# The Need for Health Impact Assessments to be Integrated into all Federal Environmental Assessment Processes

A submission from health organizations and health professionals to the Expert Panel established by the Minister of Environment and Climate Change to review federal environmental assessment processes

23 DECEMBER 2016

# INTRODUCTION

As a collaboration of health organizations and health professionals, we call for the integration of Health Impact Assessments (HIAs) in all Federal Environmental Assessment (EA) Processes.

We welcome the Expert Panel Review of Environmental Assessment (EA) Processes established by the Federal Minister of Environment and Climate Change Canada (ECCC). Key issues identified for consideration include what federal EA should achieve and how it can function better. Key factors identified for consideration include the environment, social factors and the economy.

The Minister's Mandate Letter recognizes the importance of decisions that serve the public's interest, enable meaningful participation, and regain the public trust within federal Environmental Assessment processes. Clearly, at the heart of this matter are people and communities.

We agree that the current federal EA processes inadequately reflect the health and well-being of people and communities, and that existing EA processes do not provide a vehicle or framework for broad policy matters to be discussed within the context of environmental assessments.

We propose that comprehensive HIAs integrated within the mandate of EA processes could provide this crucial framework and better reflect the health and well-being of people and communities. Presently, EAs focus on project impacts on plant and animal species. We are requesting that human health impacts be included as well.

# **CONTEXT AND BACKGROUND**

# Health is more than the mere absence of disease

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1967) which includes "the extent to which an individual or group is able, on the one hand to realize aspirations and to satisfy needs, and on the other to change or cope with the environment" (WHO, 1984). Further, the WHO recognizes that "Health depends on our ability to understand and manage the interaction between human activities and the physical and biological environment" (WHO, 1991).

Health and well-being is impacted by development. Income, income distribution, jobs and employment, demographics, literacy, social order and cultural elements all influence health and well-being (CPHA, 1997). Rarely is a development proposal made which does not propose to contribute beneficially to one or more of these elements.

# Health is shaped by the determinants of health

Health is shaped by the ecological, social, economic, cultural and psychological well- being of people, as well as by the physical, biological and geochemical environments, and is impacted by the ability to adapt to daily stresses and changes. The Federal/Provincial/Territorial Advisory Committee on Population Health (1994) examined health and identified nine determinants of health, which have subsequently been expanded to a dozen determinants. They are each important to health yet are intricately interrelated. These are:

- Income and social status
- Social support networks
- Education and literacy
- Employment/working conditions
- Social environments
- Physical environments
- Personal health practices and coping skills
- Healthy child development
- Biology and genetic endowment
- Health services
- Gender
- Culture

More recently, the Canadian Public Health Association (CPHA) and others have added ecological determinants of health that include natural ecological services, the most basic being adequate clean air, water, food, energy and shelter, but including a stable, habitable climate, natural resources, natural processes of detoxification and the intangible but measurable benefits of green space and natural beauty to this list of health determinants (Hancock 2015, Whitmee et al. 2015, Hancock et al. 2015).

The significant overlap between these determinants must be reflected in development practices, particularly EAs (FPTCEOHTF 1997). Details on how the determinants of health can be incorporated into HIAs can be found in The Canadian Handbook on Health Impact Assessment.

Placing health determinants in context suggests a comprehensive interpretation of health linking the complex relationships between ecological, social, economic, political and cultural health determinants with the natural environment. Health impacts may arise from direct and indirect influences, and result in cumulative and synergistic impacts, characterized by complex cause-effect relationships. As health professionals we can attest that proposed development activities have the potential to create significant human health impacts.

# Equity and democracy in development demands close attention to the social and ecological determinants of health

In 2011, the Rio Political Declaration on Social Determinants of Health (Rio Declaration, 2011) was adopted. In May 2012, it was ratified at the 65th World Health Assembly. As signatories to the Rio Declaration, WHO Member States, including Canada, committed to develop action plans to address commitments made in the Rio Declaration.

The social determinants of health are the social and economic conditions that determine the health of populations (WHO, 2008). Health inequalities are "the measurable differences that exist among [populations] of differing incomes, genders or races or other characteristics" (Raphael, 2010). Health inequities are the avoidable differences or inequalities in health outcomes. Health equity is about

creating the circumstances where avoidable differences or inequalities in health - that is health inequities - among groups are reduced and eventually eliminated (Braveman & Gruskin, 2003).

