GUYANA

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Transparency Report

to the United Nations Framework Convention on Climate Change

September 2024

Annex to the BTR

Update on the information on financial, technology development and transfer and capacity-building support provided and mobilized, needed and received under Articles 9–11 of the Paris Agreement

Acronyms and Abbreviations

ART-TREES	Architecture for REDD+ Transactions the Environmental Excellence Standard
BTR	Biennial Transparency Report
BUR	Biennial Update Report
CTF	Common Tabular Format
ETF	Enhanced Transparency Framework
GDP	Gross Domestic Product
GFC	Guyana Forestry Commission
GHG	Greenhouse Gas
GYD	Guyana Dollar
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
LCDS	Low Carbon Development Strategy
MPGs	Modalities, Procedures, and Guidelines
NAREI	National Agricultural Research and Extension Institute
NDC	Nationally Determined Contribution
REDD+	Reducing Emissions from Deforestation and Degradation
SIDS	Small Island Developing State
TNA	Technology Needs Assessment
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollar

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5 Support Needed and Received

1. National circumstances and institutional arrangements

Chapter 1 of the BTR provides a comprehensive overview of Guyana's government structure, population demographics, geographical landscape, economic profile, climate conditions, and hydrological and natural resources.

Chapter 4 of the BTR dedicated to NDC tracking and mitigation, describes the overall institutional arrangements that Guyana has established to manage and coordinate its climate change activities. Regarding support needed and received specifically, Guyana plans to develop an MRV framework and methodology for tracking climate support needed and received as part of the national MRV framework. This will enable the effective assessment of needed technological, financial, and capacity-building support, as well as tracking the support received.

As part of this process, Guyana is intending to develop a sector led data management system as a key component of its national integrated MRV framework. The support module will handle the management and storage of information related to financial, technological, and capacity-building transfers. The data management system will be linked to the support tracking tool that Guyana currently is developing.

2. Underlying Assumptions and Methodologies

In the following, the methodology applied for the development of the BTR chapter on support needed and received, as well as for the elaboration of the Common Tabular Formats (CTF), is presented.

2.1. Overview of the methodology employed for analysing support received in Guyana

In Guyana, substantial resources are mobilised to finance activities in the priority sectors, namely energy and forestry and, to some extent, transport, as outlined in Guyana's Nationally Determined Contribution (NDC) and Low Carbon Development Strategy (LCDS). Additionally, operational support for fulfilling reporting obligations under the UNFCCC is provided. The funding is obtained from various sources, including the country's budgetary investments, investment loans and grants from bilateral and multilateral entities, as well as through private sector investment. However, further investment in the priority sectors will be required to enable Guyana to transition further to a low carbon economy. Similarly, to address the adverse impacts of climate change and ensure effective and transparent reporting of climate change related information, the country already leverages some national as well as international resources. In particular regarding climate change adaptation, substantial further investment needs are anticipated.

Against this backdrop, the following section provides a concise overview of the methodological assumptions and clarifications made for the development of the BTR chapter on support needed and received as well as on the development of the relevant CTF tables pursuant to the MPGs. To do so, the chapter elaborates on the key data that was included in the analysis as well as it discusses certain gaps in the data which underscored the final methodology employed in the BTR.

For the analysis of support received in the BTR, only international financial inflows are considered. Moreover, support needed is not quantified at the project level, as Guyana is currently actively working towards consolidating this information and analysing and integrating quantified information on support needed at the project level in following BTRs.

Furthermore, please note that Guyana provides the CTF Tables III.6, III.7, III.8, III.9, III.10, III.11, III.12, III.13 in an excel format as produced by the ETF Reporting Tool separately to this document.

2.2. Methodological clarifications and assumptions

Scope and estimation of the data

- **Methodological note 1** – **Support provided:** Firstly, please note that support provided by Guyana to other countries is not estimated due to the data not being available. Recognizing Paragraph 118. Of the MPGs, stating that: *Other Parties that provide support should provide such information and, in doing so, are encouraged to use the MPGs contained in this chapter,* Guyana, in spite of their status as a developing country, acknowledges the need to report on support provided when applicable and will thoroughly analyse relevant climate change support flows to other countries for subsequent BTR submissions.

