



LEARNING DISABILITIES ASSOCIATION OF CANADA
TROUBLES D'APPRENTISSAGE - ASSOCIATION CANADIENNE

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To the Standing Committee on Environment and Sustainable Development
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This submission is directed to the Committee's discussions concerning **protecting vulnerable populations**, especially with regard to infants and children, under revisions to CEPA.

The Learning Disabilities Association of Canada (LDAC) has been represented on environmental health issues with government Departments, NGOS and industry for more than twenty years. I have prepared four submissions to committees studying CEPA since 1988. Currently I am a volunteer member of the Professional Advisory Committee of the Learning Disabilities Association of Canada (LDAC), which is a national voluntary organization with affiliates in all ten provinces and two of three Territories. LDAC is a founding-member organization of the Canadian Partnership on Children's Health and the Environment. I apologize for being unable to attend this October 26th meeting and discussion in person, but hope that these comments will be helpful in your deliberations. .

Recommendation: Include in CEPA specific reference to the increased susceptibility of infants and children to toxic effects from prenatal and/or later exposures.

The causes of up to 70% of birth defects (congenital anomalies) are unknown, but are considered to be multifactorial in origin – due to a combination of genetic and environmental factors. Defects that are apparent at birth, or soon after, affect an estimated 7% of births, and this figure doubles if later-recognized deficits are included¹. Health Canada reports that 2-3% of babies in Canada are born with a serious congenital anomaly, however these numbers do not include pregnancy terminations from prenatal diagnosis of birth defects². A U.S. General Accounting Office report states that several hundred toxicants have been found to produce adverse reproductive effects in

¹ National Center for Toxicological Research.) NCTR Research Accomplishments and Plans 1996-1997. Jefferson AR.

² Health Canada. Congenital Anomalies in Canada – A Perinatal Health report,

one or more experimental animal models³. The US National Academy of Sciences estimated that 3% of neurobehavioural disorders are caused directly by toxic environmental exposures, and that another 25% are caused by interactions between environmental factors (defined broadly), and genetic susceptibility of individual children⁴.

Prenatal exposures to toxicants (teratogens) may result in pregnancy loss, low birth weight, pre-term delivery, birth defects (usually considered as malformations or structural defects), and functional defects of organ systems, which may not become apparent until later in development. Prenatal alcohol abuse is an example of a teratogenic exposure that produces both structural (facial) abnormalities and functional (intellectual and behavioural) abnormalities in offspring that have severe consequences over a lifetime.

There is evidence the prevalence of Attention deficit/Hyperactivity Disorder (ADHD)⁵ and learning disabilities⁶ are increasing in recent decades. The National Longitudinal Survey of Children and Youth found that a staggering number - one in three Canadian children (32%) - suffers from cognitive &/or behavioural problems⁷. A report in the Journal of the American Medical Association (2000) noted that the number of children prescribed psychotropic drugs increased by a factor of three between 1990 and 1995. Between 1990 and 1995 Health Canada data found an increase in the quantities of methylphenidate (Ritalin) prescribed increased by a factor of 3-4. The drug-tracking firm, IMS Canada reported another 55% increase in prescriptions for Ritalin between 1996 and 2001. The role of toxic chemicals in the etiologies of these disorders which has been largely ignored, though the evidence from both experimental animal and clinical research from the few neurotoxic chemicals that have been studied to date is compelling^{8 9}.

³ U.S. General Accounting Office. (1991) Reproductive and developmental toxicants: Regulatory actions provide uncertain protection. GAO/PEMD - 92-3. Washington, DC: U.S. Government Printing Office.

⁴ National Academy of Sciences Committee on Developmental Toxicology: Scientific Frontiers in Developmental Toxicology and Risk Assessment. (2000) Washington DC National Academy Press.

⁵ Rowland AS, Umbach DM, Stalone L, Naftel AJ, et al. Prevalence of medication treatment for attention-deficit hyperactivity disorder among elementary school children in Johnson County, North Carolina. *American Journal of Public Health* 2002, 92 (2) 231-4.

⁶ Center for Learning Disabilities. Students with learning disabilities: A national review. Annual Report to Congress, 2001.

⁷ Vulnerable Children: Findings from Canada's national Longitudinal Survey of Children and youth. Wilms JD (ED)

⁸ Schroeder SJ. Mental Retardation and Developmental Disabilities Influenced by Environmental Neurotoxic Insults. *Environmental Health Perspectives* 108 (S3) June 2000.

⁹ Goldman LR, Koduru S. Chemicals in the Environment and Developmental Toxicity to Children: A Public Health and Policy Perspective. *Environmental Health Perspectives* 108 (S3) 2000.

Explicit recognition of children as a sensitive group should be included in the language of the revised CEPA. This language is part of the revised Pest Control Products Act (given Royal Assent in 2002), as follows: “In assessing risks to humans, consideration be given to aggregate exposure to pest control products [from a range of exposure sources], cumulative effects of pest control products [from several PCPs with similar modes of action in one medium], *and the different sensitivities to [toxic substances] of major identifiable subgroups, including pregnant women, infants, children, women and seniors*”.

Including in CEPA measures in safety evaluations to protect children

A research report from the University of Ottawa for Health Canada this year recommended that children should be placed in the center of the risk assessment process¹⁰. Following on similar findings by the National Academy of Sciences in 1995 on the need to improve developmental and reproductive toxicity testing, in 1997 the Environmental Defense Fund reported that 75 % of high volume chemicals lack even the most basic toxicity data – information about their potential to produce health effects¹¹. About 80,000 chemicals are in commerce in the United States and about 30,000 in Canada. To some extent, children could be said to be regulatory orphans. Developmental toxicity data to protect children is absent for 78.2% of high volume chemicals, and only twenty-two have been tested to date for their potential to affect brain development and function¹².

