WEEKLY EPIDEMIOLOGICAL REPORT
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Effect of the Environment on Children's Health

World Environment Day is commemorated each year on 5th June. It is one of the principal vehicles through which the United Nations stimulates worldwide awareness of the environment and enhances political attention and action. In this article, we mainly discuss the adverse effects of environment on the health of children.

More than three million children under five die each year from environment-related causes and conditions. This makes the environment one of the most critical contributors to the global toll of more than ten million child deaths annually -- as well as a very important factor in the health and well-being of their mothers.

Polluted indoor and outdoor air, contaminated water, lack of adequate sanitation, toxic hazards, disease vectors, ultraviolet radiation and degraded ecosystems are all important environmental risk factors for children, and in most cases for their mothers as well. Particularly in developing countries, environmental hazards and pollution are a major contributor to childhood deaths, illnesses and disability from acute respiratory diseases, diarrhoeal diseases, physical injuries, poisonings, insect-borne diseases and perinatal infections. Childhood death and illness from causes such as poverty and malnutrition are also associated with unsustainable patterns of development and degraded urban or rural environments.

Major environment-related killers in children under five years of age include diarrhoea, indoor air pollution, malaria and unintentional physical injuries.

- Diarrhoea, caused mainly by unsafe water and poor sanitation, kills an estimated 1.6 million children each year globally.
- Indoor air pollution associated with the still-widespread use of biomass fuels is responsible for nearly one million child deaths annually, mostly as a result of acute respiratory infections. Mothers, in charge of cooking or resting close to the hearth after having given birth, are most at risk of developing chronic respiratory disease.
- Malaria, which may be exacerbated as a result of poor water management and storage, inadequate housing, deforestation and loss of biodiversity, kills an estimated one million children under five annually, mostly in Africa.
- Unintentional physical injuries, which may be related to household or community environmental hazards, kill nearly 300 000 children annually: 60 000 are attributed to drowning, 40 000 to fires, 16 000 to falls, 16 000 to poisonings, 50 000 to road traffic incidents and over 100 000 due to other unintentional injuries.

Health-damaging exposure to environmental risks can begin before birth. Lead in air, mercury in food and other chemicals can result in long-term, often irreversible effects, such as infertility, miscarriage, and birth defects. Women's exposure to pesticides, solvents and

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persistent organic pollutants may potentially affect the health of the fetus.

Furthermore, children as young as five years old sometimes work in hazardous settings. Pregnant women living and working in hazardous environments as well as poor mothers and their children are at a higher risk, as they are exposed to the most degraded environments, often unaware of the health implications, and lack access to information on potential solutions.

Improving children's and mothers' environmental health by addressing and tackling issues affecting their health, presents an essential contribution towards the achievement of the Millennium Development Goals (MDGs).

In many cases, low-cost solutions for environmental health problems exist. For instance, simple boiling, filtration and disinfection of water at the household level dramatically improves the microbial quality of water, and reduces the risk of diarrhoeal diseases at low cost. Improved stoves reduce exposures to indoor air pollution. Better storage and safe use of chemicals at community level reduces exposures to toxic chemicals, especially among toddlers, who explore, touch and taste the products found at home. Personal protection from mosquitoes through the use of insecticide-treated mosquito nets has a proven track record of saving lives, particularly children's.

Education is the key - mothers who receive the information need to understand the environmental risks present in their homes and communities are better equipped to take appropriate action to reduce or eliminate exposure.

For more information please visit the websites of the World Health Organization (www.who.int) and the United Nations Environment Programme (www.unep.org).

Sentinel Surveillance of Respiratory Viruses

Human Influenza surveillance has been initiated in 20 hospitals identified as sentinel surveillance sites in the country. These institutions are expected to send specimens from patients suspecting of Influenza-like illness or any other respiratory viral infection, to the Medical Research Institute (MRI). We publish here data of samples sent to the MRI during the period January to April, 2007.

