Project: Reducing Pollution from Maritime Transport

1. **Two-year budget: C$440,000**

2. **Short statement of the need identified (including current status), the project objective and outcomes (achievable by June 2019) to address it**:
   Maritime transport of passengers, goods, and materials among Canada, Mexico, and the United States, as well as trade with other global trading partners, supports North American economic growth, jobs, and standards of living. However, emissions from the maritime transport sector significantly impact air quality, climate, the environment and ecosystems, as well as human health in port cities, inland, and along transportation routes. Maritime transport is defined for this project as inclusive of vessels, ports infrastructure and operations, trucks and rail. Canada, Mexico and the US have evaluated emissions and their environmental, health and economic impacts. Modeling and analysis demonstrate that the overall benefits (health, economic, productivity, and environment) significantly outweigh the costs of emissions mitigation in this sector, and also ease the challenge that states/provinces/local communities and other industry sectors face in meeting air quality objectives. The United States and Canada have adopted cost-effective strategies and practices to mitigate emissions from vessels, through the establishment of the North American Emissions Control Area (ECA) and complementary policies, practices and technologies at ports to further reduce emissions related to the movement of goods. Mexico is working to address emissions from the goods movement sector as well. Collaboration through this project has several objectives:

   a. It will achieve a consistent North American approach to reduce emissions of air pollutants (such as SOx, NOx, PM, and greenhouse gases) from vessels through adoption of a Mexican Emissions Control Area, and build upon Mexico's compliance and enforcement capacity required for Marpol Annex VI and the ECA to achieve the desired emissions reductions results. This objective also follows up work completed under the projects in the CEC's 2014–2015 and 2015–2016 Operational Plans, demonstrating the environmental, health, and cost benefits of adopting an ECA in Mexico, and advancing compliance and enforcement capacity to achieve results and consistent enforcement in North America.

   b. It will build on existing activities of Canada, Mexico, and the United States to green ports, exchange knowledge, expertise, and experience among ports; and support consistent/coordinated adoption by environmental, transport and marine authorities, and other stakeholders of environmental best practices in the goods movement sector. This objective adds to ongoing North American efforts to address pollution sources and achieve benefits in air/climate/water quality, environmental and ecosystem protection, and community health. This effort will also leverage existing expert networks, such as the Pacific Ports Clean Air Collaborative, the US-China green Ports and Vessels Initiative, and others, as appropriate.

These objectives promote enhanced environmental protection and regional competitiveness through greater certainty and a level playing field for the goods movement sector in North America as Canada, Mexico, and the United states and achieve more consistent application of standards, enforcement, best practices and technologies that are consistent with internationally accepted standards and practices already in place.

Outputs:

- 2017–2018: Strengthen the existing network of entities involved in ECA implementation/compliance and expand it to include North American stakeholders, to share and implement best practices to reduce emissions and pollution from both ports and vessels. Capitalize on existing networks of stakeholders and associations conducting similar and relevant work, such as the Pacific Ports Clean Air Collaborative (PPCAC), Green Marine, the US-China Green Ports and Vessels Initiative (US-China GPVI), the Sulphur Regulation Meetings hosted by Canada, the International Association of Ports and Harbors (IAPH), and others to maximize capacity-building and results. Key stakeholders and decision makers may include:
  - National/local government—environment, transport, port authorities, coast guard/naval agencies;
  - Industry—shipping, shippers, environmental services, technology/equipment providers, fuel supply/testing;
  - Academia, NGOs, and communities.
- Workshops and actions in 2018 and 2019
  - Complete work to develop Mexico's Emissions Control Area proposal to the International Maritime Organization
  - Share best practices and build/enhance capacity on:
    - Implementation, compliance, and enforcement of Marpol Annex VI and ECA;
    - Coordination among Canada, Mexico, and the United States on enforcement of Marpol Annex VI and ECA in support of industry's request for uniform and consistent enforcement to provide a level playing field for competitiveness;
    - Technology, operations, incentives, fuels, efficiencies to reduce energy use, costs, emissions and pollution to air/water from land-side equipment, trucks, trains, vessels and reduce environmental, ecosystem and human health impacts from the sector;
    - Air quality monitoring, modeling, and measurement of results and sharing experience among Canada, Mexico, and the United States.

Short-, Medium-, Long-term outcomes:

- 2017 - Expected Marpol Annex VI Accession by Mexico
- 2019 - Expected ECA designation proposal submission to IMO by Mexico
- 2020-2021 - Expected entry into force and implementation/enforcement of Mexican ECA;
- 2020-2021 – Expected Consistent network of emission control areas (ECAs) in North America.

