Recent Global Environmental Change and Children's Health

International Symposium of JECS

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World Health Organization

World Health Organization

Function: act as the UN directing and coordinating authority on international health work

Objective: "the attainment by all peoples of the highest possible level of health"

Definition: "HEALTH is a state of COMPLETE physical, mental and social well-being and not merely the ABSENCE of disease or infirmity" (*Constitution, 1948*)

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PEOPLE

Last but not least, WHO is people. Over 8000 public health experts including doctors, epidemiologists, scientists, managers, administrators and other professionals from all over the world work for WHO in 147 country offices, six regional offices and at the headquarters in Geneva, Switzerland.

When diplomats met in San Francisco to form the United Nations in 1945, one of the things they discussed was setting up a global health organization. WHO's Constitution came into force on 7 April 1948 – a date we now celebrate every year as World Health Day.

Delegates from 53 of WHO's 55 original member states came to the first World Health Assembly in June 1948. They decided that WHO's top priorities would be malaria, women's and children's health, tuberculosis, venereal disease, nutrition and environmental sanitation – many of which we are still working on today. WHO's work has since grown to also cover health problems that were not even known in 1948, including relatively new diseases such as HIV/AIDS.

1948

International Classification of Disease

WHO took over the responsibility for the International Classification of Disease (ICD), which dates back to the 1850s and was first known as the International List of Causes of Death. The ICD is used to classify diseases and other health problems and has become the international standard used for clinical and epidemiological purposes.

1974 Onchocerciasis control programmme

WHO worked for 30 years to eliminate onchocerciasis – or river blindness – from West Africa. 600 000 cases of blindness have been prevented and 18 million children spared from the disease. Thousands of farmers have been able to reclaim 25 million hectares of fertile river land that had been abandoned because of the risk of infection.

Mr Ali Moallin (left), from Somalia, was the last person known to be infected with smallpox. Here he stands with the doctor who treated him more than 25 years ago. All has since worked on polio eradication campaigns.

1979

Eradication of smallpox

The eradication of smallpox – a disease which had maimed and killed millions – in the late 1970s is one of WHO's proudest achievements. The campaign to eradicate the deadly disease throughout the world was coordinated by WHO between 1967 and 1979. It was the first and so far the only time that a major infectious disease has been eradicated.

1983 Institut Pasteur (France) identifies HIV.

2003

WHO Framework Convention on Tobacco Control

21 May 2003 was a historic day for global public health. After nearly four years of intense negotiations, the World Health Assembly unanimously adopted WHO's first global public health treaty. The treaty is designed to reduce tobacco-related deaths and disease around the world.

2004 Adoption of the Global Strategy on Diet, Physical Activity and Health.

1952 Dr Jonas Salk (US) develops the first successful polio vaccine.

1967 South African surgeon Christiaan Barnard conducts the first heart transplant.

1974 The World Health Assembly adopts a resolution to create the Expanded Programme on Immunization to bring basic vaccines to all the world's children.

1977 The first Essential Medicines List appeared in 1977, two years after the World Health Assembly introduced the concepts of "essential drugs" and "national drug policy". 156 countries today have a national list of essential medicines.

1952–1964

Global yaws control programme

One of the first diseases to claim WHO's attention was yaws, a crippling and disfiguring disease that afflicted some 50 million people in 1950. The global yaws control programme, fully operational between 1952-1964, used long-acting penicillin to treat yaws with one single injection. By 1965, the control programme had examined 300 million people in 46 countries and reduced global disease prevalence by more than 95%.

1978 The International Conference on Primary Health Care, in Alma-Ata, Kazakhstan sets the historic goal of "Health for All" – to which WHO continues to aspire.

1988

Global Polio Eradication Initiative established

Since its launch in 1988, the Global Polio Eradication Initiative has reduced the number of cases of polio by more than 99% – from more than 350 000 per year to 1956 in 2006. Spearheaded by national governments, WHO, Rotary International, the US Centers for Disease Control and Prevention and UNICEF, it has immunized more than two billion children thanks to the mobilization of more than 20 million volunteers and health workers. As a result, five million children are today walking, who would otherwise have been paralysed, and more than 1.5 million childhood deaths have been averted.

THE GOAL IS TO ERADICATE POLIO WORLDWIDE SO THAT NO CHILD WILL EVER AGAIN BE PARALYZED BY THIS DISEASE.

