CANADA

Input on Area of Focus 2: Pollution Prevention

Pollution in the Arctic

Throughout the Arctic, a wide range of chemical substances are found, which originate largely from other parts of the globe. The Arctic region has become the unintentional destination for certain classes of pollutants, including short-lived climate pollutants (SLCPs), plastics and microplastics, and persistent organic pollutants (POPs) that travel long distances within the atmosphere, oceans and rivers.

The international community has been taking action to reduce pollution and contaminants through international agreements which have been implemented to control the production, use and release of POPs and heavy metals. These include the Convention on Long-Range Transboundary Air Pollution (CLRTAP), the Stockholm Convention on POPs and Minamata Convention on Mercury.

As a result of these agreements and other controls, levels of many POPs in the Arctic are now declining, but with the ongoing development and use of new substances, some of which have the potential to reach and persist in the Arctic, the issue of pollution in the Arctic is continuing to evolve.

Marine litter and microplastic

The issue of marine litter, particularly plastics pollution, has garnered increased international attention over the last five years, and even more recently in Arctic ecosystems.

Plastic and other litter is found in oceans around the globe, and the Arctic Ocean and sea ice is no exception. Over the last few years, several studies have started documenting the presence of plastics and microplastics in Arctic polar waters[1]. This plastic makes its way into the Arctic food chain, affecting wildlife and the health of local populations. Extensive research has shown that plastics are being ingested by sea birds in the Arctic[2].

In April 2018, a study found that concentrations of plastics in Arctic ice are actually hundreds of times higher than those found in seawater thus far with concentrations as high as 12,000 particles per litre found in some instances[3]. As sea ice is melting and exploitation of Arctic resources increases, there is a sizeable risk that microplastic presence in Arctic waters might become prevalent in the not-so-distant

[1] LUSHER, Amy, Valentina TIRELLI, Ian O' CONNOR et al. "Microplastics in Arctic polar waters: the first reported values of particles in surface and sub-surface samples", *Scientific Reports,* 5: 14947, October 2015; KANHAI, La Daana K., Katarina GARDFELT, Olga LYASHEVSKA et al. "Microplastics in sub-surface waters of the Arctic Central Basin", *Marine Pollution Bulletin,* 130 (2018) 8-18

[2] POON, F.E., J.F. Provencher, M.L. Mallory, B.M. Braune, and P.A. Smith. "Levels of ingested debris vary across species in Canadian Arctic Seabirds." *Marine Pollution Bulletin* 116: 517-520.

[3] PEEKEN, Ilka, Sebastian PRIMPKE, Birte BEYER et al. "Arctic sea ice is an important temporal sink and means of transport for microplastic", *Nature Communications*, 2018, 9:1505

future. A 2014 study estimated that at the current rate of Arctic sea ice melt, over 1 trillion pieces of plastics will be released into the environment by 2025.[4]

Short-lived climate pollutants (SLCPs)

SLCPs are potent greenhouse gases (GHGs) and air pollutants including methane, hydrofluorocarbons (HFCs), black carbon, and ground-level ozone. SLCPs have relatively short atmospheric lifetimes compared to longer-lived GHGs such as carbon dioxide. These pollutants have an important warming impact on climate and a negative impact on the health of local communities. Reducing SLCPs can therefore help achieve climate and air quality objectives. The expected benefits of SLCP mitigation are particularly relevant for the Arctic, where warming has outpaced the average global temperature increases. Limiting emissions of black carbon is of particular significance in the Arctic due to its additional warming effect when deposited on snow or ice.

A large proportion of SLCPs found in the Arctic are emitted from sources south of the Arctic Circle:

- The majority of black carbon in the Arctic comes from south of 60°N; about 40% of the black carbon that reaches the Arctic comes from East and Southeast Asia. Currently, Arctic States are responsible for approximately 10% of anthropogenic emissions of black carbon but these emissions actually have greater impacts as they are closer[5].
- Methane is well mixed throughout the atmosphere; therefore methane emissions from anywhere in the world can end up having an impact on the Arctic climate.

