



Is Climate Change a Myth or
Real? An In-depth Analysis
to Reveal the Fact Based on
Evidence

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Grade 7



The Main Question

Is Climate Change a Myth or Real?



WHAT IS CLIMATE CHANGE?

Climate change is the long-term temperature and weather changes.

Causes of climate change:

- Burning fossil fuels
- Transportation
- Manufacturing
- Deforestation
- Producing food
- Powering buildings

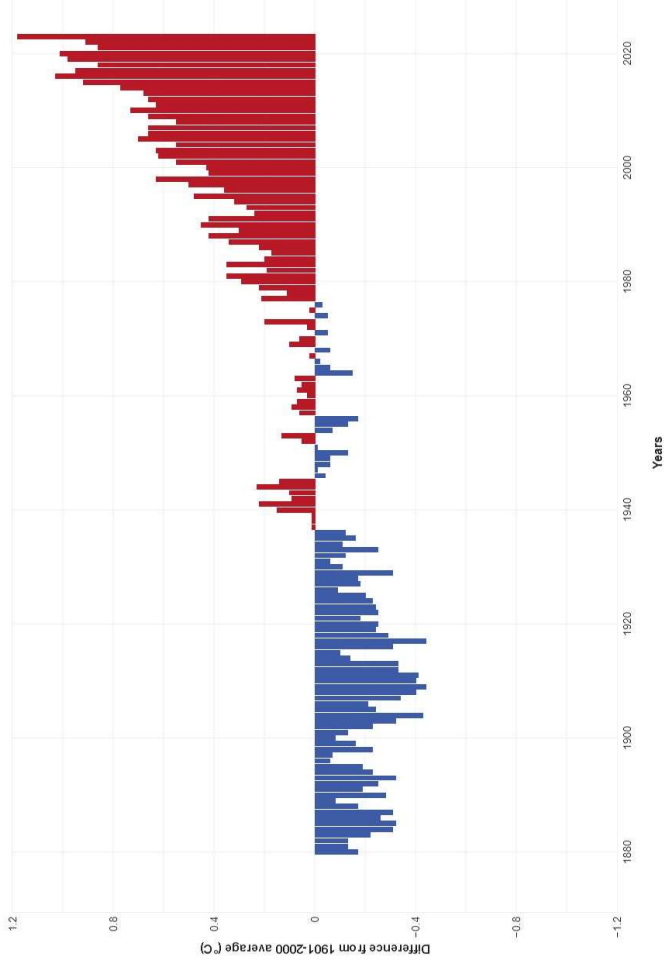
Effects of climate change

- Warmer atmosphere
 - More intense wildfires
 - Higher sea levels
 - More extensive changes in precipitation patterns
 - More acidic ocean
 - Biodiversity
 - Ecosystems
 - Species distribution
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WHAT IS CLIMATE CHANGE?

- Yearly surface temperature compared to the 20th-century average from 1880–2023

GLOBAL AVERAGE SURFACE TEMPERATURE



THE SCIENCE BEHIND CLIMATE CHANGE

Greenhouse gases (GHGs) primarily responsible for the warming effect. Include carbon dioxide, methane, nitrous oxide, fluorinated gases, sulfur hexafluoride, etc

- Carbon dioxide, or CO₂, is emitted whenever something burns
 - Most prevalent GHG, making up over 55% of all long-term GHGs
- Methane, or CH₄ created by various combustion processes
 - Anaerobic decomposition - flooded rice fields, cow and pig stomachs, and ponds holding pig excrement
- Nitrous oxide in laughing gas
 - Waste product from the manufacturing and application of fertilizers
- Fluorinated gases
 - Incredibly persistent, significantly warming greenhouse gases
- Sulfur hexafluoride, has a long half-life in the high atmosphere
 - Lasts for thousands of years



