All Planners Are Adaptation Planners

Megan Gereghty, Climate Change Adaptation Planner, MCIP, RPP

CIP Conference Presentation

CLIMATE RISK INSTITUTE

July 7th, 2022

Land Acknowledgement

As treaty peoples, we all share a duty to respect and give care to the territories we live on and honour the many treaties and agreements that govern the land. We must act in the understanding that we are bound by and be accountable to our relationships as treaty peoples to each other and to the land and commit to an ongoing process of learning and solidarity as the basis of these relationships.

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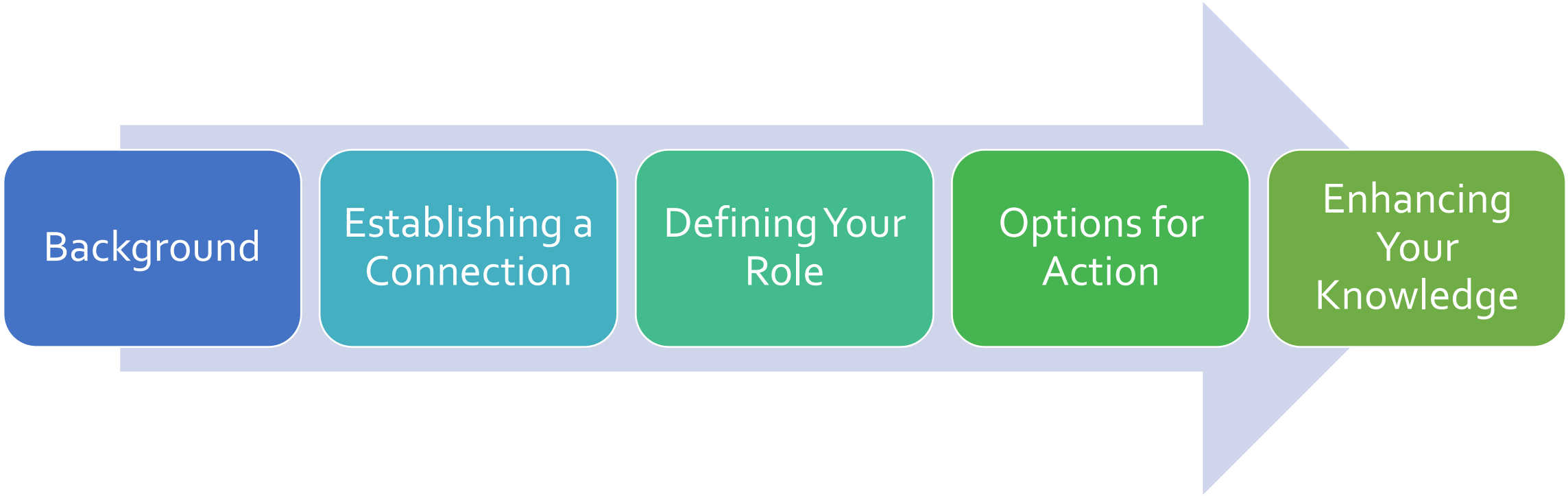
Presentation Outline



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Questions/Considerations

To participate:

- In person – raise your hand
- Online – add to the chat

Background

Climate Risk Institute

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Climate Risk Institute

- Non-profit, academically affiliated organization
- Mobilize knowledge, improve capacity, and deliver results for climate resiliency
- Range of backgrounds and expertise
- Various adaptation and risk assessment projects in Canada and internationally across professions and sectors

https://climateriskinstitute.ca/

Establishing a Connection to Climate Change

Climate Change & Impacts

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What is Climate Change?

Take a moment to think of your own definition of climate change.

Climate Change

- A change in the state of the climate that can be identified by changes in the mean and/or the variability, which persists for an extended period.
- May be due to natural internal processes, external forcings and persistent anthropogenic changes.

Climate & Weather

Weather – What you get	Climate – What you expect
Short term (hours to days)	Long term (years to decades)
Change rapidly (thunderstorms)	Gradual progression (30+ years)
May impact limited or large areas	Includes a wider area
Challenging to predict	Projected by climate models

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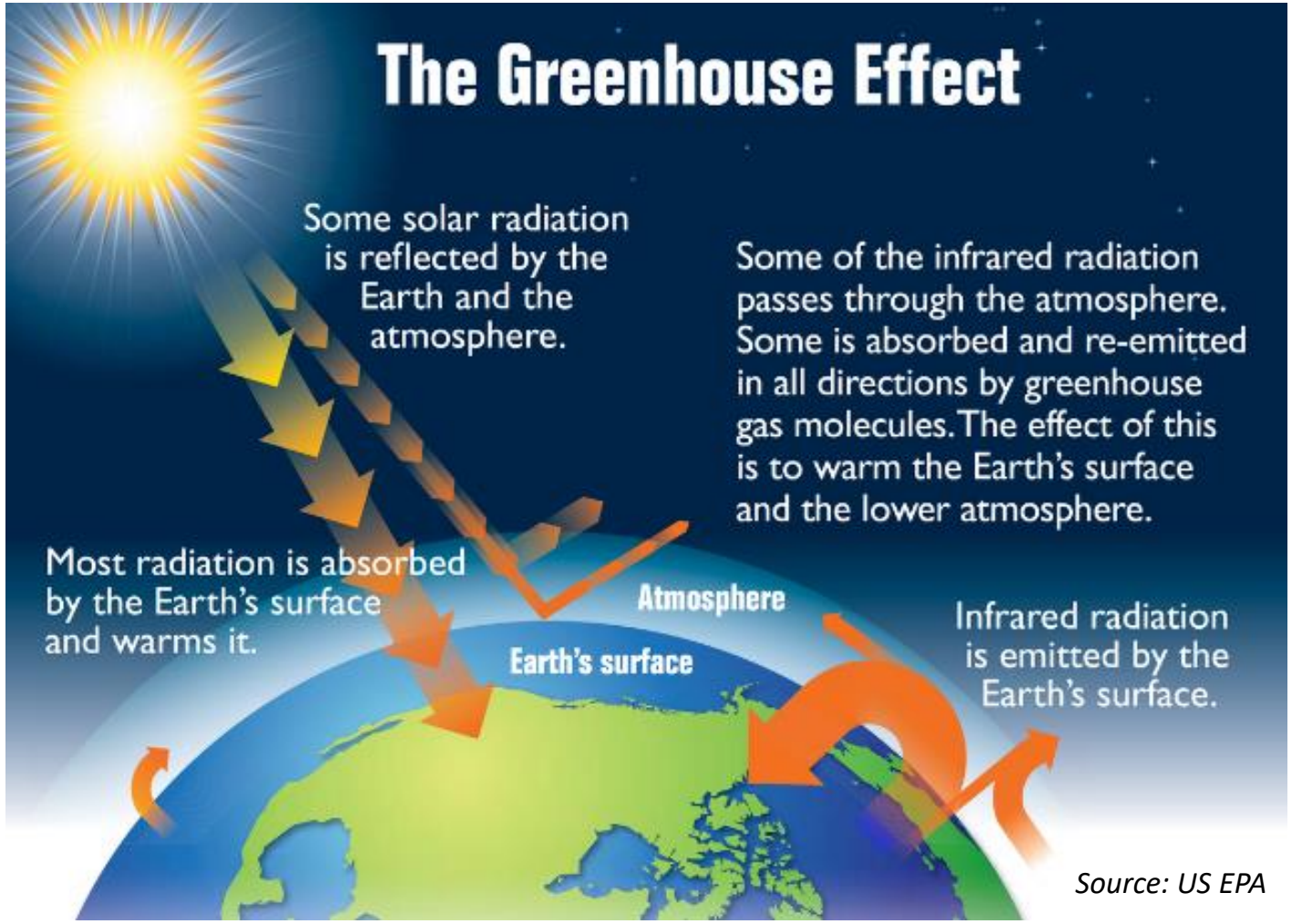
Greenhouse Effect



Source: US EPA

- A natural warming process, made possible by the presence of CO_2 and certain other gases (GHGs) in the atmosphere
- Enhanced due to anthropogenic activity and increased concentration of GHGs in the atmosphere

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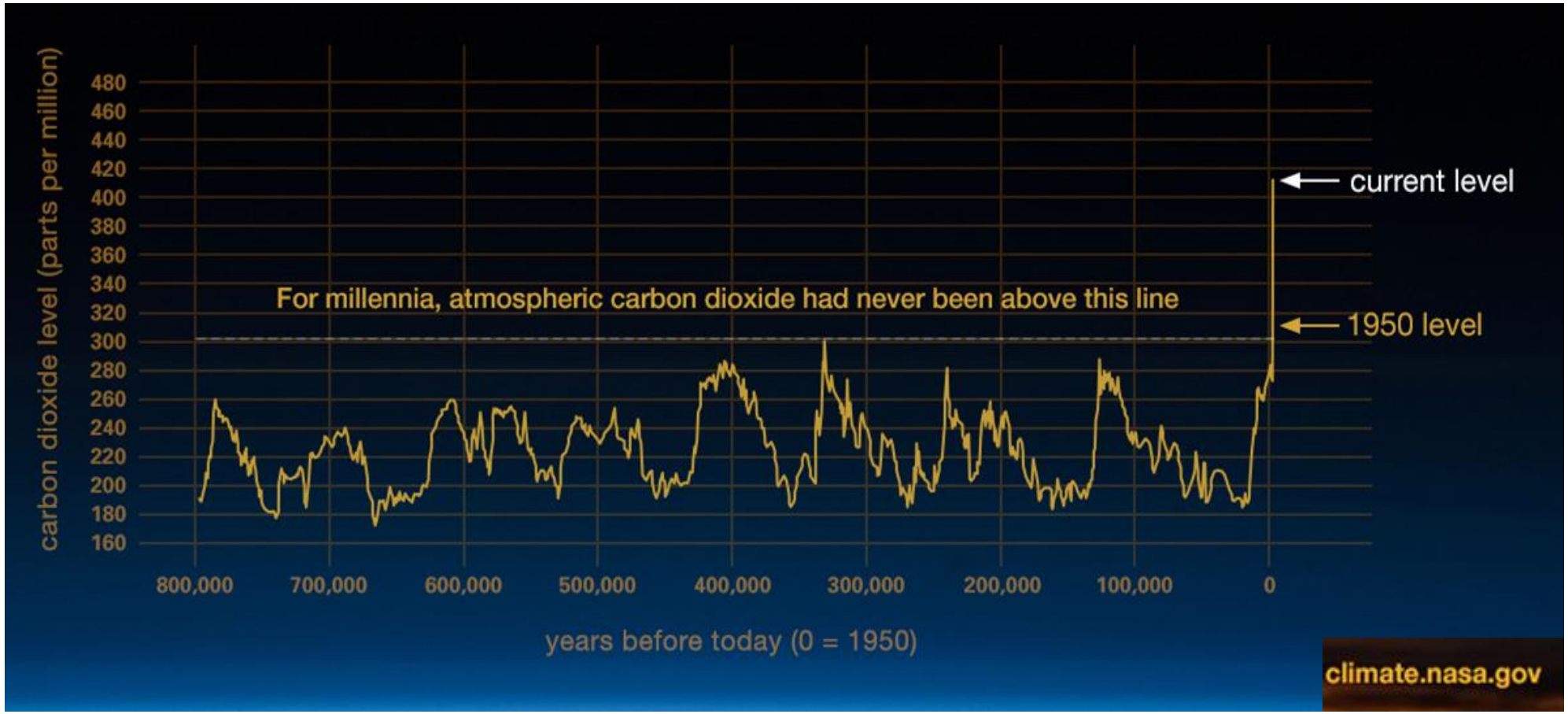
Climate is Always Changing