The Hon. Monique Bégin, Member of WHO Commission on Social Determinants of Health and Former Minister of National Health & Welfare, has questioned "What good does it do to treat people's illnesses, to then send them back to the conditions that made them sick" (Mikkonen and Raphael, 2010).

Both the existing environments within which development proposals are made and the environments created through the interactions with development proposals and their assessment processes have powerful and often profound and lasting influences on the social and ecological determinants of health and health equity. No proposal can be sustainable if these environments are not supportive of health equity to the greatest extent possible. No development can be considered sustainable if it does not adequately account for equity.

Framing health comprehensively using the determinants of health, equity and the WHO definitions bears remarkable similarities to Indigenous perspectives on health and community well-being. The duty to consult Indigenous peoples must cultivate the inclusion of health and community well-being matters.

The Earth is a living system that determines the health of humans and all other species. The crucial life-supporting systems include the ecosystem based 'goods and services' that we get from nature, air, water, food, energy, detoxifying biochemical processes, the ozone layer, a reasonably stable and habitable climate and natural resources such as minerals and forest products. The fragility of earth systems has been recognized by biologists for several decades, initially hitting the world stage with the UN's Earth Summit in Rio de Janeiro in 1992. With population growth, increasing urbanization and climate change the enormous impacts of planetary health on all living things has become even more apparent (Whitmee et al. 2015, Hancock et al. 2015).

Climate change is now recognized to be the <u>biggest threat to global health of the 21st century by the</u> <u>WHO</u> and the Lancet's 2015 Commission on Climate Change and Health stated, "on the basis of current emission trajectories, temperature rises in the next 85 years may be incompatible with an organized global community." (Watts et al., 2015). It is in the context of this fragile system that we request inclusion of the determinants of human health, including greenhouse gas emissions, into federal EA processes.

# **HEALTH IN EA**

# Health: The central objective of development

The report by The World Commission on Environment and Development (1987) encouraged human activities that meet the needs of the present generation without compromising the ability of future generations to meet their own needs. To achieve this goal and reflect the well-being of people and communities within development, EA will need processes that frame development as a human objective. 60% of our health is attributable to the social, economic and physical environments within which we live. Without placing health central in EA processes, we risk ignoring 60% of development proposal objectives.

#### Health in current EA processes

Sections 5 (1) (c) and 5 (2) (b) of the *Canadian Environmental Assessment Act* explicitly denotes any changes of a proposal that may be caused to the environment on the health and socio-economic,

physical and cultural conditions for aboriginal peoples or from a federal authority to exercise its powers on the general population respectively.

The federal government defines an environmental effect as:

"Any change that the policy, plan or program may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by Aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. These changes can occur within or outside Canada" (Canada, 2010).

EA processes focus on the natural environment precisely because the natural environment is a key determinant of human health and community well-being. Without clean water, healthy air, and productive ecosystems, humans can not live healthy, wholesome lives.

The overarching EA Review discussion is premised on four key questions:

- Q1 To what extent do current federal environmental assessment processes enable development in Canada that considers the environment, social matters and the economy?
- Q2 What outcomes do you want federal environmental assessment processes to achieve in the future?
- Q3 How can federal environmental assessments support investor certainty, community and environmental well-being, the use of best available technology, certainty with respect to the protection of Aboriginal and treaty rights and timely decision making?
- Q4 How should federal environmental assessment processes address the Government of Canada's international and national environmental and social commitments, such as sustainable economic growth and addressing climate change?

These themes reflect the importance Canadians attribute to health and community well-being.

As laid out in the suggested themes for discussion, Expert Panel Chair Johanne Gélinas stresses the importance of "planning and regulatory tools which are fair, reliable and effective" which "take into account three pillars: environmental, social and economic." These themes along with others included in the panel framing of the discussion including community and environmental well-being, Aboriginal and treaty rights, prior and informed consent, the public, Indigenous traditional knowledge, trust, transparency, fairness, and meaningful engagement speak clearly and loudly to health and community well-being.

