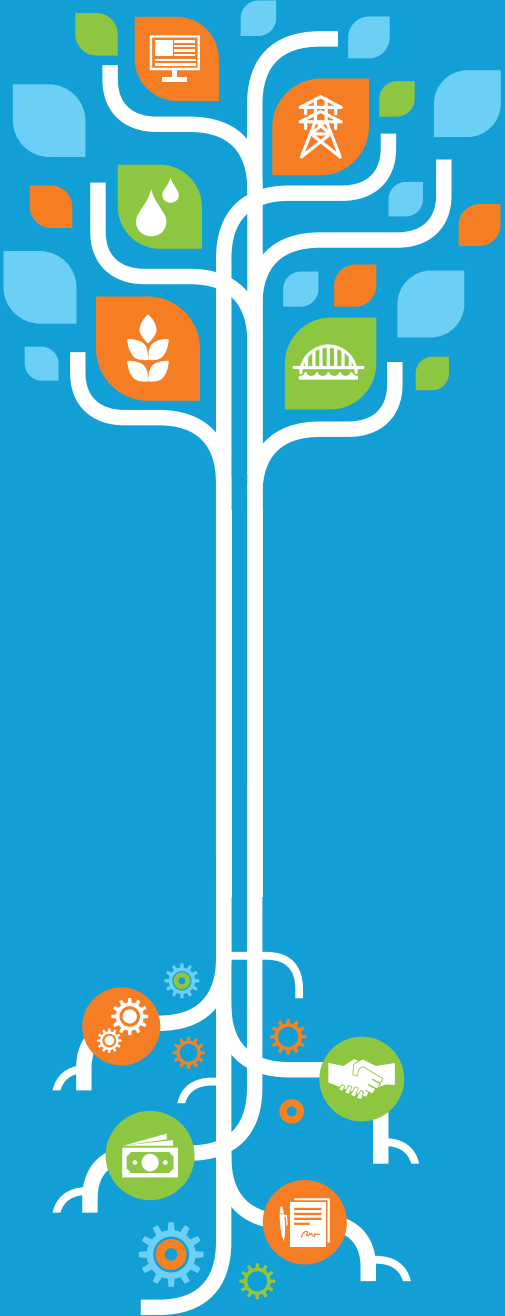


*The views expressed in this presentation are the views of the author/s and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this presentation and accepts no responsibility for any consequence of their use. The countries listed in this presentation do not imply any view on ADB's part as to sovereignty or independent status or necessarily conform to ADB's terminology.*



