

Climate change – Rising temperatures, causes, and consequences

San Putthy, Climate Change Advisor, ISPHII

27 October 2026

Session Objective

1. To deepen participants' understanding of climate change, rising temperature, global policy frameworks, and local climate impacts.
2. To equip participants with practical action strategies for local implementation.



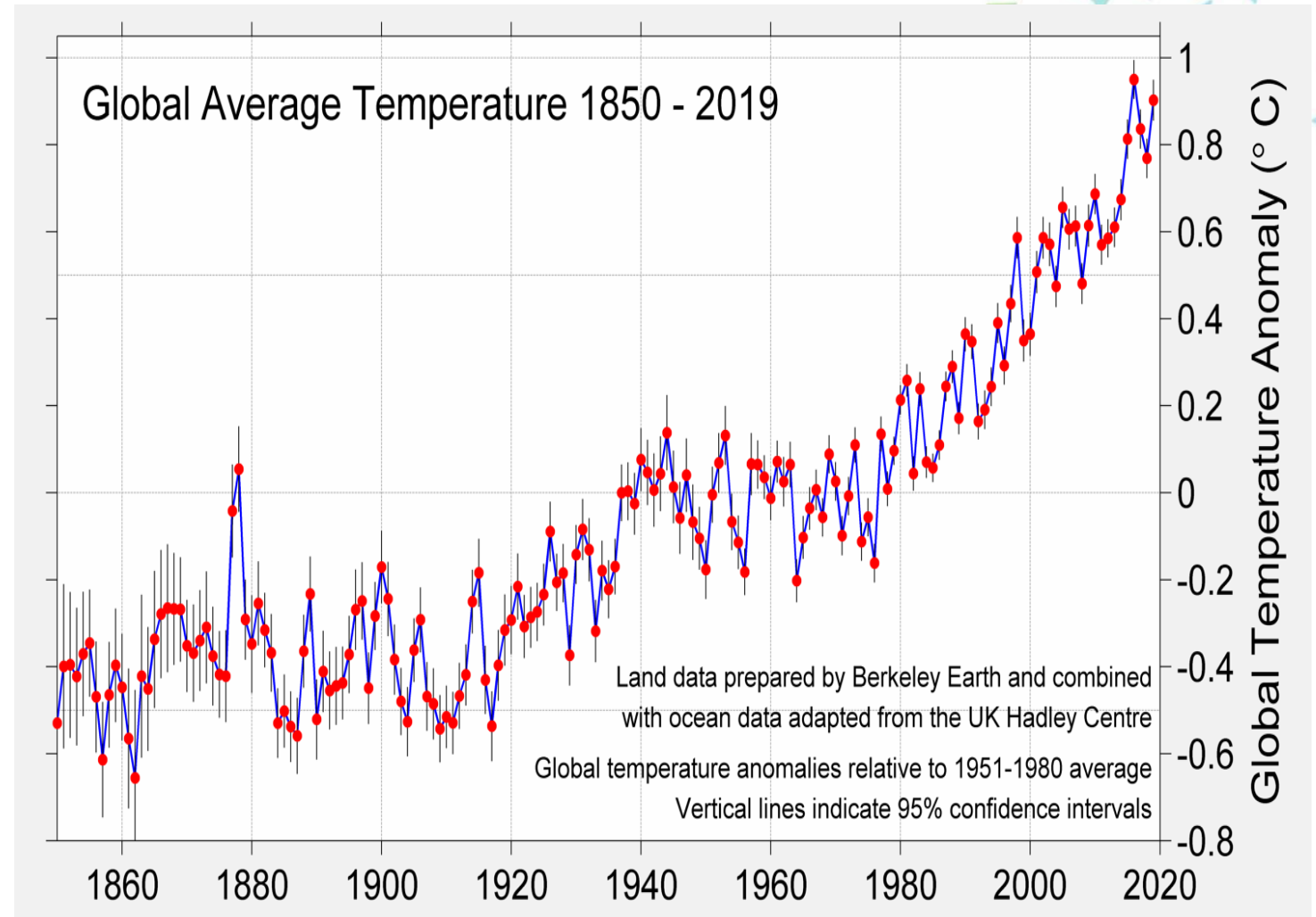
The differences between Climate and Weather

- **Weather:** refers to short-term atmospheric conditions, such as temperature, rainfall, air pressure, and cloud coverage.
- **Weather Daily Variations:** Local weather changes from day to day because air continuously moves through the atmosphere.
- **Climate** is the average weather over a long time period (usually 30 years) for a particular region or place.
- The climate affects a number of environmental factors within the region including the type and growth of vegetation and wildlife.



