Government of Northwest Territories, Department of Environment and Climate Change

2030 NWT Climate Change Strategic Framework and 2019-2023 Action Plan – Final Evaluation Report

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List of Acronyms

AEA	Arctic Energy Alliance
CCSF	Climate Change Strategic Framework
CCYC	Climate Change Youth Council
CIMP	Cumulative Impact Monitoring Program
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
COLO	Cost of Living Offset
COVID	Corona Virus Disease
ECC	Department of Environment and Climate Change
ECCC	Environment and Climate Change Canada
EIA	Environmental Impact Assessment
ENR	Department of Environment and Natural Resources
FAQs	Frequently Asked Questions
FIN	Department of Finance
GHG	Greenhouse Gas
GNWT	Government of the Northwest Territories
HLHP	Healthy Land, Healthy People
IGIOs	Indigenous Governments and Organizations
INF	Department of Infrastructure
ITI	Department of Industry, Tourism and Investment
LANDSAT	Land-Use Satellite
MACA	Municipal and Community Affairs
NASA	National Aeronautics and Space Administration
NGO	Non-Government Organization
NISI	Northern Infrastructure Standardization Initiative
NTPC	Northwest Territories Power Corporation
NWT	Northwest Territories
NWTCCC	Northwest Territories Climate Change Council
RFP	Request for Proposals
ROA	Risks and Opportunities Assessment
SMART	Specific, Measurable, Achievable, Realistic and Time-Bound
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples

Executive Summary

Introduction

Climate change is having a significant effect on the Northwest Territories' (NWT) natural environment and on its economy, infrastructure and health and safety of residents. Impacts include: thawing permafrost, shrinking sea ice, coastal and river erosion, flooding, wildland fires, drought, and impacts on humans, wildlife and vegetation. These impacts are affecting the infrastructure and traditional ways of living which in turn are resulting in both physical and mental health concerns for residents.

As part of the Government of the Northwest Territories' (GNWT) commitment to take action on climate change, the government developed the 2030 NWT Climate Change Strategic Framework (the 'Framework') and an accompanying 2019-2023 Action Plan. The Framework presents the GNWT's climate change **vision** - By 2030, the NWT will enjoy a strong, healthy economy that is less dependent on fossil fuels (compared to 2005) and will have developed the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate. To achieve this vision, the Framework highlights **three goals** and **two cross cutting themes** and the Action Plan identifies the action areas and items that support achievement of the goals.

Goal #1: Transition to a lower carbon economy	In order to transition to a lower carbon economy that uses less fossil fuel, NWT must reduce its green house gas (GHG) emissions by 30% (compared to 2005) by 2030. Electricity generation, space heating, transportation, and industry are the main sectors for fossil fuel use and GHG emissions tracked in the NWT.
Goal #2: Improve knowledge of climate change impacts	Improving knowledge of climate change impacts occurring in the NWT is the second goal of the Framework. To address climate change, there is a need for greater understanding of the impacts to the natural environment, residents' health, safety, culture and heritage, and the territory's infrastructure. The integrated use and management of traditional, local and scientific knowledge to determine knowledge gaps, set and implement research and monitoring requirements, and obtain current and timely information, is essential.
Goal #3: Build resilience and adapt to a changing climate	Building resilience and adapting to a changing climate is the Framework's third goal. Building resilience focuses on finding ways to withstand the changes that are occurring. For changes that are unavoidable, adaptation efforts are required to find new ways of doing things, such as adjusting plans and operational activities.
Cross-cutting	1. Leadership, communication and capacity-building 2. Understanding the economic impacts and opportunities resulting from

Themes	climate change

A formal review of the Framework and Action Plan was conducted to assess the progress made towards the vision and goals. The findings from the evaluation, along with emerging issues, new technologies and new opportunities identified through other means, will be used to consider potential revisions to the Framework and support the development of the 2025-2029 Action Plan.

Methodology

The following lines of inquiry were used to gather information for the evaluation:

Background Document Review	Documents such as the following were reviewed: frameworks, action plans, strategies, legislation, policies, annual reports, topical reports, discussion guides, plain language summary reports, what we heard reports, risk, opportunities and priority assessments, and frequently asked questions.
Interviews and Focus Groups	Virtual interviews and focus group discussions were held with 39 participants including representatives from the following organizations/groups: ▪ GNWT (21) ▪ Federal government (6) ▪ Indigenous Governments and Indigenous Organizations (IGIOs) (4) ▪ Non-Government Organizations (NGOs) (5) ▪ Boards (2 representing 3 boards) ▪ Industry (1) Some participants provide feedback in written format and/or through engagement and written responses.

Summary of Conclusions

Overall, implementation of the Framework and Action Plan has been successful and thus progress towards the vision and goals has occurred. As of 2023 (Year 4), 16 action items had been fully completed, 65 were completed and ongoing, 50 were in progress and only one had not yet started (because it required completion of another action item that was still in progress). The GNWT has made strides in transitioning to a lower carbon economy. The NWT has seen reductions in GHG emissions and investments have been made in clean energy projects (e.g., wind turbines, exploration for geothermal heat, work towards developing a net-zero housing prototype). The GNWT has improved knowledge of climate change impacts through research (e.g., inventories, assessment, mapping), monitoring programs (including community monitoring), and strategic partnerships (e.g., federal government, academia). The GNWT has built resilience and made strides to adapt to climate change impacts through forecasting,

predicting, and modeling as well as the design, development and implementation of planning, risk assessment, and community education and training programs.

Framework Findings

What are the key highlights and areas for improvement within the implementation of each action item?

Several action items were highlighted as being successfully implemented including, but not limited to: reduced GHG emissions; application of the Carbon Tax; investments in clean energy alternatives; completion of climate change vulnerability assessments (e.g., species at risk, forests) and inventory projects (e.g., wetlands); operationalization of community-led monitoring programs; enactment of *Protected Areas Act* and establishment of protected areas; improved monitoring and assessment of existing public infrastructure; and implementation of emergency alert systems for climate hazards. Key achievements were attributed to the Action Plan's support of strategic partnerships, integration of mitigation and adaptation activities, inclusion of scientific, traditional, and local knowledge, and the ability to use new, cost-effective technologies.

Key areas for Action Plan implementation improvement included: aligning the action items with other climate plans to optimize capacity and use of resources; providing additional targeted financial and human resources for the action items; and ensuring more community and Indigenous involvement. Other identified improvements to the action items and reporting categories included: prioritization of action items based on risk assessment; inclusion of SMART (specific, measurable, achievable, realistic, time-bound) actions that enable partners to clearly track progress on implementation; revisions to existing reporting categories to allow for more clarity regarding the extent of progress; and review of partner assignment to each action items to ensure the most appropriate leads and partners are identified.

Are the Action Items contributing to advance the goals and vision of the Climate Change Strategic Framework?

NWT and federal partners, including Indigenous Governments and Indigenous Organizations agreed, and the annual reports demonstrate, that the current action items have advanced the vision and goals of the Framework. Examples of activities completed in support of the vision and goals included: investments in electrical and other green energy (e.g., wind, solar) generation; funding for 14 new climate change positions across five GNWT departments; establishment of the NWT Climate Change Council (NWTCCC) and the Climate Change Youth Council (CCYC); completion of landform mapping and terrain sensitivity assessments (e.g., development of community hazard maps (e.g., fire, flood)); research conducted on contaminant trends in local lakes; implementation of community adaption measures (e.g., FireSmarting and Community Wildlife Protection Plans); and infrastructure design, planning and management that meets and/or exceeding Northern Infrastructure Standards initiative (NISI) standards. Other partners disputed whether advancement of the vision and goals could be assessed given the action items lacked specific indicators, dedicated funds, and data to determine their impact.

The extent of progress on some action items was less than anticipated due to capacity constraints and impacts of the COVID-19 pandemic and associated territorial lockdown. These limitations resulted in delays in fieldwork, partnership building, community engagement and increases in supply and construction costs. COVID-19 did, however, create opportunities for communities to take a more direct role in monitoring activities in the absence of external researchers.

As reported in the annual reports, all but one action item[1], demonstrated progress indicating that the GNWT is where it said it would be at this point in time. However, since the action items did not have clearly stated SMART goals, it is difficult to determine if the achieved outputs and/or outcomes were actually the intended output/outcome or even the most appropriate output/outcome for that action.

Are there new or emerging issues that should be added to the Climate Change Strategic Framework?

A number of emerging issues, and current issues that require increased focus moving forward, were identified. These issues correspond with the following eight key climate change risk and opportunity areas identified during GNWT Director Workshops (2023) and the NWTCCC Workshop (February 2024):

1. Ecosystems (land, water, wildlife) (e.g., extreme weather events, biodiversity monitoring)
2. Low Carbon Economy (e.g., carbon storage, alternative energies)
3. Connection to the Land and Culture (e.g., food production and security, historical site preservation)
4. Health and Well-being (e.g., emergency preparedness and response, physical and mental health impacts)
5. Infrastructure and Access to Essential Services (e.g., increased infrastructure resilience
6. Business and Economy (e.g., education and training opportunities that support climate change research and response, climate change terms and conditions in permits and licenses)
7. Cross-cutting Vulnerabilities (e.g., increased forecasting, predicting, and modeling, newer technological solutions)
8. Other Issues (e.g., insurance coverage)

Are there updates needed to the vision, principles or goals of the Climate Change Strategic Framework?

Minor updates to the vision and more substantive revisions to the goals are needed. The vision remains applicable but could be restated to be clearer and more concise (e.g., replacing the phrase ‘less dependent on fossils fuels’ with ‘low carbon economy’) and consideration could be given to expanding the current statement to include reference to other important climate change

[1] *Action item 6.1 - potential value of natural carbon sink - is the only outstanding or "on track (not yet started)" item. It cannot progress until 1.3A - carbon storage estimates for NWT ecosystems - is completed.*

areas (e.g., research and scientific knowledge, public safety, and energy security). While the three broad goals are still applicable, they should be revised in consideration of updated national commitments,, new/emerging climate change knowledge on impacts, opportunities and challenges, and the complex and evolving relationships Indigenous people have with the GNWT and the federal government..

What action items are still priorities to work on and what are new areas recommended for inclusion in the next Action Plan?

The current action areas remain priorities moving forward because of their continued importance, their ongoing nature, and/or because they were not fully achieved from 2019-2023 due to factors such as limited capacity and impacts resulting from the COVID-19 pandemic. Consideration should be given to prioritizing and re-organizing the action areas to align with the eight climate risks and potential opportunities groupings (see above).

The action items should be assessed to ensure they remain relevant and/or realistic for the NWT (e.g., capturing carbon in forests, implementing NWT carbon pricing) and the list of new or emerging issues/current issues that require additional focus should be reviewed to ensure that key issues are included in the next Action Plan. Moving forward, the action items should indicate the need for greater Indigenous and community involvement.

How can climate change partners effectively contribute to implementing the Action Plan?

Partners can more effectively contribute to the implementation of the Action Plan by:

- Clearly defining their roles and responsibilities as they relate to each of the action areas and action items.
- Assigning action item responsibilities to partners with the appropriate skills and expertise (and/or ensuring that education and training is available to build partner capacity [e.g., IGIOs, communities] to support action item implementation).
- Continuing to facilitate collaborative partnerships and strategic funding arrangements.
- Providing opportunities for regular partner meetings (in-person as often as possible) to discuss progress, emerging issues (opportunities and risks) and lessons learned that can inform work moving forward.
- Continuing to gather, assess and integrate scientific, traditional, and local knowledge of climate change impacts into planning and decision making.
- Providing education, training, mentorship, and experiential opportunities for community members (including youth and students) to participate in the implementation of action items that impact them.
- Promoting the Framework and Action Plan more frequently to keep it top of mind among partners and other relevant stakeholders.

Performance Measurement Findings

Are GHG emissions being reported to the public in a way that NWT's progress toward meeting climate goals can clearly be understood?

Information on GHG emissions is not being reported to the public as clearly, meaningfully, and accessibly as it could be. Additionally, the information does not appear to be as relatable or impactful as needed for the public to recognize the important role they have to play in reducing the impacts of climate change in the NWT.

Although the GNWT currently reports on GHG emissions regularly through written reports, social media, workshops and the website, there is room to improve reporting through: the use of more plain language and user-friendly communications; the sharing of emission information in ways that connect with the current experiences of residents; the creation of a newsletter that tracks progress and achievements and identifies new publications/reports; face-to-face community meetings where residents can receive information and ask questions; more interactive methods of sharing results; improved use of social media and radio; and proactive communication of success stories.

Has information been collected, processed, assessed and/or shared to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts?

Information on climate change impacts has been shared with the GNWT departments/agencies, partners and the public through various methods including reports, academic publications, online tools, workshops, social media, email blasts, youth forums, Elder discussions, and board meetings to support improved knowledge. That said, effective information sharing is time intensive and often hindered by limited capacity to analyze and present highly technical and scientific data to partners and the public in ways that are understandable/accessible and/or interesting. The extent to which shared information has actually improved knowledge, specifically public knowledge, is unknown.

GNWT departments/agencies, partners and the public are often unaware that climate change information is available because there is no systematic approach to its dissemination. This lack of awareness hampers its use more broadly for future climate change planning and decision making. The newly launched GNWT Climate Change Library portal will help support information sharing. Additional platforms and methods such as regular in-person climate change focused meetings and conferences, and short newspaper articles, radio interviews and videos should be used to maximize reach.

Have communities and traditional and local knowledge holders been engaged in the information collected, where appropriate?

Communities and traditional knowledge holders have been engaged in the collection of climate change information where appropriate. For example: communities contributed to monitoring and gathering information on harvests, species' migration patterns, weather patterns, and water

quality; Elders provided observations on the long-term effects of climate change; and the NWTCCC facilitated engagement with IGIOs and other partner groups on climate change impacts.

Information has been collected from NWTCCC members, Indigenous students, community leadership, members, and monitors, and the NWT Association of Communities (NWTAC) (on behalf of communities) using a variety of methods including meetings, workshops, fieldwork, and traditional knowledge surveys. Engaging with communities and traditional knowledge holders has been challenging at times because of factors such as difficulty knowing who to contact, lack of community capacity to engage, engagement fatigue, and low community participation. The NWTCCC was established to help address these challenges.

More and improved engagement is needed to support data gathering and communities' ability to participate in climate change research activities. In support of this, more guidance for researchers on how to engage with communities and knowledge holders is needed, as is more time for relationship building and in-person activities and more investment in community education and training opportunities.

Has adaptation to known and understood climate change impacts been supported/initiated?

Efforts to adapt to known and understood climate change impacts have been supported and initiated including: moving to above ground foundations to address permafrost changes; using biomass to heat larger buildings; training maintainers to enable transition to more energy efficient systems; using hazard maps and permafrost maps to inform community planning and development projects; undertaking critical mineral exploration to locate essential elements for clean technologies; designing and building highways that take permafrost into consideration; establishing protected areas; implementing FireSmarting and Community Wildlife Protection Plans; and ongoing upgrading of infrastructure/designing and building infrastructure that meets and/or exceeds NISI standards.

Moving forward, more focus and accordingly, more investments are needed to support adaptation efforts in areas such as clean energy, emergency preparedness, food security, infrastructure design and development, and management practices (e.g., forests, protected areas).

Is the GNWT working in a more coordinated and effective way to mitigate and/or adapt to potential impacts of climate change?

Efforts have been made to support a more coordinated and effective approach to climate change adaptation and mitigation efforts. The establishment of interdepartmental groups such as the Climate Change Directors Working Group, the Environment and Climate Change Assistant Deputy Minister and Deputy Ministers Committees, and the Environment and Climate Change Committee of Cabinet, as well as the NWTCCC – provide mechanisms for improved information sharing, planning and decision making.

The formation of collaborative partnerships with federal departments and academic institutions has provided the GNWT with access to technical expertise that was absent in the NWT, supported the building of territorial scientific skills and knowledge, and provided data that was used to advance territorial research and inform climate change decisions.

There is room for improved coordination between GNWT departments/agencies on climate change issues that span multiple service areas (e.g., GHG emissions, emergency response). There were instances where departments/divisions were unknowingly working on similar issues and did not coordinate efforts. There is also a need for the GNWT to continue to work collaboratively with Indigenous partners particularly on action items that have direct impacts on their communities..

More frequent engagement among GNWT departments and partners through facilitated workshops/conferences, community visits, and small, specialized working groups would provide needed opportunities to determine priorities, exchange information, identify areas for collaboration, build relationship and share lessons learned and best practices that would supported enhanced climate change mitigation and adaptation efforts.

Has there been use of data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change?

The GNWT has used climate change information generated by their own departments/division or others such as academic and the federal government to support further research, decision making and planning. That said, the sheer volume of data shared with GNWT departments by other partners was often overwhelming and challenging to use, given capacity constraints. Additional departmental resources are needed to support data management including data analysis and reporting.

Recommendations

The following evidence-based recommendations are presented for consideration by the ECC.

Framework and Action Plan Content

Recommendation 1: It is recommended that the Framework's vision, guiding principles, and goals be reviewed and updated. This review should reflect some of the following suggested improvements:

- Vision: Improve succinctness, clarity/revise terminology ('healthy economy', shift from 'less dependent on fossil fuels' to 'low carbon economy') and inclusion of references to public safety, research/scientific knowledge, and energy security.
- Guiding Principles: Add fiscal commitment and reframe guiding principles as value statements.
- Goal #1: Assess targets in consideration of updated national commitments and input from the 2023 Climate and Energy engagement.

- Goal #2: Strengthen statement to reflect more than improving knowledge of climate change impacts by including reference to 'why' knowledge needs to be improved (e.g., for a more informed public, to inform planning and decision making).

The existing Framework and Action Plan Logic Model and Performance Measurement Plan should be reviewed and updated to reflect changes to the vision, goals and action areas and items.

Recommendation 2: It is recommended that ECC, in collaboration with NWTCCC members and other partners, review the new, emerging and current issues identified by evaluation participants. This review may identify issues that need to be included as action items in the Action Plan.

Recommendation 3: It is recommended that the action items included in the 2025-2029 Action Plan be specific, measurable, achievable, realistic and timebound (SMART). Each action item should have specific measurable indicators and targets that support more effective implementation, monitoring, accountability, and reporting. The performance measurement indicators and targets should be made available to the partners and the general public in either the new Action Plan or a more accessible performance measurement plan.

Recommendation 4: It is recommended that the Framework and Action Plan, through their descriptive text and action areas and items, emphasize the continued importance and need for meaningful engagement with communities and knowledge holders for the purpose of collecting information, including traditional knowledge.

Framework and Action Plan Processes

Recommendation 5: It is recommended that ECC, in collaboration with partners and departments, clarify areas of priority and identify the roles, responsibilities, and expectations of action item leads and partners.

Recommendation 6: It is recommended that GNWT partners continue to maintain and establish partnerships with external partners such as the federal government and academic institutions to identify emerging climate change priorities, support access to necessary scientific and technical expertise, and build NWT climate change knowledge and skills. These partnerships also provide data and tools that can be used to advance territorial research and inform climate change decisions and support identification of potential funding opportunities. Such partnerships help address NWT climate change research capacity limitations and support advancement of territorial research priorities.

Framework and Action Plan Communications and Information Sharing

Recommendation 7: It is recommended that partners responsible for implementing actions to reduce GHG emissions, review and revise their approach to GHG communication messages

and methods to increase public interest, knowledge, and support toward the importance of taking actions to reduce emissions.

Recommendation 8: It is recommended that ECC increase communication efforts to improve public and partner knowledge and awareness of: current and ongoing climate change activities; progress being made on activities (i.e., success stories); and new reports and publications. Multiple methods of communication could be used (e.g., GNWT ECC climate change webpage, short newspaper articles, radio interviews, social media releases) to expand public and partner reach. Climate change messaging should capture the public's interest by connecting with their current lived experiences (e.g., fires, floods) and should clearly outline how the public can positively contribute to reducing climate change impacts and why that is important.

Introduction

1.1 Overview

DPRA Canada Inc. was retained by the Government of Northwest Territories (GNWT), Department of Environment and Climate Change (ECC) to conduct an evaluation of the 2030 NWT Climate Change Strategic Framework and accompanying 2019-2023 Action Plan.

The first draft report presents the findings and evidence-based recommendations of the evaluation of the 2030 NWT Climate Change Strategic Framework and accompanying 2019-2023 Action Plan.

This report includes into the following sections:

1. Introduction
2. Evaluation Purpose
3. Methodology
4. Results
5. Conclusions and Recommendations
6. Bibliography
7. Appendices

An external document has been prepared to present detailed information on the status of the action items entitled Appendix D: Interview Comments on Action Items. Another external document entitled Appendix E: Overall Action Template summarizes the progress made on all action items as identified in the annual reports.

1.2 Climate Change Initiatives

Climate change is having serious impacts on the Northwest Territories' (NWT) natural environment and on its economy, infrastructure and health and safety of residents. Some impacts include: thawing permafrost, shrinking sea ice, coastal and river erosion, flooding, wildland fires, drought, and impacts on vegetation and wildlife. These impacts are affecting people's traditional ways of living, food security, air quality and infrastructure, to name a few. These in turn are resulting in both physical and mental health concerns for residents.

Recognizing that climate change represents serious and urgent challenges for the NWT, the priorities of the 19th Legislative Assembly and the mandate of the 2019-2023 GNWT reflected a commitment to take action on climate change:

- Strengthen the government's leadership and authority on climate change

- Ensure climate change impacts are specifically considered when making government decisions
- Reduce the cost of power and increase the use of alternative and renewable energy[2]

Climate change remains a priority as identified by Premier R.J. Simpson in the Sessional Statement (February 2024), The Premier remarked that climate change impacts demand immediate attention and went on to state that the wildfires of 2023 were "a stark reminder of the need to adapt and prepare for emergency situations that are becoming more frequent and extreme due to climate change.[3]

To respond to climate change, the GNWT took a three-pronged approach that entailed the implementation of three interrelated initiatives:

- 2030 NWT Climate Change Strategic Framework
- 2030 Energy Strategy
- NWT Carbon Tax

GNWT's departments and agencies were tasked with working together to contribute to meeting the NWT's climate change goals. Interdepartmental groups such as the Climate Change Directors Working Group, the Environment and Climate Change Assistant Deputy Minister and Deputy Ministers Committees and the Environment and Climate Change Committee of Cabinet were established along with the NWT Climate Change Council (NWTCCC) comprised of GNWT departments, Indigenous Governments and Organizations (IGIOs) and community associations.

As part of the GNWT's commitment to take action on climate change, the government developed the 2030 NWT Climate Change Strategic Framework (the 'Framework'). The Framework outlines how the territory plans to respond to challenges and opportunities associated with a changing climate, move towards an economy that is less dependent on fossil fuels, and help to contribute to national and international efforts to address climate change.[4]

The Framework was developed at the same time as the 2030 Energy Strategy (the 'Strategy'). The Strategy outlines the NWT's long-term approach to supporting secure, affordable and sustainable energy in the NWT.[5] While the Strategy focuses on the mitigation of energy emissions, the Framework focuses on tracking and reporting progress on mitigation and building resilience and adapting to a changing climate.

