



ENVIRONMENT AND HEALTH



THE ENERGY AND
RESOURCES INSTITUTE

Creating Innovative Solutions for a Sustainable Future



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Owing to mounting evidence of climate change impacts, air- pollution exposures which have an undeniable effect on human health across the globe including India, protecting human health become a top priority for everyone. To reduce the vulnerability to human health and for creating actionable policy-making, the Environment and Health Area at TERI works towards:

- Building scientific evidence on the benefits of clean air
- Strengthening resilience of the population to climate change through capacity building of decision-making systems and behavioural change in the community

To achieve these, the Area focuses on the following:

- Strengthening the health systems by developing a robust integrated surveillance system for air pollution-linked illnesses
- Building information tools and knowledge-sharing mechanisms to combat environment and health-related challenges
- Promoting climate-sensitive agriculture to build health resilience of community and bolster nutrition security
- Investigating exposure-response relationship between environmental/ micro-environmental factors and health



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Transformative Impact

Impact 1: With support from UNICEF India, a heavy metal assessment of water of the River Yamuna was conducted, resulting in recommendations by government bodies for the river water quality-related exposures vis-à-vis health risks and prohibitions by the National Green Tribunal (NGT).

Impact 2: Assessment of benzene concentration at retail outlets of petrol was undertaken to compare levels of benzene with and without the Vapour Recovery System (VRS); the project was supported by DST. The work resulted in the final 'Comprehensive Action Plan, 2017' by the Environment Pollution Control Authority (EPCA) and the NGT guidelines came into force for installation of Stage I and Stage II VRS in all retail outlets with a capacity of 3000 km and more in the 46 million-plus cities.



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Theme 1: Air Pollution and Health Effects

The team constantly strives to catalyse behavioural change and accelerate clean air practices in communities by facilitating discussions and discourses with several stakeholders, such as petroleum companies, municipalities, state/central pollution control boards, health care providers, education providers, and related ministries.

Key projects

- *Capacity building for surveillance of air pollution-related illnesses in government hospitals:* Funded by the World Bank, this project is designed to form a surveillance system for air pollution-related diseases for government hospitals on a digital platform of the Ministry of Health and Family Welfare. Over time, this platform would help visualize data and compute statistical associations.
- *Does poor ambient air quality adversely affect biomarkers in outdoor workers?* This project aims to compare differences in biomarker levels related to air pollution among a population



with different levels of exposures and develop statistical models to explore and quantify the relationship between biomarkers and different air pollution concentrations.

- *Assessing the health status of population exposed to different air pollution levels in ecologically-distinct settings:* This project, funded by Shakti Sustainable Energy Foundation (SSEF), focused on the differences in PM_{2.5} chemical composition across six ecologically different districts of India, i.e. agricultural, desert, mega-city, coastal, and industrial. It also assessed the respiratory health of children, aged 14-17 years.
- *Does air quality from crop residue burning in close proximity to residential areas adversely affect respiratory health?* A project sponsored by the Central Pollution Control Board has built evidence of effects of crop residue burning on the health of the farming community. Such evidence would help accelerate policy-level intervention(s) to eliminate crop residue burning and result in the air quality benefits across the country.



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Theme 2: Climate Change and Health Challenges

TERI houses Centres of Excellence (CoE) for Health Adaptation Plans for Climate Change for the Ministry of Health and Family Welfare (MoHFW) under the Government of India. It contributes in developing national, and state-level plans for building the resilience of health against climatic challenges, and health vulnerability assessment is a priority area for building resilience. As CoE, TERI is a member of the national and state committees of health adaptation planning.

Key projects:

- *Understanding Climate and Health Associations in India (UCHAI)*: To bridge the knowledge gap in climate-linked health effects, the area hosts a secretariat for an initiative known as Understanding Climate and Health Associations in India. UCHAI, partly sponsored by the National Institute of Environmental Health Sciences (NIEHS), USA, focuses on the review of national and state health action plans.



- *Food and Land Use (FOLU) Coalition*: FOLU India Country Platform was formed in early 2019. The vision for FOLU India is a nutritionally



secure, healthy and prosperous India, which sustainably manages its food supply chains and land-use systems, supported by a productive, efficient, and inclusive economy.

Theme 3: Environment

The area works on a broad spectrum of exposure-response relationship studies including environmental studies in rural and urban hotspots; assessment of heavy metals in environmental compartments; and examination of occupational risks and health effects in microenvironments.

Key projects:

- *Study to test, operationalize preventive approaches for chronic kidney disease of*



uncertain etiology in Andhra Pradesh: Funded by the Government of Andhra Pradesh (GoAP), it is a Task Force project of the Indian Council of Medical Research (ICMR). The objective is to establish disease burden, etiology, natural history, economic consequences of chronic

kidney disease of uncertain origin (CKDu), and develop evidence-guided interventions for the general improvement of health conditions in the high CKDu incidence areas of Andhra Pradesh, such as Uddanam region in Srikakulam district.



Ministry of Health and Family Welfare
Government of India

Centre of Excellence for
Ministry of Health and
Family Welfare



Website for
UCHAI



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Infographics on
environmental
health issues



Videos on
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Sponsors and Partners

All India Institute of Medical Sciences (AIIMS), Central Pollution Control Board (CPCB), Department for International Development (DFID) UK, Department of Science and Technology (DST), National Centre for Disease Control (NCDC), The George Institute for Global Health, Government of Andhra Pradesh (GoAP), Government of Madhya Pradesh (GoMP), Health Effects Institute (HEI) USA, Indian Council of Medical Research (ICMR), Ministry of Health and Family Welfare (MoHFW), National Institute of Environmental Health Sciences (NIEHS), North Carolina Institute for Climate Studies, Norwegian Institute of Public Health, Shakti Sustainable Energy Foundation, UNICEF India, Wellcome Trust UK, World Bank, WHO SEARO.



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