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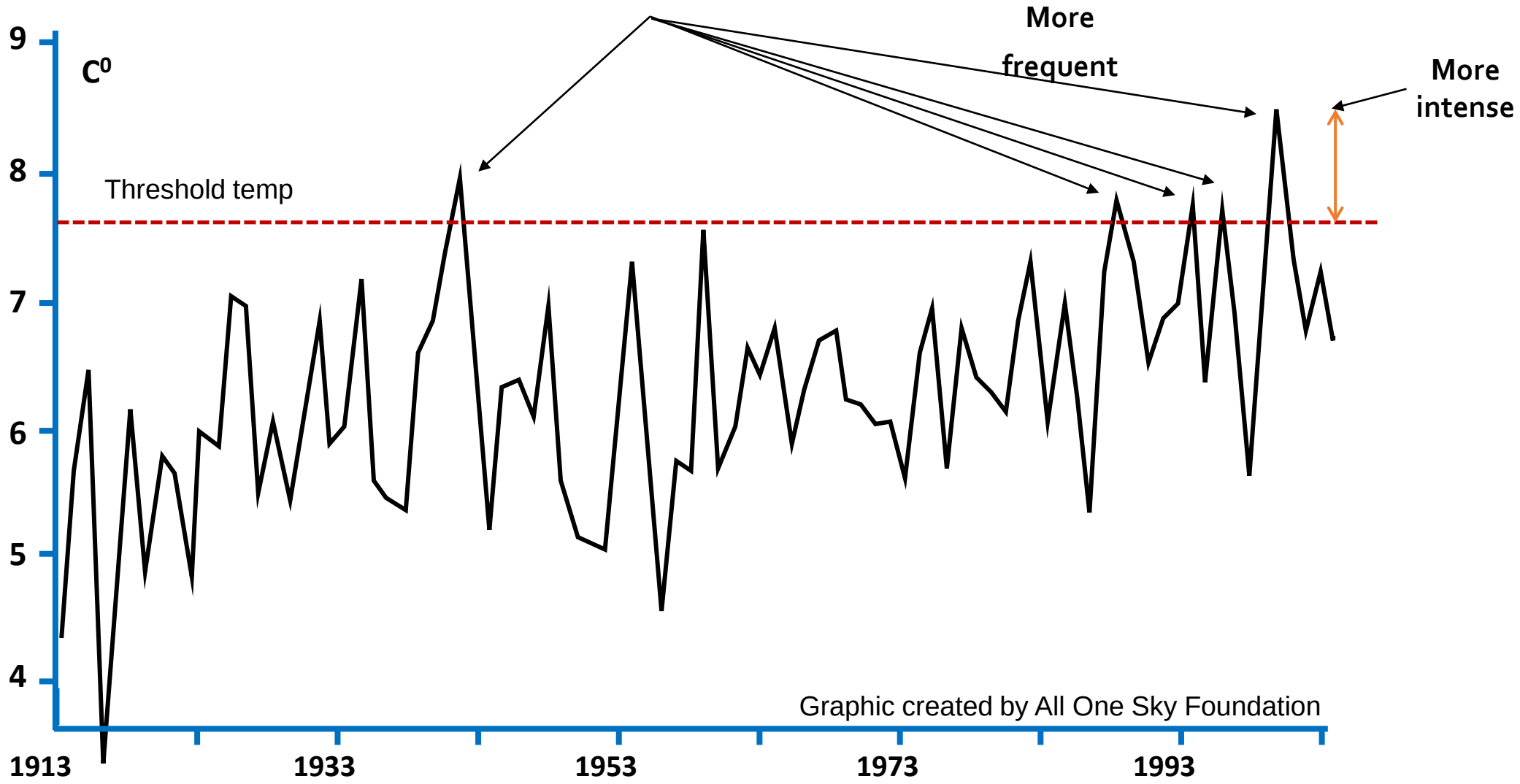
Observed Trends in "Extremes"



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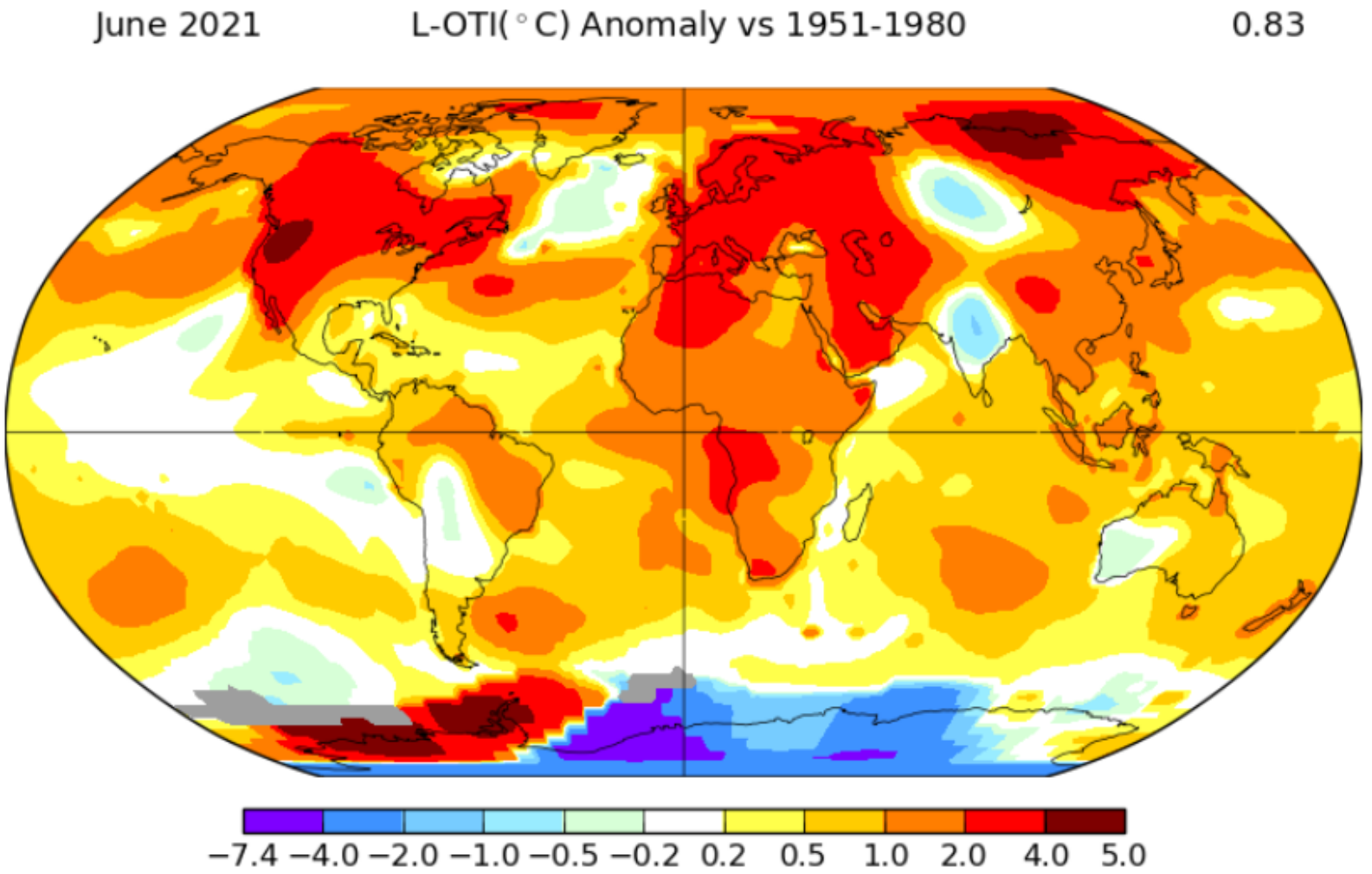
Spatial Variability in Climate

June 2021 - Heat Dome

- West Coast 4-5°C above average
- India, parts of Russia, Western Australia, and Antarctica were well below average.
- Overall, the global climate was 0.83°C warmer than average.



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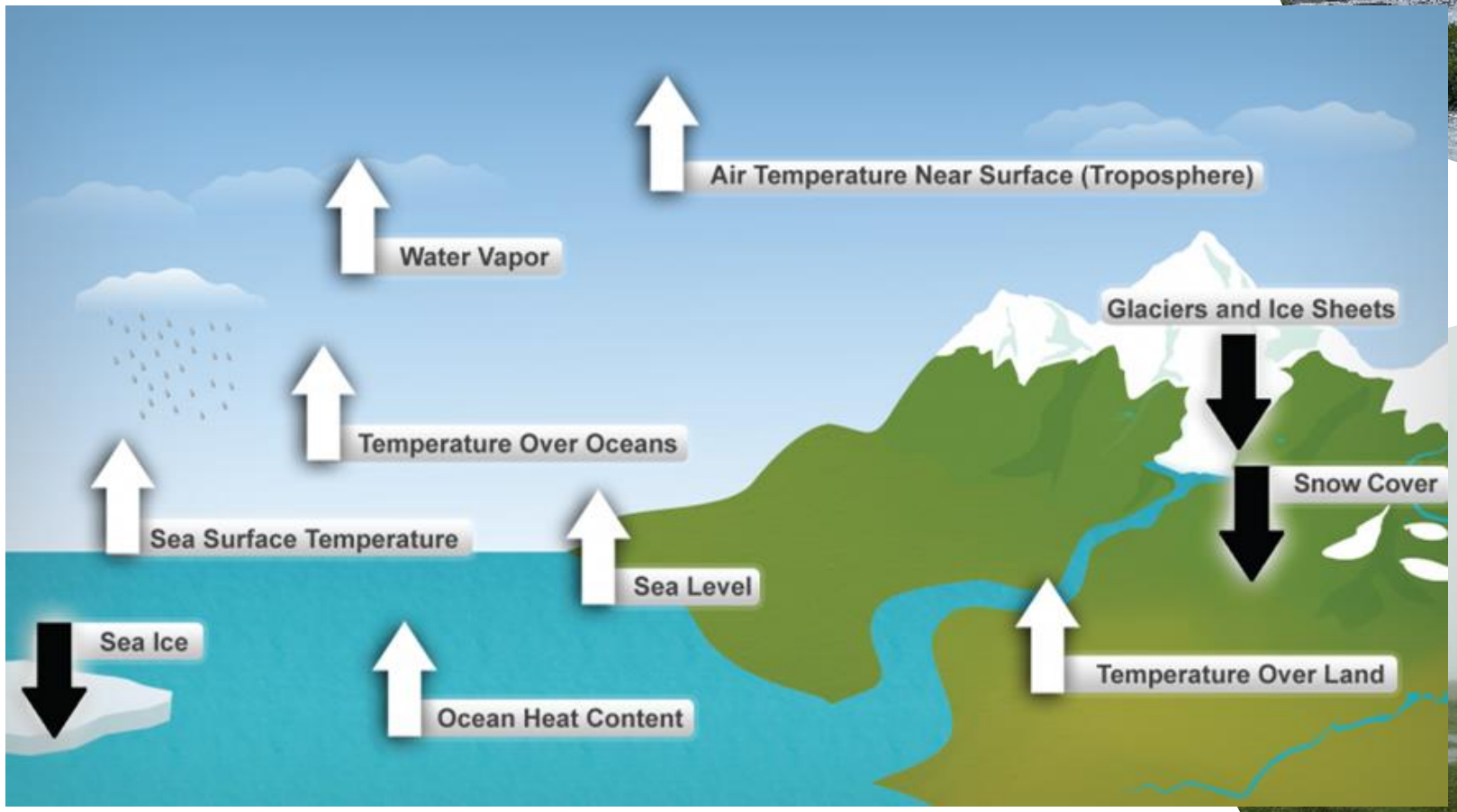
The Changing Global Climate



Impacts & Consequences

Direct Impacts

- Extreme Heat
- Drought
- Wildfire
- Flood
- Storms
- Ecosystem changes

Consequences

- Health
- Quality of life
- Economy
- Biodiversity
- Infrastructure damage
- Cascading impacts and others…

Not all impacts are felt equally.

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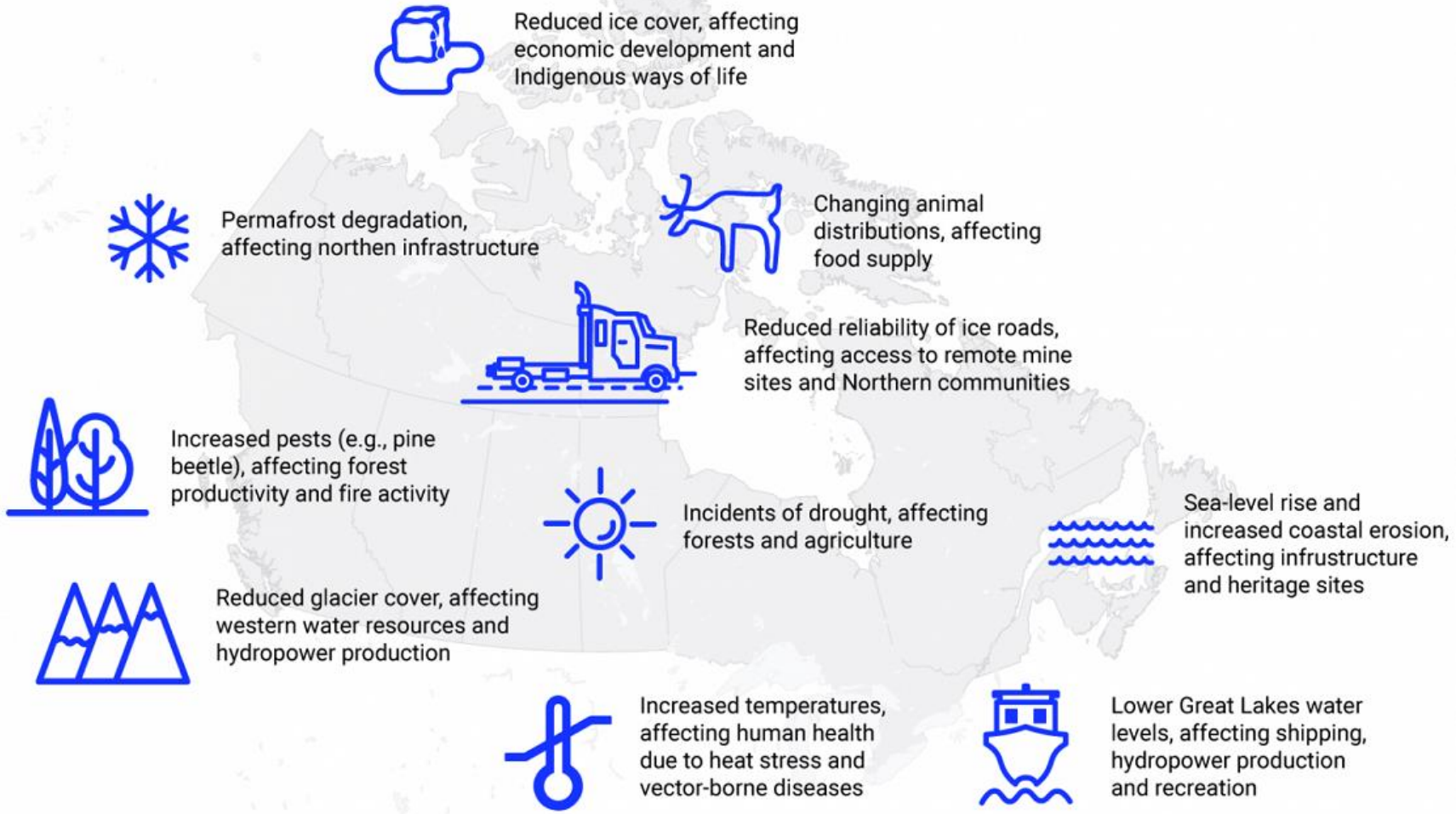
Canada's Changing Climate

