

GUYANA'S LOW CARBON DEVELOPMENT STRATEGY 2030

JULY 2022

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KANUKU MOUNTAIN RANGE



FOREWORD FROM THE PRESIDENT OF THE COOPERATIVE REPUBLIC OF GUYANA, H.E. DR. MOHAMED IRFAAN ALI

We live at an exciting time for our country. A fair, inclusive, sustainable, and prosperous Guyana is within reach. Yet, such a future is not guaranteed or pre-determined – it will only become real through hard work and the choices we make as a country, working together as “one Guyana”.

This Low Carbon Development Strategy – the LCDS 2030 – sets out a vision for rising to the challenge. It was put together after a seven-month national consultation, involving Guyanese citizens, businesses, and organisations from all parts of our country.

I thank the thousands of people who participated in the consultation and contributed ideas and opinions to make the LCDS 2030 better.

The strategy that has resulted is not a static document – but rather a vision that will live for years to come. It sets a direction of travel that I believe will catalyse innovation and new ideas as its various elements move to implementation.

I hope that as this implementation pathway evolves, our national conversation and consultation about its important measures will continue. I want everyone in the country to have the chance to forge opinions about sustainable development. I was pleased to see

how during the national consultation, many diverse - and at times contradicting - views were expressed about how we can create a modern, sustainable economy and country. It is precisely this debate and contestation of ideas which will create the sustainable economy of which the contours are set out in this LCDS 2030.

I also look forward to Guyana continuing to be seen as a place where global models can be created to address global problems, and a place where superficial slogans are shunned in favour of the hard work needed to forge solutions.

We can show the world that countries like ours can lead the response to the complex challenges the world faces in the years ahead - challenges like finding the right balance between energy security, food security, and climate security; challenges like building national support from different sectors of society for long-term planning; challenges like ensuring that the world starts to build a global economy that values nature including forests, water, and oceans.

My Government will not be found lacking in taking forward the critical elements of this LCDS 2030. We will lead the way on one of the most ambitious energy transitions in the world – delivering cheaper, cleaner energy for all our people. We will support the creation of thousands of jobs in low carbon sectors across the country. We will support our indigenous peoples and hinterland communities when they choose their own priorities for development. We will ensure unprecedented investment in the infrastructure required to protect against climate change and biodiversity loss. We will also play our part in grasping new opportunities – for example, in creating a circular economy; delivering modern standards of urban planning and rural land use planning; continually enhancing the long-term sustainability of our forestry and mining sectors; and being a responsible participant in the global challenge to align global oil and gas demand with the need to address climate change and meet the goals of the Paris Climate Agreement.

The LCDS 2030 continues to propel Guyana on a pathway started in 2009, when we were the world's first developing country to publish a Low Carbon Development Strategy. All Guyanese should take pride in the scale of vision we set out then and reflect on the significant progress that was made since, as outlined in this document.

As we now move to the next stage - which includes expansion of the work we started in 2009 on creating a global model for valuing forests – I hope that individuals, businesses, and organisations, in Guyana and across the world, will stay engaged. I also hope that all politicians in the National Assembly will recognise that the long-term ambitions contained in this LCDS 2030 are ambitions for all Guyana, so deserve support and continued engagement.

Because if we work together, we can advance development for all our people. We can also demonstrate to the world – but perhaps more importantly to ourselves - that our “one Guyana” is more than up to the task of achieving big things and creating a better future for all.

List of Acronyms

ADF	Amerindian Development Fund
AFHP	Amalia Falls Hydropower Project
ALT	Amerindian Land Titling
ART-TREES	Architecture for REDD+ Transaction (ART)
BOOT	Build, Own, Operate and Transfer
CCUS	Carbon Capture Utilisation and Storage
CDM	Clean Development Mechanism
CDO	Community Development Officers
CDP	Community Development Plan
CMTS	Community Management Teams
COP	Conference of the Parties
CRSAP	Climate Resilient Strategy and Action Plan
CSI	Commercially Sensitive Information
DBIS	Demerara Berbice Interconnected System
EDWC	East Demerara Water Conservancy
EEZ	Exclusive Economic Zone
EITI	Extractive Industries Transparency Initiative
ER	Emissions Reduction
ERPAs	Emission Reductions Purchase Agreements
EPC	Engineering, Procurement and Construction
EU FLEGT	European Union Forest Law, Enforcement, Governance and Trade
LCDS	Low Carbon Development Strategy
FPIC	Free Prior and Informed Consent
GCCI	Georgetown Chambers of Commerce Inc.
GDP	Gross Domestic Product
GEA	Guyana Energy Agency
GFC	Guyana Forestry Commission
GGMC	Guyana Geology and Mines Commission
GIS	Geographic Information System
GLDA	Guyana Livestock Development Authority
GoG	Government of Guyana
GHG	Greenhouse Gas
GMCS	Guyana Marine Conservation Society
GPL	Guyana Power and Light Inc.
GRM	Grievance Redress Mechanism
GTA	Guyana Tourism Authority
GTI	Government Technical Institute
GYEITI	Guyana Extractive Industries Transparency Initiative
GW	Gigawatt
GWLI	Guyana Women’s Leadership Institute
HECI	Hinterland Electrification Company Inc.
HFLD	High Forest Low Deforestation
HFO	Heavy Fuel Oil
IDB	Inter-American Development Bank

ICT	Information and Communications Technology
IEA	International Energy Agency
IFL	Intact Forest Landscape
IWRM	Integrated Water Resource Management
JCN	Joint Concept Note
KP	Kyoto Protocol
IPLC	Indigenous Peoples and Local Communities
MOAA	Ministry of Amerindian Affairs
MRVS	Monitoring Reporting and Verification System
MPAs	Marine Protected Areas
MSSC	Multi Stakeholder Steering Committee
MW	Megawatts
NAREI	National Agricultural Research and Extension Institute
NCCAP	National Climate Change Action Plan
NCERD	National Centre for Education Research and Development
NDIA	National Drainage and Irrigation Authority
NG	Natural Gas
NGMC	New Guyana Marketing Corporation
OCC	Office of Climate Change
OECD	Organisation for Economic Co-operation and Development
PA	Protected Areas
PAS	Protected Areas System
PEFC	Programme for Endorsement of Forest Certification
PMO	Project Management Office
PPP	Public Private Partnership
PV	Solar Photovoltaic
RDC	Regional Democratic Council
R&D	Research and Development
REDD+	Reducing Emissions from Deforestation and Forest Degradation plus Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks
SBB	Small Business Bureau
SIS	Safeguard Information System
TREES	The REDD+ Environmental Excellence Standard
UNCBD	United Nations Convention on Biological Diversity
UNCLOS	United Nations Convention on the Law of the Sea
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
UNCTAD	United Nations Conference on Trade and Development
UG	University of Guyana
VCM	Voluntary Carbon Market
VPA	Voluntary Partnership Agreement
VVB	Validation and Verification Body
WIIN	Women's Innovation and Investment Network

EXECUTIVE SUMMARY

A Global Model Since 2009

“The LCDS is a framework intended to map the path of a new growth trajectory in a non-polluting way. Tropical forest countries have long called for the ecosystem services provided by the world’s standing tropical forests to be properly valued, through both public and private finance. This will enable people who live in forests and forest countries to create jobs and economic opportunity from an economy that works with nature, instead of today’s reality where forests are often worth more dead than alive.” — Dr. Bharrat Jagdeo, President of Guyana (2009)

In 2009, Guyana launched the first Low Carbon Development Strategy (LCDS) from a developing country, setting out a vision for inclusive, sustainable development - while simultaneously maintaining the country’s forests, about 85% of the country’s territory, to help meet some of the most urgent challenges the world faces.

Since then, the country has gained a greater understanding of the outsized contribution that Guyana’s ecosystems make to the world’s health and economy, as well as its role as one of the world’s most important countries for biodiversity conservation:

- Guyana has maintained the second highest percentage of forest cover on earth, with more than 99% of the forest’s 18 million hectares remaining.
- The forest stores 19.5 billion tons of carbon dioxide equivalent - the measure used for the greenhouse gas emissions which cause climate change (the world emits about 50 billion tons a year).
- Deforestation rates are among the lowest in the world and Guyana is one of only four countries in the world (and one of only two in the Amazon Basin) verified to have sustained a High Forest Low Deforestation (HFLD) state.
- Guyana is one of six countries which host the Guiana Shield, one of the most pristine rainforest landscapes in the world. The Guiana Shield stores around 18% of the world’s tropical forest carbon and 20% of the world’s fresh water¹.

