



DIRECTIVE

ON

MANDATORY REPORTING ON GREENHOUSE GASES

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Prime Minister's Office

Directive on Mandatory Reporting on Greenhouse Gases

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Disclaimer: This is a live document which will be revised continuously at regular intervals to supplement methodological enhancement(s) and reporting platforms.

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Guidelines

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1. GLOSSARY/DEFINITION

For the purpose of this Directive:

- 1.1 The word "Shall" indicates a requirement;
- 1.2 The word "Should" indicates a recommendation;
- 1.3 "Accredited External Auditor" means any person accredited with a valid certificate of certification body in the verification of greenhouse gas, which is recognised and accredited by the Lead Coordinating Agency as an accredited external auditor and/or accredited internationally by the United Nations Framework Convention on Climate Change (UNFCCC);
- 1.4 "Directive" means this Directive including the appendices hereto, as of the date hereof and includes any amendments hereto made in accordance with the paragraphs hereof;
- 1.5 "Emissions Report" means a report relating to the greenhouse gas emissions of every Facility;
- 1.6 "Facility" means –
 - (a) any activity or series of activities (including secondary activity), which involves the emissions and/or removals of greenhouse gas; and
 - (b) all actors in the relevant sectors' value chain including Government agencies, private sectors and entities whose data to measure and calculate emissions and/or removals of greenhouse gas, fall within their purview;
- 1.7 "Greenhouse Gas" means any greenhouse gas specified in the first column of the Appendix A and having the chemical formula specified in the second column of that Appendix opposite the greenhouse gas;
- 1.8 "Greenhouse Gas Emission", in relation to any Facility, means any greenhouse gas emitted into atmosphere directly or indirectly from the Facility;

- 1.9 “Key Category” means the emission that is prioritised within the inventory system as it brings significance influence on the country’s emissions inventory in terms of absolute level, the trend, or the uncertainty in emissions and removals, as defined by the Intergovernmental Panel on Climate Change (IPCC);
- 1.10 “Lead Coordinating Agency” also known as the National Inventory Coordinator – NIC, shall be the designated inventory agency who is responsible for the management of all aspects of the national greenhouse gas inventories development, including the preparation and submission of greenhouse inventories for Government publications, UNFCCC submissions and others;
- 1.11 “National Inventory Improvement Plan” means a comprehensive improvement plan that applies to the inventory, including methods, data, and the inventory system. This includes, but not limited to, improvement plan to key categories, national inventory system and capacity-building needs;
- 1.12 “Quality Assurance” means review procedures conducted by personnel not directly involved in the inventory development process;
- 1.13 “Quality Control” means routine reviews implemented by the inventory team (e.g., sector leads and supporting experts involved with estimate development) to measure and control the quality of the inventory as it is prepared;
- 1.14 “Sector Lead” means a core individual or team outside of the Lead Coordinating Agency (National Inventory Coordinator – NIC), such as Government ministries, departments, agencies, non-governmental organisations, or research institutions, who shall be responsible for overseeing and coordinating the development of greenhouse gas emissions estimates from all categories in the respective sectors, i.e., for (i) Energy sector, (ii) Industrial Processes and Product Use (IPPU), (iii)

Agriculture, (iv) Land-Use, Land-Use Change and Forestry (LULUCF)¹,
(v) Waste Sectors;

1.15 “Uncertainty” means probability density function (PDF) characterising the range and likelihood or precision of possible values;

1.16 “Verified Emission Report” also known as verification report, means a report of a verified emission report by an external auditor or external third-party verification firm, either of whom should be accredited/certified.

¹ (iii) Agriculture and (iv) Land-use, Land-Use Change and Forestry (LULUCF) is referred to collectively as Agriculture, Forestry and Other Land Use (AFOLU).

2. INTRODUCTION

2.1 Reporting Requirement Under Paris Agreement

On 7 August 2007, Brunei Darussalam became a Party to the United Nations Framework Convention on Climate Change (UNFCCC), and acceded to the Kyoto Protocol on 20 August 2009. Brunei Darussalam ratified the Paris Agreement on 21 September 2016. The Paris Agreement reaffirms the long-term global goal to limit temperature increase below 2-degree Celsius above pre-industrial levels, and pursue efforts towards a more ambitious 1.5-degree Celsius threshold.

As a Non-Annex I Party to the UNFCCC, Brunei Darussalam is obliged to provide a national inventory report of anthropogenic emissions by sources and removals and sinks of greenhouse gases, prepared using good practice methodologies accepted by the Intergovernmental Panel on Climate Change (IPCC); communicated to the Conference of the Parties (COP), via the UNFCCC Secretariat through:

- (a) National Communications (NCs) every four years in accordance with Article 4, paragraph 1 and 12, paragraph 1 of the Convention, decision 17/CP.8;
- (b) Biennial Update Report (BUR) every two years in accordance with Cancun Agreements (1/CP.16) and Durban Outcomes (2/CP.17); which will be superseded by
- (c) Biennial Transparency Report (BTR) every two years starting from 2024 under the Enhanced Transparency Framework (ETF), in accordance with Article 13 of Paris Agreement; decision 18/CMA.1.

