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CEC Performance Report

Operational Plan 2019–2020



Table of Contents

1	Introduction	3
2	Performance of Projects and Ongoing Initiatives	3
	2.1 Cooperative Projects.....	3
	2.2 Ongoing Initiatives	8
	2.3 Operational Performance of Projects and Initiatives	10
3	Performance of Stakeholder Engagement Mechanisms	12
	3.1 Joint Public Advisory Committee	12
	3.2 Traditional Ecological Knowledge Expert Group	12
	3.3 Submission on Enforcement Matters.....	12
	3.4 NAPECA.....	13
	3.5 Communications.....	13
	3.6 Outreach	13
4	Impact of CEC Work.....	14
5	Conclusions	16

1 Introduction

Implementing a performance measurement framework across all activities of the organization is a means by which the Commission for Environmental Cooperation (CEC) can demonstrate progress in meeting the organization’s environmental goals and objectives and show how, in the long term, these achievements have helped the three Parties (i.e., the governments of Canada, Mexico, and the United States) in pursuing their national priorities. The framework also serves to enhance the CEC’s performance, accountability, and reporting ability, and represents a monitoring mechanism by which it becomes possible to re-direct action to meet the set goals and objectives. At this juncture, performance reporting is fully integrated in the operations of the CEC, and the Secretariat reports to the Parties on a regular basis, using meaningful and reliable data as evidence of results.

Analyzing all performance measurement data collected between 1 July 2019 and 31 December 2021,¹ as summarized in this Operational Plan (OP) 2019–2020 Performance Report, is intended to verify how project-level performance objectives of ten trilateral projects and two ongoing initiatives were met, as well as the performance objectives related to stakeholder engagement activities, public participation in the enforcement of environmental law, communications and outreach, and the North American Partnership for Environmental Community Action (NAPECA).

2 Performance of Projects and Ongoing Initiatives

2.1 Cooperative Projects

The CEC’s OP 2019–2020 included under its cooperative work ten trilateral projects designed to contribute to the three strategic priorities of the 2015–2020 Strategic Plan: climate change mitigation and adaptation, green growth, and sustainable communities and ecosystems.

Each project had specific performance objectives and measures that were reported on periodically. The performance measures included clear targets and reporting periods for each project objective, using a SMART (specific, measurable, achievable, relevant, and time-bound) approach. This furthers the success of project implementation and monitoring and contributes to the attainment of CEC strategic priorities.

A brief critical assessment of each project, highlighting positive or negative aspects that influenced project performance, where appropriate, is summarized below.

Modernizing the Data Exchange System for Hazardous Waste Transfers

Pursuant to relevant regulations and to better prevent environmental impact and health risks, Canada, Mexico, and the United States control the import and export of hazardous wastes by

¹ Although CEC cooperative projects were concluded on 30 June 2021, some NAPECA projects were only concluded in fall 2021.

exchanging notice and consent prior to shipping these wastes across their borders. This project supported the countries in updating and improving the Notice and Consent Electronic Data Exchange (NCEDE) system to facilitate the seamless exchange of notifications relative to cross-border movements of hazardous waste and responding to updates in regulations, with the goal of better protecting the North American environment.

Through this project several milestones were achieved: the NCEDE system now reflects changes to Canadian, Mexican, and US hazardous waste export and import regulations; the IT components (schemas, data elements, look-up tables, host systems) have been revised and updated; stability in the transmission and receipt of information between country systems has been achieved in a test environment; an ongoing maintenance approach enabling future upgrades in technology and changes to the NCEDE has been developed; and all documentation has been reviewed and updated, or developed if previously lacking. Despite this important progress, the NCEDE system is not yet fully operational due to one of the Parties postponing the development of the new application programming interface (API), which prevented related testing, and delayed the clearance of a security protocol for one of the Parties, which was necessary for the updated NCEDE system to be launched into production.

Using Volunteer Observer Networks to Monitor Precipitation and Wildfires

The availability of critical data for improving predictions of such extreme events as droughts, floods, and wildfires, and the needed response to them, and for alerting citizens to life-threatening situations in a timely manner, is poor in some regions of North America. This project assessed the feasibility of establishing or expanding citizen science observer networks to complement federal and subnational observational capacities and improve decision-making and preparedness. This was to be accomplished through a series of consultations with key government agencies as well as with academic and other citizen science-based organizations in Canada, Mexico, and the United States.