¹ <https://www.amazonteam.org/maps/guiana-shield/>

- The country has extremely high levels of biological diversity and endemism. It is home to approximately four percent of known animal species, including the following iconic Amazonian species: jaguar, giant river otter, harpy eagle, tapir, giant anteater, and giant armadillo. There are more bird species in Guyana than the entire United States of America². Guyana also maintains a percentage of littoral forest in the coastal area.
- Guyana's ocean area - more than half the area of Guyana's terrestrial area - offers a new frontier for sustainable development through the expansion of the Ocean/Blue Economy.

Estimates of the economic value that Guyana's eco-system services provide to the world are considerable. Guyana's forests alone provide value that is estimated to range from US\$40-US\$54 billion annually.

Yet, this value is not recognised in monetary terms. By contrast, jobs and economic value can be generated by clearing forests for agriculture, mining, infrastructure, and other uses. In short, the world's tropical forests are worth more dead than alive. This is one of the reasons that forest areas that are the size of Greece disappear each year across the world, causing about 16% of global greenhouse gas emissions.

As one of nine countries/territories in the Amazon Basin - the world's biggest expanse of tropical forest - Guyana, since 2009, has sought to create a global model for avoiding the deforestation-led development path followed by countries all over the world, while at the same time creating opportunities for prosperous, inclusive development.

In 2009, the then President of Guyana, Dr. Bharrat Jagdeo, set out a vision for the first LCDS and called for international partners to work on the creation of new economic incentives on how to make forests worth more alive than dead - through providing a global model for REDD+, the United Nations Framework Convention on Climate Change (UNFCCC) mechanism for addressing climate change from forests.

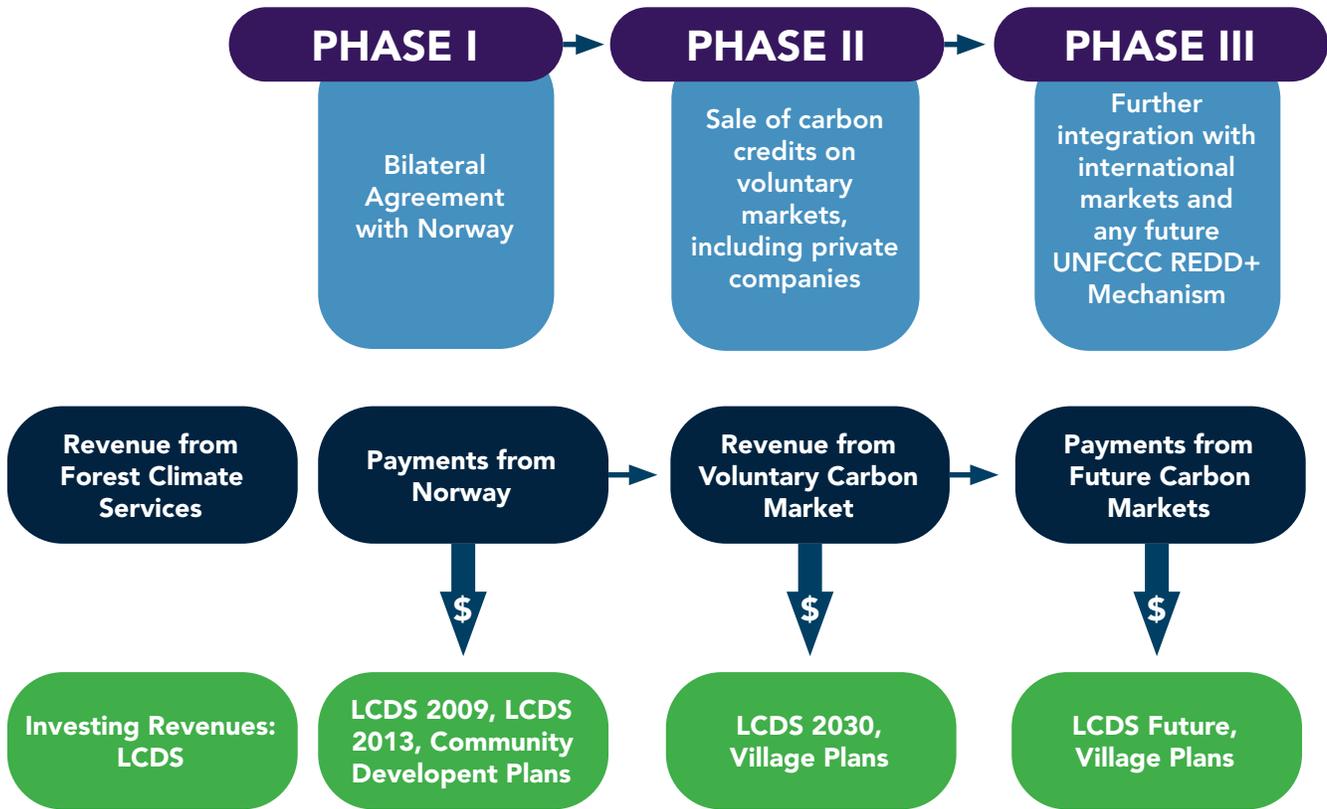
This vision was given life through the 2009 LCDS, which set out a three-phase plan whereby Guyana would earn money for forest climate services and invest these in a Low Carbon Development Strategy:

- Phase I - a bilateral agreement with a partner which shared Guyana's vision
- Phase II - available market-based mechanisms
- Phase III - a fully-fledged UNFCCC REDD+ mechanism

As the payment mechanism evolved through the phases, revenues would be invested in the LCDS as outlined below.

² <https://rainforestfoundation.org/our-work/geographies/guyana/>

PHASED APPROACH TO GUYANA'S FOREST CLIMATE SERVICES AND LCDS



This LCDS 2030 has been produced after a seven month national consultation on an initial draft, and sets out how Guyana can stay true to the vision set out in 2009. The country can create a model for avoiding deforestation and maintaining forests, while at the same time growing the economy five-fold over 10 years and keeping energy emissions flat; investing in urban, rural and Amerindian development; protecting the coast and hinterland from climate change; creating jobs in a suite of low carbon sectors; aligning the education and health sectors with low carbon development, and integrating Guyana's economy with its neighbours.

The LCDS 2030 sets out four inter-linked objectives for Guyana, the first three of which were the basic objectives of the LCDS since 2009 and the fourth of which was added to reflect new local and global realities:

- Value Ecosystem Services
- Invest in Clean Energy and Stimulate Low Carbon Growth
- Protect Against Climate Change and Biodiversity Loss
- Align with Global Climate and Biodiversity Goals

LCDS 2030 Objective 1: Value Ecosystem Services

Over time, Guyana aims to integrate with global mechanisms that value the country's globally significant ecosystem services including biodiversity, water management and ocean or marine resources. In the immediate term, Guyana's efforts will focus mainly on forest climate services, and the value Guyana provides the world in the fight against climate change, continuing with the three-phase approach first set out in 2009.



Phase I: The Guyana-Norway Partnership

The first phase of Guyana's low carbon vision, where payments for forest climate services were to come from a bilateral partner, saw Guyana entering the Guyana-Norway Partnership in 2009.

During the period 2009 to 2015, Guyana earned US\$212.6 million dollars in payments for forest climate services from Norway, which reached US\$220.8 million when investment income was included. These revenues were invested in renewable energy, protection against climate change, land titling, job creation and other priorities in the original LCDS. Crucially, Phase I saw Guyana building a world-class Monitoring, Reporting and Verification System (MRVS) for forest carbon, which now enables Guyana to move to Phase II for selling forest climate services in voluntary carbon markets.

The period 2016 to 2021 saw no payments for forest climate services under the Guyana-Norway Agreement but Guyana's MRVS continued to operate, allowing the generation of carbon credits for that period. These can be sold if a market can be accessed in Phase II.

Phase II – Voluntary Carbon Markets

The long-term future of forest carbon markets is expected to be underpinned through the UNFCCC's rules and corresponding international agreements. Towards this end, progress on REDD+ was made at, and since, the 2015 Paris Climate Agreement under the UNFCCC.

In 2021, at the Glasgow Conference of the Parties (known as COP26) of the UNFCCC, Guyana joined with other forest countries and the international community to pursue the enshrinement of a workable market mechanism within the UNFCCC. Progress was made at COP26 on the rules for market mechanisms, specifically towards the operationalisation of Articles 6.2 and 6.4 of the Paris Climate Agreement which address markets.

As a result of this work at the global level, coupled with the continued operation of Guyana's MRVS for over a decade, Guyana now can move to Phase II of the vision set out in 2009, and seek to access market-based mechanisms for forest carbon. From 2022, there is a strong possibility that Guyana's sale of forest climate services can be structured around high-quality voluntary markets that could include private, as well as international public sector, financing.

Guyana assessed various market standards that could underpin such an integration with global carbon markets, and the ART-TREES mechanism is the best match for Guyana's objectives – given that it values Guyana's contribution to maintaining globally significant forests and provides the means to access new revenues to boost both national programmes and community-led initiatives.

