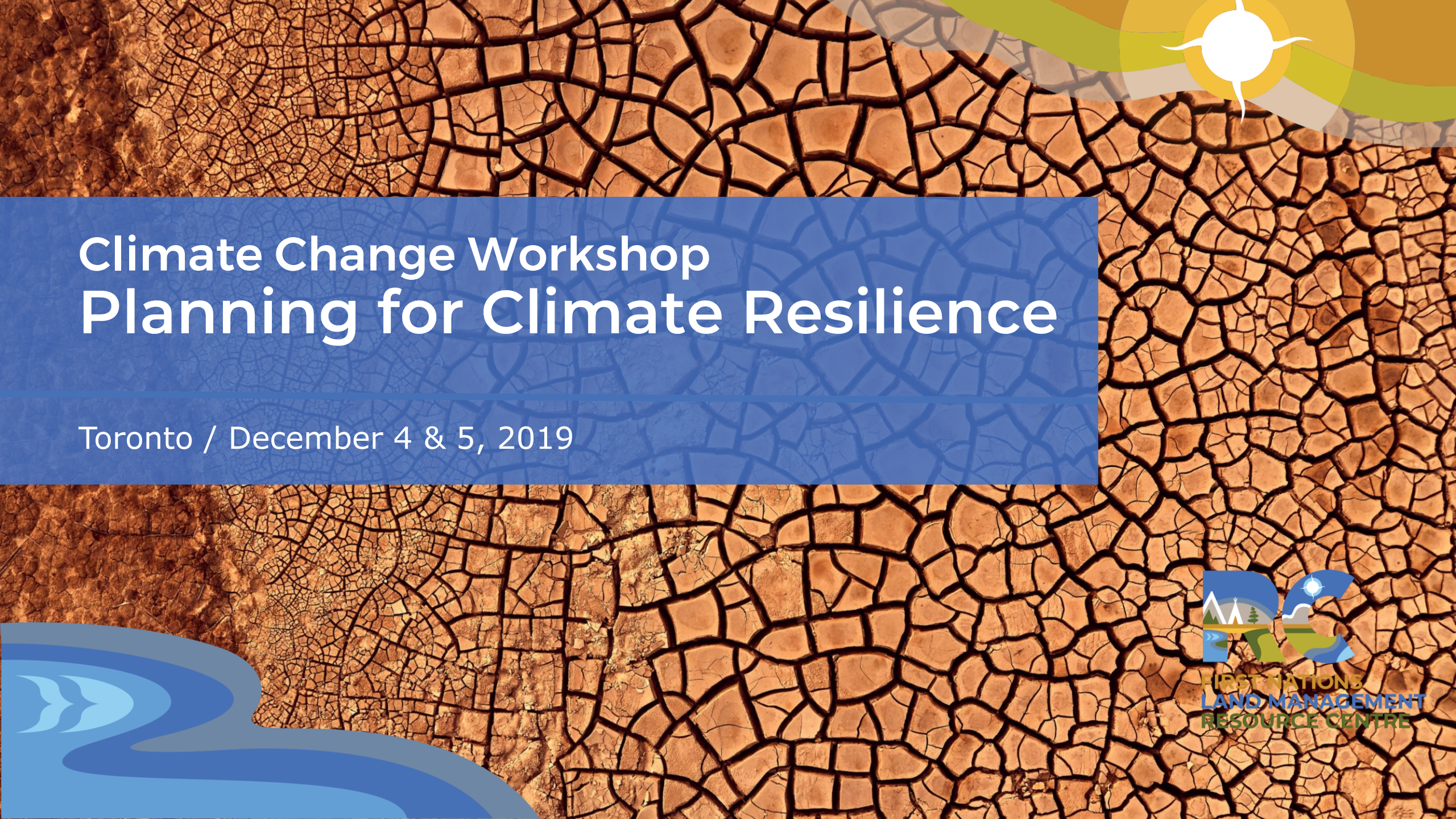


Climate Change Workshop
Planning for Climate Resilience

Toronto / December 4 & 5, 2019

FIRST NATIONS LAND MANAGEMENT RESOURCE CENTRE

Presentation Objectives:

- Understanding the urgency of planning for climate resiliency for FA signatories
- Climate-informed planning: International and Canadian context
- Climate-informed planning: Integrating community, land-use and environmental planning within the context of the Framework Agreement on First Nations Land Management


Think positive!

Key terms: Mitigation vs. Adaptation

Climate change **Mitigation** refers to actions that seek to prevent climate change from happening by reducing human-caused greenhouse gas emissions**.**

Climate change **Adaptation** refers to actions that seek to minimize damage caused by climate change, such as making improvements to flood prevention or stormwater infrastructure.

1. Why do we need to plan for climate change?

Speed of Warming

Climate Change is no longer centuries or decades away, but is happening now due to human activities and our influence on Earth's climate system

Severity of Climate Change

Global warming of 1.5 to 2 degrees C will have serious consequences for millions of people and will exacerbate existing environmental issues.

Scope of Impacts

The impacts and effects of climate change can't be compartmentalized into a single type of event, such as flooding.

As the crisis deepens, the changing climate will have more and more of an all-encompassing effect on our daily lives.




