



Climate, Health & Sustainable Care Inaugural Symposium

2024



@climate-health 
climate.health@utoronto.ca 

James Orbinski

Towards Addressing Climate Change & Sustainability:
A Values-Driven Triple E Transformation

Introduced by: Danielle Martin



**Climate, Health &
Sustainable Care**
Inaugural Symposium

**Critical
Problem
Solving**

for

**Equity,
Effectiveness
and Excellence**

in the

Climate Crisis



***Collaborative Centre for Climate, Health
& Sustainable Care***

University of Toronto

October 22, 2024

James Orbinski OC, MSC, MA, MD, MCPC

Professor & Director, Dahdaleh Institute for Global Health Research, York University, Toronto

Don't
Problem
Solving
Research

the ^{for} See dot,
Education
Reality
Effectiveness
as it is
and Practice
illusion
Change

Climate Crisis



Greening the campus

What
& curriculum
is the role
of development
of Universities?...

.... Only?

dighr.yorku.ca

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GLOBAL
HEALTH
RESEARCH



Climate-U

Transforming Universities
for a Changing Climate

The impact of
universities on
climate change:
a theoretical
framework

Transforming Universities
for a Changing Climate
Working Paper Series
No. 1

Tristan McCowan

August 2020

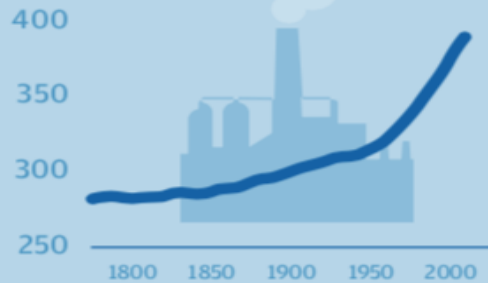


UK Research
and Innovation

BUT TO ACHIEVE THIS WE'VE EXPLOITED THE PLANET AT AN UNPRECEDENTED RATE

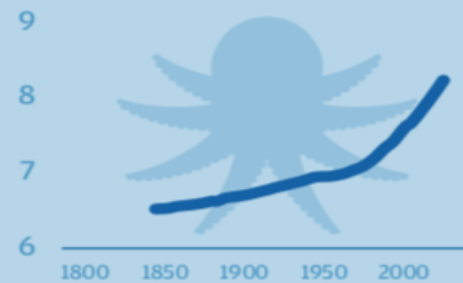
CARBON DIOXIDE EMISSIONS

Atmospheric concentration of CO₂ (ppm)



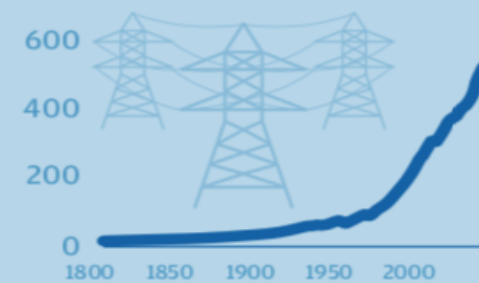
OCEAN ACIDIFICATION

Global ocean acidification (mean hydrogen ion concentration, nmol/kg)



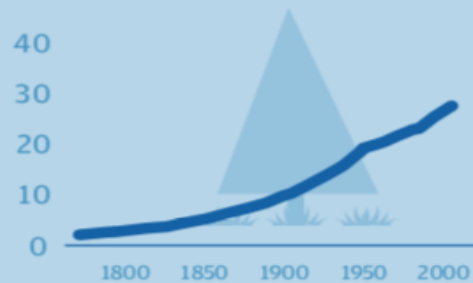
ENERGY USE

World primary energy use (EJ)



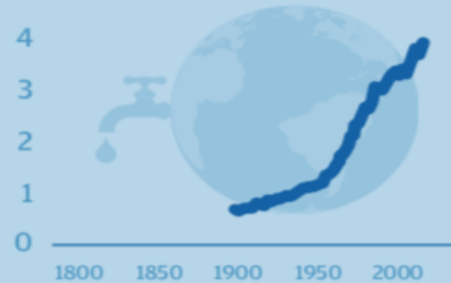
TROPICAL FOREST LOSS

Global tropical forest loss compared with 1700 baseline (%)



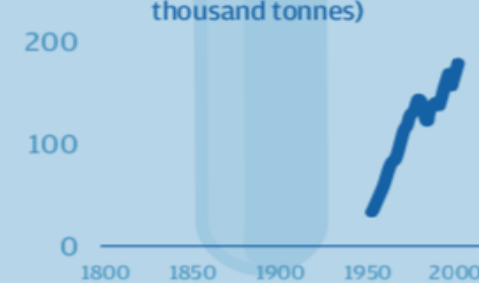
WATER USE

Water use (thousand km³)



FERTILISER USE

Global fertiliser use (nitrogen, phosphorus, and potassium; thousand tonnes)



Population &

Urbanization:

8 Billion

56 % in Cities

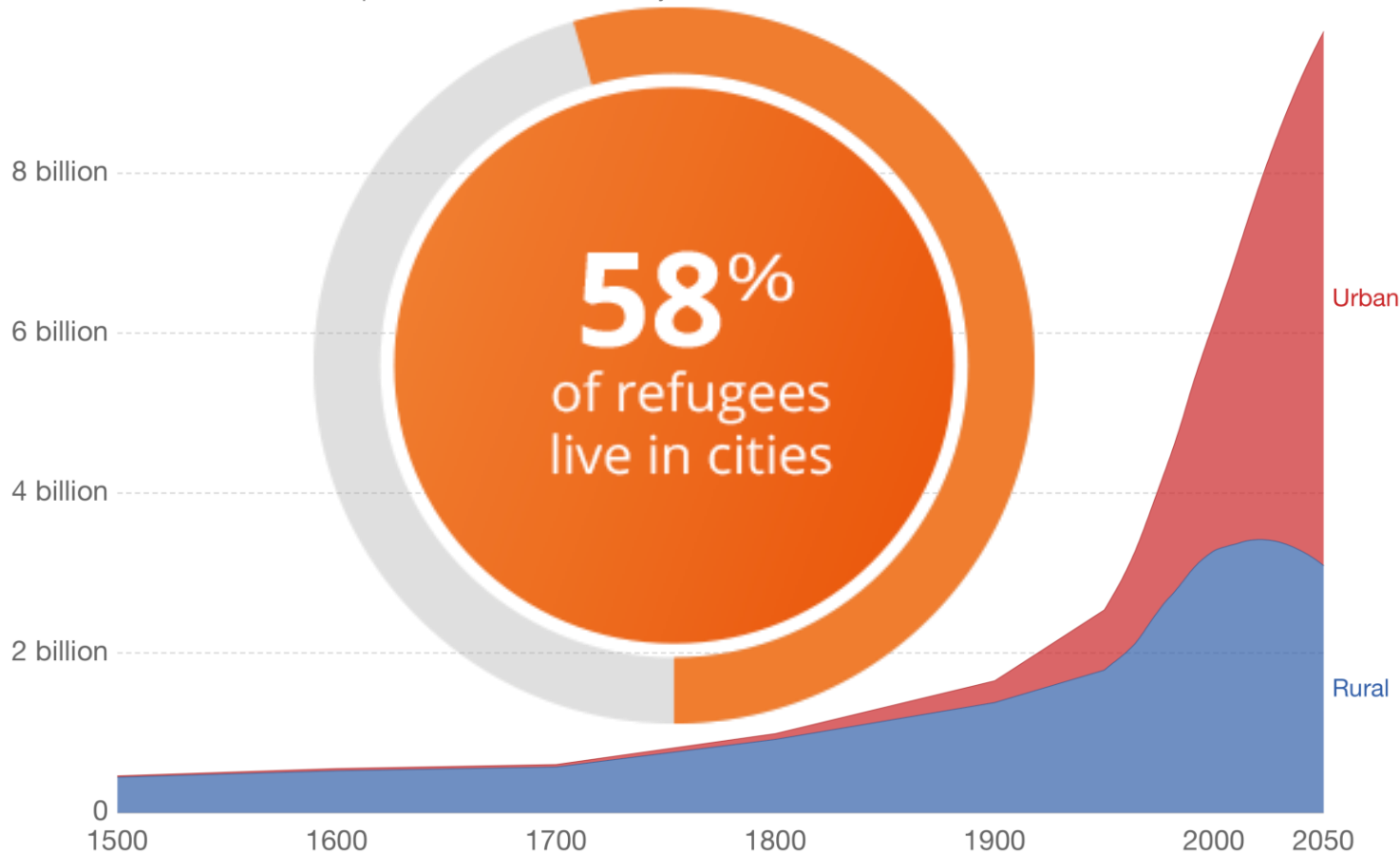
66% by 2050

Kibera, Nairobi

Urban and rural population projected to 2050, World

Total urban and rural population, given as estimates to 2016, and UN projections to 2050. Projections are based on the UN World Urbanization Prospects and its median fertility scenario.

Our World
in Data



Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources)

CC BY

**Climate has
Moved on:**

**worse than
our best &
most
conservative
science
projected**

ipcc

INTERGOVERNMENTAL PANEL ON climate change

CLIMATE CHANGE 2023

Synthesis Report

Summary for Policymakers

A Report of the Intergovernmental Panel on Climate Change

Global & Regional Tipping Points

The Global Risks
Report 2024
19th Edition
INSIGHT REPORT

FIGURE 2.5 | Examples of global and regional tipping points



2023 hottest of last 50 years consecutively

**hottest years ever
(WMO, 2023)**



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Extreme Weather Events

Flood

Derna, Libya

September 2022



Extreme Weather Events

Wild Fire

NWT Canada

Sept 2023



Extreme Weather Events

62,629 deaths due to
Extreme Heat
heat related mortality
across Europe

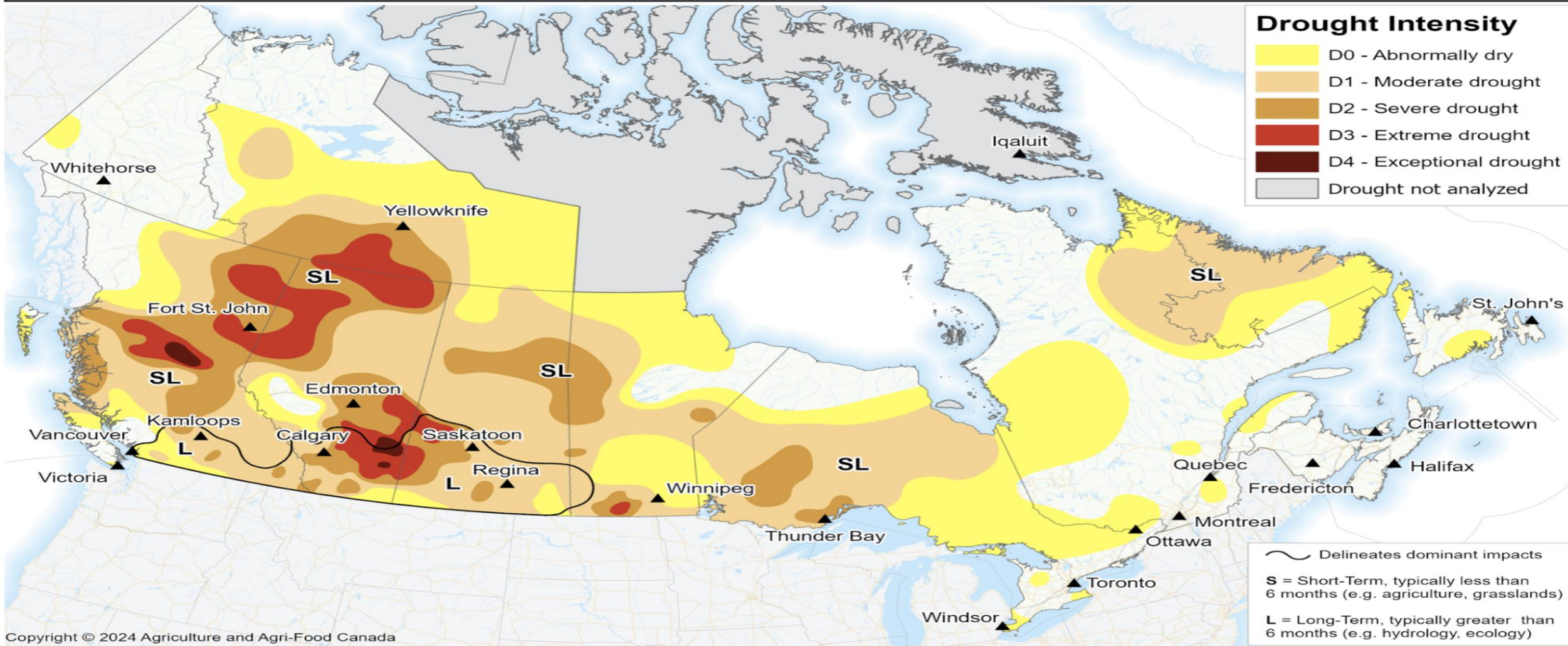
Summer 2022





Canadian Drought Monitor

Conditions as of March 31, 2024



Copyright © 2024 Agriculture and Agri-Food Canada

Prepared by Agriculture and Agri-Food Canada's National Agroclimate Information Service. We also acknowledge various provincial, territorial and non-government organizations whose reports and assessments are consulted. The Drought Monitor focuses on broad-scale conditions. Regions in northern Canada may not be as accurate as other regions due to limited information.

Created: 2024-04-05
www.agr.gc.ca/drought

Borders as Context:

All things **Global** are ultimately **Local**



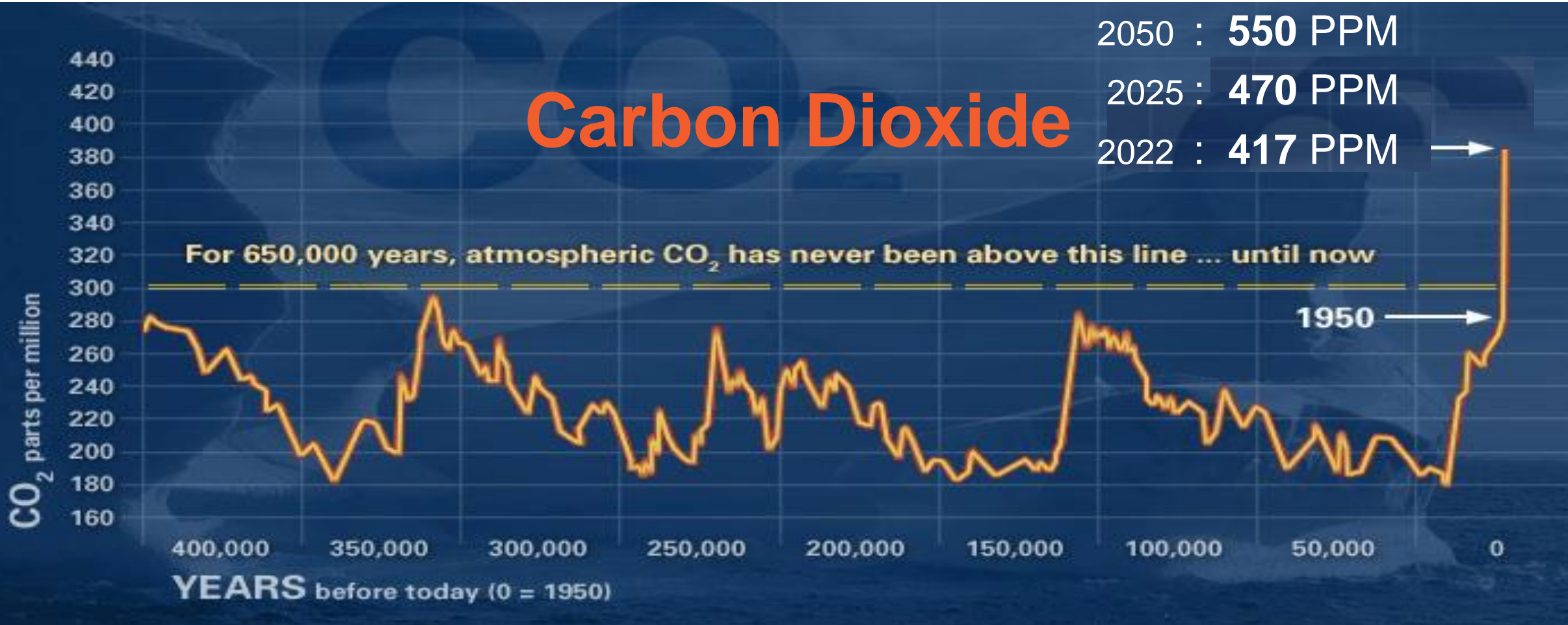
“The microbe is nothing,
the milieu everything.”

“Chance favors the
prepared mind”

Louis Pasteur

Atmospheric carbon last year reached levels not seen in 800,000 years

Carbon Dioxide



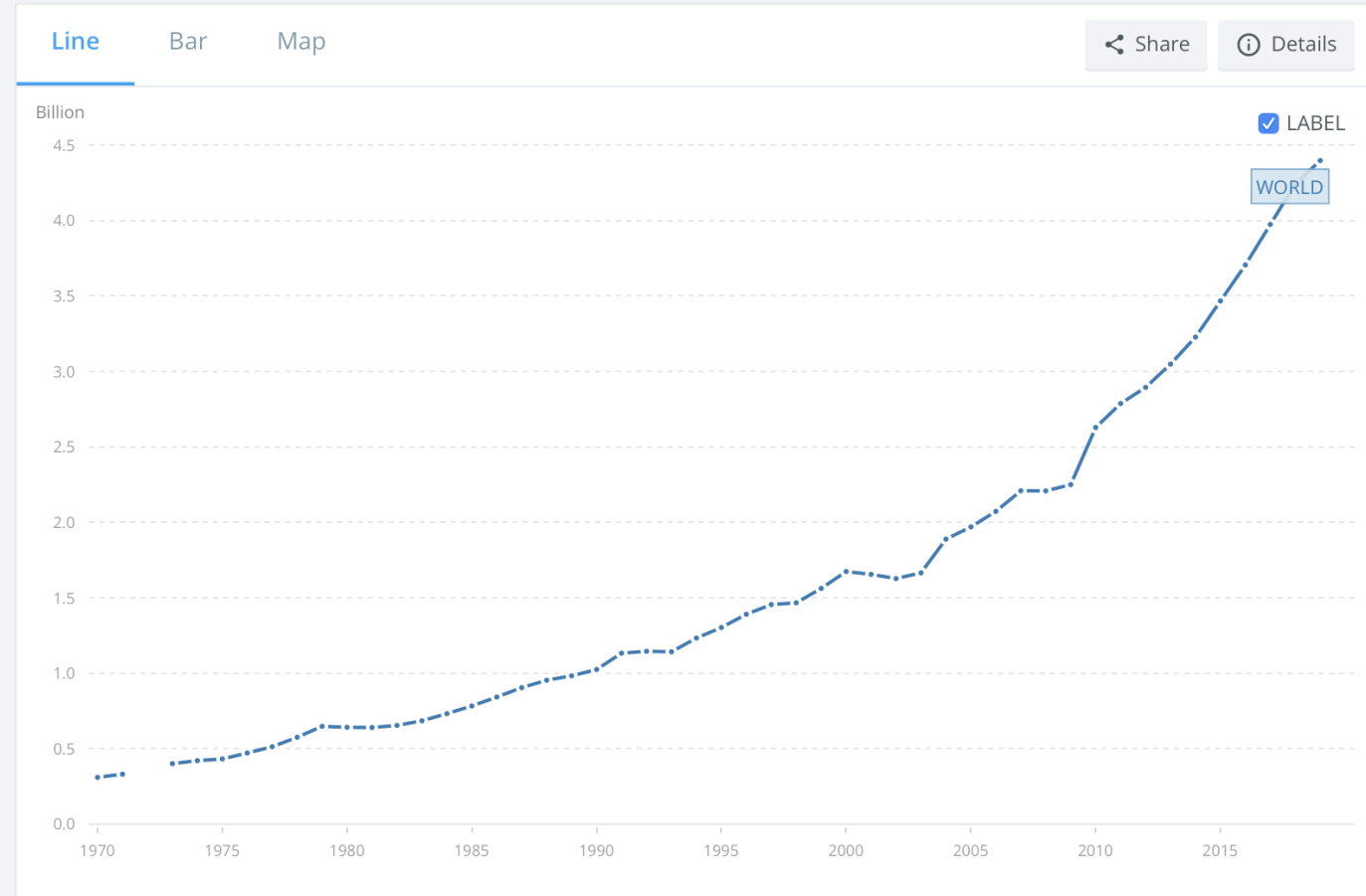
Air Transport, Passengers Carried

4.4 Billion Air
passengers
carried in
2019

12 Million per
day

International Civil Aviation Organization, Civil Aviation Statistics of the World and ICAO staff estimates.