# Virtual Business Opportunities Seminar Series 2021: Climate Change, Disaster Risk Management and Procurement

7 October 2021

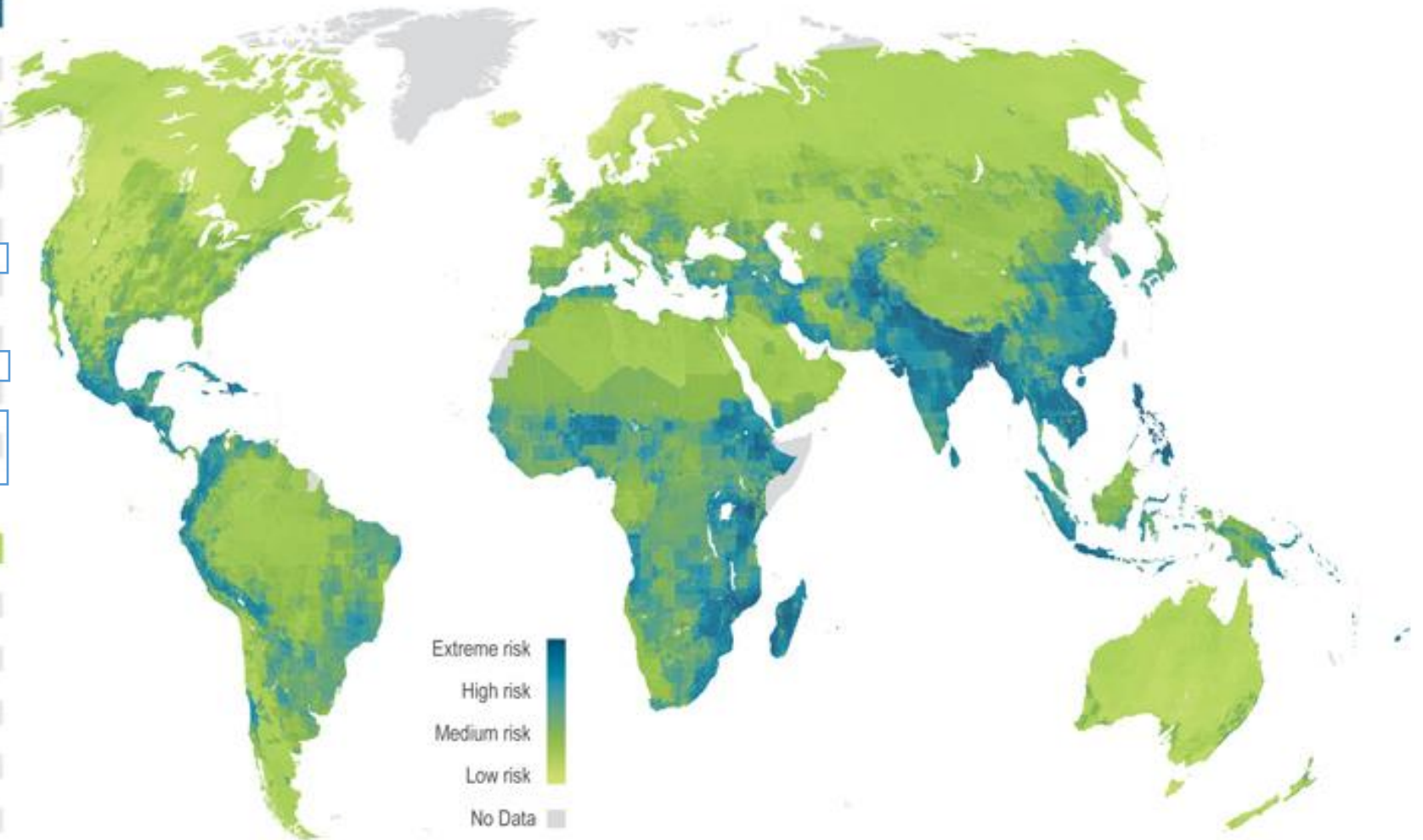
Srinivasan Ancha  
Principal Climate Change Specialist  
SERD/SEER

BUSINESS  
OPPORTUNITIES 

# Asia Tops the list of “Most Vulnerable to Climate Change”

Rank	Country	Category
1	Bangladesh	Extreme
2	India	Extreme
3	Madagascar	Extreme
4	Nepal	Extreme
5	Mozambique	Extreme
6	Philippines	Extreme
7	Haiti	Extreme
8	Afghanistan	Extreme
9	Zimbabwe	Extreme
10	Myanmar	Extreme
11	Ethiopia	Extreme
12	Cambodia	Extreme
13	Viet Nam	Extreme
14	Thailand	Extreme
14	Malawi	Extreme
16	Pakistan	Extreme