Making sense of climate denial

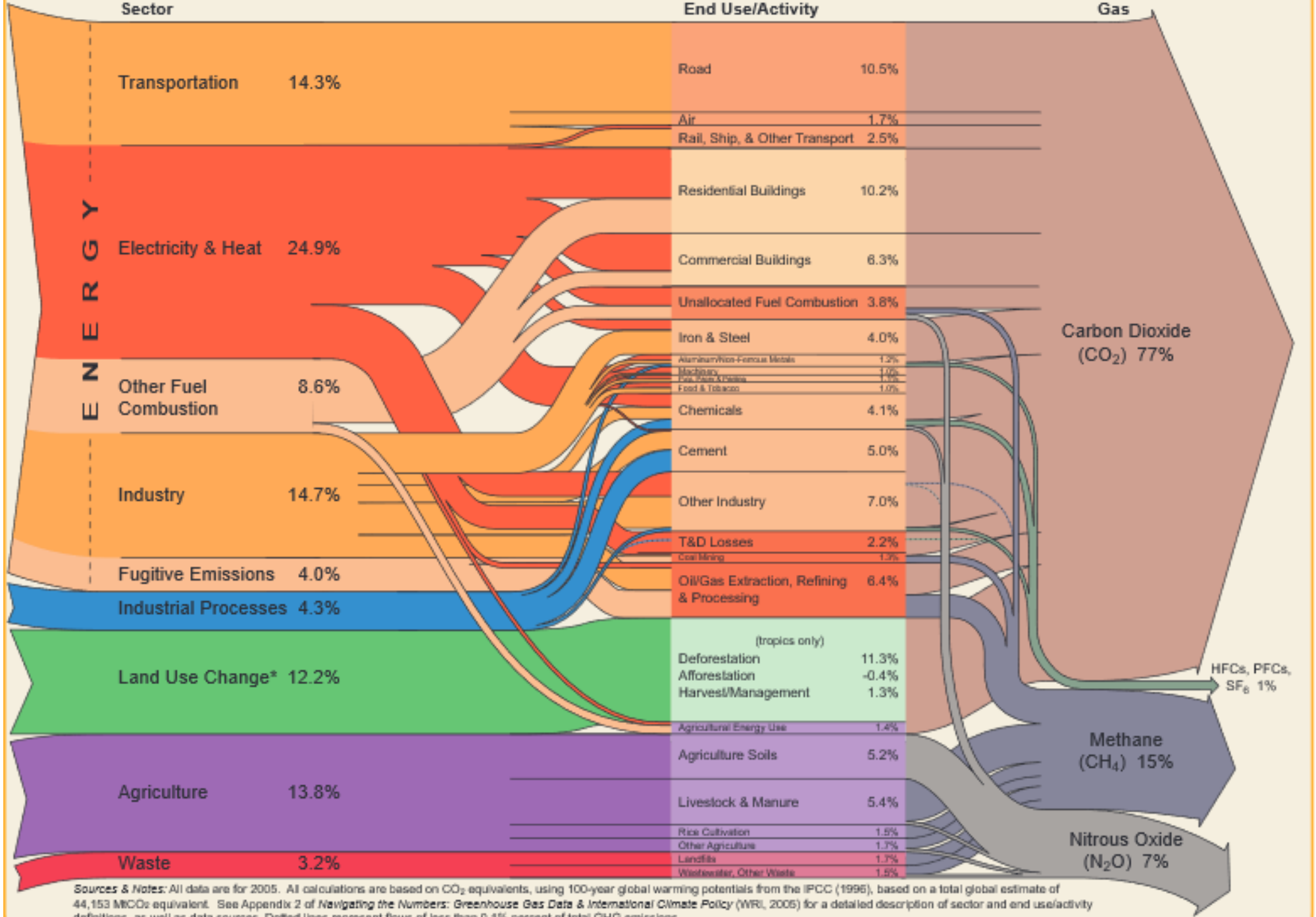
Social and psychological drivers for climate science denial

Common techniques and fallacies that deniers use to distort climate science.


Only collective action can prevent catastrophic climate change
UNITED NATIONS
NATIONS UNIES

International cooperation on this scale is rare!

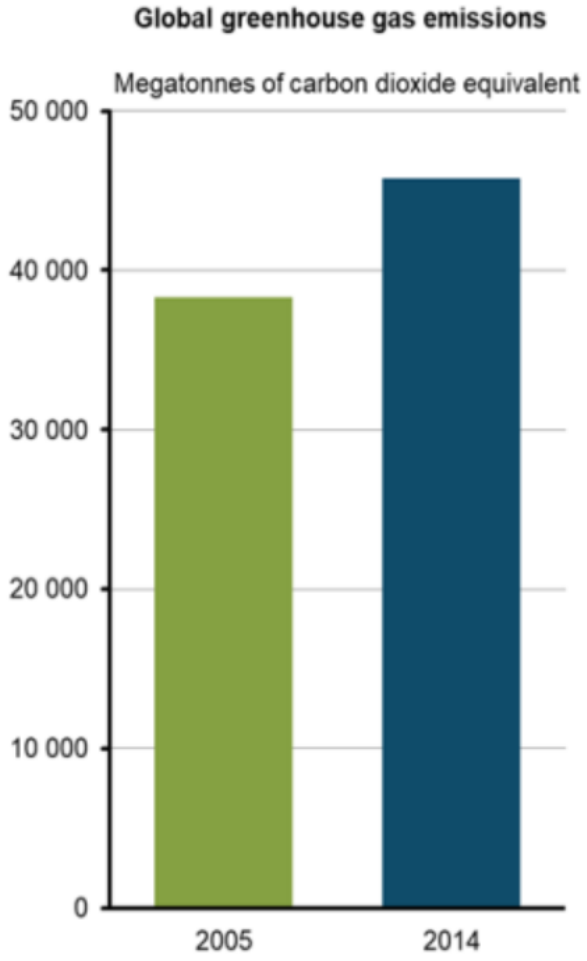
2. International and Canadian Context of Climate Change

