

End-of-visit statement by the United Nations Special Rapporteur on human rights and hazardous substances and wastes, Baskut Tuncak on his visit to Canada, 24 May to 6 June 2019

6 June 2019

In my capacity as the United Nations Special Rapporteur on human rights and hazardous substances and wastes, I undertook an official country visit to Canada, at the invitation of the Government, from 24 May to 6 June 2019. The purpose of the mission was to monitor and assess steps taken by the Government to protect the human rights implicated by the management of hazardous substances and wastes.

I wish to emphasize at the outset that these are only preliminary observations. A full report of the mission, which will contain a more comprehensive analysis of the situation and recommendations from a human rights perspective, will be prepared and presented to the September 2020 session of the Human Rights Council.

I would like to sincerely thank the Government of Canada for the invitation to carry out this visit, and for the full support and collaboration. I would also like to thank all individuals and organizations that I met with in Canada, for sharing with me the thoughts, struggles, challenges, and opportunities, which exist to drive greater protection of human rights in the context of toxic exposures.

I had the opportunity to travel to Ottawa, Toronto, Grassy Narrows, and Sarnia, Fort McMurray, Edmonton, Vancouver, and Montréal, where I met representatives of the Federal Government as well as the Ontario, Quebec, Alberta, and British Columbia Government counterparts, and various stakeholders including indigenous peoples' representatives and elders, civil society representatives, defenders, academics, youth representatives, and representatives of the business community.

I had the honour to meet with federal representatives of Environment and Climate Change Canada, Health Canada, Crown-Indigenous Relations and Northern Affairs Canada, Natural Resources Canada, Indigenous Services Canada, Global Affairs Canada, the Department of Justice. I had the pleasure of meeting with the Canadian Ombudsperson for the Responsible Enterprise, and the Canadian Center for Occupational Health and Safety, the Canadian Nuclear Safety Commission, and Atomic Energy of Canada Limited. I also met with a member of the Canadian Senate, the Canadian Human Rights Commission and the Ontario Human Rights Commission.

I had discussions with representatives of the Barrick Gold Corporation, Frontera Energy, the Imperial Metals Corporation, the Pan American Silver Corporation, as well as the Sarnia-Lambton Environmental Association chaired by Suncor Energy.

I am grateful to all who spared their time and opened their doors to dialogue, for a crosscutting debate on protection of human rights impacted by toxic exposures.

Governance

The implications of toxics for Canada's human rights obligations

Canada has recognized a multitude of human rights under international treaties. Under the numerous international human rights treaties ratified by the Government, Canada has the obligation to protect, respect and fulfil the human rights to life, the highest attainable standard of health, security of the person, safe food and water, adequate housing, safe and healthy working conditions, among others implicated by hazardous substances and wastes. It has specific obligations under the Convention on the Rights of the Child to take into account the dangers and risks of polluted water and contaminated food, and to protect the right of the child to full and harmonious development, to be heard and to have their best interests taken into account. Canada also has obligations relating to the human rights to information and meaningful participation, and the principle of access to justice. These are all underpinned by the fundamental principle of non-discrimination.

Furthermore, it is commendable that Canada has ratified all international treaties for chemicals and wastes, and is an active participant in a non-binding policy framework for toxic chemicals and wastes. Canada has also ratified a number of other relevant international treaties for HSW.

Cooperation, collaboration and shared jurisdiction

In advancing work to protect human rights from HSW, Canada has taken good steps in increasing the collaboration between relevant authorities. For example, Health Canada and Environment Canada share responsibilities for toxic chemicals under the Canadian Environment Protection Act (CEPA). This is a good practice that other States around the world may wish to emulate.

In some respects, as discussed further below, the flexibility given to provinces and territories to exceed federal requirements has reduced the actual and potential exposures to toxic substances. This ability of provinces to exceed federal standards is very important. However, shared jurisdiction of federal and provincial authorities on various issues has created challenges. Jurisdictional separation between the Federal and Provincial and Territorial governments is not an excuse for shortcomings by the Government when it comes to taking prompt action to mitigate harms to better protect human rights, and to compel business enterprises to respect human rights especially in the context of toxics.

Implementation of international obligations

A repeated concern was that the Canadian government does not give appropriate regard to relevant international obligations and recommendations. For example, the justiciability of rights enshrined in international human rights instruments which Canada has ratified is a concern. Although recognized international human rights may be implemented under legislation, Courts are reluctant to apply economic, social and

cultural rights grounded in these treaties as free-standing rights under Canadian Law. Thus, the rights to the highest attainable standard of physical and mental health, safe water and food, adequate housing, and safe and healthy working conditions and others implicated by hazardous substances and wastes, do not appear to have direct application under Canadian law.

