

# Canada's Forest-related Contributions to Sustainable Development

## *A Report to UNFF in support of the UN Strategic Plan for Forests 2017-2030 and the Sustainable Development Goals under Review in 2019*

### 1. Summary

Forests are essential to sustainable development. The following report describes Canada's forest contribution to the United Nations' Sustainable Development Goals (SDGs), and illustrates how Canada is using sustainable forest management to ensure its forests provide a range of environmental, social, economic and cultural benefits for current and future generations. It was produced at the request of the United Nations Forum on Forests as a contribution towards the 2019 review of SDGs 4 (education), 8 (growth and employment), 10 (reduced inequalities), and 13 (climate action). This report seeks to demonstrate the relevance of forest to the success of Agenda 2030 by highlighting select actions, research and approaches being undertaken by Canadian governments and stakeholders in support of sustainable development, noting their simultaneous support to the United Nations' Global Forest Goals. Several of the examples provided in this report apply to more than one of the Goals and associated targets under review.

The key points of emphasis in this report are:

- Forests are essential to sustainable development and are relevant to all SDGs
- Public awareness and education are key elements in the sustainable management and use of natural resources
- Sustainable forest management and economic growth work in tandem to create "win-win" scenarios
- Reducing inequality in the forest sector means meaningfully engaging and empowering women and Indigenous people
- There can be no solution to climate change without forests, but forests are also impacted by climate

### 2. Introduction

In 2015, United Nations member states, including Canada, adopted the 2030 Agenda for Sustainable Development. The Agenda includes 17 Sustainable Development Goals (SDGs) and 169 associated targets aimed at improving the world's social, economic and environmental well-being in a sustainable manner. Forests will be a key part in realizing these Goals. Forests purify air and water; provide food, shelter, renewable energy, timber and jobs; as well as recreational and cultural benefits.

Given that forests cover 30% of the Earth's land area, improving sustainable forest management (SFM) can have significant positive impacts on the SDGs. Canada's forests cover 347 million hectares,

accounting for about 9% of the world's forest cover<sup>1</sup>. SFM in Canada is based on rigorous laws and regulations, scientific research, indicators, planning and public participation. The majority of the policy and legislation that governs forestry activities is developed and administered by provincial and territorial governments.

Canada's forests are dynamic in nature with most forest cover loss characterized as temporary due primarily to natural disturbances, such as fire and insects. These disturbances are part of the natural cycle in the regeneration of Canada's forests.

Canada has implemented numerous policies, programs and tools to help ensure the sustainability of our forests which, in turn, contribute directly and indirectly to the SDGs. In many cases, the knowledge and technical expertise behind these programs and tools are made freely available to other countries.

Below we describe, in general terms, the status of forests in Canada as context for the more detailed SDG review that follows.

## **2.1 General Description – Forests and Forest Resources**

Forest sector employment and other economic benefits are critical to many rural communities and positively affect Canada's Indigenous people. In 2017, the forest sector contributed \$24.6 billion dollars to Canada's economy while directly employing 209,940 Canadians and contributing to an additional 107,380 indirect jobs<sup>2</sup>. The forest sector is one of the largest employers of Indigenous people in Canada with 9,700 Indigenous people employed by industry in 2017, according to Statistics Canada's Labour Force Survey<sup>3</sup>.

Canada is home to 28% of the world's boreal zone, and 75% of our forest area is found there<sup>4</sup>. Canada's boreal zone is important to the country's resource-based economy, and its ecosystems provide numerous provisioning, regulating, cultural, and support services.

The average age of Canada's forests increases from east to west. This pattern reflects differences in the frequency of natural disturbances and variations in species longevity, along with settlement patterns. There is also a general shift from hardwood to softwood dominance with increasing age of forest stands.

Canada holds vast expanses of naturally regenerating forest, and the total area protected in Canada continues to grow. Examples of protected areas include national and provincial parks, national wildlife areas, migratory bird sanctuaries, wildlife reserves, and ecological reserves.

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<sup>1</sup> <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/39336.pdf>

<sup>2</sup> <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/39336.pdf>.

<sup>3</sup> Ibid.

<sup>4</sup> <https://www.nrcan.gc.ca/forests/boreal/17394>

### **Canadian Council of Forest Ministers – A Common Vision for the Future**

The Canadian Council of Forests Ministers (CCFM) was established in 1985 to provide an important forum for the respective 14 provincial/territorial/federal governments to exchange information, work cooperatively, provide leadership and generate actions on forestry related matters of interest to all Canadians above and beyond the work done by individual governments.

