

Climate Change Workshop Planning for Climate Resilience

Calgary / November 27 & 28, 2019



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

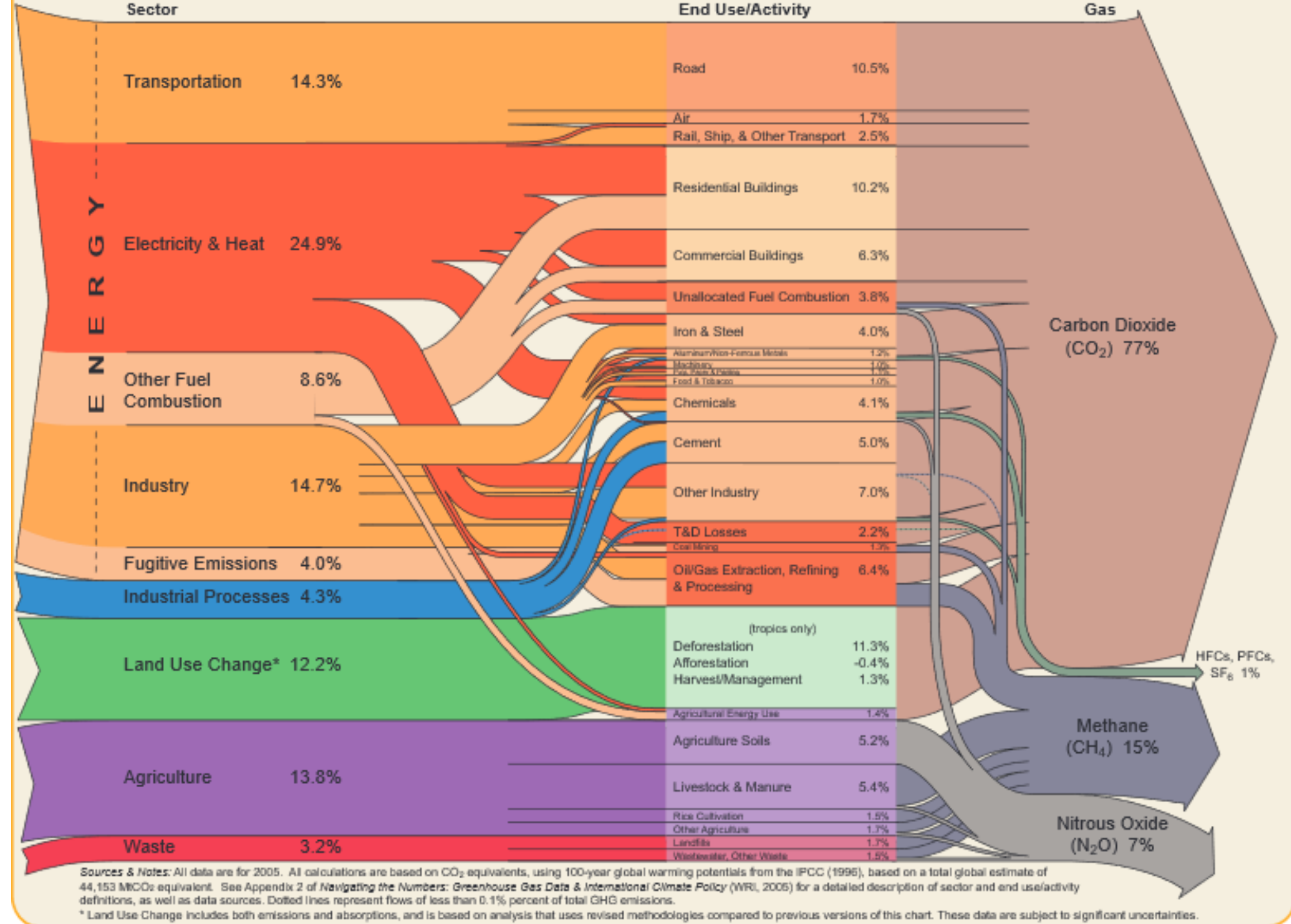
