BRIEF REGARDING THE ASSESSMENT AND REGULATION OF TOXIC SUBSTANCES UNDER THE CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) 1999

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FORUM FOR LEADERSHIP ON WATER

BRIEF REGARDING THE ASSESSMENT AND REGULATION OF TOXIC SUBSTANCES UNDER *THE CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) 1999*

Submitted to the House of Commons Standing Committee on Environment and Sustainable Development

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INTRODUCTION

The oversight of pharmaceuticals and other potentially hazardous compounds falls mainly under the jurisdiction of the federal crown. The 1988 Canadian Environmental Protection Act (CEPA) created a legal foundation for regulating potentially hazardous "discrete chemical compounds, classes of chemicals, emissions and effluents, and products of biotechnology, including microorganisms." Amendments in 1999 improved a number of specific elements in the legislation, but did not change the fundamental approach for dealing with potentially hazardous chemicals.

While CEPA very much represented the state-of the art at the time it was devised in 1988 and at the time it was refined in 1999, we do not believe that the underlying approach in the Act will be sufficient to deal with the issues as they are evolving today, and as they will continue to evolve over the coming decades. We will be making the case in the following pages that the current approach, which can be characterized as "leisurely one chemical at a time "," innocent until proven guilty and "onus on government", will eventually have to evolve to a more efficient and integrated approach that puts more onus on industry to prove innocence and to seek out alternatives that are safer for human health and the environment. Proponents of the status quo are likely to argue that such fundamental shifts in policy will result in negative economic consequences. But we note that the European Union (EU) has moved a long way in this direction, and the U.N. has estimated that the shift in approach will result not only in massive savings in health care costs, but also in increased industrial profitability as hazardous products are replaced by more benign alternatives.

It is encouraging to see that other briefs already presented to the House of Commons Standing Committee on Environment and Sustainable Development have also recognized some of the positive attributes of the European approach, although to the best of our knowledge none have gone so far as to suggest a full-scale shift in that direction.

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THE CONTEXT

Over the past century, most Canadian jurisdictions have established water utilities that deliver ample fresh water to millions of taps every day. Modern water treatment systems have mostly, but not entirely, eliminated threats posed by gastrointestinal, typhoid and cholera disease. That has been a major accomplishment. As a result, surveys suggest that four out of five Canadians are either somewhat or very confident about the quality of their drinking water.

Yet there are reasons to question whether this level of confidence is truly justified. First of all, even with respect to these traditional threats, Canada is not up to par with other industrialized nations. On a per capita basis, Canada records five times as many cases of waterborne disease outbreaks as the United States, and more than twice as many as in the United Kingdom. At any given time, some 2000 boil water advisories are in place across the country, and between 20 and 40 percent of all wells in rural Canada are contaminated with coliform bacteria or nitrates at levels exceeding health guidelines for drinking water. And for those living in First Nations communities, the odds that tap water may be unsafe are nearly one in three. The know-how and tools to deal with these conventional problems, including source water protection programs and enhanced water and wastewater treatment, are well established: what is needed is the financial and human capacity investments to support widespread and sustained implementation.

A far greater challenge is dealing effectively with the tens of thousands of high-potency engineered molecules employed in modern production facilities or sold in consumer and medical marketplaces. There are some 80,000 to 100,000 distinct chemical substances in commercial use in North America. About 12 trillion kilograms of chemicals are manufactured or imported into the United States every year. That would suggest a proportional use of at least 1 trillion kilograms in Canada. A major portion of those 1 trillion kilograms is imported into the country. While most of these chemicals will break down over time as a result of actions in the environment, the rising presence of some indicator chemicals would suggest they are not breaking down as quickly as they are added. This leads to a troubling trend of increasing concentrations, and to the inevitable conclusion that animals and humans are ingesting ever-stronger solutions of unpredictably active chemicals.

A significant number of those chemicals are so-called endocrine disruptors (EDCs). It is quite plausible to assume that those EDCs may produce dramatic disruptions in normal bodily functions or development even in low doses of exposure. Of particular concern is the fact that hormone signal-dependent growth and development may be altered long after exposure; this can include children that have not experienced direct exposure but whose biological parents have. It is known that EDC's are widely dispersed in the environment, often at levels plausibly associated with biological effects, and that human exposure is widespread.