- **Methodological note 2 - Support received – General approach:** The analysis of support received was carried out compiling extensive information from a wide array of sources, classifying all international financial inflows dedicated to climate change objectives according to nine main steps. as depicted in Figure 1.

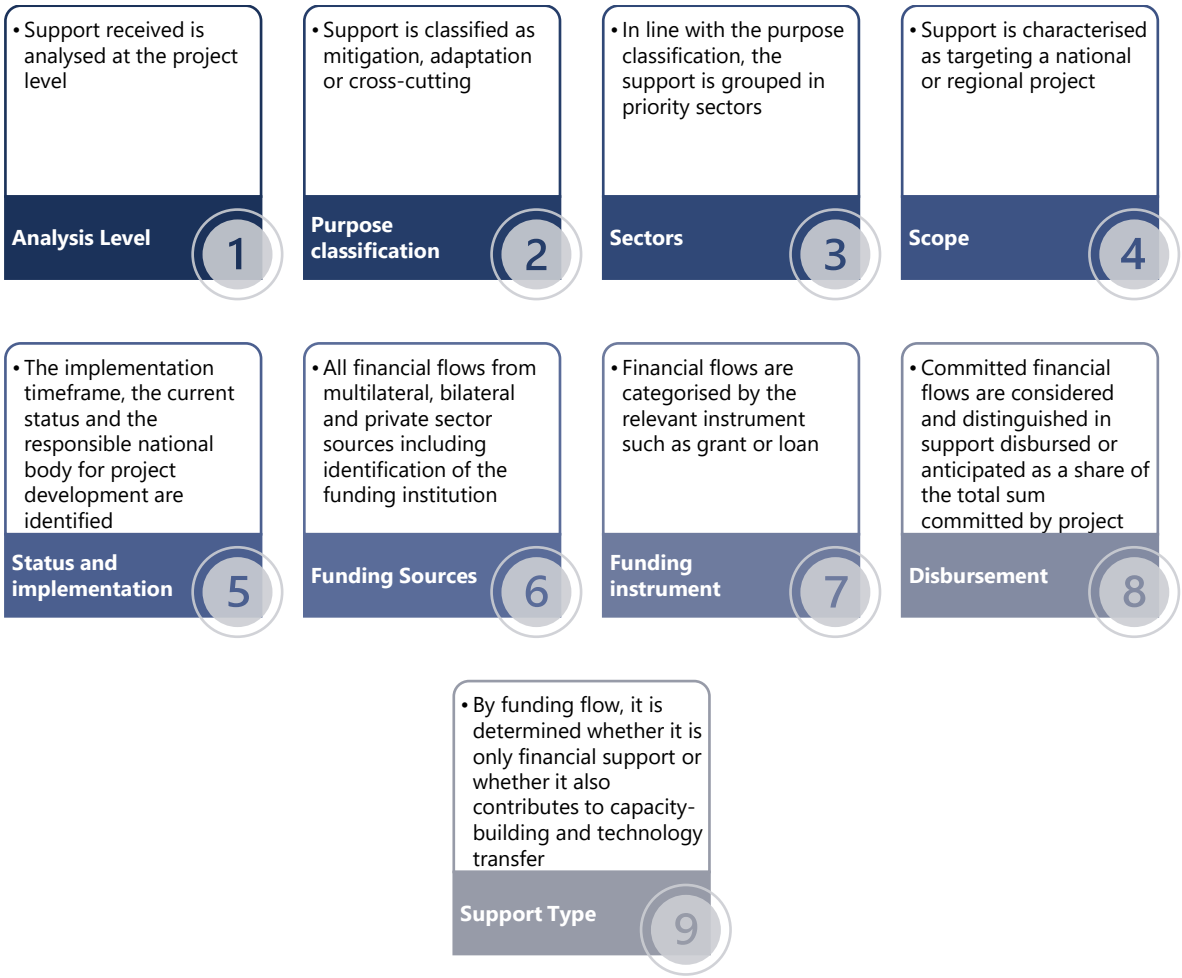

Figure 1. Classification of support received.

