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Environment and Climate Change Canada
 Waste Reduction and Management Division
 351 St. Joseph Blvd., Place Vincent Massey
 Gatineau QC
 K1A 0H3
 E-mail: ges-dechets-ghg-waste@ec.gc.ca

SUBJECT: KEAC Feedback on the ECCC Discussion Paper: Reducing Methane Emissions from Canada's Municipal Solid Waste Landfills

The Kativik Environmental Advisory Committee (KEAC) was created pursuant to Section 23 of the James Bay and Northern Québec Agreement (JBNQA) and is a consultative body to responsible governments in matters relating to environmental and social protection in Nunavik. It is therefore the preferential and official forum for the Government of Canada, the Government of Québec, the Kativik Regional Government (KRG) and the northern villages. The KEAC ensures that all laws, policies and regulations applicable to the region are compatible with the provisions of Section 23 of the JBNQA. The KEAC maintains that waste management and as such, the reduction of methane emissions in Nunavik, can be improved by securing the necessary resources, and by involving all stakeholders in federal and provincial legislation.

Regional Context

Nunavik is the northernmost region of the province of Québec. It covers an area of approximately 507,000 km² and lies north of the 55th parallel. The region's population is 13,188, about 90% of whom are Inuit (Statistics Canada, 2017), residing among 14 isolated villages situated along the coasts of the Hudson and Ungava Bays. In other words, the only means of accessing these communities is by air or sea, during the ice-free season (approximately June to October).

In Nunavik, the Kativik Regional Government (KRG) is focused on improving residual materials management practices. The KRG's 2021-2027 Nunavik Residual Materials Management Plan (NRMMP) was developed considering regional and community-specific factors and objectives while adhering to the environmental protection principles of "reduce", "reuse", "recycle", and "reclaim". However, development and implementation of residual materials management initiatives, adapted to the Nunavik context, are often hindered by a lack of materials, infrastructure and human resources, high cost of transportation as well as the difficulty accessing funding programs.

KEAC Secretariat
 P.O. Box 930, Kuujuaq QC J0M 1C0
 Tel.: 819-964-2961, ext. 2287
 Email: bpatenaude@krg.ca

The KEAC understands that Environment and Climate Change Canada (ECCC) is seeking input on proposed objectives for an eventual regulation under the Canadian Environmental Protection Act to reduce methane emissions from municipal solid waste landfills. The discussion paper explains that these sites are responsible for 23% of methane emissions in Canada and that these emissions are a result of landfilling biodegradable and organic waste such as food, plant waste, paper products, wood, and textiles, which account for approximately 60% of all residual materials found in Canadian landfills. According to the NRMMP, biodegradable and organic waste accounts for approximately 70% of waste found in Nunavik landfills, also referred to as Northern Landfill Sites (NLS).

At present, a selective collection system for residential, industrial and commercial waste does not exist in Nunavik. Waste is not sorted at its collection nor at a disposal facility or éco-centre. Although some collection and recycling initiatives have been realized in certain villages, most waste, including organic and biodegradable materials are disposed of at the NLS. According to the NRMMP, Nunavik produces approximately 15,742 tonnes of residual materials annually which translates to 1,112 tonnes per resident each year.

Open-Air Burning

Most residual materials, regardless of type, are burned in the NLS according to the requirements of the Québec *Regulation Respecting the Landfilling and Incineration of Residual Materials* after which it is buried: “[c]ombustible residual materials deposited in northern landfills must be burned at least once a week, weather conditions permitting”. High humidity levels are associated with household waste and burning it at lower temperatures does not allow for its complete combustion. Consequently, large quantities of particulate and contaminants such as hydrocarbons, polycyclic aromatics, dioxins and furans are generated in the process. These contaminants can affect the respiratory systems of workers and residents of nearby households. Long-term effects can include cancers, liver problems, immune and endocrine system issues, as well as neurological and reproductive function due to exposure to dioxins and furans. According to a 2019 report by the Arctic Council’s Sustainable Development Working Group, which examined waste management in remote northern communities, municipal waste management practices can present such health risks as “smoke inhalation, direct contact with waste, surface water contamination, and environmental degradation primarily emanate[ing] from the landfill and/or other community-level facilities and practices”.

In Nunavik’s northern villages, the increased volume of residual materials, as well as unique geographic and meteorological conditions make it difficult to use burning as a reduction method.

In March 2021 the Minister of the Environment and the Fight against Climate Change mandated the Bureau d’audiences publiques sur l’environnement (BAPE) to realize a province-wide enquiry and consultation on the site status and management of final waste which also included the territory defined under Section 23 of the JBNQA and Section 14 of the Northeastern Quebec Agreement. As the KEAC is the preferential and official forum to responsible governments in the territory under Section 23 of the JBNQA, a special commission was formed to co-preside over the Nunavik portion of the consultation. This consultation was held on June 9 and 10, 2021 in Kuujuaq.

Participant feedback at the consultation contributed to the BAPE’s report, which was published in January 2022. Chapter 11 of the report provides information and presents recommendations regarding the site status

and management of final waste in Québec's treaty lands, including Nunavik. Where open-air burning is concerned, the BAPE recommends that the MELCC proceed with a characterization study of the environmental effects of the open air burning and that the Ministry of Health and Social Services study effects of exposure on the population. The Nunavik Regional Board of Health and Social Services made a similar request during the consultations.