License : CC BY-4.0



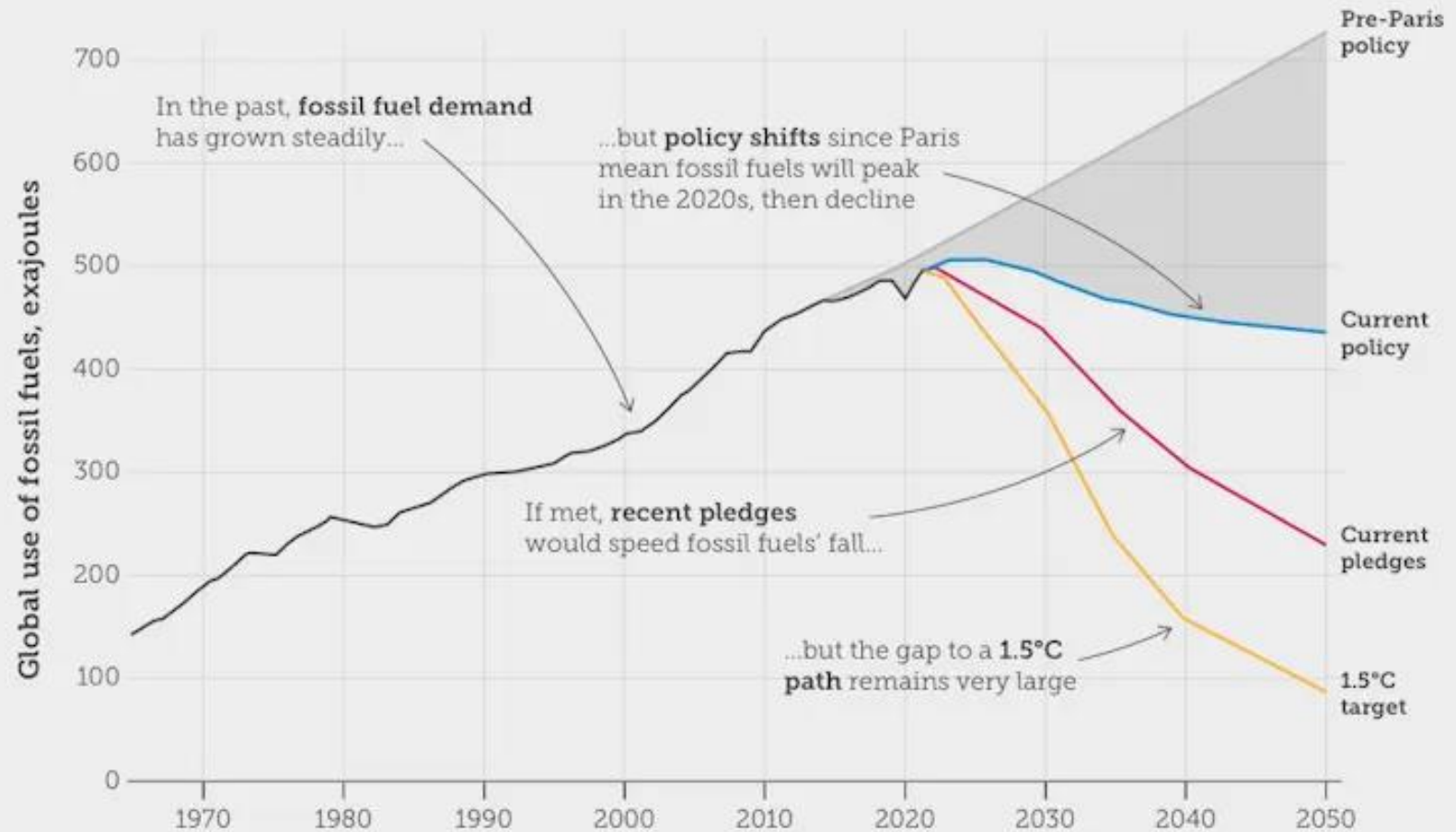
World
(2019)
4.397
Billion

International Civil Aviation Organization, Civil AVIATION Statistics of the World and ICAO staff Estimates. World Bank. <https://data.worldbank.org/indicator/IS.AIR.PSGR> Accessed April 25, 2021.

global emissions must roughly half by 2030

to keep the 1.5°C goal within reach....

.....5 years from now



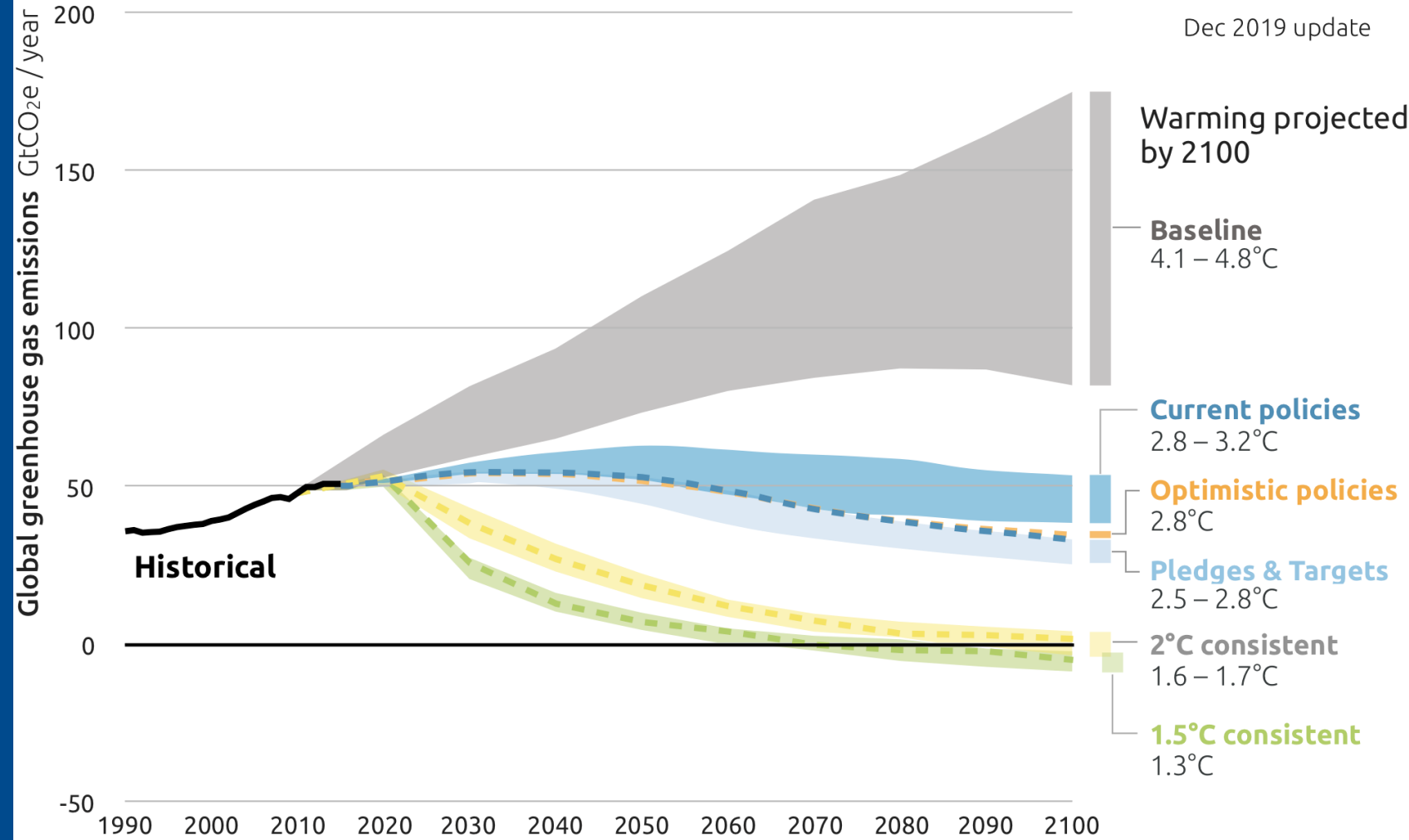
Warming Projections to 2100

2100 WARMING PROJECTIONS

Emissions and expected warming based on pledges and current policies



Dec 2019 update



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**We are on track
to go well
Beyond 1.5 C**

“ Beyond 1.5°C warming, we will see new risks will emerge associated with sea level rise, permafrost degradation, biodiversity loss, water scarcity, more extreme weather, food insecurity. ...”

Skea, J (2024). **IPCC Chair Opening Remarks at the Copenhagen Climate Ministerial Meeting.** Copenhagen, Denmark. 21 March 2024.



Multiple Earth System Tipping Points possible >1.5C global surface temperature warming long-term.

