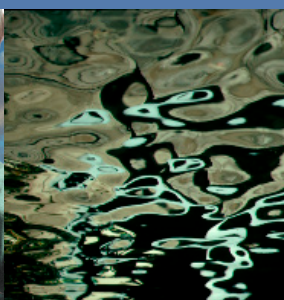




Environmental Health: A Funders' Briefing

Gut-level Environmentalism: Health as a Driver of Environmental Progress



Rick Smith and Bruce Lourie

May 2013

Acknowledgements

CEGN thanks and salutes the funders which have generously supported the development of this brief. They are:

ECHO FOUNDATION / FONDATION ÉCHO

Max Bell Foundation



Table of Contents

- Foreword** ii
- 1. Introduction: Urgency and opportunity** 1
 - Environmental Health Defined 1
 - Why Environmental Health? 2
- 2. State of the evidence** 4
- 3. How did we get in this mess?** 7
- 4. The world is changing**..... 9
- 5. Opportunities for progress: Role for philanthropy** 11
- Endnotes** 15
- About the authors** 17

Foreword

The Canadian Environmental Grantmakers' Network (CEGN) is a membership group of 60 funders for sustainability – private, community, public and corporate foundations, and government and corporate funding programs – from Canada and the United States. Our mission is to strengthen the impact of philanthropy in support of an environmentally sound and sustainable future for Canadians. We do this by facilitating collaboration and by generating and sharing knowledge. We also give public voice to the shared aspirations of our members and provide skill-building opportunities designed to help ensure that our members keep pace with a rapidly changing world. And we work with key partners and not-for-profit organizations that provide an essential function to Canadian communities through public engagement and policy development and implementation.

CEGN's current strategic direction places a strong emphasis on the need to break out of the paradigm that views the environment as separate from other societal sectors and concerns. Increasingly, it is clear that funders and nonprofits engaged in environmental work need to build linkages to the economic, health and social justice communities and spearhead the development of a much more integrated approach to the resolution of complex environmental problems.

This current brief *Environmental Health: A Funders' Briefing* is designed as a primer for discussions among Canadian grantmakers of strategic approaches to environmental health issues. The brief is authored by Bruce Lorie and Rick Smith, both of whom are highly-respected individuals who are well-known in Canada's philanthropic and non-profit communities. Their book *Slow Death by Rubber Duck: How the Toxic Chemistry of Everyday Life Affects Our Health* has been a run-away bestseller and has done much to raise awareness in Canada and internationally of the impacts of toxic chemicals on human health. They are the perfect team to help CEGN launch this discussion of environmental health and the role for philanthropy. In doing so, we hope to include not only those in the environmental funding community but also to engage other philanthropists who are tackling health issues through their grantmaking and may not yet have turned their focus to environmental factors and the devastating impacts they are having on human health.



Mark Gifford
Chair, CEGN
mark.gifford@vancouverfoundation.ca
604-688-2204



Pegi Dover
Executive Director, CEGN
pegi_dover@cegn.org
647-288-8891

1. Introduction: Urgency and opportunity

Environmental Health Defined

It wasn't just because it furthered his rhyming that Benjamin Franklin listed health first in the well-known quotation: "Early to bed and early to rise makes a man healthy, wealthy and wise." In the hierarchy of human needs, health is paramount. How many times have we heard that "without our health we are nothing"? People are terribly motivated by a desire to remain healthy themselves, and to keep their loved ones similarly well. Canadians' perennial obsession with the state of our Medicare system is testament to the power of this impulse.

Beyond just avoiding the common cold, "health" and its maintenance has become a more expansive concept in recent years. Most people understand that in order to stay healthy they need to eat right. They need to get enough physical activity. Though it was Napoleon who said in the 18th Century that "Water, air, and cleanliness are the chief articles in my pharmacopoeia," the resonance of brands like the *Running Room* and *Lululemon* are contemporary evidence that many Canadians see the protection of health as a lifestyle.

The purpose of this paper is to argue that this same gut-level human imperative to protect one's health and the health of one's family is a powerful motivator for environmental progress. Further, the true potential of substantiating and leveraging this impulse has yet to be fully realized by the environmental or philanthropic communities.

It will come as no surprise to the readers of this document that modern-day environmentalism is an extremely broad canvas. From the protection of endangered species to the relative merits of different types of farming systems, from the ins and outs of nuclear power to the perils of global warming, "the environment" as a debate covers a tremendous amount of ground. Within this mixture of sometimes tenuously connected issues, the field of "environmental health" has become a recognized phenomenon. Quite simply, environmental health refers to the role the environment plays in human health. The World Health Organization defines it as follows:

Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments.¹

The purpose of this paper is to argue that this same gut-level human imperative to protect one's health and the health of one's family is a powerful motivator for environmental progress.

Why are twice as many Canadians “extremely concerned” about toxic chemicals than they are about climate change?