https://changingclimate.ca/



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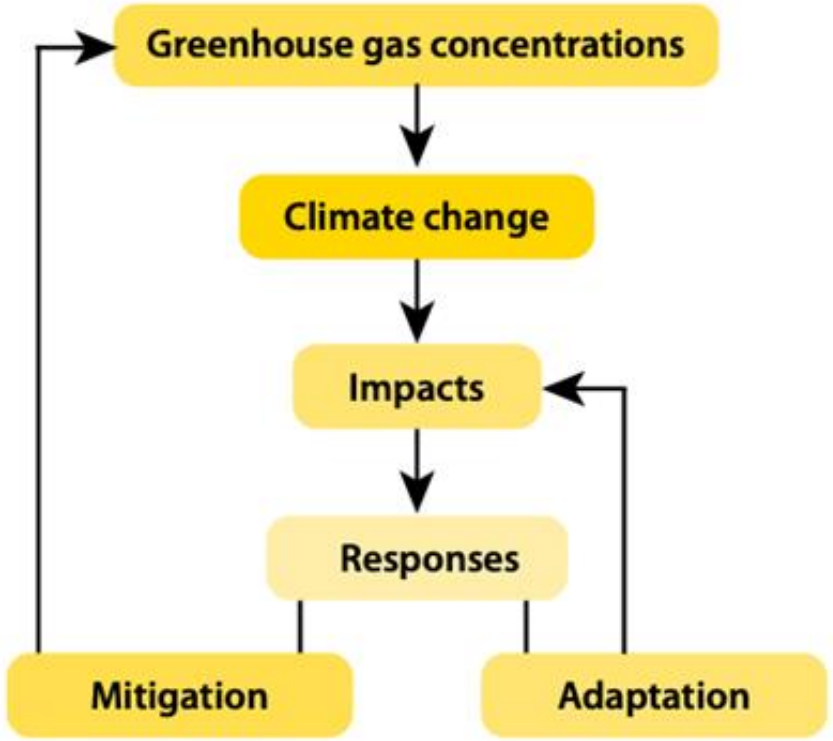
Climate Change Actions

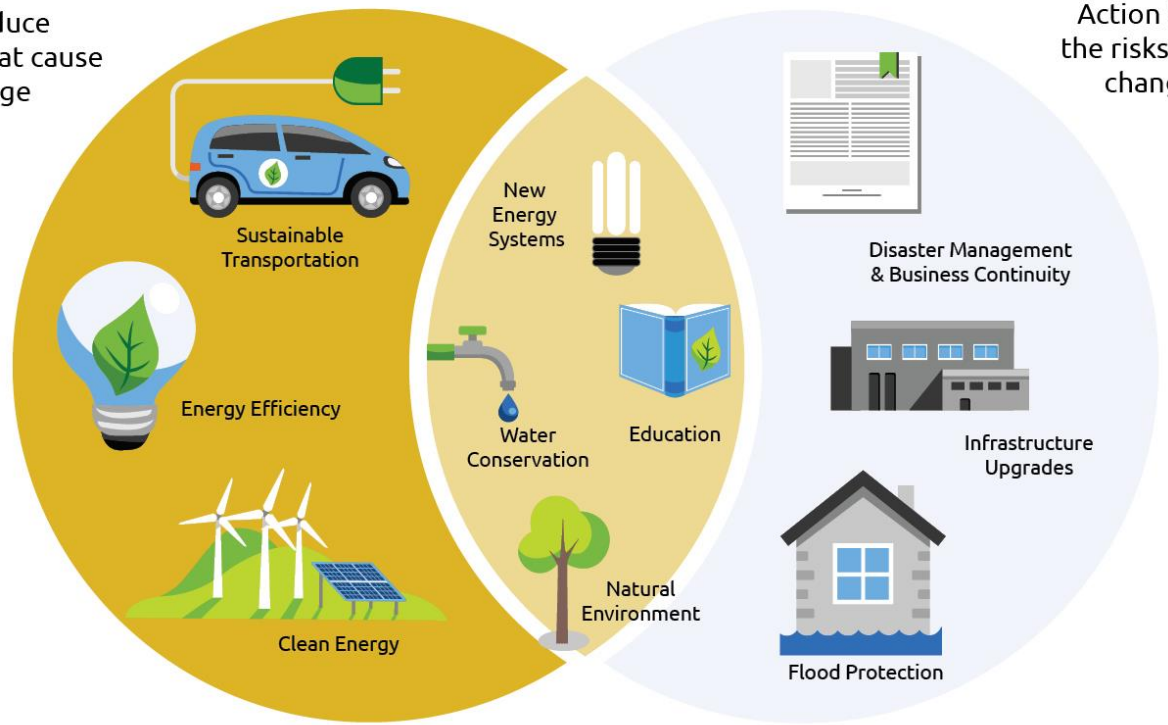


Mitigation

Action to reduce emissions that cause climate change

Adaptation

Action to manage the risks of climate change impacts



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Images: County of Huron Corporate Climate Change Action Plan; and City of Waterloo, 2019

Emission Reduction Commitments

To avoid unacceptable climate impacts and risks, global emissions of CO_2 must drop to net-zero globally by around 2050.

That's less than 30 years!

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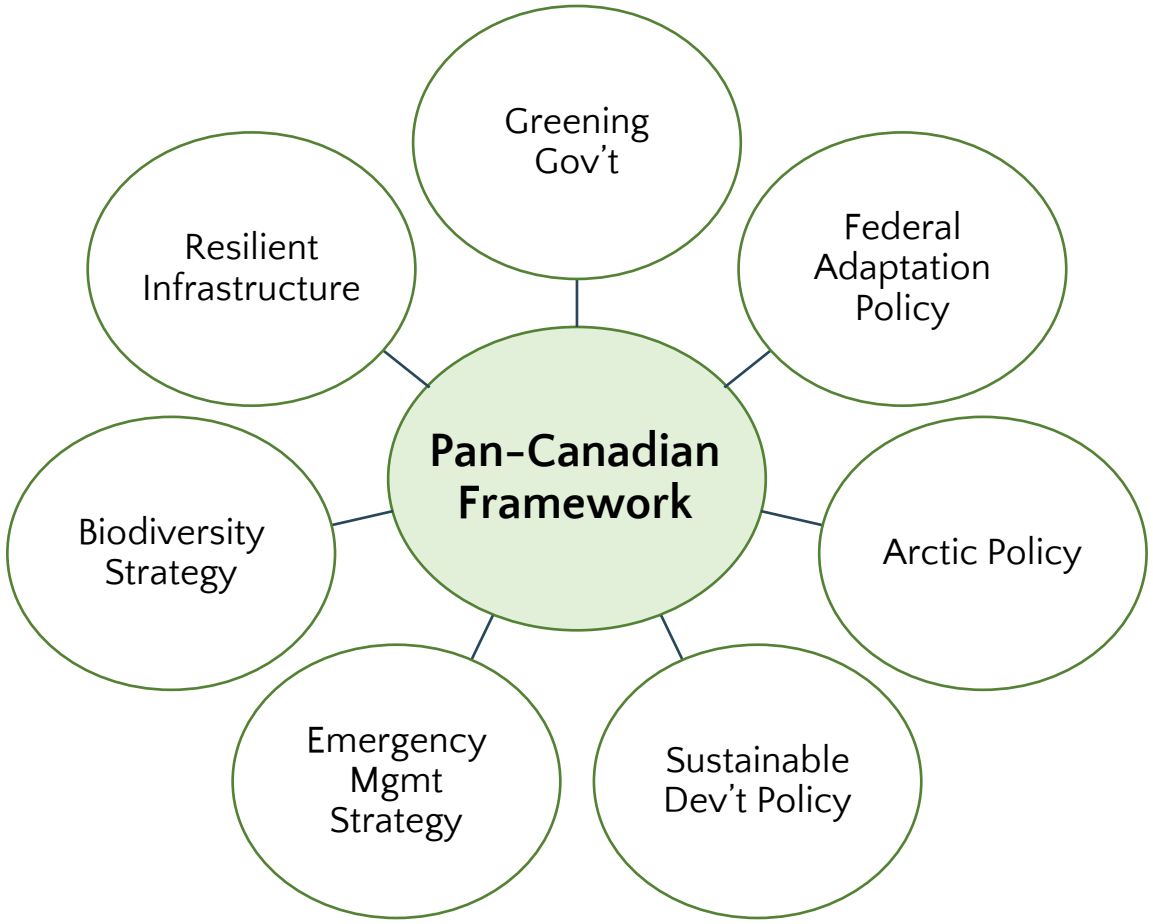
Pan-Canadian Framework on Climate Change



- Overarching framework that aligns with other targets/policies
- Joint development (federal, provincial, territorial governments with Indigenous Peoples)
- Considers economic growth, GHG reductions, and adaptation action including:
  - Increase availability of information
  - Infrastructure investment
  - Focus on design that reduces impacts to human and ecosystem health
  - Support vulnerable regions

https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html

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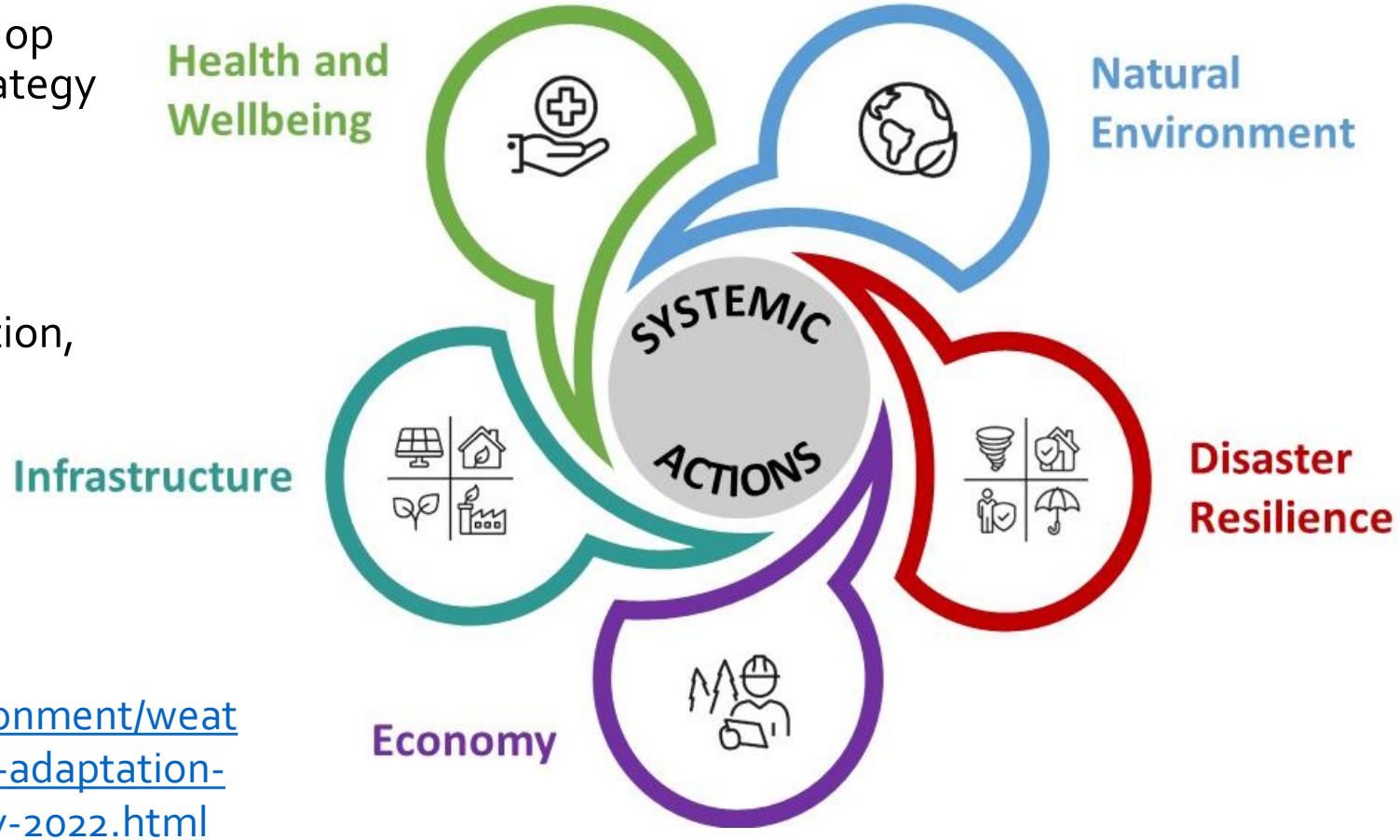
National Adaptation Strategy

December 2020, commitment to develop Canada's first National Adaptation Strategy to:

- Establish a shared vision of climate resilience
- Identify key priorities for collaboration, and
- Creating a framework for measuring progress nationally.



