The Climate Adaptation and Resilience Imperative

Presented by: Kristina Dokoska, Project Coordinator
February 21, 2020

ONTARIO CLIMATE CONSORTIUM

Supported by Toronto and Region Conservation Authority

Ontario Climate Consortium

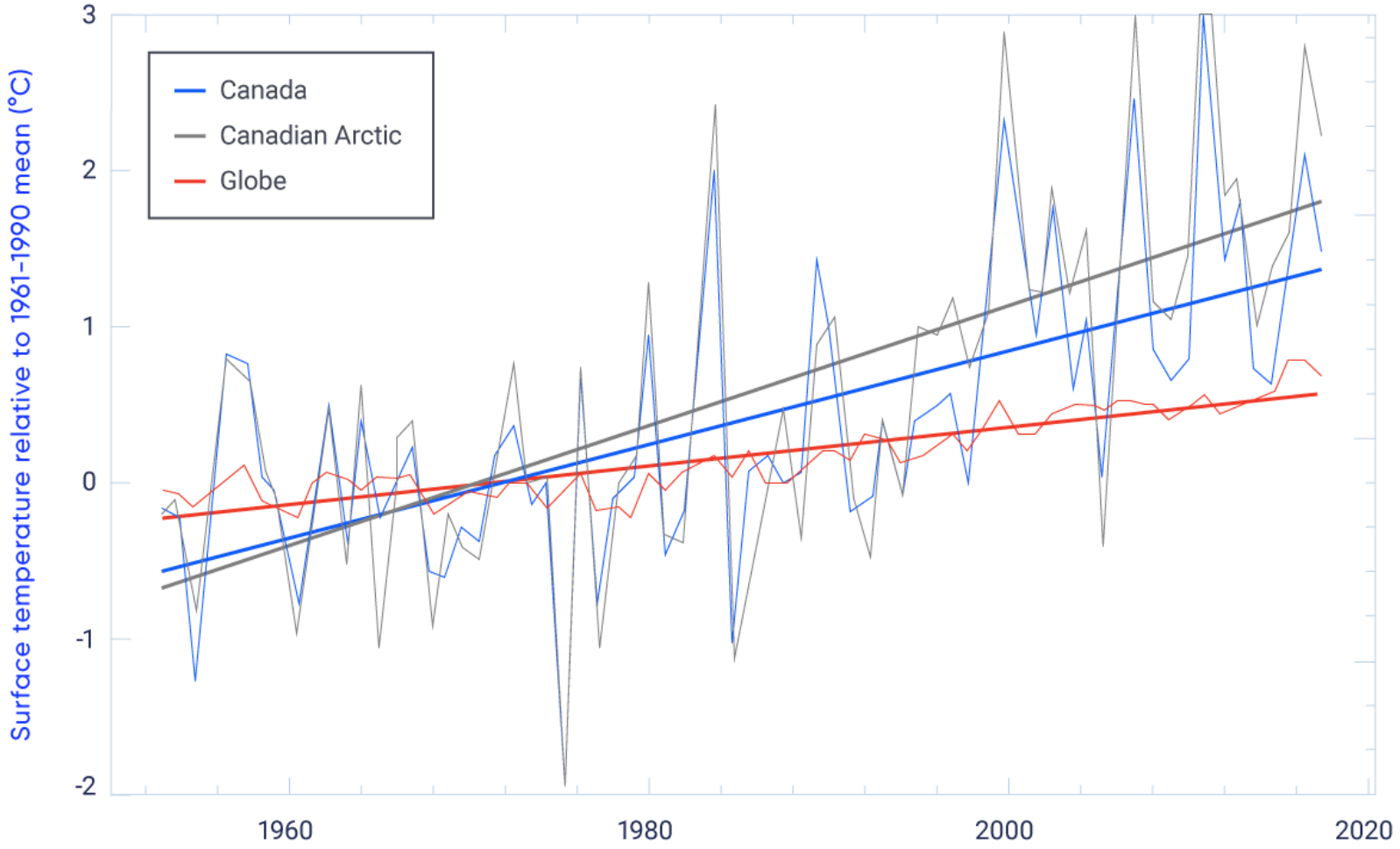
Analyzing and Applying Climate Information

Providing Planning and Research Support for Adaptation and Mitigation

Mobilizing Research through Communications and Engagement

The OCC was established in 2011 as a centre of expertise providing research and analysis services to municipalities, conservation authorities, and the broader public sector.

Canada is Warming Faster Than the World



From the 2019 Canada's Changing Climate Report:

Headline Finding:

The rate of surface warming for Canada is more than twice the rate of surface warming for the globe.

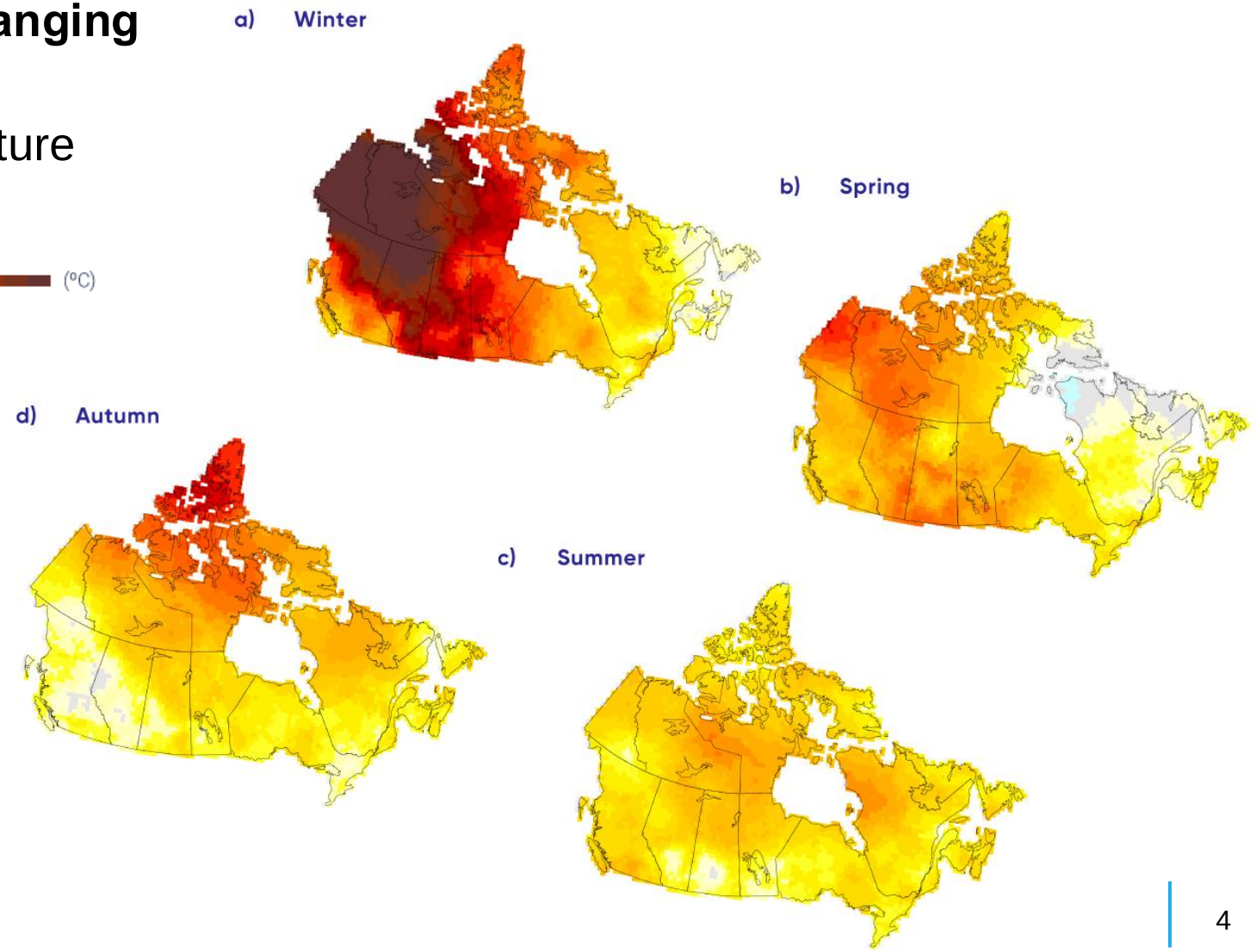
Meanwhile, the rate of warming for the Canadian Arctic is about three times the global rate.

https://changingclimate.ca/CCCR2019/chapter/3-0/3-2/figure-3-3/

How has the Climate Changed in Canada?