It is also useful to recognize what environmental health excludes. It is not about the health of the environment. The WHO qualifies the definition above noting that environmental health “*excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, and genetics.*”²²

Environmental health is therefore very much about how the environment affects our health. Environmental health is most commonly associated with toxic chemicals in the environment, but it is much broader than that. For example, poor air quality (particulate matter) that contributes to childhood asthma and the increasing concern of urban heat-related mortalities in a warming climate are environmental health issues.

Urban sprawl is an issue of growing concern. Not surprisingly, studies show that our sprawling, car-dependent communities are contributing to obesity and generally poor health, particularly an epidemic in childhood obesity.³

One of the most dramatic societal health and environment transformations in recent years has been the dramatic increase in sustainable (local and organic) agriculture. A number of Canadian foundations (and CEGN members) have been supporting this important work.

Why Environmental Health?

Available empirical evidence indicates that environmental health is of great interest to, and concern for, Canadians. For instance, Canadians are simply more concerned about toxic chemicals than they are other environmental issues. Environics has been tracking this for the past five years. In answer to the question, “Please tell me if you are extremely concerned, definitely concerned, somewhat concerned, not very concerned, or not at all concerned about each of the following...” 42% of respondents said they were extremely concerned about the “manufacture, use and disposal of toxic chemicals”²⁴ This was as compared to 39% extremely concerned regarding a major oil spill, 37% regarding water quality, 35% regarding air quality, 33% regarding loss of habitat and 20% regarding climate change.

Why are twice as many Canadians “extremely concerned” about toxic chemicals than they are about climate change? First and foremost, toxic chemicals are very much a human health issue as opposed to an ecological or atmospheric issue. People are concerned about their health. Beyond that, it seems to us that there are three other important factors at play: tangibility, immediacy and solveability. Toxic chemicals are more tangible than global warming; the average Canadian is aware that chemicals can cause human diseases like cancer. The effects of global warming, though serious, are more diffuse and less visible. Similarly, the effects of global warming are often distant, both in time and location. When we see images of glaciers melting in the Himalayas, or the Arctic ice sheet receding; it is not obvious how, or if, these events are relevant to the daily life of Canadians. As Bill McKibben

noted in his book *Eaarth*, one of the great failures of climate campaigning is the constant reference to how it will affect “our grandchildren.” This ignores the well-documented contemporary ecological and economic damage caused by global warming and pushes it two generations into the future. With toxic chemicals, on the other hand, the immediate and direct harm to human health is much more obvious, well documented, and even intuitive. And when such chemicals are present in everyday consumer products, like baby bottles, in the Canadian home they are readily identifiable. Lastly, global warming is a hard issue to wrap your arms around. There are no simple solutions to climate change. In fact we all see on a regular basis the failure of our governments to come to terms with policies to address global warming. It is a difficult issue for Canada. Toxic chemicals seem easier to grapple with. If you can simply limit your exposure to certain things, the threat largely disappears.

For all of these reasons, the concept of environmental health is fertile ground for environmental campaigners and funders. The Canadian public is extremely receptive to health as a driver of behavioural and policy change.

The concept of environmental health is fertile ground for environmental campaigners and funders. The Canadian public is extremely receptive to health as a driver of behavioural and policy change.

2. State of the evidence

In Canada there is usually only one issue that polls higher than the environment (except in times of economic downturn, when the economy trumps all concerns) and that is health care. Canadians have a deep-seated relationship with their right of access to publicly funded health care, an issue that threatens our health, or is a burden to our health care system, is well-received by politicians and the public. That is the crass political calculation.

Environmental health is much deeper than that. For obvious reasons, people are easily motivated by potential threats to their health or the health of their families. Anyone with children knows that the instinct to protect your child from harm is deep, powerful and almost primal. Environmental health issues often define these immediate threats; child asthma attacks for instance. The ability to motivate the public is a crucial factor in advancing environmental policy.

Public concern, of course, is not sufficient to achieve environmental progress in and of itself, at least two other factors are required: strong empirical evidence pointing to a problem and a potential solution, and a receptive ear with decision-makers. In terms of scientific evidence, environmental influences on human health are multifaceted, involving numerous pollutants, exposure routes, and interrelationships. All these factors meet on a wide-ranging scale, from macroscopic to microscopic levels.⁵ Environmental exposures can include chemicals in countless products or those released into the environment as various forms of pollution. Toxins are present in air, soil, dust, food, water, and consumer products, but also simultaneously across all media. This reality of multiple exposures occurring across multiple media (often changing over time and by location due to the mobility of humans) creates major challenges in understanding the relationship between environmental exposures and health outcomes.⁶ Despite the challenges, substantial well-established evidence exists linking environmental toxins to a number of significant human health issues such as cancer, obesity, diabetes, and developmental toxicity, to name a few.