Consultation happening now!

https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/national-adaptation-strategy/preparing-discussion-paper-may-2022.html

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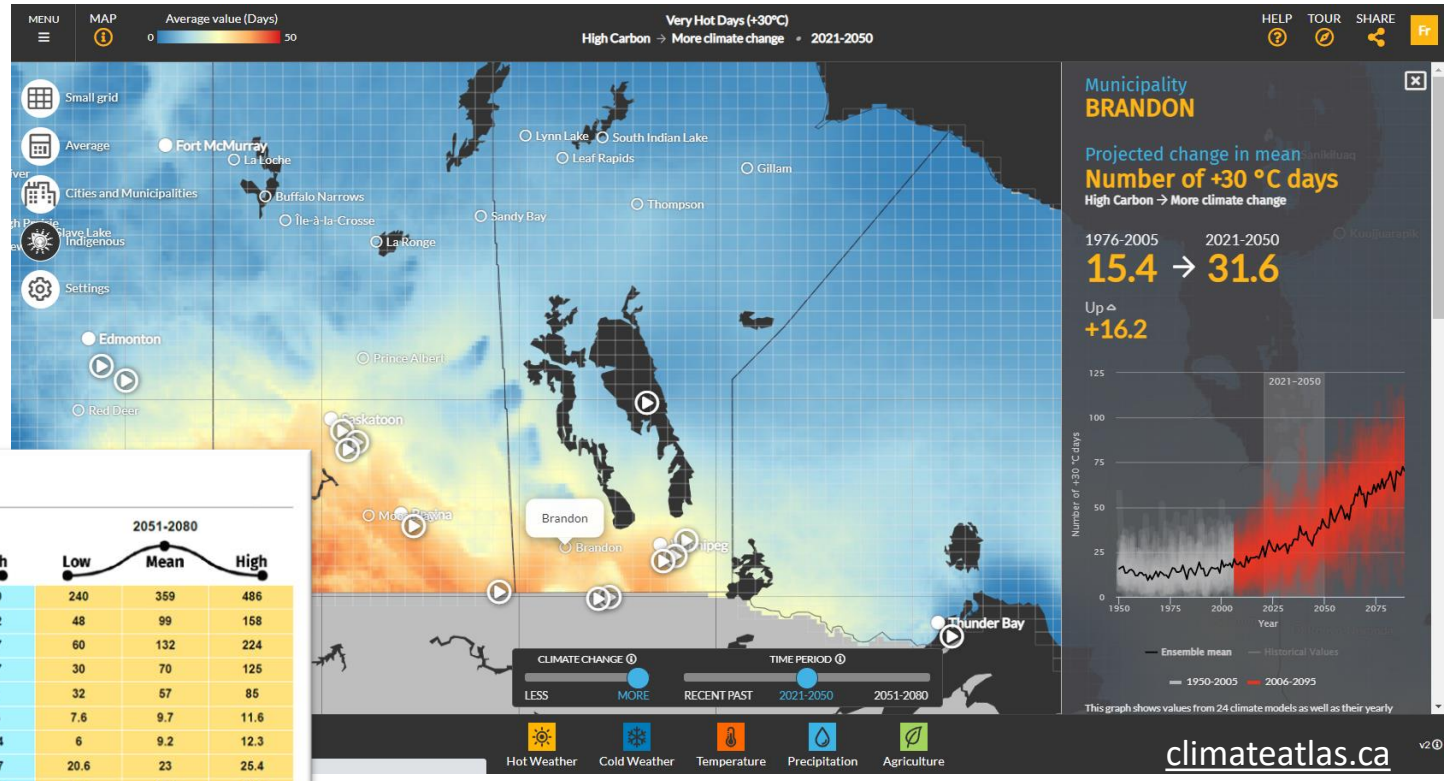
Climate Data Example

Climate Atlas of Canada

- Higher-level climate tool to support communication, mapping and storytelling.
- Designed to support local action.
- Appropriate for community-based communications, risk assessments, outreach.



RCP 8.5: High Carbon climate future

GHG emissions continue to increase at current rates

Variable	Period	1976-2005 Mean	2021-2050 Low	2021-2050 Mean	2021-2050 High	2051-2080 Low	2051-2080 Mean	2051-2080 High
recipitation (mm)	annual	322	240	345	470	240	359	486
recipitation (mm)	spring	79	45	93	152	48	99	158
recipitation (mm)	summer	131	66	132	217	60	132	224
recipitation (mm)	fall	63	29	68	117	30	70	125
recipitation (mm)	winter	49	28	53	81	32	57	85
lean Temperature (°C)	annual	5.5	5.7	7.5	9.3	7.6	9.7	11.6
lean Temperature (°C)	spring	5.6	4.5	7.4	10.4	6	9.2	12.3
lean Temperature (°C)	summer	18.6	18.8	20.7	22.7	20.6	23	25.4
lean Temperature (°C)	fall	6.2	5.5	8	10.3	7.8	10.2	12.6
lean Temperature (°C)	winter	-8.6	-11.2	-6.4	-2.1	-8.5	-4.1	0.3
ropical Nights	annual	0	0	2	6	1	9	23
ery hot days (+30°C)	annual	26	22	44	66	39	64	87
ery cold days (-30°C)	annual	6	0	3	9	0	1	4
ate of Last Spring Frost	annual	May 8	April 10	April 29	May 16	April 3	April 22	May 10
ate of First Fall Frost	annual	Sep. 25	Sep. 18	Oct. 3	Oct. 21	Sep. 23	Oct. 12	Oct. 29

https://climateatlas.ca/

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Indigenous Knowledge

- Provides invaluable insight into long-term local and regional climate.
- Integrating traditional knowledge with climate data can provide additional certainty and better information.

Source: https://www.cbc.ca/news/canada/north/paulatuk-study-climate-change-1.4556243

Investigate

Defining your Role

Climate Change & Planning

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All Planners Are Adaptation Planners

Think of your role in planning. What are some of the ways you could contribute?

- Increase your understanding
- Talking to others
- Suggesting policy or procedural changes

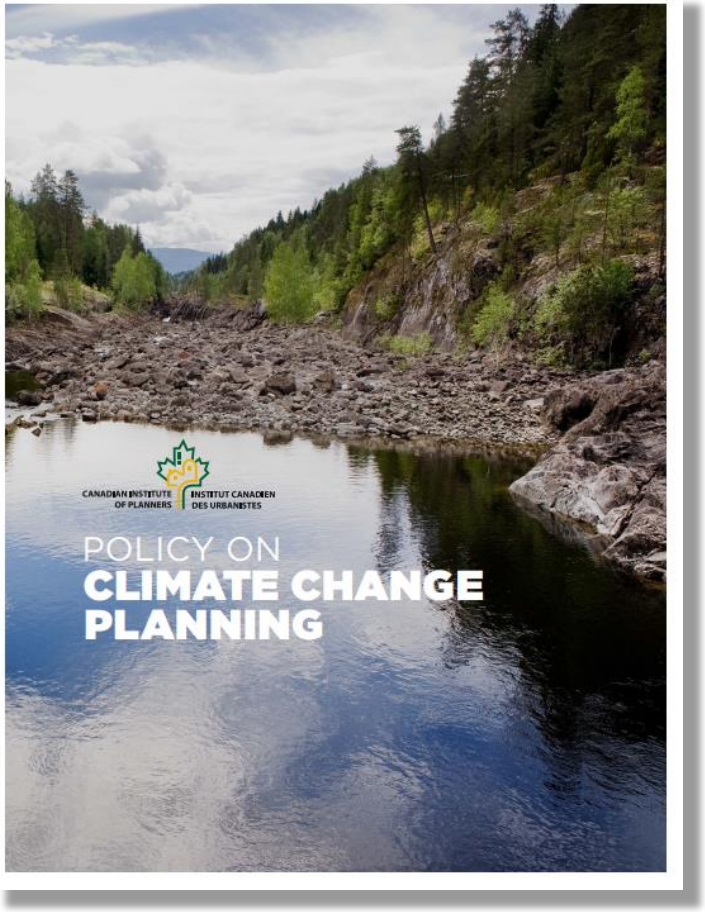
Introduce yourself & share your thoughts on what your role is/could be!

Climate Change Planning

Policy Goal: *CIP envisions a future in which Canadian communities are planned, designed, developed, and managed to contribute to climate stability and to be more resilient in the face of unavoidable changes in the climate, and in the process, to become more livable, prosperous, and equitable.*

Call to Action: *"CIP recognizes that all planners have an ethical obligation to consider climate change in their practices and strives to ensure that members have access to the resources, data, training, and other support they need to do so."*

https://www.cip-icu.ca/ClimateChange



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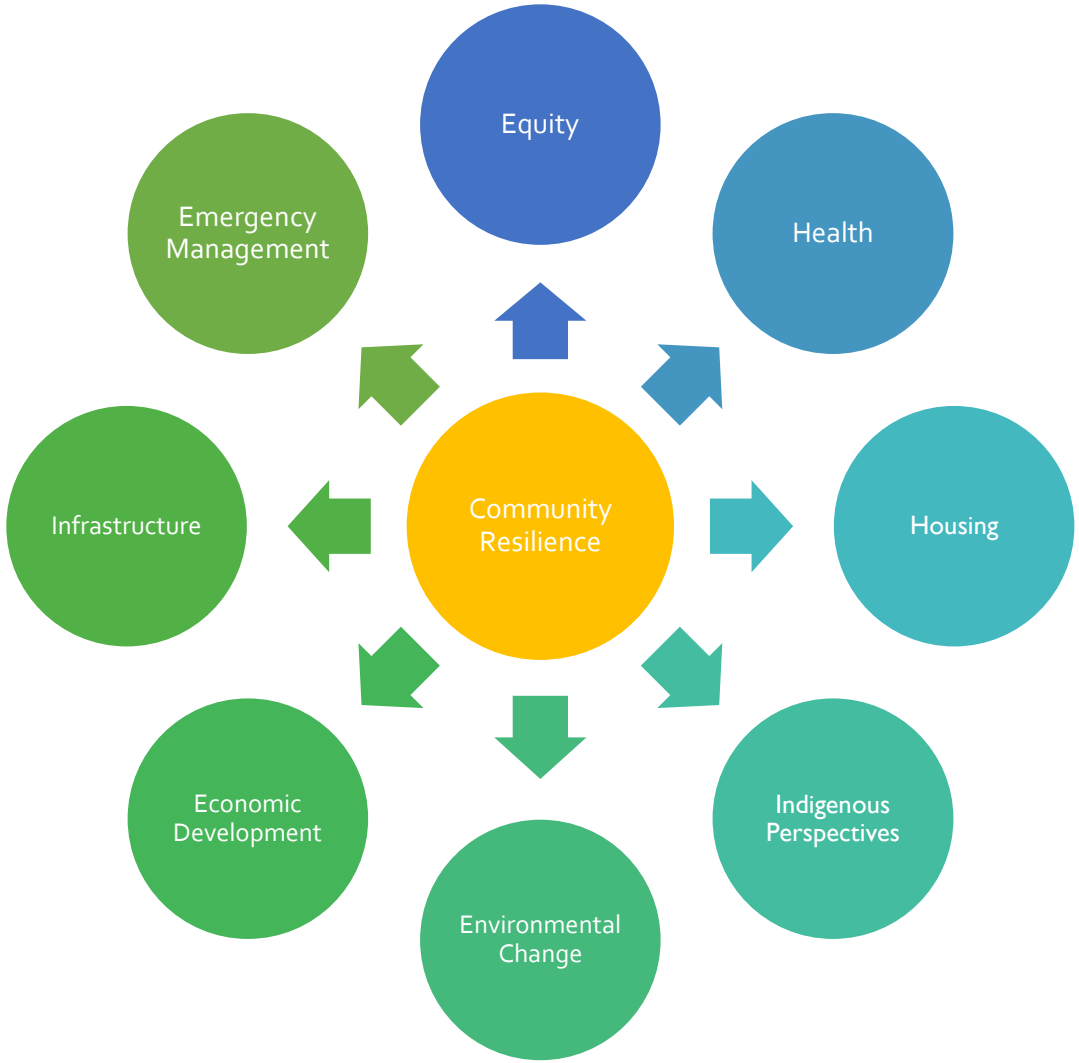
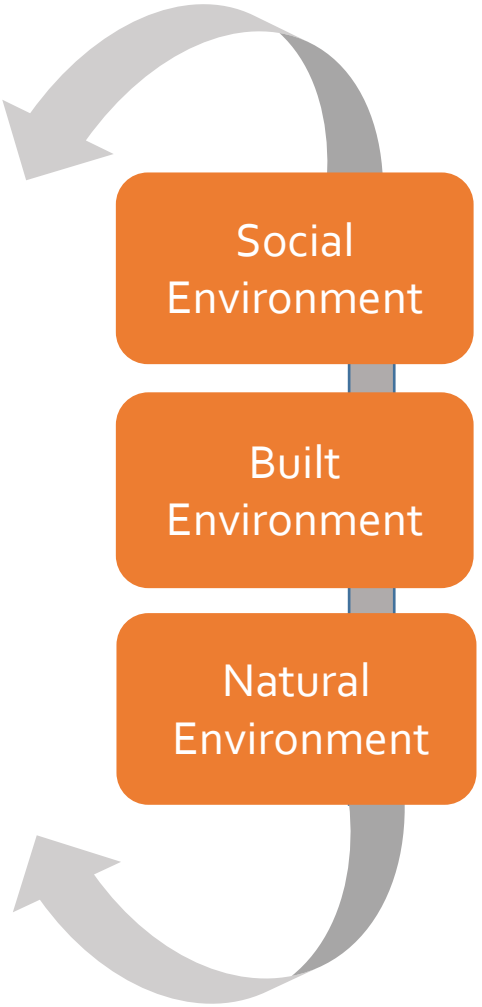
Community Resilience

Planners are tasked with:

- Finding solutions that support both adaptation and mitigation solutions.
- Multiple interconnected, and potentially competing, considerations
- Considering vulnerable, equity-deserving populations.