LCDS 2030 Objective 2: Invest in Clean Energy and Stimulate Low Carbon Growth

Revenues from carbon (and potentially other ecosystem services) markets, along with other national resources will be invested in:

- **National Low Carbon Priorities.** These are set out in the LCDS and an accompanying LCDS Investment Plan
- **Community-produced Village Sustainability Plans (VSPs).** A dedicated 15% of carbon market revenues will be available for community-led programmes for indigenous peoples and local communities (IPLCs). These will be set out in Village Sustainability Plans or equivalent, put together by communities themselves.

Overall, this investment will see Guyana undergo one of the world's most ambitious energy transitions and grow the economy up to five-fold, while keeping greenhouse gas emissions from energy generation at around 2019 levels. This can be done through the replacement of expensive, polluting, heavy fuel oil with natural gas as a bridge to an energy system built mainly from hydropower, solar and wind power.

Alongside the national low-carbon energy transition, targeted investments can be made in the underlying infrastructure of a broader, low carbon economy to create jobs all over the country and enhance livelihoods. This includes investment to create a circular economy in Guyana where waste is avoided and better managed; better digital and transportation infrastructure; improved urban planning in Georgetown and its environs as well as in the other towns; sector-specific work across the country's economic sectors - including tourism, sustainable forestry, mining, business services, agriculture and fisheries; support for climate-smart health and education facilities; as well as laying the basis for new initiatives in areas such as fishing, shipping, ocean biodiversity and mangroves.

LCDS Objective 3: Protect against climate change and biodiversity loss

Global wellbeing continues to be damaged by climate change, including in Guyana where extreme weather events are destroying livelihoods and damaging the economy. In early 2021, floods saw the declaration of a National Disaster after the country experienced the second highest level of rainfall since 1981. Unlike in 2005, when floods affected close to 37% of the population and caused economic damage equivalent to 60% of GDP, the 2021 floods impacted all regions of the country and was declared a national disaster.. Over 130,000 acres (52,609 ha) of farmland were affected and approximately 1.3 million animals were lost.

In 2015, Guyana concluded a comprehensive Climate Resilience Strategy and Action Plan (CRSAP). However, this was not updated since then, so some of its recommendations need further analysis. Based on the outcomes of this analysis, Guyana will start a new set of priority investments in drainage and irrigation, sea defences, mangrove restoration, flood and drought measures to address the potential harm to households and businesses from climate change.

LCDS Objective 4: Align with global climate goals

Implementing the LCDS will advance progress towards the UN Sustainable Development Goals, as well as a series of multilateral, regional and bilateral agreements. Moreover, since the production of the 2009 LCDS, Guyana has discovered oil and gas, which has transformed the country's development prospects. Guyana will act strategically and responsibly as the sector develops, supporting global energy security while diversifying and decarbonising Guyana's domestic economy and investing in development priorities for all Guyanese, including health, education and low-carbon opportunities. At the same time, the Government will advocate internationally for a strong global carbon price and the removal of subsidies on fossil fuel to incentivise the lowest carbon, most cost-effective oil and gas in the global marketplace in line with the goals of the Paris Climate Agreement - under which there will be demand for decades to come. In parallel, Guyana will advance progressive policy to exceed recognised global standards for flaring and mandate the use of best technology in the Oil and Gas sector to limit its environmental impact.

In this Strategy:

- **Chapters One and Two** address the first objective of the LCDS 2030 - Value Ecosystem Services:
 - **Chapter One** looks at the expanded vision for the new low-carbon economy: forest climate services as envisaged since the early days of the LCDS being augmented by a vision for biodiversity, water management and the Ocean Economy.
 - **Chapter Two** outlines how forest climate services can be evolved because of the capabilities Guyana has built, and the potential of integrating with the emerging voluntary carbon markets from 2022. It sets out the process by which Guyana chose a global market standard to align with, and the potential for significant revenues to be invested nationally and at the level of IPLCs in accordance with community priorities set by the communities themselves.
- **Chapters Three and Four** address the second objective of the LCDS 2030 - Invest in Clean Energy and Stimulate Low Carbon Growth:
 - **Chapter Three** focuses on Guyana's plan for a low-carbon energy transition where it will achieve one of the biggest decoupling of greenhouse gases and economic growth in the world.
 - **Chapter Four** summarises other key elements of the low carbon development vision including plans for a circular economy, urban planning, village sustainability, and plans for economic sectors including tourism, agriculture and the other sectors of the economy.
- **Chapter Five** addresses the third objective of the LCDS 2030 - Protect Against Climate Change and Biodiversity Loss..
- **Chapters Six and Seven** address the fourth objective of the LCDS 2030 - Align with Global Climate and Biodiveristy Goals:
 - **Chapter Six** addresses sustainable management of the oil and gas industry.
 - **Chapter Seven** addresses the international treaties and conventions that Guyana is a party to in the area of climate, biodiversity and ecosystem services.
- **Chapter Eight** sets out how this LCDS was created through an extensive national consultation, oversight by the Multi-Stakeholder Steering Committee, and how it is being tabled in the National Assembly.
- **The LCDS Conclusion chapter** sets out how the LCDS Investment Programme will act as the main vehicle for articulating how the LCDS 2030 will be advanced in the years ahead. As the LCDS 2030 moves to implementation, more detailed consultation will take place on its individual elements, including national programmes as well as village-led consultations on their own plans.
- **Appendix One** provides background on the definition and valuation of Guyana's forests.
- **Appendix Two** summarises ART-TREES.
- **Appendix Three** highlights the achievements under the Guyana-Norway Partnership.

GUYANA'S LOW-CARBON DEVELOPMENT STRATEGY 2030

Create New Incentives for a Low-Carbon Economy

Sustainability Planning

- Forestry
- Biodiversity
- Water Resources
- Ocean/Marine Resources

Protect against Climate Change and Biodiversity Loss

Climate Adaptation and Resilience

- Climate Resilient Agriculture
- Climate Risk Assessment & Insurance
- Coastal Infrastructure
- Mangroves Restoration and Expansion
- Drought and Flood Management



Stimulate Future Growth: Clean Energy and Low-carbon Development

Green Jobs and Sustainable Livelihoods

- Clean and Renewable Energy
- Ocean Economy Opportunities
- Digital Infrastructure
- Low-carbon Transportation

Align with Global Climate and Biodiversity Goals

- UN Sustainable Development Goals
- Nationally Determined Contributions
- Aichi Targets on Protected Areas
- Leaders Pledge for Nature
- UN: Net Zero by 2050

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CHAPTER ONE:

TOWARDS 2030 – A NEW ECOSYSTEM SERVICES ECONOMY

In 2009, Guyana launched the first Low Carbon Development Strategy (LCDS) from a developing country. The 2009 LCDS, and its 2013 update, highlighted the opportunity for Guyana to create a world-leading model for maintaining forests, receiving payments for globally significant forest climate services, and investing those payments in a low carbon economy.

This LCDS 2030 outlines the country's plans to continue advancing Guyana's payment for forest climate services model and investing new revenues in its low carbon economy - while at the same expanding the vision to include Guyana's other globally significant ecosystem services. As with the original vision, the expanded vision seeks to combine sustainable and equitable development in Guyana with enabling the country to play an outside role in protecting globally vital ecosystems.

Towards that goal, Guyana is now working to create an ecosystems economy which achieves the right balance between potentially competing developmental models. This is one of the core challenges faced by the country, and to meet it, in the coming years, Guyana will advance: **low-impact mining** and forestry to enhance employment and income generation opportunities; **forest climate services** through which the value provided by Guyana's forests to the world is recognised; Guyana's next generation of **ecosystem services** such as water management, and biodiversity protection.

Further, as part of this vision, Guyana’s **Protected Areas** will be expanded, partners will be sought for the **International Centre for Biodiversity Research**, and a sustainable **Ocean Economy** will be nurtured to ensure high-quality, long-term management of the country’s rich ocean resources.

The LCDS Investment Programme – summarised in the LCDS 2030 Conclusion – will progress priority elements of this vision, alongside programmes outlined in other chapters of this LCDS 2030.

