

Global Environmental Health at NIEHS

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Vision for Global Environmental Health

- The health of vulnerable populations is threatened by environmental toxins
- All vulnerable populations in every country and every community have the right to be protected against environmental threats to their health
- There is a critical lack of knowledge about environmental threats to peoples health
- There is a critical shortage of researchers and clinicians trained in environmental health

Extramural

57 projects in 35 countries

Intramural

31 projects in 12 countries



Environmental Health Issues Around the Globe

- Climate change and global transport of POPs
- Burning of biomass indoors for cooking and heating
 - Health effects – respiratory disease and low birth weight
- DDT for malaria control
 - Neurodevelopmental risks due to DDT/DDE vs. malarial risks
 - Thyroid and testicular effects
- Aflatoxin exposures in foodstuffs
 - Liver cancer, childhood growth and development issues
- Recycling of electronics and transport to the third world
 - Exposures to metals and solvents to children who work in the garbage dumps

Bangladesh

- **Consequences of Arsenic and Manganese exposure on childhood intelligence.** Studies have shown decrease in IQ points in relation to arsenic and manganese exposure
- **Health Effects of Arsenic Cohort Study (HEAL):** Research focus on skin lesions and skin cancer. Studies indicate increased mortality as function of increasing arsenic exposure
- **Mitigation of As Mobilization in Groundwater.** Research focused on methods to reduce arsenic drinking water concentrations through well drilling and point source treatment
- **Mobilization of Natural As and Mn in Groundwater.** Research focused on investigating interactions between hydrology, mineralogy, geology and geochemistry that result in naturally-elevated As concentrations ($> 10 \mu\text{g/L}$) in reducing groundwater

Mexico

- **The Human Genetics of Arsenic Biotransformation.** Research focused on potential genetic determinants of arsenic metabolism in a population in Sonora Mexico. Subset of children may have increased susceptibility to arsenic toxicity by metabolism skewed toward accumulation of toxic species

Chile

- **Arsenic Biomarker Epidemiology.** Research focused on early life exposure and health effects. Early life exposure resulted in 10-fold increase in childhood death from liver cancer and 7-fold increased death rate from lung cancer in young adults

West Bengal

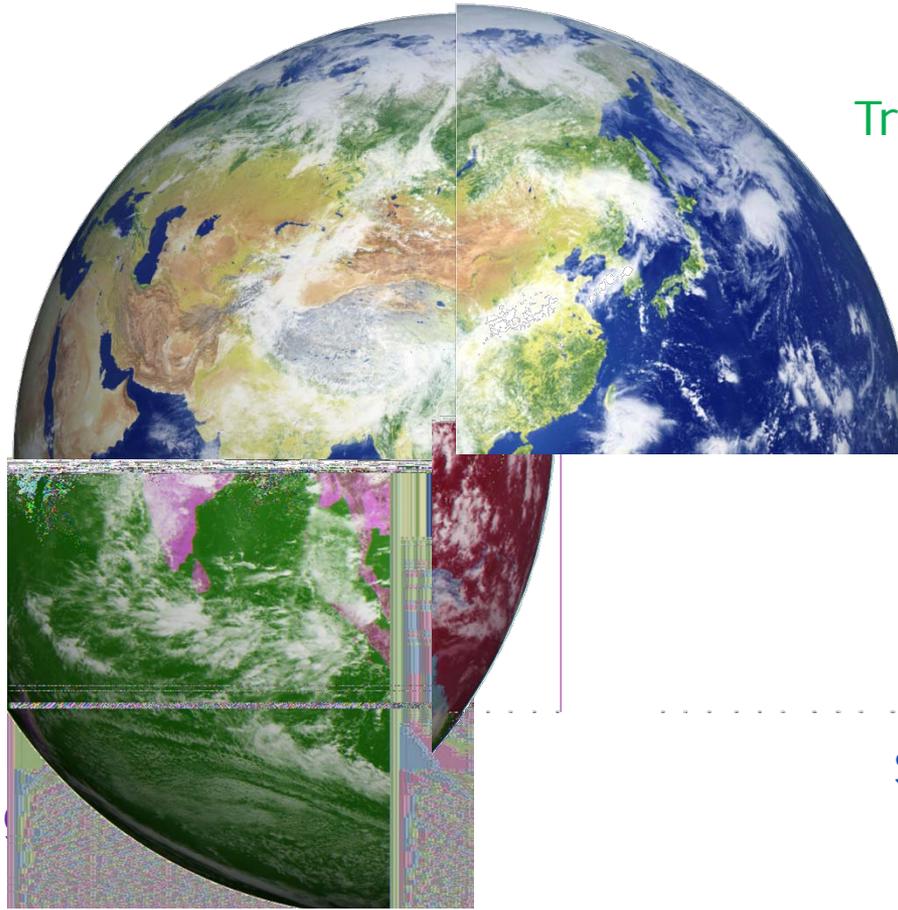
- **Arsenic Biomarker Epidemiology.** Research focused on early life exposure and health effects. Studies observed between six-fold increase in stillbirth among women drinking water with arsenic levels $\geq 200\mu\text{g/liter}$

China

- **PAHs in Highly Exposed Populations: Composition, Exposure and Mutagenicity.** Research focus is on characterizing composition and aging of and exposure to PM bound PAH in populations from Beijing China and Confederated Tribes of the Umatilla Indian Reservation

Scientific
Research

Training & Education



Outreach &
Capacity Building

Scientific Service