

Building Resilience: Climate Adaptation Plan



October 2022

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A Message from the Minister of Environment, Energy and Climate Action

Prince Edward Island is and will be uniquely affected by climate change. We just witnessed the devastation of Hurricane Fiona through high winds, storm surge and coastal flooding. We saw the impact on our homes, communities, livelihoods and mental health.

Our Government is committed to working with all partners and Islanders to build back stronger.

During the fall of 2021, my department released the first comprehensive provincial Climate Change Risk Assessment (CCRA). This report provided Islanders with a clear view of the impacts of climate change on our province.

The CCRA informs us of the conditions that we, our children and our grandchildren will experience over the coming decades. The task falls to us to ensure that our Island remains resilient in the face of growing climate impacts.

Building Resilience: Climate Adaptation Plan provides a concrete roadmap for our province to better prepare for the future while improving equity and resilience through lessening climate change's impacts on Islanders.

I would like to thank the public, stakeholders, experts, and academics for helping craft this plan. The love for our land and our collective concern about the impacts of climate change came through loud and clear.

The actions outlined in this plan - supporting vulnerable populations, primary industries, and our natural habitat - offer our government a solid roadmap for becoming a more resilient province.

There is much work to be done, and I want to let you know that you will see immediate and longer-term action throughout the plan's implementation. If you want to play a role in assisting in this work or getting involved, please reach out to me.

Steven Myers
Minister of Environment, Energy and Climate Action
October 2022

Executive Summary

Building resilience cannot be accomplished without coordination between residents, communities and all levels of government. We have the responsibility and the opportunity to rebuild and grow a climate-resilient future for our children, our industries and our natural environment.

Our province is acutely aware of the extreme weather that we will see due to climate change - not only based on research and projections but from what we have all experienced. Our province also recognizes the importance of community response and the need to identify what we consider essential to guide the deployment of resources during an emergency.
































The Province recognizes that the Mi'kmaq and Indigenous organizations on PEI have a longstanding relationship of respect and care with the natural environment. The Province worked closely with the Mi'kmaq and Indigenous organizations on the Climate Change Risk Assessment (CCRA). Through ongoing collaboration, the Mi'kmaq have made an irreplaceable contribution to our collective understanding of how climate hazards affect PEI and the unique risks faced by Indigenous communities.

Building resilience requires that we better plan for disasters and response, build more resilient communities, shift our industries, support our health and mental well-being in this new climate reality, protect and enhance our natural systems, and expand our knowledge and capacity to tackle what lies ahead.

PEI's Climate Adaptation Plan was created in collaboration with all provincial departments, as well as with community partners, industry, and Island residents. The climate path ahead of us is uncertain, but by building on our strengths and taking firm action - quickly - our province will adapt to this changing world and the climate challenges that face us.

Disaster Resilience & Response	Resilient Communities	Climate-Ready Industries
<ol style="list-style-type: none"> 1. Enhance Emergency and Extreme Weather Preparedness and Response 2. Develop a Coastal Flood Warning System 3. Improve the Electrical System 4. Increase Backup Power for Critical Infrastructure 5. Enhance Community Reception Centres and Supports 	<ol style="list-style-type: none"> 1. Create a Provincial Land Use Plan 2. Develop Province-wide Stormwater Management Standards 3. Increase Resilience of Public Infrastructure 4. Home Adaptation Renovations and Upgrades 5. Adaptation Plans for At-Risk Historical, Cultural and Archaeological Assets 6. Create a Municipal Climate Adaptation Program 7. Expand Climate Challenge Fund 	<ol style="list-style-type: none"> 1. Partner with Industry to Respond to Climate Risks of Farm, Fishing, and Tourism Sectors 2. Regional Supply Chain Resilience Study 3. Climate Change Training
Mental Health & Well-being	Natural Habitat & Biodiversity	Knowledge & Capacity
<ol style="list-style-type: none"> 1. Access to Food and Drinking Water 2. Extreme Heat Strategy 3. Support for Mental Health in our new Climate Reality 4. Provincial Vital Records Protection 	<ol style="list-style-type: none"> 1. Safeguard Surface Water Resources 2. Coastal Development and Habitat 3. Coastal Hazards and Adopting Nature-based Solutions 4. Protection for Climate-Vulnerable Species and Habitats 5. Enhancement of Trees and Forests 	<ol style="list-style-type: none"> 1. Research, Monitor, and Model Local Climate Conditions and Impacts 2. Provide Expertise and Resources to Departments for Climate Adaptation 3. Create Curriculum Materials on Climate Impacts for K-12 4. Public Awareness of Climate Impacts and Personal Adaptation Actions

