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From Theory to Action:
Implementing the WSSD Global Initiative on Children’s Environmental Health Indicators
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Foreword

This White Paper provides the basis for putting the Global Initiative on Children’s Environmental Health Indicators (CEHI), launched at the World Summit on Sustainable Development, into practice. This roadmap outlines the operational and technical processes for implementing the development, collection and reporting of indicators at the regional and country level.

We would like to thank all partners for their insightful comments and suggestions to improve this publication and welcome their participation at all stages of the project, from planning through implementation and evaluation. We also extend our gratitude to the United States Environmental Protection Agency (USEPA) for their continued financial support of CEHI.

Partners of the Global Initiative on Children’s Environmental Health Indicators

Governments:
Canada
Italy
Mexico
South Africa
United States of America

Intergovernmental Organizations:
Commission for Environmental Cooperation of North America (CEC)
Organisation for Economic Co-operation and Development (OECD)
United Nations Children’s Fund (UNICEF)
United Nations Environment Programme (UNEP)
World Health Organization (WHO)

Non-governmental Organizations:
International Network on Children’s Health, Environment and Safety (INCHES)
International Society of Doctors for the Environment (ISDE)
Physicians for Social Responsibility (PSR)
Section One: Making the Partnership Work

Introduction

Children’s ability to develop and become productive adults is largely determined by their earliest experiences in their families and communities. Children may be exposed to environmental threats that seriously affect their health: over 40% of the global burden of disease attributed to environmental risk factors falls on children under five years of age, who account for only about 10% of the world’s population.1 Ultimately, creating healthier environments will have a demonstrable impact on children’s health and well-being. Therefore, improving children’s environmental health presents an essential contribution towards the achievement of the Millennium Development Goals.

Protecting children from exposure to environmental hazards requires that we better understand the relationship between environmental conditions and health outcomes. Several recent international agreements, in particular the Plan of Implementation of the World Summit on Sustainable Development (WSSD) and the G8 Ministerial Statement on the WSSD, have specifically highlighted the need for assessing the state of children’s environmental health and monitoring progress, and have called for action to develop children’s environmental health indicators. At the regional level, the North American Commission for Environmental Cooperation, in its Cooperative Agenda for Children’s Health and the Environment (2002), calls for a set of children’s environmental health indicators to be selected and published. The Healthy Environments for Children Alliance (HECA), launched at the WSSD by the World Health Organization, also emphasizes the need to monitor the status of children’s environmental health, and to develop and report indicators.

Responding to these calls for action, a Global Initiative on Children’s Environmental Health Indicators (CEHI) was launched at the WSSD in September 2002.2 CEHI partners are outlined in the foreword, and the global response to the launch demonstrates that many countries are supportive of this effort. CEHI contributes to achieving HECA’s objectives, in particular to inform and influence policy-makers and to judge the effectiveness of programmes to improve children’s environmental health. CEHI will proceed as an independent effort but will be closely coordinated with HECA, as well as other WHO activities on children’s environmental health, such as the preparation of national children’s environmental health profiles. The objectives of CEHI and the Health and Environment Linkages Initiative (HELI),3 also launched at the WSSD, are seen as complementary and mutually reinforcing: The activities under HELI will help inform CEHI about the needs of decision-makers and about the types of information that will trigger them to decide on appropriate interventions or policies; the work of CEHI, on the other hand, will help provide the data and indicators that decision-makers need.

The need for children’s environmental health indicators was most recently emphasized during the 56th World Health Assembly in May 2003, where several countries called upon WHO to support the reporting of indicators for children’s environmental health. This further confirms the value of the Partnership launched in Johannesburg, and shows growing support for its objectives as more and more world leaders take note of children’s environmental health issues and request assistance in making the right policy decisions.

Building on its experience with respect to children’s health and environmental health indicators, WHO will provide leadership on the implementation of CEHI. WHO will convene and co-ordinate the work with partners, facilitate information exchange, and provide technical support and capacity-building where necessary.

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3 The Health and Environment Linkages Initiative aims to promote methods for decision-makers to reduce adverse environmental impacts on human health, and to consider health and environment linkages as an integrated part of strategic decisions on economic and development policies.
CEHI will build on existing international, regional and national work on child health and environmental indicators by initiating a series of regional pilots to develop, collect and report children’s environmental health indicators. The initiative aims to ensure equal relevance of the indicators for the health and environment sectors so that both can monitor their efforts towards realizing healthy environments for healthy children.