As Statistics Canada's 2011 report reveals, cancer is now the leading cause of death in this country; over 40% of Canadians will experience cancer over the course of a lifetime. A mounting body of evidence demonstrates a link between environmental factors and breast and prostate cancer, and leukemia, drawing attention to the need for increased protection from exposure to carcinogens in our daily lives.^{7,8} The list of environmental chemicals demonstrated to have a link to cancer and other chronic diseases is disturbingly long. A case study in bisphenol A (BPA) perhaps best tells the story of environmental toxins and their link to human health when its associations with cancer and other prevalent chronic diseases and conditions are examined.



Michael Lee

There is rising concern about exposure to BPA, a synthetic chemical found in plasticizers widely used in common products, including hard plastic water bottles, some dishware, and the lining of nearly all food and beverage cans.⁹ BPA is a known endocrine disruptor, meaning it interferes with the regular functioning of the endocrine system by mimicking the body's natural hormones.¹⁰ BPA exposure is pervasive with evidence of contamination in air, water, sediments, industrial waste water and house dust.¹¹

BPA is associated with multiple health outcomes especially when exposure occurs during fetal or early postnatal development periods; these windows are particularly sensitive given the disproportionate exposure.¹² Human cord blood studies have found that BPA and other chemicals can cross the placental barrier.¹³ Fetal BPA exposure has been measured at levels five times higher than that in maternal blood.¹⁴

Significant published research exists on the suspected fetal origins of breast cancer resulting from effects of BPA exposure.^{15,16,17} Studies have shown the potential for BPA to exert permanent changes during mammary gland development *in utero* that alter later susceptibility to other factors that can initiate breast cancer (e.g. increased vulnerability in breast epithelial cells for malignant transformation).¹⁸

Along with the findings of links to breast cancer, *in vivo* and *in vitro* studies demonstrate associations between prenatal and neonatal BPA exposure and changes in prostate growth and development that may lead to prostate cancer later in life.¹⁹ Thus, a fetal basis may exist for prostate cancer, with low-dose exposure (i.e. environmentally relevant levels) resulting in different effects on the prostate than higher doses.²⁰

Endocrine disrupting chemicals such as BPA are also of considerable interest in terms of the link to Type 2 diabetes and obesity. Type 2 diabetes is a disorder characterized by increased blood-sugar levels as a result of insulin resistance and deficiency.²¹ Studies in rats indicate that prenatal and early childhood exposure to BPA is associated with permanent alteration of insulin metabolism.²² Evidence also indicates increased human BPA exposure can affect endocrine function specifically by increasing adiposity (fat tissue) via multiple mechanisms, which is a strong risk factor for obesity.²³ Perhaps most alarming about all this: diabetes and obesity are both risk factors for multiple cancers²⁴, Alzheimer's²⁵ and cardiovascular disease.²⁶

Several other common environmental pollutants are known endocrine disruptors: pesticides²⁷, phthalates (found in cosmetics)²⁸, PBDEs (used extensively as flame retardants), PFAs (used in stain repellents and non-stick cooking pans), and PCBs (environmentally persistent industrial chemicals) to start. Where research on these chemicals and their associations to chronic disease may be considered limited, it is prudent to infer that, with continued research, links to the host of chronic diseases discussed above will be found.



Fetal BPA exposure has been measured at levels five times higher than that in maternal blood.

The state of the evidence indicates strong associations between environmental toxins and many chronic diseases.

While acknowledging that many diseases are the result of multiple factors and environmental exposures are one among many factors that influence health²⁹, the state of the evidence indicates strong associations between environmental toxins and many chronic diseases. In fact, the 2010 President’s Cancer Panel concluded that environmental causes of cancer are “grossly underestimated”³⁰; it would be folly not to assume this is also the case for other chronic diseases. The mounting evidence of plausible links between exposures to environmental pollutants and adverse consequences for lifelong health calls for further research, and expedited action to limit exposure given the high stakes of what has already been found.

3. How did we get in this mess?

People often wonder how it is that we have ended up in a situation where we spray carcinogens on our fruit and vegetables, pump hormones into the animals we eat, add toxic preservatives to food packaging, and prepare our meals in pans that are coated with dangerous non-stick chemicals. The answer is simple: there has to date, been nothing preventing any of this from happening. Canada, as with most countries around the world, has had lax chemical regulations and a chemical management regime largely controlled by industry. We write about this in detail in *Slow Death by Rubber Duck*, but here is the quick summary.

First, it is important to recognize that toxic chemical regulations in Canada (and elsewhere) were never designed to deal with the chronic health effects of low level exposure to toxic chemicals. Canada's principle legislative mechanism for regulating toxic chemicals is the Canadian Environmental Protection Act (CEPA). CEPA (and its precursor legislation) were designed to address "gross" environmental pollution; smoke stacks polluting the air and chemical effluents pouring into lakes and rivers. If we think back to the late 1960s and early 1970s, smog was choking North American cities, acid rain was killing lakes in Canada's "cottage country," birds of prey were dropping like flies, Lake Erie was declared "dead" as a result of phosphate contamination, and the Cuyahoga River, flowing into Lake Erie from Ohio, caught fire, twice! Choking cities, floating fish, dead birds and burning rivers are largely in our past; CEPA did a great job of dealing with the ecological catastrophes of the day. But the motivations for these actions, and behind our chemical regulations, were largely ecological, not about concerns for human health.