What is climate change?

- Climate Change: A steady rise in temperature around 1°C (3°F) over the last century due to increases in human activity.



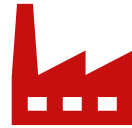
What is causing the climate change?

1. Increasing Population.
2. Amount of Fossil Fuels usage.
3. Greenhouse Effect.

Major Human Drivers of Climate Change



Energy & Electricity
Production



Manufacturing and
Industry



Transportation



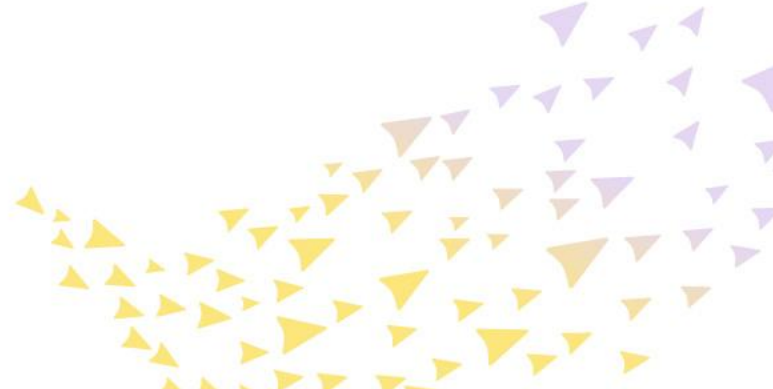
Deforestation and
Land Use



Agriculture and
Livestock

Increasing Population

- The human population has been exponentially increasing for the past several hundred years.
- Due to such factors as modern medicine, industrial revolution, and higher crop yields.



Year 1850	Year 2026	Change / Factor
1.26 billion	8.32 billion	7.06 billion (approx. 6.6× increase)

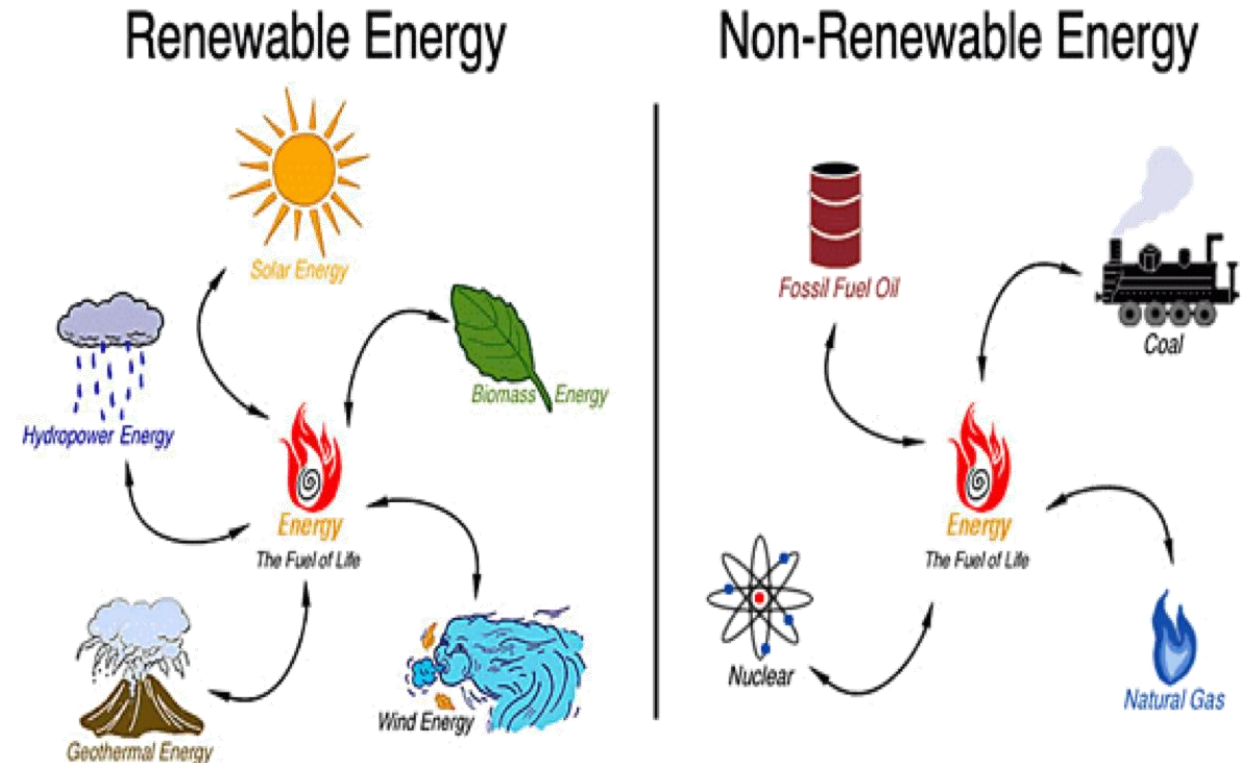
Fossil Fuels Increased

Since industrial revolution, humans have been burning more fossil fuels which release massive amounts of greenhouse gases that are trapped in the atmosphere.