We encourage a “flexible approach”: Flexible with respect to regional pilots choosing for themselves which approach they would like to follow in collecting and reporting indicators. And flexible by starting off with a feasible, low-cost approach that maximizes the use of existing data and indicators and works towards a more harmonized and complete assessment of the state of children’s environmental health in the longer term (see Box 1).

**Aims of CEHI**

- Increase collaboration among governments, non-governmental organizations, United Nations agencies and other inter-governmental organizations, the private sector, and communities to report on the state of children’s environmental health.

- Improve assessment of children’s environmental health and monitor the success or failure of interventions to address specific children’s environmental health problems at the local, national and international level.

- Improve the quality of information available to policy-makers that will allow them to make better decisions to improve environmental conditions and child health outcomes.

- Under the UN system and with collaboration of governments, NGOs, and other interested parties, develop and promote use of children’s environmental health indicators, and, where possible, integrate children’s environmental health indicators into existing child health reporting systems as well as environmental indicator reporting systems.

- Propose modifications to existing international environment and health surveys, as well as to appropriate national and local systems, to incorporate data needs for core children’s environmental health indicators.

- Provide a global clearing house for children’s environmental health indicators that constitutes a central forum as well as resource for all relevant initiatives.

**Roles and Responsibilities of Partners**

Each partner in CEHI can help shape the process of developing, collecting and reporting children’s environmental health indicators. Roles and contributions by different partners at the global, regional, national and local level may include:

- co-ordination and facilitation
- outreach
- facilitation of linkages with related activities
- fund-raising
- setting priorities, including identification of countries for initial actions
- starting regional pilot programmes to establish, collect and report CEH indicators
- technical support and capacity-building
- data collection, interpretation, and quality assurance
- reporting indicators
- information dissemination
- evaluation and sharing results
- provision of policy guidance
At the national level, we envisage that a lead agency closely coordinates work with all agencies and sectors involved with children’s health and environment at the local and national level. It is suggested that high-level commitment be sought from the ministries of health and environment and other interested ministries. These activities will include deciding on priority areas, identifying indicators, reviewing existing data sources and options for new data collection, data analysis and indicator calculation, validation of results, reporting and information dissemination.

At the regional level, we propose that Technical Steering Groups be established for each regional pilot, involving key representatives from each participating country as well as representatives of supporting organizations. All partner organizations are invited to propose experts to participate. These Steering Groups can help oversee the development of regional pilots, and be involved in identifying regional priorities for children’s environmental health indicators, setting up regional networks, reviewing indicators, and evaluating the implementation of information collection and reporting. Ultimately, it is the national commitment that will drive regional pilots, therefore the interests of participating countries should always be at the centre of regional pilots.

At the global level, the Partnership serves as the overall Steering Committee to co-ordinate efforts to better understand, through indicators, the situation of children’s environmental health throughout the world, enable evidence-based decision-making and policy-making, and ultimately create better opportunities for children’s growth and development.

**Secretariat: WHO**

**Coordination of CEHI at the global, regional and country level**
- Co-ordinate CEHI and ensure regular interaction and communication;
- Raise funding;
- Closely coordinate activities with HECA and HELI;
- Closely coordinate activities with existing WHO activities on child health indicators, in particular with the Department of Child and Adolescent Health and Development;
- Lead an effort to modify existing international survey instruments to accommodate additional questions relevant to children’s environmental health;
- Act as a global clearing house for information on CEH indicators;
- Develop policy guidance.

**Implementation of regional pilots**
- Identify interested countries;
- Operate as regional focal points to co-ordinate the collection and reporting of CEH indicators;
- Help identify regional and national priorities;
- Provide technical expertise and build capacity in regions and countries regarding CEH indicators;
- Facilitate feedback into the process of assessing the global burden of disease at the national, regional and global level.

**National governments and other national partners can:**
- Choose to participate in national/regional CEH indicators efforts;
- Identify available data sources and develop indicators;
- Set priorities for children’s environmental health and determine information needs;
- Identify lead and participating agencies;
- Build national networks to collect CEH information;
- Plan and implement pilot studies;
- Review existing surveillance systems;
- Implement data collection and indicator reporting and link this to policies and programmes to improve children’s environmental health;
• Monitor implementation and evaluate usefulness of CEH indicators;
• Raise additional funding.

Other international partners and NGOs can:
• Help identify regional and national priorities;
• Play a key role as part of the implementation of the CEH indicators effort at the regional and national level;
• Identify and facilitate access to suitable data;
• Advocate for the collection of CEH indicators and the broadening of scope of existing surveys;
• Provide technical support to data collection and indicator development;
• Play a key role in the preparation and dissemination of national, regional or global reports on CEH indicators;
• Raise additional funding;
• Develop policy guidance;
• Exchange information and share experiences gained through related past, ongoing and future environment and health projects.