SUSTAINABLE FORESTRY AND LOW-IMPACT MINING	FOREST CLIMATE SERVICES	ECOSYSTEM SERVICES
<ul style="list-style-type: none"> • Finalise and Implement Voluntary Partnership Agreement under EU-FLEGT • Implement Programme for Endorsement of Forest Certification (PEFC) • Expand local value chain for wood products • Improved planning and recovery in mining areas • Implement Mineral Mapping 	<ul style="list-style-type: none"> • Sustain Monitoring, Reporting and Verification System (MRVS) for REDD+ and ART-TREES • Implement Safeguard Information System for REDD+ and ART-TREES • Create Policy and Legal Framework for project-level climate services, including framework for private sector-led reclamation and reforestation programmes 	<ul style="list-style-type: none"> • Expansion and protection of Guyana's mangrove forests • Maintain Intact Forest Landscapes • Biodiversity Conservation and Protection • Watershed Management • Examine green-grey solutions (engineered infrastructure/mangroves) • Strengthen and expand Guyana's Protected Area System • International Center for Biodiversity Research

Figure 1.1 Sustainably Growing the Forestry and Extractive Sectors

SUSTAINABLE FORESTRY AND LOW IMPACT MINING

Guyana's forests are vital assets in the global fight against climate change – and the country has one of the lowest, if not the lowest, deforestation rates in the world. However, the forests also serve a multitude of other functions, including generating employment and income through the forestry, agriculture, and mining sectors. Further, the forests — along with other parts of Guyana's territory — have many significant ecosystem services beyond carbon/climate. However, historically only the extractive activities generate employment and economic value - both forestry and mining are vital sectors to Guyana's economy:

- **Forestry** - Guyana's forestry sector accounts for approximately US\$40 million to US\$60 million in export value annually and employs over 20,000 persons. There are 17 large concessions in Guyana and 580 small concessions, all of which are leased to and operated by community forest operators and private individuals/companies. The State holds no equity or other management interest in any forest concession. The Government, through the Guyana Forestry Commission, monitors and regulates the activities of forest concessions to ensure that strict sustainable forest management rules and guidelines are implemented, and that forest legislation is implemented effectively by operators.
- **Mining** - Guyana has a long history and tradition of mining (at small, medium and large scales). The mining sector contributed 16% of Guyana's GDP and 56.4% (US\$1,017.1 million) of Guyana's export earnings. Along with the quarrying sector, the mining sector employs an estimated 12,000 - 18,000 Guyanese (approximately 4% – 6% of Guyana's total workforce). In 2019, the value of output from the mining sector was approximately G\$211.1 billion, with exploration focusing mainly on gold, diamond, bauxite, loam, manganese, oil and sand. Guyana has maintained low levels of deforestation throughout mining extraction activity over the years. With decades of extraction in the mining sector to date, Guyana has maintained over 99% of its forest cover.

To strengthen efforts to achieve the needed balance between enhancing the employment and economic benefits created by the forestry and mining sectors, while also advancing efforts to safeguard Guyana's ecosystem services, the country is pursuing policies to (i) integrate planning and management of the mining and forestry sectors; (ii) continually improve sustainable forest management; (iii) advance low-impact mining.

Integrated Planning and Management of the Mining and Forest Sectors

Further work will take place to enable greater integration between the forestry and mining sectors, to ensure that economic returns are aligned with adhering to high social and environmental standards. While some work will take place at the sectoral level, and is covered below, other priorities will be cross-cutting, including:

- **Enhancing the Guyana Forestry Commission and Guyana Geology and Mines Commission Codes of Practice.** These are designed to take into account the various pieces of legislation that are directly related to forest management. They provide guidelines for best practices in order to ensure that continuing economic returns can be obtained over the long term, while simultaneously fostering overall sustainable utilisation and management of Guyana's forest and mining resources. They are designed to balance commercial and environmental considerations with social values through implementation. The GFC's integrated management system will support this evolution of Codes of Practice - through improved efficiency and addressing environmental, quality, and occupational safety and health areas. The Government intends to advance work which has already started on Codes of Practice for the Mining Sector, which will be done through close collaboration between the GFC and GGMC.
- **Advancing Transparency through Guyana Extractive Industries Transparency Initiative (GYEITI).** The Extractive Industries Transparency Initiative (EITI) is a global standard to promote open and accountable management of natural resources and seeks to strengthen government and company systems, inform public debates, and enhance trust. Guyana first engaged the EITI on 4th May, 2010 when the Prime Minister of Guyana expressed the country's interest in implementing EITI. In August 2017, Guyana submitted its applications to the EITI International Secretariat and received official acceptance as an EITI implementing country on 25th October, 2017. Guyana published its first EITI Report in 2019, covering the fiscal year 2017. This was followed by its second report in April 2021, covering fiscal year 2018. These reports disclosed figures related to mineral productions as well as exploration activities in the hydrocarbon sector.

Sustainable Forest Management

Guyana has one of the best managed systems of sustainable forestry in the world with exemplary Codes of Practice for timber harvesting, implementation of Reduced Impact Logging techniques, strong practices of forest governance and legality, and careful planning pre and post harvesting, all of which result in predominantly deforestation free supply chain for timber produced in Guyana. Levels of harvest are consistently below annual maximum levels established from forest inventory information. Sustainable forest management, including forest monitoring and enforcement, along with the continual

improvement of the accompanying codes of practices, are necessary to ensure the efficient management of forest resources. Legality and the activities that accompany attaining same are critical to achieving good governance in the forest sector. The LCDS Investment Programme will increase support for:

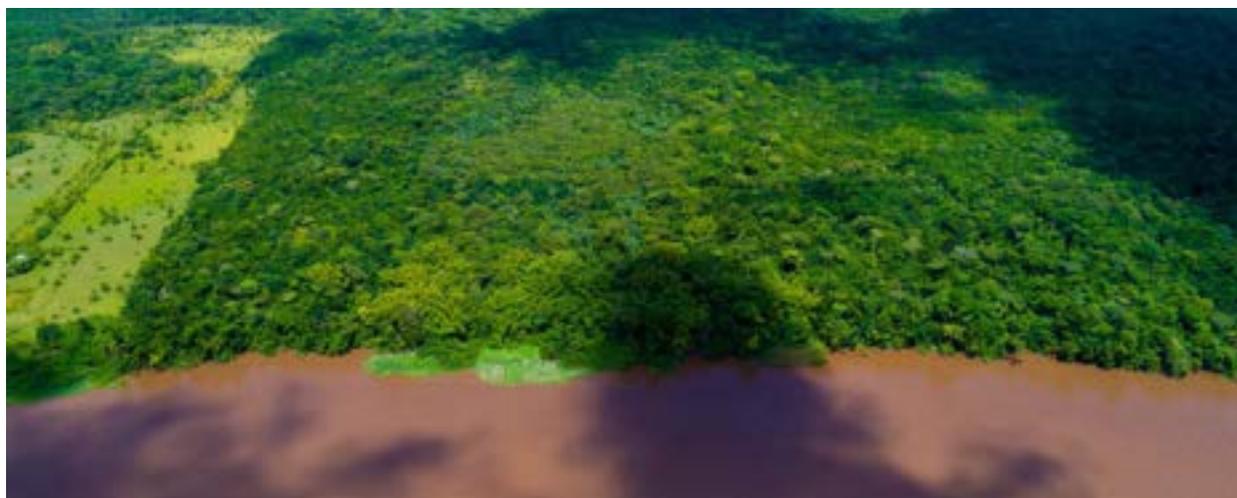
- **Finalising and implementing the Voluntary Partnership Agreement (VPA) under EU-FLEGT:** The European Union's Forest Law Enforcement Governance and Trade (EU-FLEGT) programme seeks to support forest governance through strengthening sustainable and legal forest management and promoting trade in legally produced timber. The VPA, when concluded, will be a bilateral trade agreement between the EU and Guyana, and will enable Guyana to export legally sourced and verifiable wood products to EU markets. In pursuing this process, Guyana aims to formulate, through negotiations with the EU, a pragmatic VPA which captures the parameters of strong forest governance, sound environmental principles, legality, and wide stakeholder input. At the end of 2018, following 6 years of negotiation, Guyana and the EU agreed in principle to the agreement and have initialled the VPA. It is intended that a period of preparedness will then follow for 3-5 years to enable Guyana to effectively implement the VPA under EU-FLEGT by the issuance of FLEGT licences.
- **Implementation of Programme for Endorsement of Forest Certification (PEFC):** The development of a national forest certification scheme for Guyana is a natural extension of the current FLEGT and REDD+ initiatives, with the Programme for the Endorsement of Forest Certification (PEFC) system in particular providing strong linkages with existing government policies and processes. In supporting the national implementation of Programme for Endorsement of Forest Certification (PEFC), Guyana will seek to build the capacities of national stakeholders to manage and audit PEFC-certified areas. Guyana will also develop the framework to implement the national process for PEFC. The LCDS Investment Programme will support marketing efforts for boosting local and international trade of certified forestry products. The LCDS Investment Programme will also support efforts of other certification schemes at company level, including FSC.
- **Improving added-value activities for forest products locally:** Expanding the value chain beyond primary production is integral to minimising the pressure on forest by finding the most suitable and economic use for the forest resources. Forest carbon is stored in a more stable state for longer periods of time without being emitted into the atmosphere the further advanced the wood products value chain is. This makes wood products from Guyana a standout, sustainably sourced material for a range of application including for building purposes. Market research and promotion are integral to finding the most suitable and economic use for the forest resources. The LCDS Investment Programme will focus on the development of technical skills and techniques, supporting technology transfer and enabling more marketing and promotion of local products. Focus will be placed on developing the skills, products and techniques for value-added activities while supporting technology transfer within the sector and developing added value marketing capability to expand the value chain.