The primary role of the CCFM is to provide a forum for discussion and exchange of views on forestry-related issues of common interest, or with an intergovernmental or international standpoint. In 2018, the CCFM led a Canada-wide process to refresh the national vision on forests – a vision that considers urban forests, climate change, international context, sustainable use of wood products and other priorities, and aligns with the United Nations’ Sustainable Development Goals. The renewed vision is expected to be finalized in early 2019.

## **2.2. Sustainable Forest Management in Canada**

Sustainable forest management (SFM) is a way of using and caring for forests to maintain their environmental, social and economic values and benefits over time. Canada is a world leader in SFM, applying it across the country’s publicly owned forests, which account for about 91% of Canada’s forest land. This is an important commitment and it provides assurance to the international marketplace that Canadian forest products are sourced from forests that are managed sustainably.

Most of Canada’s forest (a little less than 90%) is owned and managed on behalf of Canadians by provincial and territorial governments as public land, just under 2% is federally controlled, 2% is owned by Indigenous Peoples, and the remaining 6% is under private ownership. As a result, federal, provincial and territorial governments have all set legislation and regulations for the protection and management of their respective forests. The different levels of responsibility are as follows:

- Federal government: international forest products trade and relations; national regulatory frameworks; international agreements related to forests; Indigenous affairs relating to on reserve land management; management of federal forest lands such as national parks, and; national reporting.
- Provincial and territorial governments: legislation, regulation, enforcement and policies related to forest management; allocation of timber, and; forest inventory.
- The federal and provincial/territorial governments share the responsibilities of forest science and technology, and environmental regulation. For example, the National Forest Inventory—a joint data collection system—provides information about Canada’s forests to help guide policy, make projections and meet regional, national and international reporting commitments.

In Canada, forest management decisions and activities are based on scientific research, rigorous planning processes, and public consultation. To uphold these decisions and activities, Canada’s federal, provincial and territorial governments have developed laws, regulations and policies to enforce sustainable management standards and practices across the country.

### **FPInnovations: fuelling the growth and prosperity of the forest sector**

[FPInnovations](#) is a not-for-profit organization that specializes in the creation of innovative scientific solutions in support of the Canadian forest sector's global competitiveness and responds to the priority needs of its industry members and government partners.

FPInnovations performs state-of-the-art research and develops advanced technologies in resource assessment, forest operations, wildland fire operations, primary and secondary wood products manufacturing, wood building, pulp, paper, the bioeconomy, environmental sustainability and decision support tools. In other words, they deliver innovative solutions to complex problems all along the value chain to promote growth and prosperity in the Canadian forest sector.

Canada's federal, provincial and territorial governments have long recognized that forests and their many resources are essential to the long-term well-being of Canada's environment, communities, and economy. Managing forests sustainably is therefore critical for Canada, not only to balance competing uses in the short term but also to ensure we can enjoy forests' benefits for generations to come.

The annual timber harvest in Canada makes up less than 0.5% of total forest area. In contrast, the most recent annual data indicates that about 4.5% (2016) of Canada's forests were damaged by insects, while less than 1% (2017) were burned in forest fires<sup>5</sup>. Timber harvesting, insect infestations and forest fires do not constitute deforestation as the affected areas will be replanted as required by law or will naturally regenerate. Other drivers of forest cover loss, such as agricultural expansion, urbanization and infrastructure, result in deforestation where the land use has changed from forest to other uses. The annual deforestation rate in Canada in 2010 was less than 0.02% of our forests and the rate has been declining for over 25 years<sup>6</sup>.

### **3. Goal 4: Quality Education**

***“Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”***

There is a wide spectrum of programs and opportunities regarding how Canadian children, youth and young adults can learn to be stewards of the land, whether through public education, university, colleges and training programs, outdoor activities or other. For example, Canada is collaborating with [Project Learning Tree \(PLT\) Canada](#) to ensure that youth across the country are provided opportunities to explore green jobs through the [Green Jobs in Green Spaces](#) initiative. The Canadian government is funding more than 1600 jobs with PLT Canada, to place youth in green jobs with support from the

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<sup>5</sup> <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/39336.pdf>

<sup>6</sup> <https://www.nrcan.gc.ca/forests/fire-insects-disturbances/deforestation/13419>

[Sustainable Forestry Initiative](#) and the [Canadian Parks Council's](#) diverse networks. This investment is critical at a time when the need to fill the aging workforce is at an all-time high in the forest sector.