Finding common solutions to reduce contaminants in the Arctic

Enhanced participation in global efforts by the Arctic Council to address contaminants that affect the Arctic would contribute to healthier, stronger communities and cleaner and more resilient ecosystems. Strengthened efforts and would support achievement of SDG 3 (Good Health and Well-being), SDG 7 (Affordable and Clean Energy), SDG 13 (Climate Action), SDG 14 (Life Below Water) and their related targets such as: *substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination; Access to modern Energy Services; Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.*

Supporting international action on plastics

A study on marine litter and microplastics in the Arctic is being undertaken by the Protection of the Arctic Marine Environment (PAME) Working Group of the Arctic Council, the results of which will be published in 2019. Even though the results are not available yet, Arctic States must take action now to limit the amount of synthetic non-biodegradable substances flowing into the marine environment.

Marine litter and plastics are addressed in numerous international fora (e.g. G7, G20, OECD, and various bodies under the United Nations). Canada has adopted a number of commitments in this area including

[4] Obbard, R.W.; Sadri, S.; Wong, Y.Q.; Khitun, A.A.; Baker, I.; and Thompson, R.C. 2014. Global warming releases microplastic legacy frozen in Arctic Sea ice.

[5] AMAP, 2015. "Summary for Policy-makers: Arctic Climate Issues 2015", Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. 16 pp

the G7 Action Plan to Combat Marine Litter, G20 Action Plan on Marine Litter, United Nations Sustainable Development Goals, and Clean Seas Campaign.

A comprehensive and global approach is required to address this issue, and Canada is taking global leadership in the fight against marine litter and plastic waste. Canada has made oceans health and addressing plastic pollution a priority under its 2018 G7 Presidency. We are working with our G7 partners to reduce plastic waste and prevent its release into the environment. Work is underway to advance a G7 commitment to take action on plastics throughout their lifecycle and reduce marine litter through a G7 Plastics Charter. Arctic Environment Ministers could propose a pledge for adoption at the May 2019 Arctic Council Ministerial Meeting in support of international commitments and objectives to reduce plastics, and consider how this issue could be prioritized in the Arctic Council's work going forward.

Working with Arctic Communities and Peoples: Canada's Northern Contaminants Program

The Northern Contaminants Program (NCP) is a multidisciplinary initiative, funded by the Government of Canada, addressing health, science, and communications issues related to contaminants in Canada's Arctic. Understanding contaminants pathways and processes in the Arctic, as well as the effects that contaminants may have on wildlife means that research based on an interdisciplinary approach, including natural and social sciences, as well as community-based monitoring and traditional and Indigenous Knowledge, is essential. The NCP engages northern communities and scientists in researching and monitoring of long-range contaminants in the Canadian Arctic that are transported through atmospheric and oceanic processes from other parts of the world, and remain in the Arctic environment and build up in the food chain (POPs, mercury, and now microplastics).

The NCP works closely with the Arctic Monitoring and Assessment Programme (AMAP) and other Arctic nations on collaborative research and monitoring activities and on the preparation of scientific assessments. One of the key aspects of the NCP is the effective involvement of local peoples and stakeholders and the incorporation of Indigenous knowledge in the research process. The NCP requires that all funded project be carried out in partnership with Northerners. Scientists are encouraged to work with community leaders, Elders, hunters and others to incorporate Indigenous knowledge into the design and conduct of the study.

A Ministers' discussion on opportunities for collaborative research and monitoring of contaminants of concerns for the Arctic Region and the North would be beneficial and Canada would be pleased to share its experiences in engaging Indigenous and local communities and governments through the NCP.

Engaging the international community on SLCPs

Since a significant share of Arctic warming is a result of SLCPs emitted outside of the Arctic, mitigation efforts also require the engagement of non-Arctic countries.

Discussion at the Arctic Environment Ministers' meeting could consider ways to promote uptake of best practices and recommendations developed by the Arctic Council among Observer States, and potentially more broadly in other international forums.

Several relevant policy recommendations adopted at the Arctic Council are broadly applicable (including for non-Arctic States) and have the potential to realize benefits in the countries in which they are implemented, including for ecosystem and human health. This could include:

- Develop and continually improve emissions inventories and emissions projections using, where possible, relevant guidelines from the CLRTAP (for black carbon) and the United Nations Framework Convention on Climate Change (for methane);
- Consider adopting the Arctic Council aspirational goal to reduce black carbon emissions by 25 to 33 percent below 2013 levels by 2025, and;
- Consider the Expert Group on Black Carbon and Methane policy recommendations for reducing black carbon and methane from diesel-powered mobile sources, oil and gas flaring, and residential biomass combustion appliances.