Commission for Environmental Cooperation of North America

Response to Comments from the Experts' Written Review of the Draft Report on Indicators of Children's Health and the Environment in North America

Draft, 19 June 2005

1 Introduction

The Commission for Environmental Cooperation (CEC) of North America is leading a collaborative effort among the governments of Canada, Mexico and the United States; the International Joint Commission's Health Professionals Task Force (IJC HPTF); the Pan American Health Organization (PAHO); and the World Health Organization (WHO) to develop a first report on indicators of children's heath and the environment in North America. The report, entitled *Children's Health and the Environment in North America: A First Report on Available Indicators and Measures,* will be released for public comment in summer 2005, with final publication slated for November 2005. In addition to being a first for the region, the report will mark North America's contribution to the Global Initiative on Children's Environmental Health Indicators launched at the World Summit for Sustainable Development (Johannesburg, 2002) and led by WHO.

As an integral part of the report development process, a panel of nine independent experts, three nominated by each country, was convened to review an initial and a subsequent draft of the report (see Annex 1 for the list of experts). The first review took place at a two-day meeting in Ottawa in March 2004. Based on feedback received from the experts during that meeting, a revised draft was prepared and circulated to the experts for a second, written review in December 2004/January 2005. Eight of the nine experts provided written comments on the revised draft report. The Steering Group for the project, comprising health and environmental officials from the three governments as well as representatives of the CEC, IJC, PAHO and WHO, carefully reviewed each of the suggestions made by the experts. Nearly all were incorporated into the subsequent draft.

The purpose of this paper is to summarize the suggestions for substantive changes provided by the experts that the Steering Group decided *not* to incorporate into the document. For each point, a description of the Steering Group's rationale for not making the change is provided. As noted above, all other suggested changes are reflected in the current version of the report.

The comments pertain to Volume I of the report, the "North American Overview." The comments that were received on Volume II (containing the more-detailed, country-specific reports) have been addressed by the lead Steering Group member from each country.

The Steering Group, on behalf of the three governments and the four partner institutions, wishes to thank the experts very sincerely for their invaluable contributions to this report.

2 Response to Expert Comments Not Reflected in the Current Report

The following paragraphs summarize those suggestions made by the experts that were not taken on board by the Steering Group in its revision of the draft report. A brief summary of each comment is provided, along with the name of the commenter, followed by the Steering Group's rationale for not making the suggested change.

2.1 Executive Summary

2.1.1 Teresa To suggested that the general children's health indicators presented in chapter 1 be described as providing "plausible interpretations of indicators of child health and the environment." The Steering Group decided to retain the original language, which describes these general indicators as providing context for the interpretation of the indicators of child health and the environment that follow in the remainder of the report.

2.1.2 Teresa To suggested that infant mortality rates, leading causes of death and hospitalization be described as "major and significant" health indicators. The Steering Group decided not to add these qualifiers, in light of their overarching decision to avoid using qualitative and evaluative language in the report. For the same reason, her suggestion to describe the proportion of children living in poverty in the three countries as "significant" was also not taken.

2.1.3 Teresa To made a number of suggested additions regarding the state of knowledge about the known links between poor air quality and asthma exacerbation, and about the proinflammatory effects and airway remodelling that studies have suggested are linked to environmental exposures such as smoking and poor air quality. The Steering Group felt that this would be too much detail for the Executive Summary, but added the information to Section 3.3. Ms To also suggested that the following sentence be added in the Executive Summary and a similar sentence be added to Chapter 3 on Asthma and Respiratory Disease: "In addition, early and progressive lung damage can be present as early as age 9, slowly progressing from a reversible to a less reversible state." The Steering Group elected not to insert this sentence here or in Chapter 3, as it could not be substantiated by governmental or intergovernmental references.

2.1.4 Don Wigle suggested modifying a sentence to read (suggested additions are in **bold**): "The **fetus or child** may be more vulnerable to potential health effects from pesticides due to their unique susceptibilities **(especially the growth and development of body systems),** higher intake as a result of their dietary habits and **immature detoxification systems**." He referenced a National Academy of Sciences report for these additions. The Steering Group decided to modify the sentence to focus only on infant vulnerabilities, since the NAS report did not specifically refer to the vulnerabilities of the fetus.