The assessment identified the opportunities, challenges and winning conditions for the expansion of the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS) and SmokeSense networks in Canada and Mexico. As a result, the Local Environmental Observer (LEO) Network in Canada, (through the First Nations Health Authority) and in the United States (through the Alaska Native Tribal Health Consortium) became partners in the promotion of CoCoRaHS in both countries. Moreover, ongoing conversations were established with Mexican organizations for a potential expansion in Mexico. Canada and US government organizations discussed the potential adaptation of the SmokeSense app to include Canadian indicators. Engagement of interested Parties and possible approaches for the use of the SmokeSense app in Mexico were also assessed.

Costing Floods and Other Extreme Events

Understanding the economic costs of floods and other extreme weather and climate events is central to addressing impacts, allocating adequate resources for monitoring and preparedness, and building resilient communities. At present, methods for estimating the costs of flood damage vary significantly across North America. This project developed a standardized

methodology for assessing the cost of extreme floods and extended it to a multi-hazard assessment incorporating other extreme events (e.g., hurricanes, tornadoes, forest fires, landslides) as a resource for decision-makers. The methodology was developed in collaboration with subject matter experts from government, academia, Indigenous organizations, insurance companies, and community organizations. Three case studies (one per country) were developed to test the proposed methodology. The results of these analyses were disseminated through two peer-reviewed journal articles and a policy brief for decision-makers. This CEC project revealed the existence of disparities in damage and loss data collected by the different stakeholders, as well as the need to better document costing data for multi-hazard events.

Improving the Effectiveness of Early Warning Systems for Drought

The economic, environmental, and social impacts on communities of drought and its attendant hazards—including wildfires, floods, and landslides—are significant. While regionally integrated drought monitoring and early warning systems can help decision-makers mitigate negative impacts, there is uncertainty among local planners, emergency managers, and others about which early warning indicators and planning tools are most appropriate to support drought management in North America. The project improved the understanding of the best locally relevant indicators for monitoring drought in specific climate regions, increased local capacity, and strengthened existing partnerships across North America. This was achieved through the application of surveys, consultations with drought practitioners in Canada, Mexico and the United States, and a drought summit that served as a virtual platform for trilateral knowledge sharing. As a result of this project, the “Guide to Drought Indices and Indicators Used in North America” was published in the CEC’s virtual library. The project results were also published in National Oceanic and Atmospheric Administration’s (NOAA) National Centers for Environmental Information (NCEI) website and a peer-reviewed article was submitted for publication in the journal *Atmosphere*.

Using Remote Sensing to Prepare for and Respond to Extreme Events

Remote sensing applications for early warning systems and climate change monitoring play a significant role in disaster management. A number of applications exist but providing relevant and timely geospatial information to first responders remains a challenge because of a lack of infrastructure that would allow the responders to connect to these technologies. This project improved the capacity of emergency managers, first responders, and decision-makers to use real-time satellite imagery to complement existing tools and practices for preparedness and response to extreme events. Three webinars to discuss the state of remote sensing technology for floods, drought, and wildfires were conducted at the start of the project. Based on the results of the webinar discussions, three technical workshops were held to exchange information on how early warning systems for drought, floods, and wildfires are organized in each country and identify resource gaps and needs that can be addressed through trilateral cooperation.

Preventing and Reducing Food Loss and Waste

About 168 million tons of food are lost or wasted every year in North America; enough to feed 260 million people. Additionally, all the resources used to produce and process this uneaten food are also wasted. Furthermore, there is a considerable environmental impact associated with such foods' production and disposal. Since 2015, the CEC has undertaken cooperative work to address this issue. The current project was built on the success of the previous CEC work and amplified it through two additional initiatives: a *measurement component* and an *educational component*. The measurement component involved pilot testing of the CEC's "*Why and How to Measure Food Loss and Waste: A Practical Guide*" with a diverse group of business organizations across the North American food value chain to revise the publication and improve its usability and effectiveness. This also involved developing additional resources and several business case studies from each of the North American countries, showcasing the value of Food Loss and Waste (FLW) measurement and how that measurement had driven better decision making and process optimization. The education component involved an outreach and youth-awareness campaign to encourage interest in the CEC's "*Food Matters Action Kit*" across the three countries and stimulate its use by North American youth and youth-based organizations.