The Green Jobs in Green Spaces initiative is building skills in our youth – providing them with hands-on learning to develop skills like identification and navigation, teamwork, research, communication, and time management. These transferable skills will help to build future forest and conservation leaders. These experiences are taking place in forests across Canada, engaging urban and rural youth, women, new Canadians, and Indigenous communities. It is necessary to provide experiences for youth to explore a career in the forest, and with over \$7 million being invested in our youth to explore green jobs, it is clear that the Government of Canada believes that this can be achieved by providing support for employers to increase those opportunities.

Public awareness is as equally important as economic opportunity. Established in 1972, the [Saskatchewan Forestry Association \(SFA\)](#) is a non-profit organization dedicated to increasing public awareness about forests and their wise use. For over a decade, the SFA has developed and delivered the Focus on Forests program, curriculum-based forest education materials and programming to the public and schools.

The Focus on Forests program is based on three main objectives: promoting public awareness and stimulating interest in the forests; providing objective information about the forest and other natural resources; and working with other Saskatchewan organizations that have a mutual interest in forestry-focused education.

With a dozen project partners, the SFA conducts workshops for teachers, classroom visits and outdoor tours for local students at the nearby Conservation Learning Centre and the Kristi Lake Nature Trail. Both provide multiple learning stations in areas of soil, aquatics, forestry and wildfire management. Similarly, [Inside Education](#) in Alberta supports teachers and inspires students in environmental and natural resource education through experiential learning programs.

These examples are relevant to SDG 4 indicators 4.3 and 4.4 specifically, as well as Global Forest Goal 2. They also support SDGs 1, 8, 13, and 15 as well as Aichi Targets 1, 5 and 7.

#### **Strengthening Forestry Training in Central Africa**

The [Congo Basin Natural Resource Management Training Support Project \(FOGRN-BC\)](#) was carried out by Laval University from 2008 to 2013. Its primary objective was to revive forestry training on the Democratic Republic of Congo (DRC) and to train PhD-level teachers to meet important needs observed in the sub-region.

Building on the FOGRN-BC, *the Expanded Program of Training in Natural Resources Management in the Congo Basin* (PEFOGRN-BC) was funded by the African Development Bank and executed by the Central African Network of Forestry Training Institutions and Environment, with support from Laval University in Canada. The project was designed to provide support to 12 graduate students, (10 doctoral and 2 masters) from Cameroon, Gabon, Central African Republic and the DRC.

These projects are a continuation of the long-standing engagement of Laval University toward forestry training in Francophone Africa, which dates back to the late 1960s.

## 4. Goal 8: Decent Work and Economic Growth

*“Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”*

Canada strongly believes that economic growth and forest conservation are not opposed, but complimentary. Forest companies wanting to harvest on public lands must develop forest management plans that comply with forest laws and are consistent with sustainable forest management principles. Companies must also consult the public, industry and experts to ensure the plans include steps to maintain ecosystem health and create economic opportunities for communities. In 2017, the forest industry contributed \$24.6 billion (1.6%) to Canadian gross domestic product and directly employed almost 210,000 people<sup>7</sup>.

Under provincial and territorial laws, all areas harvested on public lands are required to be regenerated using natural or artificial means (i.e. planting and seeding), or a mix of the two. Regeneration provides jobs; successful regeneration of harvested areas ensures that forest lands remain productive for wood fibre and continue to provide key ecosystems services such as storing carbon, regulating water quality and quantity, and providing wildlife habitat and recreation opportunities.

A downturn in Canadian forest operations due to decreased demand for pulp and paper in an increasingly electronic age, as well as other factors, led to innovation in Canada’s forest industry, giving new life to many forest-dependent communities. What follows is a brief overview of some of the programs and innovations taking place in Canada to promote sustained and sustainable economic growth and decent work for all.

### 4.1 Investments in Forest Industry Transformation

The [Investments in Forest Industry Transformation \(IFIT\)](#) program offers non-repayable contributions to successful applicants in the Canadian forestry industry to implement innovative, first-in-kind technologies in their facilities. The goal of the program is to provide funding for projects at the pilot to commercialization phase, with the intent of helping these technologies get to market.