2.2 Brunei Darussalam Climate Change Governance

The Brunei Darussalam National Council on Climate Change (BNCCC), initially established in 2011, was reconstituted in 2018 in response to the global call to reduce greenhouse gas emissions under the Paris Agreement. The BNCCC ensures Brunei Darussalam adopts a strategic “Whole-of-Nation” approach towards climate change.

The Brunei Climate Change Secretariat (BCCS) was also established in July 2018 as a secretariat to ensure a coordinated approach on Brunei Darussalam’s domestic and international policies, plans and actions on climate change. BCCS is mandated to develop, implement and monitor climate change policies, actions and strategies in Brunei Darussalam.

2.3 Reporting of Greenhouse Gas Inventories

As part of the effort to ensure Brunei Darussalam’s accountability and responsibility to provide transparency of national greenhouse gas emissions and/or removals in supporting climate change mitigation actions under the Brunei Darussalam’s Nationally Determined Contributions (NDC) and the Brunei Darussalam National Climate Change Policy (BNCCP), the Facility/Facilities shall submit a report(s) relating to greenhouse gas emissions and/or removals.

3. OBJECTIVES

The purpose is to establish mandatory greenhouse gas reporting, verification and other requirements for the Facility/Facilities for monitoring purposes. The objectives of the directive are:

- 3.1 To enhance the Monitoring, Reporting and Verification (MRV) of national greenhouse gas emissions and/or removals, which allows for the implementation of domestic and international commitments in supporting climate change mitigation and adaptation actions under the Brunei Darussalam's Nationally Determined Contributions (NDC), the Brunei Darussalam National Climate Change Policy (BNCCP), Long-term Low Emissions and Development Strategies (LT-LEDS) and National Adaptation Plans² (NAP);
- 3.2 To ensure timely submissions of greenhouse gas emissions and/or removals data that follow the guiding principles of Transparency, Consistency, Comparability, Completeness and Accuracy (TCCCA);
- 3.3 To form a robust carbon accounting foundation for development of future NDCs, LT-LEDS, NAP and respective strategies in the policy.

² Brunei Darussalam is now in the process of initiating the development of a LT-LEDS and NAP.

4. MANDATE

This Directive shall apply to **all Facilities**, who shall adopt and undertake the following:

- 4.1 To submit a quarterly greenhouse gas emissions and/or removal report to the respective Sector Leads³ (refer to 5.2), within 4 weeks of the end of each quarter;
- 4.2 To submit an annual greenhouse gas emissions and/or removal report to the respective Sector Leads, no later than the 30th of April of the following year;
- 4.3 Where applicable, to report all types of greenhouse gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆), nitrogen trifluoride (NF₃), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs); and
- 4.4 To adopt methodology in accordance with the 2006 IPCC Reporting Guidelines (see Appendix B).

³ For the Oil and Gas Operators and Industries in the Industrial Emissions Committee (IEC), the quarterly greenhouse gas emissions report shall be submitted to the IEC Secretariat, using the simplified reporting template agreed within the IEC.

5. ROLES AND RESPONSIBILITIES

Under this Directive,

- 5.1 The national entity responsible for climate change⁴, who is also the designated focal point to the UNFCCC, shall act as the Lead Coordinating Agency to develop a national inventory of anthropogenic greenhouse gas emissions and/or removals;
- 5.2 The Sector Leads – for Energy sector, Industrial Processes and Product Use (IPPU), Agriculture, Land-Use, Land-Use Change and Forestry (LULUCF)⁵, Waste Sectors; shall assist the coordinating lead agency in developing its greenhouse gas inventory and the associated work required to build and enhance the national greenhouse gas inventory system including, but not limited to, Quality Assurance/Quality Control (QA/QC) and archiving;
- 5.3 The scopes of work for the Sector Leads are outlined in Appendix C;

⁴ At the time of publication of this Directive, the Brunei Climate Change Secretariat at the Prime Minister's Office is the national entity responsible for climate change.

⁵ Agriculture; Land-use, Land-Use Change and Forestry is referred to collectively as Agriculture, Forestry and Other Land Use (AFOLU).

6. COMMENCEMENT

- 6.1 This Directive shall be effective from **19 April, 2023**;
- 6.2 The first preliminary submission for the first quarter of 2023 (Q1 2023) on greenhouse gas emissions and/or removal shall be submitted to respective Sector Leads by all Facilities no later than 30 April, 2023. However, **the first two years** upon the launching of the Directive will be recognised as a Grace Period⁶, enabling quarterly submissions past their formal quarterly deadlines (for years 2023 and 2024). During this Grace Period, submissions will be allowed to be done twice-yearly rather than quarterly;
- 6.3 The first preliminary submission for the year 2022 on greenhouse gas emissions and/or removal, shall be submitted to respective Sector Leads by all Facilities no later than 30 April, 2023;
- 6.4 An illustrative timeline for the first preliminary submission is outlined in Appendix D.