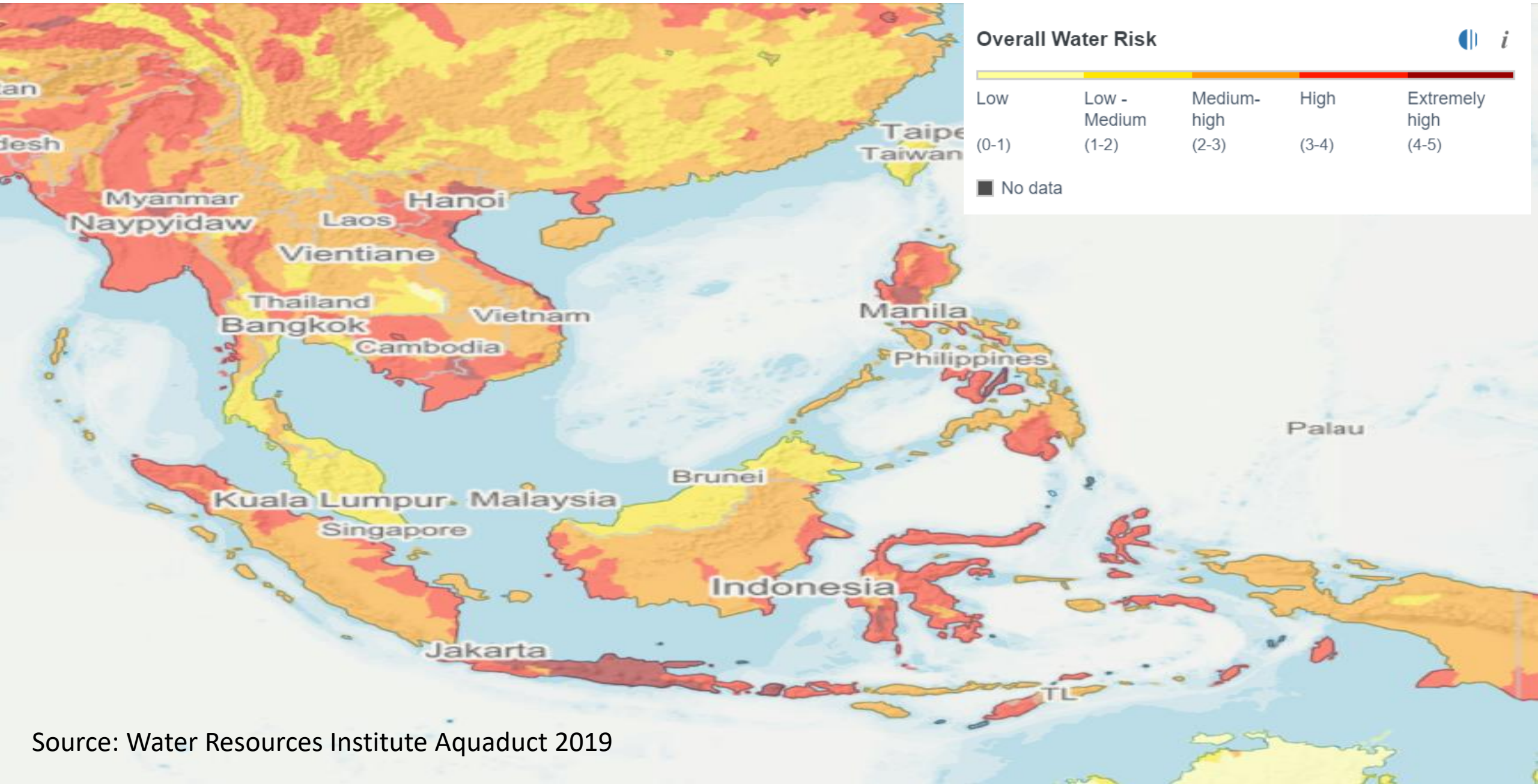
Rank	Country	Category
160	Netherlands	Low
161	Latvia	Low
162	Lithuania	Low
163	Qatar	Low
164	Estonia	Low
165	Denmark	Low
166	Sweden	Low
167	Ireland	Low
168	Iceland	Low
169	Finland	Low
170	Norway	Low



Source: New Scientist

<http://www.newscientist.com/article/mg20827832.400-asia-tops-climate-changes-most-vulnerable-list.html>

# Southeast Asia - Overall Water Risk



Source: Water Resources Institute Aquaduct 2019



# GHG Emissions in Southeast Asia

## SOUTHEAST ASIA AND THE ECONOMICS OF GLOBAL CLIMATE STABILIZATION

From 1990 to 2010, carbon dioxide (CO<sub>2</sub>) emissions in Southeast Asia have grown more rapidly than in any other region in the world, making larger economic losses from climate change more likely.

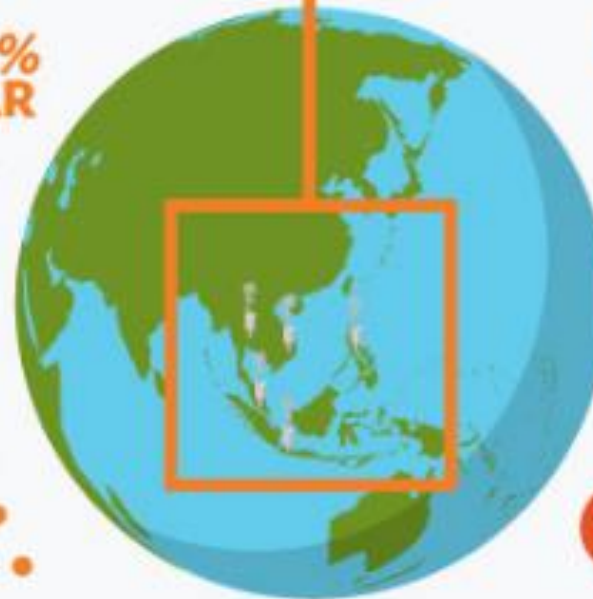
### FASTEST GROWTH IN CO<sub>2</sub> EMISSIONS IN THE WORLD