Climate & Energy | Climate Change

Climate change drives world to first 12-month spell over 1.5C

By Kate Abnett and Gloria Dickie

February 8, 2024 1:27 PM EST · Updated 4 days ago



Summary

- First 12-month period above 1.5C threshold
- World just had hottest January on record
- Climate change, El Nino push up temperatures

Rats

'Perfect rat storm': Ontario cities seek ways to fight increasingly visible rats

By Sheila Reid • The Canadian Press

Posted July 10, 2024 6:18 am • Updated July 10, 2024 6:26 pm • 4 min read



2:15



North Vancouver cat culls rats as city park sees rodent infestation

Species Extinction

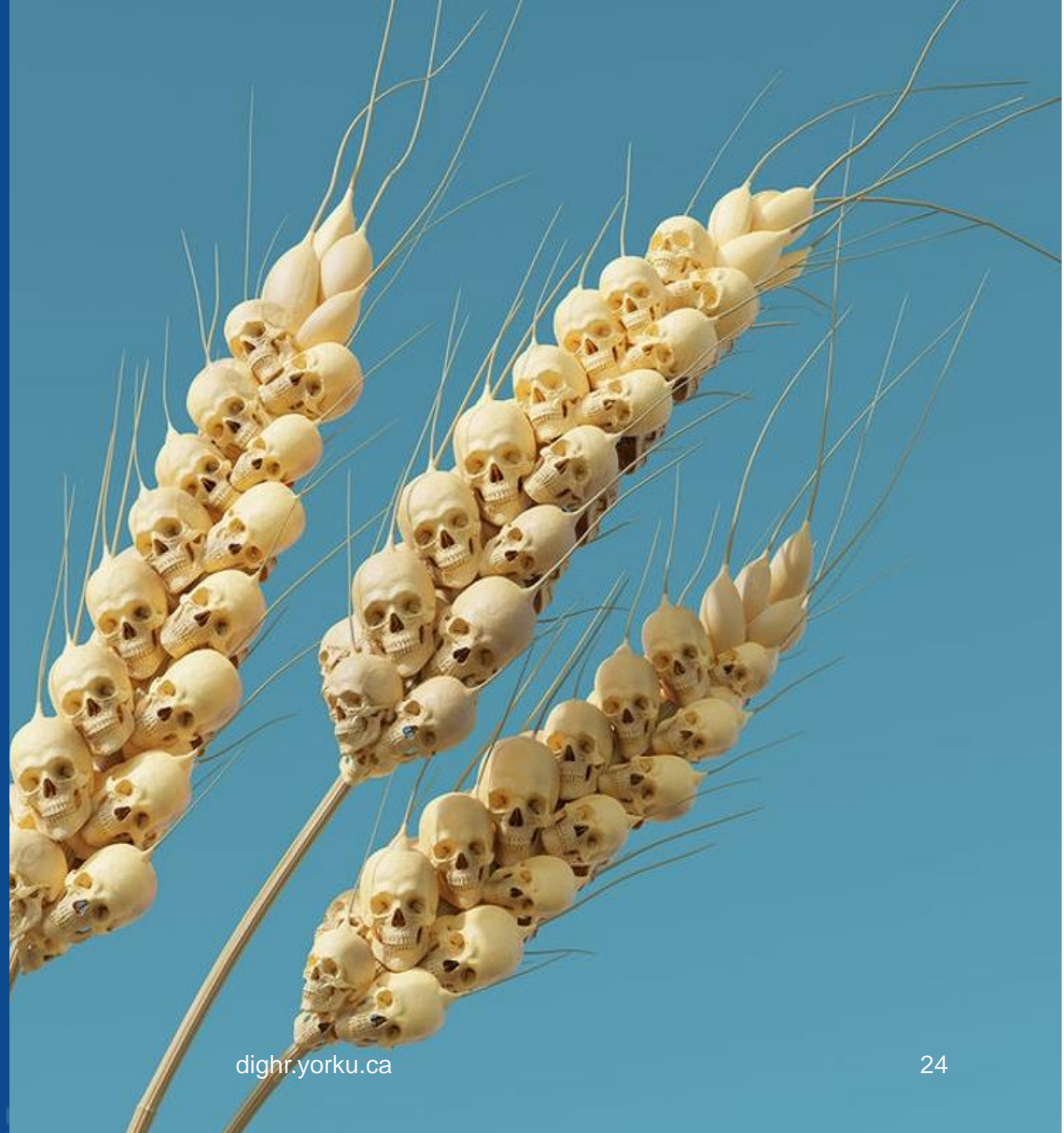
“We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide.”



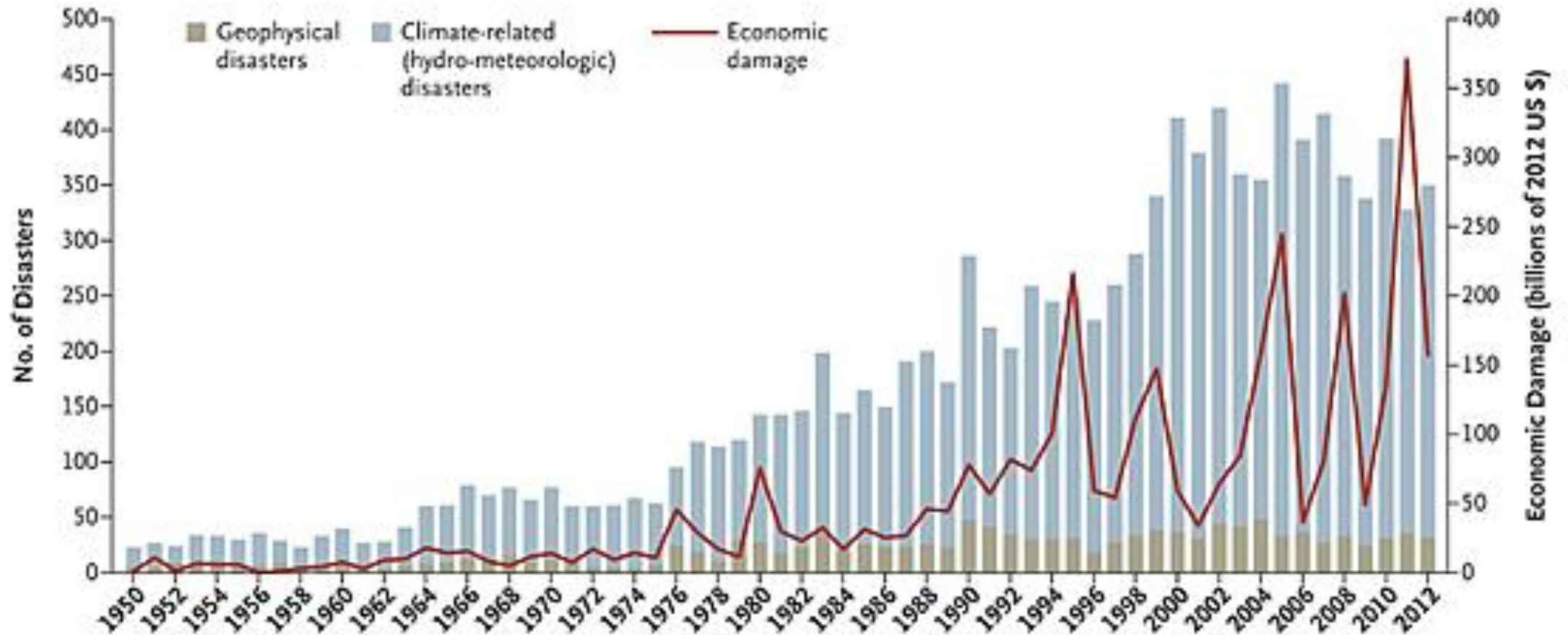
2023

Global Warming is increasing people's vulnerability to humanitarian crises.

The world's eight worst food crises are all linked to both conflict and climate shocks.