Concerns were also raised that recommendations by international bodies, including UN human rights mechanisms, have been insufficiently addressed. While I note that the Federal-Provincial-Territorial Meeting of Ministers Responsible for Human Rights met recently, this body had not met for nearly 30 years. Furthermore, Canada's Human Rights Commission does not have a clear mandate to work on issues of environmental degradation impacting human rights that are of relevance to reviewing and improving Canada's implementation of its human rights obligations. For reasons that will be further illustrated, in my view, it is already crystal clear that the Government must strengthen its legal and institutional frameworks and implement mechanisms to implement all of Canada's obligations under international law.

Indigenous Peoples

Throughout the lifecycle and value chain of economic activity in Canada, indigenous peoples appear to be disproportionately located in close proximity to actual and potential sources of toxic exposure. Indigenous peoples live next to refineries and other manufacturing facilities. Existing and proposed pipelines crisscross their lands. Landfills, incinerators and other waste disposal sites are often closest to their reserves. This proximity and issues of access to justice and remedy (further below) raise questions of dignity and equality.

The struggles of indigenous peoples in Canada for recognition of their human rights is nothing new. Canada's history has shaped the current legal framework, which does not appear to adequately address the human rights of indigenous peoples. Many interlocutors spoke positively about the importance of the Truth and Reconciliation Commission and the National Inquiry into Missing and Murdered Indigenous Women and Girls that recommended to move forward from what both determined to be a sad history of cultural genocide and assimilation through honest engagement and shared commitment to the resulting calls to action.

Throughout the course of my mission, I observed situations of grave concern regarding the cumulative impact of ongoing violations from a multitude of various toxic substances, which compounds and aggravates other violations regarding land rights and free, prior and informed consent. Addressing the cumulative impact of toxic chemicals must be informed by an understanding of the deep connection of indigenous peoples with their land and water. The reliance of indigenous peoples in Canada on their lands and water for their traditional foods and medicine, their culture and identity, as well as their traditional knowledge, must be taken into account in assessments of risks and impacts. I was informed of examples where such efforts are taken through

remediation and closure planning and impact assessment, but there appears to be room for improvement.

In general, there remains a need for the Government to better acknowledge that decisions, actions and inactions made regarding toxic pollution have deeply wounded its relationship with indigenous peoples' and strained their relationship with their land and culture, as well as their environmental rights. Reconciliation through a process of building trust, establishing and maintaining healthy relationships, and entrenching respect for indigenous peoples' sit at the cornerstone of realization of indigenous peoples' rights including in the context of toxics.

Indeed, the Federal Government and certain provinces I engaged with state that they are working to improve, looking to move beyond consultation, towards partnership and collaboration with indigenous peoples. For example, I was pleased to hear of efforts by the Canadian Nuclear Safety Commission to better engage indigenous peoples, including its participant funding program. Although the Government's efforts to increase engagement are positive, it must be noted that this is not the standard of free, prior and informed consent under the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). Canada should continue efforts to ensure that its legal framework adequately protects indigenous peoples' rights. I urge all levels of the Canadian Government to ensure that the laws of Canada are fully consistent with UNDRIP. Fortunately, various opportunities are presently available to the Government, such as Bill C-262 and Bill 76, which are before the federal and Ontario legislatures, respectively. I urge the Canadian Senate to pass bill C-262, and the Ontario legislature to pass Bill 76.

I was disappointed to learn that no socio-economic mapping has been done of the proximity of such sources of exposure to toxics with indigenous peoples, or others at elevated risk, such as low income or minority communities, for that matter. The Government may wish to consider whether such an environmental justice mapping would give more precise information on the risks faced by indigenous peoples.

During my visit, I observed a pervasive trend of inaction of the Canadian Government in the face of existing health threats from decades of historical and current environmental injustices and the cumulative impacts of toxic exposures by indigenous peoples. In other cases, it takes indigenous peoples significant efforts to compel meaningful consultations with the proponents and/or the Government. For example, both indigenous organizations and civil society have faced considerable challenges in the context of the aerial spraying of glyphosate in and around indigenous peoples' reserves and traditional lands. Several other cases raising various concerns include:

Oil Sands

The sheer enormity of extraction of oil sands in Alberta cannot be understated. Whether from the perspective of impacts on the stability of the climate, the mountains and lakes of waste being generated or the impacts on health of the community, nothing

illustrates the ease by which the concept of “sustainable development” is often perverted and emptied of meaning quite like the “tar sands” of northern Alberta.