Unfortunately, the COVID-19 pandemic was a substantial hindrance to both components of the project. For the measurement component, the pandemic considerably undermined the capacity of organizations to participate fully in the pilot testing of the CEC guide, as their focus shifted to the survival and adaptation of their operations. Many organizations that had originally expressed interest in participating in the pilot ended up not doing so. For those that did participate, the pandemic did not allow in-person technical assistance or training, so support and guidance had to be provided remotely by the consultant, and the methodology had to be adapted. For the education component, the pandemic meant using a campaign with a stronger focus on digital media, with the organization and participation in live events, such as workshops and seminars, having to be converted to virtual events and this substantially reduced stakeholder engagement. But despite these challenges, the actors involved in the implementation of the project showed great adaptability and, finally, the project's objectives were successfully achieved.

EcoInnovation Network

Innovation centers might be thought of as nurseries for developing innovative ideas, tools and technologies into initiatives and ventures that, if rooted in sustainability, can support the transition to a green economy. In 2019, the CEC created the EcoInnovation Network² to promote the creation of innovation centers in various North American academic institutions, expand linkages among them, and enhance education and access to resources for students and community entrepreneurs relative to entrepreneurship, innovation and sustainable design for green growth. The project was successful in establishing the Network's core membership, in developing foundational and strategic documents, and in coordinating activities (e.g., exchanges and capacity building) that built rapport among the members and young

² This Council-supported initiative started on 1 January 2019.

entrepreneurs and informed the development of useful resources and tools for innovation, entrepreneurship and sustainability training for youth and communities. The Network, comprising nine member institutions across Canada, Mexico and the United States, including Puerto Rico, is now equipped with a dedicated website and a tailored marketing strategy and materials to promote itself; a funding and partnership strategy to support its expansion; and a management transition plan leading toward self-sustainability beyond the term of the CEC project. Moreover, 27 youth received direct opportunities and resources through Network-led exchanges and activities, including eight meetings and training (in-person and virtual), a pilot project on sustainable entrepreneurship, and the creation of the Youth Ambassador group. One hundred other youth benefitted from the Network's resources, notably through the well-attended online Green Entrepreneurship Workshop Series.

The pandemic considerably retarded collaboration between members, as universities turned to more urgent priorities. With in-person activities postponed or cancelled, the project spent just a little over half its budget. In addition to the pandemic, other factors limited the Network's ability to become self-sustaining and expand its membership. For instance, the two-year project duration was not long enough to establish a fully functional, self-directed, and sustainable Network due to the time that required to establish strong inter-institutional relationships and identify shared goals across three countries. In spring 2021, one of the member institutions came forward to provide financial and management support to the Network to assist its transition to a self-sustaining organization. Had such key partners been identified earlier in the project might have helped to lay a stronger foundation for the Network's activities and ensure a quicker transition from the CEC by the end of the project.

Community Solutions for Reducing Marine Litter

Marine litter is a global problem affecting economies, ecosystems, and community well-being. This project supported marine litter reduction efforts across North America by building the capacity of community organizations and local governments to implement successful multi-stakeholder engagement and increase awareness in inland communities of the connections between consumer behavior and marine litter prevention. Communities now have a practical toolkit with which to engage their stakeholders, as well as educational materials for use in campaigns to reduce and prevent land-based marine litter. The materials produced received an enthusiastic response following their launch webinar. Subsequently, however, the pandemic-related inability to attend events and offer in-person training on use of the material greatly limited opportunities for creating awareness and product uptake.

Strengthening Regional Pollinator Conservation to Secure Local Benefits

Pollinators support the reproduction of the majority of wild plants and 75 percent of crop species, and are crucial to food security, human wellbeing, and natural ecosystems. However, pollinator populations have declined worldwide due to many causes, highlighting the urgent need for evidence-based, multi-stakeholder conservation actions. This project gathered baseline information from the natural and social sciences to develop a first North American Pollinator Conservation Framework that would support a collaborative approach to regional pollinator conservation. The Framework is the initial result of the very first steps of trinational

work on pollinator conservation and provides a sound basis for future work in this area. The project was envisioned to replicate the success of the CEC’s past monarch butterfly conservation collaborations, a very ambitious goal to achieve for a much broader issue over a short timeline. Project implementation thus highlighted the complexity of the pollinator conservation landscape. In this context and with the pandemic-related inability to meet in person, the ambitious work plan was not easily delivered.