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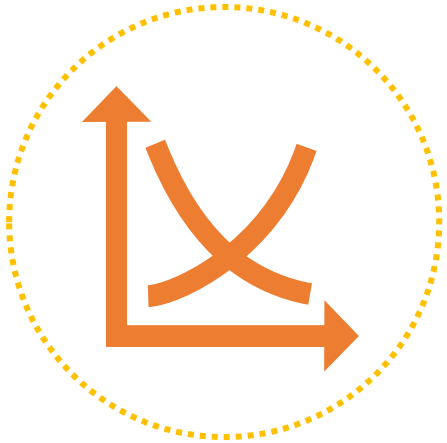
All Planners Are Adaptation Planners



Use long-term projections to account for population growth.

Create plans and policies that consider a range of interests and perspectives

Communicate with the public, government officials' organizations, agencies and various professionals.

Contribute to community design through proposed development plans or design policy

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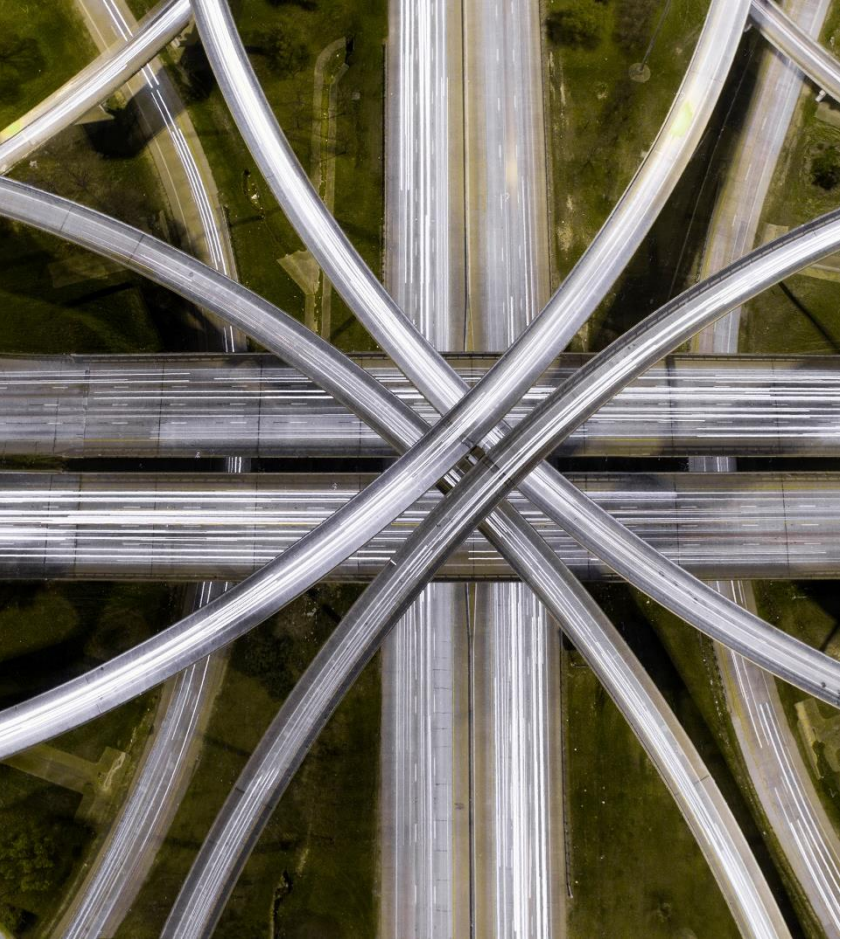
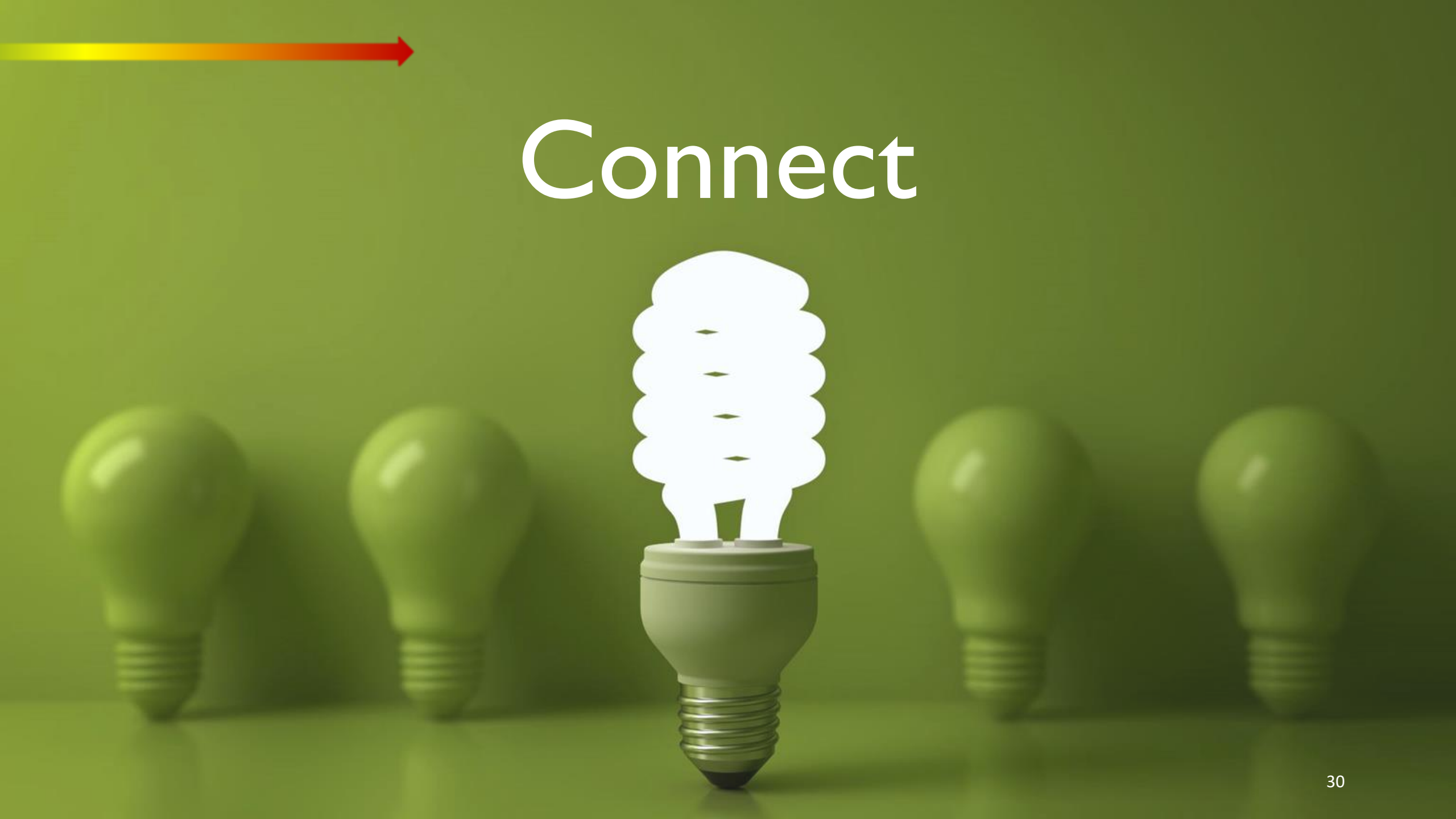


Why Action is Needed Now

Development decisions, the creation of policy, and the processes that implement them are critical as choices around these pieces can be 'locked in' for a long time

...potentially limiting options and/or increase costs for future decisions

Connect



Options for Action

Adaptation Tools for Planners

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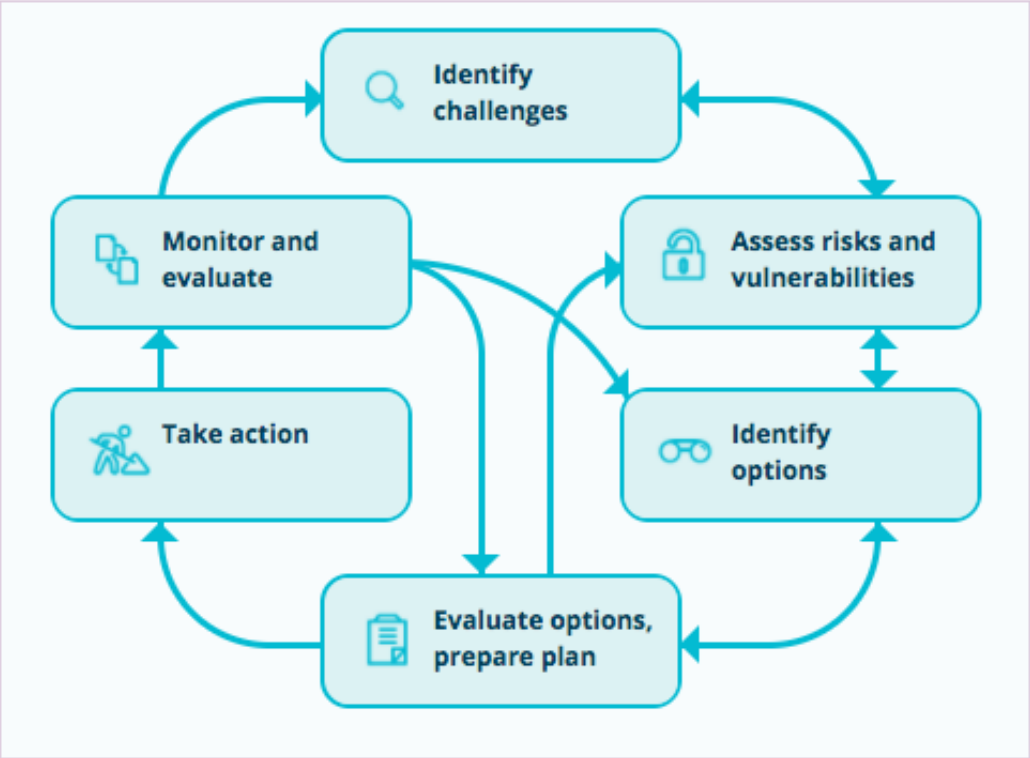
Adaptation Planning Process



NCCARF, 2016; Richardson, 2010

- Identifying and managing areas of potential risk is one of the most important steps in the adaptation planning process.
- Risk management is a common approach used by municipalities and other bodies in order to best prioritize decision-making.
- Common, practical, and credible way of highlighting areas of concern under climate change.

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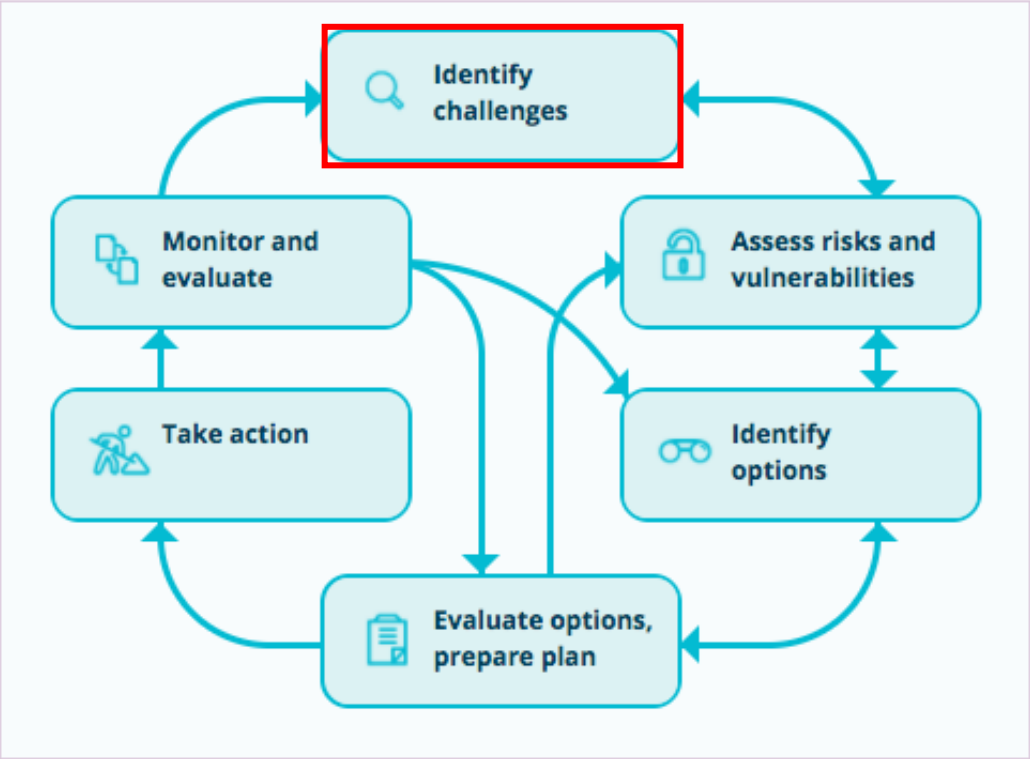
Visualizing Adaptation In your Community

Think of the community where you live or work when we go through this example.