Low Impact Mining

While Guyana's deforestation rate is among the world's lowest, a significant portion of the deforestation that does take place results from forest clearing for mining that does not generate a profit.

Low impact mining refers to mining practices that limit impact on the environment by employing feasible technology, implementing effective planning, and improving human capacities. This will enhance employment and income generation opportunities through domestic regulation and linking with global market standards, and at the same time, protect the environment. Work has started on Codes of Practice for the Mining Sector as outlined above. The Government will also prioritise:

- **Mineral Mapping.** The implementation of mineral mapping in the mining districts will identify economically exploitable deposits as a means of improving productivity within the mining sector while slowing deforestation. Such prior planning efforts serve to limit areas deforested and advance efforts to reduce roadbuilding. This will significantly reduce deforestation by avoiding clearing of forest cover from lands which contain only marginal mineral deposits. The information will allow the Guyana Geology and Mines Commission (GGMC) to update its geological maps and be better able to use this information to more efficiently identify and plan for extraction of gold or other mineral deposits.
- **Exploring options for land reclamation and reforestation of mined areas.** Mine-site reclamation and closure are legal requirements for all mining operations and are critical to ecosystem restoration or re-establishment. To date, approximately 200,000 hectares of forest areas are available for rehabilitation/reforestation. Whilst some areas may see new vegetation, most of these areas will require rehabilitation activities. The Government will support these activities. These activities offer possibilities for carbon accumulation in new growth forest areas and are addressed further in Chapter 2.



ECOSYSTEM SERVICES

As set out in the first LCDS in 2009, Guyana's initial focus on ecosystem services was on forest climate services. These are discussed in Chapter 2 of this LCDS 2030. Since 2009, Guyana has done further work on other aspects of Guyana's ecosystem services.

Ecosystem function is essential for the full suite of services provided by the natural environment that are vital to human health and livelihoods. These services are the basis for the supply of food, drinking water and, in some cases, protection against the effects of natural disasters. Ecosystem services are impacted by increasing global populations, changes in technology and rapid economic growth. This is apparent globally - in the growing scarcity of access to clean drinking water, increasing environmental pollution and land-use change, all of which are affecting economic security and impacting the global climate.

While the opportunities presented by Guyana's enormous forest carbon stocks and sequestration capacity may be close to recognition by global markets, Guyana has many other significant nature-based and ecosystems services – including abundant fresh water and biodiversity.

The Government has recognised the importance of Guyana's rich biodiversity and myriad of ecosystem services. Biodiversity and ecosystem services underpin economic growth, sustainable development and human well-being. Guyana's rich biodiversity and ecosystem services, wealth of traditional and indigenous knowledge are strategic assets, and Guyana's diverse ecosystems provide goods and services that support livelihoods, including food, energy, and health.

The Government has set out to ensure that these resources are valued, conserved, managed, and appropriately leveraged for social, economic, and environmental benefits at the national level whilst meeting international obligations. This is addressed through the following sections which cover (i) Forest-Based Ecosystem Services, (ii) Biodiversity Conservation and Protection, (iii) Water Resources and (iv) the Ocean/Marine Economy.

Forest Ecosystems

As well as carbon storage and sequestration, covered in Chapter 2, Guyana's forest provides multiple other benefits, including biodiversity and water protection. To expand from an ecosystem services focus on forest climate services, the Government will also prioritise:

- **Expansion and restoration of Guyana's mangrove forests and ecosystems.** Mangroves provide several important services to Guyana that range from the protection of the country's coastal plain, to supporting biodiversity habitats, to provision of livelihoods to communities. Coastal ecosystems, specifically mangroves, provide an important function in sequestering significant amounts of carbon, designated 'Blue Carbon'. Remarkable for their ability to sequester carbon and mitigate climate change, mangroves store as much as four times the carbon of an equal area of inland rainforest and most of it is in the soil, held fast by their roots. At a global level, despite covering 0.7% of total land area, mangrove deforestation accounts for an estimated 10% of emissions globally. It is estimated that mangroves are worth at least US\$1.6 billion annually in ecosystem services. Blue Carbon ecosystems are therefore an important resource to be protected, expanded and / or restored. Guyana has made significant strides in the protection of mangroves through its Guyana Mangrove Restoration Project. This project allowed for the establishment of national administrative capacity to manage mangroves in Guyana and focused efforts on mangrove restoration, community-based mangrove management as well as public awareness. Guyana will intensify efforts at mangrove restoration and management in coming years. The LCDS seeks to further explore Blue Carbon potential in Guyana, focusing on Guyana's mangroves in the initial stages. The expansion and restoration of mangrove forests in Guyana is the intended outcome.
- **Examination of Green-Grey Solutions (Engineered Infrastructure-Mangroves) utilising mangroves in Guyana's coastal protection.** Mangroves, highly adapted to the challenging and dynamic juncture between land and sea, form a resilient green infrastructure that serves as the foundation of an entire, highly productive ecosystem. Their role in consolidating soil is crucial in the process that created Guyana's coastal plain. Mangroves grow quickly (2m/yr) when the conditions are right. While their unique roots capture and consolidate soil, they become critical nurseries for commercially and ecologically important marine life, and their tangles of branches provide vital habitats for thousands of other species. Bulwarks of coastal resiliency, mangroves provide crucial protection from storm-surges, flooding, and erosion. The Government will advance through a process of assessment of current structures and framework, the design and implementation of a comprehensive framework of Green-Grey Solutions as a component within the mechanism addressing sea and river defence.
- **Maintenance of intact forest landscapes.** The LCDS will advance efforts to maintain intact forests, protect biodiversity corridors. Guyana has been reporting on Intact

Forest Landscapes (IFL) since 2010, because this is integral to Guyana's reporting on forest change and biodiversity protection, stemming from the concept that degradation of intact forest through human activities will produce a net loss of carbon and is often the precursor to further processes causing long-term decreases in carbon stocks. Furthermore, preserving intact forests will contribute to the protection of biodiversity. IFL continues to be an area that is underscored for its broader alignment to non-carbon aspects of ecosystem services and for this reason, it is a central area of the LCDS.

- **Watershed Protection:** Water can serve both a source and a sink function. In comparison to agricultural regions, forested ecosystems regulate storm surges, reduce sediment loading in rivers/ streams, and promote sustained water flow. This is an example of how both forested and agricultural ecosystems regulate water, serving as source functions, yet forested ecosystems provide greater climate mitigation potential. Reducing sedimentation can also reduce potential for damages and loss of infrastructure and communities from flooding (particularly climate-driven intensity of precipitation events). Water flow, water quality, transportation provided by waterways, and habitat provided for fishes and marine life are the most common watershed ecosystem services. The Government will seek to protect key watersheds and protect the ecosystems which they serve. Headwater protection will be addressed as a priority recognizing the integral role to the maintenance of river health.

Biodiversity Conservation and Protection

Biodiversity or biological diversity is defined as the number, variety, and variability of living organisms in a given terrestrial, aquatic, marine ecosystem. Biodiversity is a key characteristic and the foundation of ecosystems from local to global levels. Biodiversity influences human wellbeing through the services they provide. Such services include provisioning of food, fresh water, water purification, fuel, climate regulation, recreation, nutrient cycling and many more. Many people benefit from the exploitation of biodiversity, and as a result, biodiversity and ecosystem services underpin the global economy.

Biodiversity and related resources have contribute tremendously to Guyana's economy, particularly the forestry, fisheries, and wildlife sectors. In addition to these and other traditional development activities and sectors, Guyana can develop and promote entrepreneurship based around a range of other biodiversity related products and services. This can include strengthening of wildlife and eco-tourism products; bioprospecting; product innovation and development; intellectual property rights; and business incubation and market research. This will also include promoting enterprises by women and young people and scaling up traditional and indigenous biodiversity-based livelihoods. From an internal perspective, strengthening domestic markets for sustainable fishing, non-timber forest products, marketing support for tourism and improving air infrastructure are other areas that will be advanced.

Research and Development and capacity building

Biodiversity data and documentation are vital to understanding the assets that Guyana possesses. There is a paucity of data resulting from poor or lack of standardised data collection, storage and management. Where databases exist, there is no consolidated system for sharing and exchange. Strengthening and consolidating existing databases and biodiversity-related information systems — including establishing systematic ways to collect, store, analyse and share data — is paramount. The focus is on strengthening research within agencies and especially the University of Guyana, including the Centre for Biodiversity as a centre for excellence. Regulatory agencies, such as the Wildlife Conservation and Management Commission, the Environmental Protection Agency and Protected Areas Commission, will collaborate and develop research programmes to inform decision making, planning and management of biodiversity respectively. Extensive research capability of the Iwokrama International Centre will be optimised in advancing work in this area.