UNITED NATIONS  NATIONS UNIES



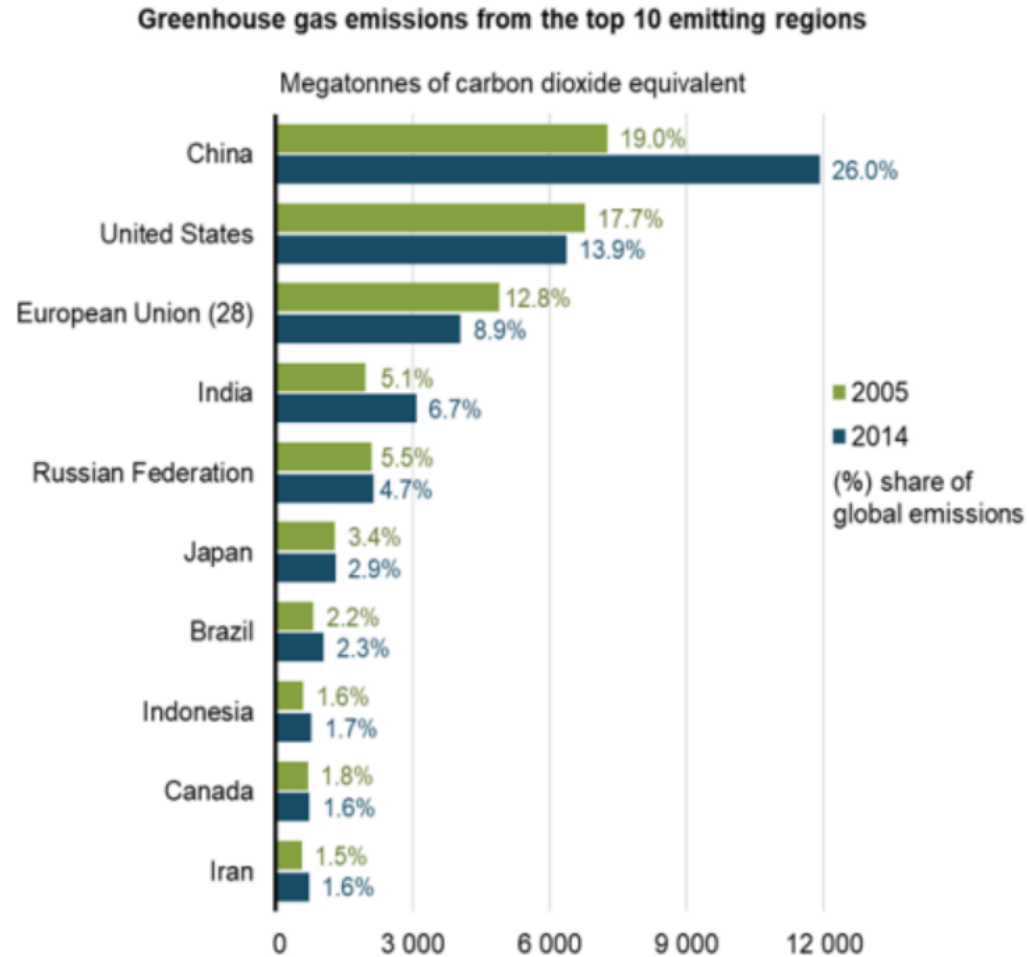
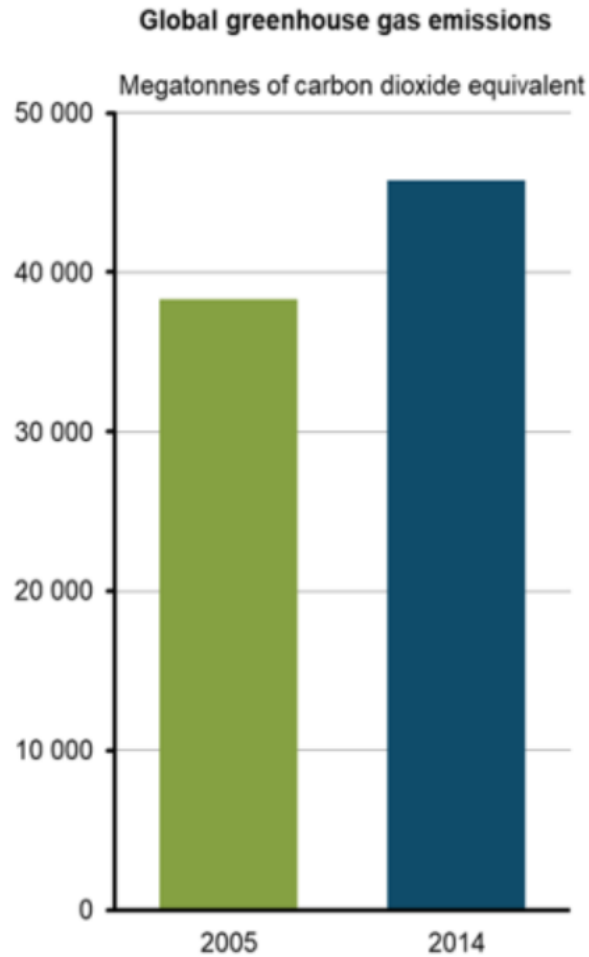
International
cooperation
on this scale
is rare!