In total 85 identified projects are included in the analysis of funding received in Guyana. In line with the classification steps, all identified projects are treated as representing a unique set of characteristics in terms of project implementation, committed funding, funding type, instrument and source and type of support as financial, capacity-building and technology transfer support.

Table 2 provides a brief overview of the number of projects by climate change area and sector for which support is received and thus analysed.

Table 1. Number of projects receiving international support in Guyana by climate change area and sector.

Climate change theme	Sector	Total nº of actions supported
Mitigation	Energy	24
	Forestry	4
		28
Adaptation	Agriculture and food security	6
	Water Resources	8
	Coastal Zones	6
	Health	1
	Ecosystems and biodiversity	8
	Disaster Risk Management	2
	Land Use	2
	Infrastructure	4
	Settlements and Services	1
	Cross-sectoral	3
		41
Cross-cutting	General cross-cutting	9
	Readiness and reporting	7
		16
		85

Please note that the CTF tables show a slightly lower number of total projects due to combining five highly related adaptation projects, all funded by multilateral funds, and implemented to improve the sustainability of Guyana's gold mining sector into one overarching project: *"Sustainable Gold Mining and Mercury Reduction to Enhance Biodiversity and Maintain Ecosystem Functionality"*. This was done to allow for the development of a unique CTF table for this project therefore ensuring a clear representation of the financial support on a single project level instead of split between five subprojects.

- **Methodological note 3 – Support received – Estimation approach:** Support received is considered as committed funding which either has been disbursed fully or only to an extent, in which case, the remainder is considered anticipated. Figure 2 included below illustrates the approach followed for analysing support received. The figure includes the total financial support committed - $6,020,000 - of all projects classified in the energy efficiency subsector. This total committed amount represents the total Guyana will receive, with *disbursed* reflecting the current amount that is already received - $2,975,000 - and *anticipated* the remaining amount - $3,045,000, yet to be disbursed. The reason for this distinction is to be able to reflect the gradual disbursement of ongoing projects. Note, methodological note 10 further elaborates on the distinction between support received and committed made for the development of the CTF tables.

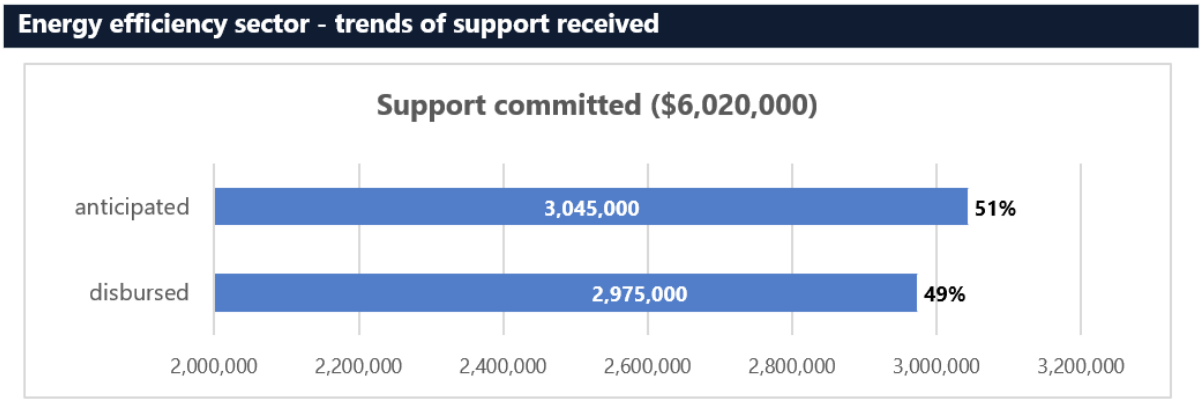

Figure 2. Excerpt of a table showing total support committed disaggregated by support disbursed and anticipated.

- **Methodological note 4 – Differences in total support received between TNC and BTR:** The total support received for mitigation, adaptation, cross-cutting and transparency support measures presented is based on the TNC (2024) and differs slightly from the support received presented in the BTR (2024) which was submitted slightly ahead of the TNC. This difference is due to the new inclusion or progression of certain mitigation projects as well as due to the inclusion of adaptation projects which were not accounted for in the BTR (2024). Therefore, the CTF tables reported for Guyana's BTR correspond to the most updated list of projects including adaptation projects as presented in Chapter 6 for the narrative part and Annex IV for the project list in the TNC.