Since 2010, the Program has issued funding to 28 projects to date with 80% of them creating new products or diversifying product offerings at Canadian companies. These projects include bioenergy, biomaterials, biochemicals and next generation building products.

In June 2017, the Government of Canada announced it would extend the IFIT program with \$55 million in funding over three years (starting in 2017-2018). This continued commitment will help bring the next wave of innovation to market and will solidify Canada’s position as a leader in forest industry transformation.

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<sup>7</sup> <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/39336.pdf>

Funded projects benefit the environment by reducing greenhouse gas emissions, increasing Canada's green electricity production, creating advanced, energy efficient building materials, generating renewable alternatives to fossil fuel-based products, and reducing water and waste and creating effluent treatment efficiency, as examples. They also benefit communities by creating new jobs and development opportunities and securing jobs in forest resource-dependent areas.

#### **Forest Sector Work Plan for Newfoundland**

The Government of Newfoundland and Labrador has partnered with the Newfoundland and Labrador Forest Industry Association to jointly develop a Forest Sector Work Plan, which will outline new actions to address opportunities and challenges specific to the forest sector. These actions will be aimed at enabling business growth, stimulating new business activity, and creating and maintaining new and existing private sector jobs for residents throughout the province.

The Forest Sector Work Plan is being developed by a steering committee that represents stakeholders with diverse perspectives from across government, academia, and industry. The Steering Committee is partaking in a collaborative engagement process designed for discussion and understanding of complex problems and challenges, and to identify new creative and innovative approaches and solutions.

The Forest Sector Work Plan is on schedule to be completed early in 2019. The actions contained in the work plan focus on: business development and risk management; human resources, labour and culture; research, innovation and diversification; market access and development; public trust and awareness; and forest resource access and development.

## **4.2 Certification of Forest Products**

Canada has the world's third largest forest area and 170 million hectares of our managed forests are certified as sustainable<sup>8</sup>. Additionally, 37% of the world's certified forests are in Canada<sup>9</sup>. Sustainable forest management certification provides added assurance that a forest company is operating legally, sustainably and in compliance with world-recognized standards for sustainable forest management. As well, consumers can be assured that forest products from Canada come from legal and sustainable sources.

Three recognized forest certification systems are used in Canada, those of the Canadian Standards Association, the Forest Stewardship Council and the Sustainable Forestry Initiative.

## **4.3 2018-2023 Strategy to Develop Quebec's Forest Products Industry**

With the [Strategy to Develop Quebec's Forest Products Industry](#), launched in June 2018, the Quebec Government is deploying the necessary means to accelerate the transformation of the forest products industry and contribute substantially to the prosperity of Quebec and its regions. The result of a concerted approach launched in 2016, the Strategy's theme is: Forest products, a wealth to cultivate.

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<sup>8</sup> Ibid.

<sup>9</sup> <http://www.nrcan.gc.ca/forests/canada/certification/17474>

The Strategy contains 11 objectives and 43 measures to meet the different challenges of the forest products industry. They are articulated around five focus areas that will enable this sector to remain competitive:

- Focus Area 1: Innovation
- Focus Area 2: Modernization and improvement of equipment and processes
- Focus Area 3: Regulations and public policies
- Focus Area 4: The business environment
- Focus Area 5: The markets

The future vision conveyed by the Strategy anticipates a forest products industry that adapts, diversifies, modernizes and reinvents itself, in line with the evolution of the global economic context, and that contributes, through its various subsectors, to the reduction of greenhouse gas (GHG) emissions, thus playing a key role in the fight against climate change.

These examples are relevant to SDG 8 indicators 8.2, 8.4, 8.5 and 8.9 specifically, as well as Global Forest Goals 2 and 3. They also support SDGs 7, 9, 11, 12, 13 and 15 as well as Aichi Targets 4, 7 and 15.