Visualize from your own perspective:

- who would be involved
- what steps could you be involved in

Starting the Process



- Scoping
  - Corporate
  - Community-wide
  - Sectoral
  - Assets
- Identifying key perspectives
  - Marginalized communities are **disproportionately affected** by climate change relative to other communities and are often the **least likely to benefit** from investments in sustainable solutions.
  - Failure to consider equitable solutions **can undermine efforts** to address climate change.

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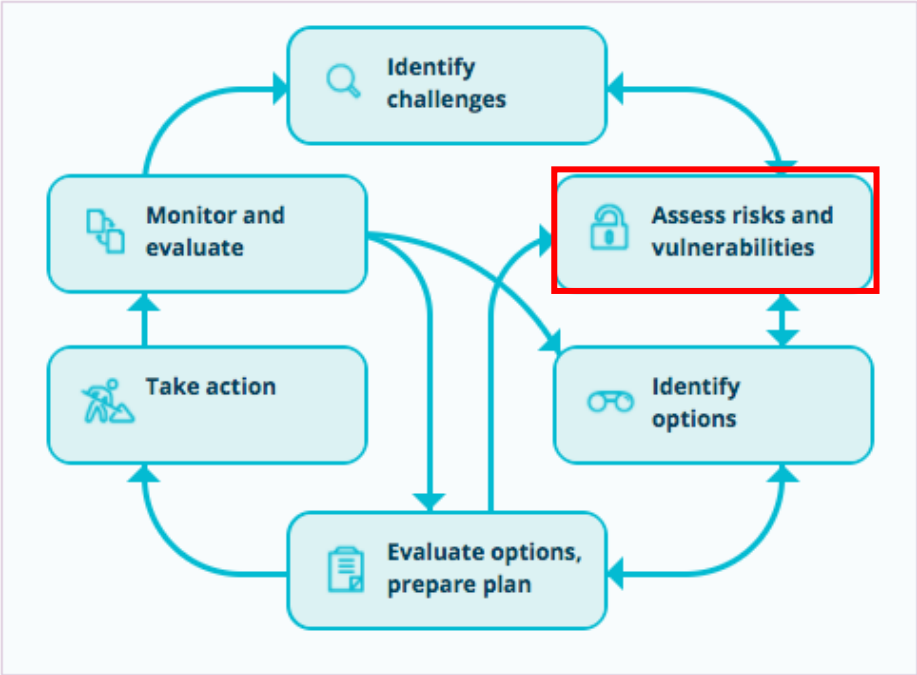
Assessing Vulnerability – Risk Assessment



Climate Atlas Report

Municipality: Vancouver

RCP 8.5: High Carbon climate future

GHG emissions continue to increase at current rates

Variable	Period	1976-2005	2021-2050			2051-2080		
		Mean	Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	1567	1265	1614	1984	1294	1695	2118
Precipitation (mm)	spring	328	205	339	493	213	347	501
Precipitation (mm)	summer	162	62	153	262	56	146	262
Precipitation (mm)	fall	470	285	483	715	303	518	751
Precipitation (mm)	winter	608	414	638	877	448	685	950
Mean Temperature (°C)	annual	10.6	11.3	12.4	13.4	12.8	14.2	15.5
Mean Temperature (°C)	spring	9.8	10	11.6	13.3	11.3	13.1	15.2
Mean Temperature (°C)	summer	17.2	17.9	19.2	20.6	19.5	21.3	23.1
Mean Temperature (°C)	fall	10.8	11.2	12.4	13.6	12.6	14.2	15.8
Mean Temperature (°C)	winter	4.4	4.1	6.1	7.8	5.8	7.8	9.7
Tropical Nights	annual	0	0	1	3	0	9	25
Very hot days (+30°C)	annual	1	0	5	12	2	16	35
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	March 7	N/A	Feb. 5	March 16	N/A	Jan. 17	Feb. 23
Date of First Fall Frost	annual	Nov. 22	Nov. 8	Dec. 8	Dec. 30	Nov. 19	Dec. 18	Dec. 30
Frost-Free Season (days)	annual	257	254	304	353	289	334	364

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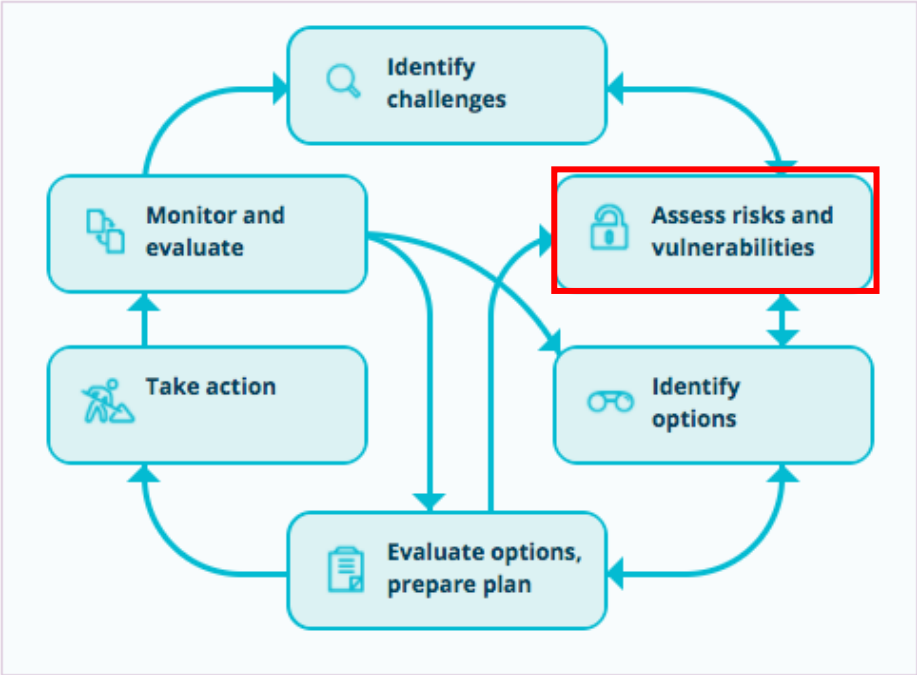
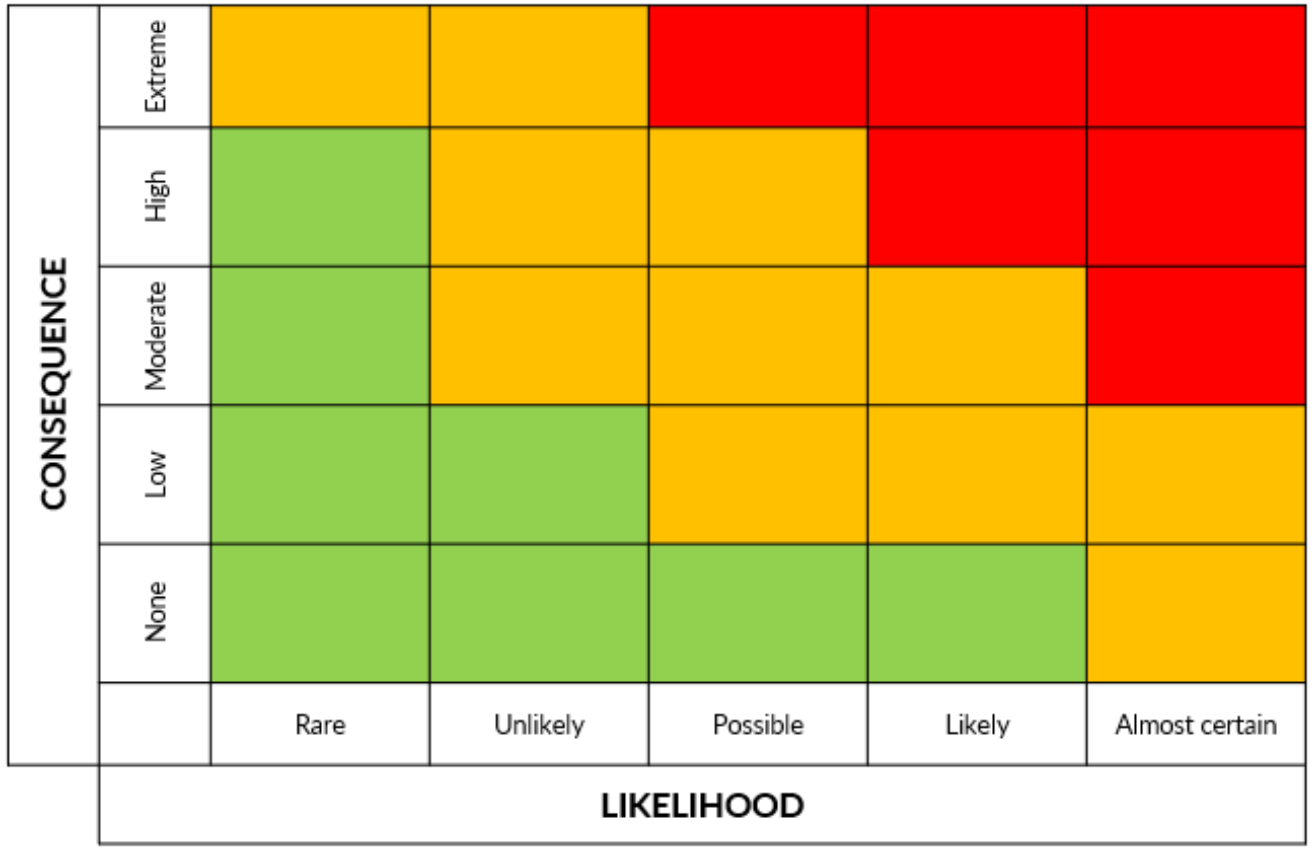
Assessing Vulnerability – Risk Assessment





5-20	21-35	36-50	51-65	66-80	81-95	96-110	111-125
Very-Low	Low	Medium-Low	Medium	Medium-High	High	Very-High	Extreme

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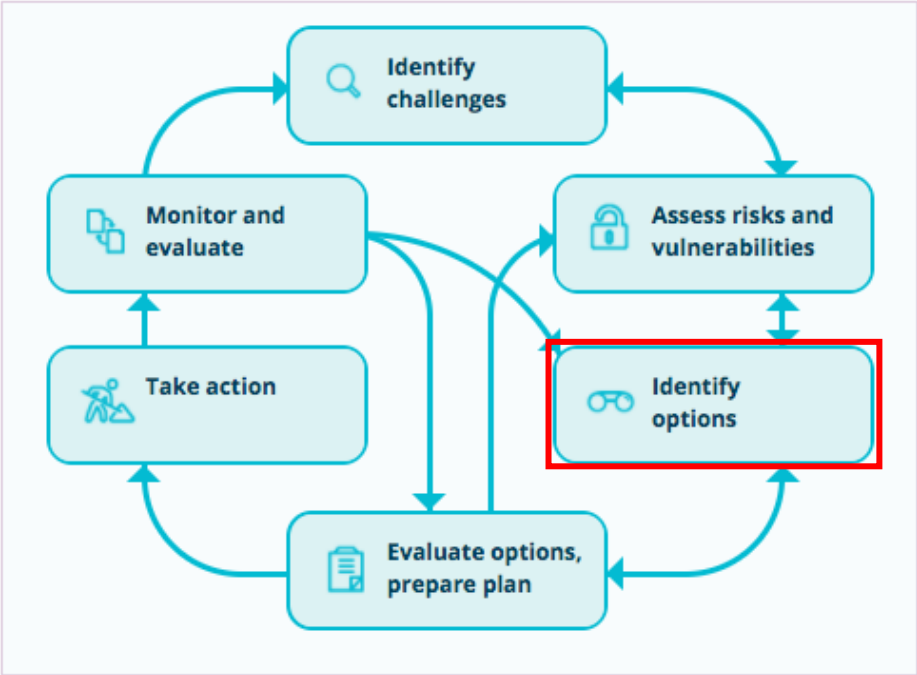
Identifying Adaptation Actions



ADAPTATION		
Based on	Type of adaptation	
Intent *In relation to climatic stimulus*	Autonomous *(e.g. unmanaged natural systems)*	Planned *(e.g. public agencies)*
Temporal scope	Short term *Adjustments, instantaneous, autonomous*	Long Term *Adaptation, cumulative, policy*
Spatial scope	Localized	Widespread