From the 2019 Canada's Changing Climate Report:

Changes in seasonal temperature across Canada (1948-2016)



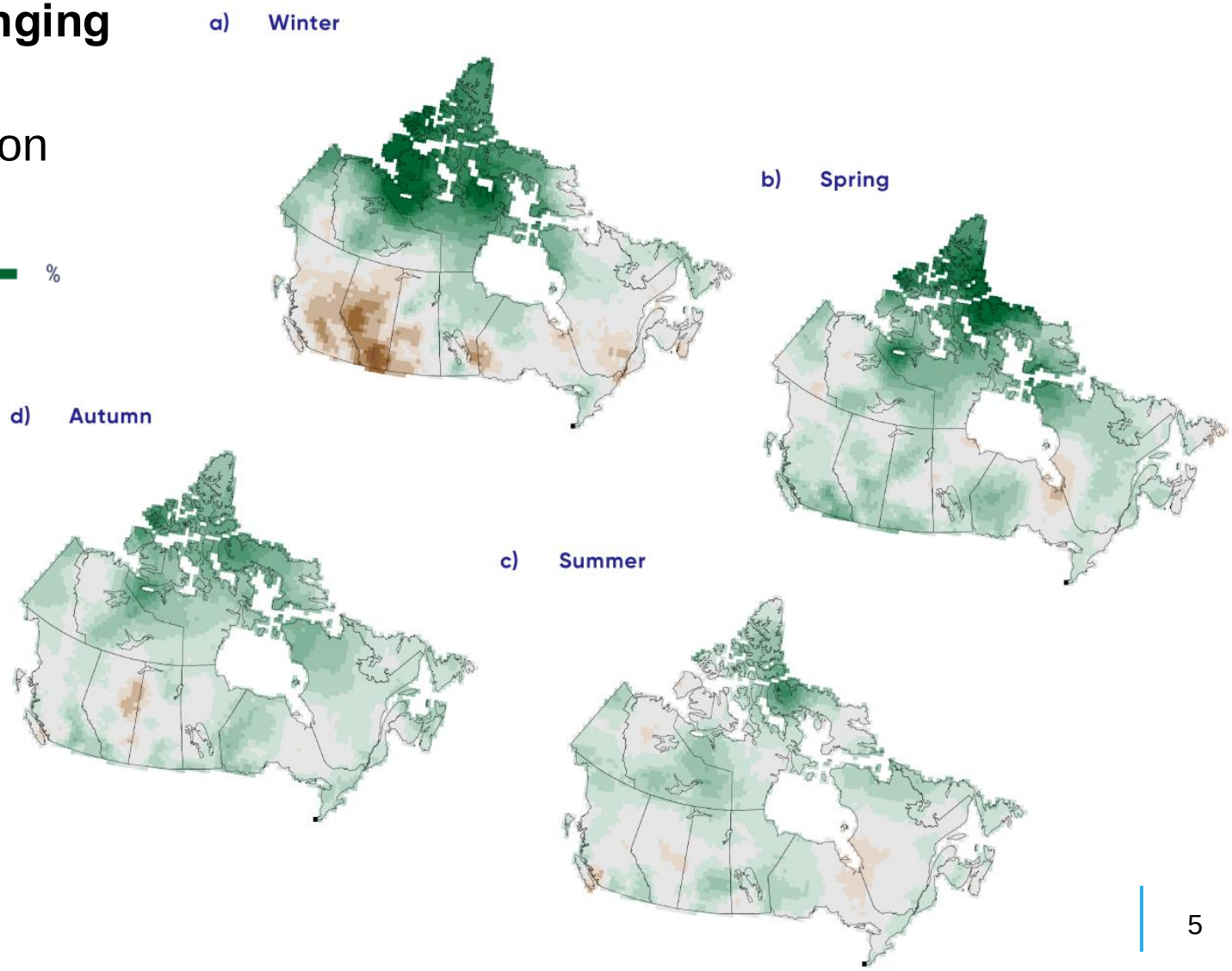
Headline Finding:

Between 1948 and 2016, the best estimate of mean annual temperature increase is 1.7ºC for Canada as a whole and 2.3ºC for northern Canada

How has the Climate Changed in Canada?

From the 2019 Canada's Changing Climate Report:

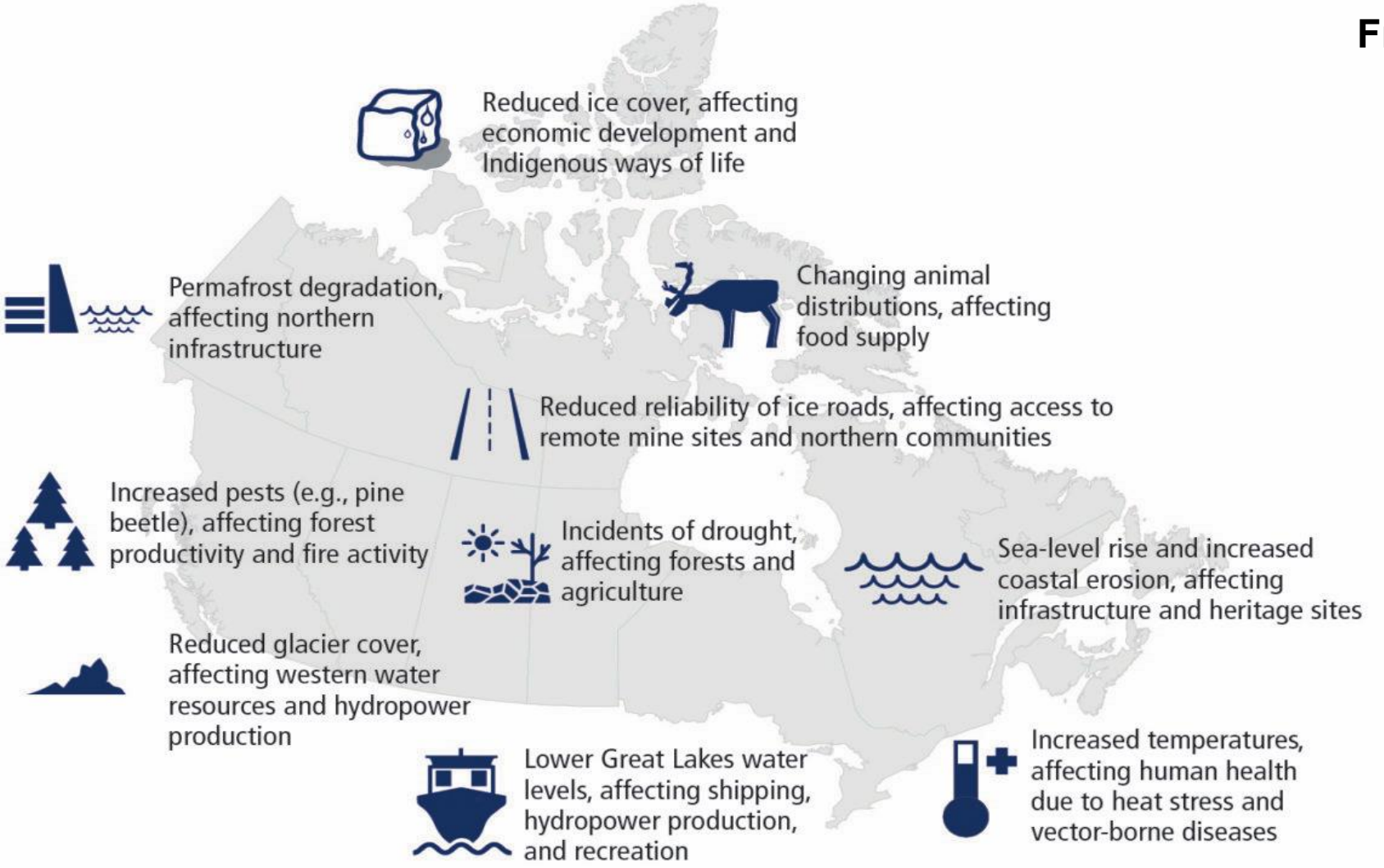
Changes in seasonal precipitation across Canada (1948-2012)



Headline Finding:

There is medium confidence that annual mean precipitation has increased, on average, in Canada, with larger percentage increases in northern Canada

Climate Change Impacts in Canada



From the 2019 report on Canada's Top Climate Change Risks

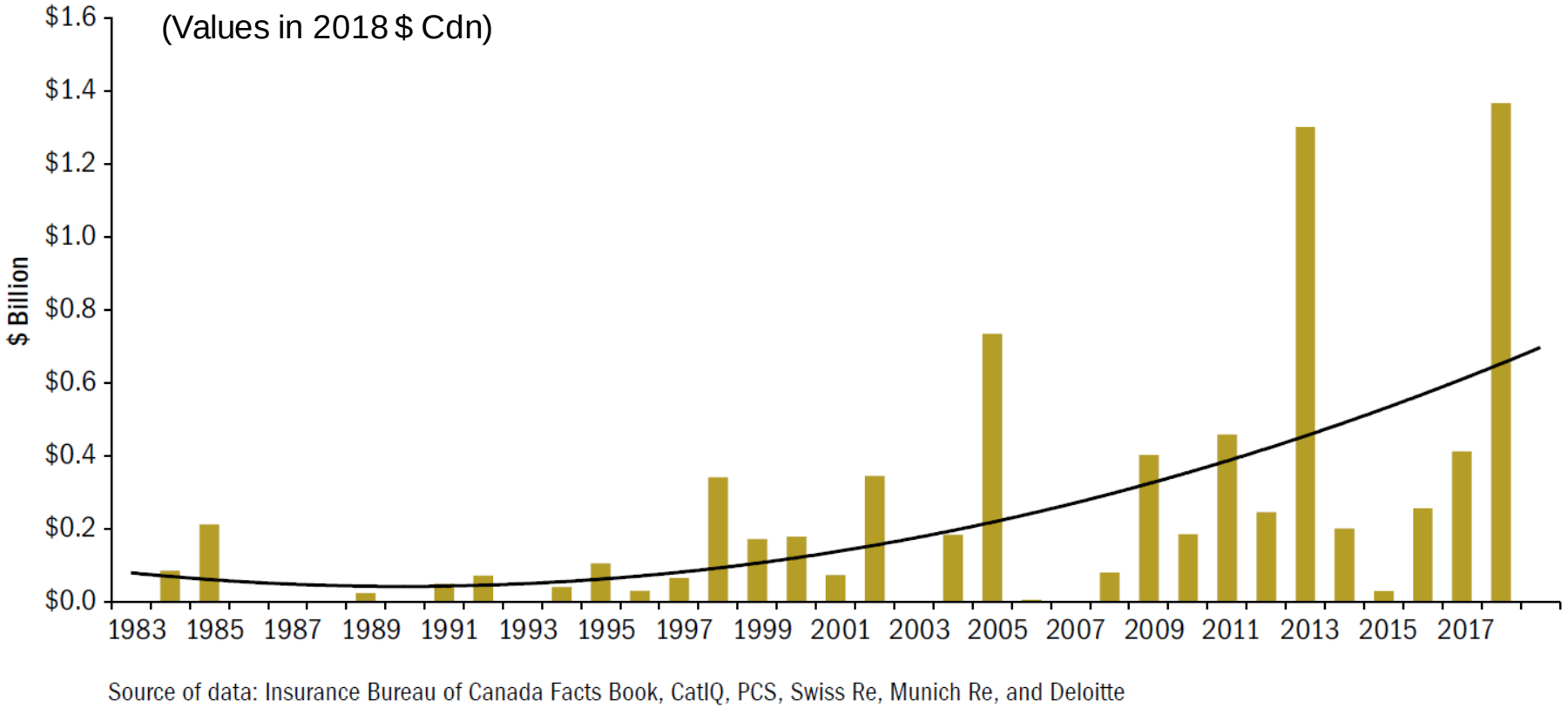
Top 12 Risks:

- Agriculture and Food
- Coastal Communities
- Ecosystems
- Fisheries
- Forestry
- Geopolitical Dynamics
- Governance and Capacity
- Human Health and Wellness
- Indigenous Ways of Life
- Northern Communities
- Physical Infrastructure
- Water

https://cca-reports.ca/reports/prioritizing-climate-change-risks/

Insured Losses in Ontario

Due to Large Catastrophic Events (≥$25 million)



Source of data: Insurance Bureau of Canada Facts Book, CatIQ, PCS, Swiss Re, Munich Re, and Deloitte

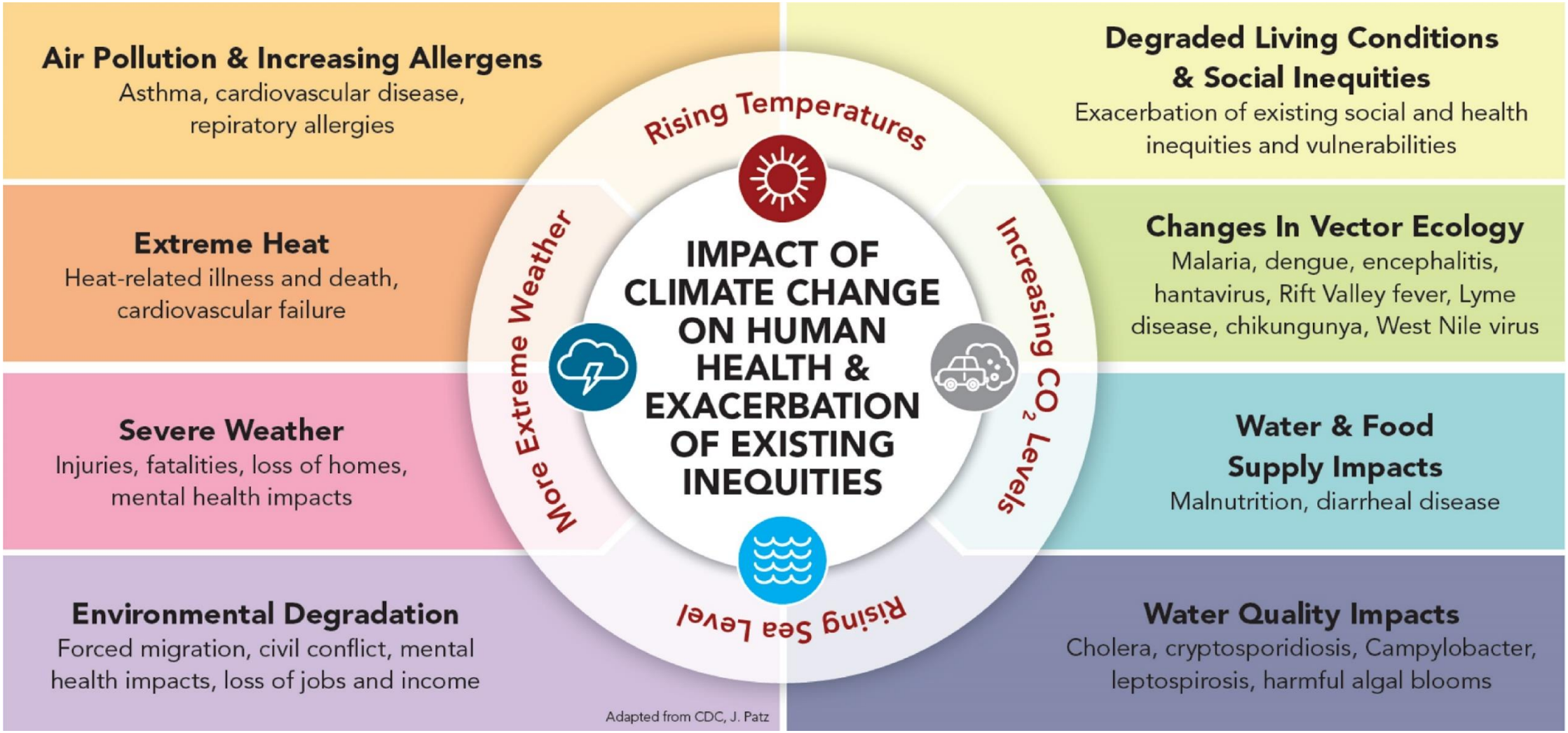
Large catastrophic losses include damage due to wind, water, ice, snow, hail, fire, lightning and earthquakes.

Costs include damage of personal and commercial property, and automobiles, excluding adjustment expenses.

From the Office of the Auditor General of Ontario's Annual Report Volume 2: Reports on the Environment