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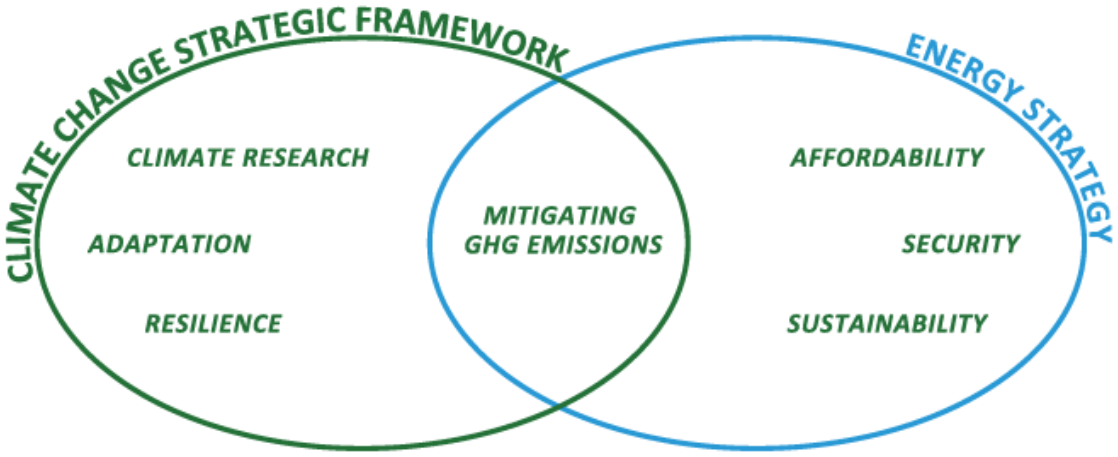
[2] *GNWT. (2019). Mandate of the Government of the Northwest Territories, 2019-2023* https://www.eia.gov.nt.ca/sites/eia/files/mandate2019-english-pages-web.pdf

[3] *GNWT. (February 6, 2024). Premier RJ Simpson: Sessional Statement February 2024.* https://www.gov.nt.ca/en/newsroom/premier-rj-simpson-sessional-statement-february-2024

[4] *GNWT. (2018). 2030 NWT Climate Change Strategic Framework.* https://www.gov.nt.ca/sites/ecc/files/resources/128-climate_change_ap_proof.pdf

[5] *GNWT. (2018). 2030 Energy Strategy: A Path to More Affordable, secure and Sustainable Energy in the Northwest Territories.* https://www.inf.gov.nt.ca/sites/inf/files/resources/gnwt_inf_7272_energy_strategy_web-eng.pdf



Source: https://www.inf.gov.nt.ca/sites/inf/files/resources/gnwt_inf_7272_energy_strategy_web-eng.pdf

The two documents are closely linked and contribute to the Pan-Canadian Framework on Clean Growth and Climate Change, which supports Canada in meeting its international commitments to reduce GHG emissions. The documents also highlight the GNWT's commitment to implement carbon pricing (carbon tax on fuel (except aviation fuel) that is sold in the NWT with the intent of reducing greenhouse gas (GHG) emissions by encouraging residents to use less fossils fuels and find alternative energy sources)[6].

To support the implementation of the three initiatives, the GNWT invested resources to address climate change. These resources include:

- Federal funds distributed by the GNWT for energy and adaptation-related projects
- Operations and management expenses to implement the three policies
- 14 new full time equivalent positions
- Time developing and implementing climate change policies in place, measured in GNWT salaries[7]

[6] *GNWT. (n.d.). Carbon Tax. https://www.fin.gov.nt.ca/en/services/carbon-tax*

[7] *GNWT. (2023). Responding to Climate Change in the NWT – Annual Report, 2022-2023. https://www.gov.nt.ca/sites/flagship/files/documents/climate_change_annual_report_2023_en.pdf*

1.3 2030 NWT Climate Change Strategic Framework

The Framework is based on several guiding principles that focus on:

- **Taking Action:** The substantial extent of climate change impacts has created an urgent need for action; climate change needs to be considered in all relevant planning, decision-making and operations.
- **Meeting Climate Change Commitments:** The NWT has a responsibility to contribute to national and international efforts to address climate change, particularly in reducing fossil fuel use and GHG emissions.
- **Sharing Responsibility:** All segments of NWT are responsible for taking action on climate change, including governments, businesses and residents.
- **Strong Collaboration:** Strengthening the collaboration between governments – including community and Indigenous governments, stakeholders and residents – on mitigation and adaptation actions, based on recognition of rights, respect, cooperation and partnership.
- **Respecting Aboriginal and Treaty Rights:** Climate change mitigation and adaptation decisions respect Aboriginal and Treaty rights, including land, resource and self-government agreements.
- **Traditional, Local and Scientific Knowledge:** Accessing all knowledge types to understand and make decisions related to climate impacts and adaptation measures.
- **Transparency and Accountability:** Decisions made to implement the Framework are transparent and accountable.

To achieve its vision, the Framework focuses on three goals and two cross cutting themes:

Goal #1: Transition to a lower carbon economy

- In order to transition to a lower carbon economy that uses less fossil fuel, NWT must reduce its GHG emissions by 30% (compared to 2005) by 2030. Electricity generation, space heating, transportation, and industry are the main sectors for fossil fuel use and GHG emissions tracked in the NWT.

Goal #2: Improve knowledge of climate change impacts

- Improving knowledge of climate change impacts occurring in the NWT is the second goal of the Framework. To address climate change, there is a need for greater understanding of the impacts to the natural environment, residents' health, safety, culture and heritage, and the territory's infrastructure. The integrated use and management of traditional, local and scientific knowledge to determine knowledge gaps,

set and implement research and monitoring requirements, and obtain current and timely information, is essential.

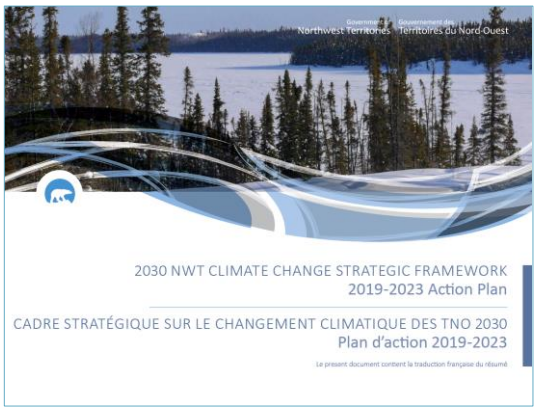
Goal #3: Build resilience and adapt to a changing climate

- Building resilience and adapting to a changing climate is the Framework's third goal. Building resilience focuses on finding ways to withstand the changes that are occurring. For changes that are unavoidable, adaptation efforts are required to find new ways of doing things, such as adjusting plans and operational activities.

The two cross-cutting themes are focused on **leadership, communication and capacity-building** as well as understanding the **economic impacts and opportunities** resulting from climate change. They include actions applying to all three goals in the Framework.

1.4 2019-2023 Action Plan

To support implementation of the Framework, the GNWT produced the 2030 NWT Climate Change Strategic Framework: 2019-2023 Action Plan (the "Action Plan") in collaboration with various partners. It is the first of two five-year action plans to address the goals of the Framework. The Action Plan provides actions that implement the three goals and two cross-cutting themes of the Framework.[8]



The Action Plan is divided into three parts and includes 132 actions.

Part 1: Actions

- Includes actions with secured funding and resources that were to begin within the 2019 – 2023 timeframe.
- Actions primarily led and resourced by GNWT and partners, with some support from federal, academic and other partners.
- There are 104 action items identified within Part 1.

Part 2: Areas for Future Collaboration

- To advance high priority action areas in Part 2, significant federal and funding under the Pan-Canadian Framework is required.
- Funding and/or support from the GNWT, academic, non-government organizations, industry and other funding agencies will be critical to advancing the Action Plan.

[8] *GNWT. (2018). 2030 NWT Climate Change Strategic Framework – 209-2023 Action Plan.*

- There are 28 action items identified within Part 2.

Part 3: Implementation, Reporting and Measuring Progress

- Outlines steps needed to form new partnerships and strengthen current partnerships, and to secure funding to implement Part 2.
- Outlines the mechanisms and steps necessary for implementation, regular reporting, and measuring progress on the Action Plan, including this independent review and evaluation in 2024.

1.5 Northwest Territories Climate Change Council

The NWTCCC was formed in 2021. It acts as a forum for the sharing of information, for collaboration, and for engagement between non-elected staff from IGIOs, representatives of NWT communities and the GNWT, with input from external partners. The Council provides guidance and advice to inform and advance GNWT climate change and environmental programs in alignment with IGIO and community perspectives, interests, and knowledge. The Council also provides an opportunity to build on and strengthen relationships, shared understandings, and trust, which supports the GNWT's commitment to move towards implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

The NWTCCC and the GNWT established the Climate Change Youth Council (CCYC) in recognition of the key role that youth play in addressing climate change now and in the future. The purpose of the CCYC is to bring together the critical perspectives of youth from all NWT regions to: engage other community members in an open and transparent dialogue on climate change; understand the key climate-related issues, challenges, and perspectives to formulate youth priorities; amplify the voices of NWT youth to influence policy and action by decision-makers; empower members to influence and mobilize other youth to act; and build the capacity, experience, and networks of engaged youth to be the next generation(s) of NWT climate leaders.[9]

[9] *GNWT. (n.d.). NWT Climate Change Youth Council. https://www.gov.nt.ca/ecc/en/services/climate-change/nwt-climate-change-youth-council*

2. Evaluation Purpose

2.1 Evaluation Purpose

As per the Action Plan, Part 3: Implementation, Reporting and Measuring Progress, a formal review of the Framework and Action Plan is to be conducted in 2024 to assess the progress made towards the vision and goals.

The specific purpose of the evaluation was to:

- Ensure activities undertaken under the 2019-2023 Action Plan are effective in achieving the goals and vision of the Framework
- Review implementation progress of the 2019-2023 Action Plan against performance indicators
- Assess the relevance and effectiveness of performance indicators for measuring implementation progress and make recommendations for new ones, if necessary
- Identify and recommend how to address emerging challenges and build upon successes to inform the development of the 2024-2029 Action Plan
- Ensure Indigenous Governments and Organizations, community governments and climate change partner's perspectives are gathered
- Ensure transparency and accountability in the delivery of climate change actions and decisions
- Inform Climate Change Partners and the public about the implementation progress of the Framework and Action Plan

The findings from the evaluation, along with emerging issues, new technologies and new opportunities identified through other means, will be used to consider potential revisions to the Framework and support the development of the 2025-2029 Action Plan.

2.2 Evaluation Scope

2.2.1 Evaluation Phases

The evaluation's scope of work was divided into three phases:

Phase 1 – Methodology Development and Evaluation Plan

- Entailed developing and finalizing an Evaluation Plan, with support from the NWTCCC that included the evaluation approach and methodology, a list of potential interviewees, the evaluation matrix (maps evaluation questions to sources of information), and the engagement tools (interview questions sets and invitation letters).

Phase 2 – Conduct Independent Evaluation

- Based on the approved Evaluation Plan, involved reviewing relevant resource materials, engaging with climate change partners using virtual interviews (individual and group), and synthesizing and analyzing the information collected.

Phase 3 – Reporting

- Included preparing a first draft, second draft, and final Evaluation Report, a draft and final Evaluation Report Plain Language Summary, and a PowerPoint presentation slide deck with accompanying notes for GNWT to be able to effectively communicate the results of the evaluation to its climate change partners.

2.2.2 Guiding Evaluation Questions

As per the RFP, the evaluation will focus on addressing the following overarching climate change strategic framework and performance measurement questions:

Framework Questions:

1. What are the key highlights and areas for improvement within the implementation of each Action Item?
2. Are the Action Items contributing to advance the goals and vision of the Climate Change Strategic Framework? Are we where we said we would be – completing our short-term goals and moving into the medium-term goals for the second Action Plan?
3. Are there new or emerging issues that should be added to the Climate Change Strategic Framework?
4. Are there updates needed to the vision, principles or goals of the Climate Change Strategic Framework?
5. What Action Items are still priorities to work on and what are new areas recommended for inclusion in the next Action Plan?
6. How can Climate Change Partners effectively contribute to implementing the Action Plan?

Performance Measurement Questions:

7. Are GHG emissions being reported to the public in a way that NWT's progress toward meeting climate goals can clearly be understood?
8. Has information been collected, processed, assessed and/or shared to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts?
9. Have communities and traditional and local knowledge holders been engaged in the information collected, where appropriate?
10. Has adaptation to known and understood climate change impacts been supported/initiated?
11. Is the GNWT working in a more coordinated and effective way to mitigate and/or adapt to potential impacts of climate change?

12. Has there been use of data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change?

3. Evaluation Methodology

3.1 Evaluation Approach

The evaluation was guided by the monitoring and evaluation framework, consisting of the logic model and performance measurement plan that was created for reporting on the Action Plan.

The **logic model** illustrates how resource inputs, activities and outputs are expected to bring about change over time and lead to intended outcomes associated with the Framework's three goals and two cross-cutting themes (refer to **Appendix A**).

The **performance measurement plan** builds on the logic model by identifying performance measures for each logic model outcomes. These measures describe the data that will be collected or the action that will be taken to monitor and evaluate the performance of the Action Plan (refer to **Appendix B**).

3.2 Evaluation Guiding Principles and Standards

3.2.1 Evaluation Principles

The evaluation was guided by the following culturally appropriate and meaningful best practices principles:

- **Transparency** – The evaluation's purpose will be shared with all participants in a manner that they understand.
- **Consent** – Informed consent is necessary before proceeding with engagement. Participants are made aware of their rights and given the option to decline to continue or withdraw their information.
- **Confidentiality** – Report findings are aggregated, with no attribution of quotes unless agreed to by the participant.
- **Fairness and Respect** – Engagement will be conducted with respect for all participants.
- **Sensitivity** – This applies at a personal level but also extends to the community by understanding and following local traditions.
- **Sharing** – While we endeavour to address privacy concerns, at the same time, the goal should be to make the information available to those who took part in the engagement process and beyond. The best way to increase uptake is to involve individuals in the data collection process and information dissemination.

3.2.2 Evaluation and Research Standards

The following evaluation standards guided the evaluation.

Canadian Evaluation Society Program Evaluation Standards

The Canadian Evaluation Society program evaluation standards are comprised of five codes of ethical standards:

- **Utility Standards**
  - Intended to ensure that an evaluation will serve the information needs of intended users.
- **Feasibility Standards**
  - Intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal.
- **Propriety Standards**
  - Intended to ensure that an evaluation will be conducted legally, ethically, and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results.
- **Accuracy Standards**
  - Intended to ensure that an evaluation will reveal and convey technically adequate information about the features that determine the worth or merit of the program being evaluated.
- **Evaluation Accountability Standards**
  - Encourage adequate documentation of evaluations and a meta-evaluative perspective focused on improvement and accountability for evaluation processes and products.[10]

GNWT Program Evaluation Standards

The GNWT program evaluation standards identified in the Chapter 904: Program Evaluation and Performance Monitoring Policy of the Financial Management Board Handbook also provided direction to the evaluation process:

- **Evaluation Planning and Issues**
  - Standard: The discipline of evaluation will be applied to assess the performance of the Climate Change Strategic Framework and Action Plan inter-organizationally.
- **Competency**
  - Standard: The person or persons carrying out evaluations, or evaluation related work, must possess or collectively possess the knowledge and competence necessary to fulfil the requirements of the particular evaluation work.

[10] *Canadian Evaluation Society. (2012). Program Evaluation Standards.* https://evaluationcanada.ca/program-evaluation-standards

- **Objectivity and Integrity**
  - Standard: Individuals performing evaluation work must be free from impairments that hinder their objectivity and must act with integrity in their relationships with all stakeholders.
- **Consultation and Advice**
  - Standard: Evaluation work must incorporate sufficient and appropriate consultation and, where appropriate, apply the advice and guidance of specialists and other knowledgeable persons.
- **Measurement and Analysis**
  - Standard: Evaluation work must produce timely, pertinent and credible findings and conclusions that managers and other stakeholders can use with confidence, based on practical, cost-effective and objective data collection and analysis
- **Reporting**
  - Standard: Evaluation reports must present the findings, conclusions and recommendations in a clear and objective manner.

3.3 Evaluation Methodology

A mixed method approach to data collection that supported the use of both primary and secondary research, and the collection of both quantitative and qualitative data was implemented. The secondary, or desktop, research entailed a document review. The primary research included virtual interviews (individual and small group) and focus groups as well as the completion of action item status templates. All research was guided by the approved **evaluation matrix** (refer to **Appendix C**). This section describes in more detail the data collection methods that were used to evaluate the Framework and Action Plan.

3.3.1 Background Document Review

A preliminary review of internal documents provided by ECC and publicly available territorial and national resources informed the development of the Evaluation Plan and data collection tools. These materials included frameworks, action plans, strategies, legislation, policies, annual reports, topical reports, discussion guides, plain language summary reports, what we heard reports, risk, opportunities and priority assessments, and frequently asked questions (FAQs).

A more comprehensive review of documents and performance data within the annual reports was conducted to inform the evaluation report and recommendations. Refer to **Section 7: Bibliography** for a detailed list of documents.

3.3.2 Interviews and Focus Group Discussions

In consultation with the ECC, a list of participants was developed. The department sent an informational email to selected climate change partners letting them know about the evaluation and informing them that a DPRA Team member would be reaching out to request their participation in the evaluation process. DPRA then sent a follow-up email letter to determine partners' interest in participating and if appropriate, to schedule a date/time for the interview.

Virtual (using Teams) interviews and focus groups provided an opportunity to collect information on the: (1) current Framework, Action Plan, and performance measurements; and (2) recommendations for changes moving forward. Interviews lasted 60-75 minutes and focus groups 90-120 minutes and were guided by a set of questions that were based on the approved evaluation matrix. Some participants elected to provide feedback in written format and/or through engagement and written responses.

In total, 39 participated in the evaluation process representing the following groups. It should be noted that some written submissions reflect the viewpoints of more than one participant:

- GNWT (21)
  - Department of Environment and Climate Change (ECC) (4)
  - Department of Finance (FIN) (2)
  - Department of Industry, Tourism and Investment (5)
  - Department of Infrastructure (INF) (4)
  - Department of Municipal and Community Affairs (MACA) (3)
  - NWT Housing Corporation (2)
  - NWT Power Corporation (NTPC) (1)
- Federal government (6)
  - Crown-Indigenous Relations and Northern Affairs Canada (1)
  - Environment and Climate Change Canada (2)
  - Natural Resources Canada (3)
- IGIOs (4)
  - Acho Dene Koe First Nation (1)
  - Inuvialuit Regional Corporation (1)
  - North Slave Métis Alliance (1)
  - Tłı̨chǫ Government (1)
- NGOs (5)
  - Alternatives North (2)
  - Ducks Unlimited (1)
  - Yellowknife Car Share and Farmers Market (1)
  - NWT Association of Communities (1)
- Boards (2 representing 3 boards)
  - Inuvialuit Water Board
  - Wek'èezhìi Land and Water Board / Mackenzie Valley Land and Water Board
- Industry (1)
  - NWT and Nunavut Chamber of Mines (1)

Since some partners (e.g., GNWT, IGIOs) were responsible for many action items, and recognizing it would not be possible to gather information on all the action items during the engagement period, tailored templates were created. The templates provided these partners with the opportunity to provide written responses to interview questions #6 and #7:

- Were the immediate and short-term action items your organization participated in completed? Within the specified time period? On budget? If not, why?
- Is there progress on initiating the medium-term action items your organization is responsible for? If not, why?

Specific information provided by partners in response to questions #6 and #7 are provided in **Appendix D**. A compilation of 2019-2023 annual reports' summary of progress and status updates are provided in **Appendix E**. Given the length of these two appendices, they are provided under separate cover: Evaluation of the 2030 NWT Climate Change Strategic Framework and 2019-2023 Action Plan: Appendices D and E.

Some participants provided reference materials to illustrate/support their responses. These have been included in **Section 7: Bibliography**.

3.4 Data Analysis

Data from each method was assessed individually and then triangulated to explore convergence, complementarity, and dissonance (i.e., divergence in findings that might lead to a rejection of previous assumptions and may entail additional research to understand). Each of these, in turn, contributed to the overall goal of triangulation which enhanced the validity of the research by increasing the likelihood that the findings and the interpretations were credible and dependable. The findings of the background document review and engagement are detailed in subsequent sections of this report.

3.5 Limitations

The following limitations should be considered when interpreting the results of this report.

- Because not all partners named in the Framework and Action Plan took part in the evaluation process, there are likely additional perspectives and experiences missing.
- Because one person was most often representing the viewpoints of an entire department, agency, or organization, it is likely that additional perspectives and experiences are missing.
- Because not every department, division and organization provided detailed feedback on the progress or achievement of the action items for which they were responsible, it is likely that some climate change activities were not captured.

4. Findings

While the data collection activities were guided by the 12 evaluation questions (refer to Section 2.2.2), at the request of ECC, the findings of the evaluation are grouped by key thematic and subject areas to facilitate potential revisions to the Framework and Action Plan.[11]

- Relevance
- Action Areas and Action Item Achievements / Impacts / Successes
- Implementation Effectiveness and Suggested Improvements

Within these three areas, more specific topic findings are presented.

4.1 Relevance

Relevance refers to the extent to which the Framework and Action Plan are designed to support an effective response to climate change impacts in the NWT. For the purposes of this evaluation, relevance is assessed with respect to the vision, principles, goals, and priorities.

Since the publication of the Framework and Action Plan in 2018, new social, economic, environmental, and technological trends have emerged that the GNWT will need to consider in its overall approach to climate change and energy policy. For example: Canada's net-zero emissions target by 2050; increasing interest, participation, and leadership of IGIOs in climate change projects; and the increasing role of critical minerals (e.g., copper, lithium, cobalt)[12] for clean technologies (e.g., batteries, electric vehicles, wind turbines).[13] These developments will influence the future direction of the Framework and the upcoming 2025-2029 NWT Action Plan.

While some engagement participants felt that the vision, guiding principles, goals, and priorities were still relevant and required no updating moving forward, others felt they could be revised to better reflect the current context.

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[11] *The Conclusion section of the report responds to the 12 evaluation questions.*

[12] *GNWT. (n.d.). Unlocking our Potential – Canada's Northwest Territories Critical Minerals. https://www.iti.gov.nt.ca/sites/iti/files/NWT_Critical_Minerals.pdf*

[13] *GNWT. (June 2023). Our Energy and Climate Future in a Changing World: A discussion guide for the five-year review of the Climate Change Strategic Framework and 2030 Energy Strategy. https://ehg-production-canada.s3.ca-central-1.amazonaws.com/79c3b5b50c0bc842827cc5253d4164b0adf1315e/original/1687293788/e8eb56348f54f2ce83d068461d38b5e2_Review_of_2030_Energy_Strategy_and_CCSF_Discussion_Guide.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKIOR7VAOP4%2F20240318%2Fca-central-1%2Fs3%2Faws4_request&X-Amz-Date=20240318T114817Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=14c77d11b7e531af96ed736cadbb0df4ee3e6df09d6635e0a4f211047db6b3c1*

4.1.1 Vision

By 2030, the NWT will enjoy a strong, healthy economy that is less dependent on fossil fuels (compared to 2005) and will have developed the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate.

While many participants felt the vision was still applicable, in part because it is so broad, others suggested some possible changes. These included: a more succinct vision (i.e., fewer words); a less lofty vision considering the timeframe; clarity regarding what is meant by 'healthy economy'; and a shift from 'less dependent on fossils fuels' to 'low carbon economy'. It was also suggested that the vision focus less on energy and economy, and include references to public safety, research and scientific knowledge, and energy security (e.g., more local sources such as hydro, solar, wind and biomass).

4.1.2 Guiding Principles

- Taking Action
- Meeting Climate Change Commitments
- Sharing Responsibility
- Strong Collaboration
- Respecting Aboriginal and Treaty Rights
- Traditional, Local and Scientific Knowledge
- Transparency and Accountability

Most of those participants who provided feedback on the guiding principles commented that they were fine as they were. Two suggested changes were made: reference to fiscal commitment; and a request that all the principles be reframed to reflect value statements (e.g., transparency and accountability are values, but the other principles are not).

4.1.3 Goals

Goal #1: Transition to a strong, healthy economy that uses less fossil fuel, hereby reducing greenhouse gas emissions by 30% before 2005 level by 2030.

Goal #2: Improve knowledge of climate change impacts occurring in the NWT.

Goal #3: Build resilience and adapt to a changing climate.

Some participants stated that the goals are too broad, the goal statements are not very strong, and each of the goals should have associated fiscal commitments. It was also noted that the goals will need to be updated as climate change impacts progress and new challenges emerge, and to reflect the changing relationship that Indigenous people have both with the GNWT and the federal government (i.e., the federal government will require that more leadership is assigned to Indigenous governments).