Outputs

Over a timeframe of five years, CEHI will achieve:
• Improved collaboration among a broad range of partners in governmental, non-governmental, the United Nations and international agencies to monitor children’s environmental health;
• Development and evaluation of different mechanisms to collect children’s environmental health indicators;
• Established clearing house on children’s environmental health indicators at the global level;
• Integration of children’s environmental health indicators, where possible, into other key child, environment, and health information systems in working towards the regular collection and reporting of indicators;
• Report on the state of children’s environmental health based on the CEH indicators provided through regional pilots;
• Use of indicators as an information basis for decision-making at the national, regional and international level.
Section Two: Implementation and Technical Considerations

Starting Regional Pilots

CEHI aims to start a series of pilots on each continent, and welcomes the contribution of the regional pilots that have already started in Africa, Europe, Latin America and the Caribbean, the Middle East, and North America (Annex 1). It is understood that not all regions can initiate such a pilot immediately. Regional pilots starting in 2004/2005 may be able to draw on experiences and first lessons learned through ongoing indicator efforts in other regions.

Box 1: The CEC implementation approach

The Council of the North American Commission for Environmental Cooperation (CEC) had previously identified four priority children's environmental health concerns as the focus of collaboration among the three countries (Canada, Mexico and the United States), namely: (i) asthma and respiratory diseases, (ii) effects of lead and other toxic substances including pesticides, and (iii) water-borne diseases. A Steering Group was convened, comprised of environment and health officials from the three countries, and representatives of the partner institutions CEC, PAHO, WHO and the International Joint Commission's (IJC) Health Professionals Task Force.

As a first step, CEC commissioned a feasibility study that the Steering Group reviewed and used as a basis for developing a set of recommendations. The Council subsequently adopted the Steering Group’s recommendations and committed to providing the data, wherever possible, for an initial set of 12 indicators within the three broad priority areas. The active involvement of all parties through the Steering Group, and the policy-level commitment provided by the Council, were instrumental in getting the initiative underway.

Following are some key steps in the North American approach:

- Indicators related to the existing priority areas were identified, including information on exposures, health outcomes and actions following the MEME model (see page 11);
- Policy-level commitment was obtained to populate the selected indicators;
- Country reports were prepared by each country, providing data and contextual information for each of the indicators (not all indicators were completed by each country, depending on data availability);
- A draft North American report was compiled and reviewed by an expert panel and the Steering Group;
- A revised version is being circulated for public comment;
- A final version will be published as the first in a series of reports.

The report will serve as a basis for:

- assessing the children's environmental health situation in the three countries;
- reviewing strengths, weaknesses and gaps in indicator sets and underlying data with a view towards harmonizing indicator reporting over time;
- critically reviewing priorities in the light of new and emerging environmental threats to children's health;
- conducting analyses of trends over time.

The key is to work towards acquiring enough reliable information to assess the condition for each of these four priority concerns by country. During the first stage, the CEC approach will exclusively use existing data and methodologies while building towards a core set of harmonized indicators for the United States, Canada and Mexico in the longer term.
Recognizing that different regions and countries have diverse sets of children’s environmental health problems due, for example, to climate, geology, level of industrialization, degree of urbanization, and sociodemographic characteristics, regional pilots are presumed to take on a fair degree of autonomy while contributing to global children’s environmental health reporting under a common framework.

The participation of three or more countries per region is desirable. It would be best if participating countries within a region agreed to a common set of priority areas for indicator collection. However, in emphasizing the needs of countries and an approach that aims to be decentralized as much as possible, we propose that WHO Regional and Country Offices, in close coordination with UNICEF and UNEP, assume responsibility for working with countries and partners actively involved at the regional and country level to design and implement pilot projects (Figure 1), once countries have volunteered to participate in a regional indicators pilot. Countries play a key role in each step of this process, from their commitment to participate in the effort to the implementation of indicator collection and reporting, to translating results into action to protect children’s environmental health. Establishing strong links with the public health systems in each country will be essential, as these are usually influential in relation to surveillance activities.

We propose a flexible approach that focuses on what is feasible in the short-term while working towards a common set of indicators based on high-quality data in the long-term. The ongoing CEC indicators effort in North America may serve as an example of such a multi-step “flexible, continuous improvement approach to implementation”4 (see Box 1). Its primary emphasis is on providing information relevant to children’s environmental health priorities rather than achieving comparable indicators immediately.

