



**BNERI**  
BRUNEI NATIONAL ENERGY RESEARCH INSTITUTE

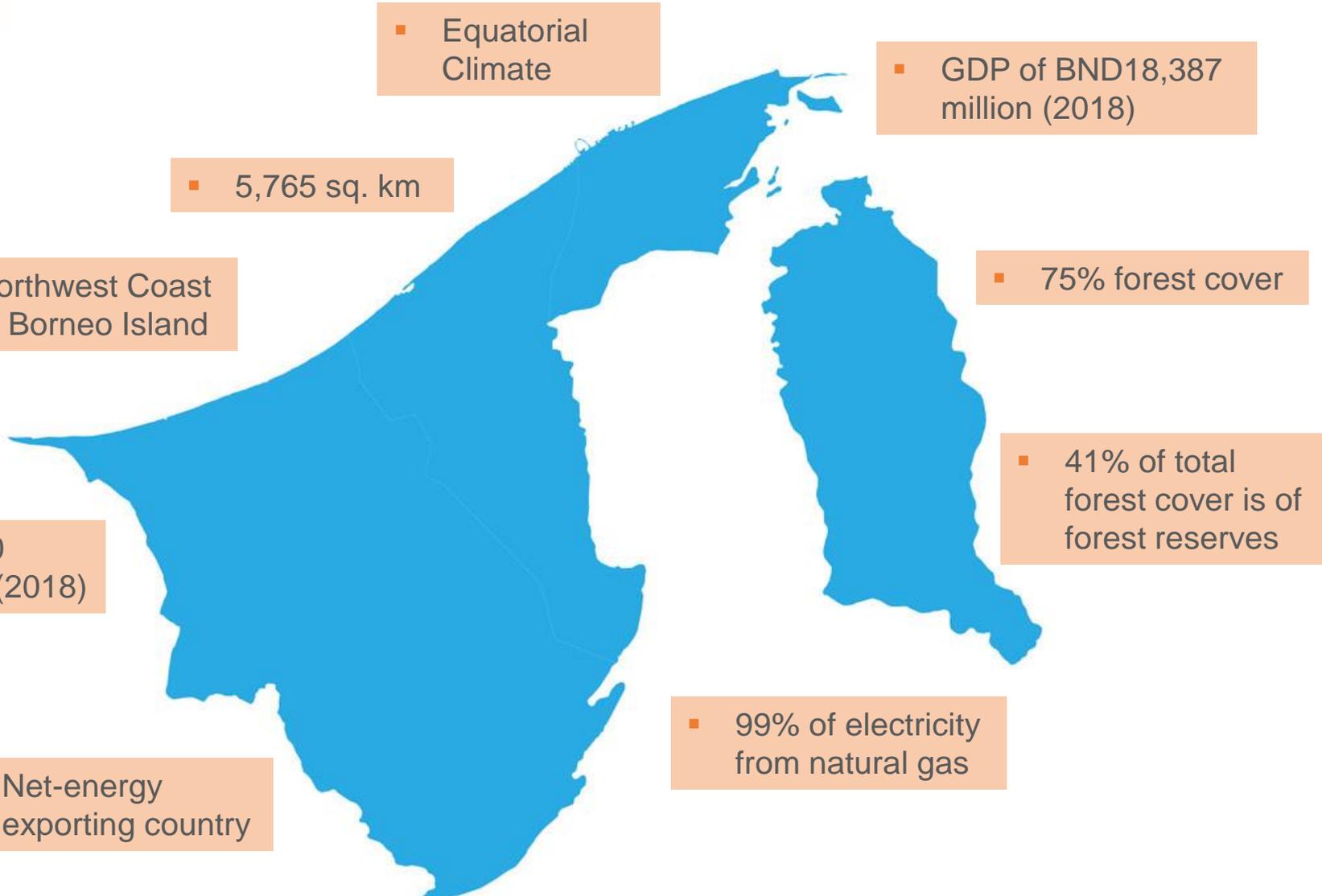
# Brunei Darussalam Second National Communications

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**The 17<sup>th</sup> Workshop on Greenhouse Gas Inventories in Asia (WGIA17)  
30<sup>th</sup> – 2 August 2019  
Singapore**