Many of those participants who provided feedback on Goal #1 commented that it was still very relevant but that the 30% GHG emission reduction should be revised to an increased target of

40-45% below 2005 levels by 2030 and a set goal of net-zero emissions by 2050 to align with the national commitment.[14] It was also noted that Framework and Energy Strategy targets need to align, and that there should be clarity regarding who is responsible for the targets. It was suggested that because Goal #1 is a "giant goal", clear milestones for achievement were required. Additionally, it was pointed out that there is too much duplication in the wording of the vision and Goal #1.

With respect to Goal #2, feedback reflected a vagueness as currently stated, and the need to "do better than improving knowledge". It was suggested that the wording be changed to "Improving knowledge of climate change impacts so that people of GNWT are better informed" and that language about using the knowledge/information in planning and decision making be included. It was also recommended that more funds be put toward the achievement of Goal #2. On the other hand, a few participants questioned whether Goal #2 was still needed as they felt this knowledge was already available and understood.

> "I really struggled with this…it was pretty clear that we understood what the impacts were. There were several descriptions of impacts changing ecosystems, changing access to water, floods, fires, permafrost, increased snow loads. It seems like we understand what's going to happen. (NGO)

While most participants had no suggested changes for Goal #3, there was a request that the statement be reviewed to see if it could be strengthened.

4.1.4 Action Areas Supporting Vision and Goals

The majority of GNWT and federal government participants felt that the current action areas sufficiently supported progress toward the Framework's vision and goals. One federal participant stated, "yes, thoughtful, well-mapped, and evidence that information has been used to meet goals/vision". There were some who commented that while progress was occurring, it was happening slowly because of capacity constraints (e.g., in creating predictive models and developing coastal infrastructure).

In support of Goal #1, participants spoke about work they were doing to support biomass initiatives, electrical generation, and other green energies (although still challenging in the north), reductions of diesel-generated electricity output by mines, implementing the Carbon Tax, and exploring a net-zero housing prototype.

In support of Goal #2 participants described having established a greater understanding of: NWT's vegetation and health; compiling permafrost data; conducting landform mapping and terrain sensitivity assessments; carrying out research on contaminant trends in local lakes, implementing community-led monitoring programs; and using new and cost-effective technologies such as LANDSAT satellite imagery and Google Earth to study land use changes.

[14] *ECCC. (2022). 2020 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy.* https://publications.gc.ca/collections/collection_2022/eccc/En4-460-2022-eng.pdf

In support of Goal #3 participants spoke about establishing protected areas, meeting and/or exceeding NISI standards, adapting climate change educational materials to suit different audiences, completing regional risk vulnerability assessments for community infrastructure, and developing an economic model to assess the impact of climate change.

MACA spoke about creating its own internal 2030 strategy/capital plan that aligned with the Framework. They felt their strategy was meeting its goals of lowering carbon emissions and meeting NISI standards. However, they did note, that continuing to meet those goals depended on ongoing funding availability.

There were, however, some GNWT, IGIO and Board participants who were either unsure or disagreed that the action areas supported advancement toward the vision and goals. They commented that:

- More data is required to definitively know if there has been an impact.
- Some progress has been made but whether it is sufficient is not clear because of a lack of specific indicators of success (e.g., targets) and clear expectations of partners.
- More funds are needed to make significant progress (and meet standards where applicable) (e.g., new, and updated infrastructure).
- Implementing green technologies may result in increased resident electricity rates which may discourage uptake.
- Focus is on 'low hanging fruit' or those activities that will have the biggest net impact on the territory as a whole, rather than those actions that may support local needs.

> "Maybe but it's hard to know if the carbon tax has reduced consumption and therefore greenhouse gas emissions. The carbon tax doesn't hugely affect household expenditures (except for families who pay more carbon tax than they receive in COLO (Cost of Living Offset) and it's not yet clear events such as COVID policies, economic viability of options that influence consumer behaviour so teasing out the carbon tax effect requires lots of data…The only impact that's clear now is that individuals with poorly insulated homes are thinking about how to reduce their carbon fuel use." (GNWT)

4.1.5 Priorities

Almost all participants felt that the action areas and action items for which their department/organization is a named lead or partner are still priorities moving forward. Some GNWT staff commented they continued to be priorities because they represented departmental/agency core areas of business. Those who are not named partners also tended to agree that the action areas and action items are still relevant; however, some expressed uncertainty because of their limited involvement in the implementation of the Action Plan.

Some participants suggested the action areas and items were still priorities because limited progress had taken place over the past five years; others felt insufficient funds had been made available to support significant progress on the actions.

A few participants commented that it was important to acknowledge and identify those action areas and items that will continue to be ongoing (e.g., baseline studies, monitoring) so that a reporting of 'in progress/ongoing' as opposed to 'implemented' was not perceived as a failure.

Some participants stated that priority identification is not the issue, but rather the need to prioritize the list of action items is what is most important. Participants spoke about the Action Plan being a "laundry list of items" with no strategic ranking based on importance or risk level (e.g., "…big ticket items like adaptation to fires and floods. Really critical things that communities need right away.").

It was also recommended that the action areas and items be reviewed to ensure they are/remain relevant and/or realistic for NWT. For example, Action Area 3.6: Capturing carbon in forests – Action Item 3.6A: "*Increase forest carbon sequestration by silvicultural practices, including planting in the areas that have not returned to forest after natural disturbances and thinning in the areas that are overly dense*". Although planting and thinning activities remain pertinent, the primary focus of this item is fire suppression, which a) introduces fire risks to personnel and b) typically leans on decommissioning forest harvesting sites, of which NWT has very few, so it is not realistic. It was noted that climate change effects are happening so quickly that it is important to 'keep an eye on everything' to ensure emerging issues are being included and addressed. On the other hand, it was suggested by some that rather than adding new action areas to the Framework, removing some areas would allow for a more focused response to prioritized actions and might help the GNWT more easily access federal funding.

Funding was identified as a key priority moving forward. It was recommended that more time and effort be spent on looking for sources of funding, especially longer term funding. It was suggested this funding be used to support climate change research, adaptation, and mitigation responses as well as the creation of new protected areas and the guardian program that will help monitor the areas.

> "Seems like most partners are just accessing CCSF funding to carry out their normal business." (GNWT)

More human resources to support implementation of the Action Plan and increased community involvement and capacity building were identified as priorities by a number of participants, including IGIOs.

4.1.6 New or Emerging Issues / Greater Focus

The NWT Climate Risks and Opportunities Assessment (ROA) identifies the 14 most concerning climate risks and potential opportunities. The risks were considered concerning because of their level of severity now and in the foreseeable future (2030-2070). ROA highlights risks such as permafrost, wildfires, flooding, emissions, increasing temperatures, less predictable weather conditions, threats to Indigenous traditional livelihoods, threats to residents' physical and mental health, food insecurity, supply chain disruptions, coastal erosion, high costs associated with responding to climate change impacts, lack of historical data, and limited data sharing mechanisms.

These risks were presented in the following groupings:

- Ecosystems (land, water, wildlife)
- Connection to the Land and Culture
- Health and Well-being
- Infrastructure and Access to Essential Services
- Business and Economy
- Cross-cutting Vulnerabilities
- Other Issues

Participants identified a variety of emerging issues, similar to the above, that should be addressed in the Framework/Action Plan to improve their relevance. They also identified existing issues that required continued or enhanced attention. These issues are grouped based on the priority areas identified in the GNWT Director Workshops and NWTCCC Workshop[15]:

Ecosystems (land, water, wildlife)

- Extreme weather events (e.g., fire, flood, low water levels, heat)
  - Delivery of supplies to remote communities
  - Firebreaks
  - Wetlands with respect to fire mitigation
- Permafrost thaw
- Protected areas
  - Continue to collaborate with IGIOs through the Healthy Land, Healthy People (HLHP) Strategy on additional protected areas that should be included
- Implementing Bathurst Caribou Range Plan
- Health of flora, fauna, water, and air
- Biodiversity monitoring (particularly in poor data regions)

> "Climate Change concerns include: low water levels, fire, animal, plants, water, no cranberries to pick, effects on health and well-being, drastic changes in weather, effects on caribou and harvesting, effects of harvesting on the land, shorter winter road, effects economic growth, food security, permafrost damaging homes, loss of animal habitat, increasing heat and drought, effects on cost of living." (IGIO)

Low Carbon Economy

- GHG emissions
- Carbon storage / economic valuation of carbon stores
- Geothermal energy
- Biomethane capture from landfills
- Alternative energy initiatives
  - Increased investments in those technologies that are suitable for the north (resident subsidies)

[15] *These groupings represent the priority areas identified in the GNWT Director Workshops (December 2023) and NWTCCC Workshop (February 2024).*

- Role of critical minerals
- Policy solutions to GHG emissions that don't compromise economy or well-being

Connection to the Land and Culture

- Food production and security (e.g., plant in fire walls, gardens should focus on nutrient rich foods)
- Community capacity building so that residents can continue the climate change work once the technical specialists have left
- Knowledge exchange
    - Engaging more resident and student scientists (e.g., monitoring lake temperature, bird surveys)

Health and Well-being

- Emergency preparedness and response (culturally appropriate) / Disaster management
- Physical and mental health implications associated with climate change impacts

Infrastructure and Access to Essential Services

- Infrastructure – increased resilience
    - Housing
    - Asset management
    - Transportation - identification of safe, affordable, and reliable networks and ways to decrease Contaminants (improved understanding of the impacts (e.g., microplastics))
    - Electrification infrastructure
- Coastal erosion
- Hazard mapping

Business and Economy

- Education and training opportunities that support on climate change research and response (e.g., courses/certificates (e.g., energy efficiency, energy renewal, etc.) offered through Aurora College)
    - Increased science capacity in GNWT departments
    - Training on implementing more efficient systems
- Climate change accountabilities (e.g., terms and conditions in permits, licenses)
- Solar metering – addressing net metering issues so that solar is more affordable

Cross-cutting Vulnerabilities

- Methods of reducing climate change, not just adapting to, and mitigating the impacts
- More forecasting, projections, and modeling
    - New tools available but will require building knowledge and skills to develop, run and understand outputs
- Research findings dissemination (e.g., peer reviewed publications)

- Differential rates of climate change across the NWT (e.g., as a result of El Nino the NWT is experiencing changes in temperature and precipitation in the northern part of the territory but not in south)
- Newer technologies/technological solutions (e.g., satellite remote sensing, eDNA, genomics)
    - Climate change adaptation design that operates in the north

Other Issues

- Affordable insurance coverage for residents dealing with extreme weather events
- Climate change refugia[16]

4.2 Action Areas and Action Item Achievements / Impacts / Successes

This section highlights the achievements, impacts and successes stemming from implementation of the 2019-2023 Action Plan.

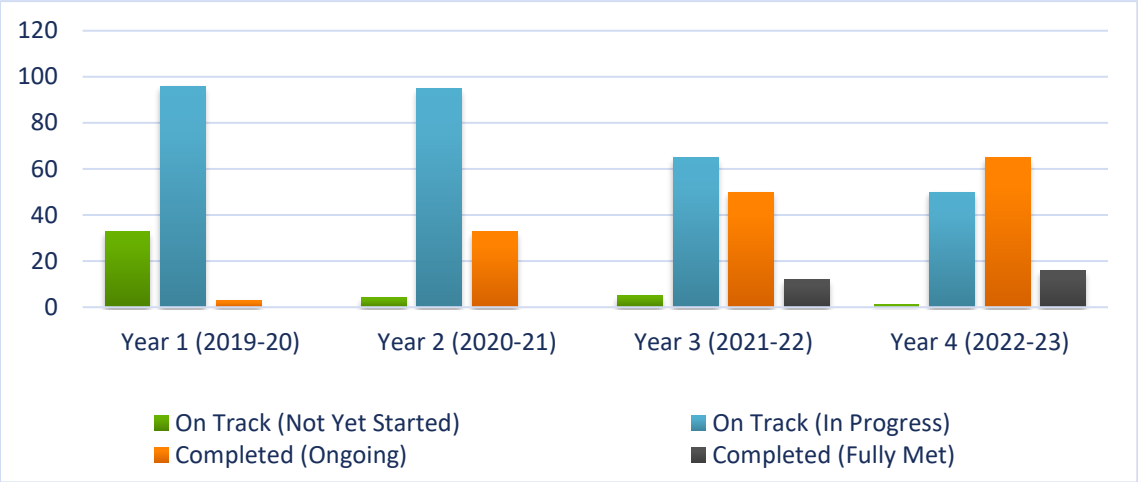
4.2.1 Overview of Action Items and Investments

Figure 1 shows the status of all 132 Framework action items by year. As of March 2023 (Year 4), 16 action items had been fully completed, 65 were completed and ongoing, 50 were in progress and only one had not yet started. Items that were completed but ongoing include monitoring activities.[17] As would be expected, the number of completed actions have increased over time, while the number of items not yet started have decreased, demonstrating progress over the four-year period.

[16] *Areas that remain relatively buffered from contemporary climate change over time and enable persistence of valued physical, ecological, and socio-cultural resources.*

[17] *GNWT. (2021). NWT Climate Change Action Plan: Annual Report 2019-2020. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/nwt_climate_change_action_plan_annual_report_2019-20.pdf; GNWT. (2022). NWT Climate Change Action Plan: Annual Report 2020-2021. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/climate_change_report_-_2021_-_final-web_0.pdf; GNWT (2022). Responding to Climate Change in the NWT: Annual Report 2022-2022. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/climatechange-annualreport-2021-2022_web.pdf; GNWT (2024). Responding to Climate Change in the NWT: Annual Report 2022-2023. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/climate_change_annual_report_2023.pdf*

Figure 1. Status of Progress on Action Items Year 1-Year 4 (2019-2023)



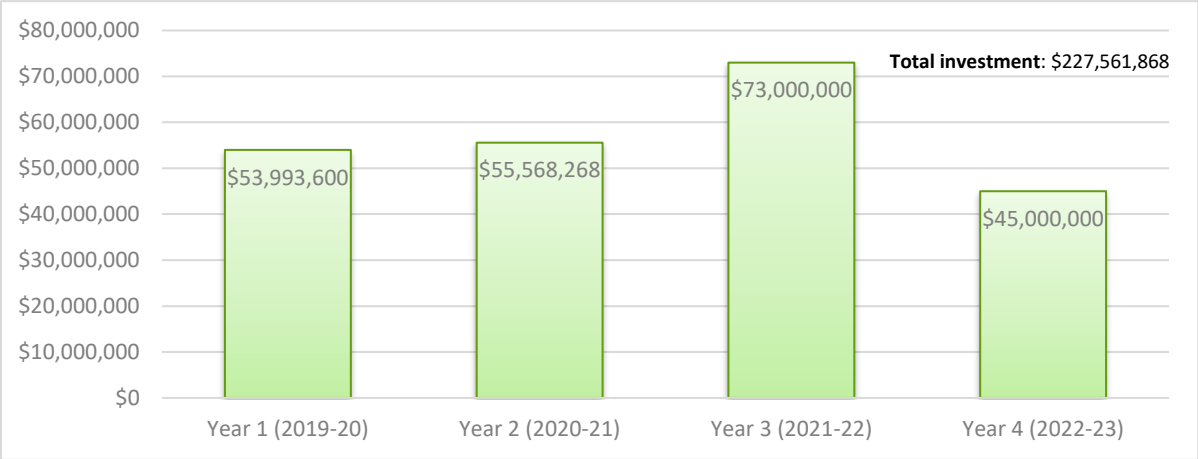
Sources: GNWT Climate Change Annual Reports (2019/20, 2020/21, 2021/22 and 2022/23)

The Action Plan garnered a total investment of approximately $277,561,868, with peak investment in 2022-2023 at approximately $73,000,000, as shown in Figure 2. These investments include:

- Operations and management expenses to implement climate change policies and programs.
- Funding received and distributed through the GNWT for climate change knowledge, climate change adaptation, and lower carbon projects.
- Time spent developing and implementing climate change policies and programs, measured in employee salaries.[18]

[18] *GNWT. (2021). NWT Climate Change Action Plan: Annual Report 2019-2020. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/nwt_climate_change_action_plan_annual_report_2019-20.pdf; GNWT. (2022). NWT Climate Change Action Plan: Annual Report 2020-2021. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/climate_change_report_-_2021_-_final-web_0.pdf; GNWT (2022). Responding to Climate Change in the NWT: Annual Report 2022-2022. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/climatechange-annualreport-2021-2022_web.pdf; GNWT (2024). Responding to Climate Change in the NWT: Annual Report 2022-2023. https://www.gov.nt.ca/ecc/sites/ecc/files/resources/climate_change_annual_report_2023.pdf*

Figure 2. Investment in Framework and Action Plan for Year 1-Year 4 (2019-2023)



Sources: GNWT Climate Change Annual Reports (2019/20, 2020/21, 2021/22 and 2022/23)

4.2.2 Goal #1: Transition to a Lower Carbon Economy

The GNWT has made strides in transitioning to a lower carbon economy. Efforts have been directed towards reducing GHG emissions and promoting sustainable energy practices.

The key achievements in transitioning to a lower carbon economy from the annual reports are highlighted in Table 1.

Table 1. Key Achievements Highlighted in Annual Reports 2019-2023 for Goal #1

Year	Key Achievements
Year 1 (2019-20)	▪ GHG emissions reduction projects funded through support from the Capital Asset Retrofit Fund, Arctic Energy Alliance programs, and GHG Grant Program projects resulted in a 6 kilotonne (kt) CO2e (carbon dioxide equivalent) reduction. ▪ The NWT Carbon Tax came into force on September 1, 2019, meeting the GNWT commitment on carbon pricing under the Pan-Canadian Framework on Clean Growth and Climate Change. This was also a commitment made by the Department of Finance under Goal 1 of the Action Plan.
Year 2 (2020-21)	▪ Invested $38.0 million in energy projects in all NWT communities. ▪ Reduced NWT GHG emissions by an additional 3.6 kilotonnes CO^2. ▪ Continued to develop projects improving NWT energy system's reliability while stabilizing residents' energy bills. ▪ Continued to implement the NWT Carbon Tax. ▪ Signed an agreement with Northwest Territories Power Corporation to improve accuracy of utility data tracking.
Year 3	▪ Reduced GHG emissions in 2020 by 19% compared to 2005 levels.

(2021-22)	▪ Strengthened the carbon pricing regime to $40/tonne in compliance with federal requirements. ▪ Reached key milestones in the development of clean energy infrastructure projects including the Inuvik Wind Turbine Project and transmission lines to replace diesel power with hydroelectric power in Fort Providence, Kakisa, and Whatì.
Year 4 (2022-23)	▪ Made substantial progress towards the completion of the Inuvik Wind Turbine Project, which began producing clean electricity in November 2023. ▪ Climate change mitigation actions taken by the GNWT contributed to the reduction of GHG emissions in 2021 (the most recent year for which data is available, as of the time of writing) by 25% compared to 2005 levels. The current GNWT GHG emissions reduction target is to reduce emissions in 2030 by 30% compared to 2005 levels. ▪ Strengthened the carbon pricing regime to $50/tonne to comply with federal requirements.

The 2030 Energy Strategy provides a guide for the development of secure, affordable, and sustainable energy in the NWT for transportation, heat, and electricity. The second 3-year Energy Strategy Action Plan was released in fall 2022. The Energy Strategy is currently being reviewed by the Department of Infrastructure at the same time ECC is reviewing the Framework and Action Plan.

Partners emphasized that implementing the Carbon Tax and installing clean energy alternatives such as solar panels and a 3.5 megawatt wind turbine were key achievements of the last four years. As well, they mentioned exploration of the potential for geothermal heat for energy and working towards a net-zero housing prototype as notable accomplishments.

4.2.3 Goal #2: Improve Knowledge of Climate Change Impacts Occurring in NWT

Under Goal #2, the GNWT has improved knowledge of climate change impacts primarily through research, monitoring programs, and strategic partnerships.

Table 2 highlights the key achievements in improving knowledge of climate change impacts in the NWT as per the annual reports.

Table 2. Key Achievements Highlighted in Annual Reports 2019-2023 for Goal #2

Year	Key Achievements
Year 1 (2019-20)	▪ GNWT departments and external partners continued monitoring programs to assess water/snow quantity, forest conditions, ground temperature and permafrost, key fish and marine mammal species, wildlife, and the condition of infrastructure. ▪ Risk assessments were initiated for wildfires, community and public

	infrastructure, and wildlife, including species at risk and zoonotic diseases (infectious diseases that are transmitted from animals to humans), to better understand vulnerability to climate change impacts. ▪ A working group was established to advance NWT Council on Pests, Pathogens and Invasive Species. ▪ Updates on permafrost monitoring led by the Northwest Territories Geological Survey were published on Open Report, an online resource available to the public. ▪ The NWT Cumulative Impact Monitoring Program (NWT CIMP), which supports the collection, analysis, and synthesis of traditional knowledge to better understand environmental trends and cumulative impacts to inform decision-making, funded 28 projects in 2019/20. Many of these projects addressed multiple themes within the focus areas of traditional knowledge, water, caribou, and fish, all of which related to climate change. ▪ In May 2019, an NWT Emergency Management Organization Public Awareness Campaign on Emergency Preparedness was launched, as the GNWT continued to improve communications with the public regarding important public safety risks related to climate change. ▪ In July 2019, the NWT released its first ever public health advisory for extreme heat exposure affecting seven communities. ▪ Engagement with NWT partners and residents on water related programs and initiatives continued in 2019/20, as part of the GNWT's efforts to ensure local, traditional, and scientific knowledge are integrated in climate change research and projects.
Year 2 (2020-21)	▪ ECC continued community-based monitoring and research, involving youth, and ensured compliance with COVID-19 restrictions. ▪ Secured funding to support community government core needs, including infrastructure impacted by climate change. ▪ Established mechanisms for climate change-related human health and public safety messaging. ▪ Installed a permafrost ground temperature monitoring network along the Dempster and Inuvik Tuktoyaktuk highways. ▪ Inspected infrastructure, including tracking for potential impacts of climate change. ▪ Advanced mapping of four permafrost geohazard themes to inform community hazard maps, and completion and publication of the Organic Terrain theme. ▪ Established the NWT Pests, Pathogens and Invasive Species Council. ▪ Expanded monitoring of wildlife to further track ranges of native and non-native species was undertaken. ▪ Initiated research to evaluate potential climate change impacts on snow accumulation in the NWT.

	▪ Partners completed several wetland inventory projects in protected areas. ▪ Initiated/completed several vulnerability and risk assessments for wildlife, forests, protected areas, human health, cultural places, and infrastructure. ▪ Responded to permafrost slumps and thaws, as they impacted infrastructure.
Year 3 (2021-22)	▪ Completed a Climate Change Vulnerability Assessment for all 46 species-at-risk in the NWT, to support targeted wildlife management, conservation, and climate change adaptation strategies. ▪ Assessed an additional 40 archaeological sites that are vulnerable to climate change, to support mapping and conservation of heritage resources in the NWT.
Year 4 (2022-23)	▪ Completing Phase One of a Forest Vulnerability Assessment in partnership with the Canadian Forest Service to monitor changes to forest growth, productivity, health, and regeneration after natural and human-caused disturbances in the context of the changing climate. ▪ Completing the first NWT Climate Change Risk and Opportunity Assessment with input from the NWT Climate Change Council, Indigenous and community governments, the Government of Canada, co-management boards, the NWT Climate Change Youth Council, non-governmental organizations, academia, industry, and Hunters and Trappers Committees.

Participants shared that implementing community-led monitoring programs was a major achievement that continues to strengthen the knowledge of freshwater ecosystems. It was also noted that freshwater fish monitoring programs led to a successful publication on the impact of warming trends on mercury contamination levels in fish, while research on lake and river morphology improved the understanding of the impacts of human disturbances to these systems. Moreover, it was mentioned that wetland inventory maps were successfully completed for the Akaitcho, Dehcho, and Tłı̨chǫ regions.

