based on qualitative assessment of current and anticipated future risks, threats and drivers of those threats.

Box 1: Key priority actions to combat DLDD and promote SLM

1. Establish and strengthen monitoring systems for all sectors, including GIS capacities.
2. Increase and Strengthen awareness among all stakeholders about the impacts of drought, land degradation and deforestation.
3. Strengthen scientific foundations, research and development:
 - a. Relationships between DLDD, climate change and biodiversity
 - b. Strengthen the SLM foundations as a means to resolve DLDD, climate change and biodiversity simultaneously
 - c. Comprehensive analysis of the economic losses to society caused by DLDD
4. Establish and operationalize a drought early warning system.
5. Develop and implement a coordination and communication strategy to enhance governance, coordination, and stakeholder engagement, of efforts to combat DLDD.
6. Special effort to enhance the enforcement of mining regulations.
7. Implement the Integrated Finance Strategy and Framework.
8. Implement data and knowledge management system.
9. Develop capacity building efforts.

7.4 Overall timeframe for Aligned NAP implementation

The time frame for this Aligned NAP is 2015-2025. The Aligned NAP will be implemented in four phases as follows:

Phase 1: 1 – 3 years

Phase 2: 3 – 5 years

Phase 3: 5 – 7 years

Phase 4: 7 – 10 years

These three-year phases are intended to enable the Aligned NAP to be synchronized with the national policy and planning processes and cycles. Table 11 below shows the implementation phases for the areas of focus/priorities for the Aligned NAP.

Table 11: Implementation phases for the Aligned NAP

Phase	Areas of Focus/Priority for Guyana’s Aligned NAP
Phases 1-4	1. Increasing Public Awareness and Education.
Phases 2 - 3	2. Strengthening sustainable land management and policy framework.
Phases 2 – 4	3. Mainstreaming sustainable land management interventions and UNCCD objectives into national land use planning processes and national sectoral and investment plans.
Phase 1-4	4. Strengthening collaboration with focal point institutions for the Rio Convention and build on synergies.
Phases 1-4	5. Strengthening collaboration with tertiary intuitions to deliver training and capacity building on specific areas identified in the NCSA Action Plan for the UNCCD.
Phases 1-4	6. Improving access to, and adequacy of, financial resources for UNCCD implementation.

7.5 Monitoring and Evaluation.

The GOG will ensure that its efforts to combat DLDD are progressing and that the results of these efforts will have meaningful impact. To facilitate this, a plan for monitoring and evaluation of the implementation of the overall Aligned NAP and individual actions/projects has been developed (See Costed Strategic Framework for the Ministry of Natural Resources and the Environment 2013-2018, June 2013). The progress and impact of the Aligned NAP will be reviewed every five years based on evaluation of the established indicators. The responsibility for monitoring and evaluation will rest with the National Steering Committee.

8 CONCLUSIONS

As a signatory to the United Nations Convention on Combating Desertification, Guyana is strongly committed to meeting its obligations to prevent and mitigate drought, land degradation and deforestation in the country.

Drought, land degradation and deforestation are of great concern to the Government of Guyana since these directly and indirectly can cause death, poor health, and in many other ways negatively affect the livelihood of its peoples, including through: pollution of rivers; reduced fish stocks in rivers; surface runoff and mud slides; degradation of ecosystems and biodiversity and; reduced economic productivity.

Guyana continues in its progress towards meeting the Sustainable Development agenda and meeting the MDG targets.

Guyana is proud of its extensive and unique biodiversity which it is steadfast in protecting for its present and future generations. The country's prosperity depends heavily on this biodiversity for food, medicines, tourism, and other forms of sustenance.

Guyana possesses vast natural resources which are essential for sustaining its development and which will gradually increase the demand for developing its land and these resources. This increasing demand is not just for domestic consumption and development; there is a rapidly growing global demand for these resources, the export of which can become a substantial and important source of national revenue.

The Government of Guyana will ensure that its economic development both in the short and the long term, does not cause undue adverse effects on its people, who should be the very beneficiaries of the development process. There is an increasing perception and understanding that a good environment contributes to economic growth by reducing risks to people and by enhancing the business and environment potential. In addition, export markets are increasingly demanding responsibly harvested and produced goods.

Coordinating and managing the sometimes conflicting demands on the land is very challenging. As such, the government of Guyana increasingly engages in collaborative management with its various stakeholders (government agencies, CSOs, businesses, donors, etc.) as a reflection of this shared responsibility. All levels of society shall have a voice and influence on the future of Guyana.

The Government of Guyana is making substantial progress in improving and adjusting existing policies and regulations, as well as designing new ones. These include effective safe guarding mechanisms, mitigative measures and promotion of more sustainable land use practices. This Aligned National Action Programme sets out the road map for the Government of Guyana to continue implementing these plans.

It is equally crucial that policies and land use practices are underpinned by science and research. The role of research and science in developing policies and practices must be strengthened. Reliable research depends on good data, however there is a lack of reliable data and baselines in several sectors, as well as limited or no integration of existing datasets.

Importantly, Guyana has a long history with close dependency on and deep knowledge of the local environment and ecology. Guyana's policies and practices should be grounded on insights from its valuable local and traditional knowledge.