Strengthening Adaptation Capacity in Marine Protected Areas

Marine Protected Areas (MPAs) are key to maintaining ocean and coastal resilience when they are adaptively managed to respond to threats such as ocean warming, species shifts, and disastrous events. Previous CEC work has included the development of tools to help identify vulnerabilities in coastal ecosystems and communities, as well as in adaptation measures to respond to these vulnerabilities. Leveraging this past work, this project built the capacity of MPAs practitioners to manage the impacts from global and regional changes by developing a training guide and through the training of trainers and regional teams in the use of the CEC’s web-based Climate Adaptation Toolkit for Marine and Coastal Protected Areas. It also strengthened MPA capacity for adaptation planning by increasing networking and collaboration among MPA communities through UNEP-led foundational North American Marine Protected Areas Network (NAMPAN) workshops. Finally, it provided new knowledge and guidance on applying nature-based solutions for coastal hazards and on the state of blue carbon work in North America, including an updated North American blue carbon map layer. The project has used every opportunity to provide knowledge and practical guidance to build networks that will be used by practitioners for years to come, with the result that the CEC continues to be recognized as an effective, unique forum for building coastal and marine adaptation practice in North America.

Indigenous Network for Traditional Ecological Knowledge

This project aimed to advance the engagement of Indigenous communities and the integration of Traditional Ecological Knowledge (TEK) in the CEC’s work, through the creation of a network of Indigenous TEK holders. This initiative also included the revision of the report on the compilation of relevant frameworks and mechanisms in Mexico, related to the engagement of Indigenous communities associated with TEK, which was initiated under the 2017–2018 Operational Plan. The report, as well as two others on the status of Indigenous engagement and TEK in Canada and the United States, and another documenting Indigenous engagement in CEC initiatives between 1995–2018, were published in September 2020. After careful consideration, the Parties postponed the creation of the network.

2.2 Ongoing Initiatives

The 2019–2020 cooperative work also included three ongoing initiatives: *Tracking Pollutant Releases and Transfers in North America* (the North American PRTR Initiative); the North American Environmental Atlas; and the North American Land Cover Monitoring System (NALCMS). The results achieved from 1 July 2019 to 30 June 2021 are summarized below.

Tracking Pollutant Releases and Transfers in North America (the NAPRTR Initiative)

The NAPRTR Initiative provides enhanced access to and understanding of comparable data reported to the Pollutant Release and Transfer Register (PRTR) programs of Canada, Mexico, and the United States, through their compilation, analysis, and presentation via the Taking Stock Online website and *Taking Stock* report series. Through these efforts and the engagement of a wide range of stakeholders across the region (NGOs and citizens, the private sector, academia, and policy makers), this initiative supports decisions at all levels regarding industrial sustainability and pollution prevention. In 2019, improvements to Taking Stock Online included a new landing page and enhanced dynamic data visualization tools. At the regular public meeting of the NAPRTR Initiative, held in February 2020, participants discussed issues of common concern and provided recommendations for the special feature analysis topic to be included in the next *Taking Stock* report, resulting in the selection of the topic of off-site transfers for disposal. The latest available trilateral data for 2018 were integrated into Taking Stock Online, and meetings were held with the national PRTR programs regarding next steps to address data quality and comparability issues.

North American Environmental Atlas

The Atlas combines and harmonizes data from the three countries to allow for a continental and regional perspective on cross-border environmental issues. It seamlessly integrates and presents accurate geospatial data through maps, documentation, and interactive map layers. In 2019–2020, a new interactive Atlas Viewer was developed and published online, allowing enhanced user interaction with the datasets. The launch of the Atlas Viewer resulted in a 104 percent increase in visits to the CEC website, in comparison with 2019. In early 2021, the Blue Carbon map layer was updated with the most recently available North American data, and an update to the popular Terrestrial Ecoregions map layer was finalized. The CEC Atlas has remained a popular tool, with an average of 4,700 visits and 2,800 downloads of individual datasets per year. Its audience includes researchers, academia, museums, Geographic Information Systems (GIS) experts, and NGOs.