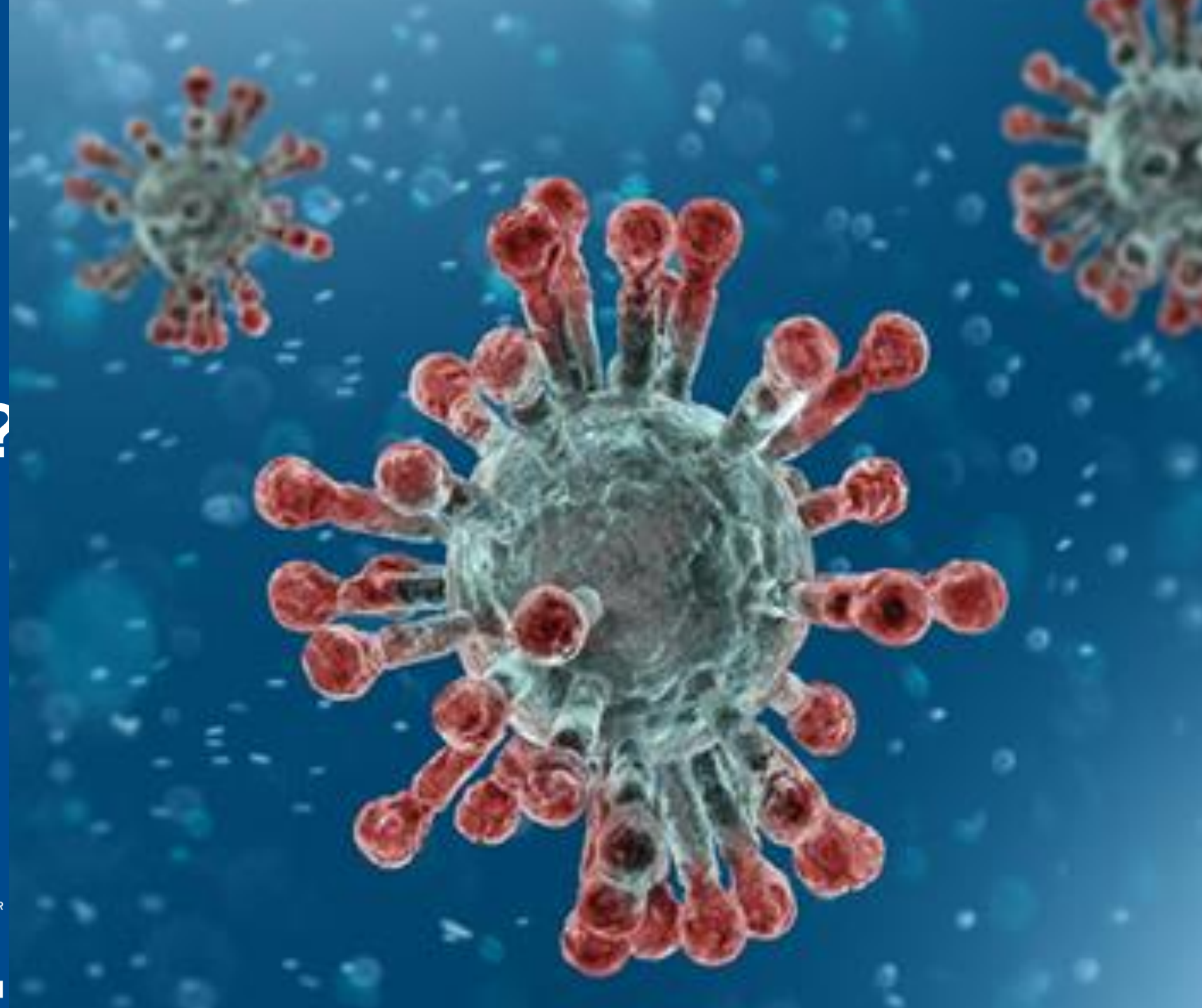


Global Warming & Extreme Weather



COVID-19

Lessons Learned?



It is wise self-interest to be concerned about the welfare of others

“No one is safe until everyone is safe”

Dr. Tedros, WHO Director General



Vaccine Nationalism

THE YEAR AHEAD
FP/2024

10 Conflicts to Watch This Year

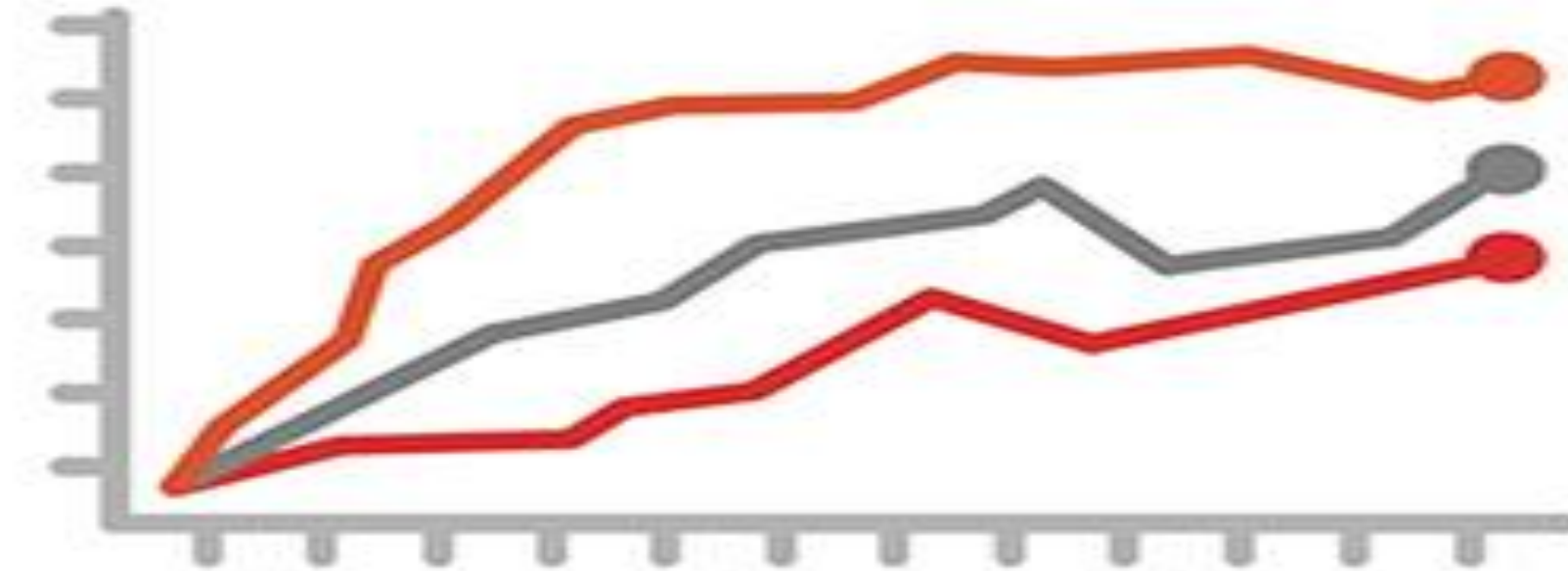
By **COMFORT ERO**
and **RICHARD ATWOOD**



Climate Change Amplifies & Drives Conflict: Chad Basin



Worsening Dynamic: CC & Fragile States



- War & Displacement
- Food Insecurity
- ERIDS

2024: Highest ever Number of People in Need of Humanitarian Assistance



- 362 Million People in need
- 189.4 million people targeted
- 48.5 M reached (27%)

REQUIREMENTS (US\$)

\$48.65 B

TOTAL HUMANITARIAN FUNDING (US\$)*

\$11.23 B

23%



United Nations

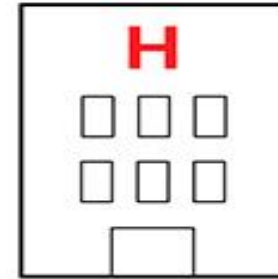
Information Service Vienna

1: <https://unis.unvienna.org/unis/en/topics/related/2023/humanitarian-need.html#:~:text=One%20in%202022%20people%20around,which%20is%20a%20record%20high>. Accessed October 10, 2024
2: <https://humanitarianaction.info> Accessed October 10, 2024.