Fast forward forty years and it is not hard to imagine that the legislation controlling the environmental byproducts of how, what and where we manufacture is no longer relevant. Almost every critical parameter regarding our understanding of environmental health has changed in the intervening four decades. So in some respects the modern world has simply surpassed our institutional capability to deal with the side effects of what we produce; economists call these unaccounted effects "externalities." The legislation designed to curb millions of gallons of toxic effluent pouring into the Great Lakes was incapable of dealing with tiny concentrations of specific chemicals found in children's toys.



All of this is good news from an environmental and philanthropic perspective. It means that the conditions for positive change are vastly improved; hence our optimism regarding future opportunities to build on the successes we have seen over the past number of years.

In the same way that the environmental movement struggles to adopt environmental health as a framework, governments have been slow to incorporate contemporary understanding of genetics and toxicity into environmental regulations. Moreover, the medical community has been reluctant to accept that environmental factors are significant contributors to health impairment. Together, these factors made it difficult to address the use of toxic substances in consumer products, for example. Fortunately there has been significant movement on all of these fronts.

There are three specific areas we can point to that have helped break through the chemical substance impasse in Canada. First, there are now examples of global leadership. The Europeans are leading, not surprisingly, with the introduction of a new scheme for chemicals management called Registration, Evaluation and Authorization of Chemicals, or more commonly referred to as REACH. REACH is comprehensive legislation that addresses the testing, evaluation, listing and management of toxic substances. It requires information sharing, streamlined evaluation and shifts risk from governments to manufacturers. Canada initiated revisions to CEPA that are modeled after REACH, and those new policy directions have allowed Canada to take a leadership role.

Second, genetic, health and toxicity research has advanced to the point where we now have a new understanding of the seriousness of chronic, low level exposure to carcinogenic, endocrine disrupting and/or developmentally toxic chemicals. The old adage “the dose makes the poison” is no longer the working assumption. For example, very small concentrations of chemicals introduced into a developing fetus or child may have serious implications later in life, whereas exposure to much larger doses may cause no harm in an adult. This turns traditional toxicology, (i.e. the basis for historical chemical management legislation) on its head.

Third, and largely as a result of the above, the “weight of evidence” has shifted to the point where the medical health and toxicity research communities have become significant advocates of the need for improved health and environmental regulations on chemicals thought to cause harm.

We’d also like to think that younger generations of consumers and decision-makers throughout society have benefited from stronger environmental education programs and are generally more aware and accepting of the environmental threats inherent in industrial society.

All of this is good news from an environmental and philanthropic perspective. It means that the conditions for positive change are vastly improved; hence our optimism regarding future opportunities to build on the successes we have seen over the past number of years.

4. The world is changing

As we noted in the introduction to *Slow Death by Rubber Duck*, the speed with which the debate surrounding environment and health is moving renders the issue exciting, and difficult to keep up with. As a consequence of the strong recent scientific evidence linking toxic chemicals to serious human disease, there has been a marked and traceable change in the public's everyday behaviour in order to avoid toxins. The organic food and beverage industry has grown rapidly worldwide; industry sales were estimated to be \$59.1 billion US in 2010 – a 9.2 increase over the \$54.1 billion US in sales from 2009.³¹ Total sales of organic products in Canada in 2012 equaled approximately \$3.7 billion, and the value of the Canadian organic food market has tripled since 2006, far outpacing the growth rate of other agri-food sectors.³² In a 2010 survey of Canadian consumers, 74% were willing to pay at least 10% more for food that is “healthier, safer, or produced to higher standards.”³³ Within the North American organic market, the diversity of organic consumers is growing and demographics now play a far lesser role in determining purchasing behaviour.

Other trends reflect an increasing desire on the part of consumers to avoid toxins in everyday life. Consumer products are increasingly designated “green” – for instance, in 2008 Clorox® introduced with great financial success their Green Works® brand of products as a breakthrough product for Clorox and for consumers who want to clean naturally but don't want to compromise on performance.³⁴ Since 2008, Clorox and the Green Works line have been accused of “greenwashing” since Clorox Company still sells other lines of products with known hazardous ingredients. Green Works products have also come under scrutiny because many ingredients are not actually environmentally friendly.³⁵ This may simply be the ever critical view of environmental activists decrying the efforts of Clorox for not producing environmentally perfect cleaning products.

Another interesting example of response to the “green” consumerism trend is the Martha Stewart Clean™ line of products. The Martha Stewart website advocates for chemical-free cleaning with everyday products like baking soda, vinegar and lemon juice³⁶ while at the same time advertising her branded line of green cleaning products. This seeming disconnect demonstrates that there is very much a market for green products, but it must be made safer and more navigable for consumers.