# Health: An important Canadian value

Health is an important Canadian value and one that is central to EA processes. Healthy populations, health promotion and disease prevention, the determinants of health, health equity and the social determinants of health as well as the physical and biological conditions of human health are central to successful EA processes. Guided by our international commitments such as the Universal Declaration of Human Rights, the Paris Agreement on Climate Change, the United Nations Declaration on the Rights of Indigenous Peoples, the Millennium Development Goals, and the Convention on Biological Diversity, Canadians embrace the values of health and community well-being.

# Health promotion and disease prevention is less costly

In many cases, the economic activity anticipated from development proposals are presumed to be beneficial and additive, ignoring the adverse health impacts of much economic activity (crime, health

care, policing, lawyers, disease and pollution for example). In other cases, cost-benefit analyses inadequately evaluate health and community well-being.

Overburdened and costly health care systems and structures result from myopic, simplified, or misdirected development decisions, including policies, plans and programs that inadequately account for the health impacts of those proposals. The preventive fiscal benefits of including health and community well-being in decision making processes far outweigh the costs of not doing so.

# Every minister is a health minister; every department is a health department

In 2011, the Hon. Carolyn Bennett noted that a "commitment across all government departments and all jurisdictions for policies and programs that take responsibility for the health of Canadians" will be essential to ensure policies and practices support healthy populations, in contrast to a 'repair shop model' (Bennett, 2011).

Framing health through a determinants of health lens, as the Canadian Handbook on HIA (Health Canada, 1999) does, and taking a comprehensive approach to health, as the WHO does, would commit every federal department and agency to important health responsibility roles. The federal definition of an environmental effect (see above) reinforces this role for each department and agency. Housing, poverty, resource activity, agriculture and food security, climate change, and international activities all affect health. For example, the WHO has identified climate change as "the greatest threat to global health in the 21st century" (WHO, 2016). A health framework can provide an accountable, rigorous, transparent and consistent framework for EA processes.

These important departmental and agency health roles extend beyond individual project environmental assessments and must include all policies, plans and programs. The *Federal Sustainable Development Act* was passed in 2008. It requires development of a Federal Sustainable Development Strategy (FSDS) every three years. The purpose is to make environmental decision making more transparent and accountable across all 26 departments and agencies required to contribute. As part of this process, the 2010 FSDS committed to strengthen the action of strategic environmental assessments under the 1999 Cabinet Directive to conduct strategic environmental assessments of all policies, plans and programs.

The Commissioner of the Environment and Sustainable Development (CESD, 2015), in auditing departmental application of the 1999 Cabinet Directive for Strategic Environmental Assessments, found that, in those departments audited:

"...ministers were not provided with information about potential important environmental effects for the majority of the proposals submitted to them."

The same audit also concluded that adequate reporting was not provided:

"...on the extent and result of their strategic environmental assessment practices as required by the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals and its related guidelines."

This suggests that ministers do not have the necessary information on important environmental effects of the decisions they are making. It also compromises the integrity, transparency and accountability of federal decision making. These are decisions that affect the health of all Canadians. A health framework can provide the foundation for consistent, reliable, adaptable and collaborative reporting across all departments and agencies aligned with both the Cabinet Directive and FSDS.

# Health impacts of a project are poorly understood prior to their development

The uncertainty principle states that the process of measuring a state invariably modifies characteristics of that state. This is well known in the health community. Measuring community health often directs attention to important health matters, and raises awareness and builds support within a community to improve health outcomes.

Baseline health and community well-being data are at best ad hoc and poorly understood in EA processes. Once a proposal has been made - long before any decisions are made - the health and well-being of a community is affected. This approach has and will continue to have profound health impacts. Without understanding the baseline health status of communities prior to a proposal, it is impossible to accurately measure effects and impacts of a (set of) development proposal(s).

Proponents promote proposals on their perceived merits. If a community does not understand its health status, inaccurate statements, claims, projections and predicted outcomes are possible. This has led to problems of scientific distortion and economic manipulation, widespread concerns with transparency and accountability, apathy and mistrust of EA processes, and inadequate participation formats that do not serve the public's interest. These all contribute to less than optimal and often adverse health outcomes.

Understanding and evaluating health and community health and well-being prior to development proposals has consistently demonstrated:

- 1. strengthened community knowledge and understandings of community health and well-being;
- 2. increased cooperation and trust in the development process;
- accurate measurement of changes and the design and implementation of effective follow-up; and
- 4. improved overall health and community well-being and health outcomes.