http://www.auditor.on.ca/en/content/annualreports/arbyyear/ar2019.html#volume2

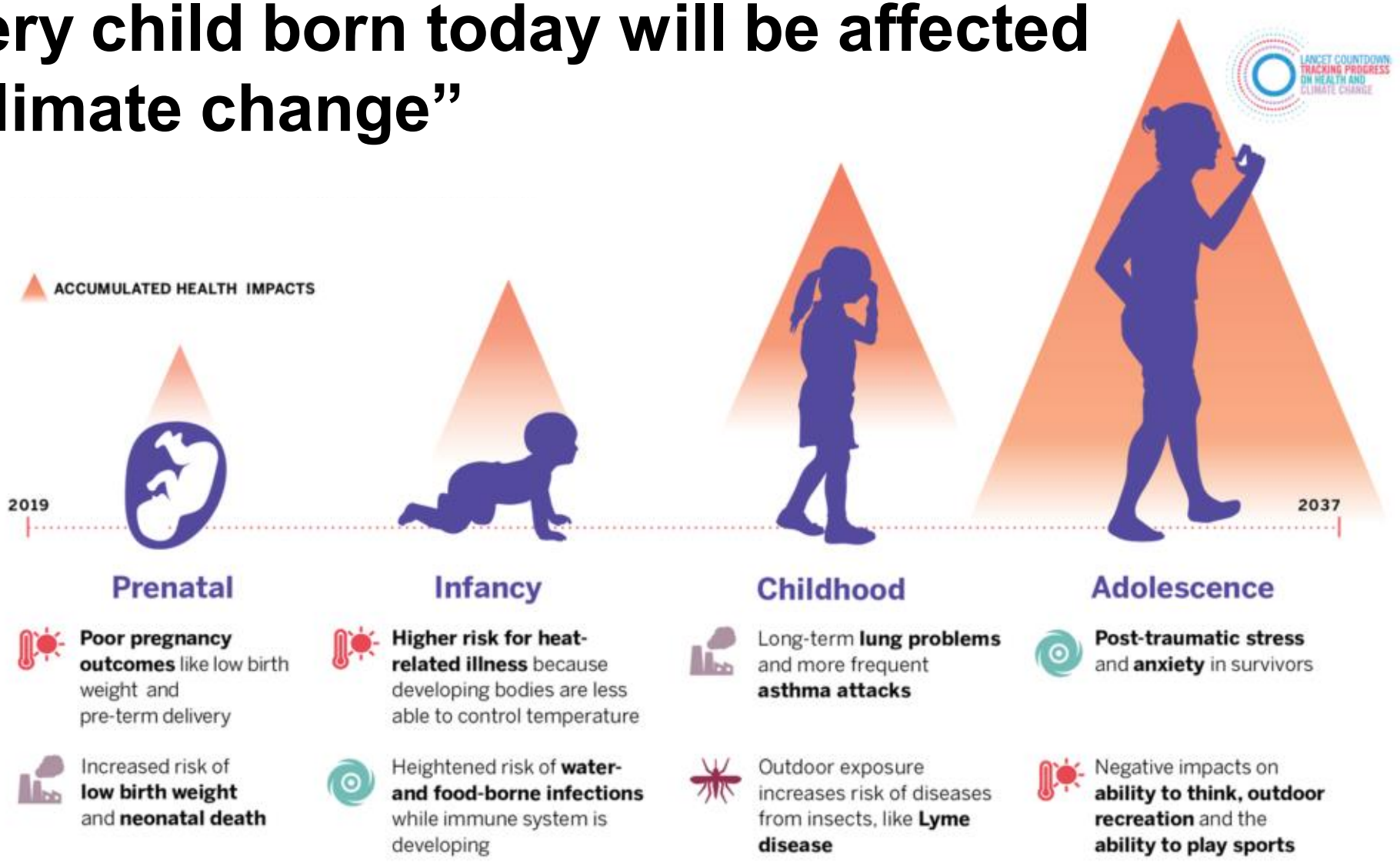
Climate Change and Health



From the California Department of Public Health

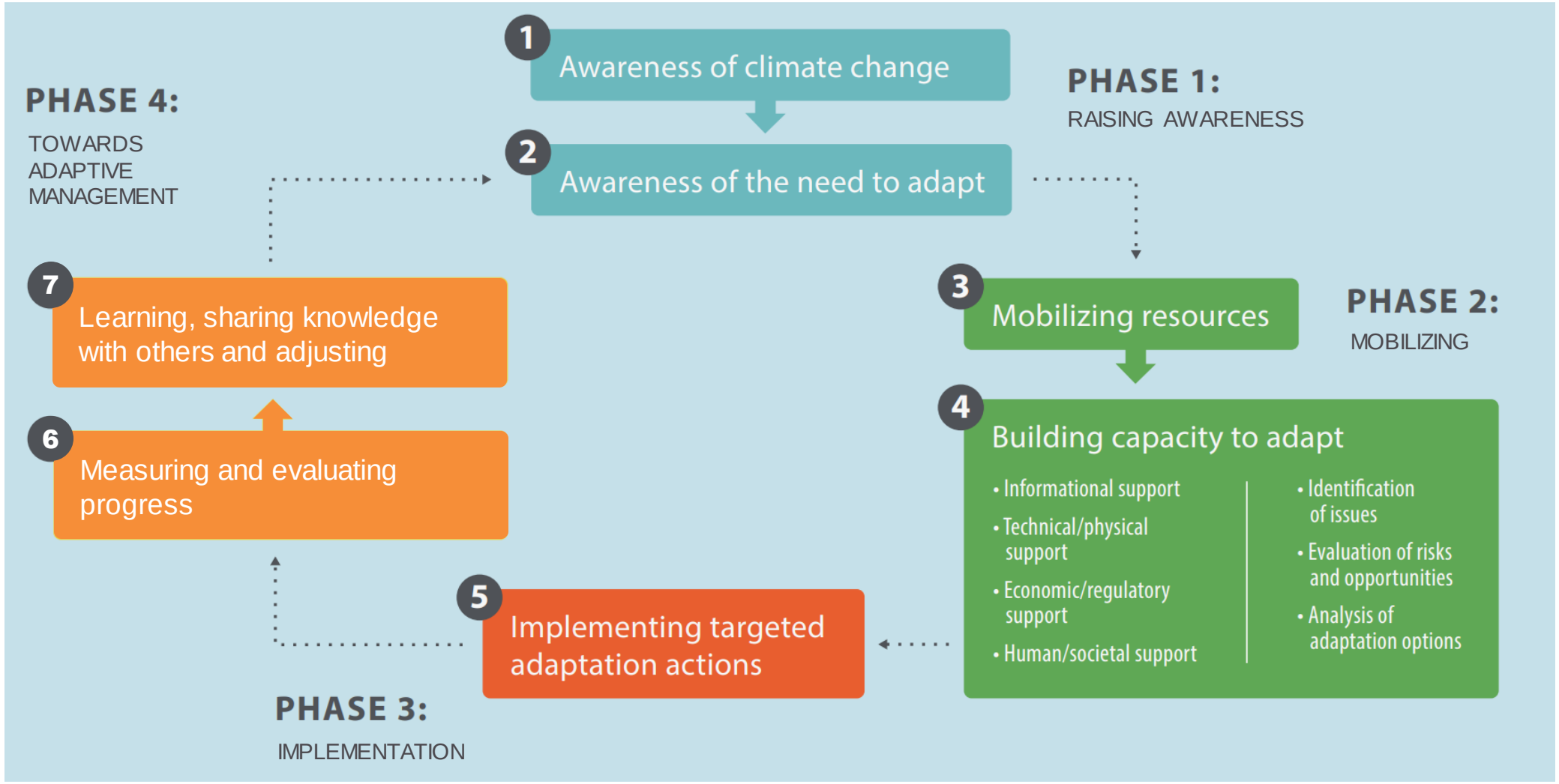
https://www.cdph.ca.gov/Programs/OHE/Pages/CCHEP.aspx

“Every child born today will be affected by climate change”



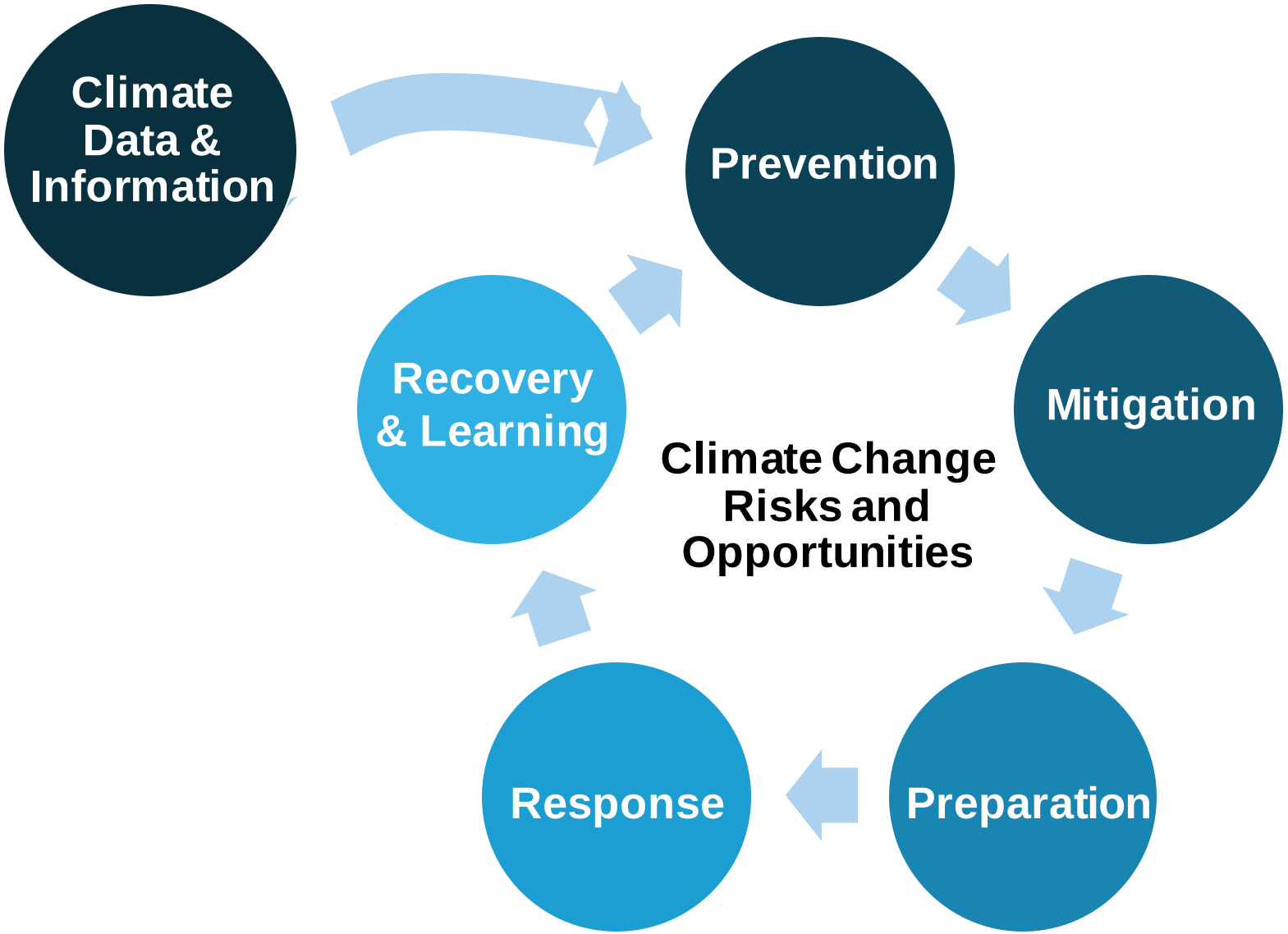
From the 2019 Lancet Countdown on Health and Climate Change https://www.hsph.harvard.edu/c-change/news/2019-lancet-countdown/

The Adaptation Cycle



http://assets.ibc.ca/Documents/Disaster/The-Cost-of-Climate-Adaptation-infographic-EN.pdf