Hazards and Impacts Identified in PEI's Climate Change Risk Assessment

 <h2>Coastal Hazards</h2>	 <h2>Post-Tropical Storms</h2>
 <p>Negative impacts on mental health</p>  <p>Real estate market, insurance industry and private homeowners</p>  <p>Damage to infrastructure</p>  <p>Endangered and at-risk species, changes to sand dunes and other ecosystems</p>	 <p>Coastline stability and hydrology may be altered</p>  <p>Potential power outages</p>  <p>Bridge access disrupted, blocking critical access to the province and communities</p>
 <h2>Extreme Heat Events</h2>	 <h2>Heavy Precipitation & Flooding</h2>
 <p>Public health – morbidity in vulnerable population</p>  <p>Agriculture, fisheries and tourism industries impacted</p>  <p>Potential power outages</p>  <p>Temperatures above 29°C for 3 consecutive days occur more</p>	 <p>Crop damage and contamination of adjacent waterways</p>  <p>Blocked access to some communities and disruptions to traffic routes</p>  <p>Hamper access to health care and EMS</p>
 <h2>Earlier & Warmer Springs</h2>	 <h2>Severe Ice Storms & Freezing Rain</h2>
 <p>Sensitivity of lobster to water temperatures and may decrease beyond 2050</p>  <p>Increase in pests, diseases and invasive species</p>  <p>Infrastructure damage from changes in freeze and thaw cycles</p>	 <p>Potential power outages</p>  <p>Limitations on travel (ground and air)</p>  <p>Downed trees and damage to property and infrastructure</p>  <p>High potential for loss of life and injury</p>
 <h2>Seasonal Droughts</h2>	<p>Climate change risks are interconnected and climate hazards can result in cumulative impacts.</p>
 <p>Crop loss</p>  <p>Negative impacts on mental health</p>  <p>Increased use of power and water</p>	<p>The impacts of climate change will not affect all people in PEI equally. Indigenous peoples and marginalized populations will be uniquely impacted.</p>

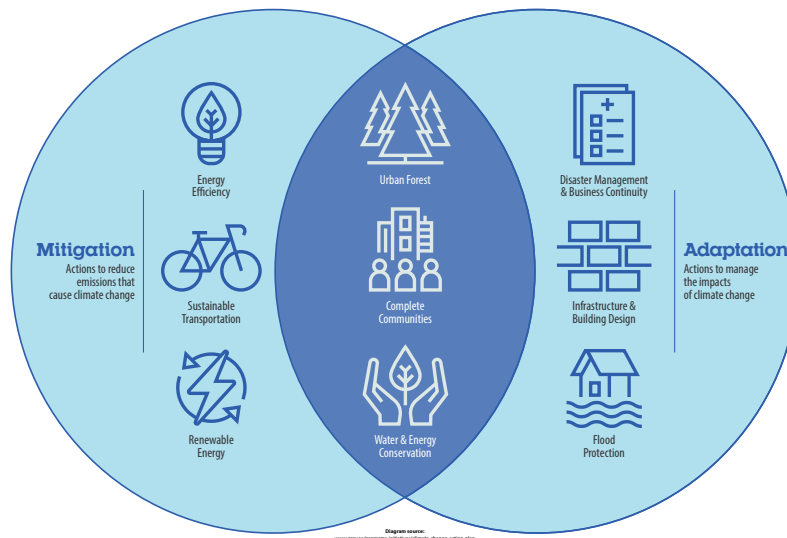
What is Climate Adaptation?

Climate adaptation involves building our communities, infrastructure and systems to prepare for the impacts of climate change. Climate adaptation can occur in the form of better emergency preparedness, stronger electrical grids, and tree cover to reduce heat impacts. On the other hand, climate mitigation includes actions like reducing greenhouse gas emissions to stop climate change from worsening.

There are generally two types of action that are taken to address climate impacts:

1 Mitigation
Mitigation refers to actions that stop climate change from getting worse. This includes reducing our greenhouse gas emissions, changing to cleaner sources of fuel and power, and planting trees.

2 Adaptation
Adaptation refers to the adjustments we make to prepare for the inevitable impacts of climate change. This includes avoiding building in high-risk places, designing bridges to accommodate rising sea levels, preserving natural spaces that can absorb heavy rainfall, and preparing for extreme weather events by having an emergency kit and plan.



Building Resilience while Achieving Net Zero.

Building a strong province to withstand the impacts of climate change while achieving our net zero goals means adopting strategies that can reduce our greenhouse gas emissions and our vulnerability to climate change at the same time.

An example of Building Resilience and achieving Net Zero Goals

Planting gardens and adding green spaces on roofs is a way to help cool a building and provide shade during extreme heat events. This green infrastructure can also help reduce energy demand, carbon emissions, and blackouts. The plants and shrubs absorb (sequester) carbon and improve air quality by filtering pollutants.

Our Vision for a Strong Province

Our province and its residents are and will continue to be impacted by climate change. Severe storms, coastal erosion and flooding, extreme heat, heavy precipitation, and impacts on our homes and livelihoods are unfortunate realities. We have an opportunity to build back stronger, and that's what we are committed to doing. We are also committed to supporting our residents in shifting to this new climate reality and spurring and supporting collective action to face this climate emergency.

Development of Building Resilience Climate Adaptation Plan Timeline



Auditor General's Report identifies need for a comprehensive climate change risk assessment
March 2017



Indigenous Engagement begins
December 2021



401 Online Survey Responses
May 2022



PEI's Climate Change Action Plan (2018 -23) released
February 2018



11 Departmental Workshops
January 2022



Detailed prioritization, cost estimates, and action refinement with departments
June-September 2022



PEI's Climate Change Risk Assessment released
October 2021



59 Stakeholder Groups Interviewed
February-June 2022



Release of Provincial Climate Adaptation Plan
October 2022



Coastal hazard information platform (CHIP) maps released
November 2021



**15 Municipalities Interviewed and...
22 Municipal Survey Responses**
April-June 2022



Development of an Adaptation Plan for PEI begins
December 2021



6 Public Engagement Sessions
May 2022

Guiding Principles

The following principles helped guide the development of this plan and its actions and will continue to guide our adaptation actions.



Achieve Equitable Outcomes

The impacts of climate change are not universal and will uniquely burden vulnerable populations. We commit to focusing on equity in our climate response.



Leverage Ways of Knowing

We are committed to seeking these opportunities by prioritizing local context and place-based knowledge, elevating historically-excluded voices, and co-creating a path forward.



Advance Reconciliation

Indigenous communities have a close and enduring relationship with the natural environment. We hope to advance reconciliation with Indigenous Peoples in PEI by learning from past failures and seizing new opportunities to build resilience together.