Given the importance of health and community well-being in development processes, their importance as Canadian values, the cross-cutting nature of health and the role of all departments in supporting healthy policies, plans and programs, the immense 'cost' savings from accurately understanding potential health outcomes of development proposals, and increased knowledge, trust, follow-up and healthy outcomes from advanced understandings of community well-being, health should be central to the tools and resources of EA processes.

Which raises the obvious question: why is human health not *the* key consideration in the impact assessment process?

# **INTEGRATED HIA WITHIN EA PROCESSES**

The Canadian Handbook on Health Impact Assessment (Health Canada, 1999) clearly articulates the need to integrate environmental impact assessment, with social impact assessment and human health impact assessment. The Canadian Handbook on HIA (approved by all 10 provinces, the two existing territories at the time, and the federal government by the respective departments of environment, labour and health) uses the broad determinants of health approach as outlined in the Federal, Provincial and Territorial Advisory Committee on Population Health 1994 report - Strategies for Population Health: Investing in the Health of Canadians (FPT, 1994). The federal departments of the environment and of labour and the provincial ministries of the environment and of labour approved the holistic approach of

HIA within an EIA process. Implementation at the federal and provincial/territorial levels, however, varies considerably with time and location.

A Health Impact Assessment (HIA) estimates in advance health consequences which may result from specific policy actions or development projects. These include the health consequences to a human population of any public or private actions that alter "the extent to which an individual or group is able, on the one hand to realize aspirations and to satisfy needs, and on the other to change or cope with the environment (WHO, 1984). Health impacts include any changes to the determinants of health (Rattle & Kwiatkowski, 1999). In 2012, the Canadian Medical Association passed the following resolution at its General Council, "The Canadian Medical Association supports a comprehensive federal environmental review process, including health impact studies, for all industrial projects. (DM 5-29)" (CMA, 2012). Similarly, in its discussion document on the ecological determinants of health, the Canadian Public Health Association (2015) proposed applying "comprehensive impact assessments that address the ecological, social, health and economic impacts of all major public policies and private sector developments."

HIA has been defined as a combination of procedures, methods and tools that systematically judges in advance the potential, and sometimes unintended, effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population (WHO, 1999). HIA identifies appropriate actions to manage those impacts. HIA is constructed on the key pillars of ethical use of evidence, democracy, equity, sustainable development and a comprehensive approach to health.

But we cannot expect HIA applied at the project level alone to result in the sort of decisions that accommodate complexity and the cumulative impacts from a myriad of policies and projects.

To develop robust EA processes that constructively reflect this environment transparently, fairly and effectively, EA decision making processes must also function upstream and include HIA across all policy, programme and project levels. The Standing Senate Committee on Social Affairs, Science and Technology Final Report of Senate Subcommittee on Population Health June 2009 agrees. In the report, the Subcommittee recommended:

"That the Government of Canada require Health Impact Assessment (HIA) to be conducted for any policy, plan or program proposal submitted to Cabinet that is likely to have important consequences on health; That the Privy Council, in collaboration with Health Canada, develop guidelines for implementing the Cabinet directive on HIA; That the HIA guidelines be developed using existing material; That the Government of Canada encourage the use of HIA in all provinces and territories."

We agree with the Senate Subcommittee recommendations and encourage the immediate development of guidelines/legislation for implementing the Cabinet Directive on HIA, and motivating the use of HIA in all provinces and territories.

# RECOMMENDATIONS

Health must be considered comprehensively. The health community has developed resources to understand and assess health impacts. Health already performs a key implicit role in environmental assessment processes. We call on the federal government to make that role explicit by integrating Health Impact Assessment as a core part of the EA processes. Such impacts need to include 'cradle to grave' impacts of a project and cumulative impacts that may accrue across future generations.

Canada has a long history of environmental assessment leadership. We call on the federal government to take the next bold steps and clearly place the well-being of people and communities at the heart of the federal environmental assessment processes.