# Profile of Brunei Darussalam





## Impacts of Climate Change in Brunei

Impact	
<b>Flooding, landslides and strong winds</b>	<ul style="list-style-type: none"><li>115 flooding cases in Tutong District in January 2014</li><li>154 landslide cases in January 2014</li><li>Tail effects of Typhoon Chan-hom in July 2015</li></ul>
<b>Loss of forestry and biodiversity</b>	<ul style="list-style-type: none"><li>Increased frequency of forest and bush fires due to reduced precipitation</li></ul>
<b>Loss of agricultural and fisheries production</b>	<ul style="list-style-type: none"><li>Increased temperature paired with decreased amount of rain from February to April affected crops yield while the heavy rainfall damaged crops</li></ul>
<b>Public health impact from the resurgence of diseases</b>	<ul style="list-style-type: none"><li>317 dengue cases in 2015 reported in the country</li></ul>



# Methodology

- 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Sector	Method	Data Source	
		Activity Data	Emission Factor
Energy	Tier 1	From MEMI	IPCC default values
IPPU	Tier 1	From MEMI	IPCC default values
Agriculture and Land Use	Tier 1	From DAA, MPRT	IPCC default values
Forestry	Tier 1	From FD, MPRT	IPCC default values
Waste	Tier 1	From DEPR, MOD	IPCC default values