The exact vector of human exposure is perhaps immaterial. It can be through inhalation, ingestion or dermal absorption from air, water, food, or soil, or through the use of everyday consumer products like skin cream and shampoo. Regardless of the initial vector of exposure, many of these products eventually end up in surface and groundwater. That phenomenon is being accelerated with climate change, as larger and more intense storms are washing more and more chemicals off the land into waterways. Unfortunately, modern water and wastewater treatment systems cannot effectively remove the majority of these contaminants.

It is difficult and in many case impossible to definitively prove a direct cause and effect relationship between a specific chemical and a specific health impact. And what becomes of thousands of man-made chemicals as they mingle and at times combine in the aquatic environment and enter the food chain is largely unknown. Nevertheless, the sheer weight of empirical and early scientific evidence points overwhelmingly to a very disturbing trend. The following are only a few of a vast and rapidly growing array of cases supporting that conclusion:

- Various species of Great Lakes fish now suffer from tumours and lesions, and their reproductive capacities are decreasing. Of the ten most valuable species of fish in Lake Ontario, seven have almost totally vanished.
- Fish deformities such as tumours, deformed spines, hematomas, deformed eyes and mouths are becoming common in the Athabasca River below the oil sands development.
- Dace minnows in some portions of the Oldman and Bow Rivers have become nearly unisex, with males vanishing.
- In Canada's far north, a significant number of polar bears have been found to be hermaphrodites.
- The incidence of botulism is increasing in birds and fish in the Lake Erie Basin, indicating populations under stress.
- In Aamjiwnaang, a First Nations community near the petrochemical refineries on the St. Clair River, two new girls are now born for every boy, compared with the historical gender ratio of 105 boys to every 100 girls.
- Throughout Canada, a shift towards fewer male births began about 1987. The shift has resulted in a decline of 2.2 males for every 1000 live births nationally over the past quarter-century.
- Grain farmers exposed to pesticides experience higher rates of abortion and premature births, and birth defects are 25 percent more common among infants born to parents who apply agrochemicals to corn and soybean crops than among parents in the general population.
- Male sperm rates have been declining dramatically, and testicular cancer is occurring roughly twice as often as it did in the 1970s.
- The places in the world with the most prostate cancer are also the places where the most oral contraceptives are used.

- The onset of female puberty has been occurring earlier for at least two generations and recent research indicates this shift may be accelerating.
- Adult Canadian women have experienced a 25 percent increase in the incidence of breast cancer since the mid-1970s. Increasing evidence suggests that synthetic chemicals, particularly those that mimic estrogen, may be increasing risk by acting as endocrine disruptors.
- Women with high levels of perfluorinated compounds in their blood take much longer to become pregnant than those with lower levels.

Based on these findings, we believe that the detrimental impacts of environmental contaminants are becoming a matter of urgent national concern that can only be effectively addressed through fundamental policy and program changes.

THE RATIONALE FOR FUNDAMENTAL REFORM

Since 1994, in support of the *Canadian Environmental Protection Act* (CEPA), the federal government has identified 23000 compounds as chemicals of concern. Of those, 4300 were selected for closer scrutiny and 500 were eventually selected as priority substances. The goal is to deal with all 4300 of those deserving a second look by 2020, and at the same time to screen any new chemicals coming onto the market.

There are a number of potential problems with Canada's chemical management system, including:

- The leisurely one chemical at-a-time approach leaves Canadians exposed to potentially dangerous contaminants much longer than would appear necessary.
- The failure to assess the synergistic or cumulative effects on people and other species of the many chemicals discharged to, and persisting in, the environment.
- The Council of Canadian Academies has concluded that toxicity data are lacking for 87 percent of chemicals on the market. One reason for that has been the paring down of governmental scientific capacity.
- Most of the "facts" on which determinations are made come from research paid for by the company seeking approval. Applicants are not required to submit research if the result is unflattering to their product. This approach raises serious concerns about transparency and accountability.
- Conventional testing methods are likely inadequate to detect the remarkably common effects of some EDCs on susceptible hormone systems.
- High toxicity alone is not enough to keep a potentially dangerous product off the market. A second judgement considers other factors such as the economic and social values of its use, which can influence decisions despite risks to human health and the environment.

