

Global Plan of Action for Children's Health and the Environment

Children are our future, numbering over 2.2 billion worldwide (aged 0-19) and representing boundless potential. Child survival and development hinge on basic needs to support life; among these, a safe, healthy and clean environment is fundamental.

Children are exposed to serious health risks from environmental hazards. Environmental risk factors often act in concert, and their effects are exacerbated by adverse social and economic conditions, particularly conflict, poverty and malnutrition. There is new knowledge about the special susceptibility of children to environmental risks: action needs to be taken to allow them to grow up and develop in good health, and to contribute to economic and social development.

- Each year, at least 3 million children under the age of five die due to environment-related diseases.
- Acute respiratory infections annually kill an estimated 2 million children under the age of five. As much as 60 percent of acute respiratory infections worldwide are related to environmental conditions.
- Diarrhoeal diseases claim the lives of nearly 1.5 million children every year. Eighty to 90 percent of these diarrhoea cases are related to environmental conditions, in particular, contaminated water and inadequate sanitation.

Environmental risks to children vary from region to region. Children in many countries still face the major traditional environmental hazards, including unsafe water, lack of sanitation and contaminated food, indoor air pollution from use of solid fuel, and exposure to a myriad of toxic heavy metals, chemicals and hazardous wastes. However, other children live in adverse environments that are vastly different from those of generations ago. In addition to the traditional environmental hazards, due to rapid changes in economic structures, technologies and demography, new or modern environmental hazards have appeared or been recognized, such as



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the increased use of radiation in pediatric healthcare settings. These may be linked to global challenges such as uncontrolled urbanization, new technologies, industrialization in developing countries, ecosystem degradation, and the impacts of climate change.

Developing regions carry a disproportionately heavy share of the environmental disease burden and children in developing nations have the highest death rates. In spite of major efforts undertaken by international organizations, individual countries, the academic community and concerned non-governmental organizations (NGOs), child disability and mortality linked to environmental health factors remains high, hindering the ability to meet the Millennium Development Goals (MDGs).

Significant action is required to achieve healthier, safer and cleaner environments - this is imperative for child health. It requires using strategies that are available, building on existing programmes and partnerships, translating research and knowledge into protective policies and fulfilling political commitments to action. It requires a focus on prevention, tackling the causes of disease at their environmental source, inter alia, by strengthening ecosystem management, thereby exploiting win-win scenarios for child health and the environment. Preventive interventions on the environmental management and health sector sides have proven to be effective in protecting children from adverse exposures, and provide a wealth of knowledge and experience from which we can build a strong foundation for informed and effective action, building on tools and mechanisms already available.

Interventions on children's health and environment should benefit and contribute to broader efforts aimed at catalysing the policy, institutional, and investment changes required to reduce the environmental threats to health. Policies targeting this specific vulnerable group should be a key component within packages of interventions that address health and environment problems in an integrated manner, with a view to optimizing benefits to both sectors, in support of sustainable development.

Over the last 20 years there have been acknowledgements at the highest level of the need to protect the environment in order to underpin efforts to safeguard child health. As far back as 1989, States pledged in the Convention on the Rights of the Child to "combat disease and malnutrition...taking into consideration the dangers and risks of environmental pollution." WHO held two international conferences on Children's Environmental Health, the first one in Bangkok in 2002 and the second one in Buenos Aires in 2005, and both made commitments for further action in the area. In 2004, the WHO European Region developed a policy framework called the