Work Together

Climate impacts are increasingly being felt across all communities, all sectors, and all levels of government. Working together will better align our efforts, resources, and abilities.



Be Ambitious

Worsening climate impacts have prompted the need for increasingly bold and urgent action. We recognize that meaningful and effective climate adaptation requires a commitment to innovation, collaboration, and ambition.

Themes of Climate Adaptation

Disaster
Resilience &
Response

Resilient
Communities

Climate-Ready
Industries

Health and
Mental
Well-being

Natural
Habitat and
Biodiversity

Knowledge
and Capacity

Disaster Resilience & Response

Extreme weather events are occurring more often due to climate change and directly impact our homes, workplaces, essential services, and the natural and built infrastructure in our communities. The ability of infrastructure and other assets to withstand these impacts ensures residents' safety and access to emergency and essential services.

We must be better prepared, and we are committed to doing so.

Action 1 Enhance Emergency and Extreme Weather Preparedness and Response

Extreme weather conditions will be an unfortunate reality for our province. Although the Province has worked with many of our municipalities to develop emergency management plans, there are lessons from events like Dorian and Fiona that can be implemented to limit the loss of infrastructure and reduce the time required to restore essential services.

The Province will:

- Support community partners to develop a system to allow individuals to sign up as vulnerable residents;
- Coordinate with the federal government and telecommunications partners to establish restoration and resiliency plans for radio, cellular and landline service;
- Work with the federal government and media partners to create plans for providing communications before, during and after an extreme weather event;
- Provide funding to partner with community organizations to deliver food, water and basic supplies and/or financial support to residents during an extended emergency;
- Assist municipalities and residents to develop debris clean-up plans and training programs such as courses on chainsaw use, first aid, and safe food handling practices; and
- Partner with community groups and municipalities to deliver information on emergency preparedness and provide support for the dissemination of emergency supplies to vulnerable populations, including battery radios and non-perishable food.

Action 2 Develop the Coastal Flood Warning System

Environment and Climate Change Canada (ECCC) issues storm surge warnings through its public weather alert system. A warning is issued when they expect unusually high waves and water levels caused by storms, primarily during high tides. In 2017, the Institute for Catastrophic Risk Reduction (ICRR) identified an issue with the current warning system. It recommended that information about risk and impact factors should also be included in warnings.

The Province will:

- Continue to work with ECCC to improve the warnings for PEI by including additional information regarding potential risks to coastal roads and homes near shorelines; and
- Better prepare for storm surge events, improve public safety, and minimize infrastructure damage.

Action 3 Improve the Electrical System

During and after post-tropical storm Fiona, we experienced the most extensive electricity grid failure our province has ever seen. The hardships felt by residents and the money and labour required to restore power were extensive and unprecedented.

We rely on consistent and available electricity for heating and cooling, the delivery of essential services, and the function of business. The importance of a resilient electrical grid will only increase as we increasingly electrify our lives and industries.

The Province will:

- Partner with Maritime Electric, Summerside Utility and the PEI Energy Corporation (PEIEC) on strengthening the grid, including developing preventative measures, enhancing restoration planning, and determining what areas or applications might benefit from burying power lines;
- Continue to develop on-Island generation and storage capacity to ensure the resilience of the electrical supply;
- Investigate further opportunities for community energy generation and storage; and
- Work with utilities to enhance call centre service, ensuring residents can connect to report damage or outages.

Maritime Electric Climate Risk Assessment

Maritime Electric, with the support of the Department of Environment, Energy and Climate Action under the PEI Climate Challenge Fund is undertaking a climate risk assessment on transmission and distribution assets. This work will focus on improving resilience in the grid and the unique risks the transmission and distribution assets will face in light of the climate projections for PEI.

Action 4 Increase Backup Power for Critical Infrastructure

Backup power generation for critical provincial infrastructure is required to maintain essential services during and after extreme weather events.

Public Safety Canada classifies critical infrastructure in these sectors: energy and utilities, finance, food, transportation, government, information and communication technology, health, safety, water, and manufacturing.

The Province will:

- Review and publish guidelines for priority lists for generators and restoration of electricity by utilities;
- Identify the age and assess the adequacy of existing backup power supplies for critical infrastructure;
- Create or update policies and/or legislation to ensure generators are installed and maintained, especially for public health and safety-related systems and services;
- Invest in backup power generation for publicly-owned essential services and infrastructure;
- Establish a cost-sharing program to provide backup power for essential services that are privately owned; and,
- Create policies regarding inspection processes to ensure that backup power supplies are maintained.

Sunbank Project

In partnership with Samsung, a new \$69 million solar farm in Summerside covers 30 hectares and features more than 65,000 solar panels. The solar farm will produce around 21 megawatts of electricity with battery storage. This project will increase Summerside's self-generation from 42% to 65%. Self-generation and battery storage increase Summerside's resilience during power outages or grid failures.

Action 5 Enhance Community Reception Centres and Supports

As part of their emergency management plans, municipalities are responsible for operating reception centres and choosing which services to provide and how. The Province is responsible for emergency management in unincorporated areas.

The Province will:

- Assess the existing centres, as well as their service accessibility and their capability, such as:
 - Occupancy limits
 - Cooling capacity
 - Flood vulnerability
 - Food preparation and storage
 - Showers
 - Backup power
- Complete assessments of other community assets, such as:
 - Communications systems
 - Fuel supplies
 - Debris-clearing equipment
 - Food distribution
 - Ability to meet the needs of vulnerable populations

The results of this work will be used to prioritize needs with the proposed Municipal Climate Adaptation Program (Action 11) and efforts to improve backup power for critical infrastructure (Action 4).