- The Sustainable Development Commissioner has concluded that nearly half of CEPA's regulations (41 percent) are so poorly written that they are probably unenforceable.
- Enforcement is extremely lax. For example, Ecojustice estimated that over twenty years of CEPA enforcement Environment Canada collected less in penalties than the Toronto Public Library collected from delinquent borrowers in 2009 alone.

More generally, we question the wisdom of the so-called "smart" regulation approach adopted by Canadian governments in recent years. The "smart" doctrine requires that any proposal to remove or regulate a product, even a highly toxic one, be assessed for its economic impact, a process that is inherently captive to the estimates of self-interested vendors and fails to protect the general public.

Focusing on short-term economic impact or costs to businesses ignores evidence that well-designed regulation will ignite innovation, inspire efficiencies and promote greater productivity. If such a short-sighted strategy had been followed in previous generations, regulation of nutrients in cleaning agents or CFCs in refrigerators – both of which ultimately resulted in significant environmental and economic benefits – may have never occurred.

Conceptually, the U.S. chemical management system per se is quite similar to Canada's. However, performance in the U.S. is vastly superior when considering the bottom line of toxic releases to the environment. Whether considered on a per capita, per unit of production, or per facility basis, Canadians emit far more toxic substances than Americans. Remarkably, in several circumstances that are directly comparable, Canada releases more toxic waste, in absolute terms, even though our population is only 10% as large.

Although Canada and the U.S. have somewhat different reporting systems, available data suggests that public municipal wastewater systems in Canada released almost as much toxic contamination in 2006 as all of America's industry that year. That should not be surprising given that Canada is several decades behind the U.S. and most European countries in installing advanced municipal wastewater treatment systems.

There are several reasons for our relatively poor performance. Canada invests considerably less in scientific and enforcement capacity. But another major difference is in the way our respective federations operate. In the U.S., pollution regulations are set at the national level and must be met or exceeded at the state level, and there are consequences if they are not met. In Canada, we have a patchwork of federal and provincial regulations, only very loose coordination through non-enforceable harmonization and mostly non-active equivalency arrangements, and no consistent accountability mechanisms. Also, the U.S. and virtually all other industrialized federations have national standards and consistent accountability regimes for drinking water. In Canada, we have guidelines, but no national standards and no consistent reporting requirements.

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THE NEED FOR AN EXPERT PANEL

We believe that appointment of an Expert Panel is likely to be the most effective route to developing a 21st century, made-in-Canada approach to chemicals management that the centres on the fundamental reforms noted above. Further, we suggest that such a Panel look to the chemicals management framework in the European Union (EU), which likely represents the current state-of-the-art.

Europe's chemical management system, REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) was established in 2007, along with a new central EU agency, ECHA (The European Chemicals Agency). REACH requires any company in the EU that manufactures or imports more than 1 metric tonne of a chemical to register it with ECHA, along with details about its properties, uses and safe handling practices. If the compound is even suspected of posing a risk to human or environmental health, ECHA may require additional testing, and if it is subsequently determined to pose a serious and irreversible risk, it cannot be used without official authorization. Before such authorization may be granted, the industry must analyse the availability of alternatives and the feasibility of substitution.

This approach is attractive not only for its potential health benefits, but also for its potential economic benefits. A review by the World Bank concluded that instituting the system over 15 years will yield health care cost savings ten times larger than the investment. Further, industry will ultimately benefit, developing new innovations that will spur the introduction of profitable green chemistry alternatives.

The European approach to chemicals management is not perfect, and as expected they are running into some implementation challenges. But, the EU is at least trying to make the kinds of fundamental changes that are urgently needed everywhere. Similar fundamental changes in direction are required in North America, and especially in Canada. The necessary shifts in chemical management will have to be at least somewhat coordinated in North America because of the highly integrated chemical industry.