# GHG Emissions in 2014

## Energy



▲ 10.98 million tonnes CO<sub>2</sub>e

## IPPU



▲ 0.029 million tonnes CO<sub>2</sub>e



## Agriculture & Land Use

▲ 0.026 million tonnes CO<sub>2</sub>e

▲ **8.35 million tonnes CO<sub>2</sub>e**

## Waste



▲ 0.152 million tonnes CO<sub>2</sub>e

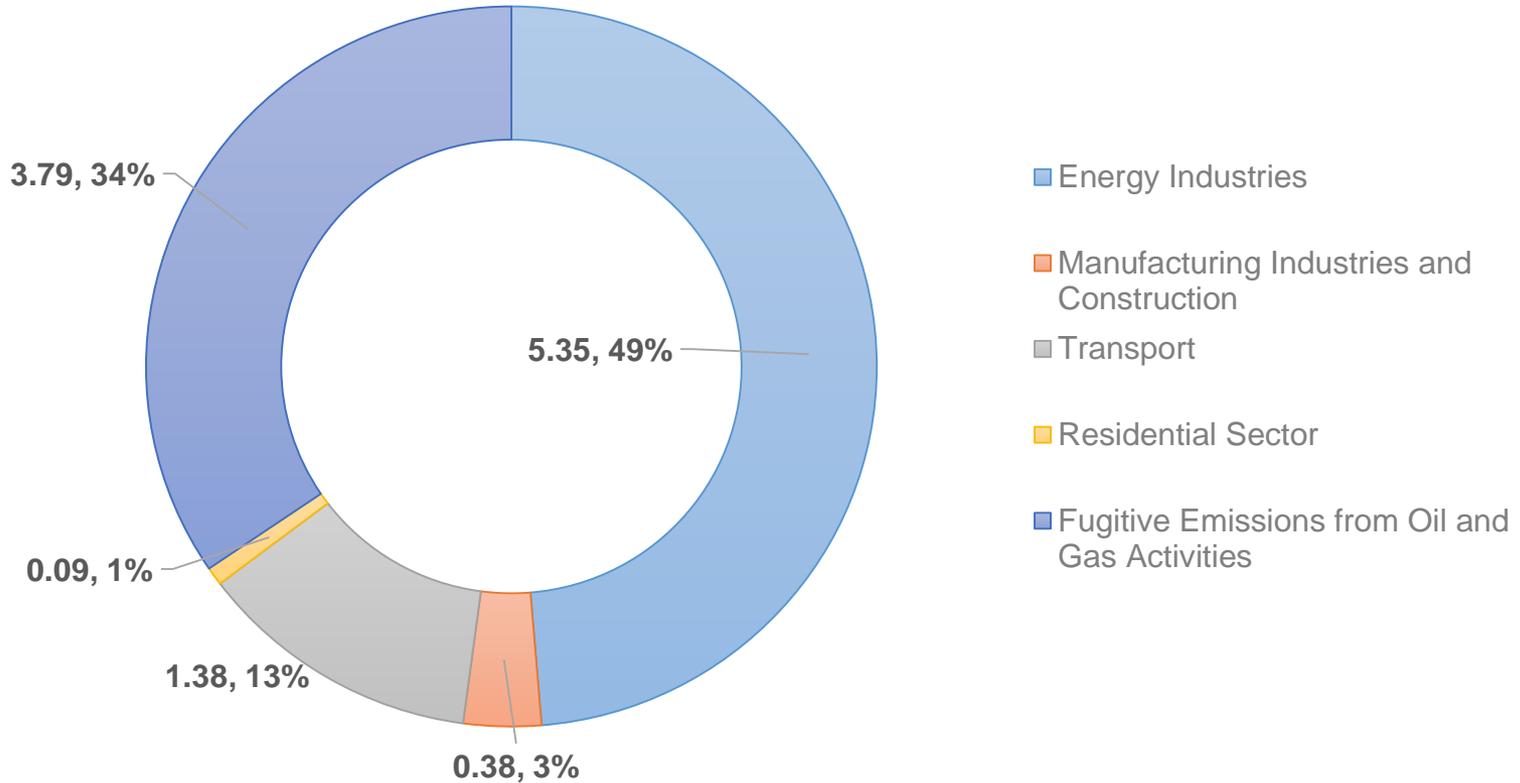


## Forestry

▼ -2.84 million tonnes CO<sub>2</sub>e

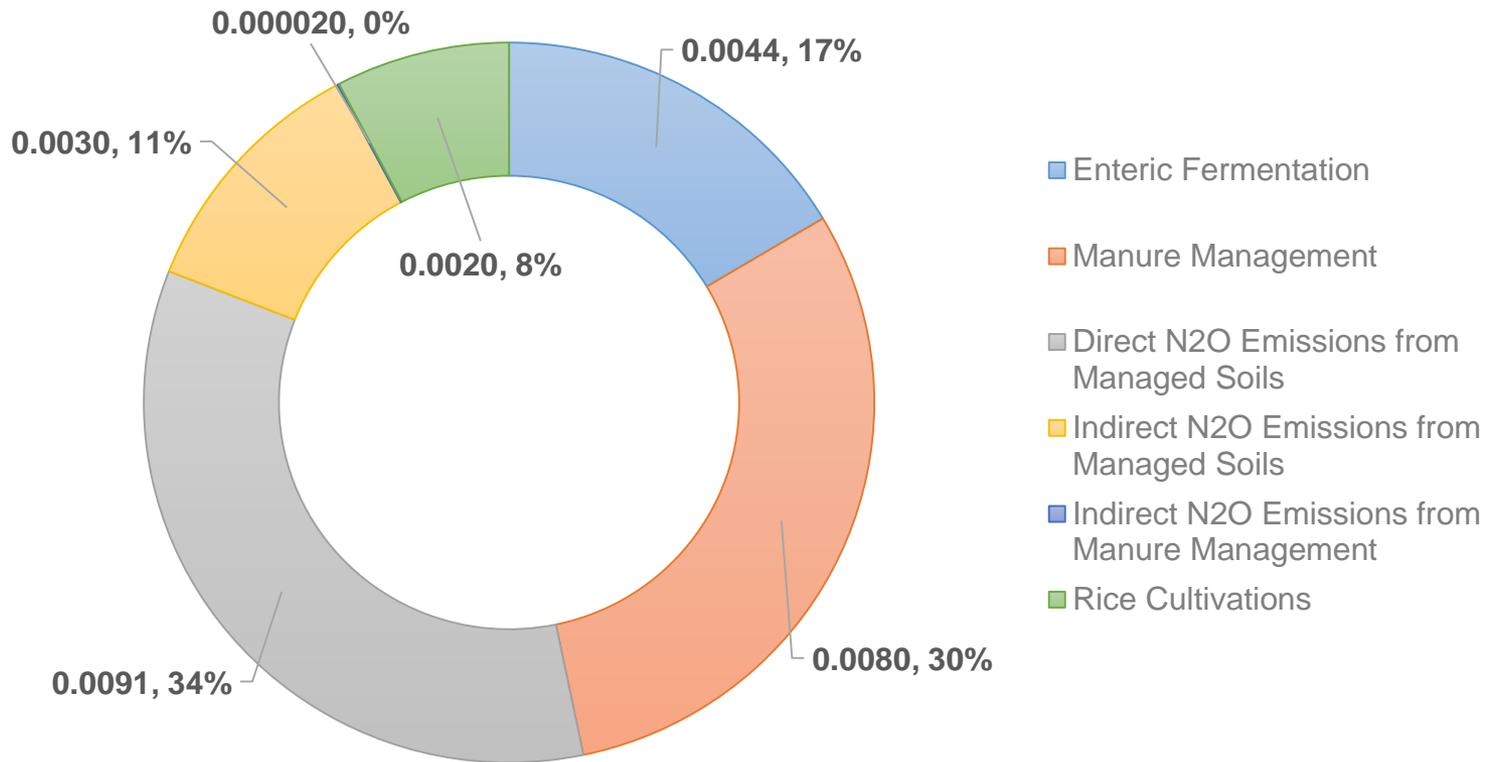


# Energy Sector's GHG Emissions



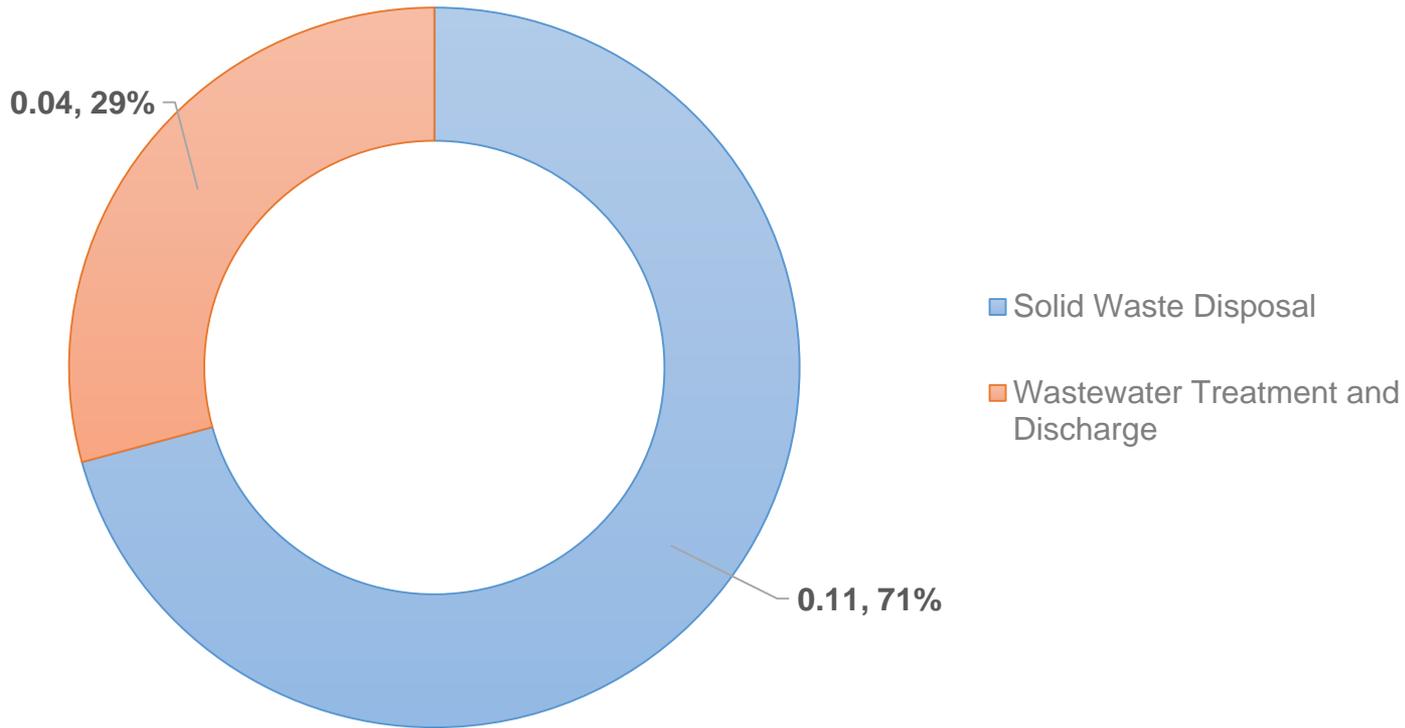


# Agriculture and Land Use's GHG Emissions





# Waste's GHG Emissions





# Mitigation Measures

Sector	Measure
Energy	<ul style="list-style-type: none"><li>▪ 45% reduction in energy intensity through energy efficiency and conservation (EEC) initiatives in<ul style="list-style-type: none"><li>✓ Energy Management;</li><li>✓ EEC Building Guidelines for Non-Residential Buildings;</li><li>✓ EEC Standards and Labelling Order;</li><li>✓ Electricity Tariff Reform.</li><li>✓ Fuel Economy Regulation</li></ul></li><li>▪ 10% share of renewable energy generation by 2035</li></ul>
Agriculture and Land Use	<ul style="list-style-type: none"><li>▪ Recycling of paddy straw into the soil</li><li>▪ Good Agriculture Practice</li><li>▪ Alternate wetting and drying water regime</li><li>▪ Developing drought-tolerant rice varieties</li></ul>