The importance of requiring toxicity testing to protect prenatal development, infants and children from the potential of chemicals to affect development and neurodevelopment has been demonstrated in reports and research worldwide. Unfortunately, under provisions of CEPA 99, there is no requirement for developmental data for even the highest production volume chemicals under the New Substances Notification (Chemicals and Polymers) Regulations (October 2004).

In 1993 the US Congress mandated the Food Quality Protection Act as precautionary legislation to protect children. It requires **an additional** 10-fold safety factor to be applied in the risk assessment process for food-use pesticides lacking toxicity or exposure data relevant to children.

¹⁰ Krewski D, Benedickson J, Tyshenko M, Turner M c, Craig, L, Armstrong V, Harrison J, Wigle D. Health Policy Approaches to Children’s Environmental Health. May 31, 2006. Project #6795-15-2004/6450003.

¹¹ Roe D, Pease, W, Silbergeld E. (1997) Toxic Ignorance: The continuing absence of Basic Health Testing for Top-Selling Chemicals in the United States. Environmental Defense Fund, pp 28.

¹² US Environmental Protection Agency, Chemical Hazard Data Availability Study, available at: <http://www.epa.gov/opptintr/chemtest/hazchem.pdf>

USEPA scientists have publicly faulted the Agency for approving uses of pesticides without using the additional 10X safety factor when developmental neurotoxicity data are missing for classes of pesticides known to be neurotoxic¹³. The letter reads “The prevailing belief among [risk] managers in the pesticides and toxics program is that regulatory decisions should only be made after reaching full consensus with the regulated pesticide and chemicals industry” and “Risk assessments cannot state with confidence the degree to which any exposure of a fetus, infant or child to a pesticide will or will not adversely affect their neurological development” the same could be said for the many chemicals that have a potential to affect the nervous system.

Recommendation: CEPA should mandate the requirement of developmental and reproductive toxicity test data, and exposure data particular to children, for substances reviewed on the NDSL and the DSL. If these data are not available, the application of an additional safety factor should be mandated in health risk assessments to protect the health and development of children.

Recommendation : Under Section 74 the health endpoints of concern in the health screening assessments of substances being categorized for hazard under the DSL program should be listed, e.g. carcinogenicity, reproductive toxicity, neurotoxicity, developmental toxicity, immunotoxicity and developmental neurotoxicity (DNT), with consideration of substances that have known effects on hormonal systems that guide development. OECD and US EPA toxicity test guidelines exist for both DNT and immunotoxicity endpoints.

The costs of illness in children attributable to environmental exposures are very high.

To underline the importance to human health of preventing environmental exposures, the following is a quote from the executive summary of a report from the Global Development and Environment Institute of Tufts University: The costs of preventable childhood illness: The price we pay for Pollution¹⁴.

A growing body of scientific literature implicates toxic exposures in childhood illnesses and developmental disorders. When these illnesses and disabilities result from environmental factors

¹³ Public Employees for Environmental Responsibility (May 25 2006). USEPA Scientists protest pending pesticide approvals.

¹⁴ Massey R. & Ackerman F. (2002) Costs of environmental illness: The price we pay for pollution. The Global Development and Environment Institute, Tufts University.

under human control, they can and should be prevented. This is not only a moral issue, concerning our responsibility to avoid doing harm. As important as the moral dimension may be, it is reinforced by the hard facts of economics. Preventable childhood illnesses and disabilities attributable to environmental factors impose staggering costs on society; plausible estimates for just a subset of these costs range up to \$1.6 billion annually in the state of Massachusetts.

A similar economic analysis was conducted in Washington State – finding that the costs of childhood illnesses and developmental disorders attributable to environmental exposures conservatively at 1.6 - 2.2 billion US dollars a year for that state alone¹⁵. Other health economists have estimated the total national costs of the attributable fraction of four health and developmental conditions in children at \$ 55 billion a year to the US economy¹⁶. These costs could be extrapolated to account for the smaller Canadian population to around \$ 5.5 billion in increased child health and special education costs to the Canadian economy each year. Muir and Zegarac¹⁷ estimated the annual costs to Canada of a loss of 5 IQ points to losses in total income at \$30 billion annually – this is not counting other costs associated with neurodevelopmental effects that have been linked to environmental exposures, such as attentional disorders...

Health and productivity are the cornerstones of a successful nation. However apart from the economic costs of failing to deal with environmental chemicals that affect health and development, there is a moral and ethical issue around health protection that calls for action under CEPA.. It is unacceptable that there exists an environmental trespass of environmental chemicals in human tissues - found in all Canadians tested to date, and that we know so little about their potential to affect development, or the immune system.

¹⁵ Davies Kate (2005) How much do environmental diseases and disabilities cost? Monograph, Northwest Public Health, Fall/Winter.

¹⁶ Landrigan P, Schecter C, Lipton J. et al, (2002) Environmental pollutants and disease in American children: Estimates of morbidity and mortality and costs for lead poisoning, asthma, cancer and developmental disabilities. Environmental Health Perspectives 110; 721-728.

¹⁷ Muir T. & Zegarac M. (2001) Societal costs of exposure to toxic substances: Environmental and health costs of four case studies that are candidates for environmental causation. Environmental Health Perspectives, 109(suppl. 6):885-903.