⁶ This is to allow time for the Facilities to prepare their resources and equip themselves better to fulfill the requirements. However, Quarterly submissions are welcomed in order to start developing capacities towards Quarterly reporting. In addition, Quarterly submissions will still be required for Executive Committee Meetings on Climate Change.

7. AUTHORITY

The Prime Minister's Office holds the overall authority over this Directive. BCCS will be responsible for the implementation, monitoring and periodic update of this Directive.

8. APPENDICES

A. APPENDIX A – Greenhouse Gases

	<i>Greenhouse gas</i>	<i>Chemical formula of greenhouse gas</i>
1.	Carbon dioxide	CO ₂
2.	Methane	CH ₄
3.	Nitrous oxide	N ₂ O
4.	Sulphur hexafluoride	SF ₆
5.	Nitrogen trifluoride	NF ₃
6.	The following hydrofluorocarbons (HFCs):	
	(a) HFC-23	CHF ₃
	(b) HFC-32	CH ₂ F ₂
	(c) HFC-41	CH ₃ F
	(d) HFC-125	CHF ₂ CF ₃
	(e) HFC-134	CHF ₂ CHF ₂
	(f) HFC-134a	CH ₂ FCF ₃
	(g) HFC-143	CH ₂ FCHF ₂
	(h) HFC-143a	CH ₃ CF ₃
	(i) HFC-152	CH ₂ FCH ₂ F

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	<i>Greenhouse gas</i>	<i>Chemical formula of greenhouse gas</i>
(j)	HFC-152a	CH ₃ CHF ₂
(k)	HFC-161	CH ₃ CH ₂ F
(l)	HFC-227ea	CF ₃ CHF ₂ CF ₃
(m)	HFC-236cb	CH ₂ FCF ₂ CF ₃
(n)	HFC-236ea	CHF ₂ CHF ₂ CF ₃
(o)	HFC-236fa	CF ₃ CH ₂ CF ₃
(p)	HFC-245ca	CH ₂ FCF ₂ CHF ₂
(q)	HFC-245fa	CHF ₂ CH ₂ CF ₃
(r)	HFC-365mfc	CH ₃ CF ₂ CH ₂ CF ₃
(s)	HFC-43-10mee	CF ₃ CHFCH ₂ CF ₂ CF ₃

7. The following perfluorocarbons (PFCs):

(a)	PFC-14	CF ₄
(b)	PFC-116	C ₂ F ₆
(c)	PFC-218	C ₃ F ₈
(d)	PFC-318	c-C ₄ F ₈
(e)	PFC-3-1-10	C ₄ F ₁₀
(f)	PFC-4-1-12	C ₅ F ₁₂
(g)	PFC-5-1-14	C ₆ F ₁₄

B. APPENDIX B – Reporting Guideline

At present, the greenhouse gas emissions measurement and reporting guideline is under development and will be released in line with the introduction of a centralised web-based reporting platform, which is anticipated to be by the end of 2023.

The methodologies that should be used for estimating, reporting and verification of national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases are as follows:

- i. 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories (*2006 IPCC Guidelines*) and 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (*2019 Refinement*)
<https://www.ipcc-nggip.iges.or.jp/public/2006gl/>

Note: It is recommended to estimate to the Greenhouse Gas emissions in carbon dioxide equivalent (CO₂ equivalent) using the 100-year time horizon Global Warming Potentials (GWPs) from the latest IPCC Assessment Report.