2003 Severe Acute Respiratory Syndrome (SARS) first recognized and then controlled.

2005 World Health Assembly revises the International Health Regulations.

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Environmental impacts on health

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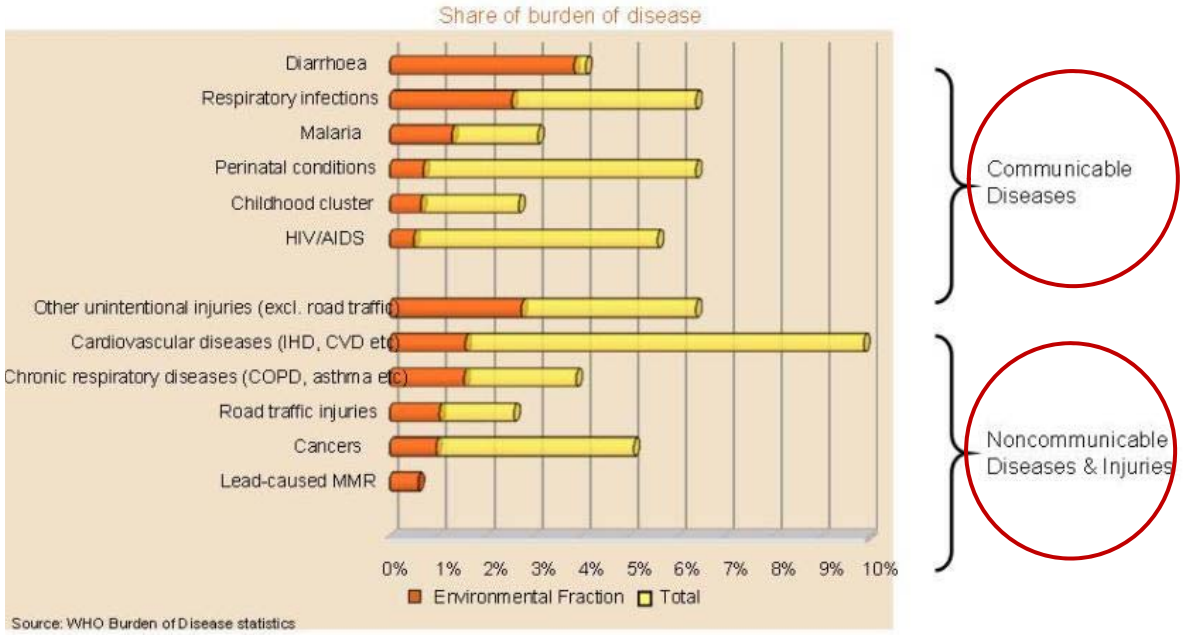
Environmental burden of diseases



- **Environmental factors cause more than 25% of the global burden of disease and significantly contribute to the burden of communicable and non-communicable diseases and injuries**
- **Every year about 3.000.000 children under 5 die due to diseases linked to the environment**

WHO/ NASA

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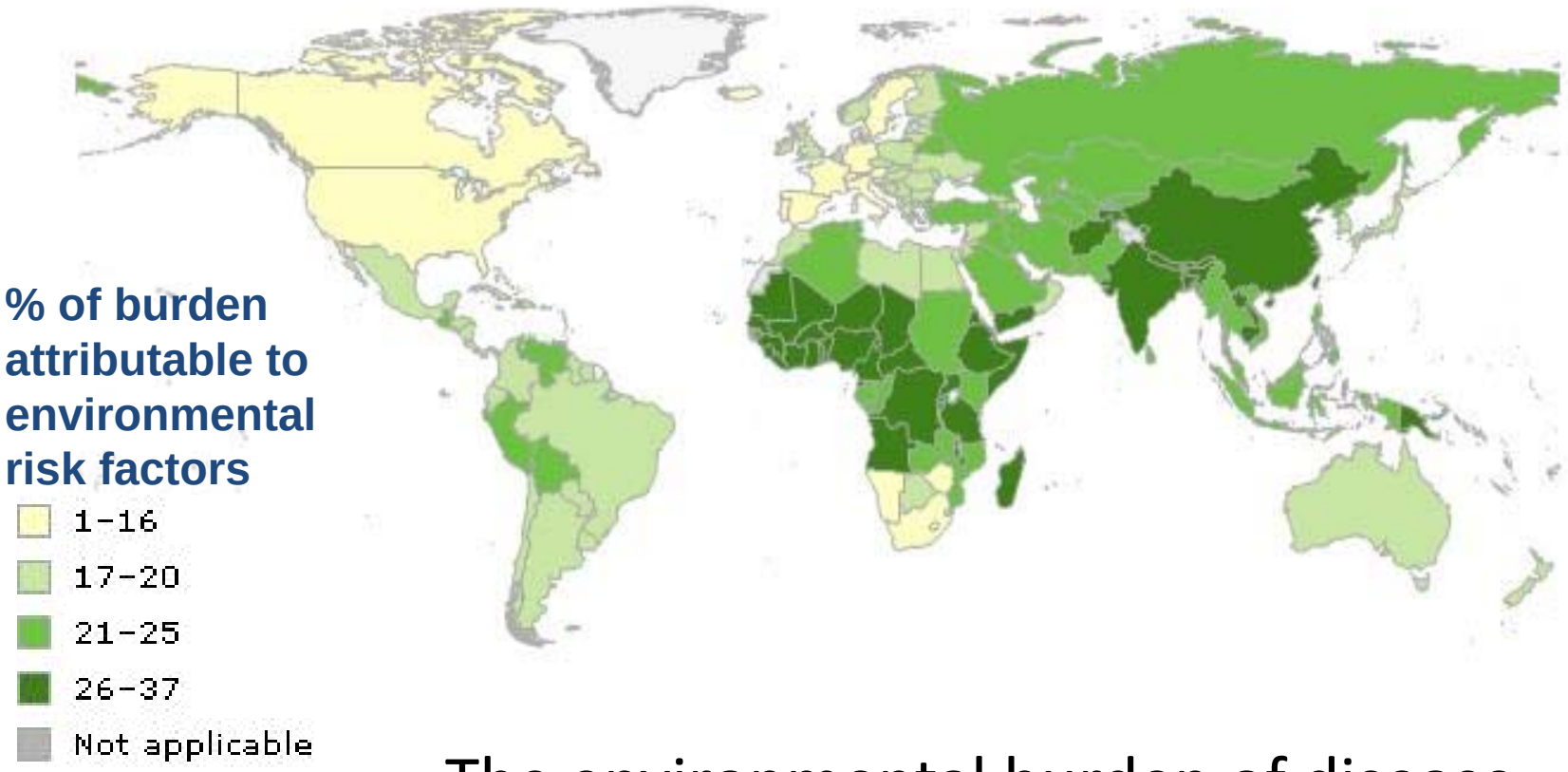
Burden is highest in the poorest