Leveraging biodiversity through the LCDS will be supported by up-to-date knowledge and skills. This requires:

- Capacity-building of professionals with management and regulatory responsibilities.
- Capacity-building of advisory services and technical support related to the Convention on Biological Diversity and the two protocols thereto (the Cartagena and Nagoya protocols) so that representatives are optimally prepared to articulate Guyana's positions and priorities and negotiate effectively at CoP and other meetings of parties.
- Promotion and investment in modern, cutting-edge technologies that are environmentally sound and suitable for Guyana's context, through technology support and transfer.
- Provision of appropriate technology and resource management including monitoring and enforcement. The role of information and communications technology should be emphasised in biodiversity conservation, management, sustainable use.



© Pete Oxford - Green Vine Snake



© Pete Oxford - Moth Caterpillar



© Pete Oxford - Giant Otter Eating Fish

STATUS OF BIODIVERSITY IN GUYANA - WHAT IS KNOWN

Guyana is situated in two of the world's most biodiversity rich zones: The Amazon region and the Guiana Shield. Guyana's ecosystems are largely intact and functional, with a very low rate of destruction/degradation and conversion. Guyana is situated in the northern boundary of the Guiana Shield. This unique region extends to Suriname, French Guiana and parts of Venezuela and small parts of northern Brazil and Colombia. Studies indicate that this region's geographical formation is more than two billion years old and spans 270 million hectares. As a result, it has been recognised as having regional and global significance related to biological diversity. Contributing to this would be the many ecosystems found across the country's landscape including our forests, savannahs, rivers and wetlands. Collectively, these ecosystems provide habitat for hundreds of species of flora and fauna. Guyana's Sixth National Report to the Convention on Biodiversity Diversity (CBD) indicated that current estimates for the major group of biodiversity.

Inclusive of other groups such as Arthropods, Fungi, Nematodes and Algae. The total estimated numbers of species found in Guyana is 13,229 species.

Despite its modest size, Guyana boasts globally extraordinary levels of biodiversity. The country is home to more than 900 species of birds, 625 strictly freshwater fishes, 250 mammals, 250 amphibians, and 210 reptiles, for a grand total of at least 2,285 vertebrates. In maps of global species diversity, Guyana occupies global hotspots for birds, mammals, and amphibians, as well as for freshwater organisms (mammals, amphibians, reptiles, fishes, crabs, and crayfish). Marine vertebrate diversity is typical of the Caribbean region, and scores modestly at the global scale. Guyana is home to more than 7,000 vascular plant species, the great majority of them native to the country. The Guyanese flora accounts for more than 85% of all vascular plant species known from the three countries of the Guiana Shield. More than 100,000 invertebrate species are expected to occur in Guyana (insects, arachnids, crustaceans, myriapods, mollusks, annelids, sponges, cnidarians, and others). A more precise accounting of these groups, and of Guyana's significant fungal and non-vascular plant diversity (lichens, liverworts, algae, etc.), is not possible at present due to incomplete sampling and incomplete species description. All of the numbers in this section are fluid since exploration of Guyana's rich biodiversity is ongoing and new species of plants and animals are described from Guyana every year. In 2021 alone, newly described species for Guyana include multiple fishes, plants, beetles butterflies, and a bat.

Nearly 100 of the vertebrate species known from Guyana occur nowhere else on Earth. These include:

- 75 endemic fish species, such as the armored catfish - *Ancistrus Kellerae* - known only from the Kuribrong River below Kaieteur Falls;
- 19 endemic amphibian species, such as the globally-endangered Kaei Rock Frog, known only from the Maringma Tepui; and
- Four endemic reptile species, such as the lizard *Pantepuisaurus Rodriguesi*, likewise known only from the Maringma Tepui.



Integrated Water Resources Management (IWRM)

The Government recognises that planning and managing water resources necessitate a complete and integrated study of all relevant hydrological, topographical, socio-cultural, economic, political, environmental and institutional factors across all related water-using sectors in Guyana. Further, the intricate nature of Guyana's drainage systems requires that activities for planning and management of the nation's river systems are conducted within the context of hydrological regions: delineated by hydrological boundaries created by Guyana's major river systems. Thus, the Government of Guyana will:

1. Develop and update, as necessary, Water Management Plans for each administrative region (depending on the factors mentioned earlier); adopting a cross-sectoral approach to ensure integration, stakeholder participation and representation of interests at all levels of society; and,
2. Undertake periodic assessments of both surface and ground water resources.

These actions will address:

- **Water Rights and Allocation.** The ownership of water is vested in the State. The Government of Guyana will therefore allocate water in a manner that will ensure equitable access and distribution among users, and promote effective and efficient development and use of water to help achieve the United Nations Sustainable Development Goals (SDGs) and to address poverty. During periods of droughts and floods, other natural and human-induced disasters, such as the contamination of groundwater aquifers that can threaten the health of the citizens of Guyana and the ecological integrity, the Government will foster cooperation among national institutions on matters pertaining to the re-directing of the use of water resources.

Allocation, customary and conflict-resolution rules will be the formal mechanisms for deciding who gets water, for what purpose(s), how much, at what time, for how long, and under what circumstances water use may be restricted. The Government will recognise basic human development needs as a priority in any water-allocation plan. Additionally, special attention will be given to efficient use of water resources that harmonises greater economic and social benefits within the contexts of national needs and priorities, as well as on hydrological boundaries.

Importantly, the Government, through national institutions will: (i) review water allocation periodically; (ii) revise allocations accordingly in view of socioeconomic development plans, especially pertinent to water resources, and subjected to strategic environmental assessments and sustainability appraisals of significant developments; and (iii) enforce efficient use of water resources that harmonizes greater economic and social benefits within the contexts of national needs and priorities, as well as on hydrological boundaries.

- **Water Supply and Sanitation.** The Government through national, regional and local bodies, will adopt all possible measures to safeguard the health and well-being of the people of Guyana, and protect the ecological integrity of aquatic systems by:
 1. Facilitating improved access and availability of safe and affordable drinking water supplies.
 2. Promoting rainwater harvesting and conservation techniques.
 3. Protecting watersheds from environmental degradation.
 4. Financing water research to determine sustainable use of both surface and groundwater resources while identifying and evaluating threats to all freshwater sources.
 5. Improving the current capacity of public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater in the interest of public health.
 6. Empowering institutions to undertake their responsibilities for regulating the use of water to avoid wastage and control pollution by environmentally harmful human actions
 7. Empowering local governments, community groups and associations to enhance awareness among the people of Guyana, as well as improve monitoring sources of pollution and wastage at the local levels
 8. Implement a comprehensive public awareness and education programme on water conservation in light of the threats posed by global climate change.

- **Water for the Environment.** The Government will consider as a priority environmental protection; restoration and enhancement measures consistent with the National Environmental Action Plan (2005); as well as the Water Management Plans that will be developed in response to specific conditions in the main hydrological regions. The Government of Guyana will give special attention to:
 1. Maintaining the integrity of the aquatic ecosystems.
 2. Preserving the quantity at levels compatible with demand and supply with regard for multiple uses.
 3. Managing surface run-off contribution to stream flow.
 4. Restoring the environment through reforestation and green infrastructure.
 5. Reducing sediment load from upland sources; improving riparian vegetation, and limiting livestock access to stabilise stream banks.
 6. Reducing land degradation.
 7. Protecting, enhancing, managing and restoring aquatic and terrestrial species and biological communities.
 8. Preserving the water quality of source waters within the watershed.
 9. Minimising or mitigating non-point source pollution of both surface and groundwater in the watershed.
 10. Conserving and protecting critical habitats within the watershed.
 11. Enforcing the “polluter pays” principle in the development of regulatory guidelines for all regulatory actions designed to protect public health and the environment.