The impacts of DLDD further exacerbate the impacts of climate change which Guyana remains vulnerable to. Conversely, climate change also exacerbates the impacts of DLDD. The risks posed by rising sea levels threaten the very existence of the Guyanese people who live mostly along the coastline, on lands which are already often under sea level.

The efforts to combat DLDD will have substantial benefits for biodiversity, which is the basis for long term food security. These combative efforts will also benefit climate change mitigation/adaptation since many of the causes and solutions to those problems are to be found in appropriate SLM practices and improved governance.

The Government of Guyana continues to rigorously pursue the process of strengthening coordination and cross-sectoral collaboration to ensure integrated approaches to combating DLDD.

9. REFERENCES

1. Guyana Initial National Communication National Circumstances in Response to its Commitments to the UNFCCC, Cooperative Republic of Guyana represented by the Ministry of Agriculture in collaboration with United Nations Development Programme with funding from Global Environment Facility, April 2002
2. Project Document, Land Reclamation Project (LRP), June 2014
3. Project Identification Form for the CCCD Project, UNDP, 2015
4. Minamata Initial Assessment, UNDP, 2015
5. National Stocktaking Activity in Support of an Aligned National Action Plan, Rapid Stocktaking Report, February 2015
6. Costed Strategic Framework for the Ministry of Natural Resources and the Environment 2013-2018, June 2013
7. Disaster Risk Management Policy, CDC, 2013
8. Early Warning Systems Framework, CDC, 2013
9. CDC Guyana. "Drought". (2009).
http://www.cdc.gy/index.php?option=com_content&view=article&id=74&Itemid=83
10. CDC Guyana. "Multi-Hazard Disaster Preparedness & Response Plan" (2013).
11. CDC Guyana. "National Integrated Disaster Risk Mitigation Plan and Implementation Strategy for Guyana" (2013).
12. CDC Guyana. "Progress and challenges in Disaster Risk Management in Guyana" (2014).
13. Guyana Lands and Surveys Commission, 2012. Funding Needs Assessment for Sustainable Land Management Priorities Final Report.
14. GL&SC, 2012. Recommendations of Sustainable Land Management (SLM) in Guyana's draft Land Use Policy.
15. GL&SC 2006. Guyana's National Action Programme to Combat Desertification
16. GL&SC. 2006. Guyana's National Action Programme to combat Land Degradation
17. Guyana Lands and Surveys Commission (GL&SC), UNDP, GEF. "Early Warning System Study" (2010)
18. Guyana Lands and Surveys Commission. "Guyana National Action Program To Combat Land Degradation" (2006).
19. Guyana Lands & Surveys Commission, "Funding Needs Assessment for Sustainable Land Management Priorities", May 2012
20. Guyana Lands and Surveys Commission National Focal Point (UNCCD) "Guyana National Action Programme to Combat Land Degradation", May 2006
21. Guyana Lands & Surveys Commission, "Funding Needs Assessment for Sustainable Land Management Priorities", May 2012
22. Guyana Lands & Surveys Commission, "Guyana National Action Programme to combat land degradation (in accordance with the United Nations Convention to Combat Desertification - UNCCD)", May 2016

23. Guyana Lands & Surveys Commission, “Development of a Medium Term Investment Plan for Sustainable Land Management”, May 2012
24. Guyana Lands and Surveys Commission, United Nations Development Programme & Global Environment Facility “National Assessment of Land Degradation in Guyana: Diagnostic Report”, 2008
25. Guyana Lands and Surveys Commission (2012) Guyana National Land Use Plan. Ministry of Natural Resources and Environment, Georgetown, Guyana
26. Guyana Land and Surveys Commission (2006). Guyana National Action Programme to combat land degradation, Georgetown, Guyana.
27. Bank of Guyana 2014 Annual Report
28. Guyana National Budget. 2014.
29. Guyana Bureau of Statistics. 2014. Guyana Population and Housing Census, 2012. Preliminary Report.
30. Guyana Chronicle, 2011. National Water Resources System Launched. <http://guyanachronicle.com/national-water-resources-system-launched/>
31. Guyana Forestry Commission. 2013. Guyana REDD+ Monitoring Reporting and Verification System (MRVS), Year 3 Interim Measures Report – 01 January 2012 – 31 December 2012, Version 3
32. GoG (2013). Guyana National Land Use Plan. Guyana Lands and Surveys Commissions, Ministry of Natural Resources and Environment. Georgetown, Guyana
33. GoG (2013). The Guyana Poverty Reduction Strategy paper. Georgetown, Guyana.
34. GoG (2014) Guyana’s National Biodiversity Strategy and Action Plan (2012-2020). Ministry of Natural Resource and Environment, EPA. Georgetown, Guyana.
35. GoG (2012). Rio+20 National Report: A Green Economy and Institutional Framework for Sustainable Development: Guyana Context. Georgetown, Guyana.
36. GoG (2009). Forests Act 2009. Georgetown, Guyana
37. GoG (2002). Water and Sewerage Act Chapter 30:01-Laws of Guyana, Georgetown Guyana
38. GoG (1998) Land Registry Act-Chapter 5:02. Laws of Guyana, Georgetown, Guyana
39. GoG (1998). Town and Country Planning Act. Chapter 20:01 Laws of Guyana , Georgetown, Guyana
40. GoG (1998) Drainage and Irrigation Act- Laws of Guyana, Georgetown, Guyana
41. GoG (1998). Education Act Chapter 39:01 Laws of Guyana, Georgetown, Guyana.
42. GoG (1998). Environmental Protection Act: Chapter 20:05. Georgetown, Guyana
43. GoG (1998). Guyana Forestry Commission Act-Laws of Guyana, Georgetown, Guyana
44. GoG (1998). Guyana Lands and Surveys Commission Act-Chapter 59:05. Laws of Guyana, Georgetown, Guyana.
45. GoG (1998). Mahaica-Mahaicony-Abary Agricultural Development Authority Act – Laws of Guyana, Georgetown Guyana