The children’s environmental health indicators, developed by WHO at the global level, provide a solid basis for indicator development and collection. However, we encourage regions and countries to be selective in their reporting of these proposed indicators and, where necessary, to adjust existing indicators to respond better to their own needs and data collection systems.

The indicators made available through the regional pilots as well as data available through ongoing international surveys will form the basis for a global clearing house on children’s environmental health indicators to be hosted by WHO. In addition to providing a first glimpse at the state of children’s environmental health in different regions of the world, these pilots will play an essential role in testing and evaluating different options for information and data collection. Based on their regional experiences, difficulties encountered and lessons learned will be exchanged among the partners. These will ultimately determine the recommendations for (i) increasing the geographic scope of the regional efforts, (ii) improving data quality, (iii) working towards common monitoring objectives and (iv) providing indicators to support policy needs.

We envisage that the evaluation of data collection approaches and data quality will feed back into a process of continuous improvement. The Partnership will assist this process and encourage harmonization of indicator reporting. It also aims to integrate appropriate children’s environmental health indicators into ongoing reporting of child health indicators, e.g. by WHO’s Department of Child and Adolescent Health and Development, and into ongoing reporting of environmental indicators, e.g. by UNEP’s GEO Programme.

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Setting Priorities for Children’s Environmental Health Indicators

Environmental threats to children’s health include a broad range of hazards of different natures (e.g. physical, chemical, biological), in different media (e.g. water, air, food, soil), in different settings (e.g. home, school, community), and in relation to different activities (e.g. playing, working). One of the main purposes of children’s environmental health indicators is to help display time trends in and spatial distributions of those environmental threats that matter most to children’s health, and to define and motivate the appropriate policy response and interventions to reduce these threats (Box 2). Moreover, children’s environmental health indicators can also play a crucial role in identifying especially vulnerable population groups, such as children living in urban slums.
Box 2: Why children’s environmental health indicators?

Children’s environmental health indicators help to fill the gap between information on environment and information on health, putting into focus the special vulnerabilities of children in order to guide environmental, health, and development policy. Consequently, useful children’s environmental health indicators must be both relevant to the decision-maker and, directly or indirectly, amenable to control. By analogy, children’s environmental health indicators can be likened to economic indicators – such as gross domestic product or the unemployment rate – that give a sense of how well the economy is doing.

At the global level, the recent WHO publication “Making a difference: indicators to improve children’s environmental health” sets priorities in terms of an analysis of the global burden of disease, as measured in disability-adjusted life years (DALYs). Five major causes of death and illness in children under five emerge, with environmental exposures making a significant contribution to all of them:

- Perinatal illnesses – including low birthweight, stillbirths and congenital anomalies;
- Respiratory diseases – including pneumonia, tuberculosis, and asthma;
- Diarrhoeal diseases – including rotavirus infections, E.coli infections and cholera;
- Vector-borne diseases – especially malaria;
- Physical injuries – including traffic accidents, poisonings, drowning, falls and burns.

These five “big killers” of children under five have thus formed the focus for indicator development at the global level. However, environmental threats differ significantly among various regions of the world and even among various countries within a given region: while traditional risks such as unsafe drinking water, lack of adequate sanitation and indoor air pollution from household solid fuel use and environmental tobacco smoke prevail in developing countries, industrialized and developing countries alike face a multitude of modern and emerging risks including environmental allergens, toxic chemicals and exposures in relation to recreational and work activities, e.g. exposure to ultraviolet radiation. As developing countries still carry the major share of the global burden of disease (1 351 million DALYs or 92.1% of the world total), the global priorities are ultimately determined by the environmental threats in developing countries.

Given the broad range of environmental threats to children’s health and national data collection systems that are already overburdened, regions and countries will need to determine their own priorities with respect to key issues of concern and selected key children’s environmental health indicators. These priorities are likely to be very different between developing and more developed regions of the world. The results of a regional or national environmental burden of disease assessment represent one way of prioritizing; however, prioritizing based on settings, public concern, previous political decisions, available interventions to tackle specific environmental problems, or financial and staff resources may be equally justified approaches. In any case, the ultimate goal is to protect children’s health. Whichever approach a region or country decides to take, it is important to make the underlying rationale for setting priorities transparent.