Fort McMurray, Fort MacKay and Fort Chipewyan (Fort Chip) paint a disturbing picture of health impacts of the tar sands that have not been properly investigated for years, and government inaction despite increasing evidence of health impacts on local communities. Fort Chip was repeatedly raised as having alarming health trends. The Province of Alberta began to develop a comprehensive health study about a decade ago, which the communities rejected when a physician with ties to the provincial government and oil sands companies called for industry to be part of the study. Health Canada has not comprehensively investigated health impacts in Fort Chip, claiming that the communities themselves must request a study be undertaken and the small population size renders such studies meaningless, with which I disagree. The Federal and provincial government points to ongoing projects in Cold Lake and Fort MacKay.

Federal and provincial Governments also state they are unable to confirm whether or not massive tailing ponds are seeping into local water supplies, which raises obvious concerns regarding the enforceability of environmental protections. Local communities have complained that they no longer have access to traditional foods or water sources, with reports of sickened animals, meat tainted by toxics, and mutations in fish. I look forward to learning more about recently proposed plans to begin to discharge treated tailing wastewater to the local waterways.

The situation of the oil sands and indigenous rights cannot be divorced from the troubling and strenuously opposed Trans Mountain Pipeline Expansion Project, which would also impact the lands and waters of indigenous peoples from Alberta to British Columbia.

I was deeply disturbed by alleged acts of intimidation against human rights defenders raising concerns regarding health impacts from a multitude of sources and calling for comprehensive health impact studies. For example, one physician was subject to a two-and one-half-year investigation by the College of Physicians for questionable allegations after raising concerns of health impacts. It was also alleged that the government has not fully investigated the disappearance of an indigenous woman who also raised concerns of exposure to toxic pollution from oil sands operations. It was repeatedly stated that impacted community members do not feel free to express their health concerns for fear of the consequences that may follow.

Sarnia

The condition of the Aamjiwnaang First Nation in Sarnia is deeply unsettling. Deeply connected with their land, residents on the reservation are now surrounded on three sides by over 60 industrial facilities that create the physiological and mental stress among community members regarding the risk of impending explosions or other disasters, as well as a wide variety of health impacts from unquestionably poisonous

chronic exposures. It is one of the most polluted places in Canada, dubbed “chemical valley.”

It is acknowledged that existing regulations do not protect the health of Aamjiwnaang. There remains considerable room for improvement to investigate health impacts, conduct proper monitoring, and enforce of existing standards. Cumulative impacts remain of grave concern regarding the manner in which risks are assessed. The environmental injustice is an ongoing tragedy, a legacy of land use planning that would not be allowed today. It is important to note that the community and companies have increased their cooperation and engagement in recent years, including the provision of financial resources for the communities to hire their own environmental scientists to ensure meaningful participation.

Muskrat Falls

Although these are examples of improved consultation with indigenous peoples regarding certain proposed projects, the case of the Muskrat Falls hydroelectric project raised questions regarding the extent to which such improvements are being made. Concerns were raised regarding the absence of meaningful consultation afforded to two affected First Nations, the risk of methyl mercury releases contaminating traditional foods and impacting health, the unaddressed risk of dam failure, and the flooding of sites containing toxic military waste. It was alleged that the vast majority of the affected community would either suffer from extreme food insecurity or be forced to eat contaminated food if the dam is constructed without proper clearance of the reservoir. I urge the Federal Government to use its leverage as the largest investor in the project to review whether UNDRIP compatible procedures were followed for all affected indigenous peoples, and to prevent the release of methyl mercury.

Mining

Concerns were raised specifically regarding impacts on the rights of indigenous peoples, but also more generally. There are questions regarding the adequacy of environmental protection provisions under applicable laws and guidelines. The 2015 National Environmental Effects Monitoring report (which apparently was not published until 2017) shows that despite high compliance with the Fisheries Act, 76% of mines are having confirmed effects on fish, 92% of which may be indicative of higher risks to the environment.

Other cases raised questions of compliance and enforcement. For example, the selenium pollution from coal mines in the Elk Valley raised concerns regarding the lack of compliance with recommended laws and water quality guidelines at provincial and Federal levels, and resulting in transboundary pollution from British Columbia into the United States of America.