**Health professionals call for the integration of HIA in all federal environmental assessment processes** We therefore call on the federal government to incorporate the following suggestions to rebuild the trust in and to establish open, fair, transparent and robust federal EA processes that include the environment, social factors and the economy in development activities:

- 1. Integrate Health Impact Assessment as a core component of federal EA processes.
- 2. Develop and employ a **robust HIA framework** that:
  - a. positions democracy, ethical use of evidence, a holistic approach to health, sustainable development and equity as key pillars;
  - b. incorporates a determinants of health approach as central features of an EA within an ecosystem health framework, and includes consideration of greenhouse gas emissions;
  - c. integrates a highly empowering participatory process;
  - d. supports and advances existing best practices, includes the assessment of cumulative and multi-generational impacts, and provides a consistent yet flexible process and set of guidelines;
  - e. recognizes the value and importance of a diversity and different forms of information and knowledge;
  - f. maintains transparency, accountability and effective and accountable follow-up (including timelines, detailed plans, responsible actors and enforcement mechanisms);
  - g. is adequately developed with the engagement of key players, experts, and other stakeholders including Indigenous communities and provides for an adaptable set of guidelines.
- 3. Require the **establishment of baseline health and community well-being data** prior to any development proposal being made. This moves the needle beyond consultation and engagement to that which the next generation EA processes will need to achieve: empowerment for individuals and communities. Done well, this can be a key enabler of democracy. Effective HIA builds such practices into its process.
- 4. Meaningfully engage and empower stakeholders and rights holders **early** in the EA process, including in the screening and scoping stages.
- Establish Health Canada, the Public Health Agency of Canada, Employment and Social Development Canada and Environment and Climate Change Canada as central decision-makers in the EA process.
- 6. Integrate **HIA into the cabinet directive for strategic environmental assessments** of policies, plans and programs, **legislate** the process, and **encourage** HIA at provincial/territorial and municipal levels by actively working with the requisite partners
- 7. Expand the application of EA processes to include **all development proposals**, including those in which the government must exercise its powers, along with private sector proposals.
- 8. Where there are considerable and reasonable scientific uncertainties with potential for serious present or future harm, the UNESCO 2005 definition of the **precautionary principle** will be used to inform the discussion.

## REFERENCES

Bennett, Carolyn (2011). <u>Health vs. Health Care: Knowing the Difference, Fighting for Both</u>. Huffington Post, August 19, 2011.

Braveman, P., & Gruskin, S. (2003). Defining Equity in Health. *J Epidemiol Community Health*, 57, 254-58.

Canada (2010). Strategic Environmental Assessment: The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals: Guidelines for Implementing the Cabinet Directive, 2010.

Canadian Medical Association (2012). <u>Resolutions Adopted, 145th Annual Meeting of the Canadian</u> <u>Medical Association</u>, Aug. 13-15, 2012, Yellowknife, NWT.

Canadian Public Health Association (CPHA) 1997. <u>Health Impacts of Social and Economic Conditions:</u> <u>Implications for Public Policy</u>, March 1997.

Canadian Public Health Association (2015). <u>Global Change and Public Health: Addressing the Ecological</u> <u>Determinants of Health: Discussion Document</u>. Ottawa: Canadian Public Health Association.

Commissioner of the Environment and Sustainable Development (2015). Departmental Progress Implementing Sustainable Development Strategies. Report 3, Fall 2015.

Federal, Provincial, Territorial Committee on Environmental and Occupational Health Task Force (1997). Draft Canadian Health Impact Assessment Guide Volume 1: The Beginners Guide, May, 1997.

Federal, Provincial, Territorial Advisory Committee on Population Health (1994). Strategies for Population Health: Investing in the Health of Canadians for the Meeting of the Ministers of Health, Minister of Supply and Services Canada, Halifax, Nova Scotia, September 14-15, 1994.

Hancock, T. <u>Population health promotion 2.0: An eco-social approach to public health in the</u> <u>Anthropocene</u>. *Can J Public Health*. 2015 Jul 8;106(4):e252-55. doi: 10.17269/cjph.106.5161.

Hancock, T., Spady, D.W., Soskolne C.L. (2015). <u>Global Change and Public Health: Addressing the</u> <u>Ecological Determinants of Health: The Report in Brief</u>. Ottawa: Canadian Public Health Association.

Mikkonen, J., & Raphael, D. (2010). <u>Social Determinants of Health: The Canadian Facts</u>. Toronto: York University School of Health Policy and Management.

Raphael, Dennis (2010). Health and Illness. About Canada Series, Fernwood Publishing, Winnipeg.

Rattle, Robert and Kwiatkowski, Roy E., 1999. The Need for SIA/HIA Harmonization within EIA. Presented at the International Association for Impact Assessment Conference, Glasgow, June, 1999.