North American Land Change Monitoring System (NALCMS)

The North American Land Change Monitoring System (NALCMS) is an ongoing collaboration among Canada, Mexico, and the United States to monitor changes over time in land cover, the observed physical cover on the terrestrial surface of North America (e.g., forests, rivers, soil, and permafrost). NALCMS products are used for a variety of applications, including land-use planning, ecosystem monitoring following natural and anthropogenic events, wildlife habitat mapping, and water quality assessments. In 2019–2020, newly published products included the continental 30m-resolution land cover map for 2015, and the 30m 2010–2015 land cover change map. The user base and knowledge of the NALCMS group and its products have been expanded through four promotional events and the publication in 2020 of an ESRI Story Map, which received over 8,500 visits that year. Moreover, in April 2021, the Story Map depicting the 2010–2015 land cover changes was selected as ESRI Canada’s web application of the month. The 2010–2015 Land Cover Change map and the

NALCMS work were also highlighted in the May/June 2021 issue of the magazine *Canadian Geographic*.

2.3 Operational Performance of Projects and Initiatives

In delivering the 2019–2020 projects and initiatives, the Secretariat endeavored to ensure trilateral participation in Project Steering Committees, maximize the quality of deliverables and meetings, and spend all allocated budget. To assess progress and results, performance measures common to the implementation of all projects and initiatives were monitored, including contracts, meetings and publications, and are summarized below.

Trilateral Steering Committees and Project (or Initiative) Partners

Twelve trilateral Project Steering Committees (for ten projects and two initiatives) met regularly through conference calls and meetings to implement project activities. Additionally, several governmental and nongovernmental partner organizations were instrumental in helping to meet the objectives of these CEC projects and initiatives.

	Canada	Mexico	United States
Governmental organizations	Environment and Climate Change Canada, Health Canada, Agriculture and Agri-Food Canada, Natural Resources Canada, Parks Canada, RECYC-QUÉBEC, Ville de Montréal (Quebec), Metro Vancouver (British Columbia), National Zero Waste Council, Communauté Métropolitaine de Montréal (Quebec), Municipalities of Saskatchewan, First Nations Health Authority	<i>Secretaría de Medio Ambiente y Recursos Naturales, Secretaría de Gobernación, Servicio Meteorológico Nacional, Comisión Nacional del Agua, Comisión Nacional Forestal, Centro Nacional de Prevención de Desastres, Secretaría de Agricultura y Desarrollo Rural, Comisión de Nacional de las Zonas Áridas, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Agencia Espacial Mexicana, Instituto Mexicano de Tecnología del Agua, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Comisión Nacional de Áreas Naturales Protegidas, Instituto Nacional de Ecología y Cambio Climático, Yucatán State Government, Mérida City Council</i>	Environmental Protection Agency, National Oceanic and Atmospheric Administration (National Centers for Environmental Information and Office for Coastal Management), Fish and Wildlife Service, Clallam County (Washington), City of Fort Worth (Texas), Mississippi River Cities and Towns Initiative, US Conference of Mayors, UNEP North America office, Alaska Native Tribal Health Consortium

Nongovernmental organizations	CoCoRAHS Canada, Weather Innovations, First Nations Health Authority, Simon Fraser University, Concordia University, Université Laval, University of Waterloo, Clean Foundation, University of Saskatchewan, CatIQ	<i>Universidad Nacional Autónoma de México (UNAM), Universidad Anáhuac, Universidad Autónoma de Querétaro, Universidad Juárez del Estado de Durango, Banco de Alimentos (BAMX) de Mérida, Pronatura Yucatán, Kilometro Uno, Proyecto Fronterizo de Educación Ambiental, Terra Peninsular, Iberoamerican University, Grupo de Ecología y Conservación de Islas</i>	Community Collaborative Rain, Hail and Snow Network (CoCoRAHS), South Central Climate Adaptation Science Center, University of Arizona, University of Oklahoma, the Southern Climate Impacts Planning Program, <i>Universidad del Sagrado Corazón</i> , Keep America Beautiful, George Mason University
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Procurement

Thirty-six contracts, as well as other collaboration agreements and Memoranda of Understanding, were signed to support the projects and initiatives. The contractors were businesses (14), individuals (13), nonprofit organizations (5), and academic institutions (2). Contracts were awarded following an open and fair competitive selection process. The Secretariat’s evaluation of contracts completed to date shows an overall satisfaction rate of 92 percent, with 92 percent satisfaction for contractors’ quality of work, as well as for timeliness. The results, particularly in relation to timeliness, are very encouraging and represent an improvement from the previous Operational Plan.