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4 Disability-adjusted life years represent a summary measure of population health, which combines years of healthy life lost due to morbidity and mortality. One DALY is one lost year of healthy life.
The MEME Model –
A Framework for Children’s Environmental Health Indicators

Embedding indicators for children’s environmental health within an appropriate framework has several advantages: A framework represents a simplified version of our underlying concept of reality and makes this view of the world explicit to the target audience. A framework also helps us to be more systematic in defining the issues that confront us, and in analyzing and interpreting them.

WHO, through a participatory process, has developed a framework for children’s environmental health indicators to help (i) assess the impact of the environment on children’s health, (ii) facilitate inter-country and inter-regional comparisons of the status of children’s environmental health, and (iii) monitor the effects of interventions to improve children’s health in relation to the environment.9 This Multiple Exposures Multiple Effects (MEME) model (Figure 2) provides the conceptual and theoretical basis for the development, collection and use of children’s environmental health indicators under the umbrella of CEHI.

Figure 2: The MEME Model

As its name implies, the MEME model emphasizes the complex relationships between environmental exposures and child health outcomes. Individual exposures can lead to many different health outcomes; specific health outcomes can be attributed to many different exposures. Both exposures and health outcomes – as well as the associations between them - are affected by contextual conditions, such as social, economic or demographic factors. Beyond identifying these underlying driving forces for children’s environmental health problems, information on socioeconomic status is important for disaggregating exposure and health information to investigate environmental justice concerns and to identify vulnerable groups. Actions can be targeted at reducing exposures or at reducing the severity of health outcomes.

The MEME model thus describes the four ingredients required for the monitoring of children’s environmental health: exposure indicators, health outcome indicators, contextual indicators, and action indicators. Table 1 applies the MEME model to the example of indicators related to childhood respiratory diseases.

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Table 1: Indicators for childhood respiratory diseases

<table>
<thead>
<tr>
<th>Contexts</th>
<th>Exposures</th>
<th>Health outcomes</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children aged 0-14 years* living in poverty</td>
<td>Children aged 0-14 years* living in unsafe, unhealthy or hazardous housing</td>
<td>Intrauterine growth retardation in newborn children</td>
<td>Annual rate of change in tobacco consumption</td>
</tr>
<tr>
<td>Overcrowding</td>
<td>Children aged 0-14 years* living in proximity to heavily trafficked roads</td>
<td>Mortality rate for children aged 0-4 years due to acute respiratory illness</td>
<td>Annual rate of change in atmospheric pollutant concentrations</td>
</tr>
<tr>
<td>Mean annual exposure of children aged 0-4 years to atmospheric particulate pollution</td>
<td></td>
<td>Morbidity rate for children aged 0-4 years due to acute respiratory illness</td>
<td>Annual rate of change in numbers of households relying on biomass fuels or coal as the main source of heating or cooking</td>
</tr>
<tr>
<td>Children aged 0-4 years living in households using biomass fuels or coal as the main source of heating or cooking</td>
<td>Prevalence of chronic respiratory illnesses in children aged 0-14 years*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children aged 0-14 years* living in households in which at least one adult smokes on a regular basis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Where possible, we recommend to disaggregate age groups further into 0-4 years, 5-9 years, 10-14 years.

**Issues of indicator design**

Indicators are visualizations of underlying data that aim to adequately reflect reality. Their design and reporting involves the manipulation, integration, processing and appropriate representation of existing data. Therefore, any indicator is only as good as the data on which it is based. Consequently, the most important problem to be overcome in relation to children’s environmental health indicators is the scarcity of suitable data at the national or district level.

In principle, there are two solutions: The first uses whichever data are available and makes the most of them. For example, where direct measures of exposures to environmental pollutants are unavailable, these exposures could either be estimated by modelling techniques or represented by a proxy. Even partial information represents a starting point and can help highlight gaps in the existing data and motivate essential monitoring. The second solution involves new data collection and a much bigger investment in terms of financial and technical resources. However, where national surveys are not feasible, smaller sample surveys may be conducted and the results extrapolated to a wider geographic area or population. The CEH indicators pilot in the Eastern Mediterranean region is pursuing the latter approach by collecting detailed environmental health information among a smaller population group through a harmonized assessment tool.

Hence developing children’s environmental health indicators represents a compromise between feasibility and cost on the one hand, and data quality on the other hand. We propose to get started with the best available data, with the goal of collecting and compiling comparable, high quality data in the long term. It is also important to keep in mind that indicators are unable to identify new, unexpected problems – indicators can only answer those questions that are explicitly asked.