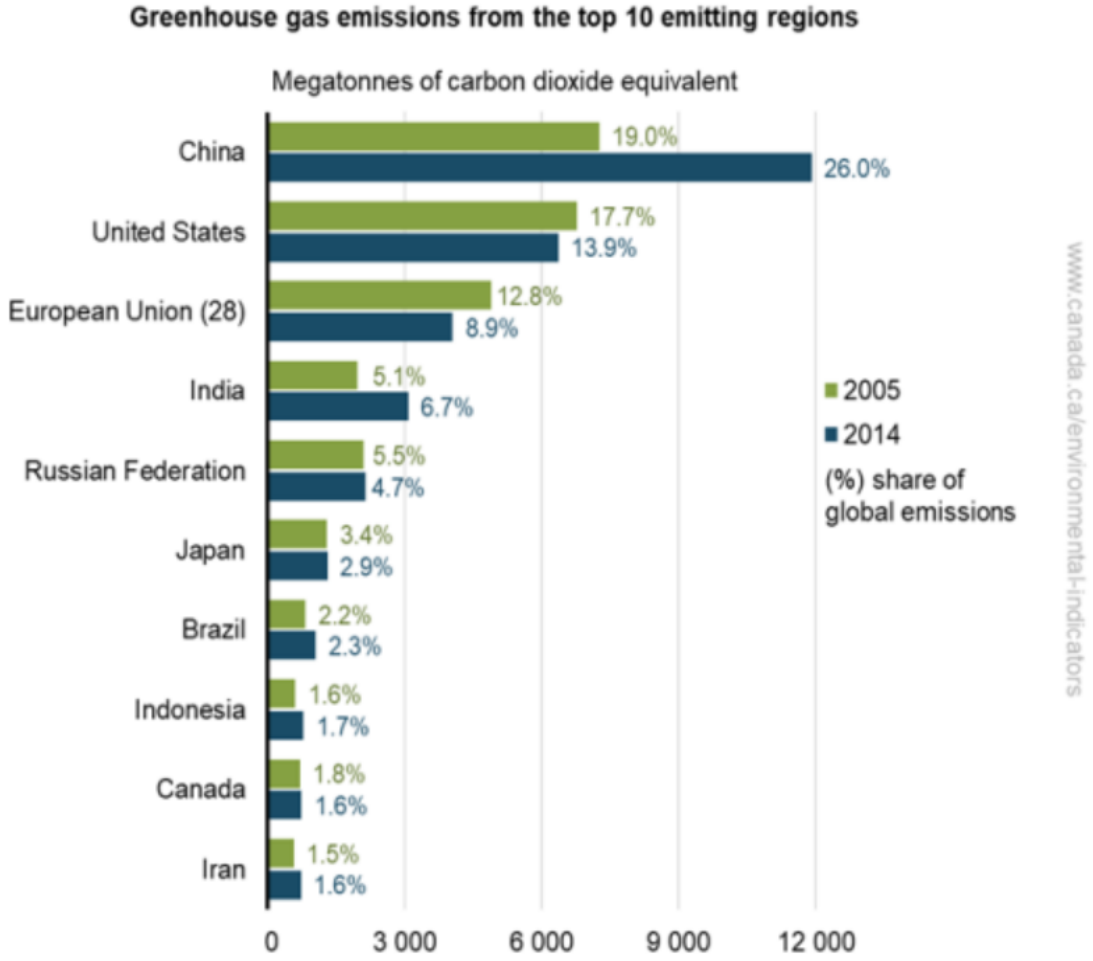


Sources & Notes: All data are for 2005. All calculations are based on CO_2 equivalents, using 100-year global warming potentials from the IPCC (1996), based on a total global estimate of 44,153 $MtCO_2$ equivalent. See Appendix 2 of *Navigating the Numbers: Greenhouse Gas Data & International Climate Policy* (WRI, 2005) for a detailed description of sector and end use/activity definitions, as well as data sources. Dotted lines represent flows of less than 0.1% percent of total GHG emissions.

* Land Use Change includes both emissions and absorptions, and is based on analysis that uses revised methodologies compared to previous versions of this chart. These data are subject to significant uncertainties.

Greenhouse gas emissions for the world and top 10 emitting countries and regions, [1] 2005 and 2014

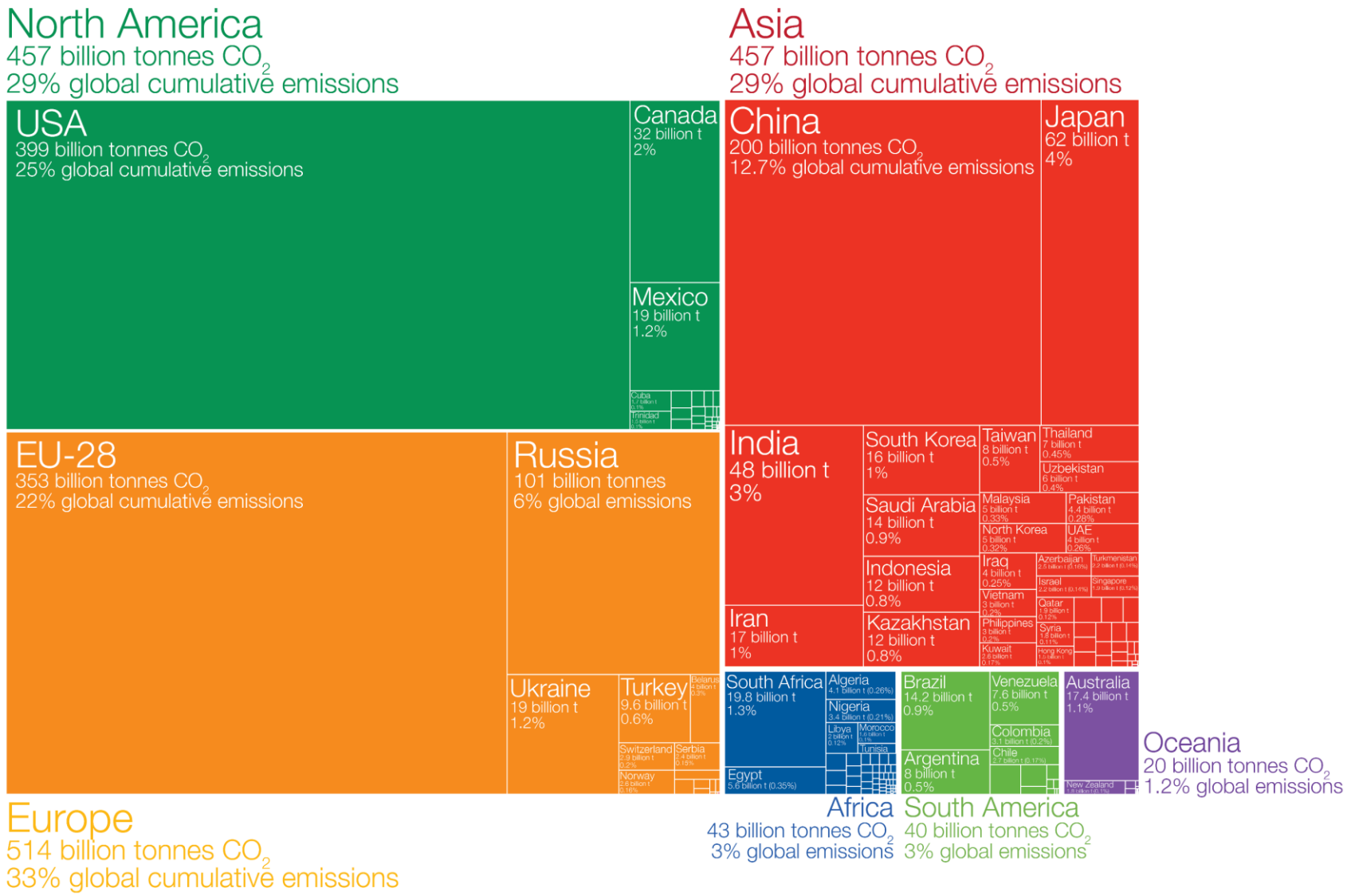




Who has contributed most to global CO_2 emissions?

Our World in Data

Cumulative carbon dioxide (CO_2) emissions over the period from 1751 to 2017. Figures are based on production-based emissions which measure CO_2 produced domestically from fossil fuel combustion and cement, and do not correct for emissions embedded in trade (i.e. consumption-based). Emissions from international travel are not included.