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Children's Environmental Health Action Plan, which contains four regional priority goals linking well with the MDGs and being implemented by the majority of Europe's 53 countries. All over the world, regional Health and Environment Ministerial meetings have highlighted the importance of working across sectors to improve child health. Recently, the call for action to address children's environmental health (CEH) has been gaining momentum, as more is now known about how adverse environments can put children's growth, development, well-being and very survival, at risk. Notably, the G8 Siracusa High Level Environment Ministerial meeting (April 2009) concluded that more should be done to ensure that children are born, grow, develop and thrive in environments with clean air, clean water, safe food and minimal exposure to harmful chemicals. Two months later the Third WHO International Conference on Children's Health and the Environment was held in Busan, Republic of Korea (June 2009) hosted by the Korean Ministry of Environment, in collaboration with the Ministry of Health, Welfare and Family Affairs, and organized by WHO jointly with national and international partners concerned about children's health and the environment. The conference addressed current and emerging trends, new scientific research findings, and the translation of research into policy to protect the children's health from environmental threats. The Busan Pledge for Action on Children's Health and the Environment (2009) called on WHO to facilitate the development of a global plan of action to improve children's environmental health (CEH), and regularly monitor and report on its progress. This draft Global Plan of Action is designed to provide a road map for WHO, governments, intergovernmental and non-governmental organizations all concerned stakeholders to contribute to the attainment of the Millennium Development Goals (MDGs) and other internationally agreed development declarations, commitments and goals, in particular those related to reducing infant mortality (MDG 4) and ensuring environmental sustainability (MDG 7).

Busan Pledge for Action on Children's Environmental Health, June 2009

We pledge to develop a global plan of action to improve CEH, monitor and report on progress, and we urge WHO and its partners to facilitate the development of this plan in collaboration with all relevant agencies.

We will implement activities in close interactive partnerships with governmental and non-governmental organizations, centres of excellence, academia, professional bodies, educators and other sectors.

We commit to take CEH issues to the consideration of the higher authorities in our respective countries and to the attention of the international agencies concerned about children's health and the environment and the needs for green growth and sustainability.



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The overall goal is to create safe, healthy and clean environments that allow children to grow and develop in good health and to contribute to the economic and social development of societies. To achieve the goal, 5 target areas of work are included in the Global Plan of Action for Children's Health and the Environment:

1. Data Collection and Analysis

2. Collaborative Research

3. Advocacy

4. Clinical Service Delivery

5. Awareness Raising and Education

As recognized in the Busan Pledge, the successful implementation of this global plan of action requires strong partnerships and close networking. Collaboration between and among WHO, WHO collaborating centres and international organizations, such as UNICEF and UNEP, national and regional organizations, regulatory bodies, governmental agencies and NGOs is essential for putting into action the specific components of the proposed plan and gaining the most benefit from limited resources.

Children's environmental health activities have multiple links with other parallel activities, such as environmental protection, climate change adaptation, primary health care, specialized hospital-based health care, emergency response, disaster risk reduction, school activities and housing initiatives, and many other activities. It thus becomes clear that collaborative links have to be set up for each one of the objectives in this plan. Also, strong collaboration across WHO programmes and with the WHO Regional and Country Offices will be necessary in order to ensure success. An external WHO Advisory Committee for CEH is also needed to facilitate global efforts to implement this action plan.

Strategy 1. Data Collection and Analysis

Collect and analyze data on environmentally-related disease and disability among children.



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Data on environmental exposures and environmentally-related diseases in children are of vital importance for analysing trends and setting priorities for prevention and control. In most countries there are no good registers of environmental conditions and exposures or on the environmentally-determined diseases in children and even less on child disabilities. Neither are other factors of vulnerability, such as poverty, lack of education or gender measured. Adequate data collection systems are fundamental to develop children's environmental health activities.

In many instances, in the absence of systematic data collection efforts, progress in CEH has been made on an *ad hoc* basis arising from the identification of adverse health effects resulting from unsafe toxic environmental exposures by astute health care providers who noticed and reported an unusual clinical case. Collection of reports of special CEH observations into a data base is important for detecting existing environmental health problems and for planning and organizing interventions and prevention programmes.