<u>Rio Declaration on the Social Determinants of Health</u> (2011). World Conference on the Social Determinants of Health, Rio de Janeiro, Brazil.

Standing Senate Committee on Social Affairs, Science and Technology Final Report of Senate Subcommittee on Population Health (2009). <u>A Healthy Productive Canada: A Determinant of Health</u> <u>Approach</u>. The Standing Senate Committee on Social Affairs, Science and Technology Final Report of Senate Subcommittee on Population Health June 2009, Recommendation 9.

World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) (2005). <u>The</u> <u>Precautionary Principle</u>. Paris, France: United Nations Educational, Scientific and Cultural Organization.

Whitmee S, Haines A, Beyrer C, Boltz F, Capon AG, de Souza Dias BF, Ezeh A, et al. <u>Safeguarding human</u> <u>health in the Anthropocene Epoch: report of The Rockefeller Foundation-Lancet Commission on</u> <u>planetary health</u>. *Lancet* 2015 386:1973-2028. doi: 10.1016/S0140-6736(15)60901-1.

WHO Commission on Social Determinants of Health & World Health Organization (2008). <u>Closing the gap</u> <u>in a generation: Health equity through action on the social determinants of health</u>. Commission on Social Determinants of Health Final Report. Geneva, Switzerland: World Health Organization, Commission on Social Determinants of Health.

World Health Organization (WHO) 1967. The Constitution of the World Health Organization, World Health Organization Chronicles 1:29.

World Health Organization (WHO) 1991. Commission on Health and Environment.

World Health Organization (WHO) 1984. Health Promotion: A Discussion Paper on the Concept and Principles. World Health Organization Regional Office for Europe, Cophenhagen, Denmark.

World Health Organisation (1999). Gothenburg consensus paper, December 1999. Health Impact Assessment: Main Concepts and Suggested Approach

World Health Organization (WHO) 2016. <u>WHO Director-General Keynote address at the Human Rights</u> <u>Council panel discussion on climate change and the right to health</u>.

## **SIGNATORIES**

Organizations In alphabetical order by organization name Sherri Cleaves, BSC, CIC, Chief Building Officer Part VIII Algoma Public Health Isabelle Samson, Présidente Association des spécialistes en médecine préventive du Québec Vanessa Foran Asthma Society of Canada Kerri Klein, MA, BSc **BC Healthy Communities Society** Louise Schoenherr, BA, BED **Breast Cancer Action Manitoba** Kim Perrotta, MHSc Canadian Association of Physicians for the Environment Linda Varrangu, Meng Canadian Coalition for Green Health Care Kathleen Cooper Canadian Environmental Law Association Kelly Lau Canadian Federation of Medical Students Sarah Silverberg, BArtsSc **Canadian Federation of Medical Students** Ian Culbert, BA Canadian Public Health Association Karen Robinson Canadians for A Safe Learning Environment **Chris Ortenburger** Citizens' Alliance of Prince Edward Island lan Simpson, MA, MB, BChir, FCFP Coalition for Alternatives to Pesticides CAP-NL **Robert Rattle** Crane Institute for Sustainability Reena Shadaan Endocrine Disruptors Action Group (EDAction)

Margaret Friesen, MSc Environmental Health Association of Manitoba

Linda Pillsworth and Robert Parker, MD, MHSc, FRCP-Public Health and Preventative Medicine First Nations Health Authority

Jim Elliott, BSc, BLT Health Caucus, Canadian Environmental Network

Monica Campbell, PhD; Assistant Professor (Status Appointment), University of Toronto Health Public Policy Directorate, Toronto Public Health

David Daughton Healthy Community Partners

Patricia Running-Horan Healthy Lawns-Healthy People

Susan Hughes, BA, Med HealthyYEG

Peter Heywood, Certified Public Health Inspector, Chief Building Official, BASc, MPA Oxford County Public Health & Emergency Services

Suzanne Crellin Oxford Environmental Action Committee

Jiselle Bakker PEI Blue Dot Committee for the Right to a Healthy Environment

Meg Sears, PhD Prevent Cancer Now

Paola Ardiles Public Health Association of BC

Leah Salvage Public Health Physicians of Canada

Lulu Cohen- Farnell Real Food for Real Kids Doris Grinspun, RN, MSN, PhD, LLD(hon), O.ONT Registered Nurses' Association of Ontario