Increase in  
CO<sub>2</sub> emissions  
from 1990 to 2010

**NEARLY 5%  
EVERY YEAR**

**90% OF REGIONAL  
GREENHOUSE GAS (GHG)  
EMISSIONS COME FROM**

- Indonesia ●
- Malaysia ●
- Philippines ●
- Thailand ●
- Viet Nam ●



**DEFORESTATION  
AND LAND USE**  
account for a majority  
of emissions



**LOW IMPROVEMENTS  
IN ENERGY INTENSITY  
AND INCREASING  
RELIANCE ON  
FOSSIL FUELS**

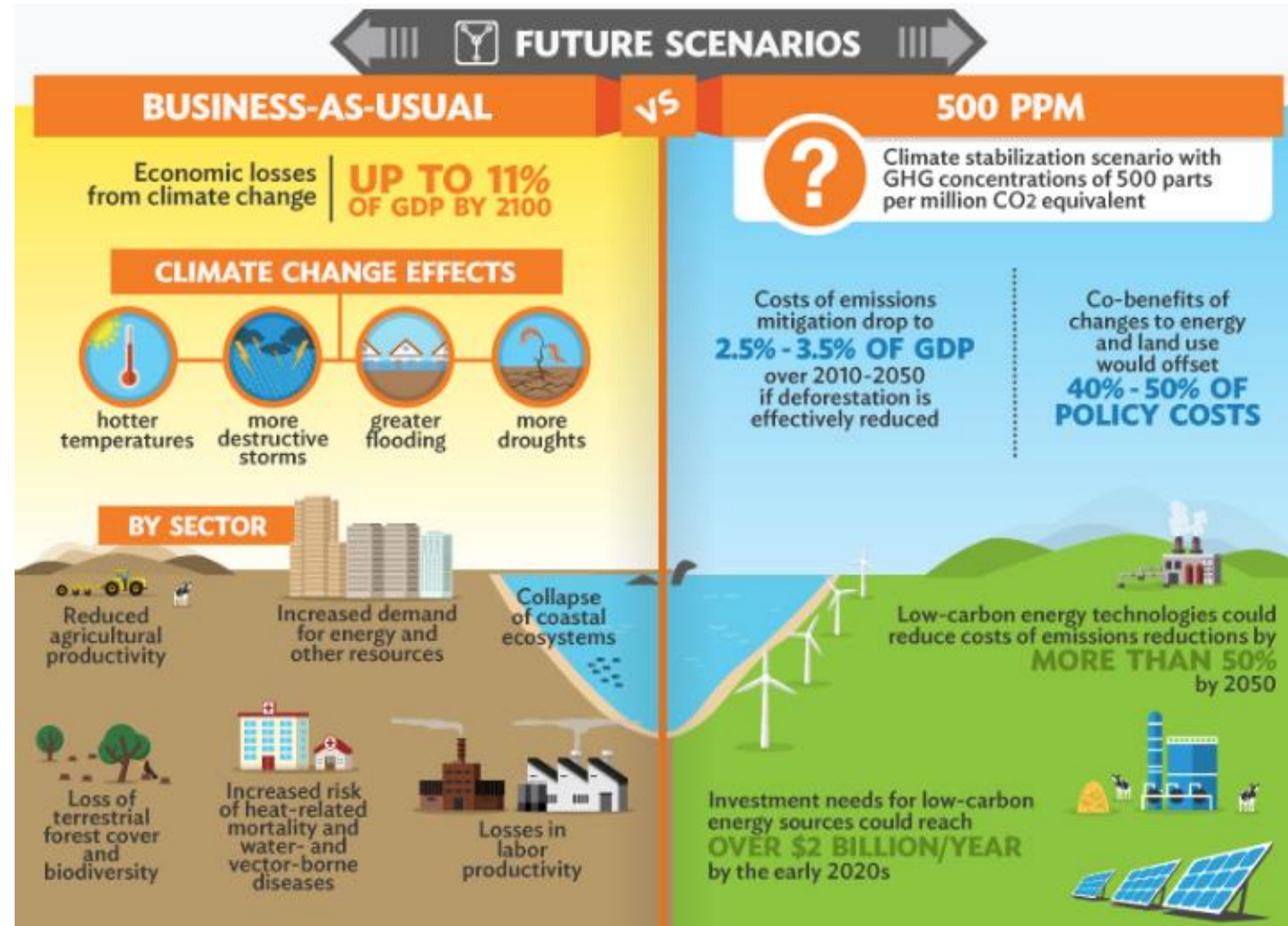
are causing energy emissions  
to escalate