The environmental burden of disease: highest in the poorest countries

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Main Global Environmental Health Risks

- Poor hygiene and sanitation
- Household water insecurity
- Disease vectors
- Chemical hazards
- Injuries and accidents
- Air pollution – indoor and outdoor
  - Estimated in 2012 that 7 million people died (1 in 8 global deaths) as a result of air pollution exposure

Accra, Ghana *Andrew McConnell* *WHO*

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Emerging Issues

New, "re-emerging“ or rapidly increasing potential threats to children's health

- Global climate change
- Ozone depletion
- Persistent organic pollutants
- Obesity
- Electrical and electronic waste
- Endocrine disruption

WHO/ US EPA

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Air pollution and health

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Health impacts of the air pollution

- **Outdoor air pollution** → 3.7 million deaths/yr – mostly from urban exposures
- **Indoor air pollution** → 4.3 million deaths/yr – mostly from inefficient biomass and coal cook stoves
- **Polluted air, unsustainable transport systems, poor diet are major contributors to non-communicable disease.**

(Lim S et al, Lancet, 2012)

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Chemicals and health

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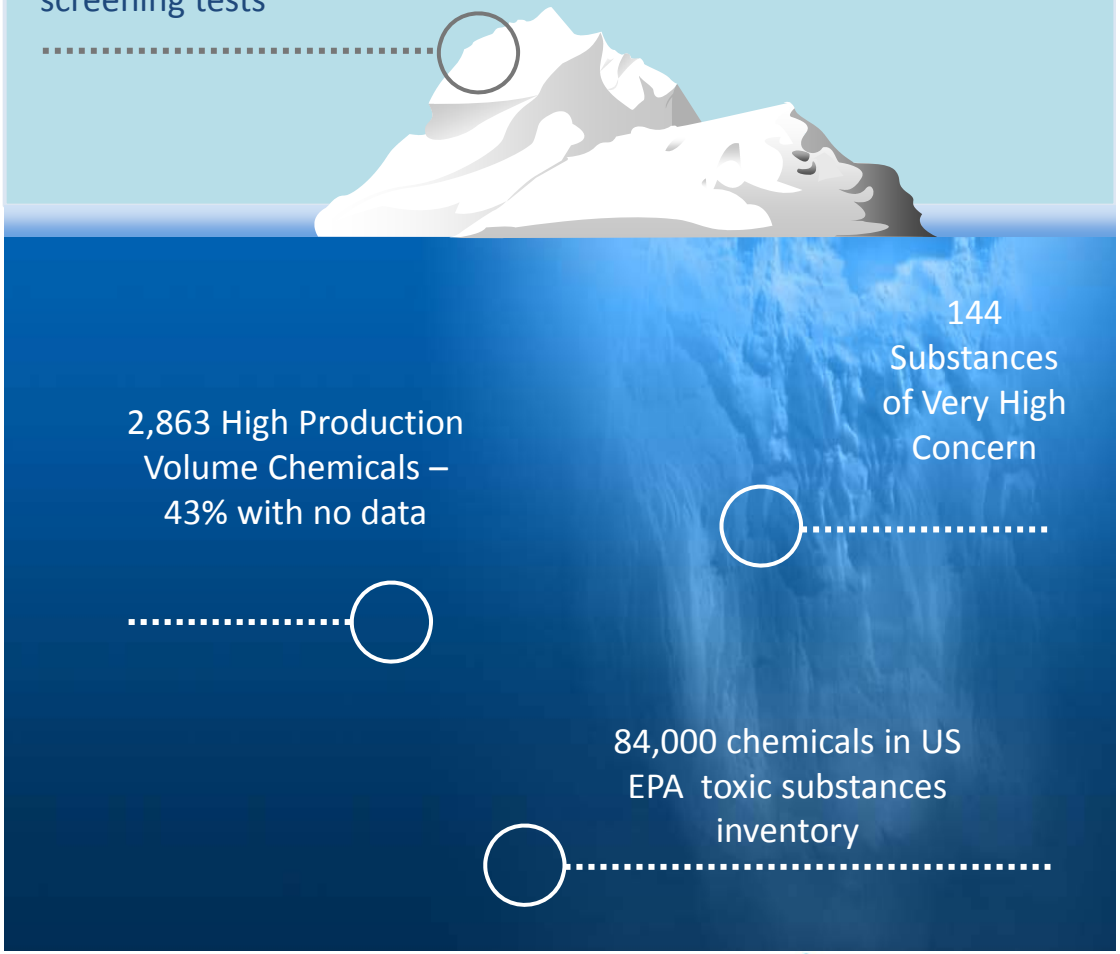
The Tip of the Iceberg