- 2018- forward - Adoption/expansion of port and vessel practices to improve efficiency and reduce emissions, pollution and human health and environmental impacts

Post-project impacts:

- Estimated emission reductions from ships in Mexican waters achieved through adoption of Mexican ECA: nitrogen oxides [NO_X] reduced by 80%, sulfur oxides [SO_X] by over 90%, and particulates by over 80%
- Reduction in emissions from port activities (cargo handling equipment, energy, dray trucks, rail, other) and vessels
- Promote/assure compliance and achieve improved air and environmental quality in Mexico, US, Canada's port communities and coastal areas and support for economic growth and expansion of North American ports and port community industries

3. Explain how the project can achieve more impact by working trinationally, and why the CEC is the most effective vehicle to undertake this work:

This project provides a trilateral North American forum to collaborate and coordinate on reducing pollution and enhancing competitiveness in goods movement between the US, Canada, and Mexico, and with the countries' global trading partners, Trade of goods and materials is transported through an interconnected global network of ports, vessels, trains, and trucks. While this trade supports economic growth, jobs, and standards of living, the emissions resulting from the transport of trade impact the environment and human health at port cities and far inland. Because vessels, trains and trucks transport goods between Canada, Mexico, and the US, and vessels also transport goods between the three countries and global trading partners, this project aims to reduce pollution and promote competitiveness through two main activities:

- Build upon previous CEC work addressing emissions from maritime transport (2014–2015 and 2015–2016 Operational Plans) supporting Mexico to develop, submit, and adopt an IMO ECA consistent with the North American Emissions Control Area (US-Canada);
- Share knowledge and experience and facilitate coordination and harmonization of ongoing efforts in Canada, US, and Mexico to reduce emissions and pollution from activities that support shipping at ports and other sources not addressed by the ECAs.

This coordinated approach through the CEC is designed to achieve environmental and competitive benefits because:

- The freight transport industry, and particularly the maritime shipping industry, faces economic challenges as well as patchwork of varying requirements at ports of call in all continents. Through this project, the US, Canada, and Mexico can provide the shipping community with a consistent regulatory approach through a North America/Mexican ECA. The implementation and enforcement to reduce emissions will enhance consistency, certainty and competitiveness for the shipping sector.
- Ports are hubs and play a large role in addressing emissions from all transportation sectors and impacts to communities. Sharing best practices within North America will allow for coordinated initiatives to attract the most efficient/lower emissions

vessels; provide greater consistency in environmental requirements for shipping, trucking, trains (such as shore power, incentives for vessels speed reduction or engine types); and reduce emissions and impacts to communities.

Because the US, Canada, and Mexico, also trade globally with other countries that have, or are implementing vessel and ports best practices (ECAs, policies, incentives, technologies), this project also intends to capitalize on similar efforts by major trading partners and existing initiatives on this topic, such as the Pacific Ports Clean Air Collaborative (PPCAC), Green Marine, and the US-China Green Ports and Vessels initiative to network, share experience on these consistent/complementary practices, technologies, standards. The PPCAC is a network of stakeholders (ports, environmental and marine agencies, industry, NGOs, communities, academia, and international associations) established in 2006 by the Port of Los Angeles, Port of Shanghai, US EPA and the US Maritime Administration to share challenges, best practices and solutions/lessons learned in addressing air quality and health challenges in ports/cities along the Pacific Rim. The US-China Green Ports and Vessels initiative is a government-to-government initiative to share best practices among the US and China to address emissions from ports and vessels between these two major trading partners. Because the goods movement sector involves a broad set of stakeholders (i.e., environmental and maritime authorities; ports, shipping, fuel suppliers, cargo owners, academia, communities, others), collaboration through the CEC forum among the US, Canada, and Mexico, and with other initiatives, capitalizes on other resources and advances sustainability of trade transport on a North American scale and with other trading partners. This collaboration is intended to take place through parallel or joint workshops or sessions.

4. **Describe how the project may capitalize on, or advance, the relationship between ecosystems, job creation, gender impacts, and income generation:**
Around 90% of world trade is carried by the international maritime shipping industry. World seaborne trade is projected to grow by approximately 25% from today to 2025.[1] In order to grow operations to handle growth in trade, most ports must minimize the impacts to air quality—to meet local and national air quality standards—and to protect the environment and health of the communities near the ports. National governments must work to reduce emissions from shipping to protect their citizens in communities from human health impacts from ship emissions. Port communities are usually a partner and provide a significant portion of the port's labor force but they also sustain the environmental and health impacts from port operations. This project seeks to help North American ports and the maritime shipping industry meet the projected trade growth in a sustainable way by promoting best practices to reduce the environmental, ecosystem, and human health impacts while growing shipping throughput. Adoption of Mexico's ECA is estimated to reduce vessel emissions of nitrogen oxides (NO_X) by 80%, sulfur oxides (SO_X) by over 90%, and particulates by over 80%. Such reductions would improve ambient air quality and lead to fewer adverse impacts on environmental quality and human health (including an estimated 35,000 lives saved annually by 2030). In the United States the health cost benefits from the US ECA are US$190 billion annually by 2030 (as compared to a cost of US$4.5 billion). In Mexico, the annual health cost benefit of an ECA in 2030 is estimated to be US$58 billion (as compared to a cost of US$4.8 billion). In

