



Responding to Climate Change in the NWT

Plain Language
Overview Report

2019/20

Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

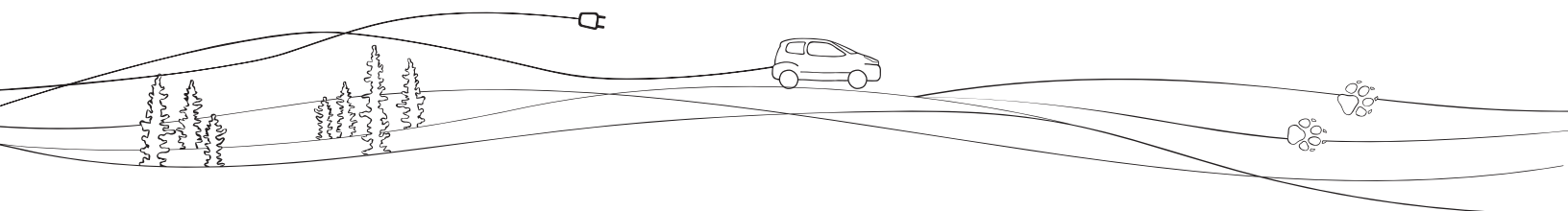
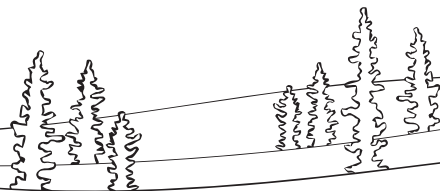
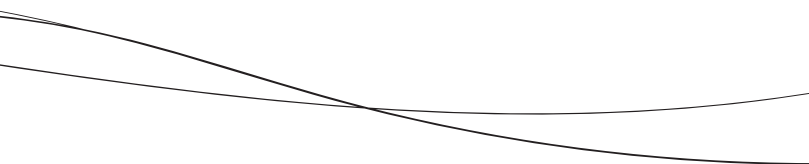


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Climate change is one of the most serious challenges of our time and impacts Northerners of all ages

Why We Must Act

Climate change is one of the most important issues of our time. It is affecting the Northwest Territories (NWT) in many ways, including:

- The natural environment (land, water, animals)
- The health and safety of residents (risk of fire, unsafe ice, water/air quality)
- Our culture (the living expression of the values of Northerners and who we are)
- Our heritage (archaeological sites, historical artifacts, sacred places)
- Infrastructure (roads, buildings, power systems)
- The economy (business, jobs, opportunities for investment)

Governments, industry, non-governmental organizations and Northerners are all looking for ways to respond to the opportunities and risks of climate change.

PUBLIC ACCOUNTABILITY

To keep residents informed on how we are addressing climate change, the Government of the Northwest Territories (GNWT) has committed to publishing an annual report on the implementation of the **2030 NWT Climate Change Strategic Framework 2019-2023 Action Plan** (Action Plan). The Annual Report covers the first year of the Action Plan, from April 1, 2019, to March 31, 2020. The Annual Report describes progress made on action items and action areas in Year 1, as well as the next steps planned for upcoming years.

As the Year 1 report was being drafted, important activities and milestones occurred, such as the October 2020 announcement that the GNWT has secured additional funding for staff and operations and management, which will support Part 2 action areas. This milestone, and others, will be reported on in Year 2 (April 1, 2020 – March 31, 2021).

The **2030 NWT Climate Change Strategic Framework** (CCSF) and Action Plan are being implemented in tandem with the **2030 Energy Strategy** and the **NWT Carbon Tax**. The implementation of these interconnected strategies and actions will help the NWT transition to a lower carbon economy, and will contribute significantly to meeting the NWT's greenhouse gas (GHG) reduction target. Updates on activities under the Energy Strategy and NWT Carbon Tax are detailed in the NWT Energy Initiatives Report 2019/20 and NWT Carbon Tax Report 2019/20.

This Plain Language Overview Report integrates climate change reporting on all GNWT activities including the NWT Climate Change Action Plan Annual Report, the Energy Initiatives Report and the NWT Carbon Tax Report.



2019/20 HIGHLIGHTS

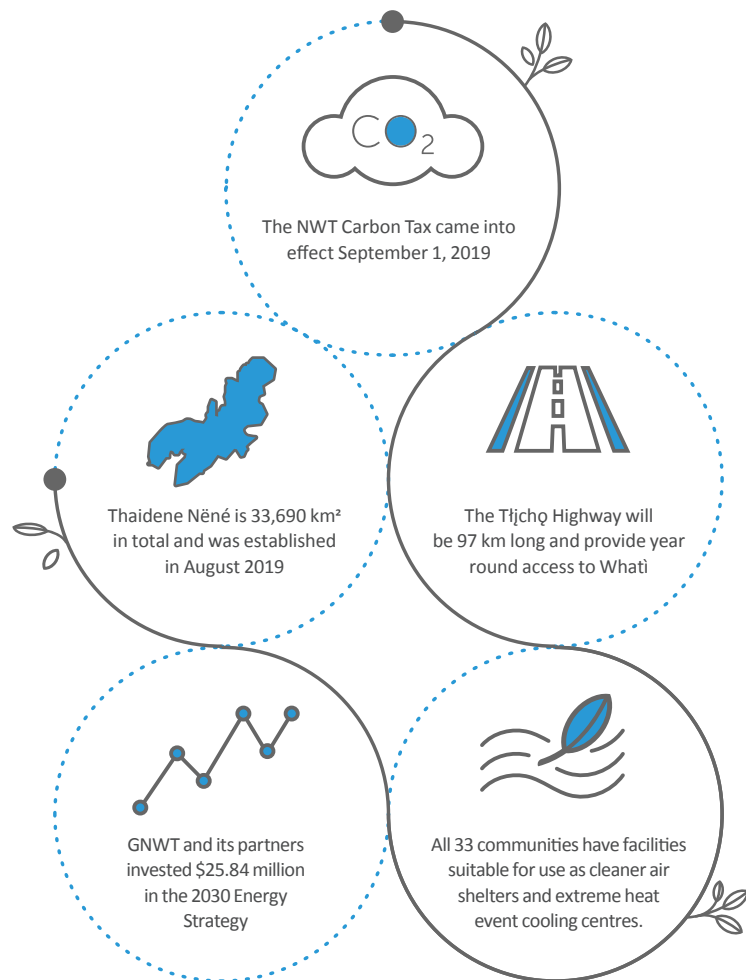
The 2030 NWT Climate Change Strategic Framework 2019-2023 Action Plan was initiated in April 2019. Over the last year, much progress has been made toward achieving the goals in the Framework.

- The GNWT committed to addressing climate change in the **Mandate of the Government of the Northwest Territories (2019-2023)**. In addition, the GNWT has prioritized reducing the cost of power and increasing the use of alternative and renewable energy.
- The GNWT began working with partners to establish an NWT Climate Change Council and to integrate climate change into government decision making.
- The GNWT implemented carbon pricing in September 2019, fulfilling a national commitment to put a price on carbon.
- The *Protected Areas Act* came into force in 2019 and two protected areas, Thaidene Nënë and Ts'udé Niljné Tuyeta Territorial Protected Areas, have been formally established under this legislation. As part of a conservation network, these protected areas will ensure the landscape is protected, so that wildlife can migrate and adapt to climate change.
- Construction of the Tłjchq Highway began in September 2019 and is helping to adapt the NWT highway system to climate change. The road will provide year-round access to Whatì, and increase the winter road season for Gamètì and Wekweètì.