Waste	<ul style="list-style-type: none"><li>▪ Reduction of waste per capita</li><li>▪ 15% recycling rate by 2020</li><li>▪ Proper landfill management</li><li>▪ Development of Waste-to-Energy facility</li></ul>
Forestry	<ul style="list-style-type: none"><li>▪ No-Logging Policy and Sustainable Harvesting</li></ul>



# Adaptation Measures

Measure	Measure
<b>Strategic National Action Plan for Disaster Risk Reduction 2012-2025 (SNAP)</b>	<ul style="list-style-type: none"> <li>▪ Investment in disaster preparedness, mitigation and response</li> </ul>
<b>Coastal and Flood Protection</b>	<ul style="list-style-type: none"> <li>▪ Structural measures (flood walls, drains and outlets upgrade, canalisation and retention of ponds, sea walls construction</li> <li>▪ Non-structural measures(land-use planning, flood forecasting and early warning system, capacity building, public awareness)</li> </ul>
<b>Safeguarding Forestry and Biodiversity</b>	<ul style="list-style-type: none"> <li>▪ The Heart of Borneo (HoB) Initiative</li> <li>▪ Ratification of the Convention of Biological Diversity of the United Nations</li> <li>▪ Restrictions and reduced scale on logging activities –100,000 m3 of timber logging per year</li> <li>▪ Aerial monitoring and forest patrols</li> </ul>
<b>Protecting Water Resources</b>	<ul style="list-style-type: none"> <li>▪ Development of Ulu Tutong and Ulu Belait Dams with storage capacity of 100 million cubic metres;</li> <li>▪ Construction of 2 barrages at main river source to prevent saline intrusion and regulate river flow during long drought;</li> <li>▪ Floodplains restoration that act as sponges and send water down into groundwater supplies and filter pollution out of rivers</li> </ul>



## Adaptation Measures (Cont'd)

Measure	Measure
<b>Managing Food Security</b>	<ul style="list-style-type: none"><li>▪ Boosting local rice production and improving field productivity through modern high-yielding varieties (Laila and Titih)</li><li>▪ Adequate supply of poultry and eggs, as well as fish and seafood</li></ul>
<b>Strengthening Resilience in Public Health</b>	<ul style="list-style-type: none"><li>▪ Implementing vector borne diseases control plans and programs</li><li>▪ Application of integrated vector management (IVM)</li><li>▪ Combatting vector-borne diseases through Malaria Vigilance Program, Entomology Program, and Vector Control Programme</li></ul>