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Complementary Data Collection Efforts

Based on experience, identifying a lead agency to co-ordinate the effort to bring together information on children’s environmental health and integrate input from many different players is essential. Given the intersectoral nature of children’s environmental health, many different agencies of different sectors, e.g. health, environment, water and sanitation, agriculture, energy, labour and education, have an important contribution to make.

Under the MEME model, environmental, health, sociodemographic and policy information will need to be brought together from a wide range of sources (e.g. census data, child mortality data, child morbidity data, health care data, housing data, environmental data) for reporting on the state of children’s environmental health. Some of this information will be readily available (e.g. a lot of child health information is regularly collected through health surveillance systems), while other information (e.g. data on children’s exposures to different environmental threats) will be scarce.

Two dimensions are important in reporting children’s environmental health indicators: geography and time. Why is geography important? Good children’s environmental health information may be available for one district of a country but not for the whole country. Similarly, it may be available at the national level but not at the level of the district that wants to evaluate the impact of its programme to improve children’s environmental health. Why is time important? A snapshot of children’s environmental health taken at a single point in time will not allow us to track progress and to evaluate any policies and actions to improve children’s environmental health. Our long-term goal is to achieve regular collection of information that is representative at the national and/or district level, and that addresses the priority children’s environmental health issues defined by the country or region.

Depending on the priority a country or group of countries assigns to collecting information on children’s environmental health and the resources made available, several data collection approaches can be taken. In the short term, existing data can be used to compile a report on children’s environmental health, while additional data collection will often be needed to fill the gaps in issues not adequately covered, and to improve data quality. While countries should start with what is feasible, this first effort will need improvement over time.

Country-based provision of existing data into a common framework

An essential starting point for any effort to report on children’s environmental health is to review which data are already available through national data collection systems, who collects them, whether they are routinely assessed, and whether the data quality is sufficient. Data sources may include health information systems, disease surveillance systems, census data, household surveys, and environmental monitoring of water or air pollution; similarly, existing community level projects, such as Healthy Cities or Health-Promoting Schools, can provide important data and insights. In this way, all the relevant data are brought together in one place. This allows a first estimation of the national status of children’s environmental health and the identification of essential future monitoring needs. Moreover, it contributes to harmonized reporting of CEH indicators through the regional pilot and global effort. Annex 2 provides an example of how the development of national profiles on children’s environmental health, undertaken by WHO/AMRO for several countries in Latin America, South America and the Caribbean, can help answer important questions about country level information collection systems.

Using existing data from international data sources

We recognize that many international data and indicator sources already exist which will help us get started. Reporting indicators relies on “decades of work at many levels, from the field workers who administer the censuses and household surveys to the committees and working parties of the national and international statistical agencies that develop the nomenclature, classifications and
standards fundamental to an international statistical system.” Many such efforts are already underway through the United Nations System. They report on child health in general or environmental conditions in general, therefore understanding the status of children's environmental health is not possible based on these sources alone. Yet, they can contribute to regional and national reporting on children’s environmental health indicators (Annex 3), either by providing ready-made indicators or by supplying the data needed to construct new indicators.

**Complementary collection of new data at the international level**

The design and implementation of a new survey to collect data requires an enormous investment of staff and financial resources and will not be feasible for this effort. There may, however, be options to integrate additional questions into existing surveys, e.g. the Demographic and Health Surveys (DHS), the World Health Survey, the Living Standards Measurement Survey, or the Multiple Indicators Cluster Survey (see Annex 3). With these established surveys, it will always be a challenge to establish the importance of information on children’s environmental health against many other competing needs and interests and against the overall limitations of questionnaire length. Nevertheless, the inclusion of few selected and pre-tested questions into the core questionnaire or into an adaptation of the questionnaire at the country level may be feasible. We invite partners to assist with advocating for the broadening of these surveys, and to help identify and/or test specific questions for inclusion (Box 3).

In addition, CEHI is working closely with the United States Agency for International Development and other partners to develop an environmental health module for the DHS. Countries will be able to choose to implement all or parts of this module during DHS data collection.

**Box 3: Why invest scarce resources into collecting additional data?**

Financial and personnel resources for improving child health, and children's environmental health in particular, are finite, nevertheless there is enormous value to be gained if some of these resources are invested in collecting data for reporting children’s environmental health indicators:

First, existing data mainly reflect health outcomes and remedial actions, but they rarely expose the responsible environmental risk factors. However, knowledge about these risk factors is essential for countries to strengthen preventive programmes in addition to responsive medical care. This will help to avert diseases, save children’s lives, improve families' livelihoods and reduce the burden on a nation's health care system. Secondly, existing data are not suitable for identifying vulnerable population groups that are at greatest risk from environmental risk factors, for example, urban slum populations. To maximize programme benefits, it will be important for countries to target these high risk groups, especially when resources are limited. Finally, CEHI not only brings existing data together but can also make a major contribution towards improving data quality by stimulating focused new data collection.