2.2 Asthma and Respiratory Disease

2.2.1 Don Wigle suggested that the reference to "immune systems" be deleted from the following sentence: "Because their lungs and their immune systems are not fully developed when exposures may begin it raises concerns that children may respond differently than adults." The Steering Group decided to retain the original language, given that the inclusion of 'immune systems' had been supported through comments provided by another expert.

2.2.2 Teresa To found the use of the percentages in the following statement unclear, and inquired whether they are based on a total Mexican population that is 91 percent rural. "In 1990, one in three Mexicans used firewood/charcoal for cooking, including 91 percent of rural residents and 11 percent of urban residents." This comment is no longer relevant, as the graph to which this bullet pertained has been replaced by a different graph. However, the text was revised in the Mexican country report (Volume II).

2.2.3 Teresa To suggested the following addition (in **bold**) to the following sentence: "Asthma is a chronic inflammatory disease of the lungs that affects millions of children and adults in North America **and worldwide**, and is the most common disease of childhood." The Steering Group decided to accept **"**in North America,**"** but removed the last phrase from that sentence since it is not clear that asthma is the "most common disease in childhood" on a worldwide basis.

2.2.4 For the environmental causal factors for asthma, Don Wigle suggested that the point about outdoor air pollutants be augmented by a parenthetical reference to "(fossil fuel combustion products and derivatives, especially ground-level ozone)". The Steering Group added the phrase "(e.g., ground-level ozone)" but elected not to add the specific reference to fossil fuel combustion products and derivatives since they felt that that was implicit in "ground-level ozone."

2.2.5 In the description of asthma's aggravating factors, there had been a reference to inadequate medical management, which Teresa To suggested be augmented to read (additions in **bold**): "Inadequate or **inappropriate** medical management and **delayed diagnosis**…" The Steering Group had decided to delete the sentence in question, so the suggested comment was no longer relevant.

2.2.6 Don Wigle suggested some additions (in **bold**) and deletions (in ~~strikeout~~) for the following sentence: "~~Some~~ **There is growing** evidence that exposure to dust mite **antigen and** second hand smoke ~~and cockroaches~~ in very young children ~~may contribute to the~~ can cause development of **new-onset** asthma. Other indoor pollutants such as nitrogen dioxide, pesticides, plasticizers and volatile organic compounds have been ~~evaluated for a role in the~~ **linked inconclusively to this** disease." These changes were accepted, but the Steering Group decided to use the less-technical phrase "may play a role" instead of '"linked inconclusively" in the last sentence.

2.2.7 **Teresa To** suggested a number of changes (in **bold**) to the text on children's sensitivities to respiratory effects of air pollution, including that "…**Compared to adults**, children with asthma are **more vulnerable** to the **adverse** respiratory effects **attributable to** air pollution." The Steering Group decided not to make this change, since they could not find an appropriate reference to substantiate it.

2.2.8 Teresa To suggested replacing the statement "The prevalence of asthma in all three countries appears to be stable or increasing" with "All three countries reported **increasing prevalence of asthma.**" The Steering Group decided not to make this change, as increasing prevalence in all three countries could not be substantiated with an appropriate reference.

2.2.9 **Patricia Butterfield also questioned the statement that t**he "…prevalence of asthma in all three countries appears to be stable or increasing." She suggested a clear statement about whether it is stable or increasing. She noted that the temporal data addressing asthma prevalence are complex, but that there is evidence that asthma prevalence has increased in the past 20 years (even though the US rates have remained relatively unchanged for the past few years). Given the complexities, the Steering Group elected to retain the original wording, since increasing prevalence in all three countries could not be substantiated with an appropriate reference.