# Climate change in Southeast Asia – Future scenarios

## GHG Mitigation Measures

- Reduce land-use emissions
- Avoid deforestation (lowest cost major mitigation opportunity)
- Transform energy systems to increase energy efficiency
- Replace carbon-intensive fuels with cleaner alternatives



# NDCs of Southeast Asian Countries

Country	Nationally Determined Contributions (NDC) on Climate Change
Brunei	Greenhouse gas (GHG) reduction target: 20% by 2030
Cambodia	GHG reduction target: 41.7% (of which 59.1% is from forestry and land use) by 2030 (~64.6 MtCO <sub>2</sub> e)
Indonesia	Reduce by 29% compared to business-as-usual (BAU) scenario by 2030 (41% by 2030 with international support); Peaking of emissions from Forestry sector by 2030; Enhanced ambition on adaptation; Long-term strategy on Low carbon and Climate Resilience 2050 (LTS-LCCR 2050)
Lao PDR	GHG reduction target: 60% compared to BAU by 2030 (~62 MtCO <sub>2</sub> e); Financing need: \$4.7 billion
Malaysia	Reduce GHG emissions intensity of GDP by 45% by 2030 relative to that in 2005 (unconditional)
Myanmar	GHG emissions reduction of 244 MtCO <sub>2</sub> e (unconditional) and 413 MtCO <sub>2</sub> e (conditional) by 2030
Philippines	GHG emissions reduction of about 75% by 2030 relative to BAU scenario
Singapore	Peak emissions by 2030 (65 MtCO <sub>2</sub> e) & reduce emissions intensity (CO <sub>2</sub> emissions per unit of GDP) by 36% from 2005 levels.
Thailand	Reduce GHG emissions by 20% from the projected BAU level by 2030 (25% conditional)
Viet Nam	Reduce GHG by 9% by 2030 compared to the BAU scenario (27% conditional).



# ADB Response

- **Upstream Support:**
  - ❖ Support for NDC, NAP, LTS, etc.
  - ❖ Green finance; Low carbon and resilient technologies;
  - ❖ Mainstreaming climate resilience into development planning
  - ❖ Enabling CC policies and regulations
- **Climate Change Mitigation:**
  - ❖ Clean Energy – Energy Efficiency; Renewable energy
  - ❖ Low carbon transport systems
  - ❖ Climate smart urban sanitation, flood control, tourism infrastructure
  - ❖ Climate smart agriculture, sustainable forest management, agroforestry, biogas
- **Climate Change Adaptation:**
  - ❖ Agricultural value chains, forestry and fisheries
  - ❖ Climate resilient water management
  - ❖ Urban resilience – ASEAN Smart Cities Initiative
  - ❖ Health Resilience
- **Prospective Areas**
  - ❖ Paris Alignment; Carbon markets; Green Finance;
  - ❖ Type II adaptation projects; Disaster Risk Finance;
  - ❖ COVID-19 recovery (Nature-based solutions); Climate-smart Landscapes
  - ❖ Blue Carbon Economy ; Ocean Health;