**Complementary collection of new data at the national level**

Integration of additional questions into an existing survey may also be possible at the national level, especially if there is political support for the reporting of children’s environmental health indicators. Ongoing surveys that may allow for a broadening of scope include nutritional surveys, school surveys, household surveys or health care surveys. To make data collection sustainable and to ensure the best use of the data generated, strong links with the public health system are essential.

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Looking Ahead

Indicators by themselves are not a solution to the environmental health risks children around the world face in their everyday lives. They do, however, provide invaluable information to policy-makers and others whose decisions determine the state of the environment and its potential effects on health. Children’s environmental health indicators are a powerful tool to prioritize action and to monitor the effectiveness of interventions as well as to identify geographical hotspots and particularly vulnerable populations. Children’s environmental health indicators can also constitute the basis for economic analyses to help policy-makers examine the costs and benefits of policies aimed at reducing environmental impacts on children’s health.12

Many countries have responded with enthusiasm to the creation and implementation of the Global Initiative on Children’s Environmental Health Indicators. Regional indicator pilots provide a stepping stone for the development of policies and programmes to improve children’s environmental health. In practice, many of the ongoing efforts on indicators are already closely coupled with broader activities to improve children’s environmental health.

12 The OECD will conduct cost-benefit and cost-effectiveness analyses for selected child health risks. Willingness to pay and quality-adjusted life years (QALYs) will be compared to determine the best context for children’s health valuation.
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## Annex 1: Ongoing pilots on children’s environmental health indicators

### Africa

<table>
<thead>
<tr>
<th>Lead agency</th>
<th>WHO Regional Office for Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Interest indicated by Botswana, Ethiopia and Kenya and, through the WHO Regional Office, by Mali, Seychelles, South Africa, Nigeria, Senegal, Zimbabwe, and Congo Brazzaville.</td>
</tr>
<tr>
<td>Status</td>
<td>Planning of country pilots is underway, following a Technical Consultation in Cape Town, South Africa, in February 2004.</td>
</tr>
</tbody>
</table>

### Eastern Mediterranean

<table>
<thead>
<tr>
<th>Lead agency</th>
<th>WHO Centre for Environment and Health Activities, Amman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Pakistan, Yemen, Jordan, Oman, Tunisia, Iran</td>
</tr>
<tr>
<td>Status</td>
<td>Substantial additional funding was raised. Several of the participating countries have submitted a draft review of existing indicators and underlying data sources. Countries will conduct a survey on children's environmental health, and a draft survey tool is currently being finalized.</td>
</tr>
</tbody>
</table>

### Europe

<table>
<thead>
<tr>
<th>Lead agency</th>
<th>WHO Centre for Environment and Health, Rome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Armenia, other countries are being identified</td>
</tr>
<tr>
<td>Status</td>
<td>The WHO Centre for Environment and Health in Rome, Italy, and the WHO Centre for Environment and Health in Bonn, Germany, are closely coordinating activities on CEH indicators with existing European work on general environmental health indicators. Indicators will serve to monitor the Regional Priority Goals within the Children’s Environmental Health Action Plan for Europe (CEHAPE) that were adopted at the Fourth Ministerial Conference on Environmental Health in Budapest in June 2004.</td>
</tr>
</tbody>
</table>

### North America

<table>
<thead>
<tr>
<th>Lead agency</th>
<th>North American Commission for Environmental Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Canada, Mexico, United States of America</td>
</tr>
<tr>
<td>Partner Organizations</td>
<td>WHO, PAHO, IJC Health Professionals Task Force. OECD involved as an observer.</td>
</tr>
<tr>
<td>Status</td>
<td>Indicator collection has been completed by the countries and draft country reports have been prepared. A draft North American report was reviewed during an Expert Panel and Steering Group Meeting in Ottawa, Canada, in March 2004.</td>
</tr>
</tbody>
</table>

### Pan America

<table>
<thead>
<tr>
<th>Lead agency</th>
<th>WHO Regional Office for the Americas</th>
</tr>
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<tbody>
<tr>
<td>Participating countries</td>
<td>A list of participating countries is being finalized.</td>
</tr>
<tr>
<td>Status</td>
<td>Planning of country pilots is underway.</td>
</tr>
</tbody>
</table>
### South-East Asia

