



The SRIHER-CLARKSON UNIVERSITY Collaboration

Exposure to indoor and outdoor airborne pollutants is one of the leading risk factors contributing to burden of disease in India. The interrelated nature of ambient and household exposures, and the resultant health effects requires their joint consideration while framing policy actions in India. In addition, the dependence of air quality on our choice of energy sources and on the state of the atmosphere makes it critical to understand the connection between climate and air quality. Interventions that reduce (climate relevant) emissions and (health relevant) exposures would fit well within a co-benefits framework whereby benefits could accrue for health and climate at national and global scales. To develop such interventions, there is a critical need for personnel with inter-disciplinary expertise in Indian Institutions.

The Indo-US Knowledge initiative aims to address the above-mentioned national needs through Indo-US collaboration between two well-recognized research groups at Clarkson University (CU), USA and Sri Ramachandra Institute for Higher Education and Research (SRIHER), India. As part of this initiative, SRIHER and CU have partnered with the Indian Council for Medical Research, to develop and deploy a suite of inter-disciplinary short courses on air quality, human health, and climate change, conduct multi-lateral visits between scientists of the three institutions, and initiate novel research programs at the three institutions concerning the development and validation of low-cost air quality sensors.

Short Description of Course

The short courses being developed as part of the collaboration are being offered to wider network participants in India from academic and Governmental collaborating institutions of ICMR and SRIHER. They target doctoral students, faculty, and scientists in public/environmental health disciplines to provide knowledge on **application** of the science of air pollution and its interrelated consequences on **human health and climate change**, especially in India. They provide a mixture of lectures and hands-on activities using electricity generation as an example to highlight the interconnections between the three topics.

Activities and Learning Outcomes

- Identify primary source of air pollutants and trends that contribute to human health and climate change impacts
- Access and analyze air quality data from CPCB (India) and Airnow (US EPA)
- Navigate and use the WHO Air Q+ software to assess impacts of air pollutants on health – general and specifics for Cardiovascular and Respiratory Disease
- Use low-cost optical sensors to measure PM_{2.5} at different sources
- Engage in a role-play activity that models how decisions related to India's future electric power generation will affect climate and human health impacts



Dr Suresh Dhaniyala, Bayard D. Clarkson Distinguished Professor Mechanical & Aeronautical Engineering / Co-Director of CARES (Center for Air Resources Engineering and Science), Clarkson University, USA with SRU university Vice Chancellor JSN Murthy, Dean(Research) S PThyagarajan and Dr. Kalpana Balakrishnan Associate dean of Research and Director, Center for Advanced Research On Environmental Health, SRIHER at the launch of the MOU in 2016.

Training Workshops:

- Training Workshop on Air Pollution, Climate Change and Human Health in India: Interlinked Challenges”, Clarkson-SRU-ICMR Knowledge Initiative Project, SRMC&RI(DU) from Dec 18 to 20,2017.
- Clarkson-SRU-ICMR Indo-US Knowledge Initiative Project Training Workshop on Air pollution, climate change and human health in India: Interlinked Challenges” ,SRMC&RI(DU) from January 8-10, 2019
- Training Workshop on Air Pollution, Climate Change and Human Health in India: Interlinked Challenges”, Clarkson-SRU-ICMR Knowledge Initiative Project, Clarkson University, Potsdam, New York from August 5-9, 2019.

Participants:

1.	Dr. Krishnendu Mukhopadhyay	SRIHER
2.	Dr. Naveen Puttaswamy	SRIHER
3.	Dr. Tanvir Kaur	ICMR
4.	Dr. Rajnarayan Tiwari	NIREH,ICMR
5.	Dr. Swasthi Shubam	NIREH, ICMR
6.	Dr. Sindhuprava Rana	NIREH, ICMR
7.	Dr. Asim Saha	ROHC, ICMR
8.	Dr. Ankit Viramgani	NIOH, ICMR

Research Projects:

- Project entitled “Air Pollution, Health and Climate in India: Building Capacities for Health Research and Program Evaluation“ Funded by Indo-US Knowledge Initiative, USIEF

Publications:

- Suresh Dhaniyala, Praney Dubey, Kalpana Balakrishnan ,”Air Quality in rural India : Role of Ultrafine Particles from cookstoves “ in J. of Air and Waste Management Association,2011 8: 14-18.



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