THE SCIENCE BEHIND CLIMATE CHANGE

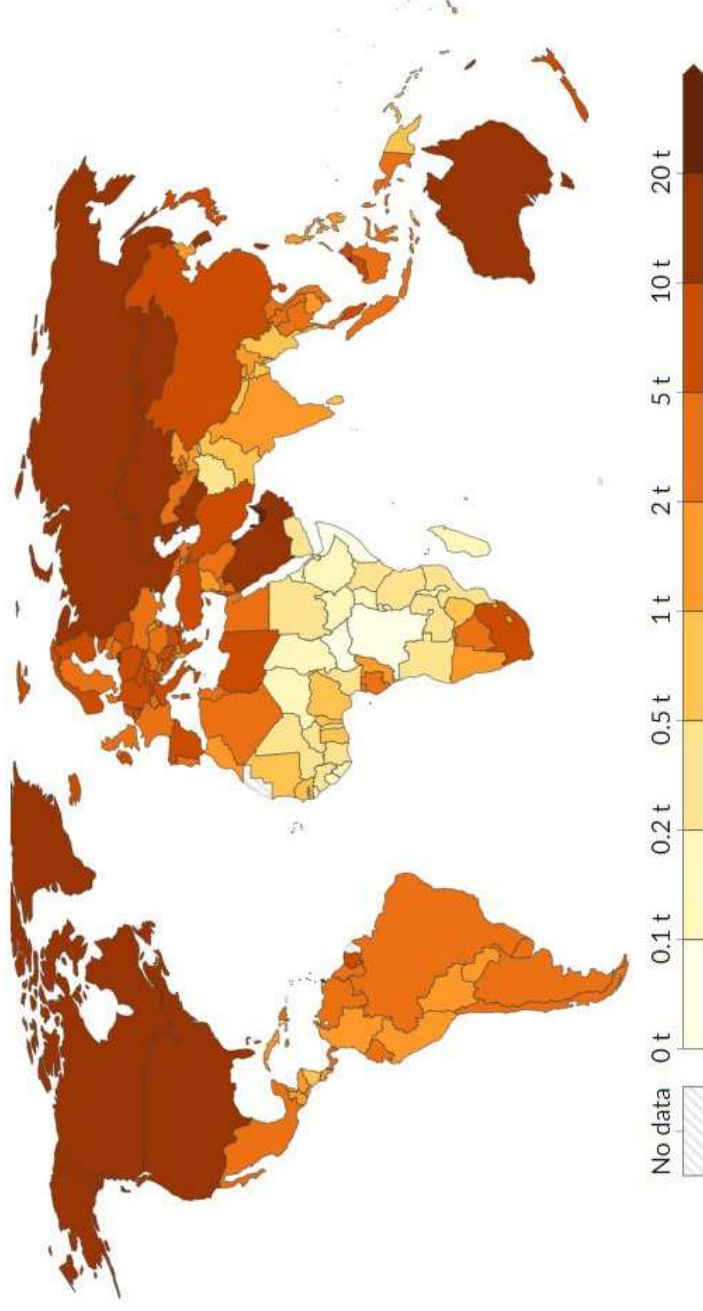
- Top 10 CO2 emitting countries in the world in 2022

| Country | Annual CO ₂ emissions in tonnes (2022) |
|---------------|---|
| China | 11,396,777,000 |
| United States | 5,057,303,600 |
| India | 2,829,644,300 |
| Russia | 1,652,177,300 |
| Japan | 1,053,797,800 |
| Indonesia | 728,883,260 |
| Iran | 690,635,260 |
| Germany | 665,604,700 |
| Saudi Arabia | 662,549,400 |
| South Korea | 600,999,360 |

Source: <https://ourworldindata.org/co2-emissions>

THE SCIENCE BEHIND CLIMATE CHANGE

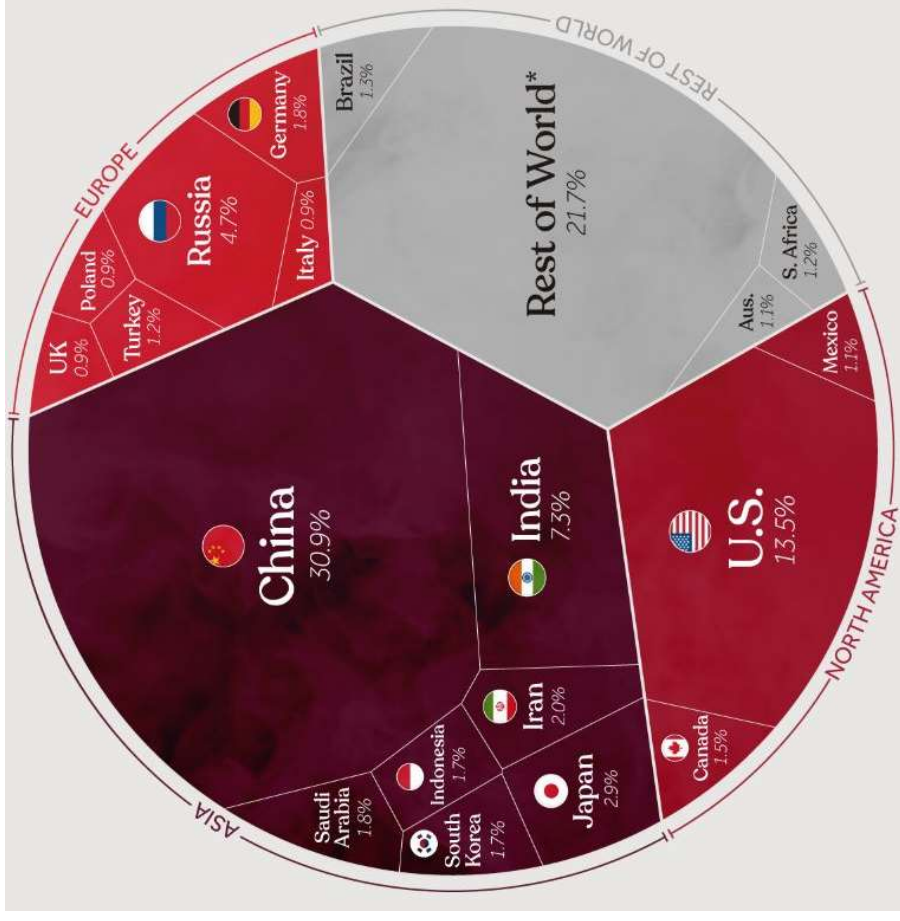
- World map displaying CO2 emissions per capita in 2022