## PAVING THE WAY FOR SUCCESS

In September, 2018, Natural Resources Canada announced \$873,600 for the Confederacy of Mainland Mi'kmaq and Unama'ki Institute of Natural Resources to apply traditional knowledge to the economic development of Nova Scotia's forests. The [Paving the Way for Success](#) project led by the Confederacy of the Mainland Mi'kmaq in Nova Scotia will help promote a holistic Mi'kmaw approach to forest management, known as Netukulimk, to ensure forest development consistent with Indigenous values, and create jobs in Indigenous communities. Under the Mi'kmaq–Nova Scotia–Canada Framework Agreement, the Mi'kmaq have been developing the capacity to manage and use forest resources

## 5. Goal 10: Reduced Inequalities

### *“Reduce inequalities within and among countries”*

Reducing inequality, promoting diversity and providing all people with the opportunity to reach their full potential helps create a growing economy that benefits everyone. Canada is widely recognized as an inclusive, diverse, respectful multiethnic and multi-faith society with two official languages (English and French), more than 200 ethnic origins and languages, approximately 1.7 million Indigenous people who account for 5% of the total population, as of 2016 and other qualities<sup>10</sup>. Yet challenges remain and deserve attention to ensure no one is left behind. In a forest context, this means encouraging women and Indigenous Peoples' participation in the domestic workforce, as well as in official development assistance abroad.

### 5.1 Feminist International Assistance Policy

<sup>10</sup>[https://sustainabledevelopment.un.org/content/documents/20312Canada\\_ENGLISH\\_18122\\_Canadas\\_Voluntary\\_National\\_ReviewENV7.pdf](https://sustainabledevelopment.un.org/content/documents/20312Canada_ENGLISH_18122_Canadas_Voluntary_National_ReviewENV7.pdf)

Canada has supported SFM internationally for many years. More recently, advancing gender equality and the empowerment of women and girls is a key priority for Canada. Canada's new [Feminist International Assistance Policy](#), launched in June 2017, is evidence-based and takes into account Canada's expertise and comparative advantage. It supports the Sustainable Development Goals, which aim to eradicate poverty by 2030, and it is also aligned with the Paris Agreement on climate change, which seeks to reduce greenhouse gas emissions and protect the environment. Among other things, this new policy supports women's leadership and decision making in climate change mitigation and adaptation efforts, resilience-building and sustainable natural resource management.

## **5.2 Indigenous Forestry Initiative**

Natural resources play a central role – culturally, socially, spiritually and economically – in many Indigenous Communities. In fact, 70 % of Indigenous communities are located in forested areas. The forest sector is also one of the largest employers of Indigenous people in Canada, with 11,565 Indigenous people working in the sector. These jobs are concentrated in the logging industry and wood product manufacturing, accounting for 6.2% of the sector's total employment, which makes it one of the largest employers of Indigenous people in the country.

Increased access to tenure has resulted in greater Indigenous involvement in the forest sector and different types of projects. Since 2003, there has been a 40% increase in the tenure held by Indigenous Peoples with 10.4% of the national wood supply held by Indigenous interests in 2015 (19.2 million m<sup>3</sup>)<sup>11</sup>. Many Indigenous communities have successfully turned this expanded access to forestland and resources into economic benefits.

Since its launch in 2011, the Indigenous Forestry Initiative (IFI) has provided funding for nearly 70 projects in more than 110 Indigenous communities, leveraging an additional \$39M from provincial, community and private investors. As a featured component of Canada's Softwood Lumber Action Plan, an additional \$10 million was announced for the IFI in June 2017.

This program has three main objectives. 1) to increase Indigenous participation in development opportunities in order to contribute to a more environmentally and commercially sustainable natural resource sector; 2) to increase Indigenous capacity to engage and benefit from economic development arising from opportunities in the natural resources sector, and; 3) to encourage increased investment and collaboration between Indigenous Peoples and other natural resources development stakeholders, including governments, industry, and non-governmental organizations.

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<sup>11</sup> Fourth report on Indigenous-held forest tenures in Canada 2018. National Aboriginal Forestry Association <http://nafaforestry.org/pdf/2018/NAFA%20Tenure%20Report%202018%20FINAL%20Sept%202018.pdf>

### Enabling Indigenous-led Forest Industry in the Northwest Territories

With the assistance of Indigenous Forestry Initiative funds, the government of the Northwest Territories (NWT) developed a process for creating long term forest authorizations that are flexible in meeting the needs of forest communities and indigenous governments. In 2015, Forest Management Agreements were signed with Indigenous corporate entities representing Metis and Dene communities in both Fort Resolution and Fort Providence so they could pursue commercial forest fibre opportunities. The road to regulatory approval in the NWT is not always easy, but a path forward has now been struck for regionally sized forest industry that ensures leadership, benefits and technological growth flow directly through the communities that have traditionally and historically used this forest land.