"In the 35 years since [the US Toxic Substances Control Act] was passed, we have only been able to require testing on approximately 200 of the 84,000 chemicals listed on the TSCA Inventory. The EPA has also relied on voluntary programs to collect data, including through the High Production Volume (HPV) Challenge Program, which resulted in the submittal of screening level data for 1,366 HPV chemicals."

Testimony of James J. Jones, Acting Assistant Administrator, Office of Chemical Safety and Pollution Prevention, U.S. EPA before the United States Senate, July 24, 2012

In 1998, US EPA evaluated the 2,863 "high production volume" chemicals (over 500 tons p.a.) :



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When prevention fails, one of our key roles is providing assistance and guidance in responding to environmental emergencies around the world, drawing upon all our headquarters and regional resources.

Hungary - toxic sludge & mud, 2010

Nigeria – mass lead poisoning, 2010

Haiti earthquake – sanitation & water, 20

Angola – mass bromide poisoning, 2007

Japan – Fukushima nuclear accident 2011

Russia wildfires – toxic air, 2010

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Children's Environmental Health

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What is different from adults?

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1. Different and unique exposures
2. Dynamic developmental physiology
3. Longer life expectancy
4. Politically powerless

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Critical role of health and environment professionals

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- **Diagnose and treat**
- **Publish, research**
  - Sentinel cases
  - Community-based interventions
- **Educate**
  - Patients and families
  - Colleagues and students
- **Advocate**
- **Provide good role model**

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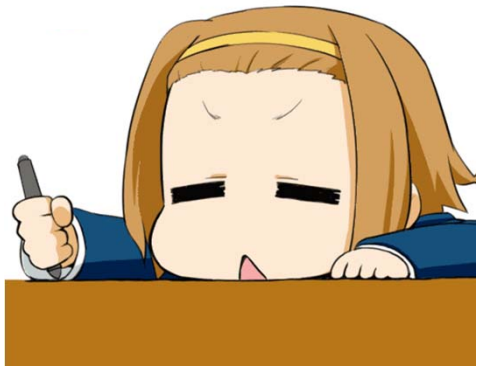
Children's cohort studies

- Practical way to know the actual environmental exposure
- Might answer the questions of the "cause-effect relationships" between environmental chemicals and children's diseases
- Collected bio samples are treasures of the world

But there are challenges …

- Time consuming
- Costs very high
- Parents might get tired and bored
- Staffs might get tired and bored



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However,…

1. The data of JECS is from 100,000 children and their parents. The data will be very powerful
2. The results will help global health communities to understand more precisely the impacts on children of their surrounding environment

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3. The outcomes will help administrators to develop countermeasures to protect children
4. To be able to prevent possible adverse health effects if we learn what the causes are

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Hopefully,…

- All the participated children and their parents will complete their missions
- The children will be followed after 13 years old, until they become adult to see the effects at later years

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Your efforts will save the future children of the world

- The results of JECS will help WHO to take actions to protect future children
- Your efforts will save not only Japanese future children, but also the children worldwide

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