46. GoG (1957). Acquisition of Land (Land Settlement Act) Cap. 62:06. Laws of Guyana, Georgetown, Guyana
47. Guyana Forestry Commission (2011). National Forest Plan, Georgetown, Guyana
48. Guyana Forestry Commission (2011). National Forestry Policy Statement, Georgetown, Guyana.
49. MOA (2013). A national Strategy for Agriculture in Guyana 2013-2020. Ministry of Agriculture, Georgetown, Guyana.
50. MOA (2011). Food and Nutrition Security Strategy for Guyana. Government of Guyana, Georgetown Guyana
51. Guyana National Task Force. “Guyana Climate Change Action Plan” (2001).
52. Guyana Times. “Regions 1, 9 hit by drought”. (2015).
www.guyanatimesgy.com/2015/04/11/regions-1-9-hit-by-drought/
53. Guyana: El Niño Drought. An appeal. (1998).
<https://www.ifrc.org/docs/appeals/98/1498.pdf>
54. Hydrometeorological Service Guyana. “Early Warning System in Guyana”. (No date).
[https://www.wmo.int/pages/prog/.../Mr.%20Cummings%20\(Guyana\).pdf](https://www.wmo.int/pages/prog/.../Mr.%20Cummings%20(Guyana).pdf)
55. Hydrometeorological Service, Guyana. “Drought Monitoring in Guyana” (No date).
drought.unl.edu/Portals/0/docs/workshops/.../Thursday/Seulall.pdf
56. C. Isabella Bovolo, Geoff Parkin and Thomas Wagner, 2009. Initial Assessment of the Climate of Guyana and the Region with a Focus on Iwokrama. School of Civil Engineering & Geosciences, Newcastle University, Newcastle upon Tyne., UK.
57. Chandarpal., Gitanjali, 2014. Climate Change Impacts on Guyana and Current Initiatives. Office of Climate Change, Office of the President, Guyana,
<http://www.caribank.org/uploads/2014/05/Climate-Change-Impacts-on-Guyana-and-Current-Initiatives-by-Gitanjali-Chandarpal.pdf>
58. Cummings, Garvin, Hydrometeorological Service, Ministry of Agriculture. EWS in Guyana .Hydromet Presentation, RECO Bogota.
[https://www.wmo.int/pages/prog/drr/events/TECORAI/Session4/Mr.%20Cummings%20\(Guyana\).pdf](https://www.wmo.int/pages/prog/drr/events/TECORAI/Session4/Mr.%20Cummings%20(Guyana).pdf)
59. Da Silva P., 2014. Avifaunal Diversity in a Mangrove Reserve in Guyana, South America; International Journal of Science Environmental and Technology, Vol.3, No.1, 2014. 23-32.
60. Environmental Protection Agency. 2014. Revision of the National Biodiversity Strategy and Action Plan Stocktaking Report.
61. Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean, 2013. Third International Conference on Small Island Developing States. Caribbean Regional Synthesis Report.
<http://www.sids2014.org/content/documents/250Synthesis%20Report%20Final%2020%20August%202013.pdf>