Participants also noted that the use of Landsat satellite imagery enabled several projects related to understanding land use change – whether through permafrost thaw, coastal erosion, or otherwise – allowed them to advance quickly and on a relatively low budget. In general, participants successfully found ways to reduce costs associated with land use change studies through, for example, the use of open-source technologies such as Google Earth.

4.2.4 Goal #3: Build Resilience and Adapt to a Changing Climate

To build resilience and adapt to climate change, the GNWT has implemented various planning, risk assessment, and community engagement programs.
Table 3 shows the key achievements in building resilience and adapting to a changing climate.

Table 3. Key Achievements Highlighted in Annual Reports for Goal #3

Year	Key Achievements
Year 1 (2019-20)	▪ Enactment of the *Protected Areas Act* in June 2019. ▪ Established the Thaidene Nëné Territorial Protected Area in August 2019 as the first area to be formally designated through regulations under the *Protected Areas Act*. Thaidene Nëné, situated at the eastern end of Great Slave Lake, is an example of collaboration between multiple partners as it also includes a National Park Reserve, a conservation area under the *Wildlife Act*, and collectively is an Indigenous Protected Area. ▪ The GNWT and the K'asho Got'ı̨nę signed an establishment agreement for Ts'udé Nilı̨né Tuyeta Protected Area in September 2019. This area lies west of the Mackenzie River and the community of Fort Good Hope. ▪ Work progressed towards an establishment agreement for the candidate protected area Dinàgà Wek'èhodì, located on the North Arm of Great Slave Lake. ▪ In August 2019, ECC – formerly the Department of Environment and Natural Resources (ENR) – released and began implementing the Bathurst Caribou Range Plan as well as a Framework for Boreal Caribou Range Planning. ▪ Significant progress was made on implementing the Sustainable Livelihoods Action Plan 2019-2023, which prioritizes ECC's resources and capacity to support climate change adaptation programs that focus on harvesting, traditional economy, and country food security across the NWT. ▪ The Department of Industry, Tourism and Investment (ITI) supported access to agricultural training and expertise to meet regional and community-specific needs, and to improve regional and local capacity through the Canadian Agriculture Partnership program. ▪ The Department of Infrastructure improved monitoring and assessment of existing public infrastructure, such as buildings, highways, and airports. This will inform the development of standards, tools, and measures to ensure our infrastructure meets the challenges posed by current and future climate conditions.

Year 2 (2020-21)	▪ Formed the Thaidene Nëné and Ts'udé Nilı̨né Tuyeta protected areas management boards. ▪ Continued the co-management and conservation of caribou in a changing climate. ▪ Initiated development of an overall Climate Change Adaptation Strategy for wildlife in the NWT. ▪ Implemented community adaptation measures, including FireSmarting and Community Wildfire Protection Plans. ▪ Supported increased production of local agriculture products on established and growing farms. ▪ Supported on the land activities to promote food security. ▪ Progressed on the construction of Tłı̨chǫ, Mount Gaudet, and Prohibition Creek all-season roads.
Year 3 (2021-22)	▪ Developed an economic model to evaluate the territory-wide impacts and opportunities of a changing climate in the NWT. ▪ Completed the Tłı̨chǫ Highway to provide year-round road access to Whatì and adapt to the negative impacts of climate change on seasonal ice roads.
Year 4 (2022-23)	▪ Ongoing work to upgrade the ground temperature sensor network along NWT highways and near building foundations. This data is used to inform the maintenance and development of public infrastructure, particularly as it is impacted by permafrost thaw due to climate change.

Participants shared that establishing protected areas, and initiating biodiversity monitoring within them, was a key success of the four years of Action Plan implementation. Other notable accomplishments cited by partners included: revising climate change course material to better suit different audiences; implementing an emergency alert system for climate change hazards; developing land use plans for the Acho Dene Koe First Nation territory; completing a regional risk vulnerability assessment for community infrastructure; and implementing design interventions that exceed the national building standards.

MACA's Community Governance Division is working in partnership with the NWTAC to deliver the *Community Planning Framework - Where We Live, Why We Plan* initiative. The Framework is intended to provide a platform to promote community land use planning and the role of planners, supporting discussions related to the community land use planning system and emerging practices in the NWT. The first step of the initiative was an invitational *Community Planners Forum* in Yellowknife from March 26-28, 2024. The Forum and the future Framework document include climate change as one of four themes; a guide focused on climate change is in preparation.

4.2.5 Cross-Cutting Themes

Cross-cutting themes include leadership, communication, and capacity building, as well as economic impacts and opportunities. Across all three goals, partnerships and building capacity are positive outcomes of the Framework.

Table 4 shows the key achievements for cross-cutting themes as identified in the annual reports. It should be noted that there were no highlights identified for the 2020-2021 period/Year 2.

Table 4. Key Achievements Highlighted in Annual Reports for Cross-Cutting Themes

Year	Key Achievements
Year 1 (2019-20)	▪ Supported the establishment of an NWT Climate Change Council, comprised of members from Indigenous governments and organizations (IGIOs), the GNWT, and community governments. ▪ Strengthened capacity within IGIOs and community governments by supporting project proposals and informing funding opportunities through the federal Climate Change Preparedness in the North Program and the federal Indigenous Community-Based Climate Monitoring program. Workshops, and in-person climate change course, and a webinar series were also delivered through the GNWT's Department of Municipal and Community Affairs (MACA).
Year 2 (2020-21)	▪ Note to reader: the 2021-22 Annual Report did not highlight any key achievements for cross-cutting themes.
Year 3 (2021-22)	▪ Facilitated four NWT Climate Change Council meetings to discuss climate change issues and solutions for the NWT. ▪ Grew the GNWT's Permafrost Science Team to four positions.
Year 4 (2022-23)	▪ A partnership with the Hamlet of Tuktoyaktuk and Natural Resources Canada (NRCan) to research coastal erosion dynamics along the Beaufort Sea. A local Tuktoyaktuk Climate Change Community Liaison Monitoring Position was created which supports a community-led monitoring program focused on ground thaw, bathymetry collection, contaminant measurement, air quality, and coastal erosion. ▪ Worked with NRCan and NWT communities such as Hay River and Fort Simpson to develop updated flood maps for the NWT's flood-prone communities. This project will help communities identify flood vulnerabilities and inform land use planning and development. ▪ A collaboration between the NWT Geological Survey and the GNWT, Crown-Indigenous Relations and Northern Affairs Canada, and NWT communities to advance hazard mapping and geo-surficial mapping for communities. The mapping of features such as permafrost sensitivity will help communities plan for adaptation to permafrost thaw and other climactic changes.

	▪ The GNWT and the NWT Association of Communities were successful together in their federal funding application for wildfire mitigation measures including fuel breaks. This collaborative request for funding resulted in $20 million being made available for this work in the NWT's 29 forested communities. ▪ A partnership with SmartICE, Tuktoyaktuk Community Government Council, the Tłı̨chǫ Government, and Łutsël K'é Dene First Nation to provide equipment and training to 20 Indigenous operators/Guardians to monitor sea and lake ice thickness on traditional trails and winter roads for their communities to promote safe travel on the land as environmental conditions shift due to climate change. ▪ Through GNWT funding, the Arctic Energy Alliance (AEA) in partnership with the Hamlet of Ulukhaktok, the Ka'aa'gee Tu First Nation in Kakisa, and the Village of Fort Simpson, initiated community energy planning processes. Each community hired a local Community Energy Champion to guide the engagement process, help with planning activities, and ensure the project was grounded in Indigenous community traditions and that local governance and protocols were respected. All three communities successfully developed their Energy Plans, which are expected to be published in 2023-24.

Collaborative partnerships and the acquisition of external funding were highlighted by participants as overarching successes. Collaboration between GNWT departments, academia, Indigenous partners, communities, and federal agencies occurred over the course of four years of Action Plan implementation to accomplish and advance various initiatives and research projects. Furthermore, access to NASA-funded research, the acquisition of resources from the National Trade Corridors Fund, and external funding through Aurora College advanced environmental science, geohazard, and permafrost-related projects, respectively.

4.3 Implementation Effectiveness and Suggested Improvements

Assessing the effectiveness of implementing the Framework and 2019-2023 Action Plan was a key component of the evaluation. The following key themes were identified along with suggestions for improvements:

- Framework Awareness and Structure
- Action Plan Structure and Function
- Actions Items
- Governance
- Financial Resources
- Roles, Responsibilities and Expectations
- Partner Capacity
- COVID-19
- Collaboration / Partner Involvement
- Engagement

- GHG Communication
- Information Sharing, Access and Use
- Reporting

Each theme area is discussed in more detail below with suggested improvements.

4.3.1 Framework Awareness and Structure

Generally, there were concerns that although climate change was consistently discussed and decisions were made regarding the Framework, it was not as prominently featured in those discussions or day-to-day activities as it should have been. It follows that opportunities to streamline efforts and advance the framework may have been overlooked by departments/divisions. One participant commented that,

> The Framework is a ghost. It's not out there anywhere. It's not getting a lot of notice especially compared to the Energy Strategy. There is a need to increase communications on the Framework. The Framework is silent; it's in stealth mode. I don't think many people know about it. (NGO)

Another participant commented that because a number of people with considerable climate change knowledge will be retiring soon, it is important to institutionalize the Framework to ensure that that knowledge does not disappear from the GNWT. It was also suggested by a federal participant, that the Framework does not allow the partners to push the goals as far as they possibly could.

Of those who commented on the structure of the Framework, a few said they were satisfied with structure, while others described it as too long, repetitive, and descriptive with too many tables of activities that departments are already doing and that it lacked GHG emission projections. It was stated that,

> It's a description of what every department's doing that is remotely connected to climate change to make it look like we're actually doing something on it when there's very little political will or commitment to actually do anything different. (NGO)

One department also commented that while the Framework is core business for them and may have heightened awareness of climate change, it did not significantly alter operations since the department has always considered climate change in its decisions.

Suggested Improvements

It was suggested that the Framework be shortened and instead of being comprised of a "wish list", that it focuses on identifying what the GNWT can actually do, given the money it has to address climate change impacts.

4.3.2 Action Plan Structure and Function

Some participants commented that the format of the Action Plan is functional, easy to read, and supported relatively straightforward and comprehensive reporting (although the sheer number of actions made reporting cumbersome).

Many participants, however, were unsatisfied with the current structure and functionality of the Action Plan. Many commented that it was too long, complicated, and redundant. The action tables were said to be too detailed for public consumption and not set up like most business' operational action plans (i.e., lacked the necessary detail to guide the work that had to be completed)..

There were also concerns that the partner list was not comprehensive enough and as such, key players were not identified as having responsibility for certain action items. For example, participants noticed opportunities to cross-list partners doing related action items and create new partnerships between them. One participant noted that in several cases they felt compelled to coordinate efforts between partners that were unknowingly working in parallel on similar projects. The Action Plan was also said to lack detail on the expectations of partners and information on the financial commitments for each action item.

Because the Action Plan is available in PDF format only, it is difficult to search the document's many actions to identify related action areas and items.

Suggested Improvements

To address the current structural deficits, most recommended that the Action Plan be shortened, simplified and that action areas and items should be prioritized. It was also suggested that efforts be made to structure the Action Plan so that it supports a more holistic (big picture, life cycle) approach to climate change response. For example, the action plan could identify action areas that overlap with one another, such as wildlife conservation and biodiversity monitoring, and housing and adaptation, to encourage collaboration between partners. Supporting a more holistic approach will allow for partners to more easily identify action areas and items that may be of relevance to their area of interest/mandate and provide opportunities to leverage knowledge and resources (e.g., winter road viability depends on the knowledge of several divisions from GNWT Infrastructure, including Transportation, Asset Management, and Marine Transportation Services).

To address the current challenges in the document, it was recommended that a more interactive, searchable online version of the Action Plan be created. This would allow researchers to identify actions, relationships/linkages between specific action areas and items, and potential opportunities for collaboration and partnership. This might be beneficial for grant writing, as researchers are more easily able to demonstrate how their research aligns and supports current activities.

As noted in Section 4.3.6: Roles, Responsibilities and Expectations, it was suggested that clearer articulation of partner roles and responsibilities in the Action Plan would support improved implementation of the action items.

4.3.3 Actions Items

Most participants expressed concerns with the current action items. They felt that in general, the action items represented broad goals rather than specific items, lacked clarity, were repetitious (e.g., three action items related to training for Indigenous governments on climate change adaptation), were aspirational, were not SMART (specific, measurable, achievable, realistic, timebound), and when applicable, did not identify specific targets (numbers, percentages)[19]. For example, the action items for Action Area 3.15: Adapting infrastructure to a changing climate, are all focused on construction and roads while the action area refers to adaptation and infrastructure more generally. Due to this discrepancy, there was a lack of certainty regarding the expected outcome of the actions. This led some to question if the identified completion of an action item in an annual report was actually the intended outcome or even the most appropriate outcome for that action.

Additionally, the use of the categories – completed (fully met); completed (ongoing); on track (in progress); and on track (not yet started) – to describe progress to date, were considered vague and did not encourage or support partner accountability.

There was concern that, as noted in Section 4.1.5: Priorities, there are a number of action items that cannot actually be achieved (e.g., 2.14 D: Update climate change risk assessments for both vertical and horizontal GNWT infrastructure; 7.1: Enhance the use of traditional and local knowledge). These items will remain reported as “in progress’ as opposed to ‘completed’ and as such, may reflect poorly on the partners responsible for the action. Additionally, there are some items that do not lend themselves to a ‘yes, it is complete’ or ‘no it is not complete’ response. For example, MACA offers an online climate change course aimed at equipping community government decisionmakers and employees with the knowledge necessary to adapt to climate change impacts being felt by Northern communities. This course and its supporting resources have been revised, but it is too soon to tell what kind of impact it has had on participant’s knowledge. Further, achievement of some action items that require the development of tools and supports by a GNWT department, such as MACA, but rely on uptake from the communities to be successful, are difficult for the GNWT to measure and are, to some extent, out of the control of the GNWT.

Some participants commented that there were too many action areas and items that focused on building knowledge on climate change impacts and not enough on actions to address those

[19] *While indicators and targets are identified in the Action Plan’s Performance Measurement Plan, none of the participants made mention of it. This appears to indicate that either they are not aware of its existence and/or it is not accessible. In its absence, the key takeaway is that the action items themselves should be drafted in a way that allows them to be standalone (i.e., provide enough information on the specific intended outputs and outcomes).*

impacts. It was also mentioned that many of the action items do not lead to any real change or cannot be accomplished without better data. For example, to engineer resilient buildings requires robust climate models/projections that are not available. Moreover, there was no risk assessment (prioritization) involved in setting the action items.

Suggested Improvements

Moving forward, it was suggested that action items be prioritized, SMART and that specific targets (such as numbers and percentages to be achieved) be used to allow for action progress and completion to be more clearly tracked and reported and to support increased transparency and accountability. Additionally, 'medium-term' action items need to be reviewed and separated into more specific discrete items in the new Action Plan. It was also proposed that terminology such as 'new' be replaced with 'evolving' to better reflect the standards landscape.

4.3.4 Governance

Some GNWT and NGO participants commented on the governance challenges associated with implementation of the Framework and Action Plan. Although ECC is the lead GNWT department responsible for climate change and is responsible for working closely with other GNWT departments and partners to implement and report on the Framework, participants spoke about the confusion that resulted from having two other departments – INF and FIN – play pivotal roles in the operationalization of the Framework and Action Plan. They made comments about the challenges of "not having one single department lead the implementation of the Framework" and "having responsibility spread across three GNWT departments". They stated that this shared leadership leads to a "really disjointed way of dealing with climate change" that results in ineffective and inefficient management of actions. As a result, activities are often siloed, departments end up "stepping on other departments' toes", and some GNWT departments are left "spinning their wheels".

For example, while INF is responsible for leading and administering the Energy Strategy, ECC has non-energy-related responsibilities that directly and indirectly support GHG reductions identified in the Framework (e.g., landscape-based emissions). This overlap has proven difficult given both departments are trying to move forward their strategy and action plan and that requires a coordinated approach. There were also challenges with the two departments working together because of their different organizational cultures.

Moreover, while climate change is identified as a priority, and there is political support for it as witnessed

> "The system is broken because project intake and project prioritization is not clear. The governance of how we prioritize our work…isn't driven by climate change objectives. So ultimately how do these priorities make it into our work plans? Same goes for other divisions across other departments. We are all driven through different work prioritization machines and unless climate change is directly identified as a priority in our collective work plans, something like a framework won't necessarily force the agenda." (GNWT)

through discussions during the sitting of the legislative assembly, the fact that departments were not *required* to execute the actions items for which they were responsible, suggests some level of indifference. This is further exacerbated by the fact that there has been very limited, if any, enforcement, and regular tracking (beyond the annual reporting) of actions taking place. It was noted, however, that in the last four years, submissions that are made to Finance Management Board for funding have to identify linkages to climate change. This forces the issue and makes people think about the Framework.

Suggested Improvements

It was suggested that to improve governance, a new ADM Committee be established with membership from ECC and INF that will help ensure a more coordinated approach on the CCSF and the Energy Strategy.

4.3.5 Financial Resources

A number of participants spoke about the challenges working in the north (e.g., time, travel to remote areas, increased effort, need for external specialists) and the high costs associated with carrying out that work. Many participants were concerned about having an Action Plan that had no additional dedicated funds (outside of GNWT departmental core funding) earmarked for implementation. They also commented on the risk associated with relying on federal money when there are so many climate change initiatives requiring funds across the country. Competition for federal money is highly competitive. One federal partner did note, however, that,

> "My biggest concern is when you put an Action Plan in place without any money to work on it. When you're just hoping to get money from the feds, that means that it may never be implemented in whole or in part. Relying on someone else to do it because you don't have the money is ineffective. (GNWT)

> … the most well-funded programs develop as a result of some initiative launched by concerns raised by local governments and citizenry, which results in a commitment of funds to ECCC to conduct appropriate study (e.g., programs launched on Lake Winnipeg were in response to concerns raised with algal blooms and agricultural practices}. So far, local governments and its citizenry have not called for the need for additional study on Great Slave Lake and the Mackenzie River which could stimulate a new funding effort and priority mandate for ECCC to contribute to such research and monitoring. (Federal government)

Participants commented that for some GHG emission reducing initiatives, there were capital dollars available, but not enough operational or human capacity to ensure long-term success. For example, there were funding programs available for small communities to make changes to infrastructure, but while these changes may have had minimal impact, the operational/human resource impacts would have been significant.

Suggested Improvements

Overall, it was recommended that the Framework and the Action Plan continue with an operational budget. More specific suggestions included:

- Funding for educational and skill enhancement through activities such as visits to labs, taking courses, etc.
- Need for more voices calling for the need for more climate change studies and for the federal government to contribute to those understandings (i.e., since the federal government has strong teams of researchers and technicians).
- Greater investments into the development of alternative energy and the provision of grants to residents (i.e. who install solar panels and could possibly provide energy to the GNWT).
- Using part of the Carbon Tax revenue to fund projects that lack the necessary resources.
- Ensuring that project funding addresses not only capital costs but also capacity costs.

4.3.6 Roles, Responsibilities and Expectations

A number of participants commented that the roles, responsibilities, and expectations of partners as they related to specific action items were not clear. In some instances, more than one partner was identified as a lead for an action item, but it was not clear who would take on the role of managing the activities and determining how all the named partners would collaborate to get the work done.

Some participants raised concerns about the allocation of action items to partners. They highlighted instances where partners appeared to have been assigned to an action item that did not align with their mandate and where another partner would have been more appropriate as the lead and/or as a partner. It was also noted that some organizations were not aware that specific action items had been allocated to them. Since all partners had the opportunity to review the draft Action Plan, this lack of awareness may reflect organizational turnover. It was also noted that the leads of some actions did not always have the technical expertise needed to move actions forward and as such, ended up downloading work to other departments with the technical expertise or contracting the work out to subject matter experts. Also, some named partners said they had never been contacted by the lead partner(s) to support implementation of an action nor had they been provided the opportunity to review draft reports/products. In some cases, however, where partners were not aware they were assigned to an action item, they were still able to advance the action item as it aligned with their mandate/business model.

> "GNWT may say they know what their role is, but communities do not – that is GNWT's communication failure." (GNWT)

Suggested Improvements

The overall recommendation was that partner roles, responsibilities and expectations be clearly defined in the Action Plan. Some participants said that it was particularly important that

communities fully understand their roles and responsibilities and those of the GNWT. It was also suggested that the lead(s) follow up with the other partners at the outset of initiation to determine how the items will be actioned. Ongoing meetings throughout the term of the Action Plan should be carried out to keep all the partners appraised of the status of the activities. As one NGO participant stated, “When I sat in on the implementation of other frameworks … they met quarterly, had clearly assigned tasks, and tracked progress on a work plan”.

It was recommended that greater consideration be given to the identification of action item leads, by ensuring that they have the knowledge and technical expertise to both manage and participate in actioning the items. While taking an inclusive approach to partnership can be beneficial, it is only useful if all named partners are able to actively support actioning the item(s).

4.3.7 Partner Capacity

A number of partners spoke about the impacts that limited capacity has had on their ability to progress on action items in a timely manner. In particular, participants focused on the capacity limitations of community governments to support the development, updating and execution of plans, such as emergency response plans. They also commented on challenges that community members often face leading and/or supporting research and monitoring activities because of their limited technical skills and knowledge. For example, some communities are conducting their own climate change studies, but they “get stuck in interpretation because they lack technical skill”. There are other named partners in the Action Plan that are also challenged to take part because they lack the capacity (i.e., sufficient staffing).

It was also noted that the introduction of new systems can be problematic, resulting in pushback from maintenance staff in the field, because they do not have the training or time needed to implement new systems. While staff may understand the importance of new energy efficient systems, they typically require more maintenance than more conventional systems, which can be problematic.

It was noted that visits to academic and government laboratories have been very popular and have resulted in some visitors seeking more advanced training, which eventually leads to a new job opportunity. Even a short visit can be added to a resume and provide the needed encouragement to obtain further education and training.

Suggested Improvements

Participants suggested the need for more educational opportunities including short, certified courses in particular topics, science fair projects, and work experiences (research and monitoring) with researchers and government employees. It was also proposed that individuals could put their names forward to act in the role of mentor and be available to answer questions about environmental concerns and assist in the development of community projects and science fairs for students.

4.3.8 COVID-19

Some partners spoke about the negative effects the COVID-19 pandemic had on the implementation of action items. COVID and the associated travel and social interaction restrictions hindered progress. Researchers from universities and institutions located outside of the NWT were unable to enter the territory during the lockdown and as such, their work was delayed as were opportunities to build relationships with partners in the NWT. Even those residing in the territory were unable to travel, which limited their fieldwork for two summers. COVID prevented any in-person engagement, which was identified as an important component of knowledge exchange, supporting both the collection and dissemination of information.

Because of supply chain issues resulting from COVID (and other global activities), the cost of supplies to support some of the action items increased substantially (e.g., a power pole formerly $700, now $1500) as did the timeframe to receive shipped supplies. Consequently, architects, designers, construction workers and trades people were overworked, and not always available. Further, overall construction costs 'skyrocketed' post-COVID, and funds to complete pre-COVID planned projects had to be increased.

On the positive side, COVID was said to present opportunities for communities to take more of a direct role in monitoring. It also resulted in a decrease in flights which led to a reduced carbon footprint. Although COVID limited capacity to move forward on all activities, there were still desktop activities that continued such as proposal reviews and funding programs.