Activity and Source Categories

1 - ENERGY	
<p>1 - Energy</p> <p>1.A - Fuel Combustion Activities</p> <p>1.A.1 - Energy Industries</p> <p>1.A.1.a - Main Activity Electricity and Heat Production</p> <p>1.A.1.a.i - Electricity Generation</p> <p>1.A.1.a.ii - Combined Heat and Power Generation (CHP)</p> <p>1.A.1.a.iii - Heat Plants</p> <p>1.A.1.b - Petroleum Refining</p> <p>1.A.1.c - Manufacture of Solid Fuels and Other Energy Industries</p> <p>1.A.1.c.i - Manufacture of Solid Fuels</p> <p>1.A.1.c.ii - Other Energy Industries</p> <p>1.A.2 - Manufacturing Industries and Construction</p> <p>1.A.2.a - Iron and Steel</p> <p>1.A.2.b - Non-Ferrous Metals</p> <p>1.A.2.c - Chemicals</p> <p>1.A.2.d - Pulp, Paper and Print</p> <p>1.A.2.e - Food Processing, Beverages and Tobacco</p> <p>1.A.2.f - Non-Metallic Minerals</p> <p>1.A.2.g - Transport Equipment</p> <p>1.A.2.h - Machinery</p> <p>1.A.2.i - Mining (excluding fuels) and Quarrying</p> <p>1.A.2.j - Wood and wood products</p> <p>1.A.2.k - Construction</p> <p>1.A.2.l - Textile and Leather</p> <p>1.A.2.m - Non-specified Industry</p> <p>1.A.3 - Transport</p> <p>1.A.3.a - Civil Aviation</p> <p>1.A.3.a.i - International Aviation (International Bunkers)</p> <p>1.A.3.a.ii - Domestic Aviation</p> <p>1.A.3.b - Road Transportation</p> <p>1.A.3.b.i - Cars</p> <p>1.A.3.b.i.1 - Passenger cars with 3-way catalysts</p> <p>1.A.3.b.i.2 - Passenger cars without 3-way catalysts</p> <p>1.A.3.b.ii - Light-duty trucks</p> <p>1.A.3.b.ii.1 - Light-duty trucks with 3-way catalysts</p> <p>1.A.3.b.ii.2 - Light-duty trucks without 3-way catalysts</p> <p>1.A.3.b.iii - Heavy-duty trucks and buses</p> <p>1.A.3.b.iv - Motorcycles</p> <p>1.A.3.b.v - Evaporative emissions from vehicles</p> <p>1.A.3.b.vi - Urea-based catalysts</p> <p>1.A.3.c - Railways</p> <p>1.A.3.d - Water-borne Navigation</p> <p>1.A.3.d.i - International water-borne navigation (International bunkers)</p> <p>1.A.3.d.ii - Domestic Water-borne Navigation</p> <p>1.A.3.e - Other Transportation</p> <p>1.A.3.e.i - Pipeline Transport</p> <p>1.A.3.e.ii - Off-road</p> <p>1.A.4 - Other Sectors</p> <p>1.A.4.a - Commercial/Institutional</p> <p>1.A.4.b - Residential</p> <p>1.A.4.c - Agriculture/Forestry/Fishing/Fish Farms</p> <p>1.A.4.c.i - Stationary</p> <p>1.A.4.c.ii - Off-road Vehicles and Other Machinery</p> <p>1.A.4.c.iii - Fishing (mobile combustion)</p>	<p>1.A.5 - Non-Specified</p> <p>1.A.5.a - Stationary</p> <p>1.A.5.b - Mobile</p> <p>1.A.5.b.i - Mobile (aviation component)</p> <p>1.A.5.b.ii - Mobile (water-borne component)</p> <p>1.A.5.b.iii - Mobile (Other)</p> <p>1.A.5.c - Multilateral Operations (1)(2)</p> <p>1.B - Fugitive emissions from fuels</p> <p>1.B.1 - Solid Fuels</p> <p>1.B.1.a - Coal mining and handling</p> <p>1.B.1.a.i - Underground mines</p> <p>1.B.1.a.i.1 - Mining</p> <p>1.B.1.a.i.2 - Post-mining seam gas emissions</p> <p>1.B.1.a.i.3 - Abandoned underground mines</p> <p>1.B.1.a.i.4 - Flaring of drained methane or conversion of methane to CO2</p> <p>1.B.1.a.ii - Surface mines</p> <p>1.B.1.a.ii.1 - Mining</p> <p>1.B.1.a.ii.2 - Post-mining seam gas emissions</p> <p>1.B.1.b - Uncontrolled combustion and burning coal dumps</p> <p>1.B.1.c - Solid fuel transformation</p> <p>1.B.2 - Oil and Natural Gas</p> <p>1.B.2.a - Oil</p> <p>1.B.2.a.i - Venting</p> <p>1.B.2.a.ii - Flaring</p> <p>1.B.2.a.iii - All Other</p> <p>1.B.2.a.iii.1 - Exploration</p> <p>1.B.2.a.iii.2 - Production and Upgrading</p> <p>1.B.2.a.iii.3 - Transport</p> <p>1.B.2.a.iii.4 - Refining</p> <p>1.B.2.a.iii.5 - Distribution of oil products</p> <p>1.B.2.a.iii.6 - Other</p> <p>1.B.2.b - Natural Gas</p> <p>1.B.2.b.i - Venting</p> <p>1.B.2.b.ii - Flaring</p> <p>1.B.2.b.iii - All Other</p> <p>1.B.2.b.iii.1 - Exploration</p> <p>1.B.2.b.iii.2 - Production</p> <p>1.B.2.b.iii.3 - Processing</p> <p>1.B.2.b.iii.4 - Transmission and Storage</p> <p>1.B.2.b.iii.5 - Distribution</p> <p>1.B.2.b.iii.6 - Other</p> <p>1.B.3 - Other emissions from Energy Production</p> <p>1.C - Carbon dioxide Transport and Storage</p> <p>1.C.1 - Transport of CO2</p> <p>1.C.1.a - Pipelines</p> <p>1.C.1.b - Ships</p> <p>1.C.1.c - Other (please specify)</p> <p>1.C.2 - Injection and Storage</p> <p>1.C.2.a - Injection</p> <p>1.C.2.b - Storage</p> <p>1.C.3 - Other</p>