Fossil Fuels

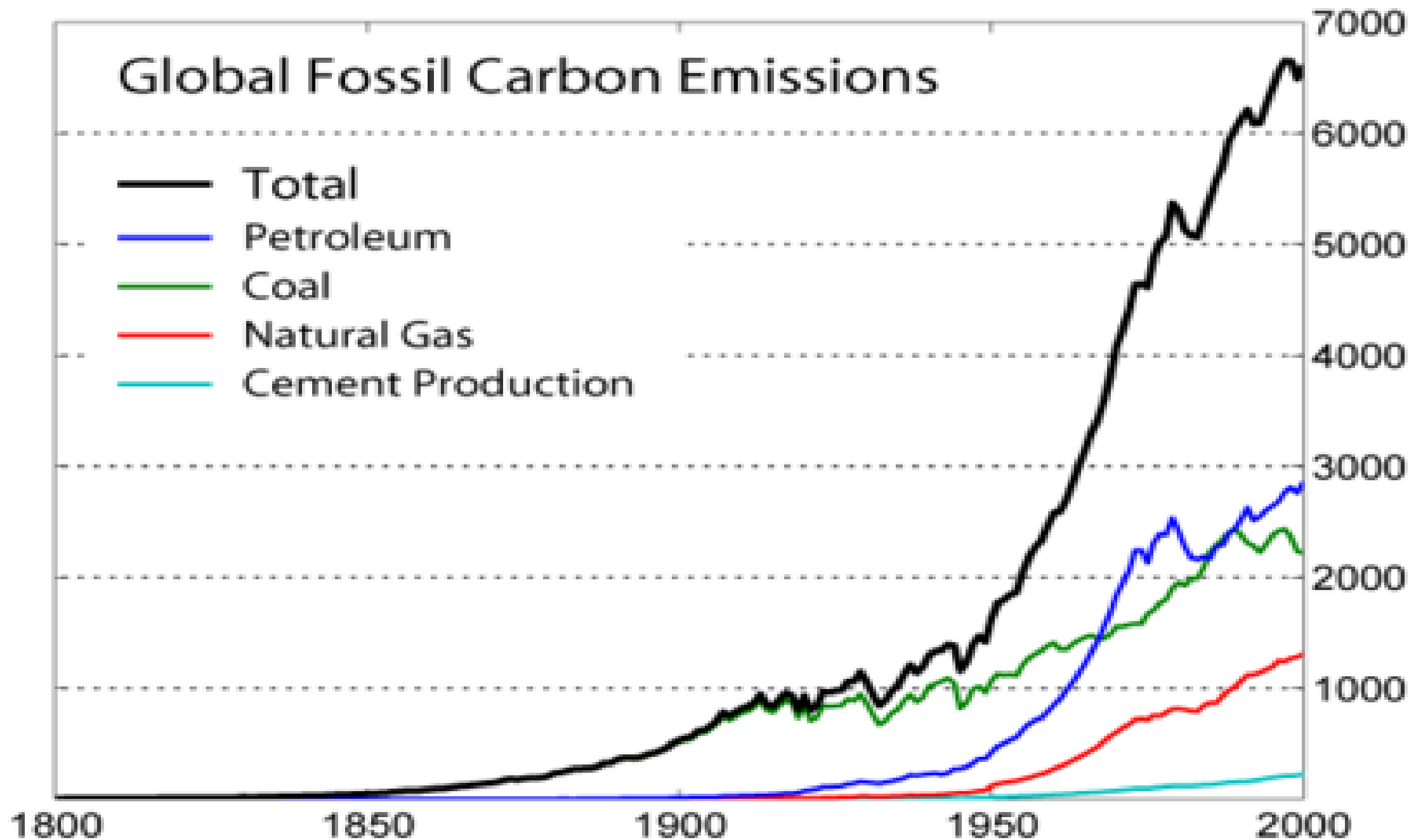
- Renewable Resources: from natural sources that can be replaced over a relatively short time scale
- Non-Renewable resources: from resources that are not replaced or are replaced only very slowly by natural processes