Finally, governments are also beginning to respond to the increasing evidence of a link to environmental toxins and human health outcomes. In 2009, prompted by the work of Environmental Defence, the government of Canada



Finally, governments are also beginning to respond to the increasing evidence of a link to environmental toxins and human health outcomes.

banned the use of BPA in baby bottles. In 2010, BPA was declared a toxic substance in Canada. In 2010 the European Union executive commission made a commitment to ban BPA manufacturing and the use of the substance in baby bottles by early 2011. China also joined the list of governments banning BPA in baby bottles in June of 2011. In the United States, some state and local governments have moved towards a BPA ban. Even though the US Congress has repeatedly blocked efforts on a BPA ban, in 2008 George W. Bush signed a bill partially banning phthalates in children's products. There is an increasing trend towards governments placing temporary bans on environmental toxins while further research is conducted.³⁷ Continued research will only add to what is already known, and surely contribute to an increase in the list of environmental toxins we see regulated by governments.

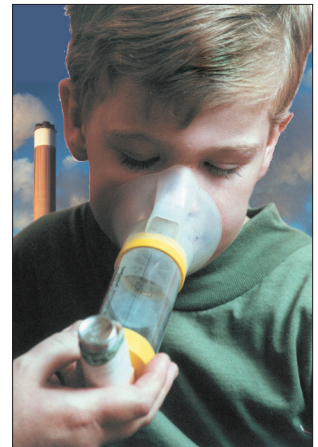
5. Opportunities for progress: Role for philanthropy

So what can funders do to take advantage of the immediate opportunities that exist? Environmental health crosses many areas of traditional environmental work; including air and water quality, sustainable agriculture, energy and climate work and of course toxic chemical reductions.

In many respects environmental health is not a different or separate area of environmental work, but a way to frame issues in a way that resonates with the public and with policy-makers. The health framing is important because it motivates public action and typically leads to better outcomes. The phase-out of coal-fired power plants in Ontario would not have happened were it not for the shift in focus from traditional environmental issues (i.e. acid rain or climate change) to environmental health, and specifically childhood asthma. In addition to the new framing, was the introduction of new, powerful voices, namely the Ontario Medical Association. At the time, a number of people were skeptical or even critical of recasting what was seen to be a core environmental issue about acid rain and climate, into a public health issue. ENGOs and foundations were among the skeptics. The issue of providing charitable grants to organizations representing “rich doctors” was raised; a classic example of focusing on ideology as opposed to outcome, one of the dilemmas foundations and ENGOs still struggle with. And ENGOs were concerned that health groups would “steal” the issue from them. It took many years before mainstream environmental organizations acknowledged the benefits of having health groups speaking on behalf of these issues.

Environmental health therefore introduces a new array of relevant players for foundations to support; doctors, nurses, epidemiologists, public health departments, and disease organizations. The role of doctors through organizations such as the Canadian Association of Physicians for the Environment (CAPE) or the Ontario Medical Association (OMA) has made a tremendous difference in advancing environmental issues in Canada.

Toxic chemical work has been a particular challenge for organizations in Canada. Despite the fact that year after year, Canadians rate toxic pollution as their single greatest environmental concern, foundations in Canada are for the most part absent on the file. Traditional environmental issues (terrestrial ecosystems, land use and biodiversity) make up almost half of all environmen-



tal grants in Canada; marine ecosystem grants push that number to beyond two-thirds. Toxic pollution work receives less than one percent of Canadian philanthropic grants, a remarkable disconnect with public concern. The only exception to this trend is the growth in support for sustainable agriculture, with the primary driver behind this funding being the support of sustainable communities.

Consequently, most of the toxic pollution work in Canada has been undertaken on a shoe-string budget. Moreover, much of the foundation money supporting efforts to reduce toxic pollution in Canada comes from American foundations. This is not because American foundations fund toxic pollution issues more generously than Canadians, it is still disproportionately underfunded in the U.S., however several of the leading American foundations have recognized that certain work in Canada has the potential to leverage global action. The Environmental Defence Canada campaign to have Bisphenol A baby bottles banned was, for example, funded almost exclusively by American foundations that saw the strategic significance of having Canada be the first country in the world to ban a BPA product. It is worth noting that the BPA campaign was otherwise 100 percent Canadian in terms of the strategy, people and organizations involved. The foundations took a risk, and it worked. Canada's decision to ban BPA baby bottles has had global ramifications as countries reexamine the health risks to children.

We have often wondered why Canadian foundations are so reluctant to support environmental health. In the late 1990s the Laidlaw Foundation's pioneering program on Children's Health and the Environment sowed the seeds for much of Canada's environmental health capacity, but unfortunately nothing similar took its place after it ended. We can only speculate on the reasons for the lack of interest from foundations. Perhaps it is that environmental health is "caught" between traditional health funding and traditional environmental funding? Or it may be because environmental health issues are by their very nature controversial and Canadian foundations typically shy away from issues that involve controversy. We also wonder if it is simply that environmental health issues are too scientific and/or too complex for most foundations to want to wade into. From our perspective, there are few issues that are able to return as great a societal benefit as reducing exposure to the chemicals that are known to harm brains, impair the development of children, or cause cancer.