Upholding the norms that safeguard humanity



NOT A TARGET



NOT A TARGET



NOT A TARGET

#NotATarget

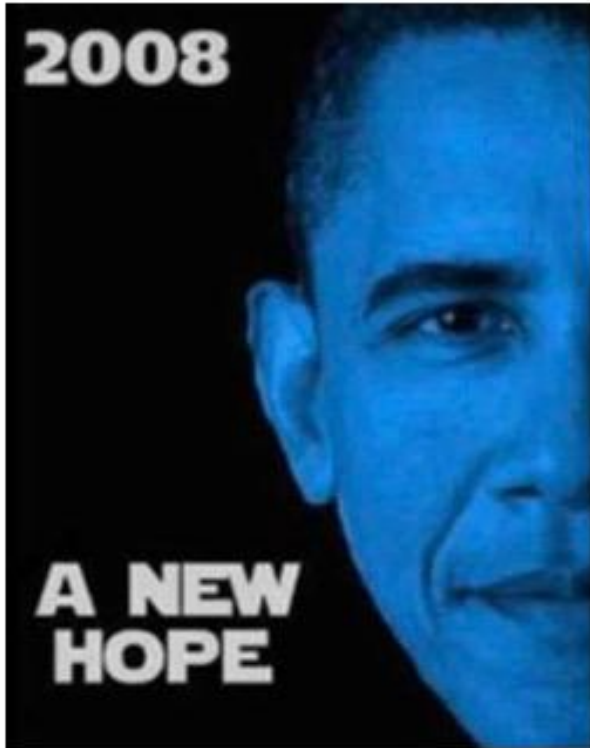


Governance



Politics Matters ...





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COP27 will be remembered as a failure – here's what went wrong

Published: November 21, 2022 3.56pm GMT

COP27

SHARM EL-SHEIKH
EGYPT 2022

COP27
SHARM EL-SHEIKH
EGYPT 2022

COP 28

Mitigation

- “made a start’ on transition from FF to GE
- A new Framework for the Global Goal on Adaptation
- Operationally defined the Loss & Damage Fund

- Mitigation : needs deep cuts by 2023 to stay within 1.5C ”a target and plan that is “ A Broken Record”
UNEP

- We have shown that it is possible:
- ... we have the tools ... carbon pricing, regulation, technology impacts
- But

Finance

Mitigation

- Tracked Finance for mitigation is 3-6 X lower than what is needed for 1.5 C or 2 C warming pathways
- Gaps are least for energy supply, esp electricity generation, but greater for energy efficiency, transport, and land use measures

Adaptation

- Only 4-8% of tracked climate financing is for A
- 90% of this is from public sources
- Therefore little implementation of A esp in LMICs

**Critical
Problem
Solving**

**for
Adaptation
Equity,
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in the

Climate Crisis

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Clear and present danger: yet

- Slow and uneven progress
- fragmented Initiatives
- Too small in scale, incremental, Sector specific
- More focused on planning than doing & testing
- Hard limits to A bcs of lack of \$, & institutional capacity
- Growing Gaps btwn needs and required A solutions
- Gaps are largest in low income populations

1) the modalities of university action (education, knowledge production, public engagement, service delivery and campus operations);

Greening the campus

2) direct engagement with bridging development actors
What & curriculum development of universities?

3) the broader influence on **only?** understandings and practices; and

4) impact on the ecosphere.

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The impact of
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Tristan McCowan
August 2020

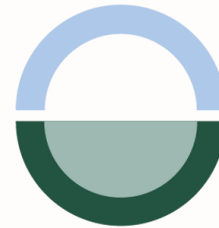


UK Research
and Innovation

The Role of Universities

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Global Health and Climate Change

1/5

(18%) of global deaths attributed to fossil fuel related air pollution.¹

5%

(4.9%) of global Greenhouse Gas Emissions related to healthcare.²

10%

of Global World Product allocated by healthcare.³

1-Vohra K, Vodonos A, Schwartz J, Marais EA, Sulprizio MP, Mickley LJ. Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem. *Environmental research* 2021.

2-Romanello M, McGushin A, Di Napoli C, et al. The 2021 report of the Lancet Countdown on health and climate change: code red for a healthy future. *Lancet* 2021; **398**(10311): 1619-62.

3-World Health Organization. Global Spending on Health: Weathering the Storm, 2021.

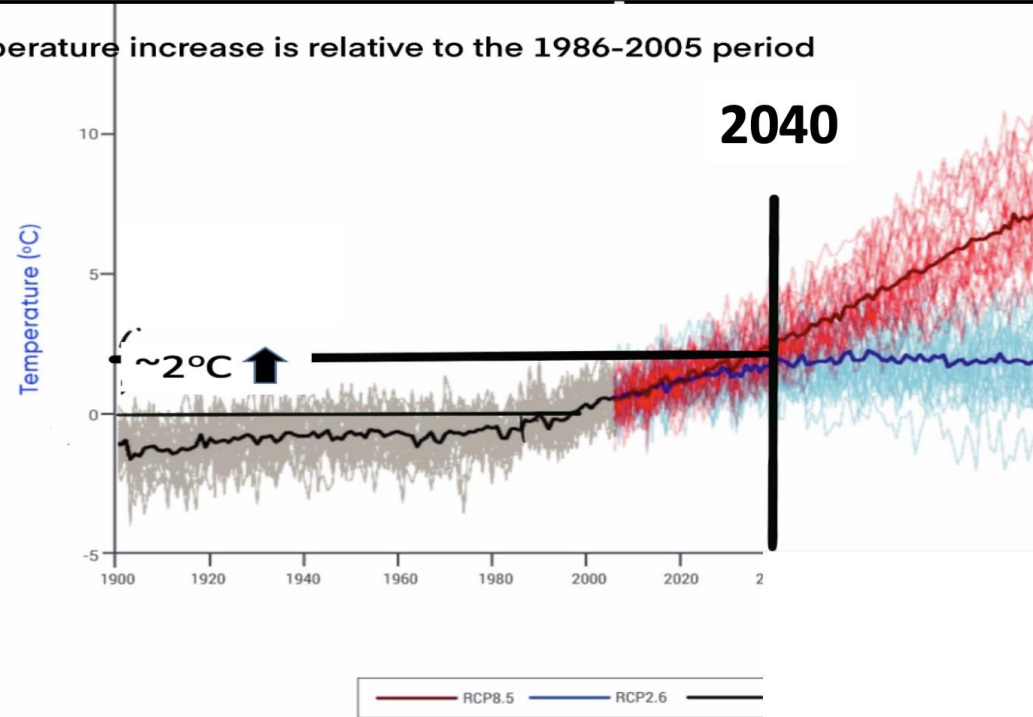
ADAPTATION SPRINT

We are not at a new normal
Canada Will Continue to Warm Until at Least Mid-Century

Projected additional temperature increase is relative to the 1986–2005 period

Canada is warming at Double the Global Average.

“Warming globally & for Canada will be similar under all plausible emission pathways over the next two decades”
About 2°C warmer in Canada



In 2040

~A child born today will be 16.
~Today's first year medical student will be just over 10 years into practice as a Family Physician.