- The GNWT supported projects that resulted in a net six kilotonnes of CO₂e (carbon dioxide equivalent) decrease in GHG emissions this year. Projects were completed through the Capital Asset Retrofit Fund, Arctic Energy Alliance programs, and the Greenhouse Gas Grant Program.

CO₂e

Carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based upon their global warming potential.





Aerial view of Thaidene Nënë Territorial Protected Area

RESPONDING TO CLIMATE CHANGE IN THE NWT

Addressing climate change is a priority for the GNWT, and is part of the Mandate of the Government of the Northwest Territories (2019-2023). The GNWT is working to strengthen its leadership and authority on climate change, and to consider climate change impacts in all its decisions.

The GNWT's long-term plan for addressing climate change is described in the CCSF. The CCSF was released in May 2018 and sets a path to a strong, healthy economy that is less dependent on fossil fuels by 2030. The CCSF calls for developing the knowledge, tools and measures needed to increase the NWT's resilience

and adapt to the changing northern climate. The Action Plan is made up of action items that will help us to meet the goals set out in the CCSF for the next five years (2019-2023).

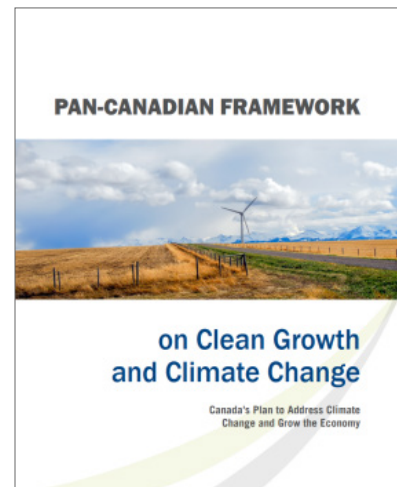
Under the Action Plan, the GNWT is focusing on three climate change goals and two cross-cutting themes (see Figure 1). The goals are:

1. Transition to a lower carbon economy
2. Improve knowledge of climate change impacts
3. Build resilience and adapt to a changing climate

There are two cross-cutting themes: leadership, communication and capacity-building, and economic impacts and opportunities. These cross-cutting themes include actions that apply to all three goals. The Action Plan lists specific action items to meet the goals of the CCSF.

Action items within the Action Plan are divided under Part 1 and Part 2. All of the action items in Part 1 are funded and will progress between 2019-2023. Part 2 action areas are not fully funded. Although some work has begun on Part 2 action areas, they are not fully resourced in regards to funding and/or staff capacity. Additional funding and support from other partners, such as the federal government, academia, non-governmental organizations and industry, are needed to keep making progress on work identified in Part 2.

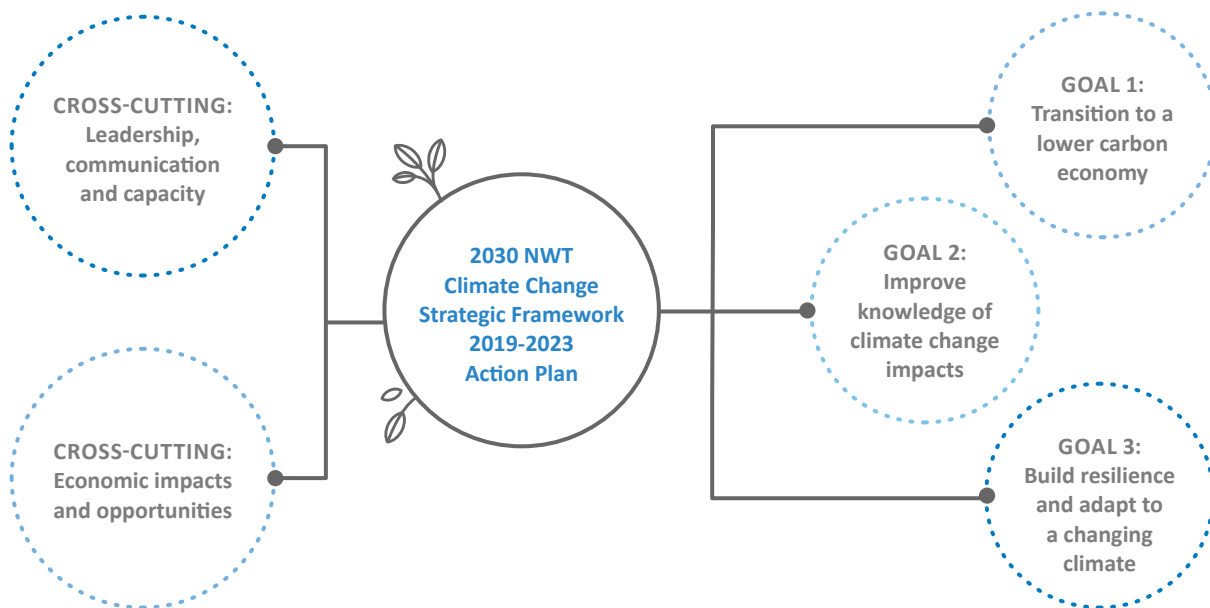
The 2030 Energy Strategy sets out the GNWT's long-term approach to support a more secure, affordable and sustainable energy supply to ensure reliable energy and reduce greenhouse gas emissions. The Energy Strategy is directly linked to the CCSF and supports its first goal to reduce GHG emissions. The NWT Carbon Tax also supports the goals of the CCSF and describes the NWT's approach to carbon pricing as part of a commitment to the **Pan-Canadian Framework on Clean Growth and Climate Change**.





A researcher and a wildlife monitor spotting a research buoy off the coast of Pelly Island

FIGURE 1. OVERVIEW OF GOALS AND CROSS-CUTTING THEMES IN THE 2030 NWT CLIMATE CHANGE STRATEGIC FRAMEWORK 2019-2023 ACTION PLAN





Community residents attending Tuktoyaktuk Science Day in August 2019

Working Together: Integrated Approach

While the GNWT recognizes its leadership role, the responsibility for taking action on climate change is shared by all our partners, including NWT residents.

It is critical that the GNWT works together with all Northerners to ensure our way of life that is closely tied to the land can continue in a changing climate. The collective wisdom of our partners, including traditional, local and scientific knowledge, will help guide the territory's response to climate change.