Wanda Martin, RN, PhD Saskatchewan Public Health Association

Andrew Michrowski, Dott.Arch. The Planetary Association for Clean Energy, Inc. Carlisle Kent, MREM WHEN (Women's Healthy Environments Network)

#### Individuals

In alphabetical order by last name

Paivi Abernethy, PhD, Mres, MSc	Colin Bullock, MD, CCFP
Ewan Affleck	Emma Burns, MD, FRCPC
Mark Ansara, BSc	Christine Callihoo, MSc
Mary-Wynne Ashford, MD, PhD	Megan Carter, PhD, MSc
Farah Aslani, MA	Leo Cheverie
Laura Atikessé	Cara-Lee Coghill, RN, MScN
Scott Babin, BA (Hon) Science and Technology Studies	Benita Cohen, BA, BN, MSc, PhD
	Donald Cole, MD, MSC, FRCPC
Kathy Backway	Fanny Côté
Larry Barzelai, MD; Assistant Professor, University of British Columbia	Lauren Crickmore, Bachelor Environmental Policy (Hon)
Melanie Bechard	Anurag Dalai, Medical student
Warren Bell, MD; Rural Preceptor, University of Northern British Columbia	Gordon Dalzell, BA, BSW, RSW
Mike Benusic, MD, CCFP	Janet Dickhout, MD, CCFP
Bonnie Hamilton Bogart, BN, Med	Robert C. Dickson, BPE, MD, CCFP, FCFP
Yv Bonnier Viger, MD, MSc, MM, FRCPC	Larry Dobson, BA, BSc, MD, CCFP
Gary Bota, MD, FRCPC; Associate Professor &	Mitra Doherty, MD
Section Chair Emergency Medicine, Northern Ontario School of Medicine	Julie Ducrocq, DMV, MSc
	Carl Duivenvoorden
Roberta Bradley	Graeme Duncan, MD, FRCPC
Michael Brauer, ScD	Elizabeth Fedorkow
Vanessa Brcic, MD CCFP CGIMS; Clinical Assistant Professor, University of British	Raquel Feroe, MD
Columbia	Erica Fischer, MD
Angela Brooks-Wilson, PhD; Professor	Karen Forbes
James Brophy, PhD	

- Erica Frank, MD, MPH; Professor and Canada Research Chair in Preventive Medicine and Population Health, University of British Columbia
- Ken Froese, PhD, PChem

Lindsay Galway, PhD

Sarah Gander, MD, FRCPC, Med

Subhas Ganguli, MD, Msc

Shelagh K Genuis, PhD

Mark Gibson, BA (Hons), MSc, PhD

Luisa Giles, PhD

Sarah Giles, MD, CCFP(EM), DTM&H

Geneviève Guérin

Trevor Hancock, BSc, MB BS, MHSc; Professor and Senior Scholar, School of Public Health, University of Victoria

Fiona Hanley, RN, MSc

Tess Healy, PhD

Anne Hill, MPsy

Deena Hinshaw, BSc, MD, MPH, FRCPC

Robert Hogg

James Horsley, Ryerson University

John Howard, Professor Emeritus, Schulich Faculty of Medicine; Founder of Ecosystem Health Program

Courtney Howard, MD, CCFP-EM

Kristina Hunter, Senior Instructor, Environment and Health

Brian Hutchison, Professor Emeritus, Departments of Family Medicine and Clinical Epidemiology and Biostatistics, McMaster University

Debije Jules, RN, BScN, MN, MA, IBCLC

Debra Kaden, PhD

Margaret Keith, PhD

Kapil Khatter, MD

Marilyn King, BScN, MPH

Katherine Kohle, MD CCFP

Gabrielle Kretzschmar, Community Health Advocate

Kirsten Kukula, BScH, MD Candidate

Isabelle Lachance, DVM, IPSAV, MSc (Veterinary Public Health)

Christine Landry, Maitrise en gestion de l'environnement

Curtis Lavoie, MD, CCFP (EM)

