



UNICEF's work on children's environmental health: Air pollution



Healthy Environments
for Healthy Children

Key child statistics from SOGA



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Air pollution was the second leading risk factor for death among children under five years in 2021, after malnutrition. In 2021:

- More than 700,000 deaths in children under 5 years were linked to air pollution; this represents **15%** of all global deaths in children under five. [2000/day]
- More than 270,000 newborn deaths were linked to air pollution; this represents **26%** of all global newborn deaths.
- **34%** of preterm births globally were linked to air pollution. Complications associated with preterm birth are the leading cause of death in children under 5. Preterm babies who survive may face lifelong health consequences due to disabilities and developmental delays.
- The air pollution-linked death rate in children under the age of five in Sub-Saharan Africa is 100 times higher than their counterparts in high-income countries.
- More than 70% of air pollution related deaths in children under 5 are attributable to household air pollution. Most of these deaths occurred in Africa and Asia with India, Nigeria, Pakistan, Ethiopia and Bangladesh seeing the largest numbers of air pollution-related deaths among these children.
- Exposure to air pollution in young children is linked to pneumonia, responsible for 1 in 5 child deaths globally, and asthma, the most common chronic respiratory disease in older children.
- Seven most dangerous sources of Air Pollution: **Household; Traffic hotspots; Waste-related; Industrial; Secondhand Smoke; Wildfire/landscape fires; Dust storms**

Air pollution damage starts in the womb with health effects that can last a lifetime

Inhaled air pollutants can be deposited into the lungs, where they alter lung defenses. Some enter directly into the bloodstream and deeper tissues, including the heart, brain and other organs.



Children are not little adults. They have unique vulnerabilities.



Air pollution impacts developing bodies and brains.



Health impacts can last a lifetime.

Pregnancy

- Pregnant woman inhales increased amount of air per minute
- Some pollutants can cross placenta and reach the fetus; These include air pollution resulting from the use of inefficient, polluting fuels and technologies and or from second-hand smoke

- Maternal changes due to air pollution exposure, such as inflammation and oxidative stress, indirectly affect fetus
- Negative impacts on development of respiratory, cardiovascular, immune, endocrine and nervous systems

- **Maternal health:** Gestational diabetes, pre-eclampsia, gestational hypertension, and postpartum depression
- **Adverse birth outcomes:** Low birth weight, miscarriage, preterm birth, stillbirth
- **Impacts on lifelong child health:** Congenital heart defects, pneumonia in first year of life, neurodevelopmental disorders, stunting, development of asthma, eczema and allergic disease, and high blood pressure

Infancy and Childhood

- Inhale more air per kilogram of body weight and absorb more pollutants relative to adults
- Ineffectively filter pollutants in nasal passages
- Lack ability to control exposure, both indoors and outdoors
- Live closer to the ground, so may breathe in more ground-level pollution

- Lungs, brain and other organs still developing
- Inflammation in children's smaller airways causes proportionally more blockage and resistance to air flow

- Pneumonia
- Upper respiratory tract infections
- Ear infections
- Asthma, allergies and eczema
- Altered growth (stunting and obesity)

- High blood pressure
- Childhood leukemia
- Impaired cognitive development, including autism spectrum disorders

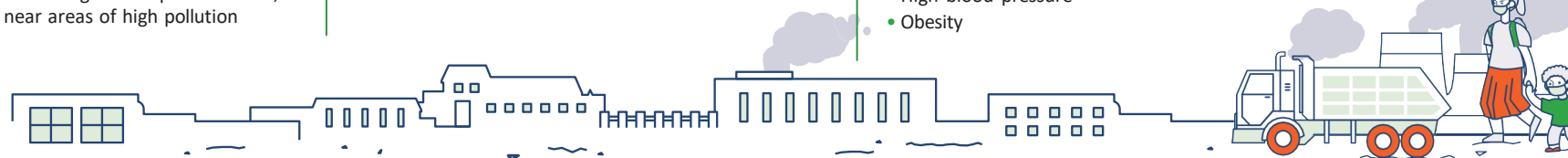
Adolescence

- May spend time outside playing sports, walking to school in high pollution areas and other activities
- Lack control over location of organized sport activities, which may be located near areas of high pollution

- Lung-function development continues in girls until late teens and in boys until early 20s

- Upper respiratory tract infections
- Asthma and allergies
- High blood pressure
- Obesity

- Impaired cognitive development



More than 1800 health workers are learning about children's environmental health



UNICEF Executive Director and WHO Director-General, highlight introduce the global e-learning course on CEH

Case studies: Mongolia and Nepal



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- In [Mongolia](#), UNICEF worked with government partners to install and run a network of low-cost sensors in schools. Availability of air quality data eventually led to the development and installation of new air ventilation systems that are now being piloted in six kindergartens and three healthcare facilities. UNICEF supported the Cooking, Heating and Insulation Products (CHIP) package. CHIP packages have already been installed in 1,676 households and 11 kindergartens and 12 schools in Mongolia. 90% of CHIP users agreed that CHIP improved their gers' indoor air quality, and 89% of respondents said that air intake fans are safe for their health and comfort.
- In [Nepal](#), UNICEF partnered with local governments in six remote municipalities to distribute cleaner eco-cookstoves among more than 9,800 households to improve maternal and child health, and to reduce deforestation.