One of the challenges with environmental health is not the lack of opportunity; there are endless opportunities. The challenge may be one of focusing on real and immediate opportunities for change, and distinguishing these from issues that are "less ripe." There are several areas where foundations can take advantage of "low-hanging fruit." Here are five things that foundations could focus on immediately that would almost certainly lead to improved health for Canadians within a reasonable time-frame:

One of the challenges with environmental health is not the lack of opportunity; there are endless opportunities. The challenge may be one of focusing on real and immediate opportunities for change, and distinguishing these from issues that are "less ripe."

1. Support continued success in toxic chemical and toxic product bans in Canada (see box). Through the Chemicals Management Plan, the Canadian government now has among the best chemical management programs in the world and has been a leader over the past few years in banning substances. Efforts to maintain this momentum and to identify the next tranche of chemicals and products to be banned will almost certainly bear fruit. Following the successful introduction of Ontario's Toxic Reduction Act (the first such provincial statute in the country, though a common model at the state level in the US), work on better regulating chemicals should occur at both the federal and provincial levels. Priority chemicals should include triclosan (a common antibacterial agent and a thyroid toxin that the federal government is considering for a legal designation of "toxic" under CEPA); phthalates (an endocrine disruptor and still common in many products) and BPA (which is still extremely common in the lining of cans).

A Case of Foundation Leadership

There is one recent example that bucks both the shoestring and American trends. Motivated by the CEGN thought leader series paper written by Mark Sarner, "Winning the Race Against Time: how to make environmental grantmaking work better right now," the Catherine Donnelly Foundation has provided a \$1 million grant to Environmental Defence in support of furthering Canada's toxic chemical bans. The McConnell Foundation has also now stepped up to provide substantial additional support for the initiative. Now is the time for Canadian foundations to take that one step further and not only think big but to work collaboratively. And this is in fact one of the objectives of the Donnelly Foundation; fostering collaboration and also building capacity. Whether it is banning asbestos or triclosan, there are immediate opportunities for foundations and ENGOs to collaborate on a larger vision for solving environmental health challenges in Canada. If this work is coordinated with colleagues internationally, the pay-offs in terms of enhanced public education and public policy, and improved human health and environmental protection could be very large indeed.

2. Certain groups of consumer products are the source of substantial exposure to toxic chemicals and are subject to their own specific, and badly outdated, regulatory frameworks. Systematically improving these regulations should be a focus of renewed effort. The federal government has, in the past, announced, that it is willing to consider modernizing the Cosmetics Regulations. This is a significant opportunity to improve labeling laws and the transparency of ingredient information available to consumers. Eliminating some of the more dangerous toxic chemicals in product formulations might also be possible through this process. Recent interesting work by the Pew Charitable Trusts has exposed major holes in the regulation of food additives.³⁸ This would be important to address. Finally, the over-use of antibiotics in animal agriculture is raising alarm bells with

doctors and nurses who are concerned at the rise of antibiotic-resistant bacteria.³⁹ The regulations related to this area are much stronger in other jurisdictions: the European Union has already banned prophylactic use of antibiotics in agriculture, and in the U.S. some families of antibiotics have been banned from use in poultry and other restrictions are in the process of being improved.⁴⁰ The Ontario Medical Association's policy paper on the issue pointed to two big failures of the current use of agricultural antibiotics in Canada: a loophole that lets farmer directly import antibiotics for their own use and that there is currently no monitoring of the use of drugs in farming.⁴¹ These are key areas where environmental health work could make a difference.

Even though Ontario's coal phase-out is the single largest climate action ever taken in Canada, that is not what led to the successful campaign outcome, it was concern over environmental health.

3. Canada is a leader in restricting the use of lawn pesticides. It all started in Hudson, Quebec and has now expanded from a handful of municipal bans to province-wide bans in six Canadian provinces; comprising 77% of the Canadian population. Available evidence indicates that the Ontario ban – and almost certainly those in other provinces has had a rapid, measurable and beneficial effect. Levels of certain key carcinogenic pesticide residues plummeted by an astonishing 80% in southern Ontario lakes and rivers the summer after the law was instituted.⁴² With modest support, the organizations working to have lawn pesticides banned will almost certainly be successful all across Canada. As of this writing, Manitoba and British Columbia were actively considering such protective statutes.
4. Coal-fired power plants have been vilified for their smog emitting and climate destroying properties, but they also emit a nasty suite of asthma inducing and cancer causing chemicals that are causing more immediate harm. And carbon capture will not help. Supporting efforts to follow Ontario's lead and phase out all coal-burning in Canada is a laudable goal. And remember, even though Ontario's coal phase-out is the single largest climate action ever taken in Canada, that is not what led to the successful campaign outcome, it was concern over environmental health.
5. Finally, one of the issues that seems to divide Canadians more than any other is the tar sands, or oil sands, we cannot even agree on what to call them. There are a number of environmental efforts underway pointing to the "environmental nightmare" of the tar sands, but the messages are wide-ranging and often confusing. Issues include carbon emissions, oil dependency, water use, boreal forest destruction, birds dying, tailings ponds leaking, and aboriginal communities suffering. There is almost certainly a higher concentration of cancer and asthma causing substances in the oil sands region than anywhere else in Canada, yet the environmental health issue has been underplayed and represents an opportunity for funders who want to contribute positive outcomes on this difficult issue.