4.3.9 Collaboration / Partner Involvement

Many GNWT participants indicated that partner coordination and collaboration had improved over time. They pointed to the interdepartmental Directors' Working Group and interdepartmental workshops as successful mechanisms to discuss what departments were doing and to identify opportunities for collaboration. They also commented on the successful working relationships with their partners. Some spoke about working with partners (e.g., federal government, academic institutions) on cutting edge research that helped build skills and knowledge and inform territorial climate change decisions. For example, INF is working in collaboration with University of Toronto, University of Alberta, and the National Research Council to develop a tool that will help optimize the effectiveness of the winter road network. Some participants commented that without external partnerships, they'd be unable to do the work because of limited capacity. Other GNWT departments spoke about successfully leveraging the technical skill available through collaborations with various federal departments and universities. Some federal participants spoke about the positive relationships they have with the GNWT, commenting that GNWT staff were easy to work with, motivated, and open to collaboration.

> "Partners enhance our abilities." (GNWT)

It was also noted that the NWTCCC, through its Indigenous membership and in-person meetings, help to enhance Indigenous involvement in climate change research, adaptation, and

mitigation activities., These meetings provide the chance for Indigenous members to share their experiences and perspectives on climate change impacts with the GNWT..

Conversely a few GNWT participants felt they had not worked as cooperatively with partners, specifically internal partners, as they could have. They pointed to a lack of communication between partners working on interconnected action items (e.g., the fact that some GHG solutions may result in emissions should be discussed with all departments responsible for supporting carbon reductions). They also pointed to a lack of coordination (and understanding of community capacity) with respect to flood relief for those whose cabins had been flooded.

Federal partners commented on the difficulties the GNWT experienced, at times, bringing together partners. For example, they spoke about the challenges navigating emotions and garnering support for cultural projects and allowing Indigenous groups to have more control and autonomy.

Suggested Improvements

There were a variety of proposed improvements to partner collaboration and involvement including the need for more frequent touchpoints. Participants suggested more facilitated workshops/conferences and meetings among the partners to determine priorities, exchange information on their research projects/action items, discuss the actions partners are carrying out, identify areas for collaboration, build relationships, and share lessons learned and publications.

Other suggested approaches to improving collaboration and partner involvement included:

- Increasing engagement by the Directors Working Group
- Strengthening and leveraging external partnerships to access technical expertise and capacity
- Increasing transparency through the sharing of more information
- Creating smaller, more nimble working groups that focus on specific action areas and report to the larger working group(s) on a regular basis (e.g. twice a year)

> "Creating space for each department's dialogue in communication. Having more conversations and looking at climate change from more angles. For example, looking at it from a social development lens." (GNWT)

It was also noted that the establishment of the polytechnic in Yellowknife, Inuvik and Fort Smith would help support improved engagement as would the creation of a field station located in Yellowknife or Hay River/Fort Resolution that provided teaching and research opportunities.

4.3.10 Engagement

Most participants thought that communities and traditional knowledge holders had been engaged in the collection of climate change information. Partners spoke about engaging with: communities to have them assist with monitoring/gathering information on harvests, species' migration patterns, weather patterns, and water quality; and Elders, to hear their observations on the long-term impacts of climate change. Additionally, the NWTCCC was established as a key forum for engagement and information sharing with IGIOs as well as all other partner groups such as academia, communities, industry, boards and NGOs.

> "We couldn't have done research without that engagement throughout the development and implementation of the programs." (Federal government)

Some participants, however, were not sure to what extent engagement had occurred. Some GNWT participants noted that while they do some level of engagement, it is not central to their departments' activities. While historically, not much engagement had taken place, there has been increased recognition of its importance and the importance of gathering traditional knowledge to inform research studies and decision making. For example, it was noted that some projects include funding arrangements (e.g., project that looks at the impact of permafrost thaw on the Peel River in the Gwich'in area, National Trade Corridor Fund, Water Strategy workshops, *Wildlife Act* consultations) that require engagement with communities, the use of traditional knowledge to understand the cultural impacts, and/or capacity building.

Information is being collected through a variety of methods including:

- Meetings (virtual, in-person)
- Workshops
- Fieldwork
- Community visits
- Observations
- Traditional knowledge surveys
- Application processes
    - Some permit and license applications require climate change information (e.g., how much snow cover on a lake)
    - Green energy technology applications require information to understand its impact on traditional food, caribou, and birds

> "In recent years, Zoom meetings have been helpful for people to hold meetings to present results and ask questions…an excellent series of Zoom presentations were organized over the past couple of years [with the Sahtu Renewable Resources Board] and were well attended by local communities members in addition to people from southern universities and governments. Frequent meetings help keep people motivated to analyze and publish findings." (GNWT)

Information was said to be collected from:

- Indigenous members sitting on the NWTCCC
- Indigenous Guardians students
- Community members
- Community leadership
- Community monitors
- Schools

- NWTAC (on behalf of communities)

As a component of engagement and information collection, some Indigenous groups require data sharing agreements which stipulate that they have access to the data and any products created are co-developed. For example, a video was created to promote conservation of a protected area, which was to be developed and released in conjunction with an IGIO.

> "Smaller Indigenous organizations were not able to engage because of a lack or resource and funds." (IGIO)

Some participants noted that engagement is not always possible because of challenges such as: difficulty knowing who to contact or how to contact them; lack of community capacity (i.e., very small workforces with too much work to do); lack of community participation in planned engagement events; and engagement fatigue. It was noted that some researchers may give up on engagement if they do not get an immediate response from communities because of tight timelines associated with their research and/or capacity constraints. Engagements to conduct research and to communicate results can be time consuming when there are multiple community organizations that do not associate with one another and require separate meetings and approvals. When funds and time are limited, engagement can be difficult.

> "We do seek community involvement, but communities are often spread thin with not enough people who are available to take part in studies during the narrow windows of time in which they occur. Also, more training of community members is desirable." (Federal government)

Suggested Improvements

To improve engagement with communities and traditional knowledge holders for the purpose of gathering information and to improve communities' ability to support climate change research, it was suggested that:

- ECC continue to provide guidance on effective engagement process.
- Partners, notably the GNWT, should engage more directly with communities, including through the NWTCCC, to understand their programming needs and their need for flexible funding/support strategies.
- More time and effort be placed on building relationships with communities.
- Engagement early in the project and use traditional knowledge to inform study design.
- More in-person and one-on-one discussions.
- Regional and community workshops that include individuals identified by the community.
- Project transparency be enhanced (i.e., federal government remove some of the politics surrounding the work that they do internally).
- There be greater investment in community education and training to support involvement in research studies beyond collecting samples. For example:

While engagement is occurring, it was recommended that there is still a need to enhance the integration of traditional knowledge (i.e., traditional knowledge should be on the same footing as

western knowledge) as it relates to climate change knowledge and adaptation and mitigation responses when appropriate and applicable.

It was also suggested that industries be engaged to a much greater extent to share their knowledge (e.g., permafrost, weather patterns) and to discuss the climate change impacts they have experienced. It was noted that industries work with Indigenous and local knowledge holders to gather information. It was also recommended that partners reach out to organizations (e.g., NGOs) for information (e.g., emissions, food security).

4.3.11 GHG Communication

When asked if they felt information about reducing NWT's GHG emission had been communicated to the public in a way that was understandable, most participants responded 'no' or that they were 'unsure'; only a few answered 'yes'. Some GNWT and IGIO participants indicated they while they felt the information was understandable and well communicated within their department and to the Council, they were not certain about how well it was communicated to the general public.

For those participants who felt GHG emissions facts had been communicated in an accessible manner, some stated that the GNWT has been successful at disseminating information to the public through social media, workshops, reports, website, etc. However, even with successful communication of GHG emissions information, there were comments about people not paying attention anymore and questions about how interested community members were given its lack of day-to-day impact of their lives.

Those who were uncertain, commented that while the GNWT publishes reports every year that are available online, and it is possible that some people consult those to understand the impact of GHG on the economy, they were not sure how meaningful this information was to the public. They also noted that while some people care a lot, there are others who do not care at all.

> It was mentioned that some mechanisms used to communicate GHG emission facts such as Arctic Energy Alliance attending tradeshows and talking about green energy strategies with individuals who are interested are effective, but there were questions about what the best communication method(s) would be for the GNWT. GNWT communications were described as "hit and miss" and often difficult to find. An industry participant commented, "Unless I go looking for it, I don't hear about it".

For those who felt GHG emissions facts had not been communicated to the public in an accessible manner, there were comments about the overwhelming length of the Framework and the belief that the information had not even been communicated to GNWT employees in a way that was understandable. Further, it was noted that there is no understanding of the NWT's emissions in the context of national or global emissions, and no understanding of the impact of spending large amounts of money to reduce emissions. There was also no clear pathway/no

solutions as to what each person can do to reduce GHG emissions. The Framework's approach to GHG emissions communications was contrasted with the Energy Strategy's approach in which the annual reports clearly articulate, in only three pages, the key messages. It was noted that although the Energy Strategy and Framework are supposed to communicate GHG emissions consistently, instances of incorrect or inconsistent reporting have occurred.

Suggested Improvements

There were a number of suggested improvements for communicating GHG emissions to the public in a more accessible – understandable and available – way. These included:

- Creation of newsletter that interested residents could subscribe to that would communicate progress and achievements and let them know when key reports were being released and where they can be accessed
- More plain language and user-friendly communication ("Cole's notes version", short blurbs) and communication materials that focus on one topic at a time
- Face-to-face meetings / Community meetings
- More robust, regularly updated, and interactive (e.g., individual usage, GNWT's energy usage/savings, track progress toward goals) GNWT website
- Better use of social media and Cabin Radio
- Proactive communication of achievements
- Increased involvement of NTPC in community engagement on power to help explain things (i.e., Green energy is more complicated than most people realize, and most do not understand why it is so expensive. Further, it is challenging when different communities and levels of government make decisions without NTPC's involvement, leading to unforeseen consequences).
- ECC coordinates with the Energy Division to create communication materials focused on GHG emissions.

It was also suggested, to improve public interest and response, that the GNWT do a better job letting the public know that deceasing GHG emissions saves money.

4.3.12 Information Sharing, Access and Use

Information Sharing

When asked if information on climate change impacts had been collected, processed, analyzed and/or shared with the GNWT, the partners and the public to improve their knowledge and awareness, most federal and GNWT participants indicated 'yes', while other participant groups responded with 'yes', 'no' and 'not sure'.

GNWT representatives, for the most part, felt that they were doing a good job disseminating information to various stakeholder groups in a format that was accessible. They spoke about

relaying information via online tools such as story maps (e.g., Rivers of Change Story Map[20]), podcasts/broadcasts, online NWT Discovery Portal[21] (online, searchable source for environmental monitoring knowledge), social media, email blasts, and through engagements with community members through renewable resource board meetings, youth forums and Elder discussions. It was also noted that because of recent extreme weather events such as flooding and fire evacuations, the public is more aware now of climate change impacts than they likely were in the past. It was noted, however, that there was no way of determining if shared information actually improved knowledge.

Federal partners stated that information had been shared (e.g., trend monitoring, permafrost) through methods such as baseline reports, publications and one-day information exchange workshops. Also, the introduction of a CIRNAC knowledge mobilization person within the territory has improved information dissemination. They did note some struggles sharing highly technical information (e.g., mercury biomagnification in the environment, inorganic versus organic mercury and methylating bacteria) with community members in ways that were understandable and interesting and, ensuring that the information they shared with GNWT departments was actually disseminated more broadly (i.e., GNWT staff overworked so not certain if federal information 'makes it to the top of pile").

> A … challenge is the time required to work up and analyze data. A lot of monitoring data, especially water chemistry data, are being collected but the challenge is analyzing and working up these data in a timely manner. For universities and other academia, where studies often are based on 2- or 3-year graduate student projects, writing up may occur more rapidly in theses but then there may not be the continuity from project to project. For ECCC and other government agencies it can be easy to delay analysis where monitoring data are being conducted regularly and possibly where the database is larger and the questions more complex. (Federal government)

Conversely, some GNWT participants were either uncertain about the extent of information sharing or felt that it was not occurring. They pointed to barriers associated with information sharing such as: challenges communicating some information (e.g., quantifying data in a way that resonates with the public (reduce energy usage by this amount and save this much money); lack of information sharing collaboration and coordination; and lack of data analysis capacity (i.e., data in a format that cannot be effectively shared). It was also mentioned that when data is shared, it is often out of date.

While some of the other partner groups indicated they had successfully shared information (e.g., through SharePoint, reports), they were uncertain as to whether that information had been used

[20] https://storymaps.arcgis.com/stories/becbcf4a703547d7844d5f52414eb905
[21] https://www.gov.nt.ca/ecc/en/services/nwt-cumulative-impact-monitoring-program-nwt-cimp/nwt-discovery-portal

by the GNWT. Other partners stated, however, that information had not been shared with them, even though they were an identified partner on a specific action item. Some partners spoke about the inadequate dissemination of the Framework document itself and the lack of detailed action item completion information,

> There's been no real communication as to how actions have been advancing and limited status updates. For example, one action item update was climate change risk assessments for both vertical and horizontal GNWT infrastructure. The status says implemented verticals assessed every five years, and horizontal assessed every year. But what percentage of vertical infrastructure has been updated then? It's at this high level. I couldn't get away with that if I was in an organization, I can't just turn my boss and say, yeah, we're working on it. How much has been done? (NGO)

> We need to know how the action was implemented; how much was done. We need details. We need percentage targets; need to see reports on percentages achieved. (NGO)

Accessibility of Information

Some participants felt that information was accessible to those who were interested in obtaining it. For example, one GNWT research project involves biodiversity monitoring program in partnership with IGIOs. Much of the information is collected via remote cameras on Indigenous lands, so data is shared through formal agreements. Another partner identified the use of videos to support knowledge mobilization and to address staff turnover. The videos were provided to a Tłı̨chǫ government and described how to use wetland inventory maps.

On the other hand, access to climate change information was identified as a problem for the GNWT, other partners and the general public. It was noted that there is no standardized or intentional approach to more uniformly sharing information across GNWT departments, with other partners and with the public. Additionally, information that is shared is often not in an accessible format for partners, especially those with capacity issues (i.e., unanalyzed data set). Language barriers were said to limit accessibility to data for some community members.

There was uncertainty regarding the ability of GNWT staff to access information from other departments. For example, it can be challenging to know which unit in a division to go to for information (e.g., in the Infrastructure Division, there are three separate units - Energy, Transportation, and Asset Management) and then who to contact for that information.

A number of participants spoke about the fact that people are often unaware that information actually exists. It was noted that it is not sufficient to put information on the GNWT website, for

> "Most people don't spend a lot of time looking through news sites, government websites, etc. looking for climate change framework information, so we need to find better mechanisms for communicating information to different audiences." (GNWT)

example, and expect partners or the public to search for it. The promotion of GNWT climate change successes and reports and publications could be enhanced or brought to the forefront through additional outreach with partners.

Some participants also commented that while a lot of data has been generated over the past five years, much of it has not yet been analyzed and translated into an accessible format for planning and decision making due to a lack of staff technical knowledge and skills.

Data sovereignty was also identified as hindering access to available data. When IGIOs fund climate change projects, they own the information that was collected and control if and how that information is used. If they decide not to share the data, then researchers are unable to use it even if it might support the work they are doing on other action items.

Information Use

Many GNWT participants indicated they had used climate change information that their department/division or others (e.g., federal government, academia) had generated to support further research, the application of research and/or decision making and future planning. For example, permafrost information had been used to inform the design of the Tuktoyaktuk-Inuvik highway and ice formation data to inform the preparation/timing of winter roads.

Federal participants commented that they are not focused on using the information produced but rather on generating data and creating tools (e.g., models, forecasts, projections) that can be shared with GNWT departments for their use. It was also noted that the GNWT is often overwhelmed by all the data they collect and/or receive, so putting it all to use can be difficult. Some other partners did mention that they had used climate change information (e.g., wetlands inventory maps) to support their applications for funding and/or to support their own research activities.

Suggested Improvements

There were many suggested improvements to the sharing of information with the GNWT, partners and the public. Overall, it was recommended that awareness of and accessibility to information be enhanced through the use of a variety of dissemination approaches and that information be communicated in ways that support learning and that people can understand and relate to. It was suggested that investments in capacity and infrastructure for knowledge sharing were needed. It was also proposed that information be shared in a more systematic way to help ensure the regular release of data.

Participants suggested that climate change information be made available through:

- A GNWT-wide portal that would allow the sharing of climate change information across GNWT departments and with partners (beyond the NWT Discover Portal that focuses on cumulative impact monitoring)[22]
  - Data management system would help organize the information
- Publicly available online database[23]
  - Create an NWT-specific searchable site
  - Federal northern focused portal that provides data on the NWT, Yukon, and Nunavut
  - Work with post-secondary institutions such as the Arctic Institute of North America at the University of Calgary[24] to have NWT data posted
- Dedicated GNWT climate change webpage
- Improved engagement with IGIOs through the NWTCCC
- Each GNWT department have a dedicated climate change position to manage communications with the partners and the public
- In-person meetings and conferences to present and discuss the status of climate impacts, adaptation, and mitigations (i.e., lessons learned) as often as is feasible.
- Use of short articles in the local newspapers, radio interviews and videos to better connect with the general public
- Publishing peer-reviewed science (e.g., papers with data and Digital Object Modifier (DOI) (A unique string of letters and numbers used to identify an article or e-book. It is more reliable and permanent than a URL and takes the individual directly to the document.)

> "Online tracker so you could click on one of the things [GNWT] committed to do. It would be updated as to where the status of the work that was being done. It would be fairly detailed in terms of, you know, who was doing what and when it was done…But it's a very hard to keep those things updated and timely. It just means, though, you've got to devote some resources to actually do it…You have to actually dedicate some resources to actually doing the reporting." (NGO)

It was suggested that the GNWT come up with a government-wide information sharing protocol to support a more standardized and deliberate approach to improving information access to all partners and the public.

[22] *This specific suggestion could be addressed through the newly launched online NWT Climate Change Library (https://www.gov.nt.ca/en/newsroom/introducing-nwt-climate-change-library) which houses scientific information, research papers, technical reports and innovative tools from government and beyond in one central location. The platform aims to provide climate research, information, and knowledge to those who are working to find solutions to mitigate and adapt to climate change in the NWT.*

[23] *The online NWT Climate Change Library is publicly available. See footnote above for online library details.*

[24] *Arctic Institute of North America. https://arctic.ucalgary.ca/*

Participants also proposed that climate change messaging be developed in ways that better connect with their intended audience:

- Present information in ways that are easy to understand and use[25]
- Shift towards the use of language that is more positive, motivating and unifying
  - For example, avoid language such as "we need to cut emissions" and replace with language such as "we have an opportunity to pursue greener technology".
- Share information on why changes are being made (e.g., Carbon Tax) and why people should care
- Share information in ways that connect with the current experiences of residents (i.e., what they're facing today) as opposed to 30 years from now
- Tailor messaging and location of information to specific audiences
  - For example, communications to youth should look different than messaging to Elders and should be made available through social media and digital technology for youth and in-person meetings for Elders
  - Climate change messaging specifically for youth could be prepared by the NWT Climate Change Youth Council (CCYC) which provides input and advice to the NWTCCC on all matters pertaining to climate change.[26]

Other suggestions included:

- Wherever possible, climate change education and knowledge building activities be made available/be embedded in the messaging. For example, identity pathways - here's a finding, these are the consequences, here's a possible solution.
- Greater investments in capacity to support data synthesis and analysis.
- Ensure that information is incorporated into decision-making.
- Action Plan meetings occur every year to ensure that it remains on departmental radars.
- That information on GNWT climate change initiative/asset operations and maintenance be available (e.g., record specific of expenditures on road maintenance such as where repairs are being done, how much aggregate is being used etc.).
- Ensure that shared information is up to date.
- Creating user friendly data collection and monitoring tools (e.g., data on status of buildings, permafrost changes, etc.) for use by community members and local staff so that they could keep the GNWT aware of climate change issues and help adaptively manage the impacts.

[25] *This recommendation was also identified during a 2023 GNWT Director's thematic workshop and during a 2024 NWTCCC workshop.*

[26] *The purpose of the CCYC is to bring together the critical perspectives of youth from all NWT regions to: Engage other community members in an open and transparent dialogue on climate change; Understand the key climate-related issues, challenges, and perspectives to formulate youth priorities; Amplify the voices of NWT youth to influence policy and action by decision-makers; Empower members to influence and mobilize other youth to act; and Build the capacity, experience, and networks of engaged youth to be the next generation(s) of NWT climate leaders.*

4.3.13 Reporting

This section refers specifically to the Action Plan reporting requirements. A number of GNWT participants commented that the reporting was cumbersome, time consuming and repetitive (similar action items occur throughout the Action Plan). Action Plan reporting was also described as being redundant and inefficient given internal departmental reporting requirements and the fact that the reporting formats are different. As one GNWT partner stated, "The reporting burden on partners needs to be reduced; we are a small government and can't do it." As such, reporting is often "put at the bottom of the *To Do* list until someone is banging at our doors to get it." This is compounded by the lack of regular monitoring and reporting that results in departments scrambling to report on what they have accomplished.

> "I'm satisfied with the Framework, except for reporting." (GNWT)

Reporting was also said to be challenging because there are some questions that cannot be answered, or answered accurately, with the data. For example, what impacts stem from climate change and what impacts stem from normal events? (e.g., highways structural issues are the result of both climate change and day-to-day use). Additionally, gathering the information required for reporting purposes can be a challenge in the NWT due to limited resources. The lack of clear indicators/measures for each action item was also said to be a barrier to reporting.

Some questioned the usefulness of continuing to report on specific action items, when it is unlikely that the public monitors the annual reports. Additionally, it was noted that the action area/item tables are too detailed for the public and too much for departmental reporting purposes.

There were also concerns about the manner in which GHG emissions are being reported. Specifically, why heavy duty mining transportation reporting is attributed to transportation emissions as opposed to industry emissions (refer to Figure 4 in the Framework). The accuracy of separating out mining transportation emission was called into question, since industry is said to include "…emissions from heat, electricity and vehicles from mining…"[27].

> "So, there's no way that you could actually break out transportation from industry." (NGO)

Suggested Improvements

To improve the reporting process, it was suggested that:

- The Action Plan be restructured to facilitate reporting.
- Reporting be simplified and streamlined by reporting at the level of the action areas as opposed to each action item (so the public can more easily understand the results).
    - the details could exist in a separate document as opposed to the annual reports.

[27] *GNWT. (2019). CCSF – Section 3: Goal #1 - Transition to a Lower Carbon Economy: Section 3.2 – NWT Sector-specific GHG Emissions. P30*

- Align the Action Plan and departmental reporting approaches to enable partners to report on the same activities the same way. For example, partners are currently required to attribute infrastructure impacts to climate change in the Action Plan, even though they do not do this in their annual reports due to the difficulty in discerning it from other processes.
- Review and revise the action items to remove or reduce repetition.
- Ensure each action item has a clear performance measurement/marker of progress.

5. Conclusions

The 2030 NWT Climate Change Strategic Framework outlines how the territory plans to respond to challenges and opportunities associated with a changing climate. The Frameworks vision is that by 2030, the NWT will enjoy a strong, healthy economy that is less dependent on fossil fuels (compared to 2005) and will have developed the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate. To support this vision, the Framework identified three key goals: to transition to a lower carbon economy, improve knowledge of climate change impacts and build residence and adapt to a changing climate. The 2030 NWT Climate Change Strategic Framework: 2019-2023 Action Plan supports implementation of the Framework through the identification of specific actions that align with the goals and partners responsible for carrying out the actions. The purpose of the evaluation was to assess the progress made towards the vision and goals of the Framework and Action Plan. Based on the findings outlined in Section 4, this section presents the conclusions by key evaluation questions.

Overall, implementation of the Framework and Action Plan has been successful and thus progress towards the vision and goals has occurred. As of March 2023 (Year 4), 16 action items had been fully completed, 65 were completed and ongoing, 50 were in progress and only one had not yet started (because it required completion of another action item that was still in progress). The GNWT has made strides in transitioning to a lower carbon economy. The NWT has seen reductions in GHG emissions and investments have been made in clean energy projects (e.g., wind turbines, exploration for geothermal heat, work towards developing a net-zero housing prototype). The GNWT has improved knowledge of climate change impacts through research (e.g., inventories, assessment, mapping), monitoring programs (including community monitoring), and strategic partnerships (e.g., federal government, academia). The GNWT has built resilience and made strides to adapt to climate change impacts through forecasting, predicting, and modeling as well as the design, development and implementation of planning, risk assessment, and community education and training programs.