- **Methodological note 5 – Support needed:** Support needed is not quantified at the project level, rather, a narrative section provided in the TNC and in this document, discuss the relevant needs by sector and reporting area identified in Guyana. Moreover, initial figures for support needed for the implementation of the LCDS and the NDC of Guyana are retrieved from these reports yet they are not systematically quantified on a project

level due to that information not being available. The support needed section, including analyses of the prevalent institutional and capacity-building, technical as well as financial needs, is provided in Chapter 3. of this document and Guyana undertakes efforts to estimate support needed on a more disaggregated level for subsequent BTR submissions.

- **Methodological note 6 – Uncertainties:** As regards the identification of the amounts for funding disbursed and anticipated, please note that there is a certain degree of uncertainty with regard to partially incomplete information on actual disbursement of project funds, in particular for ongoing projects with highly dynamic ongoing disbursements.

- **Methodological note 7 – US Dollar conversion and inflation rate:** All financial information by project was compiled in US Dollar (USD). The conversion rate to Guyana Dollar (GYD) was obtained on Sep 12th 2024 from Forbes Advisor, with a fixed rate of 1 USD = 209.21756 GYD. Moreover, the Dollar amounts are fixed at the indicated rate with no adjustment for inflation, as this was deemed unfeasible due to the dynamic disbursement periods of the projects which are oftentimes implemented over many years. Further, note that cent amounts are rounded.

- **Methodological note 8 – Excluded projects and co-financing:** The mitigation projects identified for support received are largely the same as those presented in Chapter 4 - Information necessary to track progress made in implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement - of Guyana's BTR, except for those projects which have been financed through the national budget. These projects, while relevant for mitigation efforts, have been excluded from the support received analysis, as they do not constitute support received for developing countries. In the same vein, co-financing amounts have been subtracted from the reported financial amounts of relevant projects as they reflect national funding and not international support.

Common Tabular Formats

- **Methodological note 9 – CTF tables reported:** Financial, capacity-building and technology transfer support *provided* and *needed* are not quantified on the project level and therefore the CTF tables III 1-5, III.6, III.8, III.10 and III.12 as per the MPGs are not reported. The following table provides an overview of all the CTF relevant for support as well as the associated reference page in the MPGs. Moreover, it is displayed whether the CTF is reported or not and an explanation is provided.

Table 2. Overview of the reported CTF tables.

Common Tabular Format	Reference Provision in the MPGs	Reported ✓ Not reported X	Explanation
Table III. 1-5 on Support provided	Paragraphs 123, 124, 125, 127, 129	X	Not considered due to Guyana's status as a developing country.
Table III.6 Information on financial support needed by developing country Parties under Article 9 of the Paris Agreement	Paragraph 133	X	Information on financial support needed at the project level is not available in Guyana and therefore not reported. The notation key [NR] is applied.
Table III.7 Information on financial support received by developing country Parties under Article 9 of the Paris Agreement	Paragraph 134	✓	Financial support received at the project level for projects across the three types of support: Mitigation, Adaptation and Cross-cutting, is reported.
Table III.8 Information on technology development and transfer support needed by developing country Parties under Article 10 of the Paris Agreement	Paragraph 136	X	Information on technology development and transfer support needed at the project level is not available in Guyana and therefore not reported. The notation key [NR] is applied.
Table III.9 Information on technology development and transfer support received by developing country Parties under Article 10 of the Paris Agreement	Paragraph 138	✓	Technology development and transfer support received at the project level for projects across the three types of support: Mitigation, Adaptation and Cross-cutting, is reported.