Plan of action

- Prepare guidance for improving the quality of environmentally-related case data collection, including data on sentinel cases and key laboratory findings
- Establish mechanisms, particularly emphasizing information technology, to collect and report new observations of CEH hazards and outcomes
- Develop a standard tool for estimating the cost of diseases due to environmental hazards
- Develop estimates of the disability effects of environmental hazards
- Promote an integrated collection and analysis of data and indicators on health and environment and provide a central place for reporting findings
- Promote the use of environmental health-related questions in national demographic health surveys and other surveys
- Promote environmental monitoring to track, for example, pollutants in air and water on a local basis over time
- Integrate children's environmental health into "core" health tracking systems
- Identify existing country-level children's environmental health survey and surveillance data for use in Global Burden of Disease estimates
- Strengthen the interaction between the clinical, analytical and policymaking sectors in using routine laboratory data on environmental measurements for preventive actions
- Promote the mapping of environmental hazards to health by using Geographic Information Systems
- Promote periodic biomonitoring of blood, breast milk and other tissues



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- Coordinate scientific and technical reviews by health and environment experts to identify knowledge gaps and refine normative health and environment standards and guidelines

Expected outcomes

- Guidance on the collection of data on environmentally-related childhood disease and disability
- Guidance on laboratory-based surveillance for environmentally-related diseases
- Improved identification of new environmental hazards and diseases of children
- Improved development, collection, analysis and use of children's environmental health indicators
- Guidance on estimating the cost of environmentally-related disease and disability
- Improved global burden of disease estimates on environmentally-related childhood disease
- Guidance on normative health and environment standards and guidelines

Strategy 2. Collaborative Research

Strengthen international and intersectoral collaborative research on children's environmental health

Science should underpin policy and action. Research is critical to the development of children's environmental health (CEH) policies and actions. Research activities span a broad range from the collection and analysis and report of case data in a primary health care centre that uses the environmental history to the most sophisticated longitudinal studies using biomarkers of exposure, vulnerability and effect in children. It is important to recognize that many of the effects of the environment on the individual have been initiated *in utero*.

Existing research centres have provided the critical mass of scientific information to develop prevention programs (for example in the area of asthma and lead exposure.) This knowledge has been crucial for national and local programs and also for improving the international awareness about global environmental health issues. Research provides the scientific and advisory support that policy-makers require for promoting CEH.

Plan of action



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- Develop a global research agenda for children's environmental health, which includes a list of high priority research questions and potential research projects, by holding a series of leading edge workshops involving relevant experts and partners
- Stimulate and coordinate longitudinal research on children's environmental health especially those beginning prenatally
- Support intervention studies and applied research especially at local level to build technical capacity and address political questions
- Develop a network of specialized children's environmental health centres and WHO Collaborating Centres in children's environmental health to encourage collaborative research and common proposals. Also for research and compiling data on CEH to study questions that cannot be answered by single centres alone
- Encourage the establishment of regional laboratory facilities for research on children's environmental health (e.g. to develop work and training on biomarkers of exposure, vulnerability and effect)
- Promote exchanges of students, postdoctoral fellows, and faculty from developing countries with WHO and other research organizations
- Support international workshops and meetings that promote children's environmental health research in developing countries
- Promote and provide technical support for pilot studies of innovative children's environmental health research methodologies
- Promote the inclusion of children's environmental health in new emerging research agendas, such as climate change
- Promote increased funding for children's environmental health research as an investment in disease prevention
- Provide a forum for the collaborative design of research studies and sharing of findings among studies

Expected outcomes

- Publication of key research needs, a research agenda, and lists of high priority research questions and potential research projects at both global and local levels
- Network of specialized children's environmental health centres and WHO Collaborating Centres in children's environmental health
- Regional laboratory facilities for research on children's environmental health
- Additional funding for research on children's environmental health
- A website of research priorities and needs in the field of children's environmental health



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- Increased exchanges of students, postdoctoral fellows, and faculty from developing countries with WHO and other research organizations
- International workshops and meetings in developing countries sharing results of children's environmental health research
- Results of pilot studies of innovative children's environmental health research methodologies in several countries
- Identification and assessment of environmental hazards that were unrecognized regionally or globally

Strategy 3. Advocacy

Promote, update and implement policies to protect children from environmental threats

As CEH has been gaining visibility on the international political agenda and the co-benefits of addressing child health and environment are starting to be recognized, now is the time for capitalizing on CEH and taking action. The priority of CEH issues should, therefore, be elevated on national and international agendas; opportunities for incorporating CEH into ongoing health and environment programmes should be identified; and appropriate resources provided for strengthening policies to protect CEH in all relevant sectors (environment, education, development).