Meetings

A total of 27 project-related meetings were organized by the CEC Secretariat. Meeting survey data show a 93 percent satisfaction rate for meeting content and facilitation, where appropriate, based on a response rate of 50 percent. This represents a 0.5 percent reduction from the previous Operational Plan. The CEC Secretariat also participated in 13 non-CEC events that helped advance project activities or increase the exposure of the CEC’s cooperative work.

Publications

The CEC produced 33 publications that were subject to the CEC’s quality assurance process and made available on the CEC website.

Expenses

Budget expenditures are shown in the chart below as a percentage of the total planned budget by project. While budget expenditures are not necessarily a reflection of performance (for example, when more cost-effective measures are implemented) it can be noted that overall, 67 percent of the total two-year Cooperative Projects budget was spent. Most of the unspent budget can be attributed to the cancellation or redesign of activities, or to an increase in online meetings (instead of in-person meetings) due to the pandemic.

3 Performance of Stakeholder Engagement Mechanisms

Performance measures for the Operational Plan 2019–2020 were also identified for the Joint Public Advisory Committee (JPAC), the Traditional Ecological Knowledge Expert Group (TEKEG), the Submission on Enforcement Matters, the North American Partnership for Environmental Community Action (NAPECA), and the Communications and Outreach units. The results (covering 1 July 2019–30 June 2021) are summarized below:

3.1 Joint Public Advisory Committee

To meet its objective of providing meaningful recommendations to the Council and information to the Secretariat, JPAC sent letters and five Advice to Council, containing a total of 21 recommendations. Additionally, JPAC participated in 13 calls or meetings with the Alternative Representatives to report on the outcome of their public fora and to receive feedback. Its members were also engaged in providing expertise on two CEC projects or initiatives. Moreover, JPAC continued to increase public participation in CEC initiatives and promote greater dissemination of North American environmental information and CEC work. JPAC held four remote and in-person public meetings and consultations, reaching a total of 1,365 participants.

3.2 Traditional Ecological Knowledge Expert Group

To meet its objective of providing recommendations on ways to apply and incorporate traditional ecological knowledge (TEK) and Indigenous perspectives in CEC activities, the TEKEG sent an Advice to Council, for a total of three recommendations. The TEKEG also met ten times, provided feedback on the 2021–2025 Strategic Plan, the 2021 Operational Plan, and on the CEC initiative on *Improving Resilience to Extreme Events and Climate Impacts*. Moreover, the TEKEG developed a project proposal for the Parties' consideration as part of the 2021 Operational Plan.

3.3 Submission on Enforcement Matters

In fulfilling the objective to expand outreach to new stakeholders and educate the public about the SEM process, the CEC presented the process at 32 events (9 in Canada, 5 in the United States, 13 in Mexico, plus 5 webinars to organizations in other countries) reaching 2,076 participants, including 123 new stakeholder groups. The CEC organized 15 of these events. Additionally, four new submissions were filed, during the period from 1 July 2019 to 30 June 2021: SEM-19-003 (*Lake Memphremagog*), SEM-19-004 (*Barred Owl*), SEM-20-001 (*Loggerhead Turtle*), and SEM-21-001 (*Fairview Terminal*). The Secretariat terminated three of them and recommended the development of a factual record with respect to the Loggerhead Turtle submission.

3.4 NAPECA

In fulfilling the objective of enhancing the quality and outreach for the NAPECA grant program, the following results were achieved: 231 NAPECA applications were received following a well-disseminated NAPECA Call for Proposals. Eleven projects were selected for implementation until 30 June 2021. Out of these, nine projects were completed on time, and the remaining two were completed in fall 2021. As shown in the performance table included in Annex 1, some of the activities planned, such as workshops and conferences, had to be cancelled due to the COVID pandemic.