5.1 Framework Questions

5.1.1 What are the key highlights and areas for improvement within the implementation of each Action Item?

Several action items were highlighted in the annual reports and by evaluation participants as being successfully implemented including, but not limited to: reduced GHG emissions; application of the Carbon Tax; investments in clean energy alternatives; completion of climate change vulnerability assessments (e.g., species at risk, forests) and inventory projects (e.g., wetlands); operationalization of community-led monitoring programs; enactment of *Protected Areas Act* and establishment of protected areas; improved monitoring and assessment of existing public infrastructure; and implementation of emergency alert systems for climate

hazards. Key achievements were attributed to the Action Plan's support of strategic partnerships, integration of mitigation and adaptation activities, inclusion of scientific, traditional, and local knowledge, and the ability to use new, cost-effective technologies.

Key areas for Action Plan implementation improvement included: aligning the action items with other climate plans to optimize capacity and use of resources; providing additional targeted financial and human resources for the action items; and ensuring more community and Indigenous involvement. Other identified improvements to the action items and reporting categories included: prioritization of action items based on risk assessment; inclusion of SMART actions that enable partners to clearly track progress on implementation; revisions to existing reporting categories to allow for more clarity regarding the extent of progress; and review of partner assignment to each action items to ensure the most appropriate leads and partners are identified.

5.1.2 Are the Action Items contributing to advance the goals and vision of the Climate Change Strategic Framework? Are we where we said we would be – completing our short-term goals and moving into the medium-term goals for the second Action Plan?

GNWT and federal partners agreed, and the annual reports demonstrate, that the current action items have advanced the vision and goals of the Framework. Examples of activities completed in support of the vision and goals included: investments in electrical and other green energy (e.g., wind, solar) generation; funding for 14 new climate change positions across five GNWT departments; establishment of the NWTCCC and the CCYC; completion of landform mapping and terrain sensitivity assessments (e.g., development of community hazard maps (e.g., fire, flood)); research conducted on contaminant trends in local lakes; implementation of community adaption measures (e.g., FireSmarting and Community Wildlife Protection Plans); and infrastructure design, planning and management that meets and/or exceeding NISI standards. Other partners disputed whether advancement on the vision and goals could be assessed given the action items lacked specific indicators, dedicated funds, and data to determine their impact.

The extent of progress on some action items was less than anticipated due to capacity constraints (GNWT and community levels) and impacts of the COVID-19 pandemic and associated territorial lockdown. These limitations resulted in delays in fieldwork, partnership building, community engagement and increases in supply and construction costs. COVID-19 did, however, create opportunities for communities to take a more direct role in monitoring activities in the absence of external researchers.

As reported in the annual reports, all but one action item[28], demonstrated progress indicating that the GNWT is where it said it would be at this point in time. However, since the action items did not have clearly stated SMART goals, it is difficult to determine if the achieved outputs and/or outcomes were actually the intended output/outcome or even the most appropriate output/outcome for that action.

5.1.3 Are there new or emerging issues that should be added to the Climate Change Strategic Framework?

A number of emerging and current issues that require increased focus moving forward, were identified. These issues correspond with the following groupings that address the most concerning climate risks and potential opportunities:

- Ecosystems (land, water, wildlife) (e.g., extreme weather events, biodiversity monitoring)
- Low Carbon Economy (e.g., carbon storage, alternative energies)
- Connection to the Land and Culture (e.g., food production and security, historical site preservation)
- Health and Well-being (e.g., emergency preparedness and response, physical and mental health impacts)
- Infrastructure and Access to Essential Services (e.g., increased infrastructure resilience
- Business and Economy (e.g., education and training opportunities that support climate change research and response, climate change terms and conditions in permits and licenses)
- Cross-cutting Vulnerabilities (e.g., increased forecasting, predicting, and modeling, newer technological solutions)
- Other Issues (e.g., insurance coverage)

5.1.4 Are there updates needed to the vision, principles or goals of the Climate Change Strategic Framework?

Minor updates to the vision and more substantive revisions to the goals are needed. The vision remains applicable but could be restated to be clearer and more concise (e.g., replacing the phrase ‘less dependent on fossils fuels’ with ‘low carbon economy’) and consideration could be given to expanding the current statement to include reference to other important climate change areas (e.g., research and scientific knowledge, public safety, and energy security). While the three broad goals are still applicable, they should be revised in consideration of updated national commitments, , new/emerging climate change knowledge on impacts, opportunities and challenges, and the changing relationship that Indigenous people have with the GNWT and the federal government.

[28] *Action item 6.1 - potential value of natural carbon sink - is the only outstanding or "on track (not yet started)" item. It cannot progress until 1.3A - carbon storage estimates for NWT ecosystems - is completed.*

5.1.5 What action items are still priorities to work on and what are new areas recommended for inclusion in the next Action Plan?

The current action areas remain priorities moving forward because of their continued importance, their ongoing nature, and/or because they were not fully achieved from 2019-2023 due to factors such as limited financial and human investments and impacts resulting from the COVID-19 pandemic. Consideration should be given to prioritizing and re-organizing the action areas to align with the eight groupings identified in Section 5.1.3 that represent the most pressing climate risks and potential opportunities.

The action items should be assessed to ensure they remain relevant and/or realistic for NWT (e.g., capturing carbon in forests, implementing NWT carbon pricing) and the list of new or emerging issues/current issues that require additional focus should be reviewed to ensure that key issues are included in the next Action Plan. Moving forward, the action items should indicate the need for greater Indigenous and community involvement.

5.1.6 How can climate change partners effectively contribute to implementing the Action Plan?

Partners can more effectively contribute to the implementation of the Action Plan by:

- Clearly defining their roles and responsibilities as they relate to each of the action areas and action items.
- Assigning action item responsibilities to partners with the appropriate skills and expertise (and/or ensuring that education and training is available to build partner capacity [e.g., IGIOs, communities] to support action item implementation).
- Continuing to facilitate collaborative partnerships and strategic funding arrangements.
- Providing opportunities for regular partner meetings (in-person as often as possible) to discuss progress, emerging issues (opportunities and risks) and lessons learned that can inform work moving forward.
- Continuing to gather, assess and integrate scientific, traditional, and local knowledge of climate change impacts into planning and decision making.
- Providing education, training, mentorship, and experiential opportunities for community members (including youth and students) to participate in the implementation of action items that impact them.
- Promoting the Framework and Action Plan more frequently to keep it top of mind among partners and other relevant stakeholders.

5.2 Performance Measurement Questions

5.2.1 Are GHG emissions being reported to the public in a way that NWT's progress toward meeting climate goals can clearly be understood?

Information on GHG emissions is not being reported to the public as clearly, meaningfully, and accessibly as it could be. Additionally, the information does not appear to be as relatable or impactful as needed for the public to recognize the important role they have to play in reducing the impacts of climate change in the NWT.

Although the GNWT currently reports on GHG emissions regularly through written reports, social media, workshops and the website, there is room to improve reporting through: the use of more plain language and user-friendly communications (short and relatable blurbs); the sharing of emission information in ways that connect with the current experiences of residents; the creation of a newsletter that tracks progress and achievements and identifies new publications/reports; face-to-face community meetings where residents can receive information and ask questions; more interactive methods of sharing results; improved use of social media and Cabin Radio; and proactive communication of success stories.

5.2.2 Has information been collected, processed, assessed and/or shared to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts?

Information on climate change impacts has been shared with the GNWT departments/agencies, partners and the public through various methods including reports, academic publications, online tools, workshops, social media, email blasts, youth forums, elder discussions, and board meetings to support improved knowledge. That said, effective information sharing is time intensive and often hindered by limited capacity to analyze and present highly technical and scientific data to partners and the public in ways that are understandable/accessible and/or interesting. The extent to which shared information has actually improved knowledge, specifically public knowledge, is unknown.

GNWT departments/agencies, partners and the public are often unaware that climate change information is available because there is no standardized or systematic approach to its dissemination. This lack of awareness hampers its use more broadly for future climate change planning and decision making. The newly launched GNWT Climate Change Library portal will help support information sharing. Additional platforms and methods such as regular in-person climate change focused meetings and conferences, and short newspaper articles, radio interviews and videos should be used to maximize reach.

5.2.3 Have communities and traditional and local knowledge holders been engaged in the information collected, where appropriate?

Communities and traditional knowledge holders have been engaged in the collection of climate change information where appropriate. For example: communities contributed to monitoring and gathering information on harvests, species' migration patterns, weather patterns, and water quality; Elders provided observations on the long-term effects of climate change; and the NWTCCC facilitated engagement with IGIOs and other partner groups on climate change impacts.

Information has been collected from NWTCCC members, Indigenous students, community leadership, members, and monitors and the NWTAC (on behalf of communities) using a variety of methods including meetings, workshops, fieldwork, and traditional knowledge surveys. Engaging with communities and traditional knowledge holders has been challenging at times because of factors such as difficulty knowing who to contact, lack of community capacity to engage, engagement fatigue, and low community participation.

More and improved engagement is needed to support data gathering and communities' ability to participate in climate change research activities. In support of this, more guidance on how to engage with communities and knowledge holders is needed, as is more time for relationship building and in-person activities and more investment in community education and training opportunities.

5.2.4 Has adaptation to known and understood climate change impacts been supported/initiated?

Efforts to adapt to known and understood climate change impacts have been supported and initiated including: moving to above ground foundations to address permafrost changes; using biomass to heat larger buildings; training maintainers to enable transition to more energy efficient systems; using hazard maps and permafrost maps to inform community planning and development projects; undertaking critical mineral exploration to locate essential elements for clean technologies; designing and building highways that take permafrost into consideration; establishing protected areas; implementing FireSmarting and Community Wildlife Protection Plans; and ongoing upgrading of infrastructure/designing and building infrastructure that meets and/or exceeds NISI standards.

Moving forward, more focus and accordingly, more investments are needed to support adaptation efforts in areas such as clean energy, emergency preparedness, food security, infrastructure design and development, and management practices (e.g., forests, protected areas).

5.2.5 Is the GNWT working in a more coordinated and effective way to mitigate and/or adapt to potential impacts of climate change?

Efforts have been made to support a more coordinated and effective approach to climate change adaptation and mitigation efforts. The establishment of interdepartmental groups such as the Climate Change Directors Working Group, the Environment and Climate Change Assistant Deputy Minister and Deputy Ministers Committees, and the Environment and Climate Change Committee of Cabinet, as well as the NWTCCC – provide mechanisms for improved information sharing, planning and decision making.

The formation of collaborative partnerships with federal departments and academic institutions has provided the GNWT with access to technical expertise that was absent in the NWT, supported the building of territorial scientific skills and knowledge, and provided data that was used to advance territorial research and inform climate change decisions.

There is room for improved coordination between GNWT departments/agencies (e.g. through the existing Climate Change Director's Working Group) on climate change issues that span multiple service areas (e.g., GHG emissions, emergency response). There were instances where departments/divisions were unknowingly working on similar issues and did not coordinate efforts. There is also a need for the GNWT to work more collaboratively with Indigenous partners and to provide increased control and autonomy particularly on action items that directly impact their cultural and traditional practices.

More frequent engagement among GNWT departments and partners through facilitated workshops/conferences, community visits, and small, specialized working groups would provide needed opportunities to determine priorities, exchange information, identify areas for collaboration, build relationship and share lessons learned and best practices that would supported enhanced climate change mitigation and adaptation efforts.

5.2.6 Has there been use of data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change?

The GNWT has used climate change information generated by their own departments/division or others such as academic and the federal government to support further research, decision making and planning. That said, the sheer volume of data shared with GNWT departments by other partners was often overwhelming and challenging to use, given capacity constraints. Additional departmental resources are needed to support data management including data analysis and reporting.

6.0 Recommendations

This section presents eight recommendations are presented for consideration by the ECC. The recommendations are evidence-based and specifically intended to inform changes to the structure and content of the Framework and the 2025-2029 Action Plan as well as the implementation of climate change actions moving forward.

It is important note that just prior to, and during, the execution of the Framework and Action Plan evaluation and the preparation of this report, the GNWT initiated or completed a number of activities that addressed suggested improvements identified in this report (e.g., conducted a risk and opportunities assessment, prepared a Climate Change Priorities for the NWT 2025-2029 Climate Change Action Plan document, launched a GNWT Climate Change Library portal to help support information sharing, facilitated an NWTCCC meeting that focused on reviewing and prioritizing climate change action areas and items to be included in the 2025-2029 Action Plan). Individuals who participated in the evaluation process were likely not aware of all these activities as is evidenced by their suggested improvements. The recommendations presented in this section acknowledge these recent activities.

It is also important to note that information derived from other sources will also be used to inform potential revisions to the Framework and to support the development of the 2025-2029 Action Plan.

6.1 Recommendations Supporting Changes to the Framework and Action Plan Content

Recommendation 1: It is recommended that the Framework's vision, guiding principles, and goals be reviewed and updated. This review should reflect some of the following suggested improvements:

- Vision: Improve succinctness, clarity/revise terminology ('healthy economy', shift from 'less dependent on fossil fuels' to 'low carbon economy') and inclusion of references to public safety, research/scientific knowledge, and energy security.
- Guiding Principles: Add fiscal commitment and reframe guiding principles as value statements.
- Goal #1: Assess targets in consideration of updated national commitments and input from the 2023 Climate and Energy engagement.
- Goal #2: Strengthen statement to reflect more than improving knowledge of climate change impacts by including reference to 'why' knowledge needs to be improved (e.g., for a more informed public, to inform planning and decision making).

The existing Framework and Action Plan Logic Model and Performance Measurement Plan should be reviewed and updated to reflect changes to the vision, goals and action areas and items.

Recommendation 2: It is recommended that ECC, in collaboration with NWTCCC members and other partners, review the new, emerging and current issues identified by evaluation participants. This review may identify issues that need to be included as action items in the Action Plan.

Recommendation 3: It is recommended that the action items included in the 2025-2029 Action Plan be specific, measurable, achievable, realistic and timebound (SMART). Each action item should have specific measurable indicators and targets that support more effective implementation, monitoring, accountability, and reporting. The performance measurement indicators and targets should be made available to the partners and the general public in either the new Action Plan or a more accessible performance measurement plan.

Recommendation 4: It is recommended that the Framework and Action Plan, through their descriptive text and action areas and items, emphasize the continued importance and need for meaningful engagement with communities and knowledge holders for the purpose of collecting information, including traditional knowledge.

6.2 Recommendations Supporting Framework and Action Plan Processes

Recommendation 5: It is recommended that ECC, in collaboration with partners and departments, clarify areas of priority and identify the roles, responsibilities, and expectations of action item leads and partners.

Recommendation 6: It is recommended that GNWT partners continue to maintain and establish partnerships with external partners such as the federal government and academic institutions to identify emerging climate change priorities, support access to necessary scientific and technical expertise, and build NWT climate change knowledge and skills. These partnerships also provide data and tools that can be used to advance territorial research and inform climate change decisions and support identification of potential funding opportunities. Such partnerships help address NWT climate change research capacity limitations and support advancement of territorial research priorities.

6.3 Recommendations Supporting Framework and Action Plan Communications and Information Sharing

Recommendation 7: It is recommended that partners responsible for implementing actions to reduce GHG emissions, review and revise their approach to GHG communication messages and methods to increase public interest, knowledge, and support toward the importance of taking actions to reduce emissions.

Recommendation 8: It is recommended that ECC increase communication efforts to improve public and partner knowledge and awareness of: current and ongoing climate change activities; progress being made on activities (i.e., success stories); and new reports and publications. Multiple methods of communication could be used (e.g., GNWT ECC climate change webpage, short newspaper articles, radio interviews, social media releases) to expand public and partner reach. Climate change messaging should capture the public's interest by connecting with their current lived experiences (e.g., fires, floods) and should clearly outline how the public can positively contribute to reducing climate change impacts and why that is important.

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Appendix A.

Logic Model

Table 5. Logic Model

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
Goal #1: Transition to lower carbon economy						
The Northwest Territories (NWT) needs to move to a lower carbon economy to meet political commitments on climate change and to decrease risks associated with climate change.	2030 Energy Strategy: Energy Action Plan 2018-2021 NWT carbon pricing policy 2030 NWT Climate Change Strategic Framework (the Framework) NWT Climate Change Strategic Framework 2019-2023 Action Plan (the Action Plan) GNWT staff (various departments) Participation from external partners (Arctic Energy Alliance, Northwest	Implement the 2030 Energy Strategy: Energy Action Plan 2018-2021 (Action Item1 1.1A) Implement carbon pricing (Action Item 1.1B) Work with regulatory and co-management boards to develop policies, guidelines, and tools to integrate climate change considerations into the NWT environmental assessment and licensing/permitting system (Action Item 1.2A) Provide climate change considerations to regulatory and co-management boards (Action Item 1.2B)	The 2030 Energy Strategy: Energy Action Plan 2018-2021 will produce outputs such as high school lesson plans, education and public awareness campaigns, the Inuvik Wind Project, implementation of community energy plans, increased solar energy systems in the NWT, reports, studies, rebate programs, etc. (Action Item 1.1A) Carbon pricing in place (Action Item 1.1B) New and revised tools, guidelines, policies, etc. that assist proponents and the regulatory and co-management boards in integrating climate change considerations (Action Item 1.2A) Submissions from the GNWT to regulatory and co-management boards include climate change considerations (Action Item 1.2B) GNWT regulators are informed of potential geo-hazards as a	Implementation of the 2030 Energy Strategy: Energy Action Plan 2018-2021 Reduction in GHG emissions Consideration of climate change in decisions made by regulatory and co-management boards regarding resource developments and other projects Baseline data and/or information has been collected, processed, and assessed to allow	Use of the processed climate change related baseline data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change Continued reduction in GHG emissions	A healthy economy that is less dependent on fossil fuels, as compared to 2005, and has the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
	Territories Power Corporation (NTPC), community governments, Indigenous governments, and organizations (IGIOs), industry, academia, regulatory boards, federal government, etc.) Internal GNWT funding (existing program funding, Financial Management Board (FMB) funding) External funding	Estimate carbon stored in NWT ecosystems through modeling baseline forest and wetland carbon stocks and rates of carbon storage across candidate protected areas in the NWT Estimate carbon budget modeling of the Taiga Plains Ecozone (Action Item 1.3A) Improve greenhouse gas (GHG) emissions tracking and reporting (Action Item 1.4A&B)	component of considering tenure instruments or permitting activities on public land (Action Item 1.2B, Action Area 8.3) Report(s) that describes data collected on carbon stocks and fluxes in candidate protected areas in the NWT and addresses key data gap, and that describes historical and current (i.e., baseline) carbon stocks and accumulation rates for candidate protected areas in the NWT (Action Item 1.3A) A carbon map for the Taiga Plains Ecozone (Action Item 1.3A) New GHG data collection methods (Action Item 1.4A) A computer algorithm to facilitate the calculation of utility consumption (Action Item 1.4A) Published annual corporate GHG equivalent emissions from the GNWT that are agreed on by the Departments of Infrastructure, Finance and Environment and Natural Resources (Action Item 1.4B) Published annual NWT emissions that the GNWT and ECCC agree on (Action Item 1.4B) Decision on how to proceed with Action Areas 6.1 and 6.2	the GNWT and public to have knowledge of climate change impacts Accurate reporting of GHG emissions to allow the GNWT and public to clearly understand GNWT's progress on meeting international climate goals		

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
		Explore funding options for Action Areas 6.1 and 6.2 (determining the potential value of carbon sinks and implementing composting in small to medium-sized communities)				
Goal #2: Improve knowledge of climate change impacts						
Understand the impacts of climate change to the natural environment, residents' health, safety, culture, heritage and the territory's infrastructure through planning, management and the use of information and research and monitoring to improve knowledge	The Framework and Action Plan2 GNWT staff (various departments) Participation from partners (co-management boards, federal government (Parks Canada Agency (PCA), Fisheries and Oceans Canada, Health Canada, Environment and Climate Change Canada (ECCC), Natural Resources Canada, Transport Canada), Northwest Territories Association of Communities (NWTAC), Aurora Research Institute, Ducks Unlimited Canada, SmartIce, IGIOs, academia, community governments, land	Create/develop academic and community-based partnerships and incorporate community-based participation (Action Item 2.1A) Work with traditional and local knowledge holders and create linkages between traditional and local knowledge holders and climate change researchers (Action Item 2.1C) Support the collection, analysis, or synthesis of traditional knowledge to better understand environmental trends and cumulative impacts for decision making (Action Item 2.3B) Work with jurisdictional partners (includes industry and/or academia) on climate change related initiatives, research, and development of best practices (Action Items/Areas 2.1D, 2.1E, 2.6F, 2.9C, 2.9D, 7.2, 7.7) Support research that addresses economic, health,	Research partnerships with other communities, jurisdictions, academics, traditional and/or local knowledge holders created (Action Items 2.1A, 2.1B, 2.1C, 2.1D, 2.1E, 2.3B, 2.6F, 2.9C, 2.9D, 7.7) Community participation in research projects (Action Items 2.1A, 2.1C, 2.3B) Monitoring and/or research projects or programs undertaken to help address climate change (Action Items/ Areas 2.1A, 2.1B, 2.1C, 2.1D, 2.1E, 2.5B, 2.5D, 2.6A, 2.6D, 2.6E, 2.6F, 2.7A, 2.7B, 2.7D, 2.8A, 2.8C, 2.8E, 2.9A, 2.9B, 2.9F, 2.9G, 2.9H, 2.10D, 2.13A, 2.14E, 2.14F, 7.2, 7.3, 7.6, 7.8) Reports, plans, evaluations and/or assessments3 produced or updated that address climate change (Action Items/Areas 2.3B, 2.4A , 2.5A,2.5B, 2.5C, 2.6B, 2.6C, 2.7D, 2.8D, 2.8E, 2.9H, 2.10D, 2.12B, 2.14C, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.10 +	Baseline data and/or information has been collected, processed, and assessed to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts Baseline data or information on climate change has input from communities and traditional and local knowledge holders, where appropriate Baseline data or information on climate change is accessible	Use of the processed climate change related baseline data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change	A healthy economy that is less dependent on fossil fuels, as compared to 2005, and has the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
	use planning boards, Transportation Association of Canada, Canadian Permafrost Association, NWT Pests, Pathogens and Invasive Species Council, etc.) Internal GNWT funding (existing program funding, FMB funding) External funding GNWT Knowledge Agenda Take A Kid Trapping and hunter education programs NWT Cumulative Impact Monitoring Program (NWT CIMP) Community Based Water Monitoring Programs NWT Hazard Identification Risk Assessment	social and environmental change as it relates to climate change (Action Item 2.1B) Undertake research and/or monitoring to improve/ increase knowledge of climate change (Action Items/Areas 2.5A, 2.5B, 2.5D,2.6A, 2.6D, 2.6E, 2.7A, 2.7B, 2.7D,2.8A, 2.8B, 2.8C, 2.8D, 2.8E, 2.9A, 2.9B, 2.9F,2.9G, 2.9H, 2.10D, 2.13A, 2.14E, 2.14F, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10) Assess cumulative impacts, including impacts from climate change, to water, caribou, fish (Action Items 2.7A, 2.9H, 2.10D) Develop plans for future climate change related activities, monitoring, or research (Action Items 2.5C, 2.6B) Address public safety and risks to public and community infrastructure from climate change (Action Items/Areas 2.12A, 2.12B, 2.14A, 2.14B, 2.14C, 2.14D, 2.14E, 2.14F, 7.8, 7.10) Disseminate climate change related information (Action Item/Areas 2.4C, 2.9E, 2.11A, 7.2) Incorporate climate change into hunter education programs (Action Item 2.3A)	reports associated with monitoring and research) Vulnerability and/or risk assessments conducted (Action Items/Areas 2.8B, 2.9A, 2.14A, 2.14D, 7.4, 7.7, 7.8, 7.9) Climate change themed information products or tools created (models, projections, maps) (Action Items/Areas 2.5D, 2.6D, 2.8D, 7.2, 7.5, 7.9) Climate change related alerts and advisories produced and communicated by the GNWT (2.11A) Dissemination of climate change information (Action Items/Areas 2.4C, 2.9E, 2.11A, 7.2) Educational/outreach climate			