The complexity of the issues and impacts related to chemicals management, along with inertia within governments and potential resistance by industry, will pose challenges in bringing about change. We therefore suggest that some very public process will be required to properly inform citizens and to develop the necessary societal consensus on the need for fundamental change in chemicals management.

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RECOMMENDATIONS

The review of CEPA being undertaken by the House of Commons Standing Committee on Environment and Sustainable Development presents a unique opportunity for short-term action to better ensure safe water supplies for people across Canada, and to set in motion a process to work toward the fundamental reforms to chemicals management that will be critical to long-term protection of human health and the environment. To that end, FLOW recommends:

1. **That CEPA be amended to mandate enforceable and binding national drinking water standards as a much-needed step to improving regulation of toxic substances.**

2. **That, before mid-2017, the Federal Government appoint an Expert Panel to consult widely both with experts and the broader Canadian public on chemicals management, and report within 18 months their findings and recommendations on ways and means to reduce or eliminate environmental and health risks posed by hazardous substances.**

3. **We further recommend that the Expert Panel be charged to report on fundamental legal changes to Canada's approach to the assessment and regulation of toxic substances that includes, specifically, a reverse onus on industry to demonstrate that a new substance does not cause harm to human and ecosystem health before it is approved.**

Some of the considerations that an Expert Panel should take into account include:

- Recommendations regarding an improved national chemicals management system, taking into account best practices in Europe and elsewhere, and the feasibility of coordination within North America.
- Ways and means to ensure consistency in approach, enforcement and accountability across the country.
- Contingency planning for a time when water and wastewater treatment systems may have to be dramatically upgraded to deal with endocrine disrupting chemicals.

An Expert Panel review can build on the 31 recommendations of House of Commons Standing Committee on Environment and Sustainable Development (April 2007); the 24 recommendations of the Senate Standing Committee on Energy, Environment, & Natural Resources (March 2008); and the two 5-year reviews of CEPA conducted to date. As the Canadian Environmental Law Association has testified to this Committee, Parliament has not adopted any of the reforms to the Act included in these reviews.

CONCLUSION

We appreciate the opportunity to provide our perspective and recommendations to the House of Commons Standing Committee on this very important issue. We urge the Committee to include recommendations for both the development of national drinking water standards and appointment of an Expert Panel on chemicals management reform in their soon-to-be tabled report to Parliament. Finally, we look forward to any and all opportunities to support Committee in its final stages of this study, and to support the Government of Canada in acting on the Committee's report and recommendations.

REFERENCES

Banks, T. The Canadian Environmental Protection Act (1999, c. 33) Rx**:** Strengthen and Apply Diligently. March 2008. Available at: http://www.parl.gc.ca/Content/SEN/Committee/392/enrg/rep/rep06mar08-e.htm

Canadian Environmental Law Association (CELA). CEPA - Lessons in the Regulation of Chemicals. Presentation to the House of Commons Standing Committee on Environment and Sustainable Development. May 19, 2016.

Environment and Climate Change Canada. Discussion Paper: CEPA 1999 – Issues and Possible Approaches. Modified June 2016.

Forum for Leadership on Water (FLOW). Submission to the Minister of Environment and Climate Change on the Federal Sustainable Development Strategy. June 2016. Available at: http://media.wix.com/ugd/c3d5ce_43d1f2fb6cf848ae88b3c247585edd02.pdf

Mills, B. (MP). The Canadian Environmental Protection Act, 1999 – Five-year Review: Closing the Gaps. April 2007. Available at: http://www.parl.gc.ca/HousePublications/Publication.aspx?Language=e&Mode=1&Parl=39&Ses=1&DocId=2614246

Pentland, R.L. and C. Wood. Down the Drain: How we are Failing to Protect our Water Resources. Greystone Books. 2013.

Scott, D. N. Osgoode Hall Law School. Reforming the Canadian Environmental Protection Act: The Assessment and Reflation of Toxic Substances Should be Equitable, Precautionary, and Evidence Based. Submission to the Standing Committee on Environment and Sustainable Development. June 2016.