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2 - INDUSTRIAL PROCESSES AND PRODUCT USE	
<p>2 - Industrial Processes and Product Use</p> <p>2.A - Mineral Industry</p> <p>2.A.1 - Cement production</p> <p>2.A.2 - Lime production</p> <p>2.A.3 - Glass Production</p> <p>2.A.4 - Other Process Uses of Carbonates</p> <p>2.A.4.a - Ceramics</p> <p>2.A.4.b - Other Uses of Soda Ash</p> <p>2.A.4.c - Non Metallurgical Magnesia Production</p> <p>2.A.4.d - Other (please specify)</p> <p>2.A.5 - Other (please specify)</p> <p>2.B - Chemical Industry</p> <p>2.B.1 - Ammonia Production</p> <p>2.B.2 - Nitric Acid Production</p> <p>2.B.3 - Adipic Acid Production</p> <p>2.B.4 - Caprolactam, Glyoxal and Glyoxylic Acid Production</p> <p>2.B.5 - Carbide Production</p> <p>2.B.6 - Titanium Dioxide Production</p> <p>2.B.7 - Soda Ash Production</p> <p>2.B.8 - Petrochemical and Carbon Black Production</p> <p>2.B.8.a - Methanol</p> <p>2.B.8.b - Ethylene</p> <p>2.B.8.c - Ethylene Dichloride and Vinyl Chloride Monomer</p> <p>2.B.8.d - Ethylene Oxide</p> <p>2.B.8.e - Acrylonitrile</p> <p>2.B.8.f - Carbon Black</p> <p>2.B.9 - Fluorochemical Production</p> <p>2.B.9.a - By-product emissions</p> <p>2.B.9.b - Fugitive Emissions</p> <p>2.B.10 - Other (Please specify)</p> <p>2.C - Metal Industry</p> <p>2.C.1 - Iron and Steel Production</p> <p>2.C.2 - Ferroalloys Production</p> <p>2.C.3 - Aluminium production</p> <p>2.C.4 - Magnesium production</p> <p>2.C.5 - Lead Production</p> <p>2.C.6 - Zinc Production</p> <p>2.C.7 - Other (please specify)</p>	<p>2.D - Non-Energy Products from Fuels and Solvent Use</p> <p>2.D.1 - Lubricant Use</p> <p>2.D.2 - Paraffin Wax Use</p> <p>2.D.3 - Solvent Use</p> <p>2.D.4 - Other (please specify)</p> <p>2.E - Electronics Industry</p> <p>2.E.1 - Integrated Circuit or Semiconductor</p> <p>2.E.2 - TFT Flat Panel Display</p> <p>2.E.3 - Photovoltaics</p> <p>2.E.4 - Heat Transfer Fluid</p> <p>2.E.5 - Other (please specify)</p> <p>2.F - Product Uses as Substitutes for Ozone Depleting Substances</p> <p>2.F.1 - Refrigeration and Air Conditioning</p> <p>2.F.1.a - Refrigeration and Stationary Air Conditioning</p> <p>2.F.1.b - Mobile Air Conditioning</p> <p>2.F.2 - Foam Blowing Agents</p> <p>2.F.3 - Fire Protection</p> <p>2.F.4 - Aerosols</p> <p>2.F.5 - Solvents</p> <p>2.F.6 - Other Applications (please specify)</p> <p>2.G - Other Product Manufacture and Use</p> <p>2.G.1 - Electrical Equipment</p> <p>2.G.1.a - Manufacture of Electrical Equipment</p> <p>2.G.1.b - Use of Electrical Equipment</p> <p>2.G.1.c - Disposal of Electrical Equipment</p> <p>2.G.2 - SF6 and PFCs from Other Product Uses</p> <p>2.G.2.a - Military Applications</p> <p>2.G.2.b - Accelerators</p> <p>2.G.2.c - Other (please specify)</p> <p>2.G.3 - N2O from Product Uses</p> <p>2.G.3.a - Medical Applications</p> <p>2.G.3.b - Propellant for pressure and aerosol products</p> <p>2.G.3.c - Other (Please specify)</p> <p>2.G.4 - Other (Please specify)</p> <p>2.H - Other</p> <p>2.H.1 - Pulp and Paper Industry</p> <p>2.H.2 - Food and Beverages Industry</p> <p>2.H.3 - Other (please specify)</p>