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
		Develop a renewed strategy for conservation network planning (Action Item 2.2A) Improve management and use of climate change data/information (Action Items/Areas 2.4A, 2.4B, 2.4C, 2.3A, 2.6C, 7.3, 7.8) Work to increase human and financial capacity to address climate change (Action Items 2.6G, 2.14B) Establish the NWT Pests, Pathogens, and Invasive Species Council (Action Item 2.9D) Explore funding options for Action Area 7.1-7.10 and implement when possible.	change programs developed or provided (Action Items 2.3A, 2.9D, 2.12A) Strategy for conservation network planning developed (Action Item 2.2A) Implementation of climate change data management systems (Action Items/Areas 2.4B, 2.4C, 7.2, 7.3) Increased human resources (Action Item 2.6G) Increased funding (Action Item 2.14B) Establishment of the NWT Pests, Pathogens, and Invasive Species Council (Action Item 2.9D) Decision on how to proceed with Action Areas 7.1-7.10			
Goal#3: Build resilience and adapt to a changing climate.						
Find ways to adapt to unavoidable changes that result from climate change; sustain our ecosystems and manage the natural environment; protect NWT residents; and design, build and maintain resilient infrastructure.	The Framework and Action Plan GNWT staff (various departments) Participation from partners (co-management boards, federal government (PCA, ECCC, Infrastructure Canada), Yukon	Implement the climate change or relevant component of GNWT strategies that are listed as an input into Goal #3 of the Framework and Action Plan (GNWT Land Use Sustainability Framework, a Sustainable Livelihoods Action Plan, the NWT Agriculture Strategy, Bathurst Caribou Range Plan, Healthy Land, Healthy People) (Action Items/Area 3.1A, 3.1B. 3.3A, 3.3B, 3.3C, 3.3D, 3.5A, 3.8B,	Finalization and implementation of the climate change and/or relevant component of GNWT strategies listed under Goal #3 of the Action Plan (Action Items/Area 3.8B, 3.8C, 8.7) Annual reports for most GNWT strategies listed under Goal #3 of the Action Plan Establishment of Thaidene Nëné, Dínàgà Wek'èhodì,	Baseline data and/or information has been collected, processed, and assessed to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts Baseline data or information on climate change has input from communities and	Resilient and adaptable strategies and Action Plans in place to adapt to effects of climate change Use of the processed climate change related baseline data and/or information by responsible parties to make decisions, future projections and/or produce tools that	A healthy economy that is less dependent on fossil fuels, as compared to 2005, and has the knowledge, tools, and measures needed to increase resilience and adapt to the changing northern climate

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
	Government, SmartIce, IGIOs, academia, community governments, NWTAC, NWT Pests, Pathogens and Invasive Species Council, land use planning boards, etc.) Internal GNWT funding (existing program funding, FMB funding) External funding Land Use and Sustainability Framework Healthy Land, Healthy People: GNWT Priorities for Advancement of Conservation Network Planning 2016-2021 Bathurst Caribou Range Plan Boreal Caribou Range Plans NWT Agriculture Strategy FireSmart Sustainable Livelihoods Action Plan Northern	3.8C, 8.7) Finalize the Boreal Caribou Range Plans, including management of climate change impacts on the ecosystem (Action Item 3.5B) Communicate and/or incorporate GNWT climate change related considerations and expertise into co-management board processes (ex., into land use planning) (Action Item/Area 3.2A, 8.5) Incorporate climate change related considerations and expertise into NWT projects and initiatives (Action Items 3.4A, 3.14A, 8.3) Work with jurisdictional partners (includes industry and/or academia) on climate change adaptation related initiatives, research, and monitoring (Action Items/Areas 3.7B, 3.8A, 3.10A, 3.11A, 3.14A, 8.4, 8.5, 8.8, 8.11) Support research, programs and initiatives that address climate change adaptation	Ts'ude niline Tu'eyeta protected areas and decisions for the remaining candidate areas (Action Items 3.3A, 3.3B, 3.3C, 3.3D) Finalize and implement the Bathurst Caribou Range Plan (Action Item 3.5A) Finalized Boreal Caribou Range Plans (Action Item 3.5B) Land use plans that include climate change considerations recommended by GNWT in conjunction with planning partners (Action Items 3.2A) GNWT strategies, projects and initiatives that include climate change considerations (Action Items/Areas 3.1A, 3.1B, 3.4A, 3.13C, 3.14A, 8.1, 8.2, 8.5) Research projects and/or programs undertaken to support climate change adaptation (Action Items/Areas 3.6A, 3.8A, 8.4, 3.12A, 8.2, 8.5, 8.10, 8.11) Identification of potential cleaner air shelters and modifications required to reduce impacts of wildland fire smoke on human health (3.7B) Reports, plans, evaluations, operating procedures, or	traditional and local knowledge holders, where appropriate Baseline data or information on climate change is accessible Adaptation to known and understood climate change impacts has been supported/initiated	support decision-making and allow for mitigation or adaptation to climate change	

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
	Infrastructure Standardization Initiative (NISI)	(Action Items/Area 3.8A, 3.11B, 8.2) Undertake research and/or monitoring to improve/ increase climate change adaptation knowledge (Action Items/Areas 3.6A, 3.7A, 3.8A, 3.8B, 3.9A, 8.1, 8.5, 8.8, 8.10) Develop, update and/or implement plans, protocols, regulations and/or assessments related to climate change adaptation (Action Items/Areas 3.9A, 3.10A, 3.11A, 3.12A, 8.1, 8.3, 8.5, 8.9, 8.10) Construction and/or permitting of major infrastructure projects (Tłı̨chǫ All Season Road, Great Bear River Bridge, Mount Gaudet All Season Road) (Action Items 3.15A, 3.15B, 3.15C) Communicate results, plans, assessments, and conduct outreach, etc. (Action Areas 8.4, 8.6, 8.9, 8.12) Incorporate extreme weather warnings into public alerting system Promote and support health and wellness activities to build community resiliency to climate change impacts (Action Item 3.7A) Establish modified community	assessments produced or updated to address climate change (Action Items/Areas 3.7B, 3.9A, 3.10A, 3.11A, 3.12A, 3.14A, 8.1, 8.9, 8.10) Increased forest carbon sequestration (3.6A) Completion of the Tłı̨chǫ All Season Road, Great Bear River Bridge, Mount Gaudet All Season Road. Completed regulatory process for Mount Gaudet All Season Road (Action Items 3.15A, 3.15B, 3.15C) Dissemination of climate change results (Action Items/Areas 2.9E, 2.11A, 3.13C, 8.4, 8.12) Online NWT Public Alerting System that includes Environment and Climate Change Canada weather alerts (Action Item 3.13C) Educational and/or outreach climate change programs developed and/or provided (Action Item/Areas 3.7A, 8.6, 8.9, 8.12) Implementation of FireSmart principles (Action Item 3.11B) and established modified community fuel breaks (Action			

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
		fuel breaks based on a risk-management approach (Action Area 8.8) Identify and apply for funding (Action Areas 8.7, 8.11) Apply geohazard expertise (Action Area 8.3)	Area 8.8) Funds secured for implementation of Action Areas (Action Areas 8.7, 8.11) Decision on how to proceed with Action Areas 8.1-8.12 Increased technical capacity for addressing climate change related geohazards in development applications and public and community infrastructure (Action Area 8.3)			
Cross-cutting theme #1: Leadership, communication and capacity-building						
The GNWT needs to demonstrate leadership, communication, and capacity on climate change	The Framework and Action Plan Participation from management - Director-level Climate Change Working Group, Assistant Deputy Ministers Climate Change Committee, Deputy Ministers Energy and Climate Change Committee, Energy and Climate Change Committee-of-Cabinet GNWT staff (various departments) Participation from partners (IGIOs, industry, NWTAC, non-governmental organizations (NGOs), community	Reflect climate change in governance and policy tools within the GNWT and coordinate GNWT climate change project work (Action Item 4.1A, 4.1B, 4.1C, 4.1D) Develop options for the establishment of an NWT climate change council or advisory body (Action Item 4.3A) Work with communities on climate change related monitoring (Action Item 4.5A) Identify and pursue funding to implement Part 2 action areas and address climate change priorities (Action Item 4.2A) Develop and/or undertake communication, outreach, and educational activities (Action Items/Action Area 4.1E, 4.4A,	Reporting on the Action Plan and the Pan-Canadian Framework on Clean Growth and Climate (Action Items 4.1A, 4.1B) Reports, plans, evaluations, strategies, policies, or assessments produced or updated to address climate change (Action Items 4.1C, 4.1D, 4.3A, 4.5A, 4.7B) Research and/or monitoring projects or programs undertaken to help address climate change (Action Items 4.5A, 4.7B) Increased funding to implement Part 2 Action Areas (Action Items 4.1B, 4.2A) Climate change related communication, outreach or	Increased co-ordination and accountability by the GNWT for mitigating and/or adapting to potential impacts of climate change Baseline data and/or information has been collected, processed, and assessed to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts Baseline data or information on climate change is accessible	Use of the processed climate change related baseline data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change	A healthy economy that is less dependent on fossil fuels, as compared to 2005, and has the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
	governments, SmartIce, federal government (ECCC), etc.) Internal GNWT funding (existing program funding, FMB funding) External funding School of Community Government	4.6B, 4.7A) Provide climate change related training to Indigenous and community governments (Action Items/ Action Area 4.6A, 4.6B, 4.6C, 4.7A) Work with regional and/or community governments on climate change related mitigation and adaption planning initiatives (Action Items 4.7A, 4.7B)	educational programs developed and/or provided (Action Items/Action Areas 4.1E, 4.4A, 4.6B, 4.6C, 4.7A, 9.1) Training programs related to climate change developed or provided to Indigenous and community governments (Action Items/ Action Areas 4.6A, 4.6B, 4.6C, 4.7A, 9.2) Decision on how to proceed with Action Area 9.1			
Cross-cutting theme #2: Economic Impacts and Opportunities						
The need to examine the economic impacts and opportunities associated with climate change in the NWT	The Framework and Action Plan GNWT staff (various departments) Participation from partners (NWTAC, industry, NGOs, community governments, etc.) Internal GNWT funding (existing program funding, FMB funding) External funding	Undertake research to estimate the overall economic cost implications of climate change on infrastructure, quality of life, economic activities, and a cost-benefit analysis of adaptation measures (Action Item 5.1A) Secure funding and undertake sectoral assessments and adaptation planning to determine economic impacts and opportunities related to climate change (Action Item 10.1) Secure funding and undertake a regional forest harvest that substitutes biomass for imported fossil fuels in select community(s) (Action Item 10.2)	Reports, evaluations, or assessments produced or updated to address climate change (Action Item/Action Area 5.1A, 10.1) A completed district heating system with community harvest and community heating substitution (Action Item 10.2)	Baseline data and/or information has been collected, processed, and assessed to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts Baseline data or information on climate change is accessible	Use of the processed climate change related baseline data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change	A healthy economy that is less dependent on fossil fuels, as compared to 2005, and has the knowledge, tools and measures needed to increase resilience and adapt to the changing northern climate
Assumptions: 1. Approved and available funding for Part 1 Action Items 2. Associated GNWT strategies listed in the input column will be			**External Factors:** 1. Political environment 2. Other GNWT departments implementing their action items			

Issue / Need / Context	Inputs (Resources)	Activities	Outputs	Outcomes		
				Immediate & Short-term (1-5 years) 2019-2023	Medium term (6-11years) 2024-2029	Long term (10+ years) 2030+
implemented 3. Political support for the Action Plan 4. Staffing levels remain constant in departments/divisions that are to implement the Action Plan			3. Outside agencies and partners implementing their action items 4. Availability of external funding to implement Part 2 Action Areas 5. Participation from IGIOs and community governments (may have limited participation due to capacity limitations or other reasons)			

Appendix B.
Performance Measurement Plan

Table 6. Performance Measurement Plan

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
Immediate or short term outcomes								
Implementation of the 2030 Energy Strategy: Energy Action Plan 2018-2021	Implementation of the 2030 Energy Strategy: Energy Action Plan 2018-2021 (INF)	Prior to 2018-19 there was no Energy Action Plan in place	A rolling three-year Energy Action Plan was released in May 2018. The target is to continue to implement the actions and initiatives outlined in the Energy Action Plan until all actions are completed.	INF	INF (Action Item 1.1A)	Annually	INF reports annually on the 2030 Energy Strategy Action Plan Action Plan Annual Report - this annual report will reference work done under the 2030 Energy Strategy: Energy Action Plan	INF Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-
Reduction in GHG emissions	Percentage change in GNWT's published corporate GHG emissions from year to year (ENR-CCAQ with input from FIN and INF) Percentage change in total GHG emissions for the NWT (ENR-CCAQ) Consumption of carbon-based fuels per capita (tonnes C02e per capita) (FIN) Carbon-based fuels per dollar GDP (tonnes C02 equivalent per million dollars GDP) (FIN) Carbon-based fuels as percentage of all energy sources, perhaps by economic	Annual NWT GHG emissions (CO2 equivalent) are available from at least 1999	2020 milestone target = 1,550 kt CO2e (61 kt CO2e or 3.7% reduction over 4 years from 2016) 30% decrease in NWT GHG emissions from 2005 baseline to meet the Pan Canadian Framework on Clean Growth and Climate Change targets	System of Accountability and Management (SAM) data are used to calculate GNWT's corporate GHG emissions Fuel tax data provides volumes of petroleum products and can be converted to	ENR –Climate Change and Air Quality Unit (CCAQ) (Action Item 1.4A, 1.4B) FIN (Action Item 1.1B, 1.4A, 1.4B) INF (Action Item 1.4A, 1.4B)	Annually	The GNWT reports annually on corporate GHG emissions INF will report annually on the 2030 Energy Strategy Action Plan Action Plan Annual	ENR FIN INF Director-level Climate Change Working Group Assistant Deputy Ministers Climate

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	sector (FIN)			emissions using emission factors to calculate NWT's total GHG emissions Emission information from the ECCC greenhouse gas National Inventory Report			Report - this annual report will reference work done under the 2030 Energy Strategy: Energy Action Plan and will reference work done by FIN to implement the NWT carbon pricing	Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-
Consideration of climate change in decisions made by regulators and co-management boards regarding resource developments and other projects.	Number of regulatory/co-management board guidelines revised or created with a climate change aspect incorporated into it (ENR – CCAQ) Number of submissions made by the GNWT to regulators/co-management boards containing climate change recommendations (ENR-CCAQ)	Not currently tracked	N/A – work with co-management boards is needed to determine which guidelines need review and what new guidelines need to be created N/A – dependent on the number of applications regulatory and co-management boards receive that have a climate change component GNWT regulators are informed of potential geo-hazards as a component of considering tenure instruments, or permitting activities on public land	GNWT submissions to regulatory and co-management boards Responses from proponents (posted on the regulator or co-management board's public registry) Reasons for decision from the regulator or co-management	ENR – CCAQ (Action Items 1.2A, 1.2B) ENR – Wildlife Division (WD) (Action Area 8.5) Lands (Action Area 8.3)	Ongoing	Yearly via the Action Plan Annual Report	Director-level Climate Change Working Group Assistant Deputy Ministers Climate Change Committee Deputy Ministers

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	Number of times a proponent agreed with/acted on the GNWT's climate change related recommendation (ENR-CCAQ) Percentage of the GNWT's climate change related recommendations that impacted a regulatory board or co-management		100% of GNWT's recommendations should be acted on, wholly or in part 100% of GNWT's recommendations should be positively referenced by regulators in their decision, wholly or in part	board (posted on the regulatory or co-management board public registry) Internal GNWT (Lands) records				Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet
Accurate reporting of GHG emissions to allow the GNWT and public to clearly understand GNWT's progress on meeting international climate goals	Consistent carbon emission calculation between INF, FIN, and ENR (ENR-CCAQ with input from FIN and INF) ▪ Use of shared protocol to calculate emissions ▪ Consensus between INF, FIN, and ENR on the carbon emission calculation GNWT and ECCC agree on the calculated NWT carbon emissions published by ECCC annually (ENR-CCAQ) ▪ Notification (annually) by GNWT to ECCC on agreement/ disagreement of NWT carbon emissions calculated by ECCC	Annual NWT and GNWT GHG emissions (CO_2 equivalent)	Agreement every year internally with the GNWT on the GHG emission calculation Agreement every year between the GNWT and ECCC on the GHG emission calculation	System of Accountability and Management (SAM) and fuel tax data are used to calculate GNWT's corporate and the NWT's GHG emissions Emission data from the ECCC greenhouse gas emission inventory	ENR-CCAQ (Action Item 1.4A, 1.4B) FIN (Action Item 1.4A, 1.4B) INF-Energy (Action Item 1.4A, 1.4B)	Annually	ENR annually reviews, on behalf of the GNWT, the federal government's calculations on NWT's GHG emissions Yearly via the Action Plan Annual Report	ENR FIN INF Director-level Climate Change Working Group Assistant Deputy Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet
Baseline data and/or information has been			<u>By the end of 2023/24:</u>		ECE – Education, Culture and	Ongoing	Yearly via the Action Plan Annual	Director-level Climate Change

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
collected, processed, and assessed to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts	Number of Action Plan related research projects or programs undertaken (all) Climate change vulnerability assessments conducted and reports produced (wildlife, forest landscape areas of interest, surface waterbodies, health) (ENR-WD, FMD, WMMD and HSS) ▪ Yes or no question – did GNWT produce a vulnerability assessment for 1) wildlife, 2) forest landscape areas of interest, 3) surface waterbodies, 4) health ▪ Measured by the number of assessments completed	N/A N/A	100% of research projects or programs proposed in Part 1 of the Action Plan that have been undertaken and have produced an associated report, plan, evaluation, or assessment (100% is equivalent to a minimum of 14 research projects or programs) 100% of the climate change vulnerability assessments in Part 1 of the Action Plan that have been conducted and have produced an associated report (100% is equivalent to two vulnerability assessments) 100% of the climate change vulnerability and/or risk assessments in Part 2 of the Action Plan have been conducted and have produced an associated report (100% is equivalent to two vulnerability assessments) 100% of monitoring programs proposed in Part 1 of the Action Plan that have been	From the implementation of the Action Item/Area	Employment (Action Items/ Areas 2.13A, 7.9, 8.10) ENR – CCAQ (Action Items/ Areas 1.3A, 2.5A, 2.5B, 2.5C, 2.5D, 2.4A, 3.1B, 3.12A, 4.1C, 4.1D, 4.3A, 5.1A, 6.1, 7.2, 8.9) ENR – NWT CIMP (Action Items 2.3B, 2.7D, 2.9H, 2.10D) ENR – Conservation Planning (Action Item 1.3A, 3.3D) ENR – Forest Management Division (FMD) (Action Items/ Area 1.3A, 2.8A-E, 3.6A, 3.11A, 7.5, 10.2) ENR – Knowledge Agenda (Action Items 2.1A-C, 3.8A) ENR – On the Land Unit (Action Items		Report	Working Group Assistant Deputy Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
			undertaken and have produced an associated report, plan, evaluation, or assessment (100% is equivalent to a minimum of 12 monitoring programs)		3.8A, 3.8B) ENR – Wildlife Division (WD) (Action Items/ Areas 2.9A, 2.9B, 2.9F, 2.9G, 3.5A, 3.5B, 7.6, 7.8, 8.1, 8.5)			
	Number of climate change related monitoring programs in the Action Plan funded by the GNWT that have been implemented (all)	Existing monitoring programs include climate monitoring network, water quality and quantity monitoring network, snow survey network, NWT small mammal survey, Forest Pest Flights, tick and mosquito surveillance, permafrost monitoring sites, etc.	100% of monitoring programs proposed in Part 2 of the Action Plan have been undertaken and have produced an associated report, plan, evaluation, or assessment (100% is equivalent to seven monitoring programs, five of which are unique to Part 2 and two of which are continuation of Part 1 monitoring programs)		ENR – Water Management and Monitoring Division (WMMD) (Action Items/ Area 2.7A, 2.7B, 7.4, 7.8) ENR – Environmental Protection and Waste Management (Action Area 6.2) ENR – general (Action Areas 6.1, 7.2) HSS - Office of the Chief Public Health Officer (Action Items/ Area 3.7B, 3.9A, 7.7) INF (Action Items 2.1D, 2.1E, 2.14C, 2.14D, 2.14E, 2.14F, 8.11) ITI – NTGS			
	Number of climate change related reports, plans, evaluations, strategies, or assessments associated with the Action Plan produced or updated (all)	N/A	A minimum of 63 climate change related reports, plans, evaluations, strategies or assessments produced or updated (see footnote 4 &5) (Part 1) 24 climate change related reports, plans, evaluations, strategies, or					

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	Number of climate change related reports produced through research funded by the NWT Cumulative Impact Monitoring Program (NWT CIMP) Number of climate change related reports produced through research supported by the Knowledge Agenda Number of information products or tools created (models, projections, maps) and made available (all) •	NWT CIMP Projects – know number of reports funded to date N/A N/A	assessments produced or updated (Part 2) N/A - reports produced through research funded by NWT CIMP N/A - reports produced through research funded by the Knowledge Agenda A minimum of seven climate change related information products or tools created (models, projections, maps) that are publicly available (Part 1) Five climate change related information products or tools created (models, projections, maps) that are publicly available (Part 2)		(Action Items/Area 2.6A-F, 7.3) ITI - Policy, Planning, Communication and Analysis and ENR (Action Area 10.1) MACA (Action Items/Areas 2.12B, 2.14A, 3.10A, 7.8, 7.10) Lands-Land Use Planning (3.2A)			
Baseline data or information on climate change is accessible	Number of climate change related reports, plans, evaluations, strategies, assessments, or vulnerability assessments associated with the Action Plan that are made public (multiple)	N/A	<u>By the end of 2023/24:</u> 100% of the reports associated with research projects are public 60% of the reports, plans, evaluations, strategies, or assessments	From the implementation of the Action Item/Area	Departments undertaking research projects and/or producing plans, evaluations, strategies, and/or assessments (ECE, ENR,	Ongoing	Yearly via the Action Plan Annual Report	Director-level Climate Change Working Group Assistant Deputy Ministers Climate Change Committee

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
			associated with the Action Plan that are made public (Part 1 and 2)		HSS, INF, ITI, MACA)			Deputy Ministers Energy and Climate Change Committee
	Number of publicly available climate change related reports, plans, evaluations, strategies, assessments, or vulnerability assessments associated with the Action Plan that have plain language summaries (multiple)	N/A	100% of the publicly available climate change related technical reports, plans, evaluations, strategies, or assessments associated with the Action Plan have plain language summaries		ENR – CCAQ (Action Items/ Area 2.4B, 2.4C, 4.4A, 4.7A, 8.9, 8.12, 9.1) E NR – FMD (Action Item 3.11B)			Energy and Climate Change Committee-of-Cabinet
	Number of climate change outreach and/or educational programs/materials delivered (ENR-CCAQ, FMD, OTLU & WD, HSS, MACA)	Existing Take a Kid Trapping, FireSmart, School of Community Government programs and materials	N/A - Multiple educational programs and materials will be delivered. Cannot predict how many educational/outreach material will be produced		ENR – On the Land Unit (Action Item 2.3A)			
	Number of climate change outreach plans developed (multiple)		A minimum of one climate change outreach plan will be developed		ENR – WD (Action Items 2.9D, 2.9E)			
	Number of climate change communication plans developed (ENR-CCAQ)	N/A	Two of communication plans developed by the end of 2023/24		HSS - Office of the Chief Public Health Officer (Action Item/ Area 3.7A, 8.6)			
	Number of climate change related workshops held (ENR-CCAQ, FMD & WD, MACA)	Approved Action Plan communication plan, draft CCAQ communication plan	A minimum of seven climate change related workshops held (Part 1)		ITI – NTGS (Action Area 7.3) MACA (Action Item 2.12A, 4.1E, 4.6B, 4.6C, 4.7A) Lands (Action Item 3.2A)			