Endnotes

- 1 www.who.int/topics/environmental_health/en/
- 2 www.who.int/topics/environmental_health/en/
- 3 The Health Impact of Urban Sprawl, Volume Three: Urban Sprawl. An Information Series from the Ontario College of Family Physicians, September 2005
- 4 EnviroNics, Canadian Environmental Barometer, Sept 2011
- 5 Cooper K, Marshall L, Vanderlinden L, and Ursitti F (2011) *Early Exposures to Hazardous Chemicals/Pollution and Associations with Chronic Disease: A Scoping Review*. A report from the Canadian Environmental Law Association, the Ontario College of Family Physicians and the Environmental Health Institute of Canada.
- 6 Cooper K, Marshall L, Vanderlinden L, and Ursitti F (2011) *Early Exposures to Hazardous Chemicals/Pollution and Associations with Chronic Disease: A Scoping Review*. A report from the Canadian Environmental Law Association, the Ontario College of Family Physicians and the Environmental Health Institute of Canada
- 7 Fenton SE (2006) Endocrine-Disrupting Compounds and Mammary Gland Development: Early Exposure and Late Life Consequences. *Endocrinology*; 147(6) (Supplement): S18-S24.
- 8 Prins GS et al (2008) Does Breast Cancer Start in the Womb? *Basic and Clinical Pharmacology and Toxicology*; 23 374-382.
- 9 Vandenberg LN et al (2007) Human exposure to bisphenol A (BPA). *Reproductive Toxicology*; 24(2): 139-77.
- 10 Ibid.
- 11 Rudel RA et al (2007) Mammary gland development as a sensitive endpoint after acute prenatal exposure to an atrazine metabolite mixture in female Long Evans rats. *Environmental Health Perspectives*; 115(5):720-727.
- 12 www.ec.gc.ca/substances/ese/eng/challenge/batch2/batch2_80-05-7.cfm (Retrieved December 2011)
- 13 Balakrishnan B et al (2010) Transfer of bisphenol A across the human placenta. *American Journal of Obstetrics and Gynaecology*; 202:393.e1-7.
- 14 Ikezuki Y et al (2002) Determination of bisphenol A concentrations in human biological fluids reveals significant early prenatal exposure. *Human Reproduction*; 17(11):2839-2841.
- 15 Calafat AM et al (2005) Urinary concentrations of bisphenol A and 4-nonylphenol in a human reference population. *Environmental Health Perspectives*; 113:391-395.
- 16 Centers for Disease Control and Prevention (2009) *Fourth National Report on Human Exposure to Environmental Chemicals*.
- 17 Bushnik T et al (2010) Lead and bisphenol A concentrations in the Canadian population. *Health Reports*; 21(3)7-18. Statistics Canada Catalogue no. 82-003-XPE.
- 18 Hilakivi-Clarke L and de Assis S (2006) Fetal origins of breast cancer. *Trends in Endocrinology and Metabolism*; 17(9);340-348.
- 19 Ho SM et al (2006) Developmental exposure to estradiol and bisphenol A increases susceptibility to prostate carcinogenesis and epigenetically regulates phosphodiesterase type 4 variant 4. *Cancer Research*; 66:5624-5632.
- 20 Prins GS et al (2007) Developmental estrogen exposures predispose to prostate carcinogenesis with aging. *Reproductive Toxicology*; 24:240-252.