Plan of action

- Develop a communication strategy including guidance on risks communication and advocacy tools and disseminate easily understood messages on the environmentally-related diseases and how to prevent them
- Promote awareness of children's environmental health among policy-makers
- Advocate for the inclusion of children's environmental health in international forums relating to child health and well-being, as well as international fora and processes addressing environment issues (i.e. mercury and hazardous wastes) and broader global challenges such as climate change and disaster risk reduction. Domestic and global environmental policies should fully take into account children's differences and the need to reduce environmental contaminants on health grounds
- Advocate for the nomination of children's environmental health focal points in ministries of health



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- Advocate for resources (raise funds) for children's environmental health among multi- and bilateral donors, foundations, national governments, local agencies and the private sector
- Foster collaboration among organizations that are concerned with children's environmental health, including WHO Collaborating Centres and other intersectoral networks
- Develop / update national profiles on children's environmental health and provide evidence base for development of national environmental health action plans
- Promote children's health by urging national and global efforts to clean the air, water and soil of contaminants, and to properly manage chemicals in the environment
- Identify and recognize high profile "champions" in a number of professional fields for children's environmental health
- Integrate children's environmental health into existing public health and environment policies, where appropriate
- Contribute to the children's environmental health issues addressed by the high-level international and regional forums that bring together health and environment ministers and other the Commission on Sustainable Development
- Incorporate children's environmental health into major health, environmental, development, educational, housing, transportation, agriculture or welfare projects/policies and into the context of the negotiation of international conventions and their country-level implementation
- Conduct cost studies to estimate the cost of disease and disability from diseases linked to the environment and the benefits of expected actions and communicate the results to policy-makers
- Promote awareness, education, and preventive health strategies to enhance personal protection and healthy behaviours in the face of environmental risks and hazards that cannot be completely eliminated
- Promote awareness on improved ecosystem management and children's health
- Promote awareness on effective control and disposal of pollution and waste emissions from various sources
- Engage youth networks in children's environmental health protection.
- Promote regional collaboration to include regional factors in the development of children's environmental health programs (regional networks)

Expected outcomes

- Improved communication on children's environmental health between stakeholders



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- Inclusion of children's environmental health on major international political agendas and at high profile paediatric conferences
- Fact sheets and other advocacy documents and tools for children's environmental health
- Statements in support of children's environmental health by political and opinion leaders
- Focal points for children's environmental health in ministries of health around the world
- Increased funding from donors in support of children's environmental health
- Increased awareness of the cost of disease and disability from diseases linked to the environment among policy-makers
- Awareness on environmental intervention to prevent children's diseases

Strategy 4. Clinical Capacity Building to Increase Service Delivery

Improve availability of environmental health clinical services

Primary health care has traditionally addressed the key environmental health threats that are referred to in the Alma Ata Declaration. However, the world has changed; new challenges have emerged in the context of technological development, globalization, urbanization, degraded ecosystems and climate change, and therefore the provision of primary health care should be expanded to help clinicians deal with the environmental threats to children and their communities. Specialized children's environmental health centres are able to function as referral centres for the identification, evaluation, recognition, and evaluation of environmental threats, and prevention and treatment of adverse environmental exposures in children. Ideally, environmental health services should be provided both in the public health care setting and with back-up services from the specialized centres. This arrangement would provide complementary services and a safety net for the children in the community. Networking will further enhance the strength of both the primary health care centres and specialized children's environmental health centres.