Next steps will include partnerships for the development of wood products to serve northerners' needs. The creation of wood pellets for northern use to substitute southern sourced fossil fuels is just one of the potential uses and markets for wood fibre. Indigenous leadership and private capital are driving the implementation of this initiative. Government has assisted with seed financing and providing technical forest management support in building the foundation for this opportunity.

### 5.3 Clean Energy for Rural and Remote Communities

Many rural, remote and Indigenous communities are heavily dependent on diesel and other fossil fuels for reliable heat and power. Replacing these systems with renewable energy projects represents a significant opportunity for partnerships that will advance multiple priorities, including socio-economic development, self-determination, reconciliation with Indigenous communities and addressing climate change.

NRCan's [Clean Energy for Rural and Remote Communities \(CERRC\) Program](#) promotes the transition to a more sustainable and clean energy future by supporting projects that reduce the reliance on diesel and other fossil fuels in rural and remote communities and industrial sites. With \$220 million over 6 years starting in 2018-19, CERRC will support projects that:

- demonstrate and deploy renewable energy technologies
- implement energy efficiency solutions and standards
- build community skills and capacity to manage and use new related technologies

Support for capacity building and socio-economic development is a cornerstone of transformational change in Indigenous communities. Programs like CERRC-BioHeat that support knowledge building and skills training with Indigenous communities as well as early stage work like feasibility studies, engineering design are key to a more sustainable and clean energy future.

These examples support SDG 10 indicator 10.3 specifically, as well as Global Forest Goal 2. They also support SDGs 1, 2, 5, 7, 8, 13 and 17 as well as Aichi Targets 7, 14 and 20.

## 6. Goal 13: Climate Action

*“Take urgent action to combat climate change and its impacts”*

### Quebec Wood Charter

[The Wood Charter](#) was adopted by the Quebec Government to increase the use of wood in construction in the province. The Wood Charter seeks to give wood the place it deserves in non-residential, commercial, industrial, institutional and multi-family construction in Quebec. The Government aims for wood construction to contribute to the fight against climate change and be a source of pride and wealth creation while stimulating job creation for Quebec.

The Wood Charter is defined by four key measures:

- **Government leadership:** In every project financed wholly or partly by public funds, the project manager must consider the possibility of using wood before the project begins, and must carry out a comparative analysis of greenhouse gas emissions for different materials.
- **Innovative wood construction:** Encouraging innovative wood construction projects that use new products and push the technical limits of building codes.
- **Training and promotion:** Working with universities in particular to integrate mandatory training and continuing education on wood as a material for construction professionals.
- **Research and innovation:** Supporting research and development activities in eco-responsible construction to improve the competitiveness of firms in the sector.

There is no solution to climate change without forests. Yet forests are also influenced by climate. In 2016, Federal and Provincial governments adopted the [Pan-Canadian Framework in Clean Growth and Climate Change](#). The framework lays out actions needed for greenhouse gas reduction and their contribution to clean growth and climate change resiliency. The Pan-Canadian Framework has four pillars (Carbon Pricing, Complementary Actions to Reduce GHG emissions, Adaptation and climate resilience, and Clean Technology and Innovation). Additional forest-related actions are described below.

### 6.1 Potential impacts of climate on Canada’s forests

A recent National Integrated Assessment (2016) shows that Canada’s forest communities, industry, and ecosystems could face significant negative impacts, even in the short-term (before 2040), from increased disturbances such as wildland fires, drought, floods, and pests. Wildland fire, in particular, is threatening many forest-based communities and infrastructure, and could pose significant challenges for forest management activities across much of the country. Although there is uncertainty, as with all climate change projections, the results highlight the need for adaptation and new approaches to the management of fire risks. In the long-term, climate change mitigation and adaptation activities will govern the severity of impacts that Canada’s forests experience.

In recognition of these challenges and increased uncertainty posed by climate change, the [Forest Change Program](#) has been engaging partners and stakeholders across the country to better understand the impacts of climate change at local and regional scales, and to respond to the

needs of the forest sector and communities within forested landscapes. Regionally-based approaches to climate change adaptation facilitate stakeholder involvement and collaboration, increase awareness, and advance adaptation actions. Engagement with regional partners and clients also ensures that the Canadian Forest Service is producing research products, including forest adaptation tools and indicators, which are relevant and useful to end-users. Additional detail about the program is found in section 6.1.1 below.