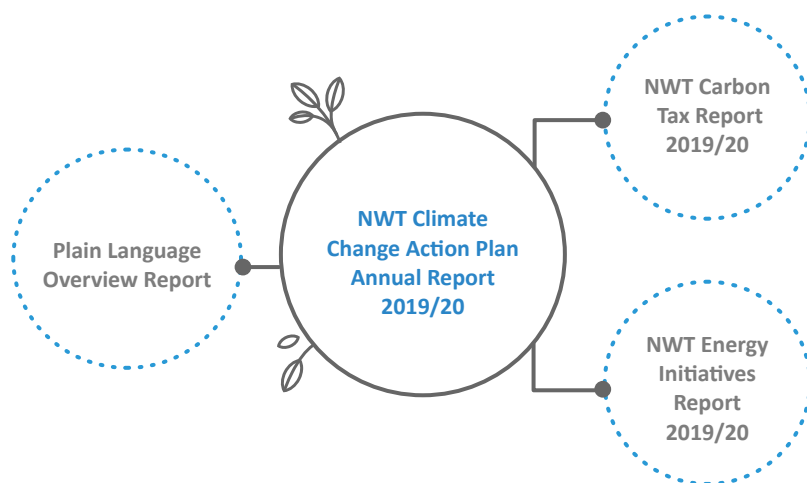
Within the GNWT, the Department of Environment and Natural Resources (ENR) is the lead department for addressing climate change. ENR is responsible for overseeing the implementation of the CCSF and Action Plan. ENR brings together progress reporting on an annual basis for all GNWT and partner-led actions identified in the Action Plan. There are a total of 104 action items under Part 1. Of the 104 actions, 96 of these are on track, three are complete and five are not yet initiated.

NWT CLIMATE CHANGE ACTION PLAN, NWT ENERGY STRATEGY AND NWT CARBON TAX ANNUAL REPORTING

The CCSF and Action Plan are being implemented at the same time as the Energy Strategy and the NWT Carbon Tax and are being reported on together in this Plain Language Overview Report (see Figure 2). The Department of Infrastructure (INF) is implementing the Energy Strategy and the Department of Finance (FIN) is implementing the NWT Carbon Tax. ENR, INF and FIN are working together, along with the other GNWT departments

and external partners, to ensure that all of the actions in these interconnected strategies and plans support a holistic approach to build resilience and adapt to climate change. In addition, working together will improve our knowledge of climate change impacts in the NWT, and aid our transition to a lower carbon economy by using fewer carbon-based energy sources.

**FIGURE 2. GNWT CLIMATE CHANGE REPORTING
BREAKDOWN FOR 2019/20**



OUR PARTNERS

NWT PARTNERS:

- Indigenous governments and organizations (IGOs)
- Community governments
- Northwest Territories Association of Communities
- Co-management boards
- Industry
- Non-governmental organizations
- Public

FEDERAL DEPARTMENTS:

- Crown-Indigenous Relations and Northern Affairs Canada
- Environment and Climate Change Canada
- Fisheries and Oceans Canada
- Indigenous Services Canada
- Natural Resources Canada
- Parks Canada Agency

OTHER GNWT DEPARTMENTS:

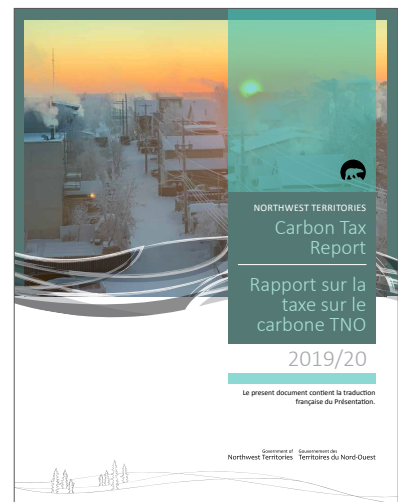
- Education, Culture and Employment
- Executive and Indigenous Affairs
- Finance
- Health and Social Services
- Industry, Tourism and Investment
- Infrastructure
- Lands
- Municipal and Community Affairs



Beaufort Sea coastal erosion

The GNWT's 2030 Energy Strategy promotes energy efficiency and the use of renewable energy sources to reduce dependence on imported fossil fuels.

The NWT Carbon Tax sets a price that energy users must pay for each tonne of GHGs they release. This is meant to encourage the use of low-carbon or alternative energy sources.



The Climate Change Action Plan Annual Report includes updates on related activities from the Energy Strategy and NWT Carbon Tax. These updates can be found in the section on Goal 1: Transitioning to a lower carbon economy.

Please see the NWT Energy Initiatives Report and the NWT Carbon Tax Report for more detailed information on these specific initiatives.



Solar panels on a building in Paulatuk

How We Are Reaching Our Targets

A lower carbon economy is one that uses less carbon-based energy sources, like fossil fuels such as oil, for power and heat. Use of carbon-based energy sources releases GHGs into the air. These GHGs, such as carbon dioxide (CO₂), are the main cause of climate change. One of the ways to address climate change is by transitioning to a lower carbon economy.

TRANSITION TO A LOWER CARBON ECONOMY (GOAL 1)

In line with Canada, the NWT's goal is a 30 percent reduction in GHGs from 2005 levels by 2030. The implementation of the Energy Strategy and the NWT Carbon Tax are the two main ways the GNWT is proposing to reach this goal.

Other action areas include improving the way GHG emissions are tracked and reported, and ensuring climate change impacts are considered during the review of resource developments or other large development projects.

PROGRESS HIGHLIGHTS IN 2019/20

- The NWT Carbon Tax came into effect on September 1, 2019.
- The GNWT and its partners invested \$25.84 million to implement the Energy Strategy. Of this, \$12.44 million was spent on the refurbishment of existing hydropower and diesel generators and the planning and development of new energy projects. Refurbishing existing hydropower makes it more reliable, avoiding the need for future diesel generation, and new efficient diesel generators means reduced GHG emissions and the ability to integrate renewables in the future.

The following programs provided funding to projects that helped reduce emissions by almost 6 kilotonnes (kt) of CO₂e:

- The Capital Asset Retrofit Fund (3.8 kt)
- **Arctic Energy Alliance** programs (1.4 kt)
- GHG Grant Program for Governments (0.5 kt)
- ENR worked with the federal department of Environment and Climate Change Canada and other GNWT departments to improve the tracking of GHG emissions.

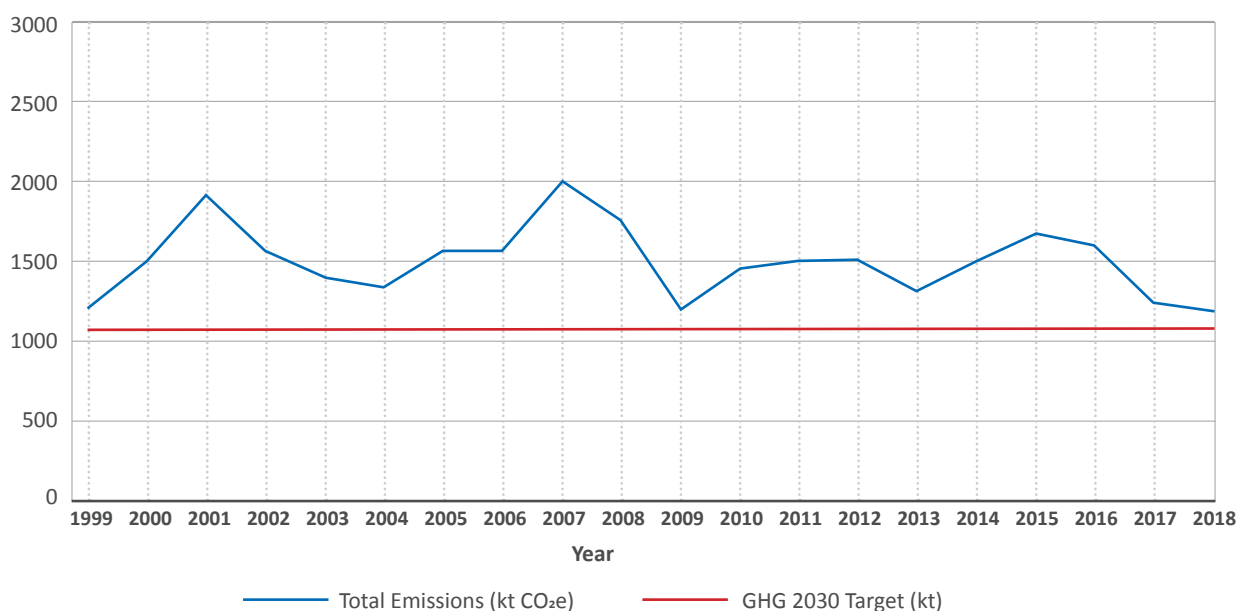
- **The Mackenzie Valley Environmental Impact Review Board** released a paper called **Evolving Environmental Impact Assessment in the Mackenzie Valley and Beyond**.