Common Tabular Format	Reference Provision in the MPGs	Reported ✓ Not reported X	Explanation
Table III.10 Information on capacity-building support needed by developing country Parties under Article 11 of the Paris Agreement	Paragraph 140	X	Information on capacity-building support needed at the project level is not available in Guyana and therefore not reported. The notation key [NR] is applied.
Table III.11 Information on capacity-building support received by developing country Parties under Article 11 of the Paris Agreement	Paragraph 142	✓	Capacity-building support received at the project level for projects across the three types of support: Mitigation, Adaptation and Cross-cutting, is reported.
Table III.12 Information on support needed by developing country Parties for the implementation of Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building	Paragraph 144	X	Information on for the implementation of Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building at the project level is not available in Guyana and therefore not reported. The notation key [NR] is applied.
Table III.13 Information on support received by developing country Parties for the implementation of Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building	Paragraph 144	✓	Support received at the project level for transparency-related activities, including for transparency-related capacity-building at the project level, is reported.

- **Methodological note 10 – Quantifying support received and committed in the CTF III.7:** Linking to the elaboration on the methodology applied for quantifying the support received and committed, there are three different scenarios that were considered for the development of the *CTF III.7 Information on financial support received by developing country Parties under Article 9 of the Paris Agreement*.

- Scenario 1: The identified amount is entirely disbursed, in which case the CTF table reflects the full amount under the status *received*.

- Scenario 2: The identified amount is still entirely anticipated, with no fraction found to be received yet, in which case the CTF table reflects that full amount under the status *committed*.

- Scenario 3: In cases where projects are found to have a fraction of the total support already disbursed and another fraction anticipated, only the received fraction is added in the CTF under the status *received*. The remaining fraction that is committed but not received yet - anticipated, is reflected in the footnote section below the *CTF III.7 Information on financial support received by developing country Parties under Article 9 of the Paris Agreement*. In the case of scenario 3, the footnotes are linked to the CTF column *Status – Received (n° of reference footnote)*.

- **Methodological note 11 – Subsectors:** Where applicable, the subsectors are reported. In the presented CTF tables this however only includes the energy sector with the four identified subsectors: Power Generation, Energy Efficiency, Rural Electrification, Training and Development.

- **Methodological note 12 – Project implementation timeframe:** For all projects included, the start and end year is provided. In cases where the end year is not known, the field is left blank as the ETF reporting tool does not allow for any non-numerical input. In fact, the error message: *"Only years between 1900 and 2099 inclusive allowed"* is produced, thus not allowing for further explanation or use of notation keys. In case where neither the start nor the end year are known, a footnote is provided explaining the missing information in *Timeframe – From (n° of reference footnote)*. The latter case however only occurs for one project - *Unlocking the Potential of Guyana's Mangrove Forests to Build Resilience to Climate Change* that is currently in the planning stage. Note, due to the ETF tool not displaying the footnote in the correct project row, it has been manually added to align with the footnote.

- **Methodological note 13 – Support received for the implementation of Article 13:** As per CTF Table III.13, Guyana reports all support received for the implementation of Article 13 of the Paris Agreement, including for transparency-related capacity-building. The related financial amounts received, which are analysed similarly on a project level are thus separated from those accounted for in CTF Table III.7 in order to avoid double counting.

3. Constraints, Gaps and Related Financial, Technical and Capacity-building Needs

This chapter provides a comprehensive analysis of the main constraints Guyana faces for implementing effective and sustained climate action as well as for complying with the international reporting requirements. The analysis is structured along different dimensions such as the financial constraints, institutional and capacity-related, as well as technological constraints. The structured analysis relies on the information compiled in Technology Needs Assessment (TNA) completed in 2017, the preliminary Third National Communication (TNC) Report from 2021 and the Biennial Update Report (BUR) from 2024 as well as it synthesises the gaps and constraints identified in the development of the different components of this TNC. As such, the prevalent gaps related to the compilation and reporting of the greenhouse gas (GHG) inventory, for mitigation and adaption efforts and reporting as well as the financial constraints are compiled to ensure a comprehensive reflexion on the principal challenges and needs of the country.

3.1. Financial constraints and support needed

In this section, the main financial constraints and the support needed to implement Guyana´s ambitious climate change objectives are discussed. Financial constraints are highly linked to resource availability and to the ability to mobilise national as well as external resources from international and private sector sources and as such correlate strongly with the national economic outlook and the economic relationships to other countries and to the international donor community.