2. International and Canadian Context of Climate Change



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



Observer Organizations

Observer Organizations

UNFCCC

United Nations Framework Convention on Climate Change

- Came into force in 1994
- Near universal membership
- Canada is a signatory

Purpose is to prevent humanity's dangerous interference with Earth's climate system



Regular Reporting on Climate Policies and Measures

Annual GHG inventories

Signatory Nations

Annex 1 & 2

Industrialized Countries, members of OECD and Economies in Transition (EiT)

Non-Annex

Developing Countries and Least Developed Countries (LDC's)

Financial Resources

Technology



Climate Resilient Development Pathways (Sustainable Development)



Principles of Climate Justice



UNITED NATIONS
**PARIS CLIMATE
AGREEMENT**
SIGNING CEREMONY
— 22 APRIL 2016 —



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



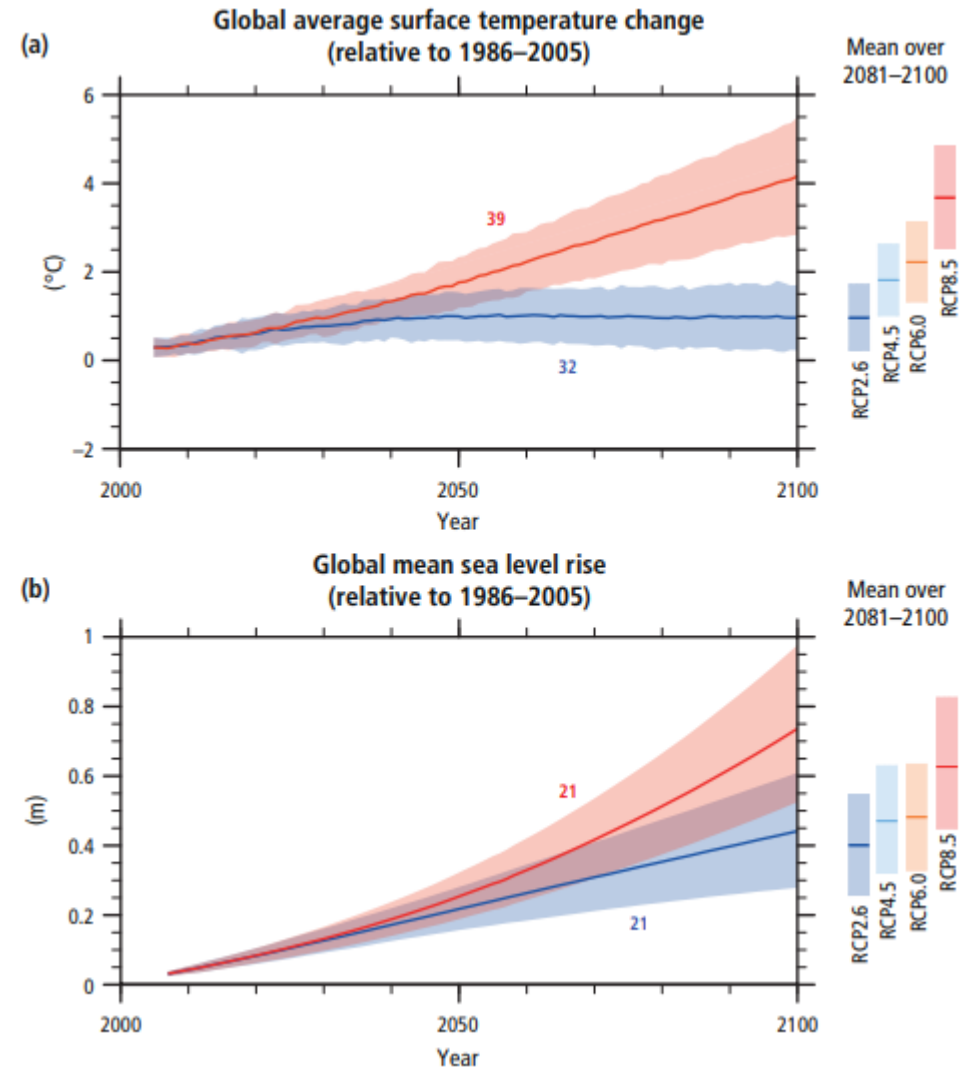


Climate change is sad,
no matter how you
dress it up.

Why does this matter?

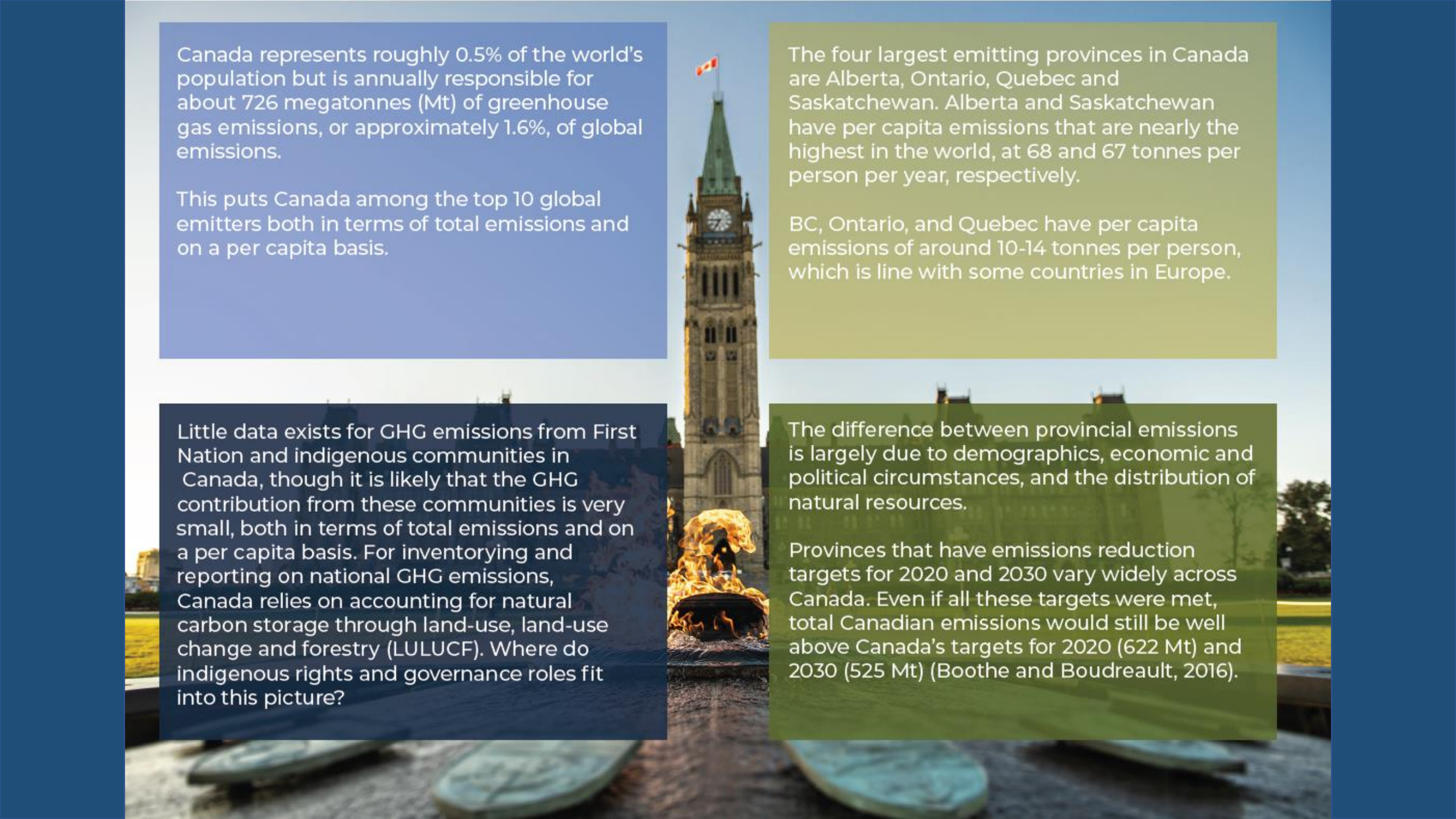
There is uncertainty when it comes to climate change. Planning adequately for a changing climate depends on what scenario you're planning for. What scenario of climate change takes place really depends on the global response.