# Selected Investment Business Opportunities (2021-2024)

Sector	Title	Year(s) of approval	Remarks
Agriculture and Natural Resources (18 projects)	• VIE: <b>Climate Resilient Inclusive Infrastructure</b> for Ethnic Minorities Project	2021	
	• VIE: <b>Climate Adaptation Through Irrigation Modernization</b> Sector Project	2022	
	• VIE: <b>Integrated Flood Risk Management</b> Project	2023	
	• VIE: <b>Climate Resilient and Green Infrastructure</b> Project	2024	
	• VIE: <b>Climate Smart Agriculture Value Chain</b> Infrastructure Dev Project	2024	
	• VIE: <b>Restoration and Sustainable Management of the Coastal Forests</b> in the Mekong Delta	2024	
	• VIE: <b>Disaster Recovery and Resilience in the Central Region</b>	2024	
	• CAM/LAO/MYA: <b>GMS Cross-Border Livestock Health and Value Chains Improvement</b> Project	2022/ 2023	
	• CAM: <b>Sustainable Coastal and Marine Fisheries</b> Project	2022	
	• CAM: <b>Strengthening NRM and Disaster Resilience</b> Project	2023	
	• INO: <b>Horticulture Development in Dryland Areas</b> Project	2022	
	• INO: <b>Infrastructure Improvement for Shrimp Aquaculture</b> Project	2022	
	• INO: <b>Flood Management and Coastal Protection in North Java</b> Project	2023	
	• LAO: <b>Flood and Drought Mitigation and Management</b> Project	2023	
	• PHI: <b>Integrated Flood Risk Management</b> Project	2022 & 2024	
	• PHI: <b>Mindanao Irrigation Development</b> Project	2022 & 2024	
	• PHI: <b>Mindanao Agro-Enterprise Development</b> Project	2023	
• TIM: <b>Agriculture Improvement and Water Harvesting</b> Project	2023		



# Selected Investment Business Opportunities (2021-2024)

Sector	Title	Year(s) of approval
Energy	<ul style="list-style-type: none"> <li>• INO: Sustainable and Inclusive Energy Program</li> <li>• INO: Sustainable and Reliable Energy Access Program</li> <li>• INO: SDG Indonesia One— Green Financing Facility</li> <li>• INO: Sustainable Energy Transition – DAMRI E-bus Project</li> <li>• INO: Sustainable Energy Access in Eastern Indonesia: Power Generation Sector Project</li> <li>• INO: Clean and Efficient Energy Reform for Energy Equity and Security</li> <li>• INO: Geothermal Power Expansion Project</li> <li>• CAM: Energy Efficiency Sector Development Program (SDP-Project)</li> <li>• CAM: Energy Storage for Utility-Scale Solar Plants</li> <li>• THA: Green and Sustainability Bonds</li> <li>• THA: Thailand Green Finance and Innovation Facility for Investment Projects</li> <li>• VIE: Smart and Energy Efficient City Project (SEECP) Phase I – Da Nang, Can Tho, and Hai Phong</li> </ul>	<p>2021</p> <p>2021 &amp; 2023</p> <p>2022</p> <p>2022</p> <p>2022</p> <p>2023</p> <p>2024</p> <p>2021</p> <p>2023</p> <p>2022</p> <p>2022</p> <p>2022</p>

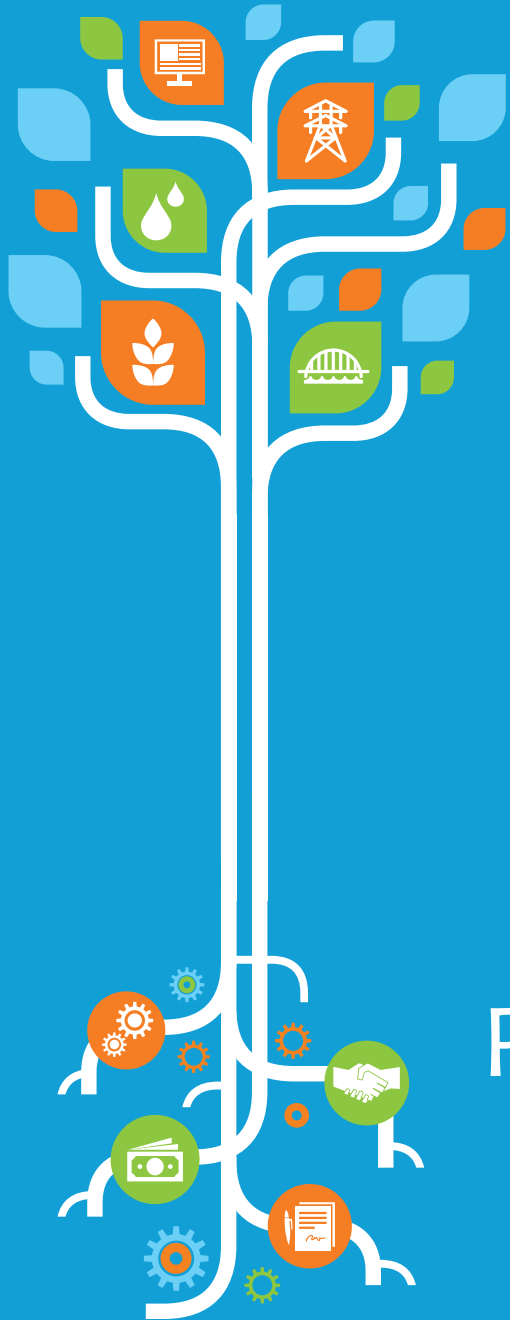
# Selected Investment Business Opportunities (2021-2024)