In Guyana, the economic outlook suggests rapid economic growth in the short to medium term linked to the recently begun and ongoing exploration of oil and gas and significant increases in national and foreign investments in the country. As a result, the economy is expected to double in size by 2028.

Proceeds from the oil and gas exploration are expected to grow over time as the upfront investment costs are increasingly recovered, thus releasing a larger share of the revenue to the Government of Guyana. The government intends to harness this additional source of income to drive major infrastructure and social sector projects with the objective to elevate the living standard and economic capabilities of the country and thus to pave the way for sustained economic growth. In particular, the road transportation network and the energy sector, but

also the housing sector and the built and natural environment of the shoreline are targeted by increasing investment.

However, Guyana has stated that economic development will follow an even distribution pattern by which all groups and areas gain as proportionately as possible from the growth. Therefore, investments for economic development measures in hinterland and indigenous communities as well as in the urban fringes shall be prioritised to allow for sustained and equitable development. Furthermore, community strengthening, and development is especially relevant for the adaptative capacity and resilience to the adverse impacts of climate change as hinterland and indigenous communities' figure among the most vulnerable segments of the population. The current adaptation measures implemented in rural areas likely will improve aimed at sheltering vulnerable communities against the impacts of climate change, thus necessitating increased financial support.

Linked to the national development trends, the energy sector is a crucial sector for climate change mitigation in Guyana as the country currently navigates the exploration of oil and gas, a potentially relatively cheap source of energy, as well as the expansion of renewable energy sources driven by the national potential in hydropower, solar power and wind power production. While Guyana´s forest resource maintains the negative GHG emissions ratio for the country, the GHG emissions in the energy sector are expected to remain flat or decrease due to Guyana's plans to scale up renewable energy development. To do so however, substantial financial resources are required, which can partially be sourced from the national budget, but may also require large external investments.

Underlining the financial needs, the updated Low Carbon Development Strategy (LCDS), reflecting Guyana´s development priorities from 2021 to 2030, highlights the path to achieve long-term low carbon national development. While the energy and forestry sector are identified as the two key sectors for mitigation efforts, the LCDS presents a number of key themes in which investment will be required until 2030. The estimated costs by theme are summarised in the following table.

Table 3. Estimated costs for implementation of the LCDS 2021-2030.

LCDS 2030 Theme & Programme	Total cost 2021-2030 (US $ million)
Ecosystem services (including water management)	320
Blue Economy	295
Clean energy	3,014

LCDS 2030 Theme & Programme	Total cost 2021-2030 (US $ million)
Climate Adaptation and Resilience	1.2
Amerindian and Hinterland Development	450
Transportation	957
Digital infrastructure	325
Total	**6,561**

As a caveat, it is to note that the LCDS also drives the development of projects which potentially reach beyond the classification of climate change mitigation and adaptation finance. However, due to the focus of the strategic directions, sectoral priorities and envisioned actions, the costs displayed in the table are, while not perfectly representative of the exact financial needs for climate change mitigation and adaptation, highly indicative of the climate related development needs of Guyana.

In addition, in its First Nationally Determined Contribution (NDC), Guyana set out its unconditional and conditional pledges for both climate change mitigation and adaptation. While the mitigation pledge is not quantified, as the costs are determined following annual estimations, the actions foreseen have crucially determined the strategic themes and prioritised sectors of the LCDS.

The other strategic directions, in part include climate change adaptation or wider development objectives, however mitigation co-benefits are expected from the implementation of these directions. Guyana is capitalising on the proceeds from the sale of forest ART-TREES to finance the development of measures across the LCDS themes as well as to mobilise funding through public-private partnerships and through other private sector investment. About $1.045 billion are envisioned to be mobilised from the ART-TREES, while $1.166 billion are earmarked to be raised from private sources.

Comparing this to the current level of committed funding, in particular from the ART-TREES credits, a substantial funding gap is identified. This may be addressed by the increased sales of credits to private corporations. Similarly, private investments in Guyana´s energy sector and in the infrastructure are increasing, with the largest inflows recorded for the development of major gas-to-power installations to move away from dependence on heavy fuel oil, and with the next wave of funding targeting the further ramp up renewable energy sources.