2.3 Effects of Lead and Other Chemicals Including Pesticides

2.3.1 **Cristina Cortinas de Nava** suggested that with respect to lead and glazed pottery, it may be useful to stress that several initiatives may change the distribution of pottery-making activities, distinguishing between areas where there is still a significant production of pottery glazed with lead oxide at low temperatures and those areas where kilns have been changed to raise the glazing temperature and/or alternative glazing methods have been introduced so that lead oxide is not used. She also suggested noting that for approximately ten years there have been rules banning the use of lead-glazed pottery in food preparation, requiring that this type of pottery be used for decoration only and perforated as needed. She commented that the application of these rules, along with efforts to introduce glazing alternatives and improve kilns, is sure to be an important element in reducing this sort of lead exposure. The Steering Group agreed that this was important information to include, but felt that this contextual detail would be best placed in the Mexican country report in Volume II.

2.3.2 Daniel Goldstein commented that the chart in the US case study on the decline in blood lead levels in response to restrictions on lead in gasoline from 1976–99 is misleading, as it seemingly attributes all of the decline in blood lead levels to the reduction of leaded gasoline, thereby discounting all of the other educational and remediation efforts that were also ongoing. The United States has provided a new graph, thus this concern is no longer relevant.

2.3.3 Regarding the indicator on pollutant release and transfer register (PRTR) data, Daniel Goldstein noted that the explanatory text box implies that PRTR data can only underestimate exposure given that the data do not cover all sources. He suggested pointing out that on-site releases to land or injection may not result in any exposure at all, and that water releases and air releases are not directly related to specific exposure levels although they admittedly provide a route of access to the environment. The Steering Group decided against making a change in response to this comment, because they felt that the issue is sufficiently addressed in the existing text.

2.3.4 Daniel Goldstein commented that the first bullet in the key observations for Canada's chart on PRTR data (total releases, 1998–2001) does not appear to be correct: the on-site releases to air, water and land appear to have decreased, not increased as is stated in the text. The Steering Group did not make a change, since Canada checked the data and confirmed that the text is indeed correct, there has been an increase in each of those parameters from 1998–2001.

2.3.5 Daniel Goldstein suggested that the opportunities for improvement of the PRTR indicators perhaps should include a need for more data regarding actual releases to the environment, the form of the release, etc. The Steering Group decided that a new bullet was not needed, as similar recommendations already exist in the draft text.

2.3.6 Don Wigle commented here, and on the related text in the Executive Summary, that Canada does have data that could be used in addressing the pesticides indicator. He stated that:

> Canada does conduct surveys of pesticide residues in food samples including infant formula; see, for example, W.H. Newsome, J. Doucet, D. Davies, and W.F. Sun, Pesticide residues in the Canadian Market Basket Survey--1992 to 1996, *Food Addit Contam* 17: 847–54 (2000). Abstract: Market basket food samples from six Canadian cities collected from 1992 to 1996 were analysed for pesticide residues. One hundred and thirty-six composites were prepared for each city, representing 99% of the Canadian diet. Residues were found most frequently in peanut butter and butter. DDE, malathion and captan occurred most frequently, while the fungicides chlorothalonil, dicloran and captan were present in the highest concentrations. Processed commodities contained fewer residues and at lower concentrations than the raw products. No residues were detected in either milk or soy-based infant formula. Of the infant foods sampled, fruit contained both the greatest number and highest concentrations of pesticides. …Also, Canada does have some data on breast milk pesticide levels; see, for example, Mes J, Davies DJ, Doucet J, Weber D, McMullen E. 1993. Levels of chlorinated hydrocarbon residues in Canadian human breast milk and their relationship to some characteristics of the donors. *Food Addit Contam* 10(4): 429-41. …Abstract: A total of 412 breast milk samples from women in all provinces of Canada were analysed for polychlorinated biphenyls, eight chlorinated benzenes, 2,3-dichloronaphthalene, Mirex, alpha, beta, gamma and delta hexachlorocyclohexane, alpha and gamma chlordane, oxychlordane, transnonachlor, p,p'-DDT and some analogues, heptachlor epoxide, dieldrin and octachlorostyrene. No delta-hexachlorocyclohexane, heptachlor or aldrin were found in any of the samples, while median levels of the 1,2,4- and 1,3,5-trichlorobenzene, 1,2,3,4- and 1,2,3,5-tetrachlorobenzenes, gamma chlordane, o,p'-DDT and octachlorostyrene were all less than the minimum detectable level (MDL). All other compounds were present at median levels ranging from < 0.1 to 7.2 ng/g whole milk, but did not occur in all samples. Di to tetrachlorobenzenes, except 1,2,4-trichlorobenzene, 2,3-dichloronaphthalene and alpha-chlordane were observed in < 50% of the samples. From 1967 to 1986 a steady decline of hexachlorobenzene, gamma-hexachlorocyclohexane, DDTs, heptachlor epoxide and dieldrin was observed in Canadian breast milk. In addition, a decrease in some chlorinated benzenes, gamma-hexachlorocyclohexane and PCBs was also observed between 1982 and 1986. Levels of oxychlordane and trans-nonachlor remained constant. Canadian breast milk contamination appears to be one of the lowest among the industrialized nations. Regional and provincial differences in residue levels appeared minimal, although more often samples from Quebec and British Columbia had higher levels of some contaminants, such as oxychlordane, than samples from other provinces. No relationship was found between maternal age and residue levels, but some contaminants, such as PCBs, were significantly higher in the milk of