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3 - AGRICULTURE, FORESTRY, AND OTHER LAND USE	
<p>3 - Agriculture, Forestry, and Other Land Use</p> <p>3.A - Livestock</p> <p>3.A.1 - Enteric Fermentation</p> <p>3.A.1.a - Cattle</p> <p>3.A.1.a.i - Dairy Cows</p> <p>3.A.1.a.ii - Other Cattle</p> <p>3.A.1.b - Buffalo</p> <p>3.A.1.c - Sheep</p> <p>3.A.1.d - Goats</p> <p>3.A.1.e - Camels</p> <p>3.A.1.f - Horses</p> <p>3.A.1.g - Mules and Asses</p> <p>3.A.1.h - Swine</p> <p>3.A.1.j - Other (please specify)</p> <p>3.A.2 - Manure Management</p> <p>3.A.2.a - Cattle</p> <p>3.A.2.a.i - Dairy cows</p> <p>3.A.2.a.ii - Other cattle</p> <p>3.A.2.b - Buffalo</p> <p>3.A.2.c - Sheep</p> <p>3.A.2.d - Goats</p> <p>3.A.2.e - Camels</p> <p>3.A.2.f - Horses</p> <p>3.A.2.g - Mules and Asses</p> <p>3.A.2.h - Swine</p> <p>3.A.2.i - Poultry</p> <p>3.A.2.j - Other (please specify)</p> <p>3.B - Land</p> <p>3.B.1 - Forest land</p> <p>3.B.1.a - Forest land Remaining Forest land</p> <p>3.B.1.b - Land Converted to Forest land</p> <p>3.B.1.b.i - Cropland converted to Forest Land</p> <p>3.B.1.b.ii - Grassland converted to Forest Land</p> <p>3.B.1.b.iii - Wetlands converted to Forest Land</p> <p>3.B.1.b.iv - Settlements converted to Forest Land</p> <p>3.B.1.b.v - Other Land converted to Forest Land</p> <p>3.B.2 - Cropland</p> <p>3.B.2.a - Cropland Remaining Cropland</p> <p>3.B.2.b - Land Converted to Cropland</p> <p>3.B.2.b.i - Forest Land converted to Cropland</p> <p>3.B.2.b.ii - Grassland converted to Cropland</p> <p>3.B.2.b.iii - Wetlands converted to Cropland</p> <p>3.B.2.b.iv - Settlements converted to Cropland</p> <p>3.B.2.b.v - Other Land converted to Cropland</p>	<p>3.B.3 - Grassland</p> <p>3.B.3.a - Grassland Remaining Grassland</p> <p>3.B.3.b - Land Converted to Grassland</p> <p>3.B.3.b.i - Forest Land converted to Grassland</p> <p>3.B.3.b.ii - Cropland converted to Grassland</p> <p>3.B.3.b.iii - Wetlands converted to Grassland</p> <p>3.B.3.b.iv - Settlements converted to Grassland</p> <p>3.B.3.b.v - Other Land converted to Grassland</p> <p>3.B.4 - Wetlands</p> <p>3.B.4.a - Wetlands Remaining Wetlands</p> <p>3.B.4.a.i - Peatlands remaining peatlands</p> <p>3.B.4.a.ii - Flooded land remaining flooded land</p> <p>3.B.4.b - Land Converted to Wetlands</p> <p>3.B.4.b.i - Land converted for peat extraction</p> <p>3.B.4.b.ii - Land converted to flooded land</p> <p>3.B.4.b.iii - Land converted to other wetlands</p> <p>3.B.5 - Settlements</p> <p>3.B.5.a - Settlements Remaining Settlements</p> <p>3.B.5.b - Land Converted to Settlements</p> <p>3.B.5.b.i - Forest Land converted to Settlements</p> <p>3.B.5.b.ii - Cropland converted to Settlements</p> <p>3.B.5.b.iii - Grassland converted to Settlements</p> <p>3.B.5.b.iv - Wetlands converted to Settlements</p> <p>3.B.5.b.v - Other Land converted to Settlements</p> <p>3.B.6 - Other Land</p> <p>3.B.6.a - Other land Remaining Other land</p> <p>3.B.6.b - Land Converted to Other land</p> <p>3.B.6.b.i - Forest Land converted to Other Land</p> <p>3.B.6.b.ii - Cropland converted to Other Land</p> <p>3.B.6.b.iii - Grassland converted to Other Land</p> <p>3.B.6.b.iv - Wetlands converted to Other Land</p> <p>3.B.6.b.v - Settlements converted to Other Land</p> <p>3.C - Aggregate sources and non-CO2 emissions sources on land</p> <p>3.C.1 - Emissions from biomass burning</p> <p>3.C.1.a - Biomass burning in forest lands</p> <p>3.C.1.b - Biomass burning in croplands</p> <p>3.C.1.c - Biomass burning in grasslands</p> <p>3.C.1.d - Biomass burning in all other land</p> <p>3.C.2 - Liming</p> <p>3.C.3 - Urea application</p> <p>3.C.4 - Direct N2O Emissions from managed soils</p> <p>3.C.5 - Indirect N2O Emissions from managed soils</p> <p>3.C.6 - Indirect N2O Emissions from manure management</p> <p>3.C.7 - Rice cultivation</p> <p>3.C.8 - Other (please specify)</p> <p>3.D - Other</p> <p>3.D.1 - Harvested Wood Products</p> <p>3.D.2 - Other (please specify)</p>