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	Implementation of climate change data management system(s) (ENR-CCAQ and ITI-NTGS) ▪ Yes or no question – did GNWT implement a climate change data management system ▪ Measured by the presence/absence of 1) a central repository for climate change knowledge and 2) a permafrost data management system Number of climate change related courses offered by the School of Community Government (MACA)	Workshops are currently held as part of FireSmart, School of Community Government N/A The School of Community Government has five courses where climate change content has	A minimum of five climate change related workshops held by the end of 2023/24 (Part 2) One central repository developed to share climate change knowledge (Part 1) One permafrost data management system established (Part 2) At a minimum, maintain the number (five) of climate related courses. Climate change related courses to be offered by the School of Community Government twice over a five year period (via classroom instruction), annually via self-directed online learning					
Baseline data or information on climate change has input from	Number of climate change related	N/A	<u>By the end of 2023/24:</u> 14 climate change	From the implementation of the Action Item/Area	ECE (Action Item/Areas 2.13A, 7.9, 8.10)	Ongoing	Yearly via the Action Plan Annual Report	Director-level Climate Change Working Group

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
communities and traditional and local knowledge holders, where appropriate	research projects, programs, assessments, or monitoring undertaken as part of the Action Plan that involve Indigenous governments or organizations (multiple) Number of climate change related research projects, programs, assessments, or monitoring undertaken as part of the Action Plan that involve communities (multiple)	N/A	related research projects, programs, assessments, or monitoring activities undertaken that involve Indigenous governments or organizations Three climate change related research projects, programs, assessments, or monitoring undertaken that involve Indigenous governments or organizations (Part 2) 8 7climate change related research projects, programs, assessments, or monitoring undertaken that involve communities (Part 1) Eight to ten climate change related research projects, programs, assessments, or monitoring undertaken that involve communities (Part 2) N/A – the number of traditional and local knowledge projects supported by the		ENR – CCAQ (Action Items/Area 3.12A, 4.7B, 8.9) ENR – NWT CIMP (Action Item 2.3B, 2.7D, 2.9H, 2.10D) ENR – Conservation Planning (Action Items 2.2A, 3.3A, 3.3B, 3.3C, 3.3D) ENR – Knowledge Agenda (Action Items 2.1A, 2.1C, 3.8A) ENR – FMD (Action Items/Area 3.11A, 3.11B, 10.2) ENR – On the Land Unit (Action Item 2.3A, 3.8A, 3.8B) ENR – WD (Action Items/Areas 3.5A, 3.5B, 7.6, 8.5)			Assistant Deputy Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	Number of projects supported by the GNWT as part of the Action Plan with a traditional knowledge focus (multiple)	N/A	GNWT as part of the Action Plan cannot be estimated at this time as it depends on the type of research proposals that the GNWT receives		ENR – WMMD (Action Items 2.7A) ENR – general HSS (Action Item 3.7B) MACA (Action Item/Area 4.5A, 7.8)			
Adaptation to known and understood climate change impacts has been supported/initiated	Number of heritage resources threatened by climate-driven processes that are recovered (ECE) Adaptation requirements included in design, construction, and operations (designing, building and maintaining resilient infrastructure) (INF, MACA) ▪ Number of new or updated NISI standards ▪ Number of updated building guidelines Number of community emergency plans	N/A Five northern standards (NISI) currently available	<u>By the end of 2023/24:</u> N/A. The number of threatened heritage resources that are recovered depends on the wishes of associated communities, the type of threat impacting the heritage resource, the funding available, etc. Good Building Practices for Northern Facilities document be updated to include climate change considerations Five new NISI standards developed under NISI Phase II	From the implementation of the Action Item/Area	ECE (Action Item/Area 3.12A, 7.9, 8.10) ENR – CCAQ (Action Items 4.1C, 4.7A) ENR – Conservation Planning (Action Items 3.3A, 3.3B, 3.3C) ENR – FMD (Action Items 3.11A, 3.11B, 8.8) ENR – WD (Action Items) HSS - Office of the Chief Public Health Officer (Action Items 2.11A, 3.7A) INF (Action Items 2.1D, 2.1E, 3.14A,	Ongoing	Yearly via the Action Plan Annual Report	Cabinet

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	completed or revised to reflect updated hazards/risks information due to climate change (MACA)	All 33 communities in the NWT have emergency plans. As of March 2019, nine community governments have emergency plans validated in the past two years, and 21 community governments have plans that are less than 5 years old.	100% of the communities in the NWT have emergency plans in place that are less than 5 years old		3.15A, 3.15B, 3.15C) ITI – NTGS (Action Item 3.4A) ITI (Action Item 3.8C) MACA (Action Items/Areas 2.12B, 3.10A, 3.11A, 3.11B, 3.13C, 3.14A, 4.1E, 4.6B, 4.6C, 4.7A) Lands – Sustainability (Action Items 3.2A)			
	Number of community wildland fire protection plans updated and implemented (ENR-FMD)	29 of the 33 communities in the NWT have community wildland fire protection plans	29 of the 33 communities in the NWT have community wildland fire protection plans updated for climate change and are in the process of being implemented					
	Number of communities that have implemented FireSmart principles and/or have established fuel breaks (ENR-FMD)	10% of recommended forest fuel mitigation work around communities is complete	29 NWT communities with established fuel breaks (Part 2 - target is dependent on securing funding from the Federal Disaster and Mitigation Adaptation Fund)					
	Number of possibly climate change related alerts and advisories produced or issued by the GNWT (HSS and MACA)		Timely release of climate change related alerts and advisories produced or issued by the GNWT					
	Awareness of community members to climate change related							

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	alerts/advisories/adaptation methods (via surveys) (HSS)	N/A	100% of the people who attended a community health fair are aware that the GNWT communicates health alerts/advisories and are aware of the methods used to communicate said alerts/advisories					
	Number of GNWT guidelines, policies, protocols, or legislation updated or created for climate change (ENR-CCAQ and all)	N/A	N/A – depends on how many new pieces of legislation or policies are developed					
	Number of protected areas established with management plans (ENR-ESCC)	N/A	Three protected areas established with completed management plans (Thaidene Nëné, Dínàgà Wek'èhodì, Ts'ude niline Tu'eyeta protected areas)					
	Kilometers of winter roads replaced by all-season roads (INF)	N/A	128 km of winter roads to be replaced by all-season roads (Part 1 = 104km from Action Item 3.15A, 10km from Action Item 3.15C, Part 2 = 14km from Action Area 8.11)					
	Construction of the Great Bear River Bridge (INF)	N/A	Construction of the Great Bear River Bridge by February 2024					
	Feedback from the School of Community Government participants who took climate change related courses (MACA)	N/A	100% of participants					

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	Increase in local food production (via the NWT Agriculture Strategy) (ITI)		are satisfied or better with content and instruction Increased number of northern food producers					
	Increase in composting in small to medium-sized communities (ENR-EPWM)	N/A N/A	Increase in completed Environmental Farm Plans Increase in volume of existing food production operations GNWT to support composting in three to five small to medium sized communities by the end of 2024 (Part 2)					
	Implementation of a northern climate services hub (ENR-CCAQ) ▪ Yes or no question – has a northern climate services hub been established ▪ Measured by the presence/absence of a northern services hub	N/A	Implementation of a northern climate services hub by the end of 2024 (Part 2)					
	Number of land use plans that incorporate climate change considerations (Lands)	Currently no GNWT funded compost programs in small to medium sized communities N/A	Two land use plans (Gwich'in and Sahtu) have incorporated climate change considerations					

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
		Zero land use plans in the NWT have climate change considerations						
Increased co-ordination and accountability by the GNWT for mitigating and/or adapting to potential impacts of climate	Number and type of internal and external guidance mechanisms established and implemented (ENR-CCAQ) Semi-annual update to Deputy Ministers Energy and Climate Change Committee (ENR-CCAQ)	Establishment of the Director-level Climate Change Working Group, Assistant Deputy Ministers Climate Change Committee, Deputy Ministers Energy and Climate Change Committee and the Energy and Climate Change Committee completed Currently ad hoc updates	<u>By the end of 2023/24:</u> Establishment of the Director-level Climate Change Working Group, Assistant Deputy Ministers Climate Change Committee, Deputy Ministers Energy and Climate Change Committee and the Energy and Climate Change Committee Decision on the establishment of an NWT climate change council or advisory body Establishment of the NWT Pests, Pathogens, and Invasive Species Council Update the Deputy Ministers Energy and Climate Change Committee on	From the implementation of the Action Item/Area	All departments (full implementation of the Action Plan) ENR – CCAQ (Action Items 3.1B, 4.1A, 4.1B, 4.2A, 4.3A) ENR – Conservation Planning (Action Item 2.2A) ENR – On the Land Unit (Action Item 3.8B) ENR – WD (Action Items 2.9C,3.5A, 3.5B) FIN (Action Item 1.1B) ITI-NTGS (Action Item	TBD	Yearly via the Action Plan Annual Report	Director-level Climate Change Working Group Assistant Deputy Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	▪ Measured by the number of updates on the Action Plan made per year Implementation of the carbon tax (FIN) ▪ Yes or no questions - is the carbon tax being applied, is the carbon tax being reported on Annual reporting on the Action Plan (ENR-CCAQ) Annual reporting on the Pan-Canadian Framework (ENR-CCAQ) Dollars spent on implementing the Action Plan (all) Number of Action Plan Action Items completed (all) Implementation of GNWT strategies and plans that are currently in development/not yet fully implemented, as committed to in the Action Plan (all) ▪ Yes or no questions - is the strategy in question being implemented, is the strategy in question being reported on Number of successful funding applications and funding secured, allowing for	Currently no carbon tax in place N/A N/A N/A N/A – implementation started April 1, 2019 N/A – implementation started April 1, 2019 Multiple strategies in development	progress made on the Action Plan twice a year Carbon tax implemented in 2019/20 Report publicly on the Action Plan annually, starting in the fall of 2020 Report annually on the Pan-Canadian Framework Report publicly on the Action Plan annually, starting in the fall of 2020 Report annually on the Pan-Canadian Framework N/A 100% of all Part 1 Action Items to be completed, implementation has begun for Part 2 Action Areas 100% of the GNWT strategies and plans referenced and committed to in the Action Plan to be implemented by the end of 2023/24		2.6G) Lands (Action Item 3.1A) MACA (Action Item 2.14A)			

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
	implementation of a Part 2 Action Area or the creation of a new Action Item Number of inquiries to the ClimateChange@gov.nt.ca email account	N/A Currently less than five emails per year	100% of Part 2 Action Areas fully funded N/A					
Medium term outcomes								
Use of the processed baseline data or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change	Number of climate change adaptation Action Items for the next Action Plan (2025-2030) that use information from the 2019-2023 Action Plan Number of climate change mitigation Action Items for the next Action Plan (2025-2030) that use information from the 2019-2023 Action Plan Number of communities that feel they have an appropriate amount of climate change related data to make decisions that allow for mitigation or adaptation to climate change	N/A N/A N/A	N/A N/A TBD – will use surveys during the 2024 evaluation to report on this indicator	TBD	ENR – CCAQ	Ongoing	2024 – part of the independent evaluation of the Action Plan	Director-level Climate Change Working Group Assistant Deputy Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet
Resilient and adaptable strategies or action plans in place to adapt to effects of climate change	Number of strategies or action plans in place that support adaptation or mitigation of climate change (all)	TBD in 2024	TBD	TBD	TBD	Ongoing	2024 – part of the independent evaluation of the Action Plan	Director-level Climate Change Working Group Assistant Deputy

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
							Yearly via the Action Plan Annual Report	Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate Change Committee-of-Cabinet
Continued reduction in GHG emissions	Percentage change in GNWT's published corporate GHG emissions from year to year (ENR-CCAQ with input from FIN and INF) Percentage change in total GHG emissions for the NWT (ENR-CCAQ) Consumption of carbon-based fuels per capita (tonnes C02e per capita) (FIN) Carbon-based fuels per dollar GDP (tonnes $C0_2$ equivalent per million dollars GDP) (FIN) Carbon-based fuels as percentage of all energy sources, perhaps by economic sector (FIN)	Annual NWT GHG emissions (CO_2 equivalent) are available from at least 1999	2025 milestone target = 1,400 kt CO_2 e (150 kt CO_2 e or 9.7% reduction over 5 years from 2020)	System of Accountability and Management (SAM) and fuel tax data are used to calculate GNWT's corporate GHG emissions Fuel tax data provides volumes of petroleum products and can be converted to emissions using conversion factors Emission data from the ECCC greenhouse	ENR (Action Item 1.4A, 1.4B) FIN (Action Item 1.1B, 1.4A, 1.4B) INF (Action Item 1.4A, 1.4B)	Annually	The GNWT reports annually on corporate GHG emissions INF will report annually on the 2030 Energy Strategy Action Plan Action Plan Annual Report - this annual report will reference work done under the 2030 Energy Strategy: Energy Action Plan	ENR FIN INF Director-level Climate Change Working Group Assistant Deputy Ministers Climate Change Committee Deputy Ministers Energy and Climate Change Committee Energy and Climate

Outputs and Expected Outcomes	Performance Indicators (dept. Lead)	Baseline	Target	Data Source	Responsibility for Collecting Data	Frequency of Data Collected	Frequency of Reporting	Responsibility for Reviewing and Acting on Reported Data
				gas emission inventory			and will reference work done by FIN to implement the NWT carbon pricing	Change Committee-of-Cabinet

Appendix C.

Evaluation Matrix

Table 7. Evaluation Matrix

No.	Key Evaluation Questions	Sub-Questions	Interview Questions	Indicators	Methods and Sources (Document Review / Interviews)	Notes
	General Questions					
1.0	What was the specific role of your department / agency / organization / government / association / board in implementing the 2030 NWT Climate Change Strategic Framework?	1.1 What was the specific role of your organization in implementing the 2030 NWT Climate Change Strategic Framework (CCSF)?	What is/was the specific role of your organization in implementing the 2030 NWT Climate Change Strategic Framework (CCSF)?	Identified role	Interviews GNWT IGIO Boards Industry Federal NGO Academia Other	'Organization' is used to refer to department, agency, organization, government, association, and board.
		1.2 How long and how closely involved have you been? (How familiar are you with the NWT CCSF and 2019-2023 Action Plan?)	How long and how closely involved have you been? (i.e., how familiar are you with the NWT CCSF and 2019-2023 Action Plan?)	Extent of involvement	Interviews GNWT IGIO Boards Industry Federal NGO Academia Other	
	CCSF Questions					
2.0	What are the key highlights and areas for improvement within the implementation of each Action Item?	2.1 What are the key successes/impacts of Action Plan implementation?	Based on the Action Areas your organization participated in; what key successes/impacts were achieved in implementing the Action Plan?	Key successes/impacts of Action Plan implementation	Document Review Annual Action Plan reports, plain lang report, annual carbon tax reports Interviews GNWT IGIO Boards Industry Federal NGO Academia Other	
		2.2 In what areas could Action Plan implementation be improved?	Based on the Action Areas your organization participated in; what challenges were encountered implementing the Action Plan? (e.g., level of effort, resources, collaboration, time, reporting)	Challenges to Action Plan implementation	Document Review Annual Action Plan reports, plan lang report Interviews GNWT IGIO Boards	

No.	Key Evaluation Questions	Sub-Questions	Interview Questions	Indicators	Methods and Sources (Document Review / Interviews)	Notes
					Industry Federal NGO Academia Other	
			How were these implementation challenges overcome? (e.g., improved partnerships, increased resources, etc.)	Solutions to implementation challenges	<u>Document Review</u> annual Action Plan reports, plan lang report	
			How can Climate Change Partners more effectively implement the Action Plan?	Improvements to implementation	<u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	Shifted from Q6
3.0	Are the Action Items contributing to advance the goals and vision of the Climate Change Strategic Framework?	3.1 Do the Action Items sufficiently support progress towards achieving the CCSF goals and vision? 3.2 Could they be improved upon?	Looking at the Action Areas your organization participated in, do the Action Items under these Areas sufficiently support progress towards achieving the CCSF goals and vision? If yes, provide examples of how. If no, how could they be improved upon?	Actions Items supporting / not supporting advancement of CCSF goals and vision Improvements to Action Items	<u>Document Review</u> annual Action Plan reports, plain lang report, carbon tax reports, energy initiatives report, discussion guide <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	
4.0	Are we where we said we would be – completing our short-term goals and moving into the medium-term goals for the second Action Plan?	4.1 Were immediate & short-term outcomes completed on time? If not, why not?	Were the immediate & short-term Action Items your organization participated in completed within the specified time period? If not, why? Is there progress on initiating the medium-term Action Items your organization is responsible for?	Immediate & short-term outcomes completed on time Reasons for non-completion Progress towards medium term goal initiation Reasons for lack of initiation	<u>Document Review</u> annual Action Plan reports, carbon tax reports, energy initiatives report <u>Interviews</u> GNWT IGIO Boards Industry	

No.	Key Evaluation Questions	Sub-Questions	Interview Questions	Indicators	Methods and Sources (Document Review / Interviews)	Notes
			If not, why?		Federal NGO Academia Other	
		4.2 Were immediate & short-term outcomes completed on budget and with the anticipated level of effort? If not, why not?	Were the immediate & short-term Action Items your organization participated in completed on budget? If not, why?	Immediate & short-term goals completed on budget Reasons not completed on budget	<u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	
5.0	How relevant is the CCSF and Action Plan? [NEW]	5.1 Are there updates needed to the vision, principles, or goals of the Climate Change Strategic Framework?	Are the vision, principles, and goals of the CCSF still relevant or do they need to be updated?	Relevancy of CCSF vision, principles, and goals	<u>Document Review</u> CCSF, energy strategy, national adaptation strategy, CC 2025-29 priorities/risks, discussion guide, ES/CCSF joint engagement notes <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	
		5.2 Are there new or emerging issues that should be added to the Climate Change Strategic Framework?	Are there new or emerging issues that should be added to the CCSF to improve its relevance?	New/emerging issues	<u>Document Review</u> national adaptation strategy, discussion guide <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	

No.	Key Evaluation Questions	Sub-Questions	Interview Questions	Indicators	Methods and Sources (Document Review / Interviews)	Notes
		5.3 What Action Items are still priorities to work on and what are new Action Areas are recommended for inclusion in the next Action Plan?	Looking at the Action Areas your organization participated in, what Action Areas and their associated Actions Items are still priorities moving forward?	Priority Action Areas Priority Action Items	<u>Document Review</u> CCSF, Action Plan, national adaptation strategy, discussion guide <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	
			What new Action Areas should be included in the next Action Plan? Why? (i.e., fills an existing gap, addresses a new or emerging concern)	New/emerging Action Areas Reasons for new Action Areas	<u>Document Review</u> national adaptation strategy, discussion guide <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	
6.0	How can Climate Change Partners effectively contribute to implementing the Action Plan?	6.1 How can Climate Change Partners more effectively participate in implementing the Action Plan?	How can Climate Change Partners more effectively implement the Action Plan?	More effective methods of implementation	<u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	Insert this question in Q2
7.0	What changes to the structure of the Action Plan could be made to better plan, monitor and evaluate future progress?	7.1 What changes to the structure of the Action Plan could be made to better plan, monitor and evaluate future progress?	What changes to the structure of the Action Plan could be made to support improved planning, monitoring, and evaluation of future progress?	Action Plan structure improvements	<u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	

No.	Key Evaluation Questions	Sub-Questions	Interview Questions	Indicators	Methods and Sources (Document Review / Interviews)	Notes
	Performance Measurement Questions					
9.0	Are GHG emissions being reported to the public in a way that NWT's progress toward meeting climate goals can clearly be understood?	9.1 Has information about reducing NWT's GHG emissions been communicated to the public in a way that is clearly understood?	Has information about reducing NWT's GHG emissions been communicated to the public in a way that is understandable? If yes, what communication methods have been most effective? If not, what changes/improvements are needed?	GHG emissions reduction information understandable Effective reporting methods Improvements to GHG emissions reductions communications	Interviews GNWT IGIO Boards Industry Federal NGO Academia Other	
10.0	Has information been collected, processed, assessed and/or shared to allow the GNWT, partners, and the public to have improved knowledge of climate change impacts?	10.1 Has information been collected, processed, assessed and/or shared with the GNWT, Partners, and the public to improve their knowledge of climate change impacts?	Has information on climate change impacts been collected, processed, analyzed and/or shared with the GNWT, Partners and the public to improve their knowledge and awareness? If not, why? How accessible is this information? What improvements could be made?	Number and type of projects, programs, evaluations, and assessments undertaken Number and type of reports, plans, strategies, and tools created Reasons why not undertaken or created Level of accessibility Accessibility improvements	Document Review Annual Action Plan reports Interviews GNWT IGIO Boards Industry Federal NGO Academia Other	
11.0	Have communities and traditional and local knowledge holders been engaged in the information collected, where appropriate?	11.1 Where appropriate, have communities and traditional and local knowledge holders been engaged in the collection of climate change information.	Where appropriate, have communities and traditional and local knowledge holders been engaged in the collection of climate change information? If yes, how were they engaged?	Number of climate change research projects, programs, assessment, or monitoring activities undertaken that involve communities and/or traditional and local knowledge holders Methods of engagement Improvements to engagement effectiveness	Document Review Annual Action Plan reports Interviews GNWT IGIO Boards Industry Federal NGO Academia Other	
12.0	Has adaptation to known and understood climate change impacts been	12.1 What efforts to adapt to climate change impacts have been supported/are underway?	What efforts to adapt to climate change impacts are being implemented?	Adaptation efforts (e.g., number of climate change-related plans updated (e.g.,	Document Review Annual Action Plan reports, carbon tax	

No.	Key Evaluation Questions	Sub-Questions	Interview Questions	Indicators	Methods and Sources (Document Review / Interviews)	Notes
	supported/initiated?		What more could be done?	fire, emergency, infrastructure), number of alerts, number of protected areas established, etc.)) Additional adaptation efforts	reports <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	
13.0	Is the GNWT working in a more coordinated and effective way to mitigate and/or adapt to potential impacts of climate change?	13.1 Is the GNWT working in a more coordinated and effective way to mitigate and/or adapt to the potential impacts of climate change?	Is the GNWT working in a more coordinated and effective way to mitigate and/or adapt to potential impacts of climate change? If yes, provide some examples. If not, what changes could be made?	Examples of coordination and effectiveness (e.g., guidance mechanisms established, update meetings, implementation of Actions Items by Partners, etc.) Changes to improve coordination and effectiveness	<u>Document Review</u> Annual Action Plan reports, annual carbon tax reports, <u>Interviews</u> GNWT	
14.0	Has there been use of data and/or information by responsible parties to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change?	14.1 Has any of the data and/or information been used by Partners to make decisions, future projections and/or produce tools that support decision-making and allow for mitigation or adaptation to climate change?	Has your organization used any of the climate change data and/or information to: • Make decisions? • Make future projections? • Create tools that support decision-making and allow for the mitigation or adaptation to climate change? If yes, please provide examples. If not, why? What improvements could be made to increase the use of climate change data and/or information by your organization?	Number of Partners that use data and/or information Type of data and/or information used Manner in which data and/or information used Reasons why climate change data and/or information was not used Enhancements to data and/or information use	<u>Document Review</u> Annual Action Plan reports, annual carbon tax reports, energy initiatives report, discussion guide, CC 2025-29 priorities/risks, <u>Interviews</u> GNWT IGIO Boards Industry Federal NGO Academia Other	

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