The paper examined the board's role in strengthening consideration of climate change in environmental impact assessments.

The blue line on Figure 3 shows the amount of GHGs released in the NWT from 1999 to 2018. The red line shows our GHG target for 2030 (1,094 kt CO₂e).

The graph shows that while GHG

FIGURE 3. HISTORICAL NWT GREENHOUSE GAS EMISSIONS (1999-2018)



emissions have changed over time, they have been declining since 2015. In 2018, the NWT's total annual emissions were 1,260 kt CO₂e.

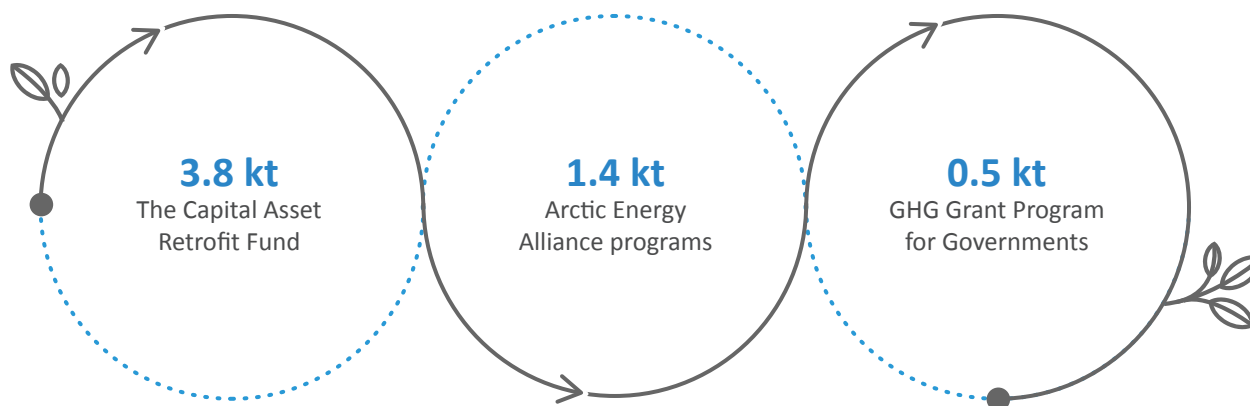
With the implementation of the NWT Carbon Tax and work being done through the Energy Strategy, the NWT is generally on track to meet its 2030 GHG emissions reduction target of 1,094 CO₂e.

DEPARTMENT OF INFRASTRUCTURE



Wood pellet boiler at Chief Jimmy Bruneau School, Behchokò

HOW EMISSIONS-REDUCING PROJECTS WERE FUNDED:



How much CO₂e does six kilotonnes represent? Here are some examples:

- One trip from Yellowknife to Edmonton and back is equal to just over 1 tonne of CO₂e
- 1/3 of a residential oil tank is equal to 1 tonne of CO₂e
- Six kilotonnes equals 5,835 round trips from Yellowknife to Edmonton or 1,903 full residential oil tanks



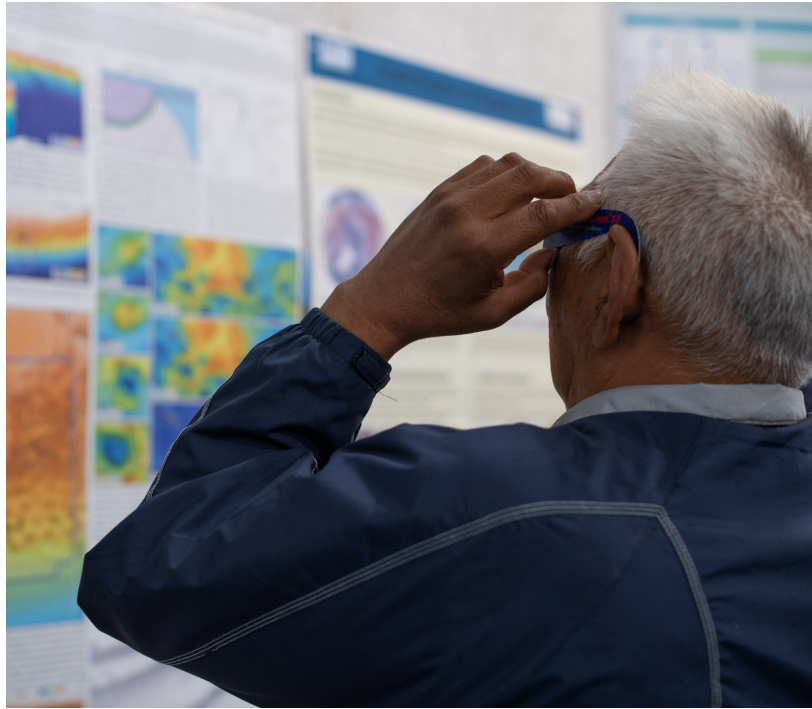
A Fort Good Hope guardian returns to the helicopter after setting up a trail camera in Ts'udé Nil̓né Tuyeta Protected Area as part of a biodiversity monitoring program co-led by the GNWT

IMPROVING KNOWLEDGE OF CLIMATE CHANGE IMPACTS (GOAL 2)

Actions under this goal are focused on ensuring people have the knowledge they need to make decisions about how to respond to climate change. This involves pulling together information from new or existing studies and doing additional research to fill knowledge gaps. Out of 54 action items related to Goal 2, 51 were initiated in 2019/20. There are two action areas for Goal 2, described in more detail in the following sections of this report.

ACTION AREA: PLANNING, MANAGEMENT AND USE OF INFORMATION

This action area acknowledges that in addition to doing research on climate change, we need dependable ways to store, share, assess and use the collected information. We also need to support different kinds of research and monitoring methods including the gathering of local, traditional and scientific knowledge. The GNWT's approach to research, along with GNWT's research priorities, can be found in the [Knowledge Agenda: Northern Research for Northern Priorities](#).



An elder looks at a poster during Tuktoyaktuk Science Day

TUKTOYAKTUK SCIENCE DAY AUGUST 2019

Tuktoyaktuk Science Day was a one-day event to bring together interested researchers, funders and community members. More than 350 people participated in the event, which provided an opportunity to hear about research needs and priorities directly from community residents and to assess opportunities for partnerships with interested researchers and funders.