mothers who breastfed their first child as compared to multiparous mothers. Breast milk residue levels were not related to fish consumption.

Since the time that this information was provided, Canada elected to add an indicator on pesticides based on government-held data.

2.3.7 Melanie Marty commented here, and on the related text in the Executive Summary, that since the pesticide residues are usually much lower than the tolerance levels set for them, the percentage of food samples with residues above the tolerance levels should be presented as well [in addition to the detectable residues that are shown in the US chart]. She noted that this would make this indicator more in line with the air pollution indicators where the relevant standards are used as the metric. Upon consultation with the US representatives, the Steering Group decided not to make a change because, unlike the air standards, the pesticide tolerance levels are not health-based.

2.3.8 Regarding one of the opportunities for improvement for the pesticides indicator, Don Wigle suggested that a specific mention be made of the data available in the United States through TESS—the Toxic Exposure Surveillance System—for potential use in the future. The Steering Group decided not to add in this reference, since the US stated that the data are not of good quality, given that it is a voluntary reporting system and is not representative.

2.3.9 Regarding the same statement about the potential future use of data from poison-control centers and emergency clinics for pesticide poisonings, Patricia Butterfield cautioned that such clinics and emergency rooms see only acute cases of pesticide poisoning. Such cases are relatively rare and do not provide a valid indicator of pesticide exposures to children overall. In response to this comment, the Steering Group decided to add a sentence in the introduction to the pesticide section stating that poisonings are acute events and are not an indicator of exposure levels for the general population of children.

2.4 Waterborne Diseases

2.4.1 Cristina Cortinas de Nava commented that, "…in the case of access to drinking water, for example, we know that even where the population has access to piped water, there may be situations not reflected in the selected coverage indicators, such as: (1) The fact that piped-in water is stored in household cisterns or storage tanks, which may not be properly sealed or frequently cleaned. (2) The existence of regions where the piped-in drinking water supply is frequently interrupted (rationing), leading to the risk of contamination; and (3) The common household practice of boiling water or buying bottled water (in cases where the water is not always properly treated), given the mistrust of piped-in water. The Steering Group added text reflecting the first two of the above points to the general introduction to the drinking water section, with some qualifying language indicating that such issues are of particular relevance to parts of Mexico.

2.4.2 Regarding the introduction to the US drinking water indicator, Patricia Butterfield suggested that in addition to noting that exceedences do not necessarily lead to exposures or illness, conversely, it is equally inappropriate to assume that water from municipal systems with no reported violations is completely safe. The Steering Group determined that this comment was no longer relevant, given that this text had since been deleted from the draft.

2.4.3 Regarding the introductory text on giardiasis, Don Wigle suggested that the following additional information be added to elaborate on giardiasis infections: "…caused by the microscopic parasite *Giardia intestinalis*; during the past two decades, giardiasis has been recognized as one of the most common causes of waterborne disease (both drinking and recreational water) in humans." The Steering Group added the first part of the proposed change, but elected not to add the second part.

3 For More Information

If you would like to be added to the distribution list for the release of the revised draft report for public comment, or if you wish to have more information about this initiative, please contact:

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