4 - WASTE
<p>4 - Waste</p> <p>4.A - Solid Waste Disposal</p> <p>4.A.1 - Managed Waste Disposal Sites</p> <p>4.A.2 - Unmanaged Waste Disposal Sites</p> <p>4.A.3 - Uncategorised Waste Disposal Sites</p> <p>4.B - Biological Treatment of Solid Waste</p> <p>4.C - Incineration and Open Burning of Waste</p> <p>4.C.1 - Waste Incineration</p> <p>4.C.2 - Open Burning of Waste</p> <p>4.D - Wastewater Treatment and Discharge</p> <p>4.D.1 - Domestic Wastewater Treatment and Discharge</p> <p>4.D.2 - Industrial Wastewater Treatment and Discharge</p> <p>4.E - Other (please specify)</p>

C. APPENDIX C – Sector Lead

SECTOR LEAD				
ENERGY SECTOR	INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)	AGRICULTURE	LAND USE, LAND-USE CHANGE AND FORESTRY (LULUCF)	WASTE
<p>Rasyiqah Azimah binti Muhammad Nuraiziz Geologist Officer, Department of Energy, Prime Minister's Office</p> <p>Email: rasyiqah.nuraziz@energy.gov.bn</p>		<p>Awang Hirman bin Haji Abu Senior Agriculture Officer, Department of Agriculture and Agrifood, Ministry of Primary Resources and Tourism</p> <p>Email: Hirman.hjabu@agriculture.gov.bn</p>	<p>Pengiran Mohammad Iskandar bin Pengiran Aliudin Senior Forestry Officer, Forestry Department, Ministry of Primary Resources and Tourism</p> <p>Email: iskandar.aliudin@forestry.gov.bn</p>	<p>Pengiran Haryanti binti Pengiran Haji Petra Senior Environment Officer, Department of Environment, Parks and Recreation, Ministry of Development</p> <p>Email: haryanti.petra@env.gov.bn</p>
<p>Siti Nurul Asyiqin binti Abdul Khalid Special Duties Officer II, Department of Energy, Prime Minister's Office</p> <p>Email: syiqin.khalid@energy.gov.bn</p>		<p>Dayang Farah Ani binti Hj Gapor Special Duties Officer I, Department of Agriculture and Agrifood, Ministry of Primary Resources and Tourism</p> <p>Email: farah.gapor@agriculture.gov.bn</p>	<p>Miza Farzana binti Awang Abdul Ghani Forestry Officer, Forestry Department, Ministry of Primary Resources and Tourism</p> <p>Email: Miza.ghani@forestry.gov.bn</p>	<p>Mohammad Akmal Fikry bin Yusra Environment Officer, Department of Environment, Parks and Recreation, Ministry of Development</p> <p>Email: Akmal.Yusra@env.gov.bn</p>
			<p>Hajah Rahmalina Hidayah binti Haji Abdul Rahman Forestry Officer, Forestry Department, Ministry of Primary Resources and Tourism</p> <p>Email: rahmalina.Rahman@forestry.gov.bn</p>	
			<p>Abdul Faiz bin Abdul Rahim Forestry Officer, Forestry Department, Ministry of Primary Resources and Tourism</p> <p>Email: Faiz.Rahim@forestry.gov.bn</p>	