PROGRESS HIGHLIGHTS IN 2019/20

- ENR released the **Knowledge Agenda: Action Plan 2019-2024** to strengthen ongoing and future research and monitoring in the NWT.
- Workshops and community meetings were held to share knowledge on climate change and encourage collaboration on research and monitoring, including:
 - Tuktoyaktuk Science Day (August 2019).
 - A workshop in Tulita on water and fish, caribou and harvesting, and changes to land and people (December 2019).
 - The Conservation Network Gathering in Yellowknife (February 2020).
 - The Water Stewardship Strategy annual meeting with the theme of “Northern Waters in a Changing Climate” (October 2019).
- Several meetings between the GNWT and the Wek’èezhì Renewable Resources Board to establish the NWT Council on Pests, Pathogens and Invasive Species.
- ENR is working on an inventory of NWT environmental data related to climate change to make climate data more accessible.
- To allow for information to be more easily accessed by the public, the Climate Change Information Specialist position was created in October 2019. The position will support climate change information management, including the development of a Climate Change Portal.



A mega-slump caused by permafrost thaw southwest of Aklavik in the Richardson Mountains

Research and monitoring on the effects of climate change are being completed by the GNWT and its partners to address knowledge gaps.

FOR THE NATURAL ENVIRONMENT, THESE GAPS INCLUDE:

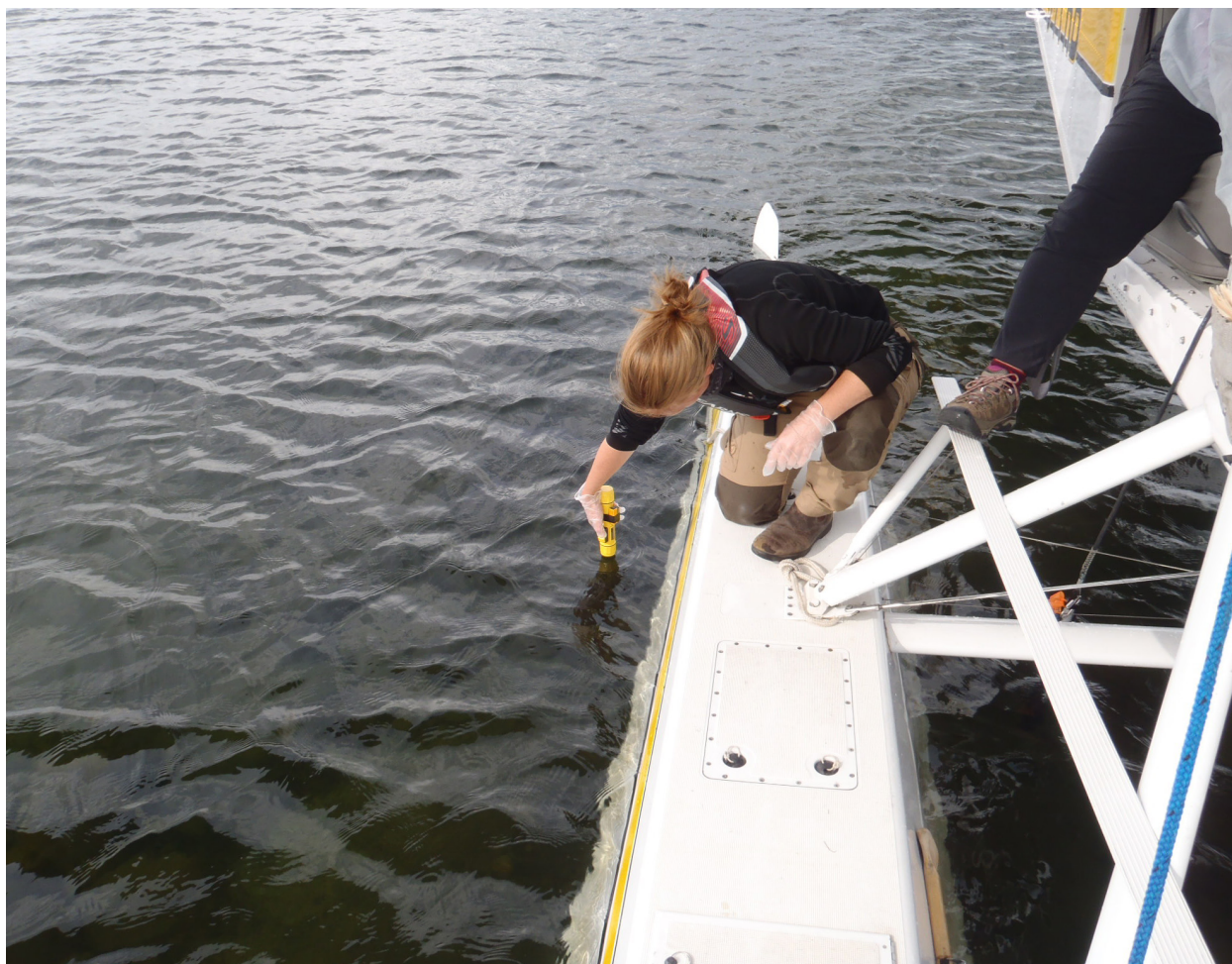
- Climate and weather
- Permafrost
- Water and wetlands
- Forests and vegetation
- Wildlife
- Fish and marine mammals

FOR HUMAN HEALTH, SAFETY AND WAY OF LIFE, THESE GAPS INCLUDE:

- Human health and well-being
- Public safety
- Culture and heritage
- Public and community infrastructure

ACTION AREA: RESEARCH AND MONITORING TO IMPROVE KNOWLEDGE

Although climate-related research and monitoring has been ongoing in the NWT, we still have many gaps in our understanding of climate change impacts. This action area focuses on filling those knowledge gaps with studies on the natural environment, human health, safety and our way of life. In the first year of the Action Plan, the focus has been on collecting baseline data and information. In future years, that information will be used to predict change and develop tools to adapt to climate change (see Goal 3: Building resilience and adapting to a changing climate).



ENR staff water sampling from a float plane

PROGRESS HIGHLIGHTS IN 2019/20

- Knowledge gaps in our understanding of climate change impacts are being filled.
- Partnerships that improve our knowledge of climate change are being established or improved:
 - An agreement was signed with the federal department of Environment and Climate Change Canada (ECCC) to share weather and climate information and to create a Canadian Council for Weather and Climate Monitoring.
 - The GNWT, along with the Government of Yukon and Government of Nunavut, engaged with ECCC about setting up a northern climate services hub.
- ECCC released the [Climate Atlas of Canada](#) and [ClimateData.ca](#), which provide interactive online resources on climate data to residents, researchers, businesses, and community and political leaders.
- The Northwest Territories Geological Survey worked in partnership with the Inuvialuit Land Administration to build local capacity on permafrost data collection and field observation by training environmental monitors.