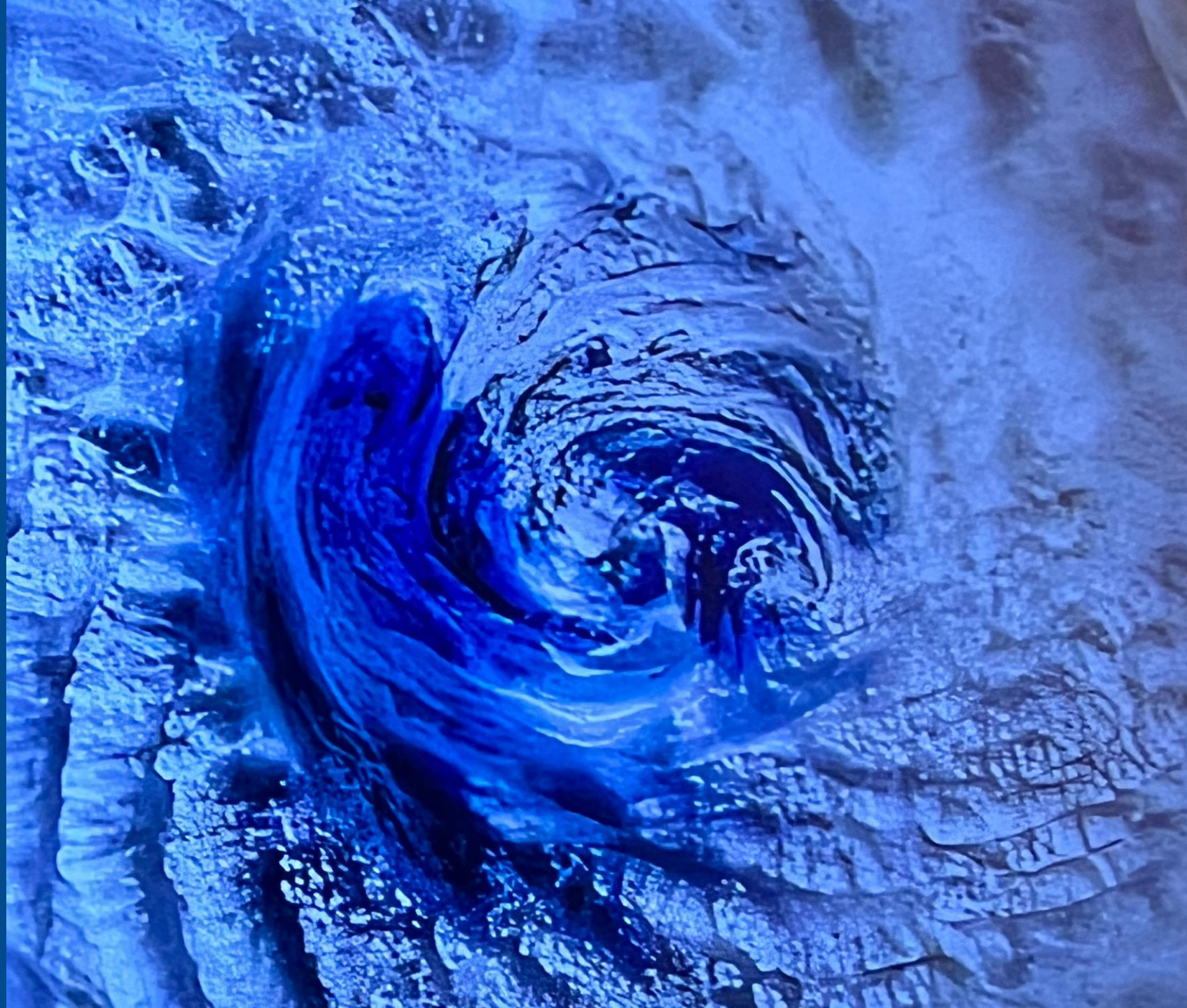
<https://www.nrcan.gc.ca/environment/impacts-adaptation/21177>

Planetary Health

Modelling the Health Impacts

of
Climate Change in
the

Lake Chilwa Basin,
Malawi



Global Health & Humanitarianism

Research

Training

THE HUMANITARIAN WATER ENGINEERING LAB



• Chemical Water Quality
& Severe Acute Malnutrition

HUMANITARIAN WATER ENGINEERING

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cifal York

unitar United Nations Institute for Training and Research

YORK UNIVERSITY

Achieving
greater equity
in global
health
Global Health
requires
Forecasting
and
Monitoring

Without it,
we will
achieve
greater
inequity.

COVID

Clinical Public Health



COMMENT | VOLUME 402, ISSUE 10418, P2173-2176, DECEMBER 09, 2023

Download Full Issue

PDF [251 KB] Figure

Seeding a planetary health education revolution: institutional sign-on challenge

Courtney Howard • Geneviève Moineau • Julien Poitras • Nicole Redvers • Jemilah Mahmood • Mohamed Eissa • et al. [Show all authors](#)

Published: November 21, 2023 • DOI: [https://doi.org/10.1016/S0140-6736\(23\)02526-6](https://doi.org/10.1016/S0140-6736(23)02526-6) • [Check for updates](#)

- References
- Article info
- Figures

“Climate change is the biggest global health threat of the 21st century”,¹ warned the *Lancet*–University College London Commission on climate change in 2009. Yet still today, as health and health systems are destabilised by wildfire-related hospital evacuations, mass casualty events due to heatwaves, supply-chain disruption from flooding, and more,² medical teaching on the intersections of health, climate change, and air pollution remains inadequate.³ Many health professionals feel unprepared to interact with their communities as a result of inadequate planetary health teaching, time, or peer support.^{3, 4, 5}

Mother Earth's vital signs are worsening: six of the nine planetary boundaries essential to Earth system stability, including climate change, have been transgressed.⁶ September, 2023 had an average surface temperature about 1.75°C warmer than 1850–1900.⁷ Multiple climate tipping points could be breached if temperatures consistently exceed 1.5°C of warming, risking self-perpetuating climate change.⁸

Adaptation

Research:

Implementation research: Testing, M&E of A Tools
Integrated Built Environments
Viable finance strategies

Teaching

Residents, Grad students and Undergrads as part of all research

Change Practice

Clinical Public Health tools, Algorithms & Guidelines for
Infectious Diseases
Extreme heat

Primary Health Care must now include

community engagement and building
Participation in public planning re built environments
Disaster prevention, response & mitigation
Engagement and Support for pragmatic local A initiatives
(AC in Schools)

We are part of nature:
We are part of nature:

Dependent,
we depend on

The idea that we are above
nature—that we have dominion
over it, and that it is endlessly
abundant—is a dangerous relic
of an age of arrogance and
to sustain us.



**An Imperfect
Offering,**

2009, pg.

**“Stories, we all have stories.
Nature does not tell stories, we do.**

**We find ourselves in them,
make ourselves in them,
choose ourselves in them.**

**If we are the stories we tell ourselves,
we had better choose them well.”**

A new way of
being in
relation to
each other -
all of us-

and to our
biosphere,
Mother Earth.



Life Centered Design

Within its sustaining ecology

for all life

including human life

Nature Based Solutions



*Collaborative
Centre for
Climate, Health
& Sustainable
Care*

**Grow Deep
Roots**





All that is global is first and last local.

Initiatives must be relevant.

Critical Problem Solving with

effectiveness, equity and excellence

as guiding principles.

Collaboration moves at the speed of trust.

See reality
as it is ...

Show up ...
get dressed ...



Don't Get lost in the clouds

...but don't let go ...

**... It will never be possible
if we don't try.....**



Travelers,
there is no path,
paths are made
by walking.

ANTONIO MACHADO

www.beyondtravelwriting.com



21st Century Leadership

.....
Are You Ready?



“Hope is not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out.”

Vaclav Havel

playwright, dissident, and former
President of Czechoslovakia & the
Czech Republic



Do not chase the red dot, for it is an illusion.

**There is no
Utopia:
there is only what
we do.**



Please provide feedback to inform future events

Symposium Evaluation Survey