Sector	Title	Year(s) of approval
Urban & Water; & PFM	<ul style="list-style-type: none"> <li>• CAM: Livable Cities Investment Project</li> <li>• CAM: Rural Water Supply, Sanitation and Hygiene Improvement Project</li> <li>• INO: Citywide Inclusive Sanitation Project</li> <li>• INO: Livable Settlements Investment Program</li> <li>• LAO: Urban Environment Improvement Project</li> <li>• PHI: Baguio <b>Resilient City Tourism</b> Project</li> <li>• TIM: Water Supply and Sanitation Investment Project</li> <li>• VIE: Ho Chi Minh City <b>Climate Resilient Urban Services</b> Project</li> <li>• VIE: Tay Ninh Infrastructure Development and Climate Change Adaptation Project</li> <li>• VIE: Quang Nam Climate Resilient Urban Services Project</li> <li>• VIE: Contingent <b>Disaster Finance Facility</b></li> <li>• <b>VIE: Second Disaster Resilience Improvement</b> Program</li> </ul>	<ul style="list-style-type: none"> <li>2021</li> <li>2023</li> <li>2022</li> <li>2024</li> <li>2023</li> <li>2023</li> <li>2022 &amp; 2024</li> <li>2022 &amp; 2023</li> <li>2023</li> <li>2024</li> <li>2024</li> <li>2024</li> </ul>
Transport	<ul style="list-style-type: none"> <li>• CAM: Climate Resilient Rural Roads Network Improvement Project</li> <li>• INO: National Roads Development Project (Kalimantan)</li> <li>• INO: Jakarta Mass Rapid Transit East-West Line</li> <li>• PHI: Davao Public Transport Modernization Project</li> <li>• PHI: Malolos-Clark Railway Project</li> <li>• VIE: Ho Chi Minh City Urban Mass Rapid Transit Line 2</li> <li>• VIE: Sustainable Urban Transport for HCMC MRT Line 2 Project</li> </ul>	<ul style="list-style-type: none"> <li>2024</li> <li>2023</li> <li>2023</li> <li>2021</li> <li>2023 &amp; 2024</li> <li>2022</li> <li>2022</li> </ul>

# Selected TA Business Opportunities

Title	Year(s) of approval
• GMS: Climate Change and Environmental Sustainability Program (AF)	2021
• GMS: Sustainable Agriculture and Food Security Program (AF)	2020
• INO: Capacity Development for Sustainable and Reliable Energy Access	2021
• INO: SIAP II - Supporting Sustainable and Efficient Energy Policies and Investments	2021
• ASEAN: Opportunities to Accelerate Coal to Clean Power Transition in Selected Southeast Asian Developing Member Countries	2021
• ASEAN: Accelerating the Clean Energy Transition in Southeast Asia	2021 & 2023
• LAO: Sustainable Rural Infrastructure and Watershed Management Sector Facility	2021
• MAL: Developing Green City Action Plans to Accelerate Post-COVID-19 Competitiveness and Resilience (reimbursable)	2022
• ASEAN: Southeast Asia Facility for Resilient Cities	2021
• VIE: Unlocking Potential for Climate Change and Disaster Resilient Multisector Provincial Projects	2021
• VIE: Policy framework on Disaster risk response	2022
• ASEAN: Green and Innovative Finance Initiative for Scaling Up Southeast Asian Infrastructure	2023
• ASEAN: Climate Adaptative Water Security Enhancement in Southeast Asia	2024
• VIE: Provincial Green Infrastructure	2024





# THANK YOU!

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