Global Fossil Carbon Emissions

- Total
- Petroleum
- Coal
- Natural Gas
- Cement Production

Million Metric Tons of Carbon / Year

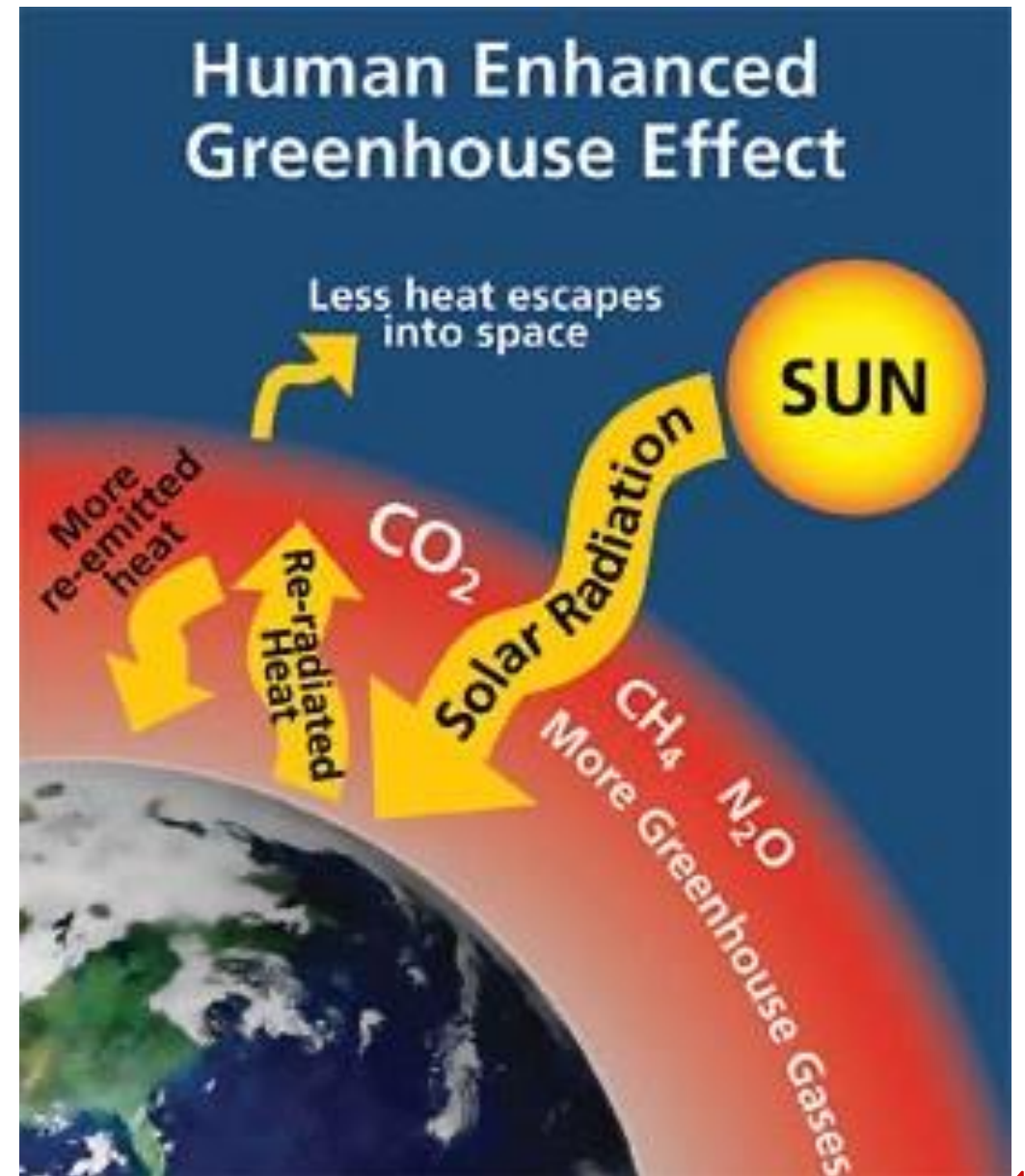


Top 10 Fossil CO₂ Emitting Countries Share of Global Emissions

Rank	Country	Annual Emissions (Mt CO ₂)	Emissions Per Capita (Tons/Person)	Share of Global Emissions
1	China	13,124.7 Mt	9.13 t	33.10%
2	United States	4,632.2 Mt	13.59 t	11.70%
3	India	3,153.8 Mt	2.19 t	8.00%
4	Russia	2,009.2 Mt	14.06 t	5.10%
5	Japan	972.3 Mt	7.79 t	2.50%
6	Iran	829.0 Mt	9.62 t	2.10%
7	Indonesia	812.2 Mt	2.88 t	2.00%
8	Saudi Arabia	652.5 Mt	17.73 t	1.60%
9	South Korea	588.0 Mt	11.29 t	1.50%
10	Germany	579.9 Mt	7.03 t	1.50%

Greenhouse Effect

- Natural process where gases in Earth's atmosphere trap escaping heat warming the Earth.
- O_2 and N_2 don't capture much heat.
- CO_2 , Methane, water capture more heat.