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...



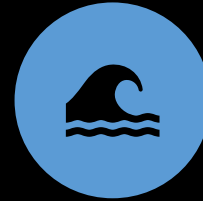
WARMING IN CANADA ON AVERAGE OCCURS AT DOUBLE THE RATE OF GLOBAL WARMING



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



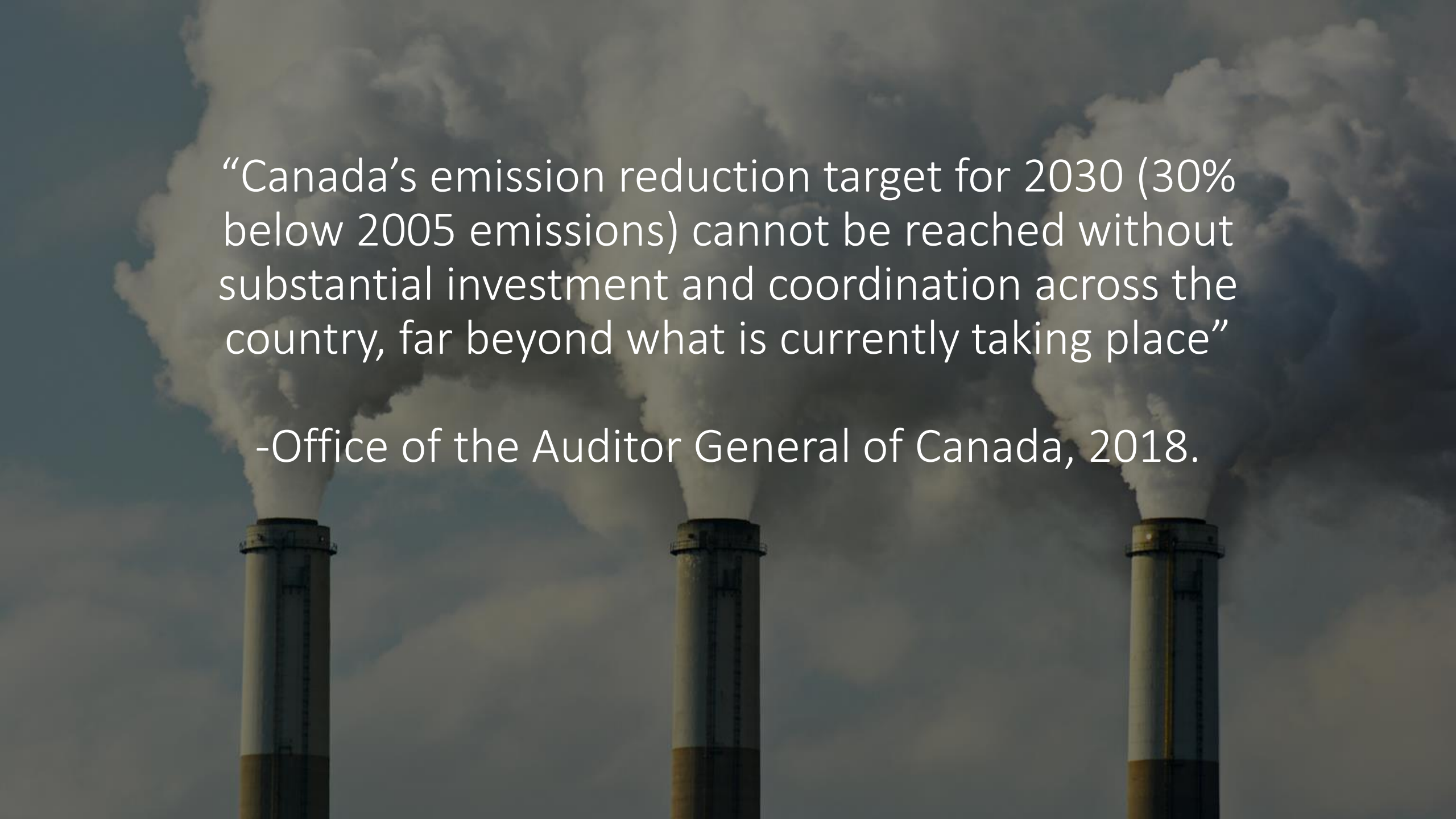
COASTAL FLOODING WILL INCREASE DUE TO SEA-LEVEL RISE;