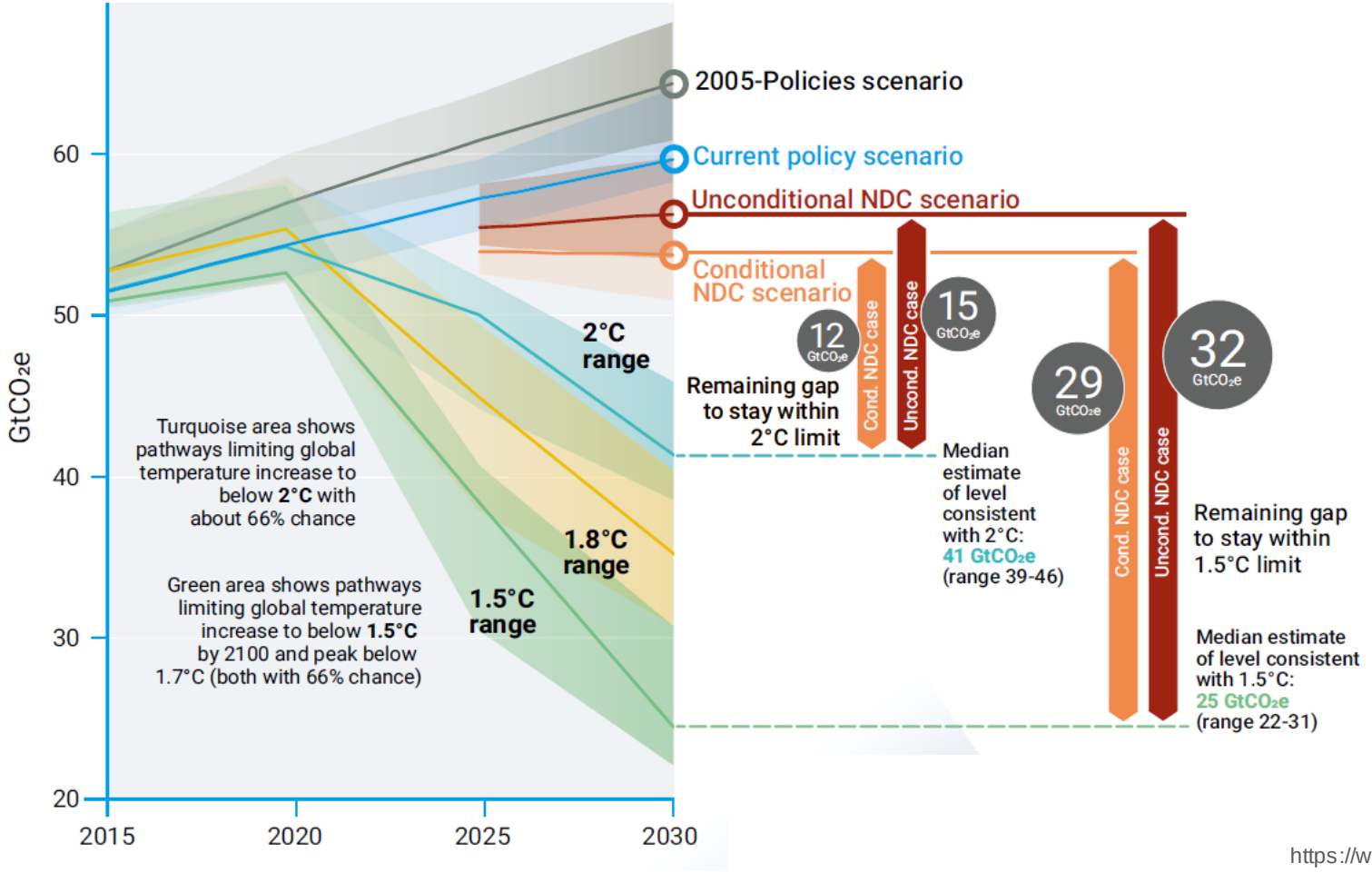
Disaster Management Cycle



Prevention

Climate Change Mitigation

From the 2019 UNEP Emissions Gap Report:



Global greenhouse gas (GHG) emissions under different scenarios and the emissions gap by 2030

Headline Finding:

Global GHG emissions must drop 7.6% per year from 2020 to 2030 for the 1.5°C goal

https://www.unenvironment.org/interactive/emissions-gap-report/2019/

Mitigation Reducing Climate Change Impacts

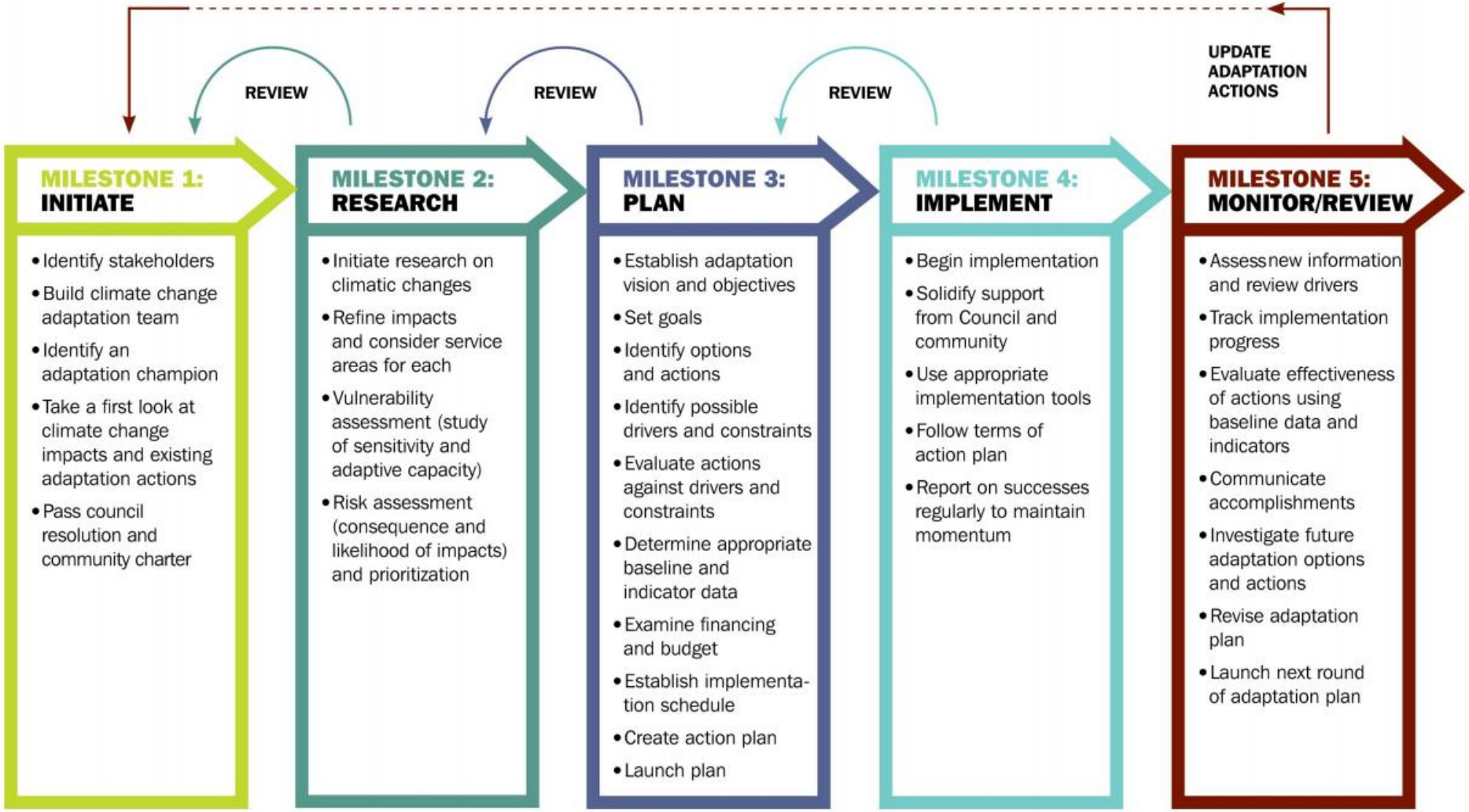
Based on an understanding of climate change risks and impacts

From C40 Cities' City Climate Hazard Taxonomy:

https://www.c40.org/researches/city-climate-hazard-taxonomy

Mitigation Adaptation Planning

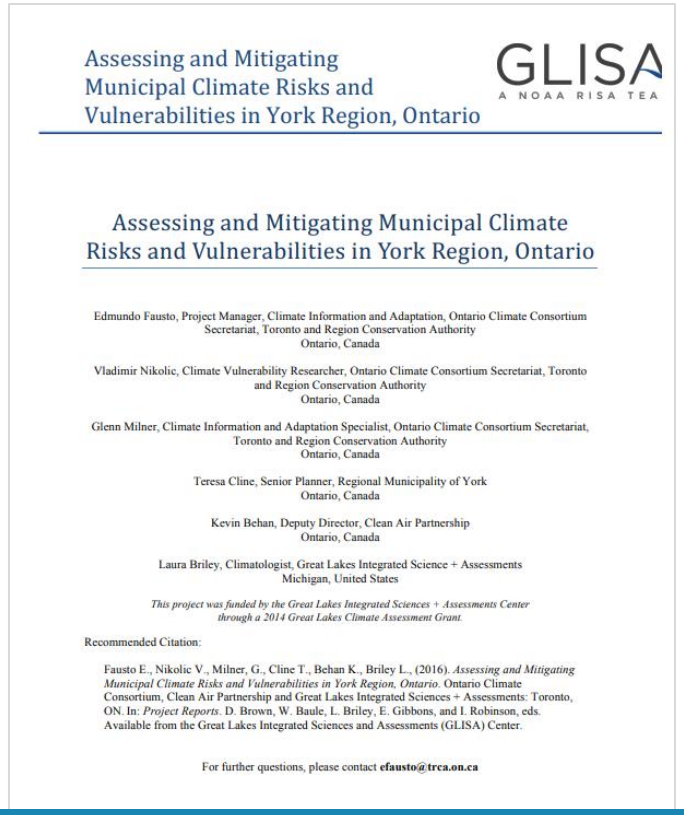
ICLEI's five-step milestone framework:



https://icleicanada.org/barc-program/

Mitigation

Climate Change Risk & Vulnerability Assessments



Assessing and Mitigating Municipal Climate Risks and Vulnerabilities in York Region, Ontario

GLISA
A NOAA RISA TEA

Assessing and Mitigating Municipal Climate Risks and Vulnerabilities in York Region, Ontario