How Does Climate Change Affect the World?



**Warmer
Temperatures &
Heatwaves**



**Glacier Melting
& Sea Level
Rise**



**Extreme
Weather Events**



**Ecosystem &
Biodiversity
Loss**



**Impacts on
Food & Water
Security**

Glaciers melting

- As temperatures rise, glaciers start to melt.
- Changes and destroys ecosystems in that area.
- As glaciers melt, more water finds its way into the oceans.



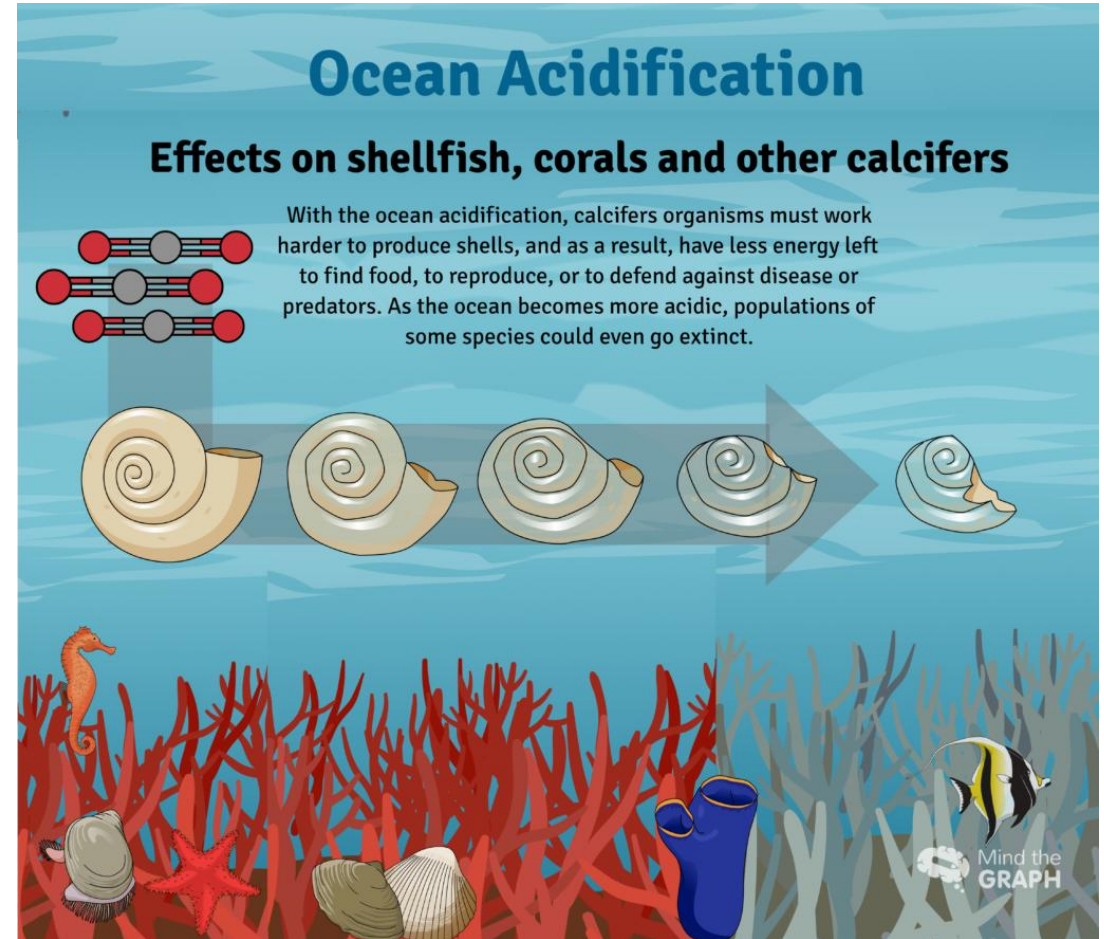
Sea Levels Rising

- In last century, ocean levels have risen 6 inches.
- Cities along coastlines are in danger of natural disasters and raising sea levels.