### **6.1.1 Decision Support Tools**

Canada is addressing climate change and its impacts on forests by understanding how it will affect forest ecosystems, communities, and industries to inform feasible management options. Building and improving ways to apply strategic and tactical science and realize environmental, economic and social benefits now and in the long-term are a priority.

Canada's [Forest Change Program](#) is well aligned with SDG Goal 13. The Program, led by the Canadian Forest Service (CFS) at Natural Resources Canada, provides information about the impacts of climate change on Canada's forests and advice on how industry, stakeholders, and the public can contribute to climate change mitigation and adapt to changing climate conditions. Tools such as maps, databases, web applications and synthesis reports, have been developed to help support decision-making. The Program also provides science and climate change projections that can help decision-makers integrate climate change measures for adaptation and mitigation into forest management planning. The Program also raises public awareness by way of reporting indicators that track and project the impacts associated with climate change on Canada's forests.

Just as climate is a major influencing factor on forests, forests in turn influence climate. Therefore, how climate change affects the carbon source/sink balance of Canada's forests is closely studied by Canadian researchers. [The Carbon Budget Model of the Canadian Forest Sector \(CBM-CFS3\)](#) is the core tool for Canada's National Forest Carbon Monitoring, Accounting and Reporting System and generates Canada's annual estimate of forest sector greenhouse gas emissions and removals. It is also used for the projection and analysis of future climate mitigation options in the forest sector. The model is used widely in Canada and internationally to estimate the impacts of forest management, natural disturbances and land-use changes on carbon balances.

Canada is collaborating under various formal and informal S&T agreements to share the Carbon Budget Model internationally. The model is compliant with the reporting guidelines of the Intergovernmental Panel on Climate Change (IPCC). The user interface, documentation and training material are [freely available](#) in multiple languages. To date, Canada has conducted 28 training sessions in 5 countries and is providing ongoing user support.

In a related vein, Canadian scientists, in cooperation with international experts from Australia and other countries, have developed a dynamic "next generation" platform for estimating emissions and removals of greenhouse gases from the land sector. The [moja global](#) initiative, as it is known, was formed in cooperation with the Linux Foundation to support international collaboration on open-source software tools that are now used in a

number of countries, including Canada (remote sensing, forest inventories). The tools provide the platform for the development and implementation of monitoring, reporting and verification (MRV) systems for use in REDD+, the Paris Agreement and other commitments, and will greatly improve credibility of reporting while reducing the costs for such systems. The UNFCCC Secretariat has officially joined moja global while the World Bank is also actively involved.

### **6.1.2 Building with Wood**

Wood-based materials, over their life cycle, use less energy and emit fewer greenhouse gases (GHGs) and airborne pollutants than traditional, energy-intensive materials. Using wood reduces the overall carbon footprint of most buildings, helping Canada reach its commitments under Agenda 2030 and associated SDGs, climate change targets, and long-term commitments under the Paris Agreement. Wood buildings can also offer greater safety and stability than inflexible building materials when natural disasters (i.e. earthquakes) strike.

Since 2007, the Government of Canada has supported the research and development of new generations of wood-based products in recognition of the importance of the forest sector in efforts to mitigate climate change. This research has led to the revision of the National Building Code of Canada allowing mid-rise wood frame construction up to six storeys in the 2015 edition (it was initially limited to four storeys). The Government of Canada invested a total of \$5 million between 2013 and 2017 to support two tall wood building demonstration projects under the [Tall Wood Building Demonstration Initiative \(TWBDI\)](#). The initiative resulted in the construction of the world's tallest hybrid wood building at 18 storeys, the Brock Commons Tallwood House at the University of British Columbia in Vancouver, as well as the construction of the Origine green condo project in Québec, set to become the tallest solid wood condo tower in North America.

The Government of Canada continues its proactive approach, building on the success of previous demonstration projects initiatives by launching a new program called [Green Construction Through Wood \(GCWood\)](#). GCWood is a 4-year, \$39.8 million program aimed at supporting the use of wood in non-traditional construction projects, such as tall buildings, low-rise commercial buildings and bridges as part of the Government's efforts to position Canada as a leader in the global low-carbon economy. GCWood will also facilitate revisions to the 2020 and 2025 National Building Code of Canada to allow tall wood buildings beyond the current limit of six storeys, up to 12 storeys or more, and help develop tools to assist designers and builders. The funding is being leveraged by provinces to develop the required technical information to support their own code changes.