Adele LeBlanc, RN

Tang Lee, Professor of Architecture

Victoria Lee

Mélanie Lemire, PhD

Charles Levkoe, PhD, Canada Research Chair in Sustainable Food Systems

Joel Lexchin, MD

Amy Lubik, PhD

David Lutterman

Michael MacGillivary, Clinical Clerk, Medical School

Melanie Madore

Mary Magee, BA

Naila Makhani, MD, MPH

Lynn Marshall, MD, FAAEM, MCFP LM

Patricia Martz, BSc Nutrition, RD, MSc Health Policy Research

Donald Mazer, PhD ClinPsych

Sally McBride, MPH

Sheryl McCumsey, MMT; RMT

Michael McFadden, Commissioned Officer (retired), Canadian Armed Forces

Jennifer Ann McGetrick, MSc, PhD student

Margaret McGregor, MD, MHSc; Clinical Associate Professor

Laura McLeod, MD, FRCPC; Clinical Associate Professor, University of Calgary Helle Møller, PhD; Associate Professor

Kimberly Munro

Cordell Neudorf, BSc, MD, MHSc, FRCPC; Chief Medical Health Officer, Saskatoon Health Region; Associate Professor, University of Saskatchewan

John O'Connor, MB BCh BAO

Tor Oiamo, BA (Hons), BSc (Hons), PhD, Western (Can); Assistant Professor

Isioma-Nathan Okonta

Catherine Oliver, MD

Elizabeth Oliver-Malone, MD(5T7) FRCPC Anes

Christopher Ollson, PhD

Jocelyn Orb, BSN

James Orbinski, OC, MSC, Bsc, MD, MA, MCFP; Professor & CIGI Research Chair n Global Health, Balsillie School of International Affairs; Professor, School of International Policy and Governance, Wilfrid Laurier University; Professor, Dalla Lana School of Public Health, Un

Christin Ortenburger, DVM

Peter Orth, BSc, MSc, MD

Alvaro Osornio Vargas, MD, MSc, PhD; Professor

Margot Parkes, MBChB, PhD

Rupa Patel, MD

AnneMarie Pegg, BScN, MD, MSc (candidate), CCFP(EM)

Thomas Perry, MD; Clinical Assistant Professor, Faculty of Medicine, University of British Columbia

Nicholas Pimlott, MD, CCFP, FCFP

Dolors Planas, Emeritus professor

Mark Polle, MD, CCFP; Assistant Professor, Northern Ontario School of Medicine

Debbie Pollock, MD

Rebecca Psutka, MD, MSc, BSc

Daniel Rainham, PhD (Population Health Science)

Danyaal Raza, MD, MPH, CCFP; Assistant Professor, Dept. of Family & Community Medicine, University of Toronto

Ronda Reach

Andrew Read, BSc ChemEng

Theresa Repaso-Subang, Board Certified Toxicologist, American Board of Toxicology (DABT); European Registered Toxicologist (ERT), United Kingdom Registry of Toxicologists

Elizabeth Robinson, MD, FRCPC

Alan Ruddiman, MB BCh (Wits); LMCC (Canada); Dip PEMP (SFU); Fellowship in Rural & Remote Medicine (SRPC - Canada)

Michelle Sandsmark, MPH

Susan Schellenberg

Mark Scott, MD

Jamie Scott, MD, PhD; Canada Research Chair in Molecular Immunity

Carl Severson

Cecilia Sierra Heredia, PhD Candidate

Manon Simard, MSc es Sciences

Sarah Skinner, BA (Env Studies; minor in Global & Dev Studies)

Harold Smith, BArch, MBA

Barry Smith, MD

Isaac Sobol, MD, CCFP, MHSc

Donald Spady, MD, MSc, FRCP(C); Adjunct Professor of Pediatrics, University of Alberta

Christopher Stewart, MD

Troy Stooke, MEDes (Environmental Science); BSW

Anna Stratis, MD

Ellen Sweeney, PhD

Tim K Takaro, MD, MPH, MS; Professor of Health Sciences
Yassen Tcholakov, MD; University of Montrea, MIH Copenhagen University
Willow Thickson, Medical Student
Shirley Thompson, PhD
Cathy Vaillancourt, PhD; Professor
Cathy Vakil, MD
Scott Venners, PhD, MPH; Associate Professor of Health Sciences
Joe Vipond, MD; Clinical Lecturer
Ingrid Waldron, PhD
Tandi Wilkinson
Louise Winn, PhD
Sharon Yanicki, PhD, RN

Margaret Yole, BSc (biol), DVM, MSc/PhD (tox)