Resilient Communities

One of the strengths of PEI is our community connections. This is never more evident than during an emergency. With this in mind, we must continue strengthening our communities and making smart choices for our future.

Our communities require support to know how to develop, adapt existing infrastructure and protect cultural and historical sites and artifacts to be climate resilient.

Action 6 Create a Provincial Land Use Plan

Although many municipalities utilize land use planning, over 90% of PEI's land area relies on the Province for this work. There is no current provincial land use plan or policies to guide future development or changes regarding land use.

A land use plan can prevent development in places that may experience hazards such as erosion and flooding. Land use planning can also help protect natural areas that remove carbon or function as nature-based solutions to erosion or flooding.

The Province will:

- Collaboratively develop a provincial land use plan that could include:
 - Requirements to maintain natural areas in new subdivisions;
 - Regulations regarding new development in areas that are at higher risk of flooding, contamination, and coastal erosion; and
 - Protection of vulnerable landscapes and valuable habitats such as sand dunes, wetlands, ponds, and forest-covered areas.

Action 7 Develop Province-wide Stormwater Management Standards

Overland flooding during heavy rainstorms can damage properties and infrastructure not designed to handle the additional water. Flooded basements and road washouts are becoming more common, which brings disruptions, safety concerns, and high costs.

Stormwater management plans prepared by qualified engineers ensure that stormwater is directed away from buildings and that infrastructure can handle the moving water. Currently, stormwater management plans are not required under provincial planning regulations.

The Province will:

- Create regulations that require all new subdivisions to have stormwater management plans to help protect developments from future overland flooding events;
- Implement nature-based solutions to assist with water management;
- Guide homeowners regarding reducing their risk and flood management.

Action 8 Increase Resilience of Public Infrastructure

New developments and renovations built and conducted across PEI must adapt to climate change. In Canada, national codes (i.e., National Building Code, Canadian Electric Code, and National Fire Code) have traditionally been based on historical climate data. Over the past five years, work has been done to update these codes to consider climate hazards.

Public infrastructure should be assessed for risks. The Department of Environment, Energy and Climate Action is completing Critical Infrastructure Vulnerability Assessments (CIVAs) for coastal public infrastructure. These assessments can be expanded to include other infrastructure.

The Province is already designing bridges, culverts, and buildings with climate hazards in mind. However, more can be done to enhance the resiliency of critical infrastructure.

The Province will:

- Adopt updated codes for public infrastructure, including water and wastewater services, communications and internet infrastructure;
- Prioritize using updated codes and standards for residential care and affordable housing developments;
- Expand Critical Infrastructure Vulnerability Assessments to at-risk public infrastructure;
- Partner with the federal government to implement innovative, nature-based solutions for public infrastructure and areas; and
- Build, upgrade, and repair public infrastructure to increase its climate resiliency.

Action 9 Home Adaptation Renovations and Upgrades

Homeowners want their properties to feel safe and secure in this changing climate. Fortunately, there are adaptations that property owners can implement to help reduce the impacts of flooding, extreme heat, and wind and ice damage. However, many homeowners do not know what adaptations to make and cannot afford to complete this work without the support of a program similar to PEI's Greener Homes.

The Province will:

- Create a Resilient Homes program to help people protect their homes from climate impacts. Tenants, landlords, property owners, and developers will be eligible.
 - A home audit will help identify risks and suggest cost-effective ways to reduce them.
 - Retrofits could include backwater valves and alarms, backup sump pumps, heat pumps for cooling, window well covers, and downspout redirection.
 - The program will offer rebates and incentives for retrofits, and initiatives that help vulnerable residents, such as low-income households, will be prioritized.

Action 10 Adaptation Plans for At-Risk Historical, Cultural and Archaeological Assets

Erosion and coastal flooding have and will continue to put historical and cultural landscapes, areas and infrastructure at risk. The loss of sites significantly impacts our mental health, cultural ties, and sense of place. Additionally, erosion and other impacts will increase the uncovering of archaeological matter. It is crucial to partner with Indigenous communities and cultural groups throughout this work.

The Province will:

- Identify and evaluate at-risk historical, cultural and archaeological assets and collaboratively develop plans for adaptation with affected communities, including Indigenous, Acadian, and other ethnocultural groups;
- Design appropriate solutions to preserve, wherever possible, historical and cultural artifacts significant to the history of the Island; and
- Work with Indigenous communities to allow for a comprehensive approach to and analysis of archaeological artifacts, sites, and regions.

Action 11 Create a Municipal Climate Adaptation Program

Municipalities play an essential role in building stronger communities and reducing the impacts of climate change. Municipalities have partnered with the Province to complete critical infrastructure assessments, emergency management plans and climate change strategies. Municipalities identified capacity-building and knowledge as essential to strengthening our communities, as well as a willingness to use innovative tools to drive this work.

The Province will:

- Identify priorities for each municipality, including land use and emergency planning; and
- Create a Municipal Climate Adaptation Program to help municipalities adapt to climate impacts through actions such as increasing shade canopy, installing outdoor water fountains, performing tree restoration, installing green roofs, and much more.

Action 12 Expand Climate Challenge Fund

In 2020, the Province created a Climate Challenge Fund with an annual budget of \$1 million to support innovative projects led by business, not-for-profit organizations, municipalities, and academic institutions. Initially, the fund was created to support the Climate Change Action Plan (2018-2023). However, over the last year, the Province has set new and more ambitious climate change objectives through the 2040 Net Zero Framework and in this Climate Adaptation Plan. As a result, more projects and groups will need to be funded to complete this work.