Modified from Smit et al. 1999

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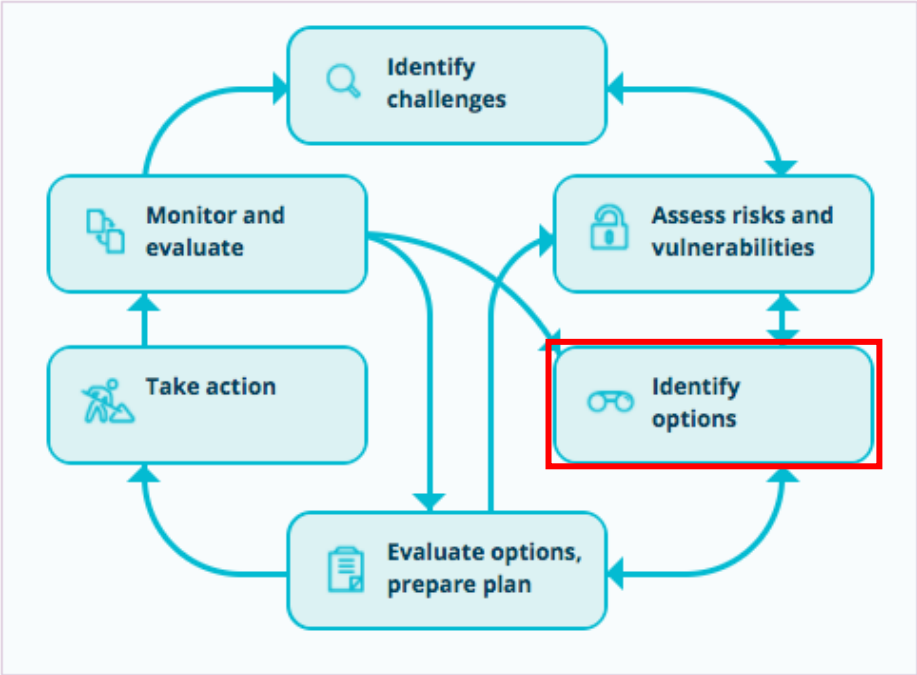
Identifying Adaptation Actions



THREE TYPES OF ADAPTATION:

GREY — Human-made physical infrastructure (e.g. dikes, sea walls, fire-resistant building materials)

GREEN — Protecting, strengthening and light modifications to physical natural systems (e.g. wetlands, forest turnover rate, soil nutrition)

SOFT — Legal, socio-cultural, political and financial management policies and systems that enable adaptation[1]

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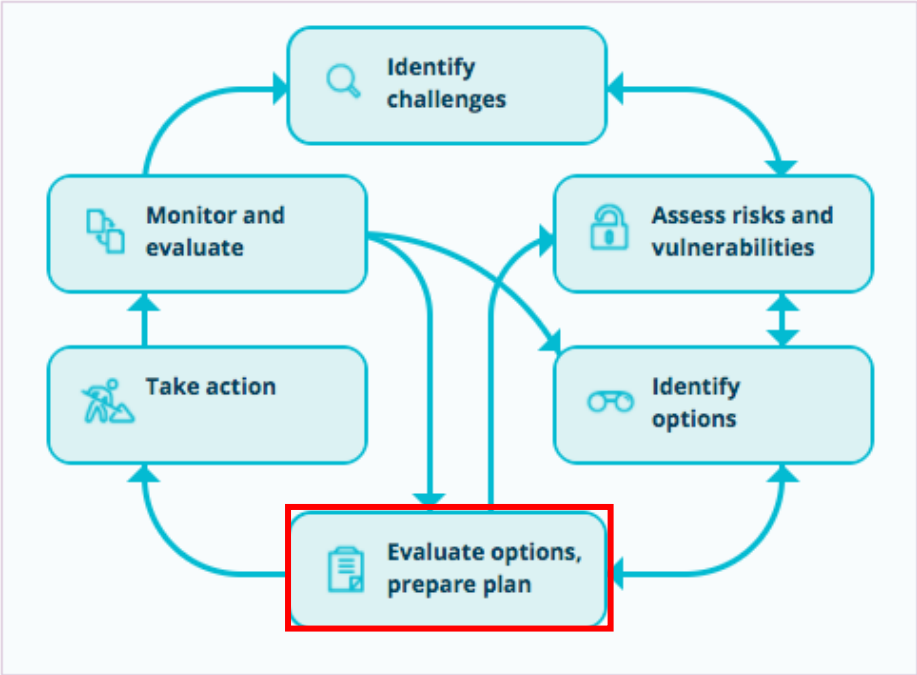
Prioritization of Actions



Risk Reduction	Reasonability
Urgency	Maladaptation
Reliability	Co-Benefits
Technical Feasibility	Uncertainty
Social Feasibility	Flexibility
Affordability	No-regrets

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Looking for co-benefits of adaptation & potential maladaptation

Improves biodiversity/ habitat creation	Improves cost savings	Enhances local autonomy
Optimizes energy savings	Creates jobs	Reduces risk to property values
Reduces waste; optimizes resources	Improves human health & well-being	Reduces congestion
Improves water retention/absorption	Increases carbon storage/sequestration	Reduces burden on grey infrastructure
Improves air and/ or water quality	Reduces extreme temperatures	Captures pollutants
Improves equity /improvements for vulnerable populations	Improves green space/ recreation	Supports clean energy transition
Improves community livability/vitality	Supports local food security initiatives	Improves water and/or energy efficiency

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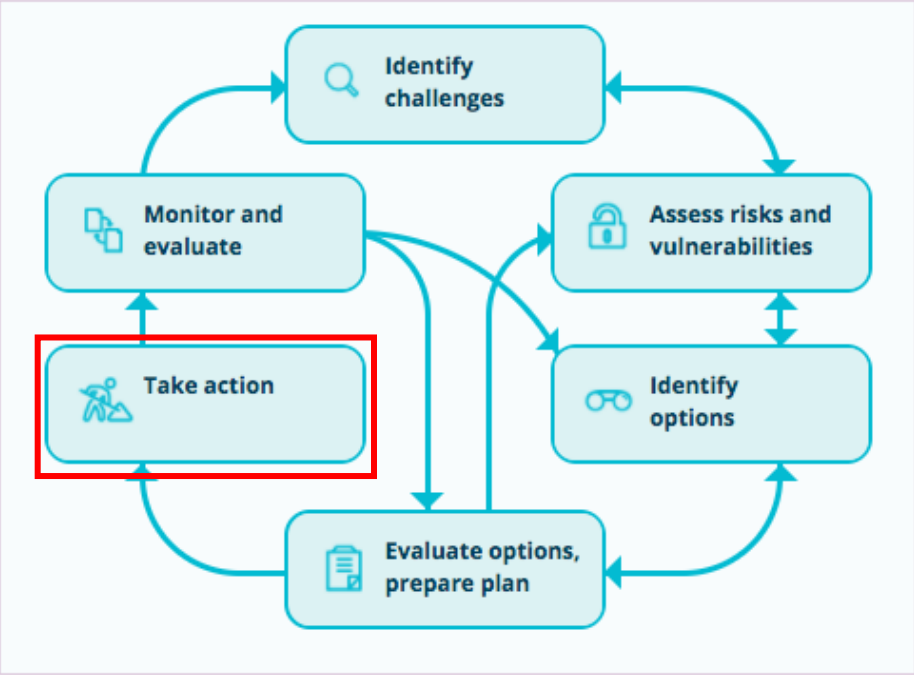
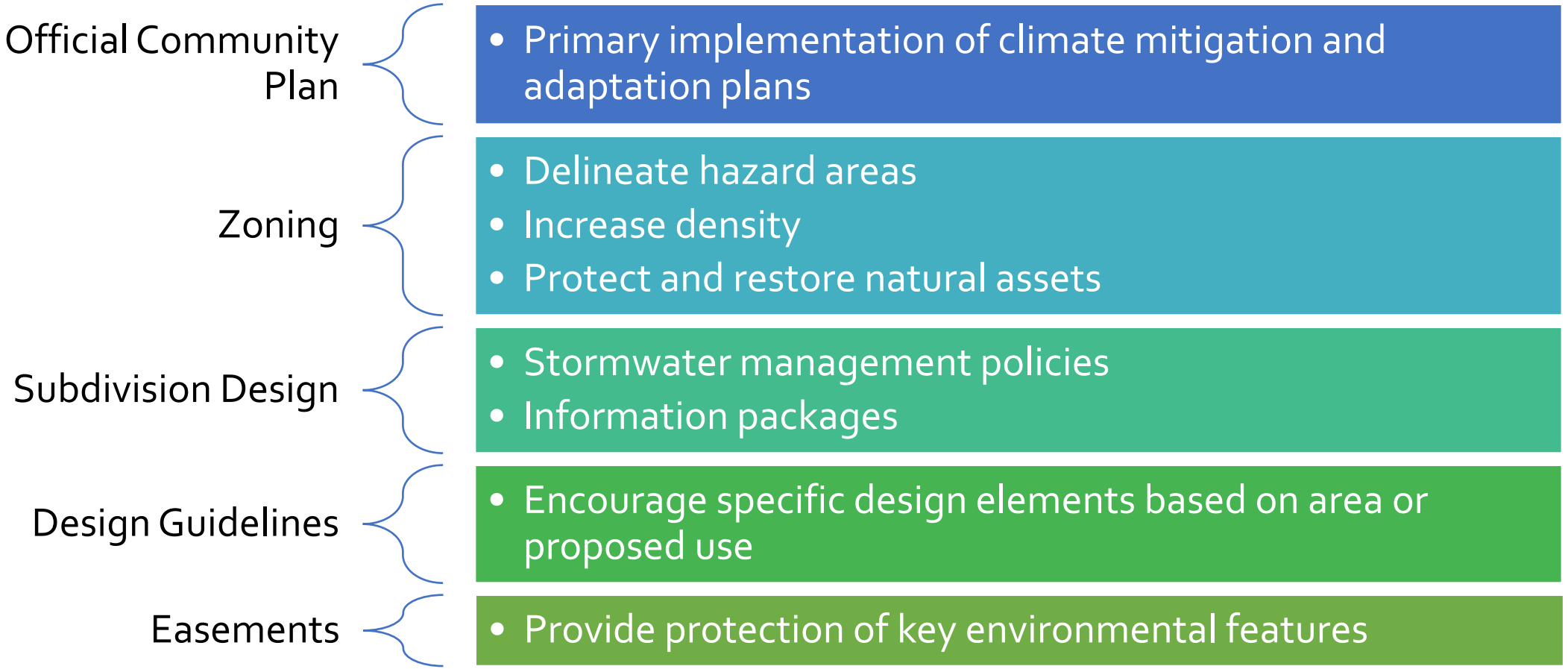
Taking Action - Goals



Goals	Actions	Implementation Lead
1. Minimize health and safety risks for outdoor conditions	• Map areas vulnerable to heat extremes	Environment and Parks Services; Planning
2. Generate awareness of changing climate conditions	• Start a gap analysis of communication processes related to climate change and extreme weather	Communications Services; Planning
3. Ensure a coordinated response/recovery from extreme weather events	• Assess training needs for staff to ensure informed response to extreme weather events	Human Resources; Planning

City of Waterloo CCCAP, 2019

Applying Planning Tools



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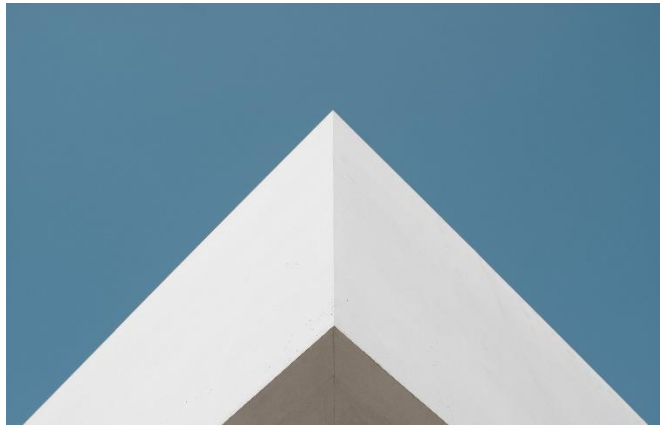
Impact Specific Implementation Examples