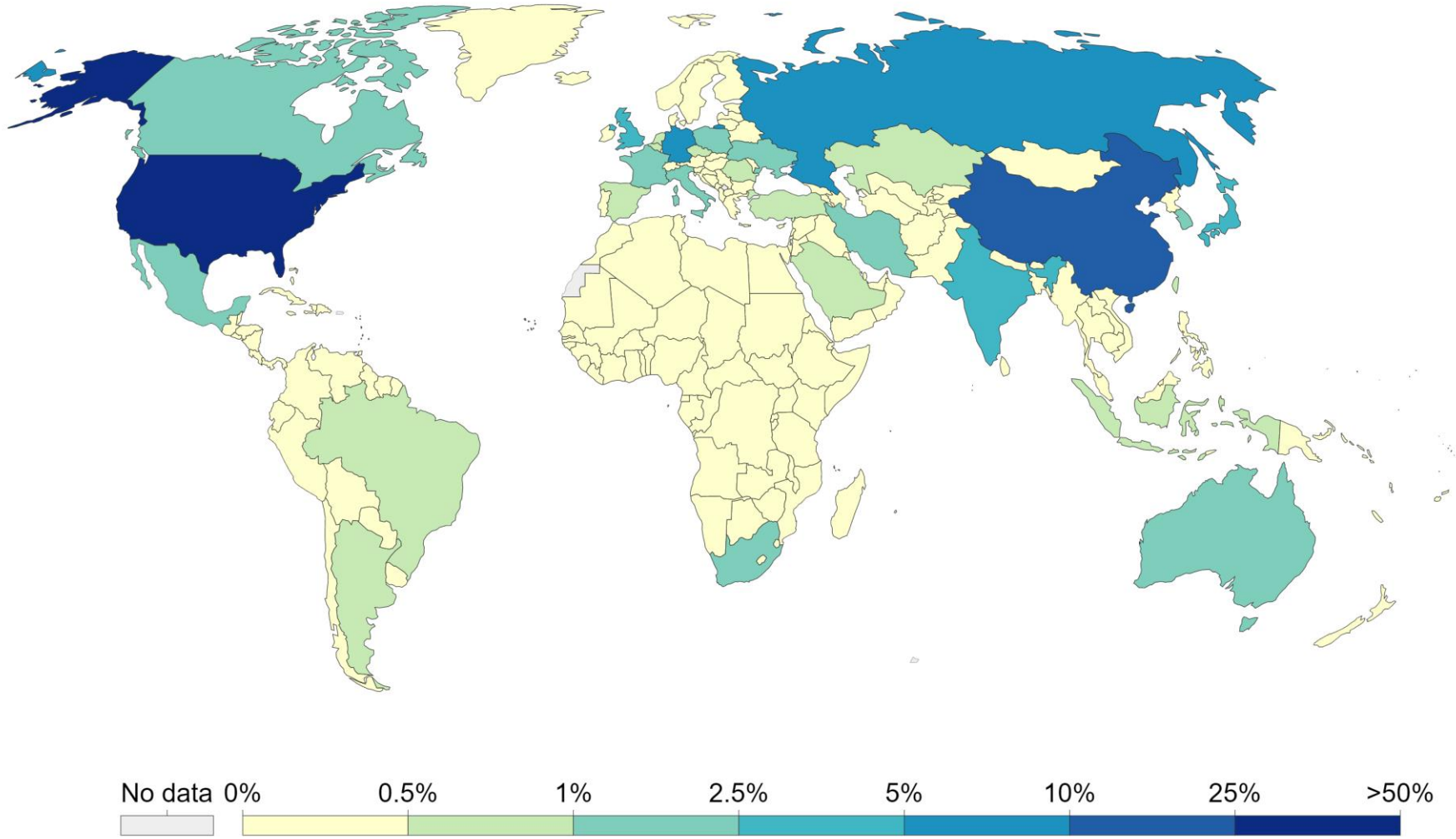
Figures for the 28 countries in the European Union have been grouped as the 'EU-28' since international targets and negotiations are typically set as a collaborative target between EU countries. Values may not sum to 100% due to rounding.

Data source: Calculated by Our World in Data based on data from the Global Carbon Project (GCP) and Carbon Dioxide Analysis Center (CDIAC).
This is a visualization from OurWorldinData.org, where you find data and research on how the world is changing.

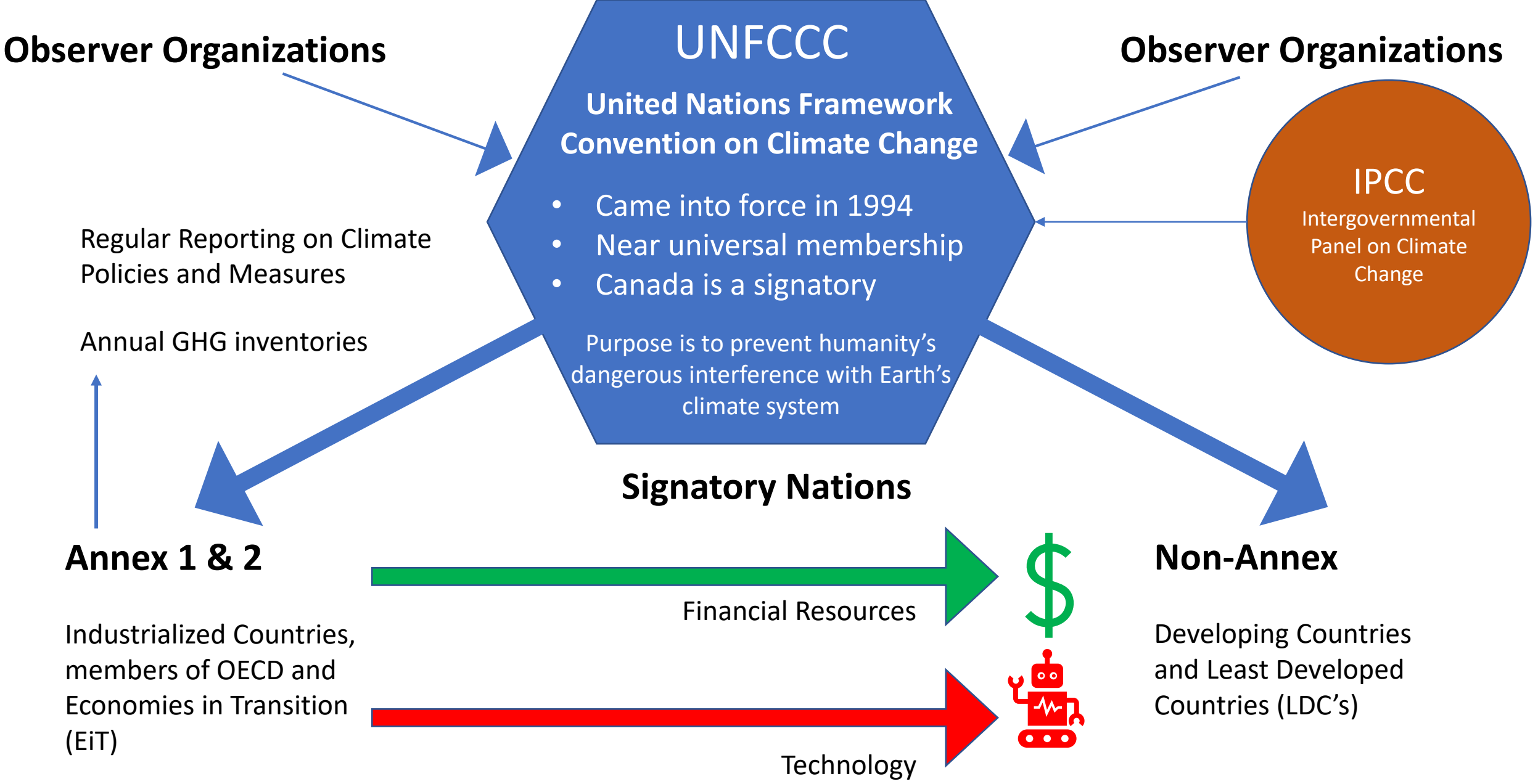
Share of global cumulative CO_2 emissions, 2017