According to UN Environment, Canada has the second highest number of known mining accidents from 2007-2017, increasing significantly from previous years.

In addition to the impacts on the health and culture of indigenous peoples, I reiterate my utmost concern at repeated reports of harassment, prosecution and persecution of defenders of indigenous and environmental rights. I heard of scientists discredited for highlighting impacts of toxic industries, as well as threats, arrests, and intimidation of the youth, and elders expressing their rights to freedom of expression and to be heard. The chilling effects of such actions are telling of a trend to preserve the status quo. I urge the Government to address issues relating to civic space especially for environmental and indigenous human rights defenders who in the course of their life and work are determined to raise concern on human rights violations and abuses relating to toxic exposures.

Children

I was pleased to hear of efforts in Canada to better understand the nuanced ways in which early age exposures to toxic exposures can affect health in childhood and later in life. As often said, children are not little adults. The impacts of exposure by children during sensitive periods of development are unique and multifaceted. The silent pandemic of diseases and disabilities linked to childhood exposure is adversely affecting the full realization of human rights at various stages of life, with profound economic costs on individuals regarding health care, lost productivity and more.

Health Canada's platform on Maternal-Infant Research on Environmental Chemicals (MIREC) has already helped to contribute important data for the improved understanding of the impact of chemicals on children's health and vulnerable populations more generally, and the importance of preventing childhood exposure. I learned of ongoing research that raises important questions regarding the effects of very low levels of exposure by children to various toxic chemicals, and whether policies based on determining acceptable exposure by children are prudent. As many of these substances are still found in common consumer products, I encourage the Government to enhance efforts to phase-out chemicals of concern and increase the traceability and transparency of chemicals in products to protect both the rights of the child and the right to reproductive health.

Air pollution is of particular concern for children's health. Air quality in Canada has improved by some metrics in recent years. For example, the phase-out of coal-based power plants in Ontario was noted as having a positive impact in the Province. However, exposure to just three anthropogenic air pollutants was recently estimated to prematurely kill 14,400 people each year in Canada. Studies undertaken indicate some areas of potential concern for further research regarding the socio-economic factors and exposure levels. Canada does not have legally binding ambient air pollution standards nationally, and some provincial emission source specific laws offer considerable flexibility for industry to develop their own standards, as is the case in Sarnia. There is considerable room for improved compliance and enforcement of air pollution protections.

Workers

Canada has taken important steps to protect the right to safe and healthy work in recent years. In particular, I commend the Government for its recent restriction on the use and export of asbestos. I was also pleased to learn that substances are categorized based on their hazard, rather than risk, under the relevant occupational laws, which enables good practices such as the hierarchy of hazard controls.

Workers are unquestionably vulnerable regarding their unique and elevated risks to chemical exposures. However, Canada does not recognize workers as a vulnerable class under its Chemicals Management Plan and does not account for occupational exposure in risk assessments. While progress has been made to assess the risks of over 3000 chemicals to the general public, the exposures of and corresponding risks to workers were not adequately evaluated under these assessments. I urge the Government to include workers as a vulnerable group and expeditiously re-evaluate the previously assessed substances.

Access to justice

Every victim of violation or abuse of human rights impacted by toxic exposures has a right to remedies and reparation. This right creates an obligation on the Government of Canada to ensure expeditious development of appropriate rights and remedies for victims of exposure.

While it may be argued that the legal framework in Canada at the various levels provides for procedural environmental rights, access to justice remains a considerable challenge. The challenge of access to justice is a broader concern in Canada, with various deterrents and obstacles such as information asymmetries, the limited availability of class actions and limited legal aid, among others. In Canada I observed an overall pattern of government inaction to realize an effective remedy despite the clear risks and impacts of chronic exposure to the health of indigenous peoples. I was disappointed but not surprised to hear of how difficult it is for victims of chronic exposure to toxic pollution to gain access to justice and secure their right to an effective remedy. Those most likely to be violated by toxic exposure also appear to be the least likely to have access to justice in Canada. I heard far too many stories of how poverty and lifestyle choices are used to discredit those who are most likely to become victims of toxic exposures, instead of placing the burden on polluting actors to demonstrate that they did not contribute to adverse health impacts.