Urban Heat

- White roof requirements
- Tree canopy targets
- Green Building Standard



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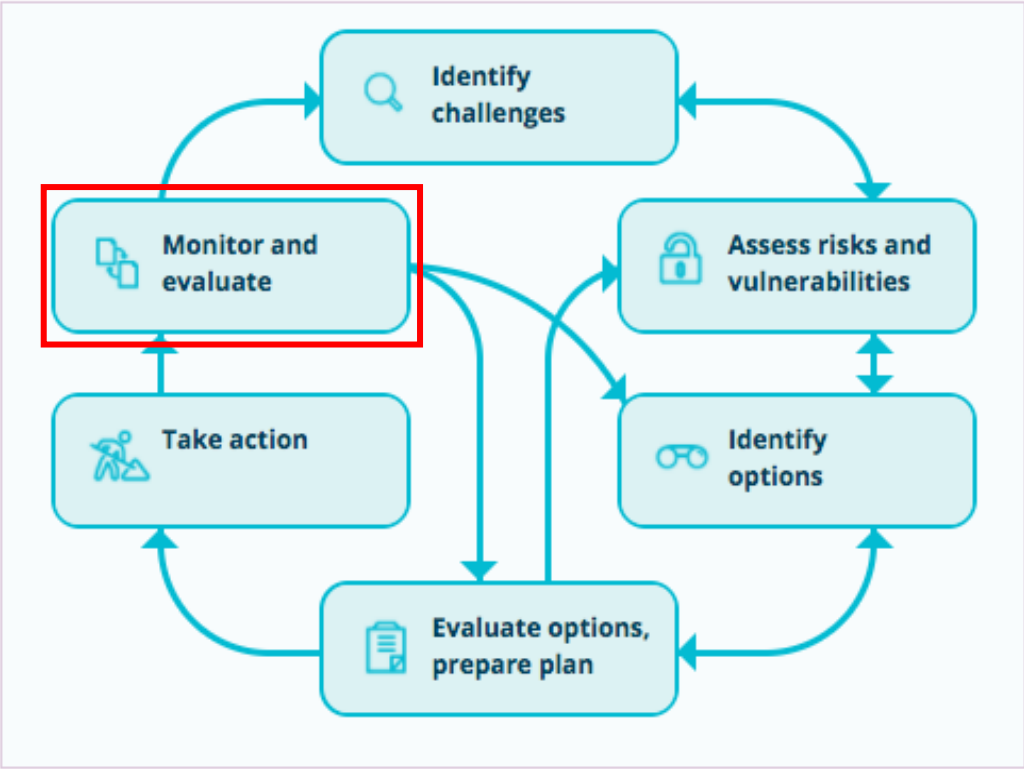
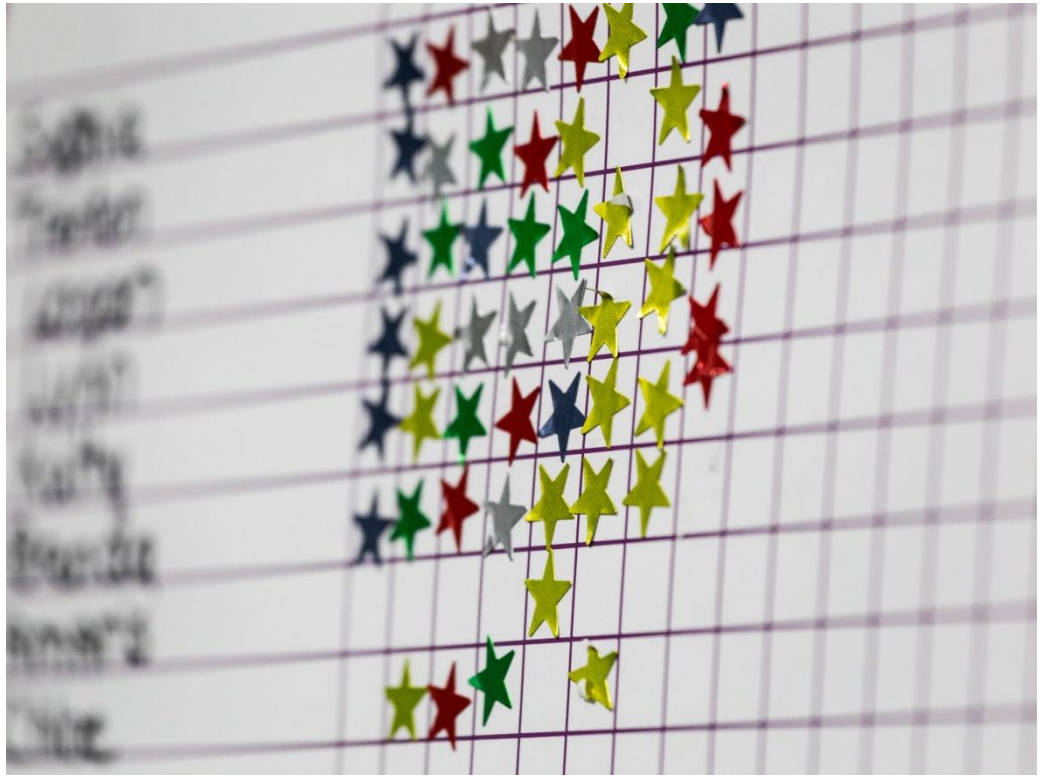
Monitoring and Evaluation





Incorporate

Enhancing Your Knowledge

Continuous Professional Learning

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Where are you at?

Thinks about how comfortable you are with discussing climate change issues:

- Public engagement session
- Report to Council
- Putting together a bid on an RFP
- Speaking to a client

Climate Adaptation Training for Planners

- Suite of climate change adaptation training modules developed with partners
- Made possible by funding from Natural Resources Canada.
- The online training program brings together current knowledge informed by the experience of practitioners in the field, and supported by an Advisory Committee of academic, municipal, private sector, and Indigenous members.

Climate Adaptation Training for Planners

Collaborate. Consult. Engage.

Module #1: Climate Science & Policy	Module #2: Adaptation in Practice	Module #3: Implementing of Climate Change Adaptation
Know the climate and hazard projections for your regions.	Plan for worst-case scenarios and incorporate risk-reduction measures into plans.	Incorporate measures to adapt to climate change in relevant planning decisions.

Visit our website for more information on training options
https://climateriskinstitute.ca/training-and-credentialing/

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Adaptation Resource Pathways

BRACE Initiative that aims to:

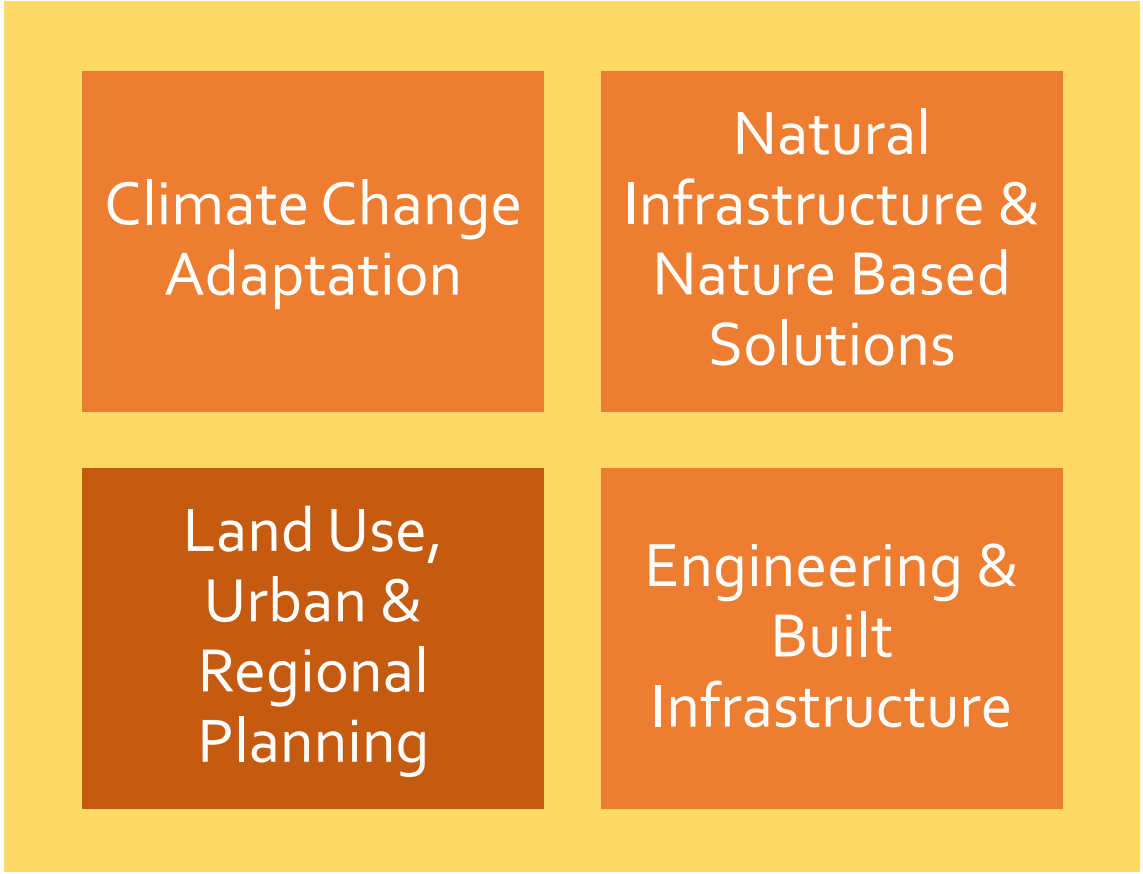
- ✓ Simplify access to climate change adaptation tools and resources
- ✓ Increase guidance for end-users

Here is the link to the Planning ARP:

https://climateriskinstitute.ca/arpp/

Here is the link to the BRACE site for access to other ARPs:

https://adaptationplatform.ca/home/braceresources/adaptationresourcepathways



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ARP Content & Format

EXPLORE

Key terms, FAQs, curated list of resources

LEARN

Online courses, training opportunities, credentials

NETWORK

Communities of Practice, organizations, social media

ACT

Real-world examples, case studies, implementation

REFLECT

Take stock of progress and measure the impacts of your actions.

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Climate Change Adaptation Resource Pathway (ARP): *Land Use, Regional and Urban Planning*

Welcome explorers! The Climate Change Adaptation Resource Pathway (ARP) is designed to help adaptation practitioners at all levels traverse the vast array of information available on land use, regional and urban planning based climate change adaptation solutions. The ARP contains 5 steps, each providing a curated list of resources and tools to help you navigate along your adaptation journey and build resilience to our changing climate through nature:

EXPLORE Peruse key terms, FAQ's and various resources to build your knowledge on key adaptation concepts, tools and best practices.

LEARN Strengthen your knowledge and expertise by exploring climate change adaptation courses, credentials and training opportunities.

NETWORK Tap into existing knowledge-sharing networks such as communities of practice in order to connect with others working in the field.

ACT Learn how others are implementing adaptation actions on-the-ground through case studies and real world examples of implementation.

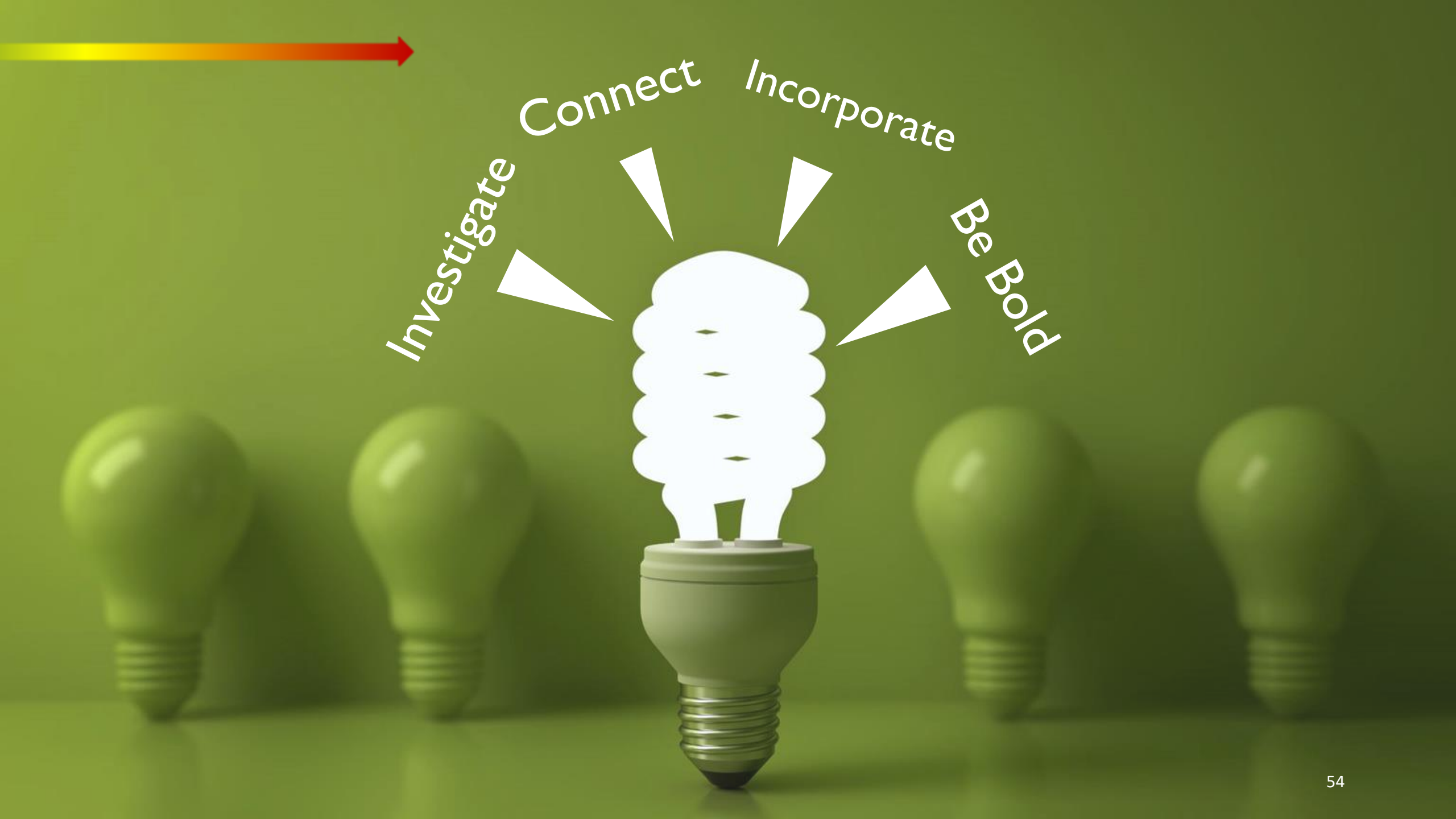
REFLECT Take stock of your adaptation journey so far and learn ways to measure the impact of your actions.

You can follow the pathway from start to finish or jump between the different steps based on your current goals.

Click on one of the stepping stones below to start your journey down the Adaptation Resource Pathway.

The ARP is an interactive resource! Click on the Scenic Lookout icon and signpost below to try it out.

Be Bold


Investigate
Connect
Incorporate
Be Bold

Thank you!

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