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Roles and Responsibilities

SECTOR LEAD ROLES AND RESPONSIBILITIES				
ENERGY SECTOR	INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)	AGRICULTURE	LAND USE, LAND-USE CHANGE AND FORESTRY (LULUCF)	WASTE
1. Submit a consolidated quarterly greenhouse gas emissions and/or removal report from all facilities for the respective sector to the Lead Coordinating Agency, within 6 weeks of the end of each quarter;				
2. Submit a consolidated annual greenhouse gas emissions and/or removal report from all facilities for the respective sector to the Lead Coordinating Agency, no later than the 7th of May of the following year.				
3. Manage, oversee and coordinate the development of greenhouse gas emissions estimates from all categories in the sector				
<ul style="list-style-type: none"> i. Determine activity data, emission factors and the most appropriate IPCC methodology to be used to estimate greenhouse gas for each category in accordance with decision trees; ii. Coordinate with the Industrial Processes Sector Lead to determine if there will need to be any adjustments made for Energy fossil fuel combustion activity data; iii. Coordinate with the Waste Sector Lead to determine the amount of waste incinerated used for electricity generation; iv. Calculate and prepare greenhouse gas emissions estimates for the Energy sector for the development of Brunei Darussalam's national greenhouse gas inventories report; 	<ul style="list-style-type: none"> i. Determine activity data, emission factors and the most appropriate IPCC methodology to be used to estimate greenhouse gas for each category in accordance with decision trees; ii. Coordinate with the Energy Sector Lead to determine if there will need to be any adjustments made to either sector in cases where greenhouse gas estimates might overlap (e.g., iron and steel production, ammonia, etc.); iii. Calculate and prepare greenhouse gas emissions estimates for the IPPU sector for the development of Brunei Darussalam's national greenhouse gas inventories report; 	<ul style="list-style-type: none"> i. Identify the types of agricultural practices in the country that are relevant to estimates greenhouse gas emissions; ii. Determine activity data, parameters, emission factors and the most appropriate IPCC methodology to be used to estimate greenhouse gas for each category in accordance with decision trees; iii. Coordinate with Land-Use, Land-Use Change and Forestry (LULUCF) Sector Lead to determine emission calculations and activity data adjustments for complex categories such as Agricultural Soil Management and Manure Management; iv. Establish institutional arrangements for collecting activity data; v. Coordinate with other government ministries and non-governmental organisation on the existence of satellite imagery data for categories such as Agriculture Residue Burning; vi. Calculate and prepare greenhouse gas emissions estimates for the Agriculture sector for the development of Brunei Darussalam's national greenhouse gas inventories report; 	<ul style="list-style-type: none"> i. Identify which LULUCF categories are key categories in terms of their contribution to national emissions and removals; ii. Determine the methodologies to be used to estimate greenhouse gas emissions and/or sequestration for soils and other carbon pools; iii. Develop a complete and consistent representation of the land base to establish a clear definition of land use types (i.e., forest land, wetlands, croplands, grasslands, settlements, other) and conversion of lands between these land use types; iv. Determine the most appropriate IPCC methodology to be used to estimate greenhouse gas for each category in accordance with decision trees; v. Coordinate with Agriculture Sector lead to determine emission calculations and activity data adjustments for complex categories such as Agricultural Soil Management and Manure Management; vi. Establish institutional arrangements for collecting activity data; vii. Coordinate with other government ministries and non-governmental organisation on the existence of satellite imagery data for categories such as Agriculture Residue Burning; viii. Calculate and prepare greenhouse gas emissions estimates for the LULUCF sector for the development of Brunei Darussalam's national greenhouse gas inventories report; 	<ul style="list-style-type: none"> i. Determine activity data, emission factors and the most appropriate IPCC methodology to be used to estimate greenhouse gas for each category in accordance with decision trees; ii. Coordinate with the Energy Sector Lead to determine whether there is energy generated from waste incineration, and if so, whether that will be included in the Energy sector; iii. Calculate and prepare greenhouse gas emissions estimates for the Waste sector for the development of Brunei Darussalam's national greenhouse gas inventories report;

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SECTOR LEAD ROLES AND RESPONSIBILITIES				
ENERGY SECTOR	INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)	AGRICULTURE	LAND USE, LAND-USE CHANGE AND FORESTRY (LULUCF)	WASTE
4. Conduct both the sectoral and reference approaches to calculating greenhouse gas emissions from fossil fuel combustion in the Energy sector and compare the two results;	-	-	-	-
5. Perform Quality Assurance/Quality Control (QA/QC) and coordinate the response to feedbacks received from an external QA reviews of the sector greenhouse gas estimates and update the inventory if necessary;				
6. Oversee the development of the uncertainty analysis for the sector;				
7. Identify any potential improvements needed in the previous inventory and for subsequent inventories, related to activity data, emission factors and methodologies for developing the estimates in the sector: <ol style="list-style-type: none"> i. Assess whether to implement improvements based on the contribution to overall national emissions from Key Category Analysis; ii. Develop an improvement plans for the sector for the National Inventory Improvement Plan; 				
8. Prepare documentation for data and methods incorporating the following: <ol style="list-style-type: none"> i. All data collection arrangements of primary activity data and emission factors; including the sources of references and the use of expert judgements; ii. Methodologies selected for each calculation; 				
9. Build technical capacity of experts: <ol style="list-style-type: none"> i. Identify capacity gaps and needs to ensure common understanding of data needs and communications; ii. Enhancing the technical capacity of personnel or experts from the Government ministries, non-governmental organisations, and research institutions for reporting of greenhouse gas estimates for sector through training; 				
10. Formalise the procedures for data collection and calculation of greenhouse gas emissions estimates for the sector.				
11. Identify a funnel of technical experts who can ultimately take over these roles in the future.				

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D. APPENDIX D – Timeline for the first preliminary submission

	2023												2024		
	Q1			Q2			Q3			Q4			Q1		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Quarterly				◇ Q1 2023 Report 30 Apr 2023			◇ Q2 2023 Report 30 Jul 2023				◇ Q3 2023 Report 29 Oct 2023				◇ Q4 2023 Report 28 Jan 2024
Annual				◇ 2022 Annual Report 30 Apr 2023											

Issued on: 19 April 2023