Each country or region's share of cumulative global carbon dioxide (CO_2) emissions. Cumulative emissions are calculated as the sum of annuals emissions from 1751 to a given year.

Our World in Data



Source: OWID based on CDIAC & Global Carbon Project (GCP)
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

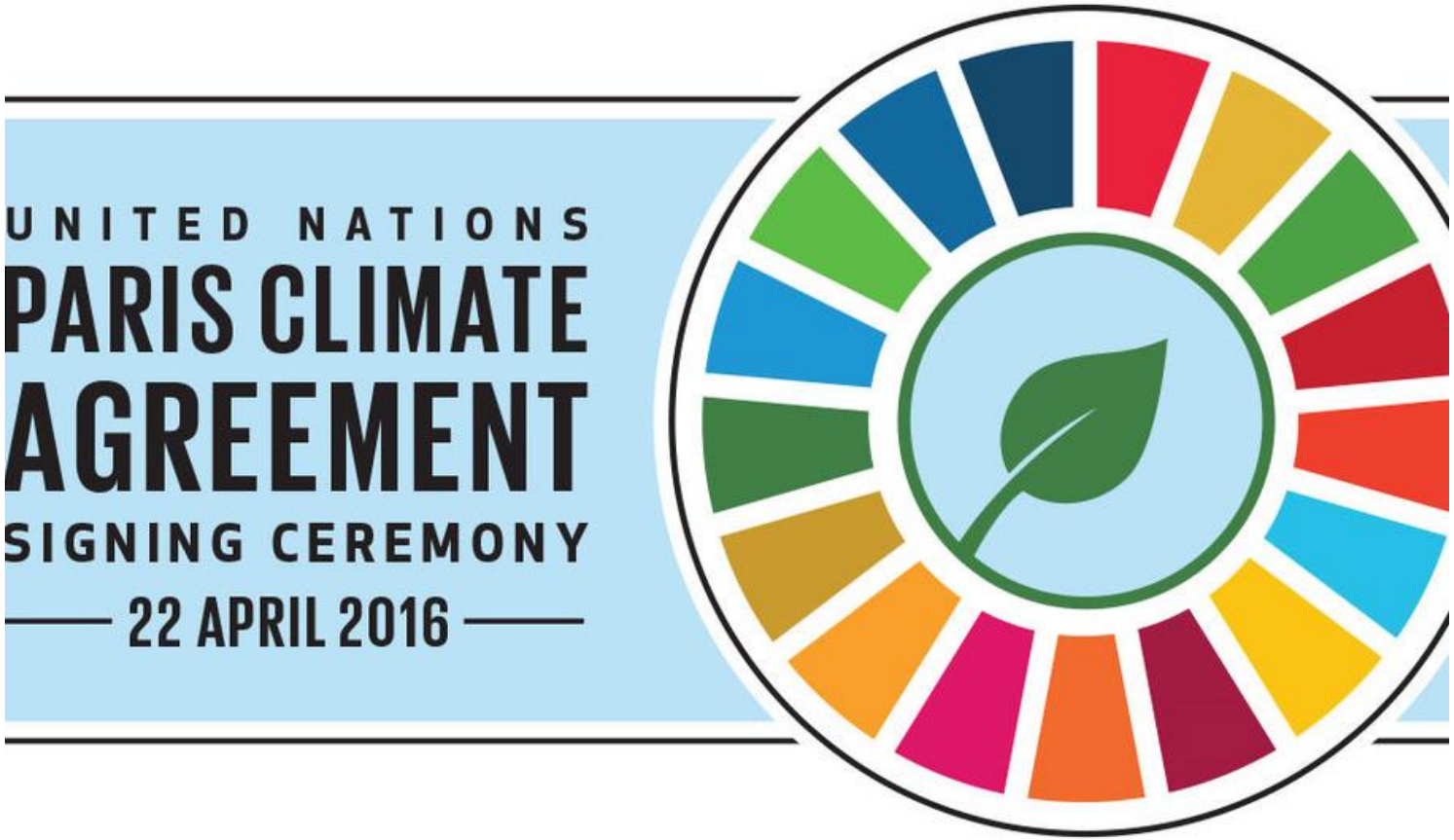


Climate Resilient Development Pathways (Sustainable Development)

Sdg-tracker.org

Principles of Climate Justice

Human Rights	Development	Equity	Good Governance	Gender Equity	Education	Partnerships
Respect and Protect Human Rights	Support the Right to Development	Share Benefits and Burdens Equitably	Ensure that Decisions on Climate Change are Participatory, Transparent, and Accountable	Highlight Gender Equality and Equity	Harness the Transformative Power of Education for Climate Stewardship	Use Effective Partnerships to Secure Climate Justice



Commits signatory Nations to strengthen the global response to climate change by limiting the global temperature increase to less than 2° C, and to make substantial commitments to try to limit warming to 1.5° C

1.5° vs 2° C global warming: What's the difference?