62. Federal Ministry for Economic Cooperation and Development (BMZ), Bonn 2007. Technical Paper. National Action Programmes under UNCCD – Rules and Reality. http://www.desertifikation.de/uploads/media/07-02-01_Technical_Paper_NAP.pdf
63. FAO, 2013. Guyana UN-Water Country Brief, http://www.zaragoza.es/contenidos/medioambiente/onu/1026_eng_res5_unwater_briefs_guyana.pdf
64. Joint statement on a Voluntary Partnership Agreement (VPA) on Forest Law Enforcement, Governance and Trade (FLEGT) between Guyana and the European Union, Georgetown, 2012. http://eeas.europa.eu/delegations/guyana/documents/press_corner/euguyanaflegt.pdf
65. Keller, Marius *et al.* 2011. Review of Current and Planned Adaptation Action: South America. - Guyana. International Institute for Sustainable Development. http://www.adaptationpartnership.org/sites/default/files/LAC%20South_America%20Country%20profiles%20%28Guyana%29.pdf
66. Met Office, FitzRoy Road, Exeter, Devon, EX1 3PB United Kingdom, 2012. Case study: Guyana Hydrometeorological Office. http://www.metoffice.gov.uk/media/pdf/q/7/Guyana_Case_study.pdf
67. Ministry of Natural Resources and the Environment, 2012. Costed Strategic Framework. http://www.nre.gov.gy/PDF/Costed%20Strategic%20Framework%20for%20the%20MNRE%20V5_final.pdf
68. World Bank, 2014. Decision-Making and Investment Strategies for Managing Flood Risk in Guyana. Insights into DRM. Issue #6- July 2014. <http://www.worldbank.org/en/topic/disasterriskmanagement/publication/insights-in-drm-latin-america-caribbean>
69. “Drought Early Warning Systems in the Context of Drought Preparedness and Mitigation”. (2000). http://www.preventionweb.net/files/1882_VL102149.pdf
70. Caribbean Disaster Emergency Management Agency (CDEMA). “El Nino blamed for low rainfall levels” (2015). https://www.cdema.org/index.php?option=com_content&view=category&layout=blog&id=34&Itemid=266&limitstart=25
71. Colorado Climate Center. “Enhanced drought monitoring and early warning activities in the Upper Colorado River Basin”. www.cpc.ncep.noaa.gov/products/outreach/proceedings/.../NDoesken.pdf
72. Colorado Climate Center. “NIDIS Upper Colorado River Regional Drought Early Warning System” (2015). climate.colostate.edu/~drought/
73. Columbia University. “El Niño Southern Oscillation (ENSO); Ocean-Atmosphere Interactions” (2007). <http://eesc.columbia.edu/courses/ees/climate/lectures/enso.html>
74. Desinventar Inventory System of the Effects of Disasters. “Available databases”. <http://www.desinventar.org/>

75. DEWFORA. “Implementing drought early warning systems in Africa: policy lessons and future needs” (2013). https://www.unesco-ih.org/sites/default/files/dewfora_policy_brief_africa_-_digital_version.pdf
76. DROUGHT-R&SPI. “Review of current drought monitoring systems and identification of (further) monitoring requirements” (2013). www.eu-drought.org/.../DROUGHT-R-SPI-Technical-Report-No-33.
77. Dyer, J. A. “A Drought Early Warning System for Prairie Pasture Land” (2013). <http://dx.doi.org/10.4296/cwrj1304005>
78. Edwards, Laura. “Foundations for a Regional Drought Early Warning System in the Missouri River Basin” (2015). <http://docslide.us/science/foundations-for-a-regional-drought-early-warning-system-in-the-missouri-river-basin.html>
79. IFAD. “Risk Management - Drought Early-Warning Systems and Contingency Plans Risk Management - Drought Early-Warning Systems and Contingency Plans”. www.ifad.org/lrkm/range/drought.htm
80. Institute of Industrial Science, University of Tokyo, Japan. “Satellite-based drought monitoring and warning system – New Zealand” (2015). webgms.iis.u-tokyo.ac.jp/DMEWS/New Zealand/search.php
81. Institute of Industrial Science, University of Tokyo, Japan. “Satellite-based drought monitoring and warning system” (2015). webgms.iis.u-tokyo.ac.jp/DMEWS/
82. International Strategy for Disaster Reduction . “Drought Risk Reduction Framework and Practices: Contributing to the Implementation of the Hyogo Framework for Action” (2009). http://www.unisdr.org/files/11541_DroughtRiskReduction2009library.pdf.
83. MWAR-LAC. “Development of National Drought Atlases for the Caribbean Countries”. www.cazalac.org/mwar_lac/index.php?id=54
84. National Drought Management Authority (Kenya). “Welcome to NDMA - Kenya”. www.ndma.go.ke/
85. National Drought Mitigation Center (Nebraska, USA). “Caribbean Drought Training Workshop” (2012). <http://drought.unl.edu/NewsOutreach/Outreach/Workshops/CaribbeanDroughtTrainingWorkshop.aspx>
86. National Drought Mitigation Center (Nebraska, USA). “Drought Early Warning Systems in the Context of Drought
87. National Drought Mitigation Center (Nebraska, USA). “Drought Early Warning Systems” (2009). <http://www.wamis.org/agm/meetings/wies09/S10-Svoboda.pdf>
88. National Drought Mitigation Center (Nebraska, USA). “Drought Monitoring and Early Warning Information Systems (DEWIS): Tools and Techniques” (2012). drought.unl.edu/Portals/0/docs/.../Svoboda_DEWS_Caribbean.pdf
89. National Drought Mitigation Center. “National Drought Mitigation Center Drought Services: Collaborative Efforts Towards Drought Early Warning and Information Systems” (2015). <https://www.drought.uni-freiburg.de/Publications/.../Svoboda>