Source: <https://ourworldindata.org/co2-emissions>

THE SCIENCE BEHIND CLIMATE CHANGE

- Visual display of CO2 emitting countries in the world
 - Asia as a dominating continent
 - China dominating as a country at ~31% (nearly 1/3 the total world emissions)



WHAT EVIDENCE DO WE HAVE OF CLIMATE CHANGE?

Melting
Glaciers



Rising Sea
Levels



Flooding



Worsening
Droughts



Supercell
Storms



Increasing
Tornadoes

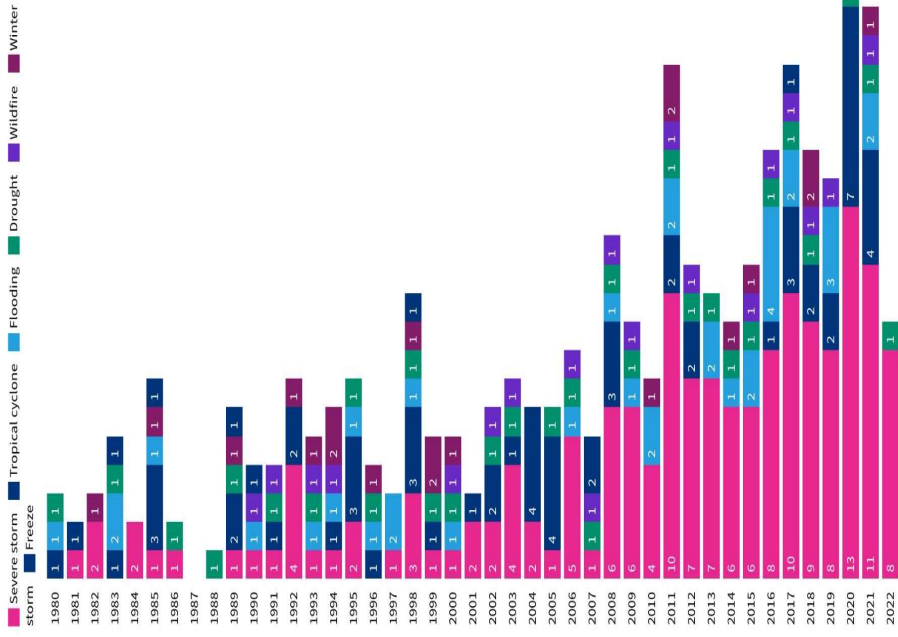


WHAT EVIDENCE DO WE HAVE OF CLIMATE CHANGE?

- Billion-dollar natural disasters that occurred in the United States because of climate change since 1980

About 43% of billion-dollar natural disaster events have occurred in the last decade alone.

Frequency of billion-dollar natural disasters, 1980–2022



The data for 2022 only accounts for disasters up to July. Adjusted for inflation in 2022 dollars.

Source: National Centers for Environmental Information.

USA FACTS

CLIMATE CHANGE CONSENSUS AMONGST SCIENTISTS

‘Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. [...] Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia.’