The Province will:

- Allocate a \$1-million budget to support the 2040 Net Zero Framework;
- Allocate a separate \$1-million budget for an adaptation stream to support the actions and objectives of this Climate Adaptation Plan.

Supporting Local Climate Action in Communities:

The Climate Challenge Fund (CCF) is a \$1-million annual fund that supports projects that either reduce greenhouse gas emissions, or help Islanders and communities adapt to a changing climate. Since 2020, the CCF has supported adaptation-related projects by forty-three (43) organizations, businesses and communities for a total \$3,346,749.

Climate-Ready Industries

Changing climate conditions are already resulting in challenges to how we farm, fish, and provide tourism experiences and services in PEI. Drier summers, warmer winters, and longer shoulder seasons mean that our industries and businesses are looking for new techniques, technologies, and expertise to adapt.

Additionally, it became apparent during the COVID-19 pandemic that disruptions to supply chains, such as those resulting from extreme weather, can significantly impact governments, local industries and businesses operations and services.

To build more robust, climate-ready industries, the Province will work with industry partners to continue identifying opportunities to adapt and ensure that our supply chains are more secure.

Action 13 Partner with Industry to Respond to Climate Risks of Farm, Fishing, and Tourism Sectors

In the face of climate change, we must continue to provide support and guidance for our primary industries to adapt and build resiliency.

The Province will:

- Identify priority risks for each industry;
- Coordinate to streamline existing and future programming and supports to adapt to new realities, such as aligning access to labour during the shifting seasons;
- Provide guidance and support to shift to practices and products that can help withstand climate impacts and capitalize on the shifting climate;
- Establish funding programs in partnership with the federal government to allow for innovative technologies and practices to be tested while reducing risk to the industry, such as new gear and technology, pest management and new commercial species.

Before and after extreme weather events, our primary industries require support and planning to reduce damage and losses associated with climate change.

The Province will:

- Work with the federal government and industry to develop emergency plans by sector;
- Enhance boat lifting capabilities in each region and establish a prioritization list for securing boats and gear; and
- Support the agricultural industry in identifying supports for farmers to prepare for and recover from extreme weather, such as access to more accurate weather data, harvest supports, backup generation, and livestock evacuation.

The Resilient Agricultural Landscapes Program (RALP) has been established by the federal and provincial governments to support carbon sequestration, adaptation and address other environmental co-benefits on farms. this supports the work of the Department of Agriculture and Land's Alternative land use Services (ALUS) program.

Action 14 Regional Supply Chain Resilience Study

Creating a dependable supply chain is an essential response to climate change. For example, agricultural producers rely on inputs from around the world to grow crops. Our healthcare system also depends on other provinces' professionals, medicines and services.

The Province will:

- Identify critical goods and services required in the province during a disaster (e.g. oil and gas and baby formula) and timelines for replenishment; and
- Pursue opportunities to work with Atlantic colleagues, including Indigenous communities, to identify ways to secure access to goods and services across the region.

Action 15 Climate Change Training

Industries and community organizations have asked for support and expertise to take action on climate change. Students and recent university and college graduates also require opportunities to build skills and gain valuable work experience.

ClimateSense, a local program co-led by the Province and UPEI, has provided training and nearly 30 internships focused on climate adaptation and response. This provides students with the tools they need to develop into their careers and boosts the capacity of organizations to take action on climate change.

The Province will

- Renew and enhance the ClimateSense program;
- Support the development of new climate jobs and training opportunities for university and college students, as well as recent graduates, to contribute to local climate action.

ClimateSense has also helped over 300 local professionals develop new knowledge and skills.

The Province will also:

- Support training to help individuals and groups take part in climate-related training online, locally or elsewhere in Canada; and
- Partner with organizations to create and deliver training and development opportunities for critical professions in PEI, such as farmers, fishers, teachers, mental health professionals, and social workers.

Climate Jobs

We partnered with UPEI and Natural Resources Canada to deliver ClimateSense—a training and development program that helped recent graduates and local professionals develop climate change-related skills and complete projects that increased the resilience of Island organizations. Twenty-nine (29) intern placements were completed with 15 organizations.

Health & Mental Well-being

Climate change is already putting pressure on people's physical and mental well-being and will continue to have worsening effects. Health-related impacts on PEI may include temporary or permanent loss of shelter, isolation, physical or emotional trauma, infectious diseases, heat stress, and loss of livelihood and culture. Climate change will also continue to impact health-related infrastructure, including facilities like hospitals and long-term care homes, and access to healthcare services and community care support.

Action 16 Access to Food and Drinking Water

With disruptions in supply chains and transportation, it is essential for all regions and the province to understand the availability of food and water in this new climate reality. The Province must determine what supplies must be on hand to secure the supply chain (Action 14) in the case of distribution.

The Province will:

- Provide additional support for communities and organizations to have community gardens, cold storage, and greenhouses;
- Assess the capacity of senior food programs and emergency food and water delivery systems;
- Examine the infrastructure required to reduce food spoilage during prolonged outages;
- Provide support to vulnerable communities ahead of weather emergencies to increase food supplies; and
- Examine publicly accessible safe drinking water needs in communities and during emergencies.

Community Food Security

The Community Food Security and Agriculture Awareness Program supports community-led education programs and outreach activities that will result in local market expansion and improved community food security, i.e. raise the profile of PEI agriculture, increase access to affordable local food, or improve health and food safety.

Action 17 Extreme Heat Strategy

Rising temperatures and unpredictable weather patterns will result in more frequent and intense extreme heat events. Higher temperatures for more extended periods will disproportionately impact the Island's most vulnerable residents.