Regarding climate change adaptation, the NDC estimates costs for implementing conditional adaptation measures at a total of $1.6 billion which is additional to the financial need for mitigation. Measures are envisioned to be implemented for the following adaptation themes:

- *Sea defence enhancement and maintenance.*
- *Strengthening drainage and irrigation systems.*
- *Mangrove restoration and ecosystem protection.*
- *Implement adaptation measures and build resilience in hinterland areas.*
- *Development and implementation early warning systems.*
- *Enhanced weather forecasting including microclimate studies and localised forecasting.*
- *Building climate resilient agricultural systems through water resource management, a diversified and integrated approach to agri-business, sustainable farm management systems, and capacity building.*
- *Development and introduction of crop varieties which are:*
    - *Flood resistant*
    - *Drought tolerant*
    - *Disease resistant*
- *Development of environmental and climate change awareness programmes at all levels.*
- *Development of innovative financial risk management and insurance measures.*

Conditional in this context refers to Guyana pledging to implement these actions in the case of receiving of international financial support. It is to highlight that the current level of support committed for climate change adaptation does not cover the estimated costs for implementing the conditional NDC adaptation measures.

In the following, the institutional, capacity-building and technological constraints and associated needs of Guyana are discussed.

3.2. Institutional and capacity-building constraints and needs

Guyana is facing significant human resource gaps in certain areas. The challenges of emigration and high staff turnover exacerbate this issue, creating an ongoing need for capacity-building and training. Turnover in key institutions disrupts vital aspects of monitoring, such as continuity and consistency, leading to gaps in data collection and analysis. To address this, Guyana seeks continued investment in training programmes to equip staff with the necessary skills and knowledge to effectively carry out their roles. By prioritising ongoing

capacity building, Guyana aims to mitigate the impacts of high turnover rates, though additional measures, such as offering competitive wages, will also be needed to retain staff.

Guyana faces institutional challenges in some areas, that affect the pace of development. For example, certain strategies and workflows in transportation infrastructure projects are not yielding the expected outcomes, necessitating re-evaluation to improve project completion efficiency and optimise economic resources. Guyana has identified capacity-building and training as essential tools to overcome these institutional barriers, equipping personnel with the skills required to modernize infrastructure and promote sustainable development.

In terms of public awareness and education measures that could help address climate change, progress has been challenging. Since the Second National Communication (NC), more advancement is still needed in terms of further integrating climate change considerations into university curricula, and to undertake efforts to develop educational materials for indigenous communities, such as specialised booklets. These examples are areas of challenges in climate change education and awareness. To foster a more informed and proactive response to climate change, Guyana recognises the need to intensify efforts in developing education and awareness measures.

Guyana also faces challenges in capacity building within sectors impacted by climate change. There is an ongoing need for sectoral capacity building trainings on climate change impacts, measures, and adaptation, as well as engagement sessions involving key actors such as professionals, students, and any other relevant target group. Additionally, Guyana continues improving the use of digital tools for networking and public awareness purposes. Regional and international support networks will be crucial to advancing technology transfer and capacity-building programmes. Continued collaboration with institutions such as the National Agricultural Research and Extension Institute (NAREI) and the Guyana Forestry Commission (GFC) is vital for training efforts in the agriculture and forestry sectors.

To ensure equitable benefits from technology adoption, Guyana is committed to engaging with indigenous and hinterland communities, as well as vulnerable groups, through extensive capacity-building initiatives. This will enable the integration of new technological developments that support sustainable growth and improved well-being across all population sectors.

Preparedness for extreme climate events is another priority. The development of Early Warning Systems and other emergency alerts will require capacity-building efforts within national institutions to promote a shift toward prioritising preparedness over post-disaster reconstruction. Institutional capacity building will play a central role in advancing disaster resilience and fostering a culture of caution and preparedness.

A practical institutional approach for maintaining Guyana's status as a net carbon sink, maintaining low emission in all sectors and reducing GHG emissions where this is possible, is an identified priority. Guyana has established a clear and structured framework to ensure that stakeholders understand and fulfil their commitments. Integrating policies across national, regional, and local levels will require consolidating institutional arrangements and implementing follow-up actions to maintain coherence and avoid maladaptation. Institutional capacity is needed to finalise key guiding documents, such as the Draft National Integrated Water Resources Management (IWRM) Policy and the Draft National Energy Policy.