Plan of action

- Integrate children's environmental health into existing public health programmes, especially into primary health care programmes
- Support and strengthen specialized referral children's environmental health centres, and networks of such centres, in order to improve and facilitate prevention, diagnosis, management and treatment of environmentally-related illnesses



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- Promote work on human tissue measurements for contaminants that would enable clinicians to better measure children's exposure to chemicals (this would require, for example, some regional specialized environmental health laboratories)
- Incorporate children's environmental health into the Integrated Management of Childhood Illness (IMCI) program
- Promote the use of the environmental history in the context of childcare and prenatal visits
- Promote the adoption of age-appropriate and age-specific history taking
- Work with nurses to promote CEH issues, using already established international nurses groups

Expected outcomes

- Guidance for establishing Children's Environmental Health Centres
- Worldwide network of Children's Environmental Health Centres
- Primary prevention of environmental disease and disability
- Better health services for children affected by environmental hazards

Strategy 5. Awareness Raising and Education

Educate and raise awareness about prevention of environmental exposures and environmentally-related diseases in children

There is still a lack of awareness that children are not just little adults. They are uniquely vulnerable to environmental hazards and special attention needs to be paid to reducing their exposures at home, at school, and in the community. There is a need to update providers and adequately inform children, parents, members of the community, and other key stakeholders at all levels about the importance of children's health and the environment.

Plan of action

- Synthesize existing knowledge, science and interventions on the environmental determinants of childhood disease and disability
 - Publish State-of-the-Art reviews on selected children's environmental health topics and disseminate widely



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- Develop and maintain information sharing mechanisms with all relevant WHO partners
- Collaborate with other relevant UN bodies to prepare and disseminate CEH core information (e.g. website/portal, CD-ROM, other)
- Strengthen the capacity of primary health care workers on the recognition, assessment and prevention of environmentally-related effects in children - from pre-conception into adolescence by preparing, updating, and disseminating the existing training materials on CEH, guidance for training curricula, and recommendations for competencies for primary care providers and key specialist groups in children's environmental health
- Strengthen the capacity of schools and parents associations on the recognition and prevention of environmentally-related effects in children - from pre-conception into adolescence by creating a WHO Training Package for schools and parents, guidance for primary and secondary school curricula, and recommendations for teachers and parents.
- Encourage countries with established training capacities in children's environmental health to provide expert advice and support for training programmes regionally or bilaterally
- Promote certification programs for trained children's environmental health workers
- Promote the inclusion of clinical toxicologists in children's health programs at community level
- Provide seed funding and technical support to networks that promote children's environmental health research in high priority issues and prevention in high burden countries
- Facilitate meetings or conferences that incorporate children's environmental health
- Promote the use of participatory processes, and attention to the social, economic, and gender conditions driving health and environment linkages
- Develop a risk communications model (e.g. in response to local concerns such as waste sites)
- Provide communications training as part of effort for scientists to communicate and frame messages more clearly for media
- Create communications working groups including media, government and scientists around certain children's health and environment issues
- Encourage government(s) to develop hotlines and websites to communicate to the public on children's health and the environment
- Use the WHO CEH website as a portal to link to other sources, networks of information and report on follow-up actions to 1st, 2nd, 3rd WHO International CEH Conferences



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- Improve public education through print and other means (e.g., develop appropriate educational materials for children, provide multi-sectoral support to regional school districts on children's health and environment issues)
- Identify human interest stories to make children's health and environment issues more "media-friendly"
- Create critical mass of partners to attract media attention

Expected Outcomes

- Increased capacity to prevent disease in children from environmental causes and to promote children's environmental health
- Conferences and workshops that include children's environmental health components
- Children's environmental health research networks in low- and middle-income regions
- More inclusive participatory processes that drive health and environment linkages
- Improved risk communication on specific issues (e.g., waste sites, cancer, radon)
- Availability of communications training for scientists
- Improved public understanding of risks to children from environmental hazards

In a nutshell:

- **An unacceptable number of children are harmed or die unnecessarily from environmentally-related diseases every day;**
- **Developing countries bear a disproportionate share of the problem;**
- **Exposures to environmental hazards are largely preventable;**
- **Preventive interventions are effective in protecting children from adverse exposures;**
- **Political commitment and resources are needed to move effectively from research to action and to reduce the number of preventable deaths and illnesses.**