The case of Grassy Narrows, White Dog and other First Nations in north-western Ontario is emblematic of inadequate guarantees to secure an effective and timely remedy. The government has failed to answer why for 50 years it has not remediated 10 tons of mercury contamination in a local river, contaminating traditional foods, decimating the indigenous community's economy and subjecting generation after generation to cruel mental and physical impacts. I take note of various efforts over the years, including

ongoing investigations and the establishment of the Mercury Disability Board; however, there is no excuse for decades of failure to remediate the contamination, to prevent recurrence and ongoing violations, which is an unquestionable component of the right to an effective remedy. Given the failure to remediate, I also raise concerns regarding the inadequacy of the compensation settlement that was entered into during the 1980s, despite recent doubling of individual benefits to victims under the Mercury Disability Fund.

I was equally troubled to hear of four years of Government inaction to prosecute the Volkswagen Group and other actors for possible criminal conduct in the “diesel gate” scandal. Concern was raised about the failure of authorities to take action on reports of false reporting of emissions of Volkswagen cars, even in light of legal provisions for investigation and enforcement. Based on prosecutions and admissions from other jurisdictions, there appears no excuse for the Government not to pursue justice and redress in this egregious case of corporate misconduct. It remains unclear why the Government has not fined the mining company involved in the Mt. Polley disaster of 2014.

Concerns were raised regarding the adequacy of financial guarantees on polluting enterprises for site clean-up and remediation. The so-called orphan contaminated sites in various areas remain of considerable concern. The Government of Quebec noted various improvements to help ensure polluters pay for various costs of closure and remediation of contaminated sites. However, in various parts of Canada thousands of abandoned oil and gas sites remain, with considerable concern that the public will be left bearing the costs of restoration, monitoring and remediation in the future, particularly with respect to the oil sands in Alberta.

Extraterritorial impacts of Canadian business enterprises

In addition to the above-mentioned impacts of Canadian businesses in Canada, various impacts of Canadian businesses on human rights in the context of toxics were raised regarding their activities or impacts abroad. I remain deeply concerned by ongoing reports of Canadian business enterprises failing to respect human rights in their operations abroad. Canadian companies are implicated in intentional releases of toxic waste and tailings dam failures, beginning activities without meaningful consultation let alone the free, prior informed consent of indigenous peoples, and other conduct resulting in the exploitation and abuse of the human rights of workers and local communities.

In the case of waste exports, in 2014 Canadian companies sent shipments of waste to one or more Asian countries that are allegedly illegal under the Basel Convention. Relevant provisions of the Basel Convention were not implemented under Canadian legislation until 2016. Surprisingly, the Government of Canada was unable to require the business involved to return the waste, which was finally -- after 5 years -- brought back to Canada. Illegal shipments have also been alleged in Malaysia and Indonesia. With only 9-11% of Canadian plastic waste being recycled, there is an urgent need for

Canada to have more effective domestic recycling and greater tracking of various waste streams. The Government believes recent amendments to the Basel Convention regarding plastics will help address concerns regarding transboundary waste flows, but this will require changes to be made by the Government.

Canada appears to have double standards when it comes to the performance of extractive industries at home versus abroad. While several of the companies I met said they are using best environmental practices, there is a recurrent pattern where this is not the case.

Overseas, Canadian mining companies are using, or propose to use mine waste disposal practices that are not allowed in Canada. For example, a Canadian enterprise operates the Porgera Joint Venture Mine in Papua New Guinea, whose disposal of waste into water ways affects an 800 km river system on which communities depend(ed) for drinking water and other purposes. Studies have recorded high levels of heavy metals in the waste which present health risks, and legal analyses have found that the Canadian corporation is in breach of its obligations to respect the Porgerans' right to water of, while raising implications relevant to numerous other human rights.

Other cases that raise concerns include the Marlin Mine in Guatemala, from which the community reportedly suffers ongoing mental health impacts from the long battle against the operation of the mine and uncertainty over health impacts that may be resulting from contaminated water.

In Peru, a Canadian oil and gas company began servicing an oil and gas concession (Block 192) on indigenous territories that depends on an outdated pipeline. The pipeline has been known for decades to present a high likelihood of leaks and ruptures. There have been 65 oil spills since just 2015 and there is no plan to repair or replace the pipeline to prevent future impacts on the rights of indigenous peoples and local communities.

I was troubled by reports of the extent to which the Canadian Government may be extending financial and political support to weaken or not enforce laws of host States aimed at preventing pollution and contamination as well as resource extraction in sensitive areas.