[1] International Chamber of Shipping; <http://www.ics-shipping.org/shipping-facts/shipping-and-world-trade/predicted-increases-in-world-seaborne-trade-gdp-and-population>.

addition to the reductions from an ECA designation, Mexico's current Green Ports program has resulted in the designation of the Port of Ensenada in Baja California, and Lázaro Cárdenas, Michoacán, Mexico, as Green Ports by the European Maritime Ports Organization. It is expected that Ensenada's freight transportation will increase internationally to four times its current size by 2050 and the potential in both job creation and also emissions promoted spurred Mexico to be proactive in addressing port activities. Further developing Mexico's Green Ports program will both address potential emissions increases and also result in job creation and income generation, while taking into consideration impacts on the environment.

The avoided adverse human health impacts from reducing air quality impacts of maritime shipping and emissions from ports and vessels would enhance productivity by reducing work and school absences, as well as lower health care expenses. Reduced emissions from ports and vessels would also lessen impacts on ecosystems (e.g., coral reefs), moderate the burden imposed by poor air quality on low income communities, pregnant women and people with health issues, create employment and income generation opportunities (e.g., related to ship services, tourism, potential entry of Mexico into the market for compliant marine fuels), and support other national efforts to improve air quality.

5. **Describe how the project complements or avoids duplication with other national or international work:**
   This project is the only trilateral effort to advance coordination of best practices in sustainable goods movement among Canada, Mexico, and the United States. This project also intends to capitalize on other efforts, as appropriate, such as the Pacific Ports Clean Air Collaborative, the US-China Green Ports and Vessels Initiative, and relevant work by nongovernmental organizations and associations (such as the International Association of Ports and Harbors, the American Association of Port Authorities, and others). Coordination of green ports efforts between Mexico, the United States and Canada facilitates consistency and harmonization of practices as appropriate to achieve results in North America.

6. **Describe opportunities for inclusion of traditional ecological knowledge (TEK), if applicable, and how these opportunities are incorporated into the project**:
   The components of this project focused on ports may be able to identify opportunities for TEK engagement.

7. **Describe opportunities for youth engagement, if applicable, and how these opportunities are incorporated into the project:**
   Some ports in North America already reach out and engage communities as partners and may serve as a model for community/youth engagement in education, awareness, and other forms of participation.

8. **List significant involvement of other levels of government, Indigenous groups, local communities, experts, private sector, civil society and others, as applicable:**
   The project will engage key decision makers and stakeholders, including national/provincial government, ports, industry, and communities in the United States, Canada, and Mexico.

9. Identify relevant committee members and their federal agencies in each country committed to developing this project, and implementing it, if approved:

Mexico	**US**	**Canada**
Lead: Salomón Díaz, Semarnat	Lead: Luis Troche, EPA	Lead: Naomi Katsumi, Transport Canada
Valeria Muriel Dosal, SCT TBC	Angela Bandemehr, EPA	Canadian Ports
	Brian Muehling, EPA	
Profepa TBC	John Sedlak, USCG (TBC)	TBD
	Lisa Wunder, Port of Los Angeles (TBC)	

10. List the objectives and activities to be conducted to achieve measurable results:

Objectives	**Main activities to achieve objectives**	**Measurable results**
Achieve continental network of vessel emission control areas in North America (pending Mexico's accession to Marpol Annex VI)	**Activity 1** Mexico submits ECA designation proposal to the IMO	• Expected approval of ECA Proposal by IMO at MEPC 73 (Marine Environment Protection Committee) • Expected establishment of Mexican ECA • Mexican ECA expected to be in force by 2020
Coordinate best practices to reduce emissions pollution and achieve benefits in air quality, community health, environmental quality, ecosystems and climate in North America	**Activity 2** Exchange Best Practices on Green Ports and Vessels	Enhance capacity and coordination of efforts and compliance in Mexico, Canada, US on: • Policies • Technologies • Operations • Incentives • Fuels • Efficiencies • Implementation and enforcement of Marpol Annex VI and ECAs