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



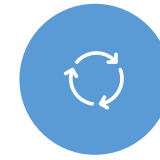
Self-governance



Planning



Holistic



Implementation



Collaborative



Equitable

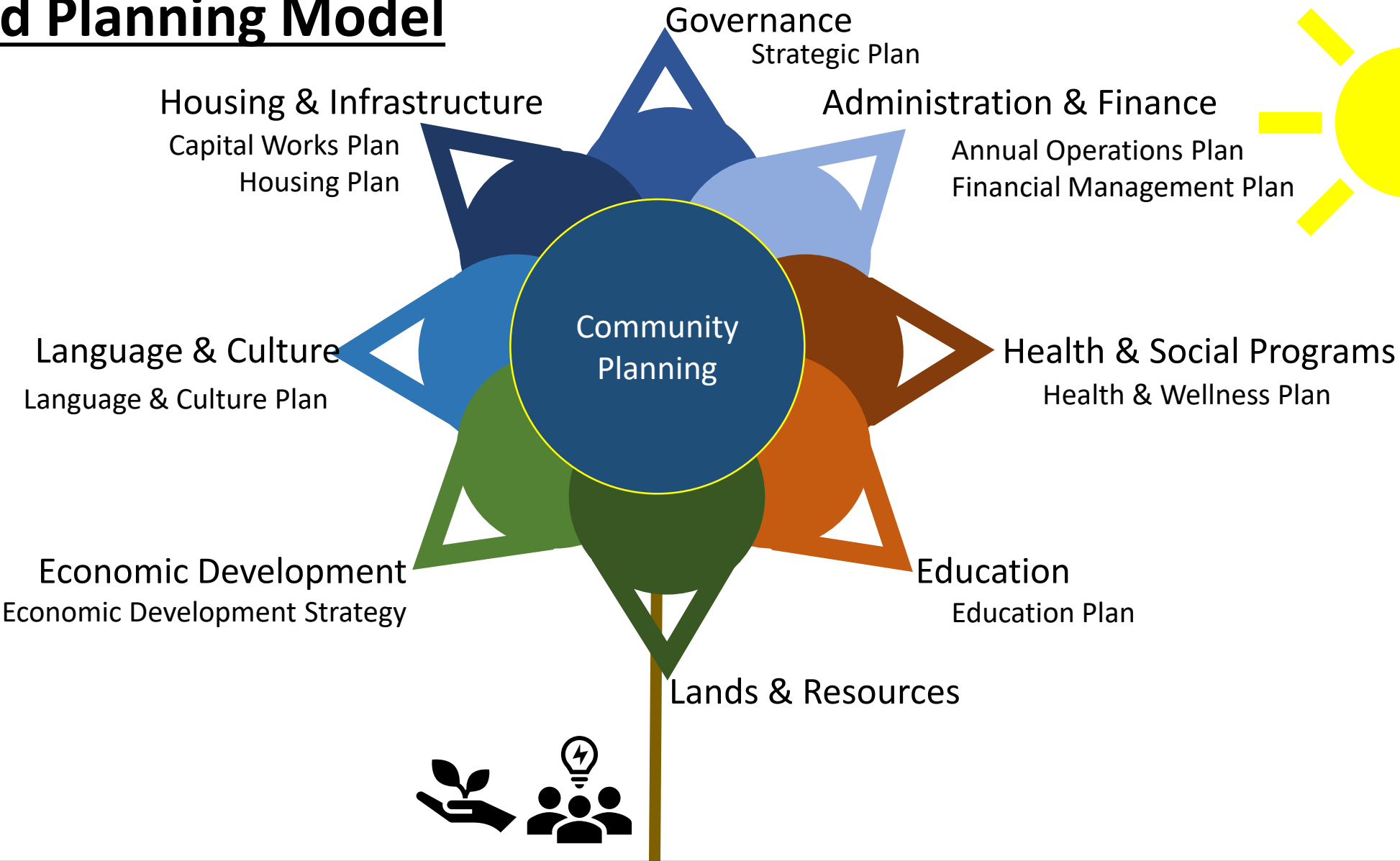
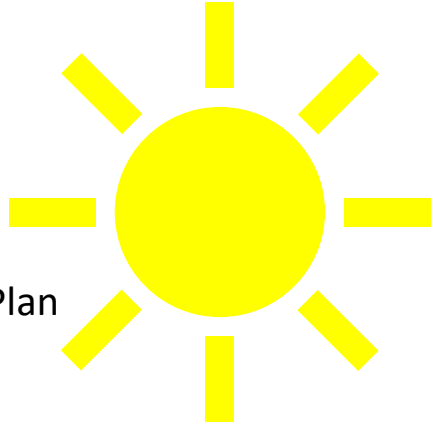


Place-based



Integrated Planning

Integrated Planning Model



Lands Governance Planning (Land Code, LUP, EMP)

Aboriginal Rights & Title

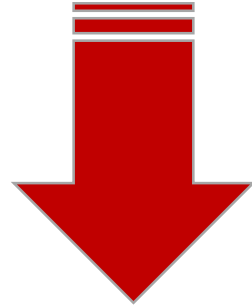
Climate Resiliency Planning



Lands Governance Planning (Land Code, LUP, EMP)

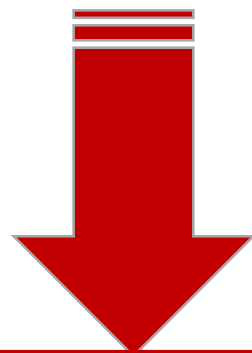
Aboriginal Rights & Title

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

GHG REDUCTION
TARGETS

CARBON
NEUTRALITY

COMMUNITY
ENERGY AND
EMISSIONS PLANS

WATER
CONSERVATION
AND EFFICIENCY

IMPROVED
INFRASTRUCTURE

ENERGY EFFICIENCY

RENEWABLE &
INTEGRATED
ENERGY SYSTEMS

IMPROVED
STORMWATER
MANAGEMENT

FLOOD
PROTECTION

EMERGENCY
MANAGEMENT

GREEN
INFRASTRUCTURE
AND NATURAL
ASSETS

PLANNING FOR
COMPLETE
COMMUNITIES

PARTNERSHIPS,
COOPERATION &
COLLABORATION

ENVIRONMENTAL
ASSESSMENT LAW

DEVELOPMENT
PERMITTING



What do you think?

Breakout Activity:

What is Sustainable Development?