A limit of 1.5° C global warming means less extreme weather where people live

By 2100, sea level rise would be 10cm lower with 1.5° C of warming as compared to 2°. This means that 10 million fewer people exposed to sea level rise

1.5° C warming has a lower impact on biodiversity and species extinction, with lower risk to fisheries and the livelihoods that depend on them

There would be a smaller reduction in crop yields with a limit of 1.5° C warming

Global population exposed to water shortages would be 50% less with global warming of 1.5° compared to 2° C

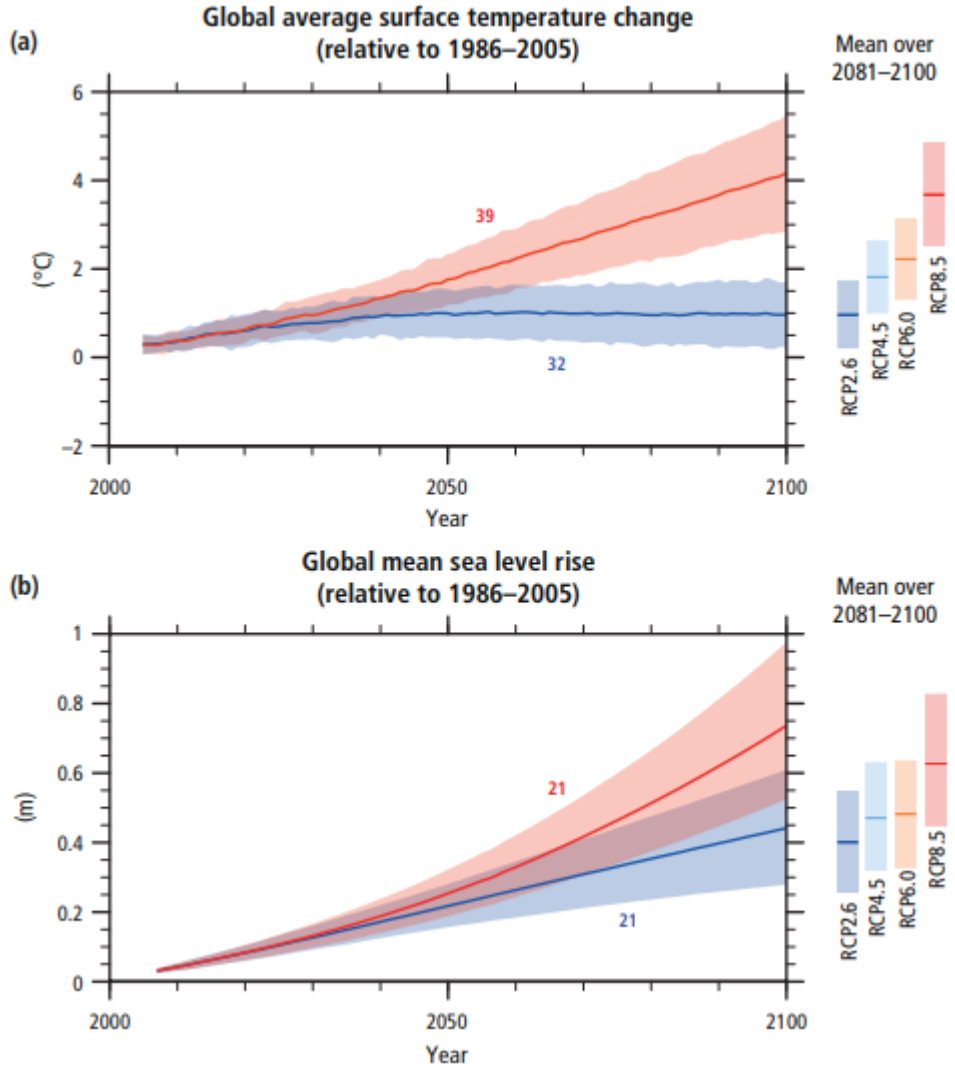
Several hundred million fewer people would be exposed to climate-related risk and be susceptible to poverty by 2050 with a limit of 1.5° C warming

Climate change is sad, no matter how you dress it up.

Why does this matter?

There is uncertainty when it comes to climate change. Planning adequately for a changing climate depends on what scenario you're planning for. What scenario of climate change takes place really depends on the global response.

Based on our current emissions trend, we're heading for a global temperature increase of between 2.5° to 5° C by the year 2100, and up to 13° global warming by the year 2300.



Climate Change in Canada

Canada represents roughly 0.5% of the world's population but is annually responsible for about 726 megatonnes (Mt) of greenhouse gas emissions, or approximately 1.6%, of global emissions.

This puts Canada among the top 10 global emitters both in terms of total emissions and on a per capita basis.

The four largest emitting provinces in Canada are Alberta, Ontario, Quebec and Saskatchewan. Alberta and Saskatchewan have per capita emissions that are nearly the highest in the world, at 68 and 67 tonnes per person per year, respectively.

BC, Ontario, and Quebec have per capita emissions of around 10-14 tonnes per person, which is line with some countries in Europe.

Little data exists for GHG emissions from First Nation and indigenous communities in Canada, though it is likely that the GHG contribution from these communities is very small, both in terms of total emissions and on a per capita basis. For inventorying and reporting on national GHG emissions, Canada relies on accounting for natural carbon storage through land-use, land-use change and forestry (LULUCF). Where do indigenous rights and governance roles fit into this picture?

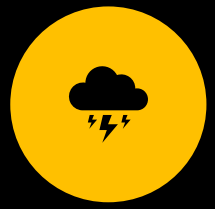
The difference between provincial emissions is largely due to demographics, economic and political circumstances, and the distribution of natural resources.

Provinces that have emissions reduction targets for 2020 and 2030 vary widely across Canada. Even if all these targets were met, total Canadian emissions would still be well above Canada's targets for 2020 (622 Mt) and 2030 (525 Mt) (Boothe and Boudreault, 2016).

Climate Change is projected to intensify in Canada…

WARMING IN CANADA ON AVERAGE OCCURS AT DOUBLE THE RATE OF GLOBAL WARMING

WHILE PRECIPITATION IS EXPECTED TO INCREASE, INCREASED RISK OF DROUGHT AND WATER SHORTAGES IN THE SUMMER (COMBINED WITH HEAT WAVES)