Edmundo Fausto, Project Manager, Climate Information and Adaptation, Ontario Climate Consortium Secretariat, Toronto and Region Conservation Authority
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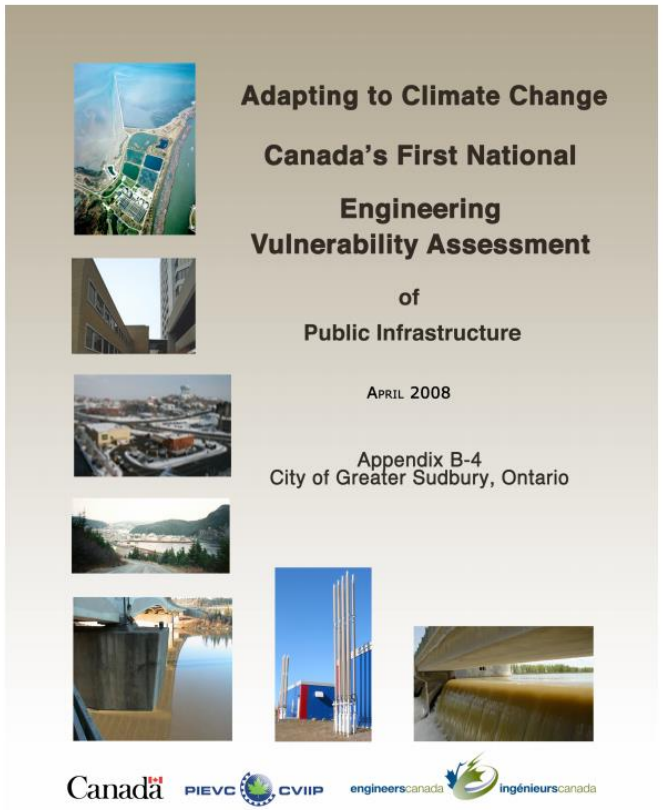
Recommended Citation:

Fausto E., Nikolic V., Milner, G., Cline T., Behan K., Briley L., (2016). *Assessing and Mitigating Municipal Climate Risks and Vulnerabilities in York Region, Ontario*. Ontario Climate Consortium, Clean Air Partnership and Great Lakes Integrated Sciences + Assessments: Toronto, ON. In: *Project Reports*. D. Brown, W. Baule, L. Briley, E. Gibbons, and I. Robinson, eds. Available from the Great Lakes Integrated Sciences and Assessments (GLISA) Center.

For further questions, please contact **efausto@trca.on.ca**



Adapting to Climate Change

Canada's First National

Engineering Vulnerability Assessment

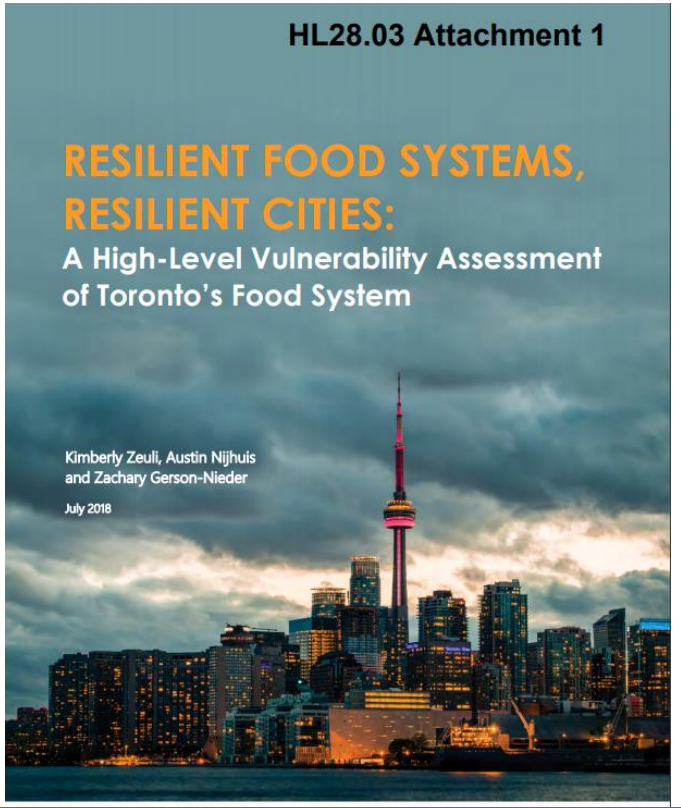
of

Public Infrastructure

April 2008

Appendix B-4
City of Greater Sudbury, Ontario

Canada PIEVC CVIIP engineerscanada ingénieurscanada



HL28.03 Attachment 1

RESILIENT FOOD SYSTEMS, RESILIENT CITIES:

A High-Level Vulnerability Assessment of Toronto's Food System

Kimberly Zeuli, Austin Nijhuis and Zachary Gerson-Nieder

July 2018

Municipal-wide | **Infrastructure** | **Sector-specific**

http://glisa.umich.edu/media/files/projectreports/GLISA_ProjRep_OCC_York.pdf
https://pievc.ca/sites/default/files/pievc_case_study_city_of_greater_sudbury_ontario_roads_final_report.pdf
https://www.toronto.ca/legdocs/mmis/2018/hl/bgrd/backgroundfile-118076.pdf

Mitigation

Nature-Based Solutions

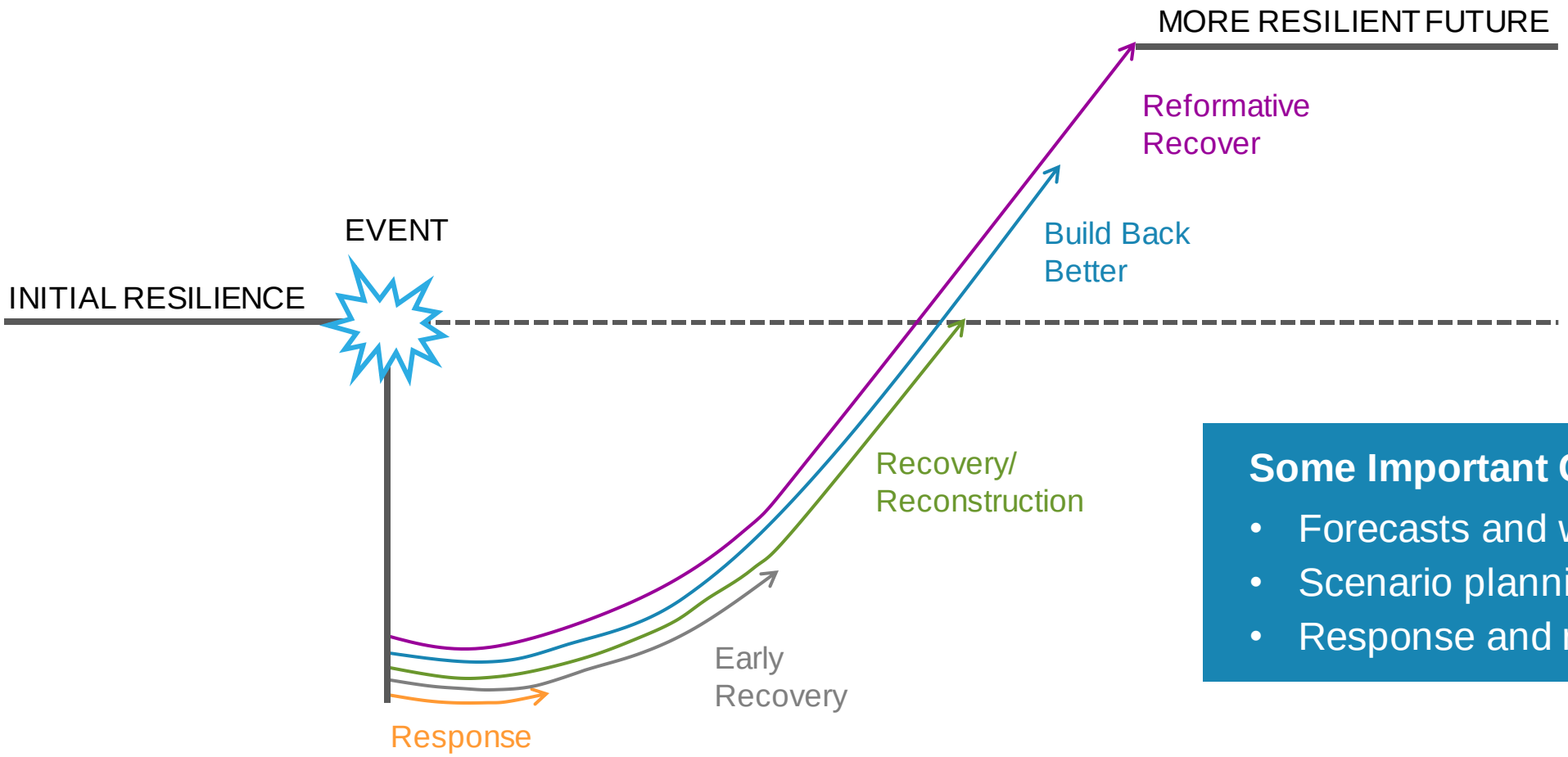
- Green and blue infrastructure
- “Sponge” cities/ communities

Public Safety Canada estimate that every dollar invested in adaptation saves $3 to $5 in recovery costs.

http://unevenearth.org/2015/04/degrowth-in-detroit/
http://assets.ibc.ca/Documents/Disaster/The-Cost-of-Climate-Adaptation-infographic-EN.pdf

Preparation

Building Capacity to Respond and Recover



Some Important Considerations:

- Forecasts and warnings
- Scenario planning and training
- Response and recovery plans