Ocean Acidification

- Oceans are where most of Earth's heat is found.
 - The acidity of the oceans have increased by 30%.
 - More than 1 billion people rely on Earth's oceans for food.



Natural Disasters

- Natural disasters events have increased.
 - Cost of repair and prevention has increased.
 - Affects billions of people.



Paris Agreement, UN Climate Change Framework • COP21

1. Baseline Start (Starting Point): 1850 – 1900

The phrase "*above pre-industrial levels*" refers to the benchmark temperature average between 1850 and 1900.

2. Near-Term Benchmark: By 2030

To stay on track for the 1.5°C goal, global greenhouse gas emissions must be reduced by 45% by 2030 (compared to 2010 levels).

3. Mid-Century Goal: By 2050

The world must reach Net-Zero CO₂ emissions by 2050 (and net-zero for all greenhouse gases in the second half of the century).

4. Long-Term Target Horizon: Through 2100

The primary objective is to keep temperature rise stabilized well below 2°C (and capped at 1.5°C) through the end of the century (2100).

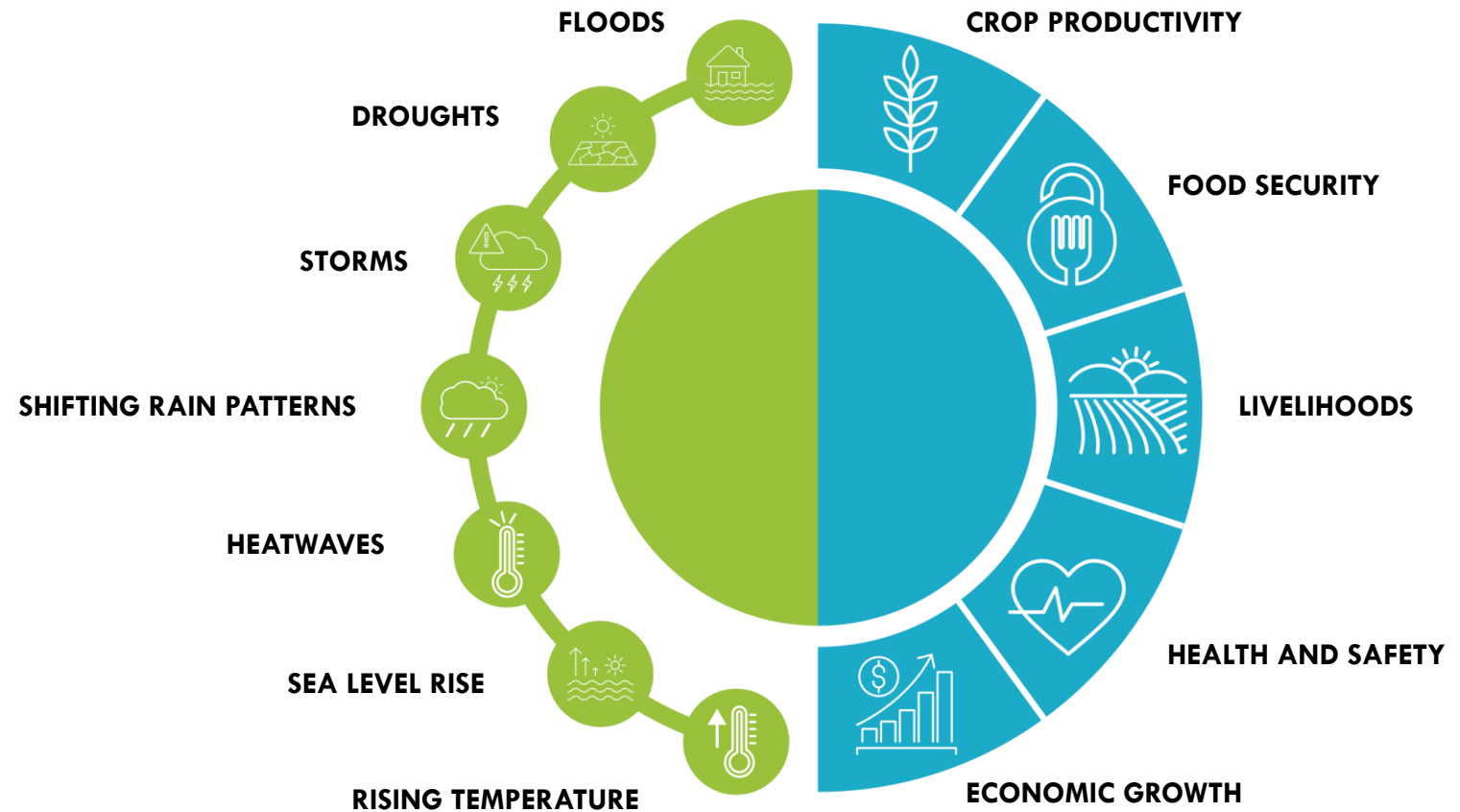
**ARTICLE 2.1(A) • PARIS
AGREEMENT: Targeting
1.5°C vs 2°C Global
Warming**