IPCC Fifth Assessment Report (AR5)

COP 28

The United Nations Climate Change Conference, or COP 28, was held in Dubai, United Arab Emirates, from November 30, 2023, to December 12, 2023

The COP 28 Presidency overview of the key outcomes of global climate action spread across the four pillars in 2023, fast-tracking a just, orderly, and equitable energy transition, fixing climate finance, focusing on people, lives and livelihoods, and underpinning everything with full inclusivity

CURRENT AND PROPOSED STRATEGIES FOR CLIMATE CHANGE

- **Policy Interventions**
 - Crucial role in addressing climate change
 - Some aim to limit global temperature increases
- **Technological Innovations**
 - Can contribute significantly to mitigation efforts
- **Community-Based Initiatives**
 - Can positively impact
 - Fosters a sense of ownership and responsibility



CANADA'S PLAN TO COMBAT CLIMATE CHANGE



FEDERAL GOVERNMENT

Reduction of Emissions

- Sector-by-sector roadmap that outlines how Canada will achieve its emissions reduction target
- The Plan is an ambitious and achievable one, and it reflects the collective efforts of millions of Canadians

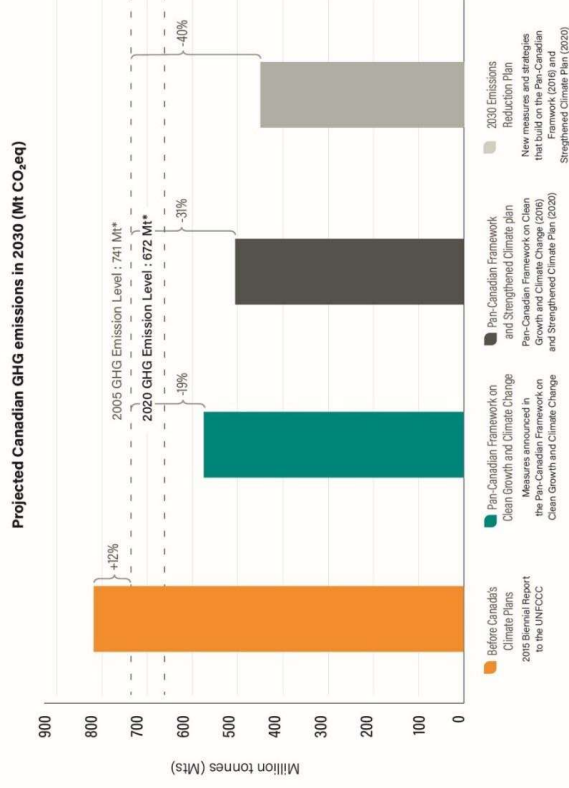
Net-Zero Emissions

- Economy should either emit no greenhouse gas emissions or offset its emissions through actions like tree planting or using technologies that capture carbon before its release into the air.



FEDERAL GOVERNMENT

- Predicted Canadian GHG emissions when using and not using Canada's Climate Plans



* historical data from 2022 National Inventory Report

PROVINCIAL (ALBERTA) GOVERNMENT

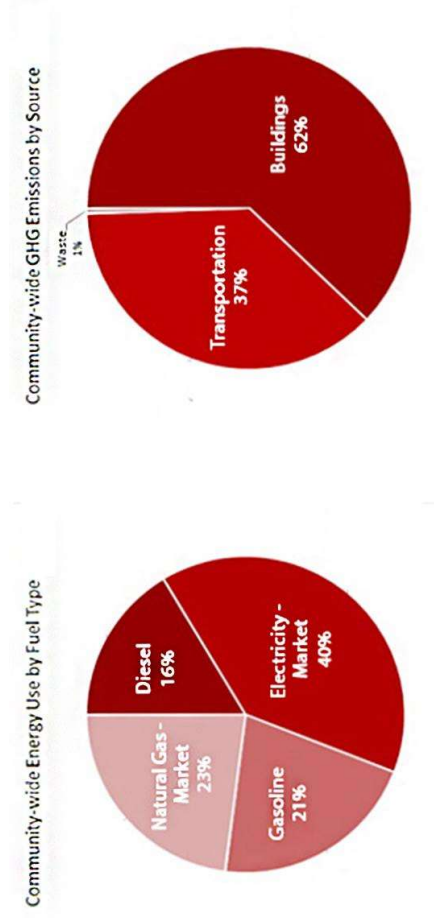
Emissions reductions by sector

- Oil and gas
 - Electricity
 - Geothermal
 - Hydrogen
 - Critical minerals
 - Circular economy and waste
 - Bioenergy, transportation and buildings
 - Agriculture
 - Forestry
 - Heavy industry
 - Land and nature-based solutions
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CALGARY MUNICIPALITY

Contribution to climate change

- The City of Calgary's operations, including buildings, facilities, fleet, and landfills, contribute only four per cent of the total emissions, while the remaining 96% is the responsibility of Calgary's residential, commercial, industrial, and institutional sectors



CONCLUSION

The scientific evidence presented in this research overwhelmingly supports the reality of climate change, dispelling any myths or misconceptions.

Sustainable practices that can be done to fight climate change include:

- Save energy at home
- Walk, bike or take public transport
- Eat more vegetables
- Reduce, reuse, repair and recycle
- Throw away less food
- Protecting our forests



Thank you for listening to my presentation on Climate
Change