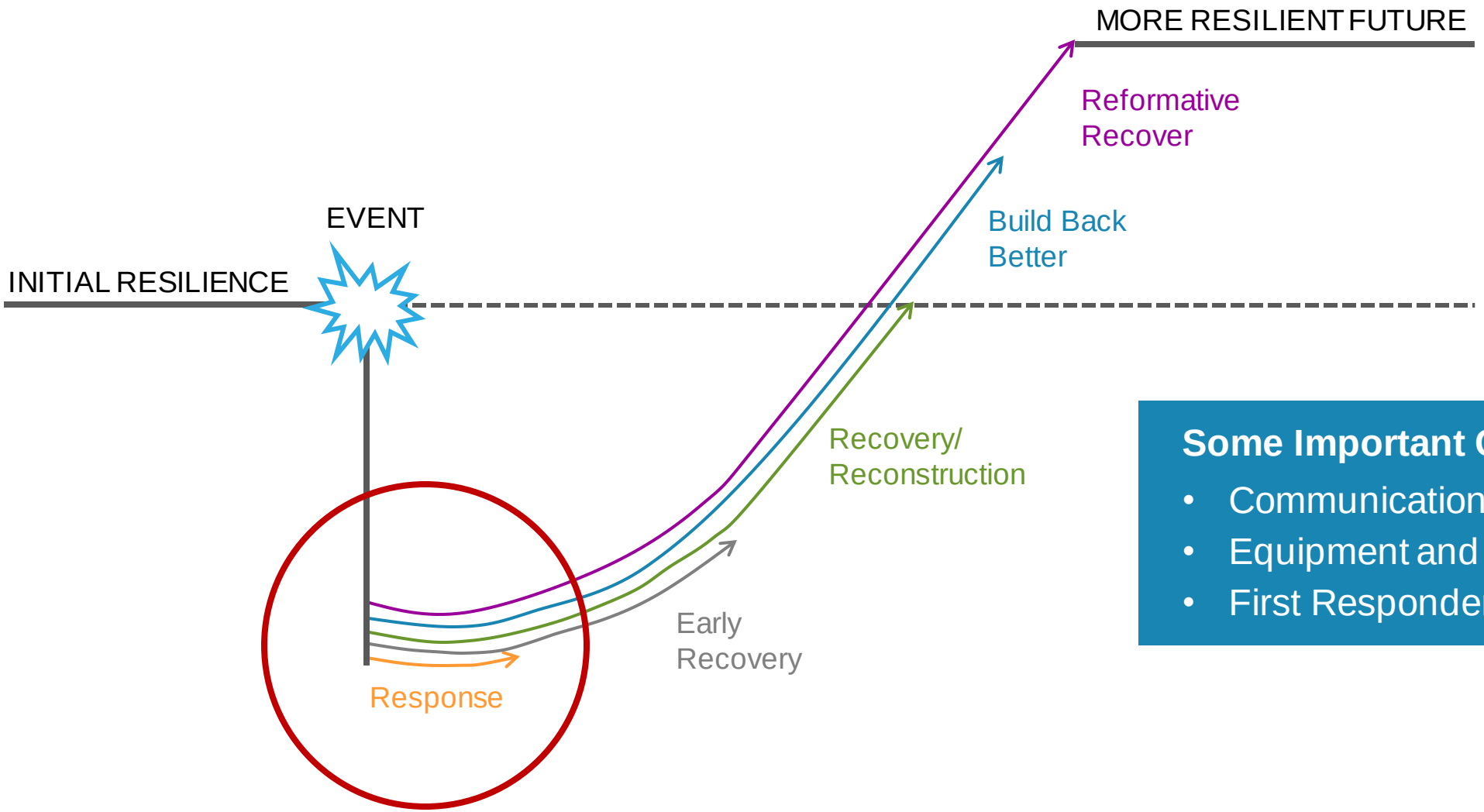
Importance of Accessibility

Ensuring access to needs and services for community resilience:

https://www.southernharbour.net/assets/docs/SH_Access%20WhitePaper_2017_0307%C6%92.pdf

Response

Quick & Effective Reaction

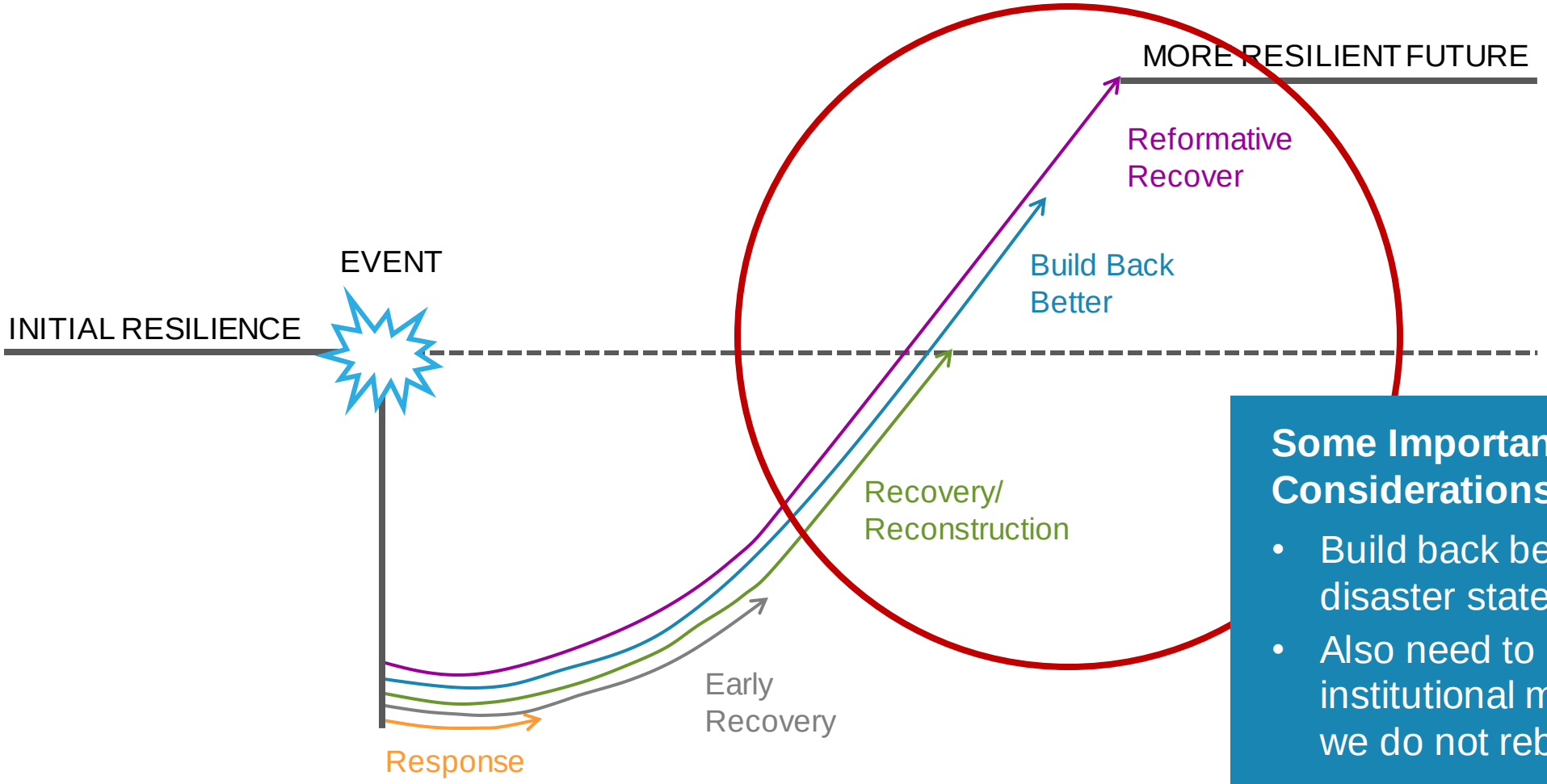


Some Important Considerations:

- Communications
- Equipment and Supplies
- First Responders

Recovery

Build Back Better & Continuous Learning



Some Important Considerations:

- Build back better than pre-disaster state
- Also need to build institutional memory so that we do not rebuild and forget

Some Good News:

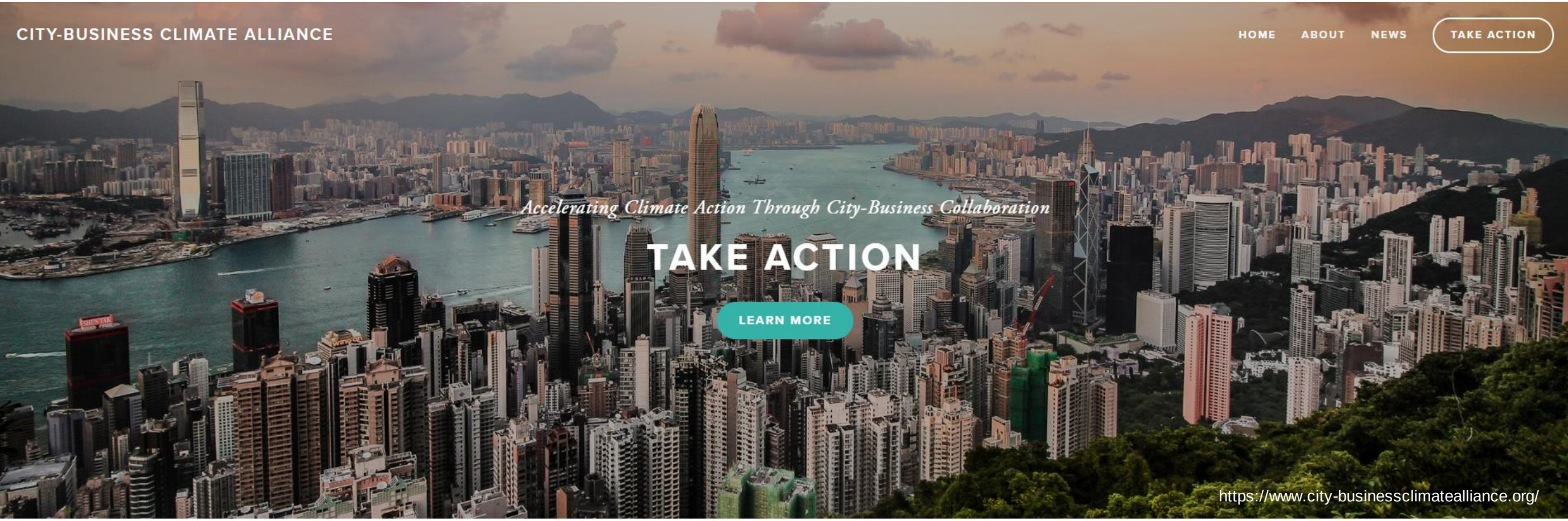
Over 1000 jurisdictions in 20 countries have declared a climate emergency