In these regards, the establishment of the Canadian Ombudsperson for Responsible Enterprise (CORE) is welcome. The potential of CORE to further the use of economic and other incentives to compel necessary actions by Canadian businesses regarding their operations is encouraging. Yet, concerns exist that the originally envisioned mandate and role of CORE did not fully materialize, in particular regarding the extent of its investigative powers and the timeliness of such investigations. This mandate looks forwards to learning more about the details of policies and procedures for CORE and opportunities for cooperation.

Conclusion

In certain ways, the Government has made improvements to address mistakes of the past and to increase engagement with those affected by toxic exposures. All these developments are very much welcome. Just as there are recent examples of shortcomings in consultation and consent, there are also examples of the new energy to finding pathways to informed consent and working in partnership with indigenous peoples. However, there is still much work to be done and deep concerns to be addressed.

It was clear during the course of my visit that many communities in Canada continue to be exploited by toxic exposures. Some key concerns include: (1) the limited degree of protection of human health and ecosystems under various legislation; (2) the lack of environmental information and monitoring in areas of high risk; (3) long delays or absence of health impact assessment for affected communities; (4) the inadequate compliance with and enforcement of laws and policies; (5) systemic obstacles to access to justice, in particular for cases of health impacts due to chronic exposures; and (6) the recalcitrance to ensure that victims can realize their right to an effective remedy. The situation of affected communities outside Canada is of equal concern in many of these regards, including the inordinate power imbalance faced by communities in low- and middle-income countries relative to Canadian corporations.

In examining these concerns and the socio-economic factors of where resulting impacts are found, the question of discrimination becomes simply unavoidable. There exists a pattern in Canada where marginalized groups, indigenous peoples in particular, find themselves on the wrong side of a toxic divide, subject to conditions that would not be acceptable elsewhere in Canada. While the principle and right of non-discrimination is found in the Canadian Constitution, it does not appear to have served as a significant protection or recourse for affected communities in cases of action or, more often than not, inaction by the Government. Appreciating the recognition of a healthy environment by Québec and other provinces, I note that Canada has not recognized the right to a healthy and ecologically-balanced environment at the Federal level, unlike the majority of States around the world.

The Canadian Human Rights Committee recently raised similar concerns during the 3rd Cycle of the UN Human Rights Council's review of Canada regarding the "environmental racism" faced by communities of African descent. Outside Canada, communities in low and middle-income countries raise similar concerns regarding the harmful effects of Canadian extractive industries. Not only are the toxic exposures they face invisible, but so too is their plight from the majority of Canadians who live in urban environments far away from these impacts.

I believe this question, that of principles of equality and non-discrimination, requires urgent attention in Canada. This and the other issues addressed above will be the focus of my report to the Human Rights Council.

Despite the challenges mentioned, from my conversations, I was left with the impression that Canadians deeply value their environment and all that it brings. Canada has both the financial and technical capacity to be on the path of sustainable development, and where a healthy environment is more than a privilege. I remain optimistic that Canada embrace the many opportunities to transition to a cleaner, healthier and more equitable economy. The well-being of not only people and peoples depend on this, not on in Canada but around the world.

I thank you again for the invitation to visit Canada, to learn about progress and challenges, and the opportunity to share my views.

1/ <https://www.ohchr.org/EN/ProfessionalInterest/Pages/RemedyAndReparation.aspx>

2/ <https://www.ohchr.org/EN/ProfessionalInterest/Pages/RemedyAndReparation.aspx>

i/ Dr. Bruce Lanphear, Low-level toxicity of chemicals: No acceptable levels?
<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2003066>

ii/ http://publications.gc.ca/collections/collection_2018/sc-hc/H144-51-2017-eng.pdf

iii/ <https://www150.statcan.gc.ca/n1/pub/82-003-x/2017003/article/14781-eng.htm>

iv/ Red Water: Mining and the Right to Water in Porgera, Papua New Guinea (2018),
<http://ac4.ei.columbia.edu/files/2019/03/Red-Water-Report-2019.pdf>

v/ “Their communities face environmental racism whereby landfills, waste dumps and other environmentally hazardous activities are disproportionately situated near neighbourhoods of people of African descent, creating serious health risks.” (2017) At page 3, available at:

https://www.upr-info.org/sites/default/files/document/canada/session_30_-_may_2018/chrc_upr30_can_e_main.pdf

vi/ See e.g. relevant recommendations by the UN Committee on the Elimination of Racial Discrimination in 2007, 2012 and 2017.