Weibust , I. Green Leviathan: The Case for a Federal Role in Environmental Policy. Ashgate Publishing. 2009.

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APPENDIX 1: FLOW MEMBER BIOGRAPHIES

Tony Maas (Director) has been working to protect the health of Canada's fresh water for over 15 years. He divides his time between roles as Director of the Forum for Leadership on Water (FLOW) and Manager of Strategy with Freshwater Future, a bi-national Great Lakes organization. In both roles, he provides strategic direction and policy expertise, and builds partnerships among diverse interests to benefit people, the environment and the economy. Prior to his current roles, Tony spent 6 years at WWF-Canada where he developed and managed the organization's national freshwater program. He chairs the External Advisory Board of the Water Institute at the University of Waterloo and the Steering Committee of the Canadian Freshwater Alliance.

Oliver M. Brandes (Co-chair), an economist and lawyer by training, serves as co-director of the POLIS Project on Ecological Governance at the University of Victoria's Centre for Global Studies, and leads the POLIS Water Sustainability Project. His work focuses on water sustainability, sound resource management, public policy development, and ecologically based legal and institutional reform. Oliver is an adjunct professor at the University of Victoria Faculty of Law and School of Public Administration. In 2012, he co-developed and delivered B.C.'s first Water Law course at the University of Victoria Faculty of Law. In 2009, he helped lead the writing of the book *Making the Most of the Water We Have: The Soft Path Approach to Water Management*.

Norm Brandson (Co-chair) is a Professional Engineer and a practicing environmental consultant. He is past member of the Manitoba Clean Environment Commission and Board of Trustees for the Fort Whyte Environmental Education Centre in Winnipeg. During his 32-year career in the Manitoba public service, the last 15 of which he served as Deputy Minister of the departments of Environment, Conservation and Water Stewardship, Norm was involved in water issues from a number of different perspectives. He represented Manitoba in inter-provincial and international water negotiations, has been involved in the activities of the Prairie Provinces Water Board, watershed boards under the International Joint Commission, and in the development and administration of provincial water legislation. Norm was the founding Deputy Minister for the first all-water department of government in Canada.

Jim Bruce is a consultant on climate change adaptation, water issues and natural disaster loss mitigation. Jim was the first Director of the Canada Centre for Inland Waters, Burlington and has co-chaired several Canada-US Boards for the International Joint Commission. He served for 8 years as Assistant Deputy Minister at Environment Canada responsible for water and climate programs. From 1986 to 1989 he was Director of Technical Cooperation and Acting Deputy Secretary General of the World Meteorological Organization (WMO), Geneva, and led for the WMO on establishment of the Intergovernmental Panel on Climate Change. Jim is an Officer of the Order of Canada and a Fellow of the Royal Society of Canada. He has been awarded the Massy Medal of the Canadian Geographical Society and Honorary Doctorates from the University of Waterloo and McMaster University.

Murray Clamen has been at the forefront of transboundary water resource management for 30 years, working in a multidisciplinary environment with engineers, scientists, lawyers, academics, administrators, and environmentalists at the Canada-U.S. International Joint Commission. He has lead and participated in numerous Canada-U.S. water resource studies and assessments. For 12 years he was Secretary of the Canadian Section of the IJC, responsible for the administration of the Canadian Secretariat and providing policy advice to the presidential and prime ministerial-appointed commissioners. Dr. Clamen holds an Adjunct Professorship at McGill University, where he assists with the Integrated Water Resources Management (IWRM) Masters Program and teaches a graduate-level course on Water Law and Policy.

Marc Hudon is self-employed, advising industries on community relation and environmental compliance. Marc has been involved for over 20 years on the Great Lakes and St. Lawrence ensuring community and stakeholder involvement in decision-making. He is senior advisor on St. Lawrence River-Great Lakes transboundary water issues at Nature Québec. He is President of the Priority Intervention Zone Committee (Comité ZIP Saguenay-Charlevoix) within the Federal-Provincial St. Lawrence Plan, President of the Quebec Regional Advisory Council on Marine Oil Spills, and is a Canadian member of the International Lake Ontario Board of Control under the International Joint Commission. Marc retired from the Canadian Armed Forces in 1994, where he was active in the environmental sector for 21 years, working on, among other things, hazardous material safety, fuel tank farms, contaminated soils, and water and wastewater treatment plants.