90. Manual on Compliance With and Enforcement of Multilateral Environment Agreements. UNEP. Downloaded from <http://www.oas.org/dsd/Tool-kit/Documents/ModulleVI/Compliance%20with%20MEAs.pdf>
91. United Nations Environment Programme . “Climate Early Warning System Feasibility Report: Early Warning Systems and Hazard Prediction” (2012). www.unep.org/science/chief.../76/.../EWS_Report_Final_Version1.pdf.
92. United Nations Environment Programme. “Early Warning Systems: State-of-Art Analysis and Future Directions” (No date). na.unep.net/siouxfalls/publications/early_warning.pdf.
93. United Nations Framework Convention on Climate Change. “Vulnerability and adaptation to climate change in small island developing states”. https://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200702_sids_adaptation_bg.pdf
94. World Food Program. “Early-Warning System Sees Drought Coming In Namibia” (2013). <https://www.wfp.org/aid-professionals/blog/blog/early-warning-system-sees-drought-coming-namibia>
95. World Meteorological Organization. “Inter-Regional Workshop on Indices and Early Warning Systems for Drought” (2009). http://www.wmo.int/pages/prog/wcp/agm/meetings/wies09/wies09_present.php
96. Green, E. (Undated). National Integrated Disaster Risk Management Plan and Implementation Strategy for Guyana. Civil Defence Commission, Georgetown, Guyana
97. UNDP (2013) Disaster Risk Management Policy, Georgetown Guyana
98. UNCCD. Ten Year Strategy Leaflet <http://www.unccd.int/Lists/SiteDocumentLibrary/10YearStrategy/Strategy-leaflet-eng.pdf>
99. UNCCD TST Issues Brief: Desertification, Land Degradation and Drought
100. UN General Assembly, 2012. High-level meeting on addressing desertification, land degradation and drought in the context of sustainable development and poverty eradication.
101. Global Mechanism, “Glossary for Performance and Impact Indicators, Financial Flows and Best Practices, Review of financial flows for the implementation of the Convention (UNCCD)”, 2010, modified by the Committee for the Review of the Implementation of the Convention, Germany, 2013
102. Squires V.R., “Alignment of National Action Programmes with UNCCD 10 Year Strategy Through Use of Integrated Financing Strategy Tools”, 2013
103. UNCCD, “Consideration of ways and means of promoting know-how and technology transfer for combating desertification and/or mitigating the effects of drought, as well as of promoting experience sharing and information exchange among parties and interested institutions and organizations”, *Committee for the review of the implementation of the Convention*, UNCCD, Bonn, 2-11 May 2005

104. UNCCD, “The 10-year strategic plan and framework to enhance the implementation of the Convention”, 2008
105. UNCCD, Alignment of National Action Programmes with UNCCD 10 Year Strategy Through Use of Integrated Financing Strategy Tools, February 2013
106. UNCCD, “Evaluation of the effectiveness of national action programmes to implement the United Nations Convention to Combat Desertification”, 2015
107. Weerasinghe, R.P.M (2013). Managing Arid Areas and Sand Dunes in Sri Lanka in Heshmati A.G. and Squires R.V (eds). Combating desertification in Asia, Africa and the Middle East: Proven Practice. Springer Dordrecht Heidelberg, New York, London
108. Global Mechanism, “Practical Guide to Designing Integrated Financing Strategies”, 2009
109. USAID. “Innovative Weather Model Helps Millions in Caribbean Prepare for Drought”. <https://www.usaid.gov/news-information/frontlines/science-technology-innovation-and-partnerships/innovative-weather-model>
110. Walters, Rochelle, Michael Taylor & Tannecia Stephenson. “Some Caribbean Drought Research at Csgm, Mona”. http://drought.unl.edu/Portals/0/docs/workshops/03222012_Kingston_Jamaica/Drought%20Research%20in%20the%20Caribbean.pdf
111. Epstein, Mario (2015)- Guyana Drought Early Warning Protocol
112. Atyang, Agnes, 2015 Drought Early System Protocol
113. Bai ZG, Dent DL, Olsson L, Schaepma ME., 2008. Global assessment of land degradation and improvement. Identification by remote sensing. Report 2008/01, ISRIC – World Soil Information: Wageningen.
114. Woods Hole Oceanographic Institution. “El Niño & Other Oscillations”. www.whoi.edu/main/topic/el-nino-other-oscillations.
115. Woods Hole Oceanographic Institution. “Reports to the Nation: El Nino and Climate Prediction”. www.atmos.washington.edu/gcg/RTN/rtnt.html
116. Newitz, Annalee. “Are You Doing Anything to Prepare for the "Godzilla" El Niño?” (2015). <http://gizmodo.com/are-you-doing-anything-to-prepare-for-the-godzilla-el-1723982315>
117. NOAA – Climate Prediction Center. “Frequently Asked Questions About El Niño and La Niña”. http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensofaq.shtml
118. NOAA/NIDIS. “What is National Integrated Drought Information System?” (2015). [www.colorado.edu › Workshops & Events › WWA Workshops](http://www.colorado.edu/Workshops%20&%20Events/WWA%20Workshops)
119. Pulwarty, R. S. & Mannava V. K . Sivakuman. “Information systems in a changing climate: Early warnings and drought risk management” (2014). <http://www.sciencedirect.com/science/article/pii/S2212094714000218>
120. Reports to the Nation. “El Niño and Climate Prediction”. <http://www.atmos.washington.edu/gcg/RTN/rtnt.html>