The effects of heat on the health and social cohesion of people living on PEI will depend on how individuals, public health and emergency management officials, and community and social service providers prepare and respond.

The Province will:

- Establish a Heat Alert and Response System(s) (HARS), that can:
 - Enhance response coordination during extreme heat events;
 - Communicate advice for outdoor worker safety and what to do for organized recreation, sporting and cultural events in extreme heat; and
 - Identify temperature thresholds to activate additional resources and enhanced responses necessary to protect our most vulnerable populations (e.g. seniors, children, etc.).

The Province will also:

- Provide cooling and shade systems to organizations and infrastructure such as seniors housing, shelters, public spaces, and food banks;
- Continue to offer heat pumps with a cooling capacity to seniors and low-income residents;
- Work with tenants and landlords to provide cooling and shade;
- Develop guidelines for shade for schools and childcare centers grounds; and
- Offer trees and shrubs to increase shading and reduce heat sinks.

Action 18 Support for Mental Health in our new Climate Reality

The personal and collective mental health impact of climate change is a growing reality that must be addressed. The effects of climate change are shifting our connections to and use areas we know and love. The changing climate's impact on landscapes, livelihoods, and well-being is creating increased mental health pressures. Additionally, the anxiety to take action and the anger regarding a lack of progress on climate change are also prevalent.

Farmers, fishers and Indigenous communities have been on the frontlines of climate change. They will continue to need support to navigate this new reality. In addition, our children and youth are acutely aware of the impacts of climate change and how it will affect their livelihoods.

The Province will:

- Expand the mental health program, Farmers Talk, to include acute support for climate impacts and extreme weather events;
- Develop guidelines for including nature-based programming and access to green areas;
- Provide professional development training for teachers, support staff and other community members to support child and youth mental health related to climate change;
- Ensure that during a wide-scale disruption, vulnerable populations have access to communications and radios to enable connection; and
- Increase transparency and accountability for our personal and collective responses to climate change.

Action 19 Provincial Vital Records Protection

Climate hazards can impact the storage of and access to provincial vital records such as birth and death certificates, land deeds, and various licenses. To reduce the potential financial, medical, and legal impacts for residents of PEI if the records were damaged, vital records needed to be preserved and made accessible during post-disaster recovery.

The Province will:

- Create a Vital Records Policy to identify and manage climate risks to provincial facilities that hold vital records; and
- Develop an inventory and response process following an extreme weather event.

Natural Habitat & Biodiversity

Climate change will impact natural systems, but harnessing natural systems can also improve our resilience to climate change. Our relationship with nature needs to shift, and we must take bold steps to preserve biodiversity and ecosystem functions.

In securing our landscapes and services, nature-based solutions are the first consideration. Nature can help conserve our landscapes and infrastructure, as well as assist with our mental health and well-being.

Action 20 Safeguard Surface Water Resources

The Island's watercourses are a critical aspect of its natural systems. However, they are particularly vulnerable to development activities due to the high demand for waterfront properties. Where and how we build and grow crops near rivers, streams, and wetlands must be done in ways that protect the Island's water and watercourses.

The Province will:

- Assist in ensuring public landowners have access to native trees, shrubs and vegetation that can enhance the habitat along watercourses and help recover from extreme events;
- Continue to enforce regulations under the *Environmental Protection Act*; and
- Encourage property owners and farmers to minimize their impacts on lands next to watercourses by participating in the newly expanded Alternative Land Use Services (ALUS) program and the newly created Buffer-Zone Buyback program.

Action 21 Coastal Development and Habitat

The beauty of the Island's seascapes continues to draw development to coastal areas. Unfortunately, this coastal development often occurs near vulnerable systems such as eroding shorelines, sand dunes, and wetlands. Tidal wetlands and sand dunes provide wildlife habitats and storm protection from flooding and erosion to adjacent lands while removing carbon from the atmosphere.

While the natural coastline is vulnerable to our actions, coastal residences and businesses are also at risk due to coastal erosion and coastal flooding. Limiting development in hazardous coastal areas protects ecosystems and avoids property damage.

The Province will:

- Introduce new province-wide policies and regulations to limit activities and future development in coastal areas to reduce the vulnerability of homeowners and businesses while protecting coastal habitat and storing carbon;
- Develop an awareness campaign on how many insurance plans do not cover coastal flooding and erosion, and the accompanying financial risks;
- Provide support for businesses and homes to relocate outside of the coastal area if impacted by a weather event; and
- Work with the real estate and construction industry to provide clearer information on coastal hazards before purchasing or developing a property.

Action 22 Coastal Hazards and Adopting Nature-based Solutions

Property owners are looking for lasting and affordable ways to minimize risks. Unfortunately, in many places, installing traditional hard armouring on coasts has resulted in the degradation of coastal habitat, the loss of public sandy beaches, and accelerated erosion of adjacent properties. In recent years, alternatives to conventional armouring have been receiving attention as nature-based solutions are more sustainable and affordable options for existing properties at risk.

The Province will:

- Help property owners identify the nature of the coastal hazards that are impacting their properties and the most appropriate response;
- Develop a program to support nature-based solutions to erosion and flooding for lower-income individuals; and
- Establish a cost-shared program for industries and businesses to reduce their coastal hazard risks.

Building with Nature - Souris

Souris, due to rising sea levels, reduced ice coverage and stronger storms, has witnessed the erosion of its sandstone shoreline, threatening vital transportation routes and infrastructure. The Department of Transportation and Infrastructure developed a two-part shore protection scheme for the causeway that combined hard protection for the highway infrastructure with beach restoration.