ENR staff attending to the weather station at KM 8.5 of the Dempster Highway

- Climate data and information are more accessible than ever before:
 - The Northwest Territories Geological Survey has collected and made available data sets of permafrost monitoring information online at [Open Report](#). Permafrost is thawing as a result of climate change.
 - ENR worked with Indigenous and community water partners to support aquatic community-based monitoring and research programs as well as transboundary aquatic programs (see www.mackenziedatastream.ca). Water quality and quantity is expected to vary with climate change: some regions will experience more rain or snow and some will experience less.
 - The [2019 NWT Forest Health Report and Newsletter](#) provided an overview of NWT forest health in 2019. Tracking annual variations allows for a better understanding of the effect of climate change on NWT forests.
 - In July 2019, the Department of Health and Social Services released its first public health advisory for extreme heat exposure which affected seven communities (Kakisa, Enterprise, Fort Smith, Hay River, Jean Marie River, Fort Simpson and Fort Providence) and lasted for 13 days. As the planet continues to warm as a result of climate change, exposure to heat is expected to increase.
 - Two public health advisories for wildfire smoke exposure affecting 10 communities were released in 2019. Wildfires and smoke exposure may become more common with a changing climate.
 - In August 2019, the Department of Municipal and Community Affairs released [Focus for the Future: A Strategy Response to the Challenge of Community Government Funding](#). One of the topics this paper discusses is how to consider climate change and energy efficiency in community government decisions.
- Adaptation measures are being developed and enhanced for known climate change impacts:
 - The Department of Education, Culture and Employment received external funding for research focused on preserving cultural artifacts from the impacts of climate change.
 - INF improved its review and inspection process for public buildings and roads, which may shift or move as a result of climate change.

HEAT WARNING INFORMATION IN THE NORTHWEST TERRITORIES

When is a Heat Warning Issued?

A warming planet means exposure to heat is becoming more of a challenge – even in the NWT. A heat warning is issued 18 to 24 hours in advance for a community in the NWT. This is issued to protect health when two or more consecutive days of daytime maximum temperatures are expected to reach 29° Celsius or warmer, and night time minimum temperatures are expected to be 14° Celsius or warmer.

Who Does Extreme Heat Affect?

Extreme heat is a health risk that affects everyone. Risks are greater for young children, pregnant women, older adults, people with chronic illnesses, those on certain medications and anyone spending large amounts of time outdoors. Extreme heat affects the body's ability to regulate its core temperature, which can result in heat-related illnesses.

Some heat illnesses, such as heat strokes, can be life-threatening. The symptoms of heat illness include: dizziness/fainting, nausea/vomiting, headaches, rapid breathing and heartbeat, extreme thirst, and decreased urination with unusually dark urine.

Where Can People Find More Information?

To find more information on extreme heat: <https://www.canada.ca/en/health-canada/services/sun-safety/extreme-heat-heat-waves.html>

To find weather conditions and forecasts for your community: https://weather.gc.ca/forecast/canada/index_e.html?id=NT

ANGELA GZOWSKI



Climate change is resulting in warmer days and more extreme heat in the NWT, which can create health risks for our residents and more wildfires



Nearly complete section of the Tłıchq Highway

BUILDING RESILIENCE AND ADAPTING TO CLIMATE CHANGE (GOAL 3)

Building resilience is about being ready to respond to current and potential climate change-related risks so we are ready to face the changes that may come. Actions under this goal allow us to take the knowledge we have gained in Goal 2 and build tools and practical know-how to effectively mitigate and adapt to the impacts of climate change. A total of 26 of 28 action items under Goal 2 are underway. There are four action areas under this goal.

ACTION AREA: SUPPORTING ECOSYSTEM VIABILITY

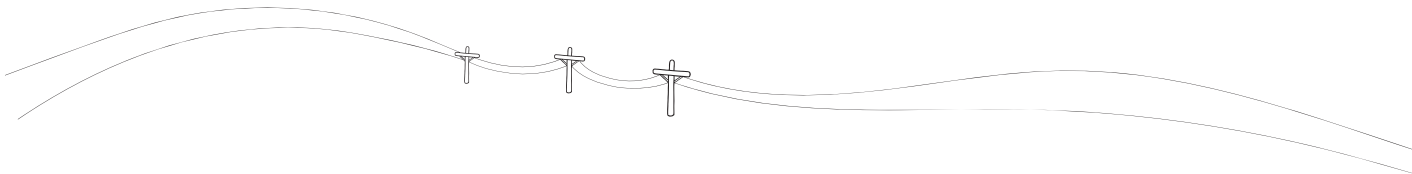
An ecosystem is the natural environment of a specific area including plants, soil, water, natural processes like wildfire, and all the animals that rely on that area. Supporting ecosystem viability is about finding ways to help ecosystems survive and thrive in a changing climate. A couple of ways to support ecosystems include recognizing and protecting sensitive areas, which can be done through land use planning, and by creating protected areas.

PROGRESS HIGHLIGHTS IN 2019/20

- The *Protected Areas Act* came into force in June 2019.
- The Thaidene Nënë Territorial Protected Area was formally established under this new act. The area is situated at the eastern end of Great Slave Lake.
- The GNWT and the K'asho Got'ıne signed an establishment agreement for Ts'udé Nilıne Tuyeta Protected Area in September 2019. This area lies west of the Mackenzie River and the community of Fort Good Hope.
- Progress was made towards an establishment agreement for the candidate protected area Dinàgà Wek'èhodi, located on the North Arm of Great Slave Lake.

PROTECTED AREAS

Thaidene Nënë was formally established in August 2019 and includes a 33,690 km² region composed of a Territorial Protected Area, a National Park Reserve and a future wildlife conservation area to be created under the *Wildlife Act*. The entire region encompasses a number of key ecological features, cultural opportunities and critical habitat for diverse wildlife. The entirety of Thaidene Nënë is designated by Łutselk'e Dene First Nation as an Indigenous Protected Area. Many communities and residents have deep ties to this area. Thaidene Nënë is being collaboratively managed by the GNWT, Parks Canada Agency, Łutselk'e Dene First Nation, Northwest Territory Métis Nation, Yellowknives Dene First Nation, and Deninu K'ue First Nation. Management of the territorial protected area must include climate change considerations, as stated in the *Protected Areas Act*.





Henry Tambour and his children at his farm on K'at'l'odeeche First Nation Reserve

ACTION AREA: MANAGING THE NATURAL ENVIRONMENT AND DEMANDS ON IT

An essential part of GNWT's role is to better understand climate change impacts on the environment and integrate this knowledge into management and adaptation plans. Important components of the environment that should be considered include wildlife, water, and forests.

PROGRESS HIGHLIGHTS IN 2019/20

- ENR released and began implementing the **Bathurst Caribou Range Plan** in August 2019. This plan will guide and support land use, regulatory and wildlife decisions that may affect this caribou herd. The goal of the range plan is to support the recovery of Bathurst caribou.

- ENR looked at ways to increase the amount of carbon stored in forests around the Cameron Hills, Birch Creek and Sandy Lake areas by assessing areas for planting which have not returned to forest after natural disturbances, and thinning areas that are overly dense.

ACTION AREA: PROTECTING AND SUPPORTING PEOPLE

Protection of people and culture is very important. This responsibility is shared by community, Indigenous, territorial and federal governments, as well as NWT residents. Actions listed in this report include finding ways to better predict how climate change will affect NWT communities and our way of life. With this knowledge, we can prepare for and adapt to these changes.