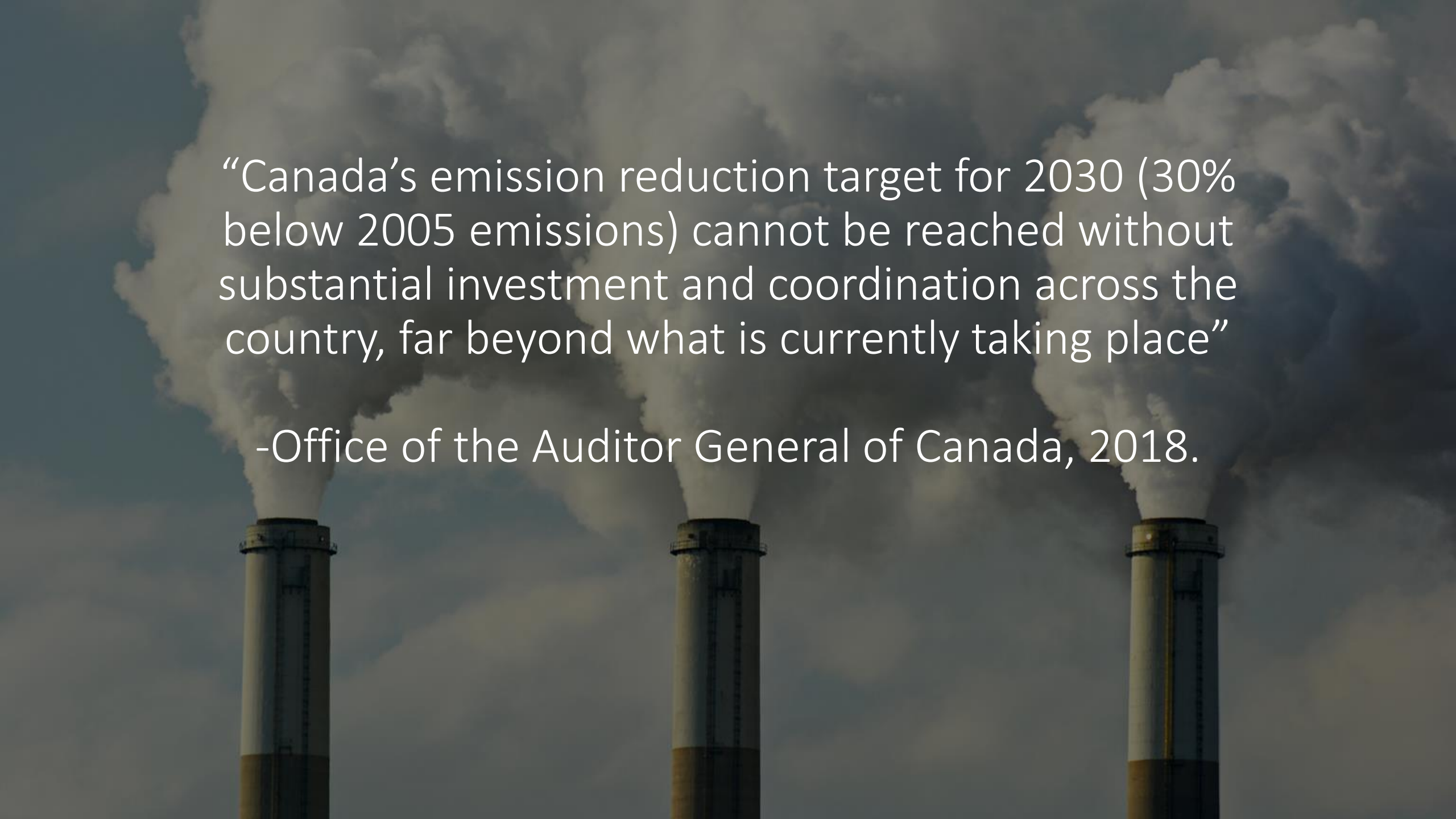


INCREASED LIKELIHOOD OF EXTREME WEATHER EVENTS

COASTAL FLOODING WILL INCREASE DUE TO SEA-LEVEL RISE;

AREAS OF THE ARCTIC AND ATLANTIC OCEAN WILL EXPERIENCE LONGER AND MORE WIDESPREAD ICE-FREE CONDITIONS

THREATENING INDIGENOUS WAYS OF LIFE


“Canada’s emission reduction target for 2030 (30% below 2005 emissions) cannot be reached without substantial investment and coordination across the country, far beyond what is currently taking place”
-Office of the Auditor General of Canada, 2018.

Climate change will impact all aspects of community life…

…so how do we plan for it?