1. A timber/pile seawall was constructed parallel to highway

This seawall allows for the protection of the highway but also extends the boardwalk. The wall was set back from the beach to allow for beach restoration.

2. Dune restoration and shoreline stabilization using reef systems

The beach restoration works included the construction of two intertidal reefs. This is the first time intertidal reefs have been used on the Island.

The sandstone reef structures provide two primary functions: wave attenuation, dampening the effects of storm waves on the beach area and highway infrastructure; and creating a place of calmer water on the landward side of the reefs where sand that is moving along the shore area will slow down and deposit and, over time, accumulate and cause the beach to grow/extend offshore towards the reefs. The result is increased beach width and protection of the dunes and coastal/highway infrastructure.

Action 23 Protection for Climate-Vulnerable Species and Habitats

Protected lands will play a prominent role in our province meeting our greenhouse gas emission targets and becoming more resilient. Currently, protected lands on PEI include areas covered under the *Natural Areas Protection Act*, *Wildlife Conservation Act* and private areas protected through conservation agreements. Approximately 90% of the PEI's land area is privately-owned; however, there are opportunities to increase our protected areas.

The Province will:

- Acquire and manage lands of strategic importance to conserve natural habitats at risk, as well as those that could reduce the hazards of climate impacts, along with our partners, including the Nature Conservancy of Canada, Island Nature Trust, and Ducks Unlimited Canada;
- Purchase vacant land where salt marshes are vulnerable to coastal squeeze; and
- Examine increasing the area of Protected Lands through land use designations and amendments in the proposed Land Use Planning Act and its regulations (Action 6).

Action 24 Enhancement of Trees and Forests

Trees can assist our province with reducing heat, erosion, coastal flooding and soil degradation. Alternatively, the loss of trees reduces our ability to adapt to the impacts of climate change and can impact mental health and well-being. We need species and techniques to adapt to build stronger hedgerows, buffer zones and forests.

The Province will:

- Ensure a diversity of trees and vegetation planted in areas to enhance natural systems and provide additional resiliency;
- Increase wind-firming exercises in treed areas with pruning;
- Develop guidelines to landowners and municipalities on recommended types and varieties of trees and vegetation based on location and topography;
- Provide further training and support to municipalities and fire departments for FireSmart to increase response capacity for forest fires; and
- Support municipalities, utilities, and land conservation partners to complete forest and tree assessments and restoration projects.

Protecting Species at Risk

Through the PEI Priority Place Forested Landscape for Species at Risk, a joint program of Environment and Climate Change Canada and the provincial government guidelines for municipalities and residents have been developed to protect habitats, buffer zones and native species.

Knowledge & Capacity Building

Confronting the challenge of worsening climate hazards in PEI means we will need to better equip ourselves with the knowledge, skills, and networks necessary to reduce the risk to our infrastructure, homes, and activities. While progress has been made through the CCRA and other research, disseminating this information is critical to empowering all Islanders to understand the impacts of climate change. Additionally, some actions can be taken at the personal, household, and business levels to increase our climate resilience.

Action 25 Research, Monitor, and Model Local Climate Conditions and Impacts

Observing, understanding, and predicting how our climate is changing now and how it will change in the future is essential. Continued advancements in technology in climate science are happening all the time. While access to data is critical for evidence-based policy and programming, so is ensuring that data and information are presented in a way that individuals and industries can easily understand to facilitate solutions and decisions.

The Province will:

- Work with key partners to monitor the coast, weather, soil, freshwater, marine waters, and tides;
- Collect new data on hazards such as heat and flooding;
- Continue to support groups that help people and professionals on PEI make use of climate and monitoring data; and
- Support the development of accessible technology to provide climate information to individuals and industries to enhance our collective understanding.

Canadian Centre for Climate Change and Adaptation (UPEI)

As a destination for world-class research and learning, the Canadian Centre for Climate Change and Adaptation (CCCCA) at the University of Prince Edward Island provides expertise and collaboration within a “living laboratory” setting.

Housed within the CCCCCA in St. Peter’s Bay, the UPEI School of Climate Change and Adaptation offers students and researchers the unique experience of learning climate science surrounded by our Island landscapes. Students can receive a Bachelor of Science in Applied Climate Change and Adaptation and use technology such as drones, virtual reality, and data analytics to address climate change issues.

This program meets a growing demand for a balance of theoretical knowledge and practical experience with technology-based learning to help build climate expertise capacity for climate skills on PEI.

Action 26 Provide Expertise and Resources to Departments for Climate Adaptation

All government departments are involved in leading climate action. In 2019, Ministers were told in their mandate letters that they must consider how the climate affects their policies, programs, and portfolios. At present, at least one staff member in each department acts as the Climate Change Coordinator in addition to their regular work.

Some departments have also identified the need for more specialized roles. For example, the Indigenous Relations Secretariat has proposed the creation of an Indigenous Climate Change Coordinator to work on Indigenous community projects related to climate change.

The Province will:

- Create full-time positions for Climate Change Coordinators, where appropriate;
- Provide professional development training for public service employees on climate adaptation;
- Issue statements, guidance, and policy on climate change adaptation and best practices; and
- Track progress on the implementation of this plan and ensure adequate resourcing.

Action 27 Create Curriculum Materials on Climate Impacts for K-12

Children and youth under 18 will be among those most affected by climate disruptions. Schools have the opportunity to teach students about climate impacts, how to take collective action, and ways to deal with climate anxiety and despair. These materials will help students drive personal and community efforts that safeguard their future.

The Province will:

- Create French and English curriculum materials that:
 - Use local information and examples;
 - Explore different ways of building and sharing knowledge;
 - Showcase the implementation of climate actions;
 - Help students understand the emotional aspects of climate change and look after their well-being;
 - Create opportunities to learn by doing; and
 - Teach students critical thinking skills.