12. Regulating exploitation of ground water resources to ensure that discharge rates do not exceed the recharging possibilities.
- **Water and Agriculture.** In recognition of the critical role of water resources management in agricultural and, more importantly, food and nutrition security, greater consideration will be given to:
 1. The role of drainage and irrigation in the context of Guyana's entire hydraulic system and its impact on the water balance of the country.
 2. The need for an increased role of local communities in the management of secondary drainage and irrigation systems.
 3. The establishment of surface water storage facilities for agricultural, domestic and other uses to inform efficient allocation during times of scarcity.
 4. Strengthening the Hydrometeorological Service both in terms of institutional infrastructure and personnel capacity building.
 5. Supporting and encouraging the formation of associations of farmers with responsibility for the operation and maintenance of secondary drainage and irrigation systems in their various localities.
 - **Water for Energy.** The Government of Guyana through the Guyana Energy Agency will facilitate the planning and development of hydropower. As practicable as possible, these hydropower projects will be planned and developed as multipurpose projects, with the basin as the unit of planning. Specifically, the Government will:
 1. Ensure that the development of the country's hydropower potential is an integral part of the multipurpose uses of water.
 2. Ensure that hydropower development is affordable.
 3. Promote technical capacity building for local professionals, consultants and contractors involved in hydropower development to ensure sustainability of operations.
 4. Ensure hydropower development schemes are subject to sustainability appraisals as well as stakeholder considerations
 - **Wastewater Management.** Management of wastewater particularly in Georgetown and other urban areas in Guyana is critical to safeguarding the health of citizens of Guyana, as well as the bio-physical environment. Moreover, as a requirement of the Cartagena Convention and Land-Based Sources of Pollution Protocol, the Government of Guyana will increase investments and human capital in the following areas:
 1. Institutional/technical capacity building.
 2. Revision of current policies, laws or other regulatory frameworks on wastewater management to reduce the extent of water pollution.
 3. Implementation of public education about waste water management.
 4. Monitoring of wastewater.
 5. Treatment of polluted water through appropriate technologies and techniques for the reuse and recycling of water.
 6. Expansion of the sewerage system.

- **Water Governance.** The Government will give effect to integrated planning, development, and management of the water resources by facilitating and promoting a multi-sectoral, multi-disciplinary and participatory approach, primarily through the relevant national body comprising technicians who represent stakeholder institutions involved in water resources management. This body will oversee/coordinate all functions of IWRM, meaning not only Water Resources Management, but also water quality regulation, water and wastewater services and water service regulation. The latter will be done in collaboration with Public Utilities Commission.

The roles and functions of water-related agencies will be reviewed and where appropriate, existing institutions will be restructured or strengthened to ensure that sector plans are implemented efficiently. Additionally, special attention will be given to the (i) establishment of mechanisms to foster greater institutional collaboration at the national, regional and community levels through the issuance of specific directives; and (ii) separation of policy, planning, and regulatory functions from implementation and operational functions related to water resources in Guyana.

- **Public and Private Partnerships.** The Government recognises the importance of all stakeholders in IWRM: public and private sectors; communities and local groups; women; Indigenous communities; special needs and individuals. In this respect, all relevant stakeholders will have an important role to play in ensuring the sustainable management of Guyana's water resources. In an effort to give credence to the importance of the governance structures for water resources management, the Government will delineate the roles and responsibilities of stakeholders based on clearly defined principles.

Participation of the private sector will be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible. Further, policies and programmes of public and private sectors and agencies involving water resources will be coordinated with other public and private sector organisations to create synergies and reduce conflicts, and actions to promote corporate social responsibility will be incentivised. The Government will create the enabling environment (including capacity building programmes) for stakeholders to perform their roles effectively. In particular, public-private partnerships will be fostered to improve the quality and distribution of water and water-related services to all people of Guyana.



PROTECTED AREAS

Guyana's current National Protected Areas System (NPAS) protects some of the country's most spectacular natural assets.

The NPAS, which currently encompasses approximately 8.4% of Guyana's land area, comprises a mix of urban and hinterland protected areas. These protected areas include the Iwokrama forest, Shell Beach Protected Area, Kanuku Mountains Protected Area, Kaieteur National Park and the Kanashen Community-owned Conservation Area; the urban parks include the National Park, Botanical Gardens, Zoological Park and Joe Viera Park. Guyana has not established marine protected areas to date.

The rationale for a significant expansion is clear. An expanded system is needed to safeguard currently unprotected ecosystems like wetlands and savannas; to conserve vulnerable species, like the greater than 100 vertebrates that occur in no other country on Earth; to preserve crucial ecosystem services for Guyanese citizens, like an abundant supply of clean drinking water; to ensure the long-term connectivity of Guyana's rivers and forests; to scale up promising new economic activities like eco-tourism; and to offset the impacts of extractive industries. Expanding the NPAS will also help Guyana meet global biodiversity targets while showcasing the country's success to date in preserving the country's globally important forests.

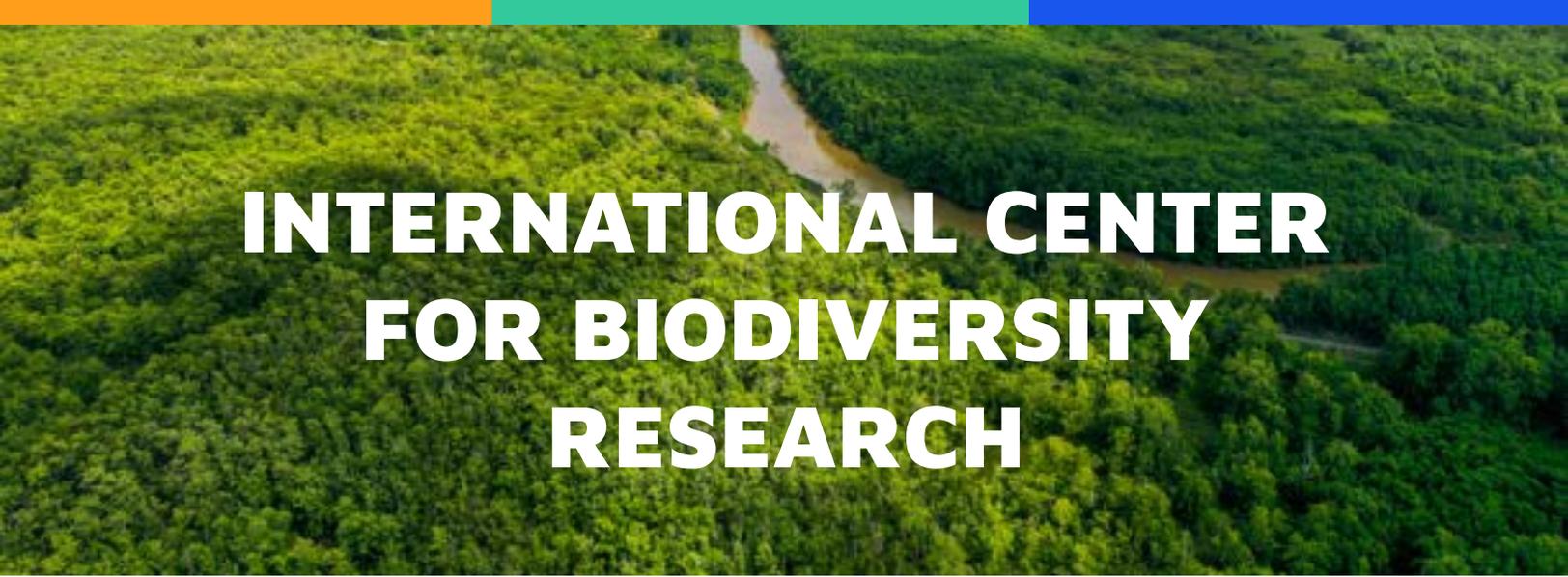
The Protected Areas Commission (PAC), established in 2012 following the passage of the Protected Areas Act in 2011, has oversight of management of Guyana's National Protected Areas System (NPAS), with responsibility for further expansion of the NPAS. In recent years Guyana has laid the foundations for an efficient, science-based expansion of the NPAS. Three large-scale scientific analyses of the country's biodiversity (terrestrial, freshwater, and marine) have helped generate a map of priority areas for conservation. The PAC has prepared a detailed plan for expansion and strengthened partnerships with national and international institutions that can help advance that plan.

With these preparations, Guyana is committed to expanding the protected areas, initially to 17% and progressively to 30% by 2030, comprising of terrestrial and marine protection, framed by international biodiversity targets like the Aichi Biodiversity Targets and the Leaders Pledge for Nature. To achieve these goals the Government will:

- coordinate a transparent, multi-stakeholder process to establish new protected areas in Guyana’s terrestrial and marine territory;
- establish equitable protected areas that benefit local communities and involve them in management;
- establish science-based protected areas that protect a representative sample of the country’s natural treasures;
- establish effective protected areas that are well-staffed, well-equipped, and well-funded;
- establish integrated protected areas that advance multiple other goals of the LCDS;
- complement the NPAS with Other Effective Conservation Measures, to protect priority areas via conservation mosaics that balance strict protection of core areas with sustainable resource use in adjacent areas;
- diversify Guyana’s protected areas portfolio with a range of categories and governance types (with special focus on areas that are managed by local peoples and areas that are co-managed with local peoples);
- leverage Guyana’s legacy as the “Land of Many Waters” to assume global leadership in pioneering freshwater conservation areas and mechanisms.
- establish Key Biodiversity Areas (KBAs) as part of the ongoing programme of expanding the Protected Areas System.