121. State Climate Office of North Carolina. “Global Patterns - El Niño-Southern Oscillation (ENSO)”. <http://climate.ncsu.edu/climate/patterns/ENSO.html>
122. Trotman, A. & Robert Webb. “Drought Early Warning Information Systems: reducing drought risks in a changing climate”. <http://www.climate-services.org/iccs-3-parallel-session-drought-early-warning-information-systems-reducing-drought-risks-changing>
123. Trotman, A.R. & David A. Ferrel. “Drought Impacts and Early Warning in the Caribbean - The Drought of 2009-2010”.
<https://www.wmo.int/pages/prog/drr/events/Barbados/Pres/4-CIMH-Drought.pdf>.
124. Report of the first session of the Partnership Initiative on Sustainable Land Management High Level Meeting, held in Port of Spain, Trinidad and Tobago 6 May 2011.
<http://cnirdregional.org/wp-content/uploads/2012/05/PISLM-High-Level-Comprehensive-Report.pdf>

10. APPENDICES

Appendix 1: Posters used for public awareness activities

Guyana's National Action Plan (NAP) to Combat Land Degradation

Guyana ratified the United Nations Convention to Combat Desertification (UNCCD) in 1997. The development of a National Action Plan (NAP) for Guyana in 2006 provided the country with a guiding framework for all actions made to Promote Sustainable Land Management & Combat Land Degradation in Guyana.

In June 2014, Guyana commenced an 18-month Project, funded by the Global Environment Facility (GEF) with support from the United Nations Development Programme (UNDP) to align the existing NAP to the UNCCD's 10-year (2008-2018) Strategy.

This Project will help Guyana to better meet and implement the objectives of the UNCCD Strategy.

Objectives of the Strategy

To improve the living condition of affected populations

To improve the conditions of affected ecosystems

To generate global benefits through effective implementation of the UNCCD

To mobilize resources to support implementation of the Convention through building partnerships between national and international actors

PROJECT OUTCOMES


- **Aligning the NAP to the 10-year Strategy**
- **Undertaking the UNCCD Reporting and Review Process**


Take a Stand! Protect our Land!

FOR MORE INFORMATION
Contact the National Focal Point Agency
to the UNCCD:

Guyana Lands and Surveys Commission

22 Upper Hadfield Street, Durban Backlands,
G\town, Guyana
Website: lands.gov.gy
Email: glslclupp@gmail.com
Tel: (592) 226 0527 Ext 107, 206







Land Degradation

Concerns You

Land Degradation is the reduction or loss of land productivity, stability and quality. This means less water & food

CAUSES OF LAND DEGRADATION

- Improper Farming Practices
- Population Pressure
- Improper Mining Practices
- Salt Water Intrusion
- Natural Occurrences e.g. Heavy Rainfall, Wild Fires & Drought
- Deforestation



GET INVOLVED!

To Protect Guyana's Land you can...

- Plant a tree
- Use garbage bins
- Avoid over-grazing
- Do not over-use resources
- Educate yourself

Read the Aligned National Action Plan to Combat Land Degradation

Act Now & Support the implementation of the United Nations Convention to Combat Desertification Aligned National Action Plan in Guyana

Take a Stand!
Protect our Land!

FOR MORE INFORMATION

Contact the National Focal Point Agency to UNCCD:
 Guyana Lands and Surveys Commission
 22 Upper Hadfield Street, Durban Backlands, Georgetown, Guyana
 Website: lands.gov.gy Email: glsclupp@gmail.com Tel: (592) 226 0527 Ext 107, 206

OR

United Nations Development Programme
 42 Brickdam & United Nations Place
 Georgetown, Guyana
 Website: www.gy.undp.org