### Education, training and partnerships: the way forward

New Brunswick has taken steps toward adapting the management of forest-based natural resources in the province through education, training, and partnerships -- efforts which will continue in the coming years. For example, an *Information Session on Adapting New Brunswick's Forests and Ecosystems to Climate Change* was hosted by the New Brunswick Department of Energy and Resource Development in March of 2018 and included speakers from the provincial and federal governments, a non-governmental organization and academia. The session served to increase awareness of current climate change policy and science, and to brainstorm, discuss and outline the next steps required to fulfill New Brunswick's commitments to adapt natural resources management to climate change. A series of actions are now being prioritized for adaptation planning by the department.

In addition, collaborative research has begun with Natural Resources Canada's Canadian Forest Service on integrating projected climate scenarios on New Brunswick's trees and forests into management tools used by the provincial Department of Energy and Resource Development. Climate variables and growth and yield curves are being modified to adapt the modeling of future forest stands. Also, a climate change-dependent forest succession model will be developed to predict forest regeneration response following harvest treatment under various climate scenarios. The outcomes of the research directly support achieving the goals of New Brunswick's Climate Change Action Plan *Transitioning to a Low-Carbon Economy*.

## 6.2 Climate Financing

Canada has pledged C\$300 million to the [Green Climate Fund's \(GCF\)](#) Initial Resource Mobilization period (2015-2018), comprising C\$190 million in grants and C\$110 million in the form of a repayable contribution. On a grant-equivalent basis, Canada is currently the tenth largest contributor to the GCF. By supporting the GCF, Canada helps to promote the paradigm shift towards low-emissions and climate-resilient development pathways by providing support to developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change, in the context of sustainable development. Canada was proud to co-champion efforts leading to the adoption of the \$500 million pilot programme for REDD+ results-based payments, in 2017.

In addition, Canada is the 4th largest donor to the [Forest Carbon Partnership Facility \(FCPF\)](#), with a C\$40 million contribution to its Readiness Fund and C\$5 million to its Carbon Fund, two separate but complementary funding mechanisms of the Facility. The FCPF is a global partnership of governments, businesses, civil society, and Indigenous Peoples, focused on reducing emissions from deforestation and forest degradation, forest carbon stock conservation, the sustainable management of forests, and the enhancement of forest carbon stocks in developing countries (REDD-plus). Through trusted collaboration with countries, donors, and partners, the FCPF, initially capitalized at \$160 million in 2008, has grown into a \$1.3 billion fund 10 years later, and is now one of the leading initiatives in the world for the advancement of climate-smart forest and land use.

These examples support SDG 13 indicators 13.1, 13.2, 13.3 and 13.b specifically, as well as Global Forest Goals 1, 2, 3, 5 and 6. They further contribute to SDGs 3, 4, 9, 11, 12 and 15 as well as Aichi Targets 5, 7 and 15.

## 7. Conclusion

Forests are an essential component of sustainable development. They provide a variety of ecosystem and livelihood benefits that simultaneously work toward multiple development objectives, directly or indirectly contributing to all of the SDGs that support Agenda 2030.

As demonstrated above, Canada has world-renowned science in areas of forest monitoring, carbon accounting, and in the development of new forest products and applications. Canada is also a policy leader in sustainable forest management through cooperation and multistakeholder engagement. With a long track record of success and collaboration, as well as a deep well of scientific expertise, Canada will be able to retain its adaptive capacity and ensure the sustainability of our forests for decades to come.

With respect to the SDGs highlighted in this report, we have seen that: public awareness and education around the multiple benefits and functions of forests are as important as economic opportunity when it comes to sustainable development (SDG 4). In fact, Canada believes that economic opportunity and nature conservation are complimentary. The programs and innovations taking place in Canada promoting sustained and sustainable economic growth and decent work highlight this (SDG 8); reducing inequalities (SDG 10) means, among other things, encouraging women and Indigenous Peoples' participation in the domestic workforce as well as in official development assistance.

Of all of the Goals explored in this report, SDG 13 is most directly related to forests. We stated that there is no solution to climate change without forests, while forests are also influenced by climate. Sustainable forest management based on scientific research, innovative approaches to wood product development and use, and partnerships, combined with robust legislative and regulatory tools, is fundamental to adapting to and mitigating the effects of climate change.