Common Principles for Climate Resiliency Planning

Self-governance

Planning

Holistic

Implementation

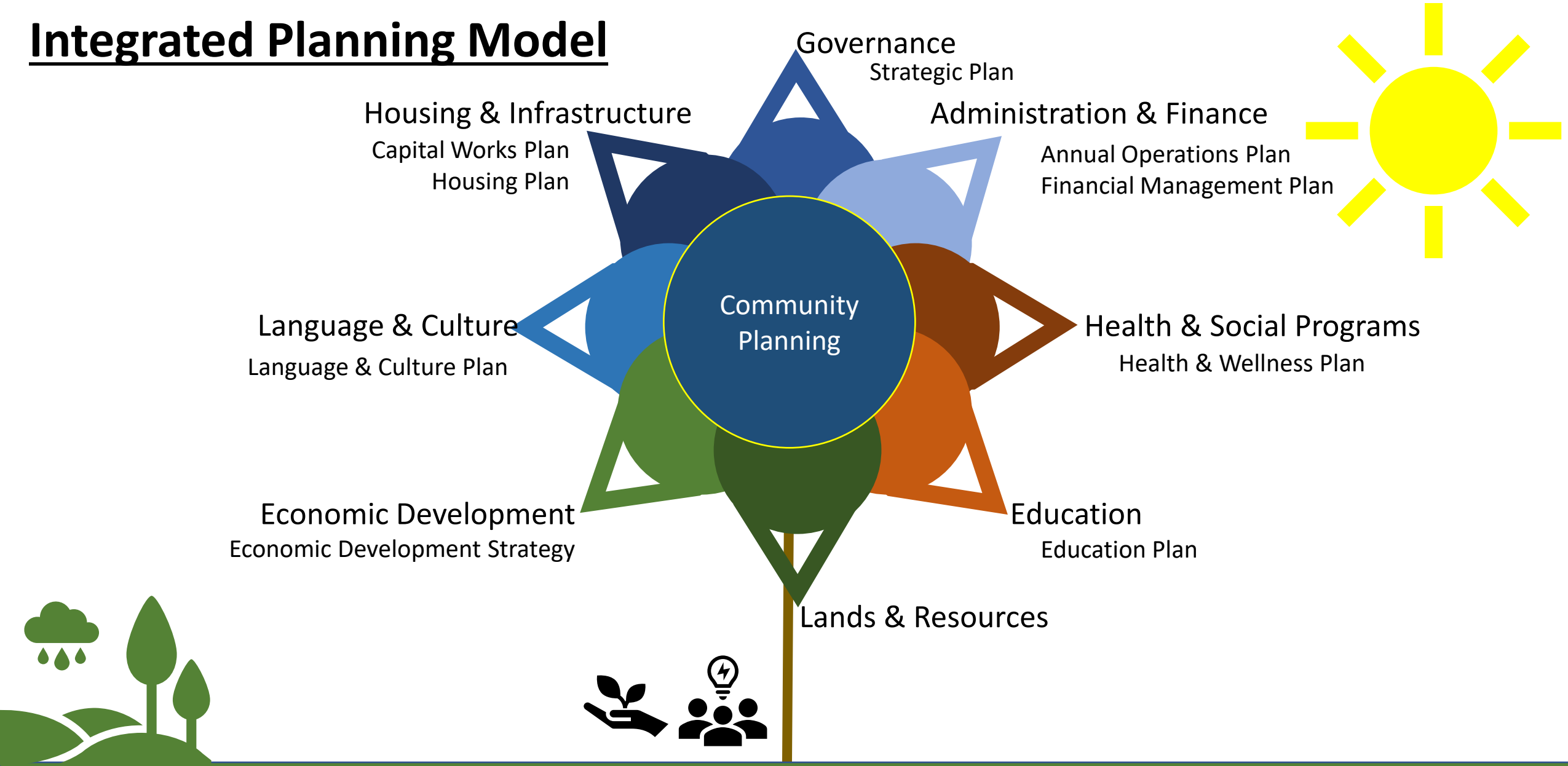
Collaborative

Equitable

Place-based

Integrated Planning

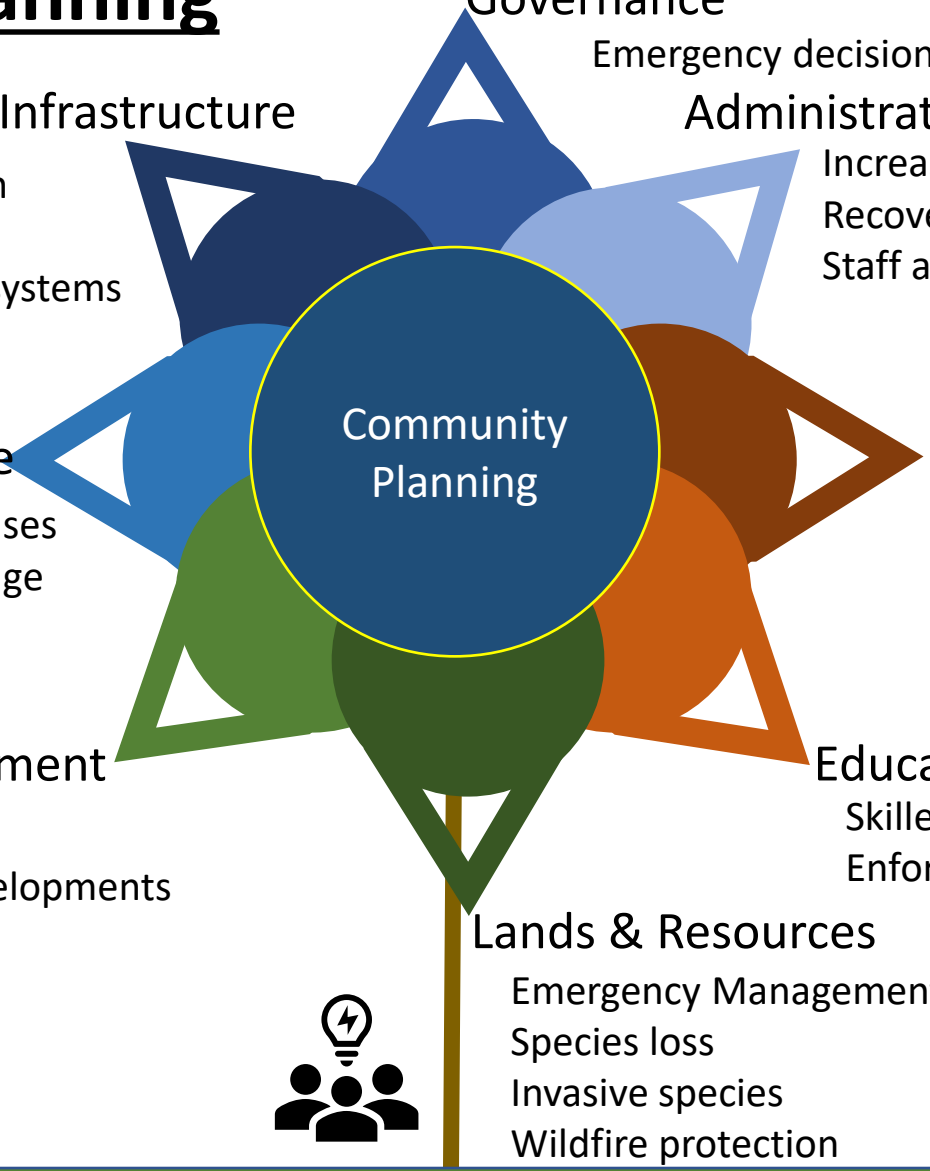
Integrated Planning Model



Lands Governance Planning (Land Code, LUP, EMP)

Aboriginal Rights & Title

Climate Resiliency Planning



Climate Stressors

Climate Stressors

Climate Stressors

Climate Stressors

Governance

Emergency decisions, political unrest

Housing & Infrastructure

Energy efficient design
Renewable energy
Upgrade stormwater systems
Protect against floods

Administration & Finance

Increased costs (insurance)
Recovery costs
Staff availability

Language & Culture

Loss of traditional uses
Traditional knowledge less reliable
TUOS/ATK Studies

Health & Social Programs

Elders care
Mental health
Cooling centres – Heat stroke
Diseases
Respiratory illness

Economic Development

Lost opportunities
Risk to existing developments

Education

Skilled monitors
Enforcement

Lands & Resources

Emergency Management Planning
Species loss
Invasive species
Wildfire protection

Lands Governance Planning (Land Code, LUP, EMP)

Aboriginal Rights & Title

How to proceed?

Climate Vulnerability Analysis

- Identify hazards, risks and vulnerability and what areas are most likely to be impacted by climate change
- Understand why these areas are vulnerable
- Assess existing coping strategies
- Develop and apply future climate scenarios, estimate future vulnerability

Climate Adaptation Strategy

- Engage your community and set priorities. Utilize TEK!
- Develop adaptation options to help reduce or eliminate vulnerabilities and risks
- Evaluate and select adaptation options
- Ongoing monitoring
- Period re-assessment with new climate data

Updates to Community, Land Use and Environmental Plans

15 climate related planning goals and actions

What do you think?

Breakout Activity:

What is Sustainable Development?