Appendix 2: Photographs of Project Activities



Presentation of Stakeholders' Comments



Awareness materials procured by the Project



The Project participated at GuyExpo, 2014



Focus Group Session were held with Agencies



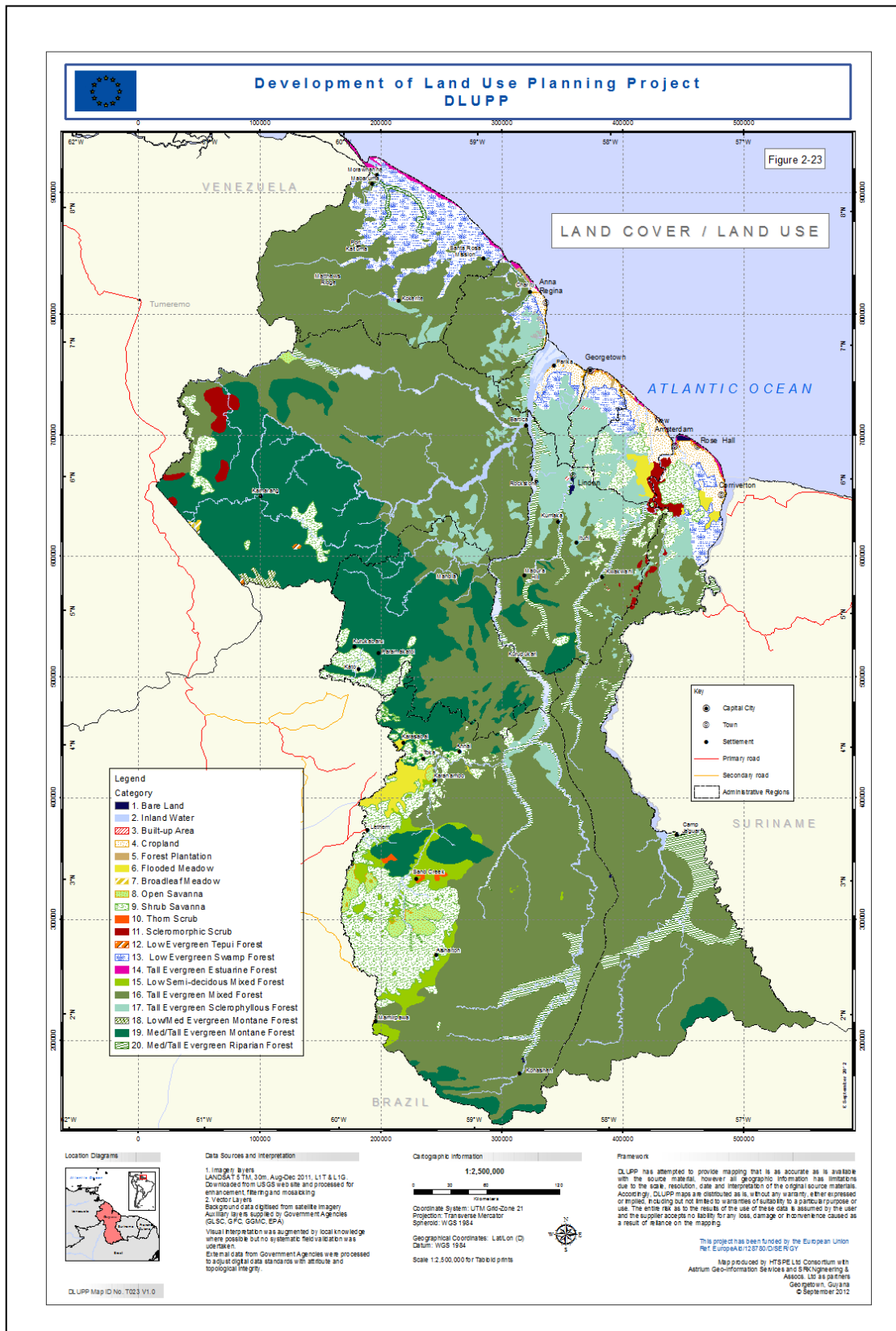
Training on the use of the Database for the preparation of the PRAIS Report



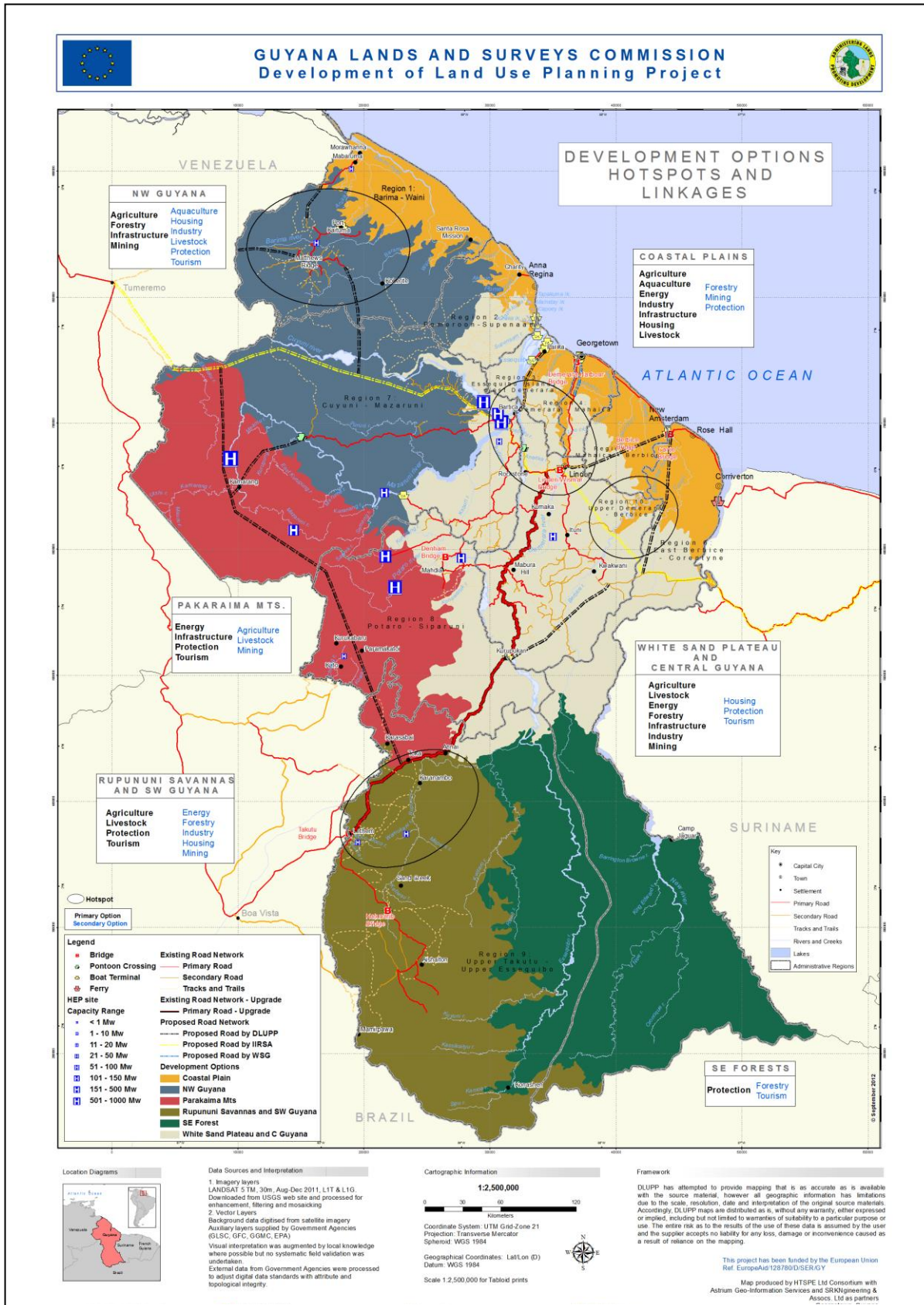
Field trip to a Mining Area to identify sites for monitoring land degradation