1. Context



2. Climate change



3. Pollution



4. Built environment



5. Injuries



6. Antimicrobial resistance



7. Occupational health

Select an indicator

Children under 18 exposed to water scarcity (%)

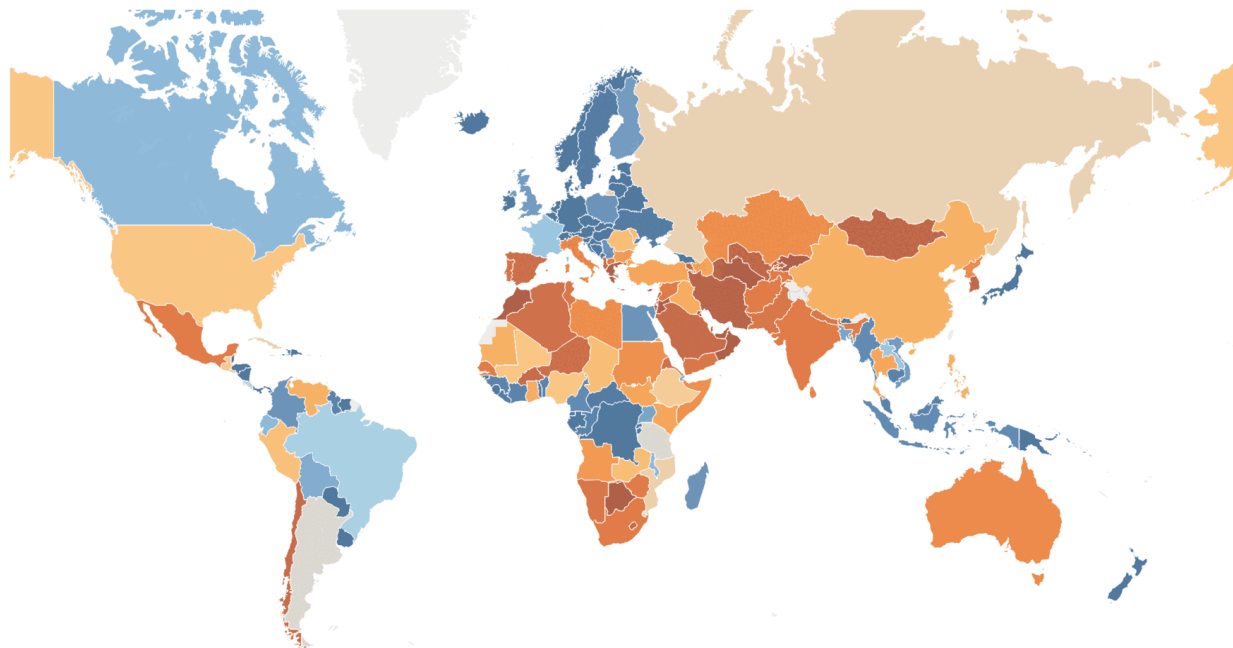
Global status

Country comparison

Equity

Climate change: Children under 18 exposed to water scarcity (%)

Data provider: WRI



- The [Children's Environmental Health Profiles](#) provides the first comprehensive overview of environmental risks to children, including air pollution
- CEH Collaborative [spotlight risk page for air pollution](#)

Additional resources:

- Animation videos: [Air pollution threatens the life of children everywhere](#), [Extreme heat to air pollution harms children](#)
- Videos from Vietnam:
 - Indoor and ambient air pollution: <https://youtu.be/ZMBLBx9Kb-I>
 - Outdoor air pollution: <https://youtu.be/3rTplfE8xQI>
 - Indoor air pollution: https://youtu.be/b7ovGRgK_y0
- Video from Cambodia: <https://www.youtube.com/watch?v=JDVI6sf4bho>
- Stories: [Girls in Central Asia take to the sky](#), [How do you fight air pollution in Mongolia? Start with ballet](#), [When clean air becomes a luxury, healthy lives are denied](#)



Communication assets

Social media handles to tag

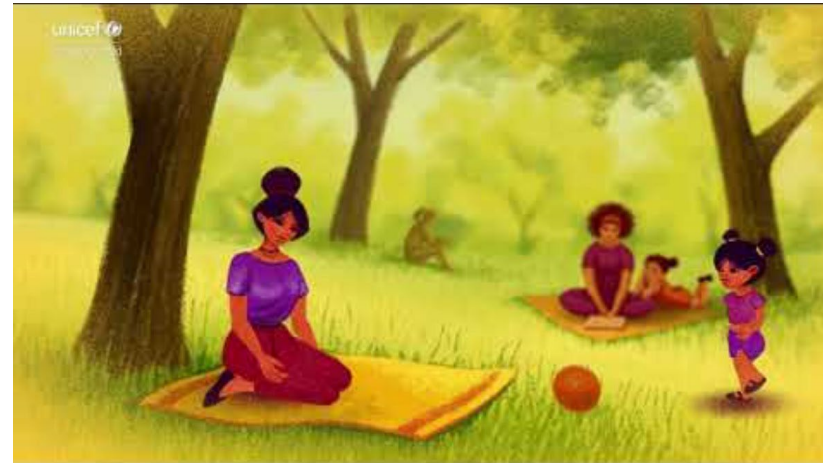
X (formerly Twitter): [@HEISoGA](#),
[@HEIresearch](#), [@UNICEF](#),
[@UNICEFHealth](#)

Facebook: [State of Global Air](#), [UNICEF](#)

LinkedIn: [Health Effects Institute](#), [UNICEF](#)

WhatsApp: [UNICEF Health](#)

More than
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