Climate Change in Cambodia Impact and Policy

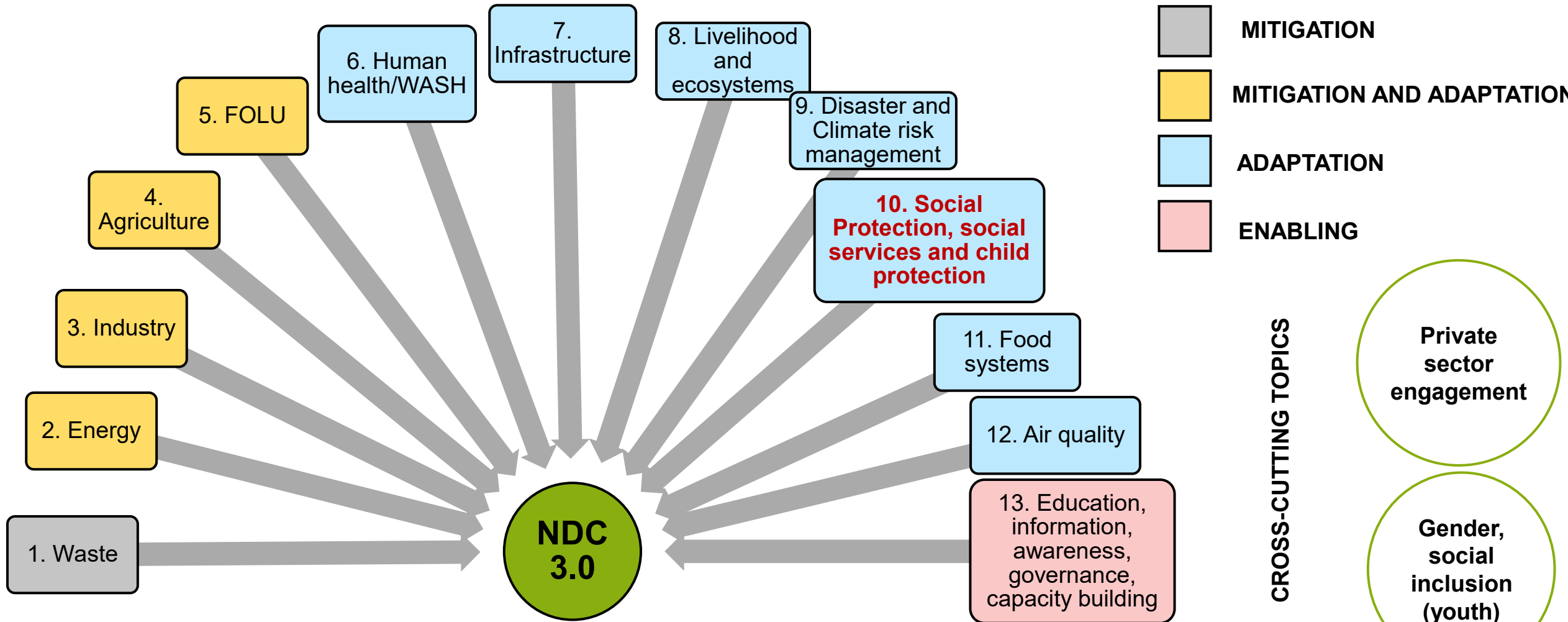
CLIMATE CHANGE IMPACTS ON CAMBODIA

*Sectors, Livelihoods
& Economy*

GDP loss projected
by 2050 without action –
MOE & MEF 2019



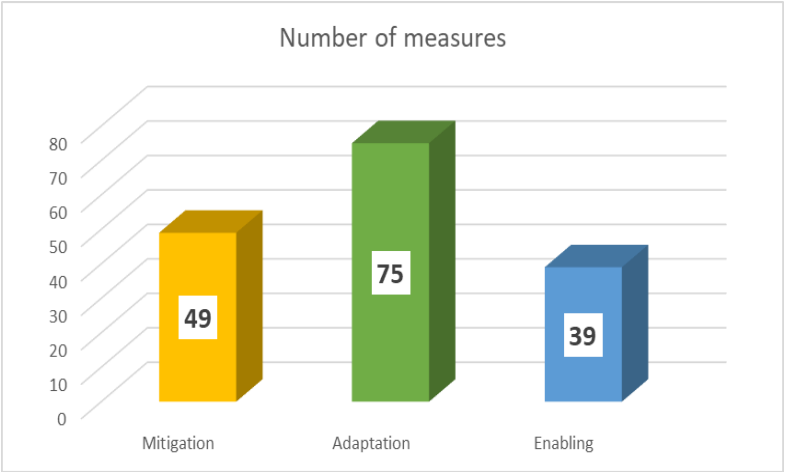
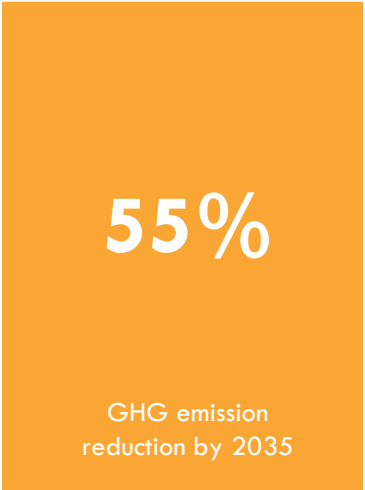
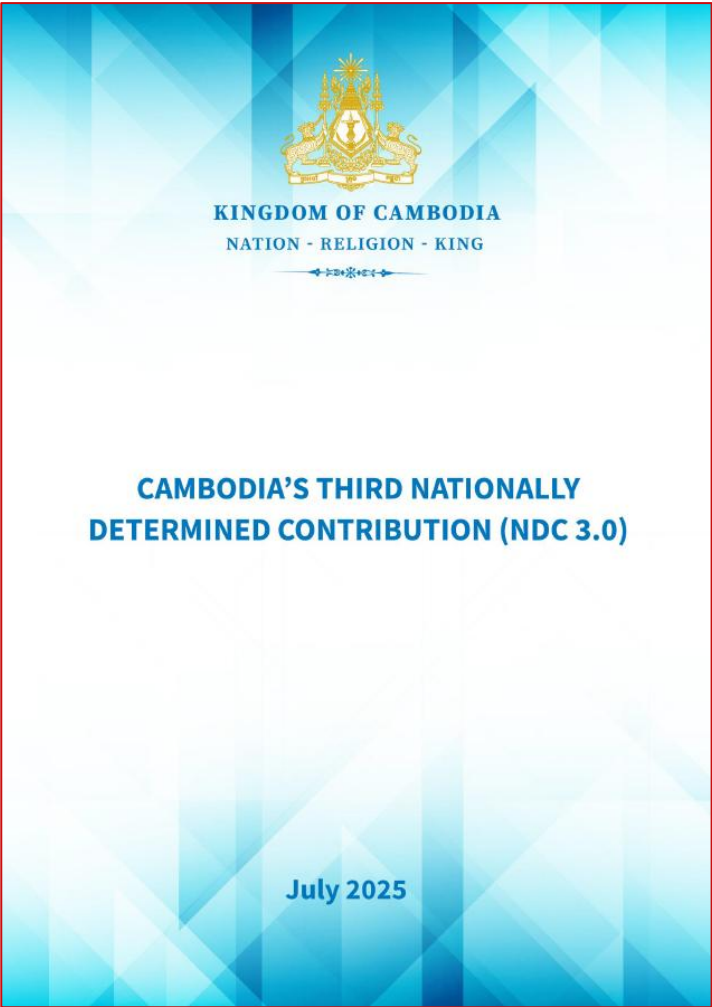
Sectors in Cambodia's NDC 3.0 (2026-2035)



A total of 163 measures, comprising 49 mitigations measures, 75 adaptation measures, and 39 enabling measures

Cambodia's NDC 3.0 — Key Commitments

Cambodia's third NDC deepens both mitigation and adaptation commitments, aligning national targets with the Paris Agreement 1.5°C pathway. It establishes sector-level adaptation goals for the first time.



Finance Tracking:

NDC investment plan with domestic budget tags and international finance access roadmap



Key Take away for Participants

Awareness Raising:

Translating climate science into practical community education.

Capacity Building:

Training worker groups on climate change and heat protection and resilient practices.

Policy Advocacy:

Advocating for worker welfare protections and green policies.

Opportunity of collaboration and working on climate change

<https://youtu.be/EtW2rrLHs08?si=u-4z6gBzLWiNlpY2>