Map Showing Protected Areas in Guyana (2022)



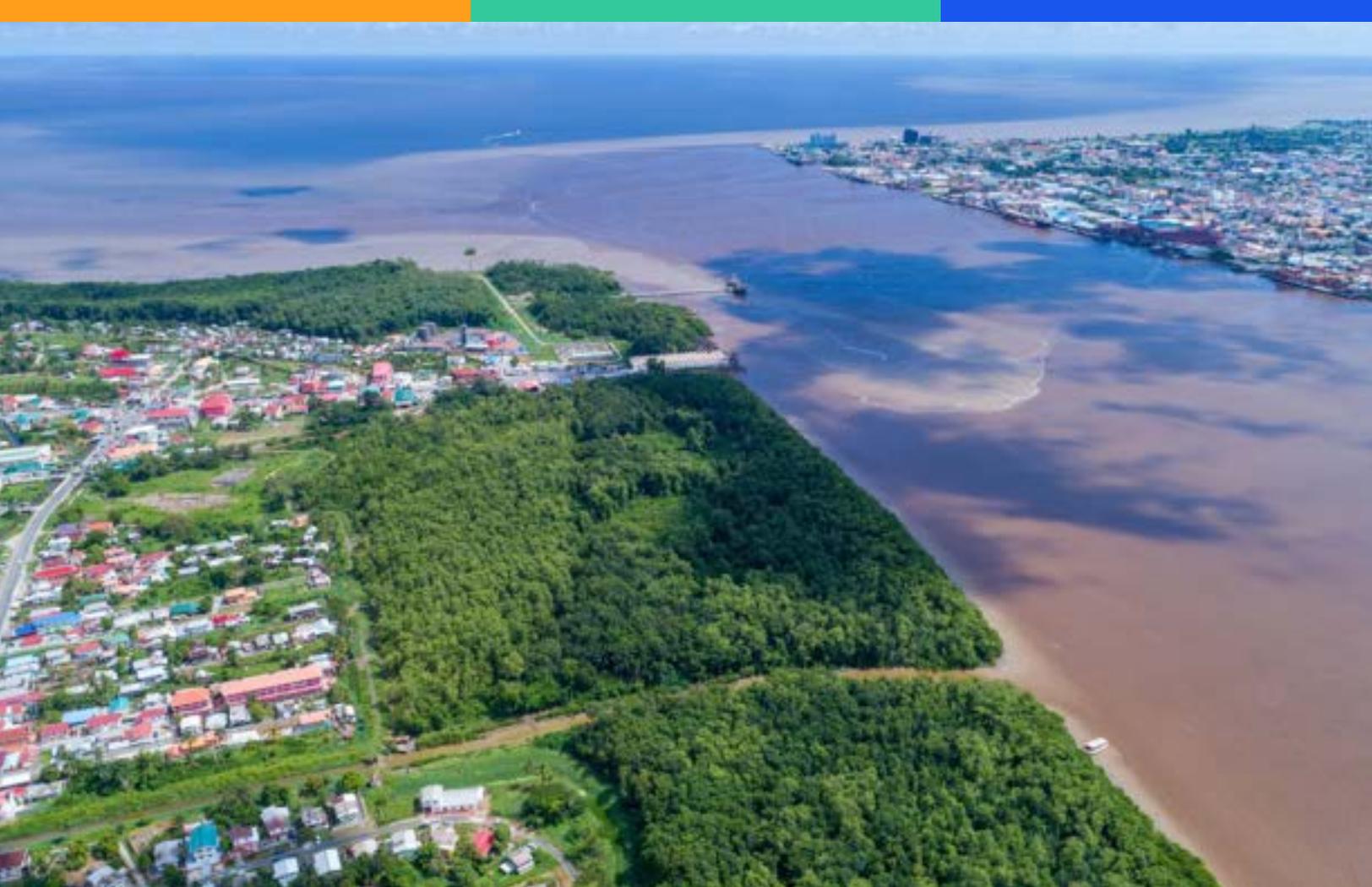
INTERNATIONAL CENTER FOR BIODIVERSITY RESEARCH

Working with local and international partners, including the University of Guyana, the Government will support the establishment of an International Centre for Biodiversity Research. This Centre will connect research work at national and local levels and provide networking facilitation.

The Centre will seek to lead major national and international research activities, and support programmes involving Government, civil society, private sector, and Indigenous Peoples and local communities in advancing research and development in ecosystem services and functions.

This will include at scale R&D work as well as localised community level development. Academic institutions at national level (such as the University of Guyana, Cyril Potter College of Education, Iwokrama, and the National Center for Education Research and Development) and local level (such as the Bina Hill Institute) and will be engaged. The programme will be developed and expanded to fully reflect the new and emerging thrust of the LCDS priorities and to holistically expand R&D throughout the academic and vocational pursuits of formal and informal education.

The Centre will liaise with the Ministry of Education to advance the aspects of low carbon development discussed as part of the Education sector in Chapter 4.



THE OCEAN ECONOMY

Guyana, being a coastal state, also has under its jurisdiction as afforded via the ratification of the United Nations Convention on the Law of the Sea (UNCLOS), a significant ocean area which equates to more than half of Guyana's terrestrial area. Traditionally, Guyana has largely harnessed from its ocean, the fisheries resources, with its other major use being maritime transit. However, since 2015, with the confirmation of significant petroleum reserves, oil and gas are added to this matrix. In addition, there is an emerging opportunity to enhance these traditional ocean activities, and equally to develop other resources which hold potential for future growth.

Guyana recognises that if its resources are collectively harnessed, the ocean offers a new frontier for economic development for the benefit of the citizens. Equally, it also provides many intangible services that are vital to human wellbeing. Therefore, the development of a Blue or Ocean Economy is a priority, from which some elements offer an opportunity to bridge the land-ocean nexus via low-carbon growth. The emphasis will be on sustainability and exploring new opportunities that will include tourism; expanding carbon sequestration and ecosystem opportunities in mangroves; sustainably managing fisheries stock; expanding the shipping and logistics sector and exploring greater sovereignty via connectivity.

Guyana will develop an Ocean Policy, Integrated Marine Management for Land-Based Pollution, and Marine Spatial Plan (MSP) and promote the establishment of Marine Protected Areas (MPAs). It will also work with the Commonwealth-coordinated Marine Economies Programme. Priorities will include:

- **Biotechnology – Genetic Resources.** The coast and deep-sea portions of Guyana’s marine ecosystem are not as extensively studied as terrestrial ones. Notwithstanding, it is well established that the marine ecosystems of the Guianas (Suriname, French Guiana, and Guyana), are very productive and show great species richness and biodiversity and by extension diverse marine genetic resources. The various genetic resources have multiple values including ecological, pharmaceutical, cosmetic and commercial values.
- **Ecosystem Services.** A mapping of the current and potential services provided by the ocean in Guyana’s jurisdiction is beneficial and is recognised as critical information management in assisting the sustainability of the living resources.
- **Fisheries and Mariculture.** With an Exclusive Economic Zone (EEZ) of approximately 136,000 km², most of the fishery activities are concentrated on the continental shelf area and, to a small extent, the continental slope. Guyana has a very productive fisheries sector, with the shelf area unexploited. Fishing may be considered the second most important economic activity along the Atlantic coast. Exclusively, Guyanese fisherfolk dominate the subsistence and artisanal sectors, which are primarily conducted in the near-shore regions along the coast. Seafood is one of Guyana’s commodity exports, with marine fish and crustaceans having the highest tonnage exported over the last 20 years. Approximately 4,500 local artisanal fishers operate in the sector, 1,000 of whom are boat owners. A significant number of women are employed in this sector as well.
- **Tourism.** Guyana is best known as an eco-tourism destination which is centred on activities mainly in the Hinterland regions. However, the ocean provides some niche options, one such being angling tourism. Angling — that is, recreational fishing with rod and line and charter boat fishing — constitutes a high-value and sustainable touristic activity in coastal regions. Its activities contribute income to coastal communities and is a subset of the the required assets to potentially grow this activity into a feasible income generation scheme. Other ocean-based activities can also be part of the tourism appeal such as bird-watching in the mangroves, or tours. When these are added to some of the coastal attractions, it can drive a subset of Guyana’s tourism appeal. A non-invasive tourism model would be based in the empowerment of the locals, who would receive support and training so that they benefit from potential revenues, for example by offering homestay, bird-watching, research, and wilderness experiences.

The LCDS will support existing Governmental and Non-Governmental efforts (such as GMCS) that are aimed at protecting and restoring marine life and coastal ecosystems in partnership with coastal communities.