Action 28 Public Awareness of Climate Impacts and Personal Adaptation Actions

Residents need to know what actions they can take to reduce or limit adverse climate impacts. Public awareness campaigns, workshops, and training manuals can provide accessible and consistent information on climate change and emergency preparedness.

The Province will:

- Launch annual public outreach campaigns focused on key hazards such as extreme heat and flooding as well as impacts such as mental health and well-being;
- Ensure that all information, tools, and resources are available in multiple languages and formats, including accessible formats;
- Provide workshops on adapting to climate change, as well as household and business emergency preparedness; and
- Continue to strengthen communication protocols surrounding extreme weather events and recovery.

Measuring and Reporting Progress

Measuring progress on adaptation and improving resilience in our communities is not a straightforward task. We will need regular monitoring to see if actions as envisioned today yield the impacts that we hope for. Adjusting the approach is expected as new information comes to light. Progress and accountability on the Climate Adaptation Plan will be reported annually through the *Minister's Report on Climate Change Risks and Progress Towards Targets*. The framework for monitoring will include how the work undertaken aligns with our guiding principles, as well as tangible metrics supported by qualitative data.



Conclusion

Climate change is our new reality. Despite our province's best efforts to reduce our greenhouse gas emissions and achieve our net zero goals, we will continue to experience the impacts of climate change. However, more robust systems, infrastructure, emergency response capacity, and ecosystems can help us become more resilient.

The actions outlined in this plan will shift how we plan, develop and grow but will ultimately improve our economic, social and personal resilience. We have outlined our guiding principles and will ensure that we use those to direct our actions and investments in the implementation of the plan.

We are a resilient community, and thanks to all of those who contributed to the development of this plan, we will continue building resilience.

APPENDIX A

1. Summary of Actions and Departments

The Climate Adaptation Plan is a whole-of-government strategy. Government is increasingly incorporating climate adaptation into planning and program delivery. Below is an overview of the themes and actions that will guide our government to build a more resilient province.

Department and Organizations Acronym List

AL	Department of Agriculture and Land
ECO	Executive Council Office
EECA	Department of Environment, Energy and Climate Action
EGTC	Department of Economic Growth, Tourism and Culture
ELL	Department of Education and Lifelong Learning
HW	Department of Health and Wellness
FC	Department of Fisheries and Communities
FIN	Department of Finance
JPS	Department of Justice and Public Safety
SDH	Department of Social Development and Housing
TI	Department of Transportation and Infrastructure

Appendix A - Overview of Actions under the Climate Adaptation Plan (1)

Theme	Action	Lead	Collaborator
Disaster Resilience and Response	Enhance Emergency and Extreme Weather Preparedness and Response	JPS	All Departments
Disaster Resilience and Response	Develop a Coastal Flood Warning System	JPS, EECA	FC
Disaster Resilience and Response	Improve the Electrical System	EECA	JPS, TI
Disaster Resilience and Response	Increase Backup Power for Critical Infrastructure	TI	EGTC, FIN, JPS, SDH
Disaster Resilience and Response	Enhance Community Reception Centres and Supports	JPS	FC
Resilient Communities	Create a Provincial Land Use Plan	AL	FC, SDH, TI, and EECA, with additional support from all other Departments
Resilient Communities	Develop Province-wide Stormwater Management Standards	AL	FC, TI
Resilient Communities	Increase Resilience of Public Infrastructure	AL, TI, EECA	EGTC, JPS
Resilient Communities	Home Adaptation Renovations and Upgrades	EECA	SDH

Resilient Communities	Adaptation Plans for At-Risk Historical, Cultural and Archaeological Assets	ECO	
Resilient Communities	Create a Municipal Climate Adaptation Program	FC	AL, EECA, TI, SDH
Resilient Communities	Expand Climate Challenge Fund	EECA	
Climate-Ready Industries	Partner with Industry to Respond to Climate Risks of Farm, Fishing, and Tourism Sectors	AL, FC, EGTC	TI
Climate-Ready Industries	Regional Supply Chain Resilience Study	EGTC, FI	All Departments
Climate-Ready Industries	Climate Change Training	EECA	EGTC
Health & Mental Well-being	Access to Food and Drinking Water	JPS	TI, FC, SDH
Health & Mental Well-being	Extreme Heat Strategy	HW, EECA	JPS,FC, AL, EGTC, TI, SDH
Health & Mental Well-being	Support for Mental Health in our new Climate Reality	HW, EECA	ELL
Health & Mental Well-being	Provincial Vital Records Protection	ELL	All Departments
Natural Habitat & Biodiversity	Safeguard Surface Water Resources	AL, EECA	
Natural Habitat & Biodiversity	Coastal Development and Habitat	EECA	AL, FC
Natural Habitat & Biodiversity	Coastal Hazards and Adopting Nature-based Solutions	EECA	TI
Natural Habitat & Biodiversity	Protection for Climate-Vulnerable Species and Habitats	EECA	AL, TI
Natural Habitat & Biodiversity	Enhancement of Trees and Forests	EECA	DAL
Knowledge & Capacity	Research, Monitor, and Model Local Climate Conditions and Impacts	EECA	AL, FC
Knowledge & Capacity	Provide Expertise and Resources to Departments for Climate Adaptation	EECA	All Departments
Knowledge & Capacity	Create Curriculum Materials on Climate Impacts for K-12	ELL	EECA
Knowledge & Capacity	Public Awareness of Climate Impacts and Personal Adaptation Actions	EECA	JPS, HW, SDH