<table>
<thead>
<tr>
<th>Lead agency</th>
<th>WHO Regional Office for South-East Asia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Interest indicated from Thailand.</td>
</tr>
<tr>
<td>Status</td>
<td>Initial discussions.</td>
</tr>
</tbody>
</table>

### Western Pacific

<table>
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<tr>
<th>Lead agency</th>
<th>WHO Regional Office for the Western Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Interest indicated through WHO Regional Office from The Philippines.</td>
</tr>
<tr>
<td>Status</td>
<td>Initial discussions.</td>
</tr>
</tbody>
</table>
Annex 2: Development of national profiles for children’s environmental health in South America, Latin America and the Caribbean

In 2003, several countries in Latin America and the Caribbean produced profiles of children’s environmental health, which provide information on the status of children’s environmental health and the country’s readiness to undertake activities to protect children from environmental hazards. Brazil, the Dominican Republic, Guatemala, Mexico, Peru and Uruguay developed these profiles in conjunction with the Pan American Health Organization (PAHO). They followed a specific format, which includes seven main sections: Introduction (contains information on key environmental issues, environmental burden of disease, etc.), National Government Role, Society Role, Science, Data and Reporting, Communication, and Conclusion.

Under the Data and Reporting section, there is a subsection on information systems and centres, which is particularly relevant to the collection and reporting of indicators. This section asks:

- Does the country have a centralized information gathering function on health data? (e.g. health surveillance system)?
- Does the country have national or private information centres, for example on health, demographics or environment?
- Does the country require reporting of certain paediatric diseases to support public health surveillance and disease prevention and, if so, how is that information gathered?
- Are there poison control centres in the country and, if so, do they record information from calls in a harmonized manner?
- Does the country report indicators on environment or health?
- Does the country put out regular reports on disease, public health or environmental conditions?

The summary of profiles for the South American, Latin American and Caribbean region shows that information collection systems have grown with the worldwide information technology boom. Five of the six countries polled reported centralized systems on health and experience with health and population surveys. Some mentioned ability and interest in incorporating environment into some of the health reporting, e.g. Mexico. Across the region, certain diseases are tracked with a fair amount of success, such as malaria, tuberculosis, cholera, and measles. Additionally, countries collect information on diseases with a strong environmental contribution, such as acute respiratory infections and acute diarrhoeal disease. Most countries collect some information on the environment, such as access to drinking water, sanitation, outdoor air pollution and recreational water quality. Data collection through a population census is fairly common, usually updated every 10 years.

Household surveys are conducted in some countries while other countries, for example Brazil and Uruguay, have fairly sophisticated data collection systems on health, nutrition and reportable diseases. Some of the countries put out journals, updates or other publications on key health data on a yearly or more frequent basis, and Peru reported having a poison control centre. Uruguay reported success with networking across sectors on information collection, and several countries cited assistance received from international organizations on data collection.

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13 Regional Summary of Country Profiles on Children’s Environmental Health in Latin America and the Caribbean, prepared by Martha Shimkin and Caron Gibson for PAHO. 2003. Available at http://www.paho.org
Annex 3: International organizations collecting information and reporting indicators relevant to children’s environmental health

World Health Organization
World Health Report 2002
http://www.who.int/whr/2002/
World Health Survey
http://www3.who.int/whs/
Child and Adolescent Health
http://www.who.int/child-adolescent-health/data_stat.htm

Pan-American Health Organization
Data base of household surveys in Latin America and the Caribbean

United Nations Children’s Fund
Statistical data access by indicator or country
Multiple indicator cluster survey (MICS)
http://www.childinfo.org

United Nations Environment Programme
Global Environmental Outlook (GEO) data portal
http://geodata.grid.unep.ch/

Demographic and Health Surveys (DHS)
http://www.measuredhs.com

World Resources Institute
Earth Trends – The Environmental Information Portal
http://earthtrends.wri.org/

World Bank
World Development Indicators
Living Standards Measurement Survey

Adapted from Martha Shimkin, CEH Indicators: Setting the Stage for the International Task Force.
Organization for Economic Cooperation and Development
Environmental Performance, Indicators and Outlooks
http://www.oecd.org/topic/0,2686,en_2649_34283_1_1_1_1_37465,00.html

United Nations Statistics Division
Statistical databases
http://unstats.un.org/unsd/databases.htm
Millennium Development Goal Indicators
http://unstats.un.org/unsd/mi/mi_goals.asp