Table: Respiratory Virus Sentinel Surveillance Data from the Medical Research Institute, Colombo (Jan-Apr 2007)

Month	No. Tested	Adeno	Influenza A	Influenza B	Para influenza	RSV
Jan	99	2	1	2	0	0
Feb	97	0	0	1	4	2
Mar	97	1	0	0	3	1
Apr	73	1	8	0	1	0
Total	366	4	9	3	8	3

Source: Department of Virology/MRI

Stricter air pollution standards could reduce deaths in polluted cities by 15%

The World Health Organization (WHO) is today challenging governments around the world to improve air quality in their cities in order to protect people's health. The call comes as WHO unveiled its Air Quality Guidelines last year with dramatically lower standards for levels of pollutants. WHO believes that reducing levels of one particular type of pollutant (known as PM_{10}) could reduce deaths in polluted cities by as much as 15% every year.

Air pollution is estimated to cause approximately 2 million premature deaths worldwide per year. More than half of this burden is borne by people in developing countries. In many cities, the average annual levels of PM_{10} (the main source of which is the burning of fossil and other types of fuels) exceed 70 micrograms per cubic metre. The new guidelines say that, to prevent ill health, those levels should be lower than 20 micrograms per cubic metre.

Many countries around the world do not have regulations on air pollution, which makes the control of this important risk factor for health virtually impossible. The national standards which do exist vary substantially, and do not ensure sufficient protection for human health. While the WHO accepts the need for governments to set national standards according to their own particular circumstances, these guidelines indicate levels of pollution at which the risk to health is minimal. As such, the new WHO guidelines provide the basis for all countries to build their own air quality standards and policies supporting health with solid, scientific evidence.

Air pollution, in the form of particulate matter or sulfur dioxide, ozone or nitrogen dioxide, has a serious impact on health. For example, in the European Union, the smallest particulate matter alone (PM2.5) causes an estimated loss of statistical life expectancy of 8.6 months for the average European. While particulate matter is considered to be the main air pollution risk factor for human health, the new guidelines also recommend a lower daily limit for ozone, reduced from 120 down to 100 micrograms per cubic metre. Achievement of such levels will be a challenge for many cities, especially in developing countries, and particularly those with numerous sunny days when ozone concentrations reach the highest levels, causing respiratory problems and asthma attacks.

For sulfur dioxide, the guideline level was reduced from 125 to 20 micrograms per cubic metre. Experience has demonstrated that relatively simple actions can rapidly lower sulfur dioxide levels and directly result in lower rates of childhood death and disease. However, meeting these limits, which are essential to prevent the health consequences of exposure such as bronchitis, remains a great challenge in many areas where vehicular traffic is intensive.

Table 1: Vaccine-preventable Diseases & AFP

26th May - 1st June 2007 (22nd Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
Acute Flaccid Paralysis	01 CB=1	01 ML=1	01 MT=1	00	00	01 AP=1	00	01 RP=1	05	00	39	56	-30.3%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	00	00	00	00	00	02	32	12	+166.7%
Tetanus	00	00	00	00	00	00	00	00	00	01	14	26	-46.1%
Whooping Cough	00	00	00	00	00	00	00	00	00	03	18	43	-58.1%
Tuberculosis	83	00	10	33	00	00	00	00	126	250	4306	4515	-4.6%

Table 2: Diseases under Special Surveillance

26th May - 1st June 2007 (22nd Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
DF/DHF*	22	04	04	06	05	05	02	13	61	104	1969	4077	-51.7%
Encephalitis	00	00	01 HB=1	00	00	00	00	01 KG=1	02	01	100	59	+69.5%
Human Rabies	00	00	00	00	01 KR=1	00	00	00	01	01	29	27	+7.4%

Table 3: Newly Introduced Notifiable Diseases

26th May - 1st June 2007 (22nd Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Total number of cases to date in 2007
	W	C	S	NE	NW	NC	U	Sab		
Chickenpox	14	01	10	03	05	06	04	07	50	1604
Meningitis	00	00	00	00	00	00	00	00	00	49
Mumps	07	02	03	02	02	01	02	04	23	593

*DF / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.
NA= Not Available.

Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases: Tuberculosis.

Details by districts are given in Table 5.

Provinces: W=Western, C=Central, S=Southern, NE=North & East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.

DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 4: Laboratory Surveillance of Dengue Fever

26th May - 1st June 2007 (22nd Week)

Samples	Number tested	Number positive *	Serotypes				
			D_1	D_2	D_3	D_4	Negative
Number for current week	09	02	00	02	00	00	00
Total number to date in 2007	281	17	00	07	04	00	05

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo. * Not all positives are subjected to serotyping.

Table 5: Selected notifiable diseases reported by Medical Officers of Health
26th May - 1st June 2007 (22nd Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Returns Re-ceived Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	16	530	20	141	00	04	01	34	01	43	01	60	00	01	07	24	**92**
Gampaha	04	215	11	133	00	14	02	35	00	28	02	121	01	07	02	45	**71**
Kalutara	02	140	14	190	00	01	00	26	02	16	00	57	00	01	00	31	**100**
Kandy	03	214	03	125	00	03	00	30	00	06	00	36	00	37	213	910	**82**
Matale	00	55	01	94	00	04	00	08	00	03	00	18	00	03	01	77	**67**
Nuwara Eliya	01	26	07	123	00	01	08	56	00	366	02	08	01	24	07	155	**100**
Galle	02	49	09	72	00	06	02	08	00	03	00	30	01	18	01	11	**88**
Hambantota	00	26	02	31	01	05	02	15	00	09	03	28	01	20	01	08	**100**
Matara	02	72	10	127	00	06	02	22	00	10	02	100	07	111	00	14	**100**
Jaffna	00	15	00	65	00	02	00	274	00	02	00	00	00	79	00	14	**00**
Kilinochchi	00	01	00	00	00	00	00	03	00	00	00	00	00	02	00	02	**00**
Mannar	00	07	00	11	00	00	00	38	00	00	00	00	00	00	00	05	**75**
Vavuniya	00	10	01	23	00	04	00	09	00	13	00	02	00	00	00	03	**100**
Mullaitivu	00	03	00	09	00	05	00	13	00	00	00	00	00	00	00	00	**60**
Batticaloa	06	48	08	300	00	08	00	13	05	07	00	00	00	00	18	232	**64**
Ampara	00	01	05	46	00	00	00	03	00	00	00	00	00	00	01	14	**57**
Trincomalee	00	36	02	95	00	01	00	12	00	23	00	03	00	03	04	48	**78**
Kurunegala	05	166	13	188	00	01	02	32	00	12	00	12	00	24	02	23	**94**
Puttalam	00	68	01	43	00	09	01	35	00	00	00	14	00	00	01	55	**78**
Anuradhapura	05	38	06	43	00	07	00	16	01	10	00	14	00	17	00	26	**74**
Polonnaruwa	00	32	02	46	00	02	00	04	00	01	00	16	00	00	00	11	**86**
Badulla	01	18	31	261	00	00	06	44	00	08	00	23	01	64	05	118	**93**
Monaragala	01	10	19	142	00	01	02	21	00	10	03	28	00	30	01	14	**90**
Ratnapura	02	95	07	283	00	10	00	34	00	08	02	26	00	08	00	39	**63**
Kegalle	11	92	14	125	01	05	00	25	00	04	03	47	01	11	13	41	**82**
Kalmunai	0	02	07	79	00	01	00	06	00	00	00	00	00	02	01	78	**92**
SRI LANKA	**61**	**1969**	**193**	**2795**	**02**	**100**	**28**	**816**	**09**	**582**	**18**	**643**	**13**	**462**	**278**	**1998**	**80**

Source: Weekly Returns of Communicable Diseases (WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 9 June 2007. Total number of reporting units = 290. Number of reporting units data provided for the current week: 233
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

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