ECCC Discussion Paper

The regulatory objectives outlined in the discussion paper provided to the KEAC mostly center on the reduction of methane emissions at larger municipal landfill sites throughout Canada. However, the KEAC is of the opinion that smaller landfills located in remote, northern regions such as Nunavik also contribute to methane emissions. As such, the KEAC would like to provide comments on two specific questions under objectives 1 and 3.

It is important to note that Nunavik is currently ineligible to receive federal funding for waste management infrastructure and human resource development. For example, the First Nation Waste Management Initiative was announced in 2016 with a budget of \$409 million over a five-year period for First Nation communities to improve solid waste management. However, the KRG and the northern villages are ineligible to receive this funding despite the fact that the northern villages share the similar reality to other First Nations communities across Canada.

Discussion Paper Objective 1 - Increase the number of landfills that take action to reduce methane emissions

Are challenges similar for large and small landfills? Are there opportunities to reduce methane emissions at smaller landfills in Canada? What type of incentives could encourage the development of innovative technologies (for example, biocovers) for smaller landfills?

As previously mentioned, the issue of open-air burning in the NLS remains a major concern in the region. The BAPE's report considers that sorting waste before disposal would permit the removal of hazardous materials from the waste being burned as well as reducing the volume.

Éco-centres

The NRMMP highlights the development of *éco-centres* as a solution to permit the recycling, reuse and recovery of residual materials. According to the latest report by RECYC-QUÉBEC regarding waste, 332 *éco-centres* have been established in the province but none are located in Nunavik. The estimated set-up cost for establishing such a facility for a Nunavik community is approximately \$2.5 million.

Landfill Management

Improvements to landfill site management could result in better sorting practices of residual materials resulting in less hazardous or reusable materials being burned. NLSs and their associated infrastructure are not connected to the village's electrical network. Electrification of these sites would enhance security and permit better sorting practices. It would also provide better conditions for workers. In addition, it is recommended that each community have access to vehicles and heavy equipment dedicated exclusively to

waste management. Finally, municipal employees responsible for waste collection and management should have access to sufficient training.

These employees should have working knowledge of the applicable regulations and management practices in order to ensure compliance with the standards related to waste management, sorting, and transportation as well as the treatment of spills should they arise.

Incineration of waste

Incineration is recognized as an effective method for eliminating different types of residual materials. An incineration project in Nunavik could represent an alternative method of waste elimination that is less damaging to the environment and human health. Such a project would cost approximately \$5 million to establish the facility and \$1 million per year to operate. Incinerators could be used to eliminate paper and organic waste however large quantities of fuel are required to operate them, which is a major disadvantage of this method.

Discussion Paper Objective 3 - Achieve long-term emissions reductions through diversion of biodegradable waste

What opportunities exist to incorporate biodegradable waste diversion into a landfill methane emission reduction plan?

Methane emission from landfilling organic waste in Nunavik can be reduced by transforming this type of waste through composting and recycling. The NRMMP has proposed several pilot projects that would improve residual materials management in Nunavik as well as reduce the volume of organic waste accumulating in NLSs.

Thermophilic composting

In 2019, a feasibility study for developing a thermophilic composting project in the village of Inukjuak was conducted for the KRG. The project's principle aim was to divert 135 tonnes of compostable waste per year away from the landfill. The project's costs have been estimated at \$1 million however, this lies outside the costs associated with establishing a collection system which currently does not exist in the region. Nevertheless, such a project would divert significant quantities of waste from the landfill and prolong the life span of the facility.

Recycling

Considering the risks and concerns with regards to open-air burning addressed in the BAPE's report, the KEAC acknowledges that the recently proposed Québec regulations concerning deposit and selective collection systems will reduce the amount of waste being burned in municipal NLSs should they account for territorial realities. The proposed regulations only cover a portion of the residual materials currently disposed of in NLSs. Federal regulations must consider the current deficiencies and support northern communities in their efforts to implement recycling and residual materials management programs that will divert organic and biodegradable waste from landfills to reduce methane emissions.

Conclusion

A federal regulations to reduce methane emissions at municipal solid waste landfills should consider smaller sites in remote and isolated regions such as Nunavik in its overall strategy. Complimentary actions such as incentives or credits for greenhouse gas reduction projects should be broadened to include such initiatives as waste diversion and alternatives to open-air burning.

The Oceans North report “Towards a waste-free arctic” published in March 2021 focuses on waste management in Inuit occupied regions, at the community level. It was observed that waste management infrastructure, equipment and techniques in northern communities are outdated or non-existent, which poses a significant risk to the human and natural environments. NLSs are increasingly less able to handle the volume and toxicity of the waste they generated by an ever-growing population. Innovative solutions are needed and Nunavik communities must be a part of this.

Regards,



Alexandre-Guy Côté
Chairperson, KEAC

cc. Véronique Gilbert, Assistant Director of Environment and Lands, Kativik Regional Government