3.5 Communications

In fulfilling the objectives: 1) to raise general awareness of the CEC as an important agent in protecting the North American environment and supporting sustainable development, and 2) to build support for the CEC and the role it plays in North America:

- There have been 1,394 news articles covering CEC work.
- We connected with 36,698 people through social media platforms (total followers), representing a 25% increase since 2019, and a 382% increase since 2015.
- In the past year, CEC social media reached more than 3,514,700 people, increasing 13% from 3,120,900 the previous year. Notably, CEC's Twitter presence has grown substantially, rising to 1,638,900 reached, representing an increase of 104% from 865,800 (aggregate across English, French and Spanish) and a 30% growth in followers.
- Over the last two years, there have been 258,122 visits to the CEC website.
- Following a successful revamp of our media release and newsletter distribution strategy, open rates have nearly doubled over our baseline, rising to an average of 38% in 2021.

3.6 Outreach

- There were 1,344 registered participants to the 27th annual Council Session and meeting of the Joint Public Advisory Committee (JPAC), representing academia (24%), private sector (22%), youth (22%) and other sectors (29%). There were 97 questions asked during the live event via Sli.do. Out of the 186 post-event survey respondents, 98 indicated that the event exceeded expectations.
- Nineteen online events reaching out to a total of 2723 people were organized, co-organized, or had an active participation. Of these, 84% were carried out with organizations representing government agencies, NGOs, or local, national, regional, and international organizations.
- We secured 21 partnerships with local, national, and international organizations.
- An outreach campaign was supported for CEC work on Food Loss and Waste and for the third and fourth years, the CEC led the International Monarch Monitoring Blitz, which in 2020 brought 2697 new visitors to the CEC Monarch Blitz website. Some 1,436 volunteers participated in the Monarch Blitz in 2019 and 2,520 participated in 2020.

- CEC stakeholders increased 43% compared with the 2019 baseline. These stakeholders represent various sectors of society, including academia, government, international organizations, NGOs, and the private sector; as well as individuals representing youth and Indigenous communities.
- CEC’s work in three international day celebrations was actively highlighted in 2020 (GISday, International Day of Awareness of Food Loss and Waste, and the World Environment Day; two of these occurred in partnership with international organizations).
- The CEC received 193 submissions for the 2020 Youth Innovation Challenge. The #Youth4Innovation promotional video was viewed 23,714 times. For the 2021 Challenge, we received 70 submissions, likely reflecting the difficulties posed internationally by the pandemic.

Council Session 2020 Highlights

The accessibility of a virtual event attracted the highest level of participation ever recorded at a CEC Council Session and JPAC Forum, with 1,458 attendees. Participants asked nearly 100 questions of the presenters and out of 186 post-event survey respondents, over half indicated the event exceeded expectations.

4 Impact of CEC Work

Efforts have also been made to continue measuring the impact of past and recent work. In 2019–2020, the Secretariat commissioned six assessments of the long-term impact of the CEC work on to the following topics:

- Forest Carbon (2013–2017)
- AirNow-International (2010–2015)
- North American Pollutant Release and Transfer Register Initiative (1995–2015)
- Monarch Butterfly Conservation (1996–2016)
- Sound Management of Hazardous Waste Work (1996–2014)
- North American Environmental Atlas and the North American Land Change Monitoring System (1996–2016)

These assessments were based on a thorough review of project accomplishments, interviews with stakeholders from the three countries, analysis of outputs and dissemination metrics, and comparison of desired and actual project outcomes. The findings and recommendations for future cooperation in these areas of work have been shared with the CEC Council.

In addition to long-term impact reviews, the Secretariat also gathers anecdotal evidence about use of CEC information by government officials, stakeholders, and other people not directly involved in CEC work. For example:

- In 2020, researchers from California State University explored the CEC’s Taking Stock Online data for a study on economic impacts. Moreover, a researcher from University of California, Irvine, explored the data for the second phase of a study on corporate sustainability and competitiveness in Mexico. Finally, in 2021, US PRTR officials requested assistance from the CEC regarding industry-sector comparability for an international effort under the OECD’s PRTR Working Group.
- As a result of ongoing trilateral collaboration tracking North American Pollutant Releases and Transfers (NAPRTR), the US TRI program undertook a thorough review of US facilities receiving waste transfers from facilities in Canada and Mexico, which enabled more accurate cross-border transfers reporting by Canadian and Mexican facilities.
- As a result of meetings organized under the CEC project, “Strengthening regional pollinator conservation to secure local benefits,” including the development and publication of the North American Pollinator Conservation Framework, at least one government official started new collaborations with newly-met peers.
- The CEC activities focused on forest fires carried out as part of the project, “Using remote sensing to prepare for and respond to extreme events,” have been viewed by our partners as a “game changer” and a big step forward in achieving “long-sought, more active, and thorough coordination with our North American counterparts on satellite-based fire mitigation and early warning systems,” and “an organized, harmonized response across our various agencies in operational satellite-based fire detection and monitoring.” Davida Streett, Branch Chief, NOAA/NESDIS Satellite Analysis Branch.
- As part of this same project, a workshop on flood events took place just before Tropical Storm Gamma and Hurricane Delta hit Mexico. As a result of the workshop, US experts provided access to new tools and information that Mexico was able to use to respond to flood events resulting from these storms.
- The National Centers for Environmental Information (NCEI) created a section on its website to disseminate the project summary statistics of the CEC project “Improving the effectiveness of early warning systems for drought” and released a newsletter highlighting the trinational collaboration process to determine drought indices and indicators. These results are also being featured in an article submitted to the journal *Atmosphere* by a NOAA project Steering Committee member.
- The newly released 2010–2015 Land Cover and Land Cover Change products were featured on the May/June 2021 issue of *Canadian Geographic* magazine and was accepted into ESRI’s *Living Atlas of the World*. Moreover, ESRI Canada selected as its April 2021 “App of the Month” the “2010–2015 North American Land Cover Change Story Map – Our Changing Continent”.
- Ville de Loraine, Province of Quebec, Canada, received in May 2021 the “Monarch-friendly community” certification, an initiative that was introduced thanks to a

partnership between the Commission for Environmental Cooperation, the David Suzuki Foundation and Espace pour la vie. The purpose of the initiative, intended exclusively for municipalities, is to implement concrete measures to restore and protect monarch habitat over the entire length of the butterfly's migration corridor and to encourage people to get involved in monarch conservation.

- Following the well-attended webinar to launch CEC's Marine Litter Community Engagement Toolkit in May 2021, the CEC received a call from an attendee who would be interested in applying the material in LaSalle, Quebec.

5 Conclusions

Performance Analysis

This assessment of the last two years indicated that, overall, the CEC has succeeded in achieving the goals and objectives it had set for its work and that performance targets were at times exceeded. Moreover, the results under each project have contributed to the strategic objectives set by the Council in the Strategic Plan 2015–2020, which were:

- 1) To minimize threats posed by climate change by taking actions to plan for and implement climate change adaptation and mitigation measures that will protect human health and the environment from the effects of climate change;
- 2) To identify steps to reduce emissions from the transportation sector; to provide management systems options that will explore clean energy technologies and increase energy efficiency; to explore alternatives for addressing waste reduction and recycling, including the diversion of organic waste from landfills; and to develop information and tools in support of sustainable consumption and production; and
- 3) To maintain efforts to improve and restore the integrity of ecosystems, landscapes and seascapes; to conserve priority species; and to enhance rural and urban environments by working closely with communities.

However, considering that these objectives were general in nature, it is important that in developing the next Strategic Plan, the Parties endeavor to define strategic objectives that are SMART (specific, measurable, achievable, relevant and time-bound) in order to facilitate performance assessment at the end of the five-year cycle.

Lessons Learned

The implementation of the performance measurement framework has been an important tool to better express SMART objectives and measurable results for all CEC activities, to establish solid baselines for continuing projects, and to extract lessons learned for the future. The framework also offers an excellent opportunity for continued improvement.

Next Steps

Performance measures and targets are being defined for all projects to begin in 2021 and 2022 and will be monitored and reported on periodically. This will allow project steering committees to discuss project performance and adapt/adjust activities as needed to meet the project

objectives. Through this, the CEC hopes to continue achieving concrete results at the project level and across the organization. The CEC also intends to gain a better understanding of the impact of past work and contribution to the Parties' national and international commitments. Therefore, in addition to measuring the performance over a two-year timeframe, the CEC will continue to evaluate the impact of its past work, both at the national level and regionally.