Appendix 3

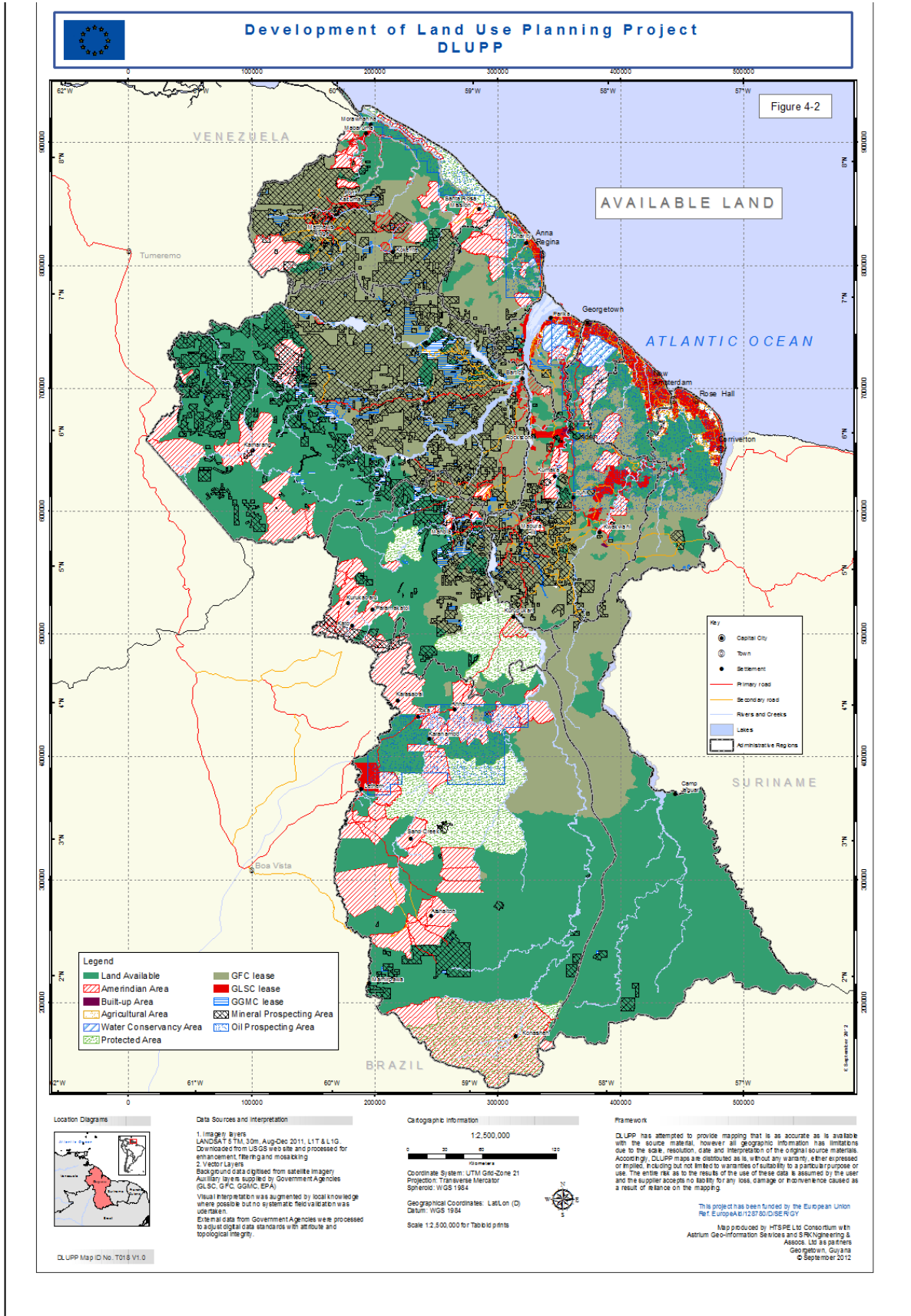
Map of Land Cover/ Land Use



Map showing Development Options, Hotspots and Infrastructure Linkages



Map showing Available Land (Includes Prospecting Areas)





FOR MORE INFORMATION

Contact the National Focal Point Agency to the UNCCD:

Guyana Lands and Surveys Commission

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Website: lands.gov.gy

Email: glsclupp@gmail.com

Tel: (592) 226 0527 Ext 107, 206