Mainstreaming climate change is a multi-sectoral challenge. In the agricultural sector, Guyana has identified that it needs to strengthen institutional support for regional councils to plan and implement climate-smart investment strategies that address the specific challenges posed by climate change. Additional support is required for initiatives such as nutrition education and crop diversification. Across all sectors, improved research, monitoring, and communication are essential to disseminate the best available data, foster skill development, and embed climate change considerations into planning and management processes.

3.3. Technological constraints and needs

Guyana is facing several technological and technical challenges that necessitate immediate attention and investment. Although efforts are underway to improve infrastructure, some areas, such as irrigation systems, require substantial overhaul. The Government of Guyana, alongside farmers' representatives, is planning in the near future to promote workshops, information dissemination, and investments in essential infrastructure, including water pumps and weed removal tools, to address these gaps.

The increasing frequency and severity of extreme weather events, exacerbated by climate change, pose a significant challenge. Guyana is constrained by a lack of necessary technological infrastructure and technical expertise to fully address these evolving conditions, which also hinders the uptake of renewable energy technologies. For example, sea level rise is causing water overflows that overwork existing pump systems, placing critical infrastructure in coastal and low-lying areas, where much of the population is concentrated, at high risk.

Guyana's topography and population distribution also limit the country's technical options for addressing climate change. The combined effects of sea level rise, coastal erosion, and shoreline recession severely constrain Guyana. Given that the majority of the population resides along the coast, this makes inland relocation a very difficult task because of the high costs and logistics such a measure would entail.

Data collection and availability are key constraints related to technology development and transfer in Guyana. Adequate monitoring systems are critical to addressing climate change, but these systems require significant investment, capacity-building, and technical skills. This is particularly true for the water resource sector, which plays a vital role across various sectors, including irrigation, domestic and commercial use, tourism, and energy (hydropower). However, gaps in data availability limit effective decision-making and the success of water management strategies aimed at sustainability. Since the 1990s, there has been a clear need for technical advancements in the monitoring of both groundwater and surface water resources in Guyana. The further development of Geographic Information Systems (GIS) and remote sensing techniques is essential to improve the country's monitoring capabilities. Additionally, Guyana aims to enhance its information systems for monitoring and disseminating climate change data to support informed decision-making.

Capacity-building efforts must accompany these technological advancements. Guyana will need ongoing training programs that build on existing skills and are tailored to the needs of stakeholders, ensuring practical experience with relevant technologies. These efforts will help overcome constraints in monitoring, data analysis, and resource management.

In terms of flood protection and water management, Guyana faces significant risks due to sea level rise and coastal erosion. The country will require robust flood protection measures for its coastal zones, along with an integrated water management system to mitigate the risks posed by water overflows and to protect vital infrastructure in flood-prone areas.

As Guyana develops, it will require a modern and low-emission transportation sector. To create a low-emission, climate-resilient transportation system, large-scale investments are needed to enhance the connectivity of the transport network and introduce climate-sensitive transportation alternatives. Guyana's current transport infrastructure is constrained by its topography and low population density in the hinterland, limiting the accessibility and distribution of efficient transport options. Additionally, the road conditions cause added losses as the work that needs to be done to periodically rehabilitate road infrastructure in poor conditions reroutes resources that could have gone to other areas, some perhaps in critical need of adaptation measures, such as coastal communities requiring sea defences.

The agriculture sector is similarly challenged by climate change. New research on crop varieties and the transfer of climate-resilient technologies are urgently needed. Improving farmers' access to public services and developing comprehensive plans to address issues with drainage and irrigation systems will be crucial to improving productivity and resource efficiency.

In summary, Guyana requires large-scale investments and the transfer of modern technologies to enhance its ability to monitor and manage resources effectively. In addition, modernising

the transportation sector and implementing climate-resilient infrastructure, particularly along the shoreline, are essential priorities for the coming years.


ONE PEOPLE
ONE NATION
ONE DESTINY