PROGRESS HIGHLIGHTS IN 2019/20

- **The Sustainable Livelihoods Action Plan 2019-2023** was released in August 2019 and includes actions to support climate change adaptation programs that focus on harvesting, traditional economy and country food security.
- Emergency plans for communities in case of extreme weather or fire have been updated, including:
 - Evacuation plans were completed for five major health care facilities.
 - All 33 NWT communities have identified cleaner air shelters and extreme heat event cooling centres.
 - All 29 NWT communities located in boreal forest have updated their Community Wildfire Protection Plans.

ACTION AREA: DESIGNING, BUILDING AND MAINTAINING RESILIENT INFRASTRUCTURE

Infrastructure, like buildings, roads and airports, can be significantly impacted by climate change. Buildings and roads may shift or degrade as the permafrost below them thaws. Winter roads are becoming less dependable because of unpredictable temperatures and shortened seasons. Adapting to climate change impacts will require significant changes to our transportation system in the NWT, such as building more all-season roads to replace winter roads.

PROGRESS HIGHLIGHTS IN 2019/20

- As part of the **Northern Infrastructure Standardization Initiative** (see sidebar), three new national standards were released in 2019/20:
 - CSA PLUS 4011.1:19 Technical Guide – Design and construction considerations for foundations in permafrost regions
 - CSA W205:19 – Erosion and sedimentation management for northern community infrastructure
 - CSA S504:19 – Fire resilient planning for northern communities
- Construction began on the Tłıchǵ Highway in September 2019. The 97 km-long road will provide year-round access to Whatì, and increase the winter road season for Gamètì and Wekwèètì.
- Remote sensing (LiDAR, or light detection and ranging) was used to survey the Dempster Highway and detect permafrost thaw. This information will be used to guide maintenance activities for the road.

INFRASTRUCTURE STANDARDIZATION

The Northern Infrastructure Standardization Initiative (NISI), established by the Standards Council of Canada, supports the development of infrastructure standards that are specific to infrastructure in the North and consider the impacts of climate change such as permafrost thaw, coastal erosion, and changing temperature and precipitation patterns. Standards have been developed to support community infrastructure and to mitigate extreme weather challenges. The standards can be found at www.scc.ca/en/nisi.

In 2019, four standards focusing on improving community drainage, managing changing snow loads, preventing permafrost degradation, and understanding thermosyphon foundation systems were summarized in plain language. Further information can be found at www.ecologynorth.ca/project/northern-adaptation/.



Cross-Cutting Themes: Leadership, Communication and Capacity-Building, and Economic Impacts and Opportunities

Each of the three goals of the CCSF has unique actions associated with it. The cross-cutting themes include actions that support all three goals. There are four action areas within the cross-cutting themes, as described in this section.

CROSS-CUTTING THEME: LEADERSHIP

The GNWT has committed to providing leadership on climate change issues throughout the territory. This means coordinating and working with our partners to carry out and report on the actions needed to implement the CCSF.

PROGRESS HIGHLIGHTS IN 2019/20

- The Mandate of the Government of the Northwest Territories (2019-2023) commits the GNWT to:
 - Strengthening its leadership and authority on climate change.
 - Ensuring climate change impacts are specifically considered when making government decisions.
 - Reducing the cost of power and increasing the use of alternative and renewable energy.
- The GNWT has several interdepartmental working groups at different management levels that regularly discuss and coordinate actions related to climate change, including seeking funding, establishing and strengthening partnerships, sharing knowledge to support the implementation of the Action Plan, and carrying out the work outlined in the Action Plan.
- The GNWT also participates in several initiatives led by outside parties, including:
 - Pan-Canadian Framework 2019/20 reporting.
 - Canadian Council of Ministers of the Environment Climate Change Committees to ensure NWT perspectives and needs inform the development of national guidance, such as the Good Practices in Climate Change Risk Assessments (to be released in 2020/21).
 - Pan-Territorial Adaptation Committee to support knowledge exchange and capacity-building between the NWT, Yukon and Nunavut.

CROSS-CUTTING THEME: COMMUNICATION AND OUTREACH

The GNWT and its partners are gathering information and best practices to deal with climate change. Finding ways to regularly share knowledge and best practices will be key to achieving the best outcomes. Communication and outreach involves working closely with our partners to share information, and ensuring that the same information is available to everyone for making decisions.

PROGRESS HIGHLIGHTS IN 2019/20

- The GNWT supported communications and outreach by:
 - Participating in an NWT Association of Communities (NWTAC) Annual General Meeting in February 2020 by providing climate change information during a themed session and at tradeshow booths.
 - Visiting communities to meet with Indigenous and community governments to better understand their climate change issues and needs, discuss progress on current projects and potential funding opportunities, and support for future projects.
 - Participating in community workshops to support the development of community focused climate change adaptation plans.
 - Supporting the development of a short video by the NWTAC highlighting climate change concerns from NWT communities' perspectives.
- The Minister of ENR met with a group of Yellowknife youth to discuss their climate change-related concerns.



ENR, INF and the NWT Association of Communities partnered to fund two new awards to recognize communities that are taking leadership in climate change. Inuvik received the Energy Excellence Award and Ulukhaktok received the Climate Resiliency Award in 2020.

BUILDING RESILIENCE

One of the ways the GNWT assists communities with accessing funding is through its role as an advisory member on the NWT Climate Change Adaptation Committee. The committee, which includes regular members representing IGOs and NWTAC, was established to provide climate change-related advice and funding recommendations for project ideas and applications received through the Climate Change Preparedness in the North and Climate Change Health Adaptation Government of Canada programs.

WERONIKA MURRAY



Climate change impacts in evidence in the Beaufort-Delta region

CROSS-CUTTING THEME: CAPACITY-BUILDING

Carrying out the actions in the Action Plan requires input and support from all of our partners. To address climate change, governments, communities and individuals need capacity and resources. Capacity-building ensures participation of people at a local, regional and territorial level.

PROGRESS HIGHLIGHTS IN 2019/20

- The GNWT supported Indigenous and community governments by:
 - Reviewing and providing climate change-related advice for funding applications and project proposals.
 - Sharing funding opportunities (see [Climate Change Preparedness in the North](#) and [Indigenous Community-Based Climate Monitoring Program](#) for a list of NWT projects funded).
 - Connecting researchers with communities.
- To support climate change knowledge-building for communities, the Department of Municipal and Community Affairs and ENR partnered to deliver a three-day in-person course to 10 participants, called Integrating Climate Change Measures into Municipal Planning and Decision Making, through the School of Community Government in Fort Simpson.
- The School of Community Government held two webinars, Climate Change for Councillors and Climate Change.



An elder and a community member at work at a hide tanning workshop in Łutselk'e

CROSS-CUTTING THEME: ECONOMIC IMPACTS AND OPPORTUNITIES

While there are economic costs to addressing climate change, there are also costs if actions are not taken to build resilience or adapt as the climate changes. Estimating the costs of climate change on infrastructure, the natural environment and residents allows us to put these costs into perspective and better understand the impacts of climate change on infrastructure, quality of life for residents, the environment, and economic activities.