Cities and Local Governments that have Declared a Climate Emergency

https://www.theclimatemobilization.org/world-map

Some Good News:

A new global alliance to leverage municipal and private sector capacity



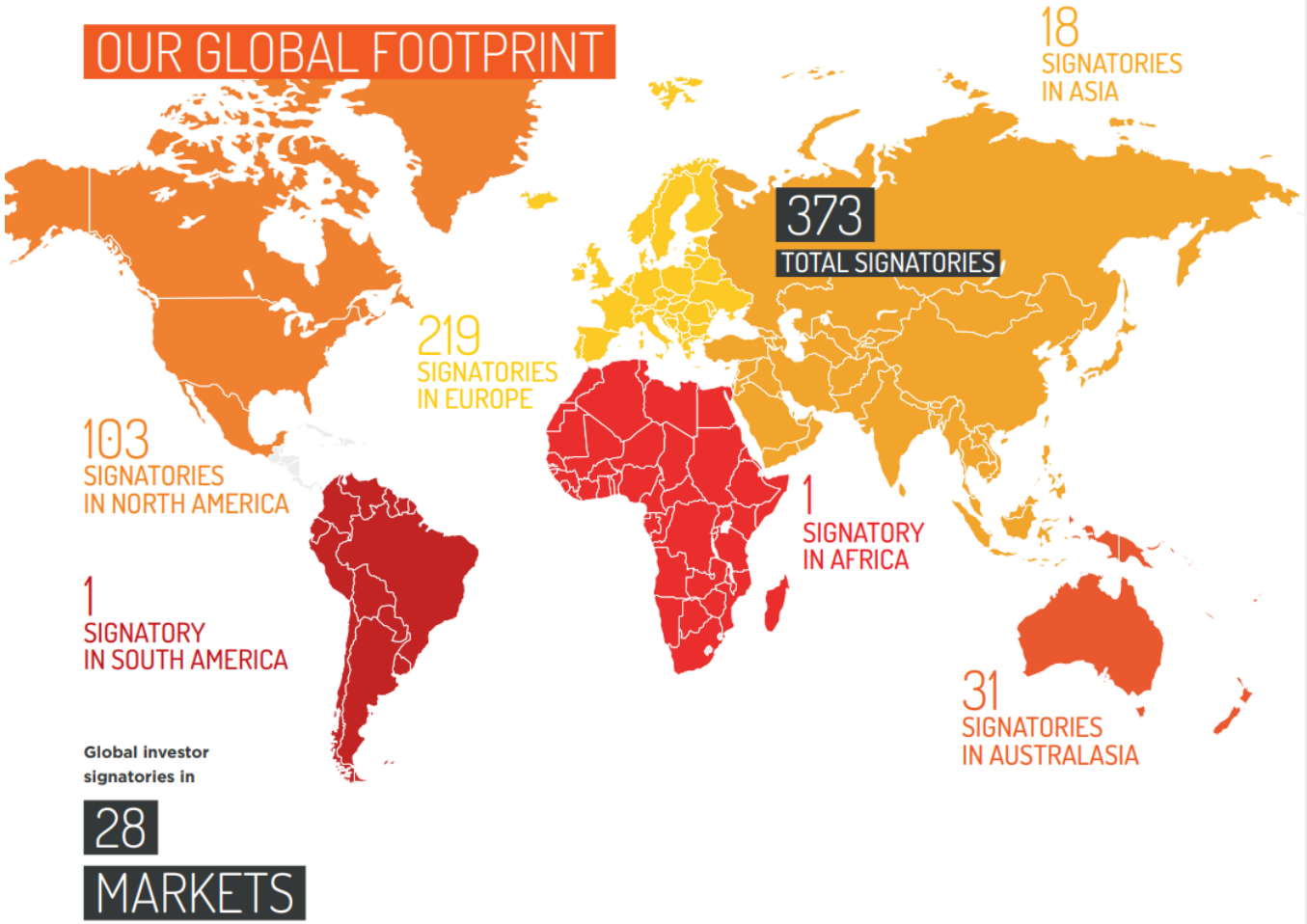
ACCELERATING CLIMATE ACTION THROUGH CITY-BUSINESS COLLABORATION.

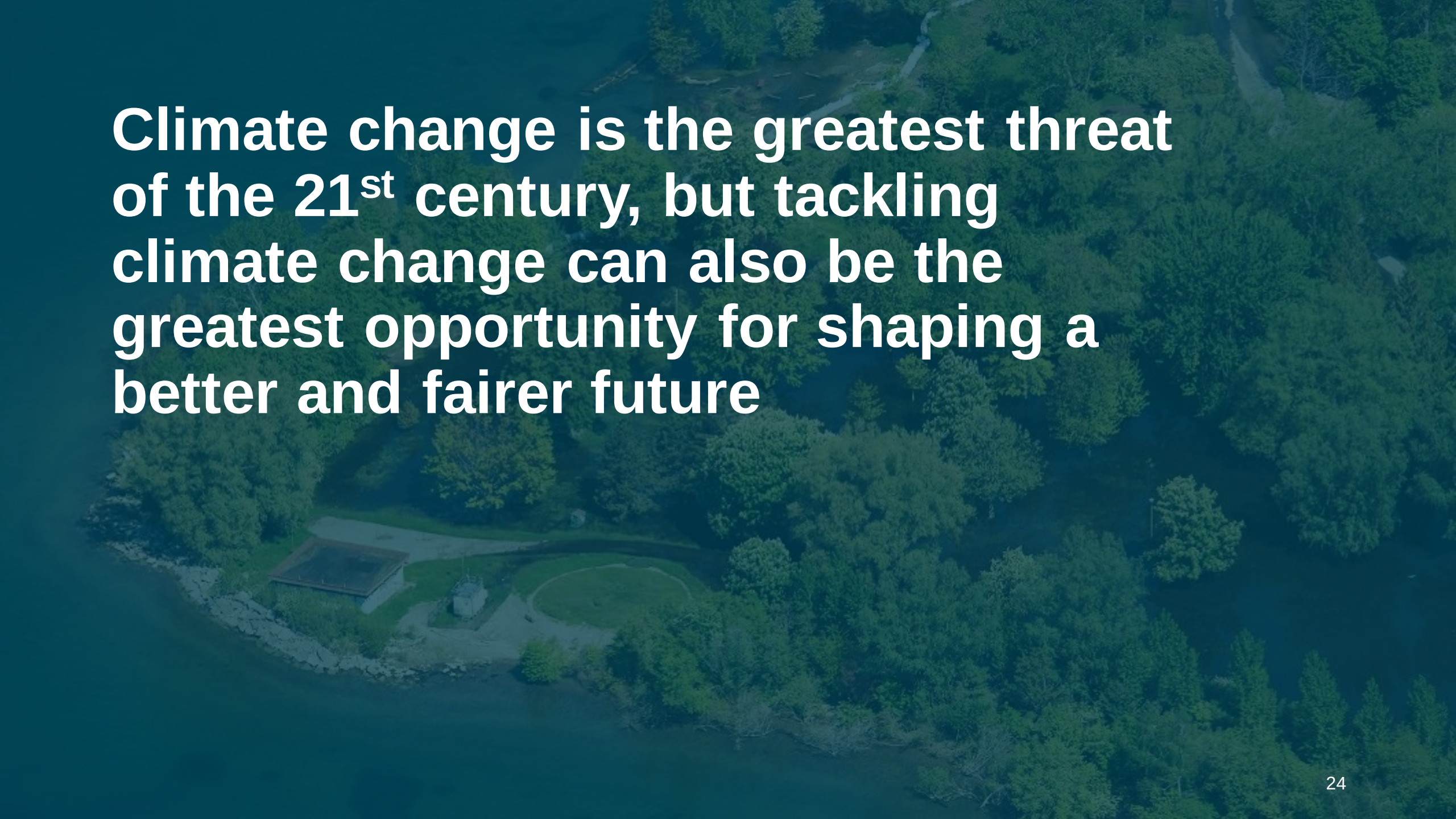
Some Good News:

Investors are calling for action on climate change

Over 370 investors with more than USD $35 trillion in assets under management have signed on to the Climate Action 100+ initiative, calling for:

- Stronger governance
- Action to reduce GHG emissions
- Enhanced corporate disclosure





Climate change is the greatest threat of the 21st century, but tackling climate change can also be the greatest opportunity for shaping a better and fairer future

ONTARIO CLIMATE CONSORTIUM

Supported by Toronto and Region Conservation Authority

Thank You!

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