Brenda Lucas is Executive Director of the Southern Ontario Water Consortium (SOWC). The SOWC is a platform built in partnership with eight universities that includes unique facilities for research, testing, and demonstration of water and wastewater services and technologies. Brenda previously served as Senior Policy Advisor to two Ontario Ministers of Environment, with responsibility for water and renewable energy. In that capacity, she played a key role in the introduction and passage of the *Water Opportunities Act* and the *Water Conservation Act.* Before that, she spent eight years with the Walter and Duncan Gordon Foundation, creating and managing its Freshwater Program. Brenda received her M.Sc. in Biology from Queen's University and B.Sc. from the University of Guelph.

Michael Miltenberger served in the NWT Legislature from 1995-2015, 14 of those years as a Cabinet Minister. His roles have been diverse, reflecting his broad interest in improving the effectiveness of the Government of the NWT in bettering the lives of northerners. He has served as Deputy Premier, Government House Leader, Minister of Health and Social Services, Minister of Education, Minister of Finance, Minister of Environment and Natural Resources, and the Minister Responsible for the NWT Power Corporation. He has worked extensively in the areas of water, the environment and working collaboratively with Aboriginal governments. Michael is Métis and lives in Fort Smith, NWT.

Linda Nowlan has over 20 years experience in the private, government, intergovernmental, non-governmental, and philanthropic sectors. She was previously at the Program on Water Governance at the University of British Columbia and, before that, was the Executive Director of West Coast Environmental Law. She was a member of the Canadian Council of Academies' Expert Panel on Groundwater and has also served on the B.C. Independent Drinking Water Review Panel, the Vancouver Foundation's Environment Committee, and the Board of Directors of Smart Growth B.C. She is the author of numerous reports, including *Practising Shared Water Governance in Canada: A Primer* and *The Legal Regime for Arctic Environmental Protection.*

Merrell-Ann Phare is a lawyer, writer and the founding Executive Director of the Centre for Indigenous Environmental Resources, a national First Nation charitable environmental organization. She is author of the books *Denying the Source: the Crisis of First Nations Water Rights* and *Ethical Water*. Merrell-Ann is Chief Negotiator on behalf of the Government of the Northwest Territories in their negotiation of transboundary water agreements in the Mackenzie River Basin and for the creation of Thaidene Nene, a national and territorial park in the east arm of Great Slave Lake. She is legal counsel and advisor to a number of First Nation and other governments and organizations and regularly speaks on water issues and First Nations.

Ralph Pentland served as Director of the Water Planning and Management Branch in Environment Canada for 13 years, from 1978 to 1991. In that capacity, he negotiated and administered numerous Canada-U.S. and federal-provincial water Agreements, and was the primary author of the 1987 Federal Water Policy. Since 1991, he has served as a water and environmental policy consultant in many countries, and has collaborated with numerous non-governmental and academic institutions. Over the years, Ralph has co-chaired five International Joint Commission Boards and Committees. Most recently he was a member of the Government of the Northwest Territories Team negotiating bilateral water agreements in the multi-jurisdictional Mackenzie River Basin.

Bob Sandford is the EPCOR Chair of the Canadian Partnership Initiative at the United Nations Institute for Water, Environment and Health. He is the co-author of the UN *Water in the World we Want* report on post-2015 global sustainable development goals relating to water. Bob is committed to translating scientific research outcomes into language decision-makers can use to craft timely and meaningful public policy and to bringing international examples to bear on local water issues. He is Senior Advisor on water issues for the InterAction Council, a global public policy forum composed of more than thirty former Heads of State. He has published a number of high-profile books on water, including *Cold Matters: The State & Fate of Canada's Snow and Ice*, *Saving Lake Winnipeg*, and *Flood Forecast: Climate Risk and Resiliency in Canada*.