PROGRESS HIGHLIGHTS IN 2019/20

The NWTAC and the GNWT partnered on a study to assess the economic cost implications of climate change in the territory. The study looks at the impacts of climate change on infrastructure, quality of life for residents and economic activities, and clarifies climate change adaptation practices. A report on the study and a plain language summary will be finalized in 2020/21.



The Ramparts River and its watershed, within Ts'udé Niliné Tuyeta territorial protected area, is a critical wetland that filters millions of litres of water per day

Evaluating Our Progress

Evaluating progress on the Action Plan involves:

- Keeping track of work done under each action, and
- Checking to see how well the individual actions are helping the NWT achieve the CCSF goals and cross-cutting themes.

Actions will be tracked and reported on each year as part of annual reporting.

In 2024, following the last year of the 2019-2023 Action Plan, an independent review and evaluation will take place to assess overall progress. Results of that review will inform the development of the 2025-2029 Action Plan. New issues, technologies and opportunities will also be considered in the review and revision of the Action Plan.



REDUCING GREENHOUSE GAS (GHG) EMISSIONS

Accurate reporting of GHG emissions will show the GNWT's progress toward meeting international climate goals.

GHG emissions in the NWT vary annually. This is because of fluctuating economic activity, climate conditions, and investments in renewable energy systems all affect the total use of fossil fuels. NWT GHG emissions

are calculated by ECCC each year and published 16 months after the end of the calendar year. In 2018, the NWT's total annual emissions were 1,260 kt CO₂e.

In 2019, GHG emissions reduction projects resulted in a net 6 kt CO₂e decrease. A preliminary list of projects to reduce GHG emissions from now until 2025 can be found in

the Energy Initiatives Report. Forecasts of GHG emission reductions will be updated every year and emissions are expected to continue decreasing to meet our 2030 target. The national and territorial commitment is to reach a 30 percent reduction in annual emissions from 2005 levels by 2030.

IMPROVING KNOWLEDGE

Many research and monitoring projects to address climate change knowledge gaps have been undertaken by the GNWT and its partners under Goal 2 of the Action Plan. Out of 54 action items related to Goal 2, 51 began in 2019/20. The focus in 2019/20 was on collecting baseline data

and information on all parts of the natural environment and on human health, public safety, culture and heritage, and infrastructure.

The work related to completing the action items outlined in the Action Plan in future years

will build upon the work that took place in Year 1. In Year 2, the GNWT and partners will continue with further research and monitoring, continued management and sharing of available data, and increased outreach activities with NWT communities and residents.

ADAPTING TO CLIMATE CHANGE

Knowledge gained through research and monitoring will be used to inform the GNWT's and partners' plans, policies, and operational practices on adapting to climate change. A total of 26 of 28 action items under Goal 3 are underway. Further progress on Goal 3 is dependent on the results obtained from the research and monitoring in Goal 2.



Sunrise at the Tundra Ecosystem Research Station at Daring Lake

Climate Change Investments

Overall, the GNWT estimates approximately \$54 million has been invested in Year 1 of carrying out the Action Plan. Significant resources have been and will continue to be invested to address climate change action items.

This total includes funds attributed to GNWT salaries for time spent implementing the action items and areas, associated operation and management expenses, as well as federal funding which was distributed by the GNWT for energy and adaptation-related projects.

Addressing Challenges

This first year of implementation of the Action Plan has seen successes but there have also been some challenges. Some of the key challenges are described in this section. The GNWT will use what was learned so far to adjust approaches in the following years of Action Plan implementation.

COORDINATED ACTION

Climate change is an issue that does not recognize regional boundaries. This is why most of the actions in the Action Plan require governments, organizations and individuals across the NWT to work together. The GNWT has had success in the past year in creating committees and working groups that include representatives from different regions and organizations. However, there is still a need to build and expand upon these partnerships. The NWT Climate Change Council, discussed in the next section (Looking Ahead) is one way to address this challenge.

HIGH COSTS IN THE NORTH

Although GHG emissions from the NWT make up less than 0.2 percent of Canada's total emissions, the NWT has the same target for reducing GHGs to 30 percent below 2005 levels as Canada. However, the NWT faces unique challenges to meeting that target, such as the high cost of living and high cost of energy. Unless technology improves in the near future, the NWT may struggle to reduce its use of carbon-based fuel in an affordable way.

AFFORDABLE AND ALTERNATIVE ENERGY

The 2030 Energy Strategy is focused on improving the NWT's energy system. The policy, program and project initiatives being implemented under this strategy are designed to ensure NWT communities, businesses, industry and people have access to reliable, affordable and sustainable energy.

Balancing these priorities is a significant challenge. Investments in certain energy initiatives, such as refurbishing Taltson and Snare hydroelectric generating facilities or rebuilding diesel-electric plants, are required to maintain reliability and

affordability, but they do not provide immediate benefits in GHG reductions. Similarly, investments in renewable energy systems help reduce GHG emissions but sometimes create challenges in terms of impacts on system reliability or energy costs. Over time, energy investments will yield more emission reductions as these projects come online.



Climate change is impacting traditional ways of life in the NWT such as the availability and harvesting of country foods

LIMITATIONS OF A SMALL JURISDICTION

A challenge across all Canadian jurisdictions is capacity and funding to address climate change. Only the 104 action items listed in Part 1 of the Action Plan are fully funded. The GNWT continues to work internally and with external partners to identify and secure funding to move forward with the rest of the actions in Part 2.

In October 2020, the GNWT announced the creation of 15 new positions and increased operations and maintenance funds. This additional funding will support Part 2 activities, however as it was finalized in 2020/21, it will be reported on in the Year 2 annual report.

COVID-19 PANDEMIC

On March 11, 2020, the World Health Organization declared a pandemic due to the rapid outbreak of COVID-19. The GNWT implemented safety measures and declared a public health emergency on March 18, 2020. As this was near the end of Year 1 of the Action Plan, some field work was cut short and some reporting was delayed. With the continuation of the public health emergency into 2020/21, some challenges and delays are anticipated for implementing Year 2 of the Action Plan.

Looking Ahead

The NWT's climate will continue to warm and change. The GNWT is committed to addressing the current and future climate change impacts as well as identifying potential opportunities to mitigate or adapt to these changes. The GNWT will continue to work together with all our partners to identify funding opportunities and form or strengthen partnerships to carry out the Action Plan.

NWT CLIMATE CHANGE COUNCIL

During an August 2020 meeting with the GNWT, Indigenous government and organization representatives expressed support for the creation of an NWT Climate Change Council. The GNWT will continue to work with these representatives in Year 2 (2020/21) to finalize a Terms of Reference and establish a Council. The Council will find ways to bring in the important perspectives and expertise of youth, elders, community governments, industry, environmental organizations and academics.

Once in place, the Council will offer guidance to the GNWT on the implementation of the Action Plan to ensure it remains effective and relevant. The Council could also guide ENR and other GNWT departments on how to best support Indigenous governments and organizations and communities in addressing climate change.

NEXT STEPS

The GNWT will continue to provide annual progress reports for the duration of the current Action Plan. ENR will continue to work together with INF and FIN on the shared goal of transitioning to a lower carbon economy, and with the other departments and partners listed in the Action Plan to meet all other commitments.



ANGELA GZOWSKI

An elder examines a hide at a tanning workshop held in Łutselk'e