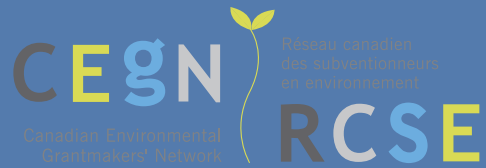
- 21 www.diabetes.ca/research/biology/ (Retrieved December 2011)
- 22 Newbold RR et al (2007) Effects of endocrine disruptors on obesity. *International Journal of Andrology*; 31:201-208.
- 23 Somm E et al (2009) Perinatal Exposure to Bisphenol A Alters Early Adipogenesis in the Rat. *Environmental Health Perspectives*; 117:1549-1555.
- 24 Renehan A et al (2010) Linking diabetes and cancer: a consensus on complexity. *The Lancet*; 375:2201-2202.
- 25 Miller DB and O'Callaghan JP (2008) Do early-life insults contribute to the late-life development of Parkinson and Alzheimer diseases? *Metabolism Clinical and Experimental*; 57(Suppl 2);S44-49.
- 26 Berry C and Sattar N (2011) Stressed hearts in children with obesity and diabetes: a cause for concern? *Diabetologia*; 54:715-718.
- 27 www.theglobeandmail.com/life/health/new-health/paul-taylor/weed-killer-linked-to-gender-bending-in-animals/article2256969/ (Retrieved December 2011)
- 28 Stahlhut RW et al (2007) Concentrations of urinary phthalate metabolites are associated with increased weight circumference and insulin resistance in adult U.S. males. *Environmental Health Perspectives*; 115:876-882.
- 29 Cooper K, Marshall L, Vanderlinden L, and Ursitti F (2011) *Early Exposures to Hazardous Chemicals/Pollution and Associations with Chronic Disease: A Scoping Review*. A report from the Canadian Environmental Law Association, the Ontario College of Family Physicians and the Environmental Health Institute of Canada
- 30 U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute. *President's Cancer Panel 2008-2009 Annual Report: Reducing Environmental Cancer Risk*. April 2010.
- 31 IFOAM and FiBL. February 2012. The World of Organic Agriculture. Statistics and Emerging Trends 2012.
- 32 Canada Organic Trade Association. 2013. Canada's Organic Market: National Highlights 2013. www.ota.com/pics/media_photos.171.img_filename.pdf (Retrieved April 2013)
- 33 www.hartman-group.com/hartbeat/beyond-organic-and-natural (Retrieved December 2011)
- 34 investors.thecloroxcompany.com/releasedetail.cfm?ReleaseID=286938 (Retrieved December 2011)
- 35 articles.moneycentral.msn.com/Investing/Extra/4-green-claims-to-be-wary-of.aspx (Retrieved December 2011)
- 36 www.marthastewart.com/274289/cleaning-products-101/@center/277000/home-keeping-solutions (Retrieved December 2011)
- 37 www.cbc.ca/news/health/story/2008/06/04/f-phthalates.html (Retrieved December 2011)
- 38 Neltner, T. G., Kulkarni, N. R., Alger, H. M., Maffini, M. V., Bongard, E. D., Fortin, N. D. and Olson, E. D. (2011), Navigating the U.S. Food Additive Regulatory Program. *Comprehensive Reviews in Food Science and Food Safety*, 10: 342-368.
- 39 Ontario Medical Association. 2013. OMA Policy Paper: When Antibiotics Stop Working. *Ontario Medical Review* March: 27-43.
- 40 Organic Trade Association. Antibiotics in Agriculture. www.ota.com/organic/benefits/antibiotics.html (Retrieved April 2013)
- 41 Ontario Medical Association. 2013. OMA Policy Paper: When Antibiotics Stop Working. *Ontario Medical Review* March: 27-43.
- 42 Todd A.K. Environmental Monitoring and Reporting Branch, Ontario Ministry of the Environment. *Changes in Urban Stream Water Pesticides Concentration One Year after a Cosmetics Pesticide Ban*. November 2010.

About the authors

Bruce Lourie is one of Canada's leading environmental thinkers and co-author of the best selling book *Slow Death by Rubber Duck: How the Toxic Chemistry of Everyday Life Affects Our Health*. He is President of Ivey Foundation, a private charitable foundation in Canada, a Director of the Ontario Power Authority and a Director of the San Francisco-based Consultative Group on Biological Diversity. He is an honorary director of the Canadian Association of Physicians for the Environment and a member of World Wildlife Fund's Climate Advisory Committee.

Bruce is a founder of a number of for profit and non-profit organizations including Summerhill Group, a prominent consulting company in Toronto; the Sustainability Network, a highly regarded capacity building organization; and the Canadian Environmental Grantmakers' Network. He has acted on numerous international, federal, provincial and municipal bodies advising on environmental and energy policy issues. Bruce has degrees in Geology, Environmental Studies and a near-complete doctorate.

Rick Smith is a prominent Canadian author and environmentalist. He is the new Executive Director of the Broadbent Institute (www.BroadbentInstitute.ca), a progressive policy thinktank. From 2003 to 2012 Rick was Executive Director of the national charity Environmental Defence Canada. He co-authored the bestselling 2009 book *Slow Death by Rubber Duck: How the Toxic Chemistry of Everyday Life Affects Our Health*. With a Ph.D. in biology and a stint as Chief of Staff of the federal New Democratic Party, Rick's career has been equal parts science and politics. He is regarded as one of the country's leading environmental campaigners and has spearheaded important new "green economy" policies at both the provincial and federal levels.



CEGN works to strengthen the impact of philanthropic support for an environmentally sound and sustainable future for Canadians

Suite 300
70 The Esplanade
Toronto, Ontario
M5E 1R2

647-288-8891

cegn.org