

PERSONAL STATEMENT



Professor. Kalpana Balakrishnan

Dean (Research) & Director

World Health Organization Collaborating Center for Occupational and Environmental Health

ICMR Centre for Advanced Research on Air Quality, Climate and Health

Sri Ramachandra Institute for Higher Education and Research, Porur, Chennai – 600116, India

I acquired my undergraduate education at the All India Institute of Medical Sciences, New Delhi, India and subsequently my doctoral and post-doctoral training at the Johns Hopkins University in Baltimore, MD, USA. Over the last 28 years, I have established one of the largest inter-disciplinary occupational and environmental health research groups in India, at the Sri Ramachandra Institute of Higher Education and Research, Chennai. I am engaged in research and training collaborations with a network of more than 50 national and international institutional partners to address national and global health research priorities.

My primary research involvement has been in the area of air pollution and health and chemical risk assessment. With funding from national and international agencies, I have designed and conducted large scale field studies concerning the household, ambient and occupational environment across multiple states in India, including monitoring and evaluation of intervention efforts. Recently, I have been engaged in the conduct of mother-child cohort studies as well multi-country randomized control trials to strengthen the evidence for efficacy of air pollution interventions on birth/early childhood and adult cardio-vascular outcomes.

My primary scientific contributions are centered on (i) developing novel exposure assessment approaches to characterize the complex exposures experienced by rural and urban populations in low and middle income countries and (ii) designing and conducting strategic epidemiological investigations in India to catalyze policy level actions by leveraging across the national and global pools of evidence.

I am actively involved in on-going national and international technical assessments concerned with air quality and health, including the Global Burden of Disease and Comparative Risk Assessments, The World Health Organisation Air Quality Guidelines, The International Agency for Research on Cancer Monographs, The Global Energy Assessments, UNEP Asia Pacific Regional Assessments and the India State level Burden of Disease Initiative. I also hold key advisory roles such as serving as a review committee member for the Office the Principal Scientific Advisor to Govt. of India, a member of the Health Effects Institute (US) Global Health Oversight Committee and a member of the Stockholm Environment Institute (SEI) Technical Advisory Board. Most recently, I have assumed the role of **Editor in Chief for the Journal of Health and Pollution** being published out of the National Institute of Environmental Health Sciences (NIEHS), USA.

I have published nearly 200 scientific articles in high impact peer-reviewed journals as well as book chapters and training manuals that have merited an **H-index of 62**, more than **80,000 citations** and **several million views to date**. Since 2020, **I have been consistently ranked among the top 2% of scientists in the field of General and Internal Medicine in the annual global ranking study being conducted by Stanford University.**

My other notable recognitions include being awarded the **Clarivate India Research Excellence Citation award (2021)**, being elected as a **Fellow of National Academy Of Medical Sciences. India (2014)** and being the recipient of the **Public Health Foundation of India award (2008)** for Outstanding Scientist in Public Health, **The Hari Om Ashram Trust Award(2000)** for Outstanding Scientist administered by the University Grants Commission, Govt. of India, the **Outstanding Woman Scientist Award(1999)** of The Government of Tamil Nadu and **The Award for Excellence in Environmental Health Research(1998)** administered by Harvard Medical International.

I have also led the development of new and novel academic programs at Sri Ramachandra Institute for Higher Education and Research with support from the NIH Fogarty International Center and the Center for International Migration, GIZ that includes Masters programs in Industrial Hygiene and Safety, the BPH and MPH program in Occupational and Environmental Health as well as **Climate Change and Human Health** and BSc (Hons.) program in Environmental Health Sciences.

My current plans are focused on building a world class Faculty of Public Health at SRIHER that can jointly provide advanced **research and public health practice capacities** for a diverse range of students and professionals in public health and inform strategic actions on risk factors contributing to the national health burden. As the Dean (Research), **I intend to scale research capacities at SRIHER to enable ranking as an Institute of Eminence** within the next 5 years.

Summary of Key Contributions to Science

a. Characterizing exposure-response relationships for air pollution among rural and urban populations in India

Populations in rapidly developing countries face an enormous health burden from air pollution on account of high and often extreme exposures to emissions from a variety of sources in the household, ambient and occupational environments. Over the last two decades, I have developed several approaches that ***specifically address the heterogeneity and complexity of exposure profiles*** experienced by both rural and urban populations. This includes *deployment, validation and development of new instrumentation and methods to address micro-environmental contributions to short and long-term exposures within different population sub-groups*. I have led large scale exposure measurement exercises across multiple states in India as well as assisted in scoping exposure assessment methods in many Asian countries. Collectively, these studies have generated an expansive base of exposure information informing both regional and global efforts to estimate health effects of air pollution and disease burdens. They have also informed intervention efforts related to household air pollution from cook-fuels in rural communities.

These advances in exposure assessment methods enabled me to launch large scale epidemiological studies (including ecological and cohort studies) to generate primary exposure-response relationships for exposures and health across the ambient and household air pollution continuum. *These prospective studies supported largely by ICMR (Govt. of India) have allowed **establishing quantitative evidence of association for multiple maternal, child and adult cardio-vascular outcomes across multiple states***. More recently, I have been engaged in community level intervention studies. Since 2016, I have as the India site PI for the multi-country randomized control household air pollution intervention (HAPIN) trial funded by NIH that allowed me to steer a team of more than 100 research staff to perform complex exposure, health and biomarker measurements in the India intervention site to examine the effect of an LPG fuel and stove intervention on birth, child and adult health outcomes. The HAPIN project provided an unprecedented opportunity to strengthen research capacities in the conduct of community based environmental health trials and scope follow up implementation science related efforts. I continue to be involved as the Site PI for the second phase of follow up for the HAPIN project and intend **converting the HAPIN research site into a multi-year community observatory through the inter-institutional networks** created over the last 7 years. The results from the trial and the follow up efforts are providing a significant volume of publications to strengthen policy relevant evidence for actions on household air pollution. I am also engaged in other efforts to assemble evidence of health benefits from planned actions in the **National Clean Air Program and the National Program for Climate Change and Health** in India.

b. Establishing bio-monitoring capacities for health and exposure surveillance

Biomarkers of exposure and early biological effect afford enormous opportunities to refine exposure-response estimates and add strength to the mechanistic evidence pool for epidemiological studies in India but, few such capacities exist within environmental health research groups in low and middle income countries. Taking advantage of the multiple longitudinal cohort studies being undertaken by my research team and the extensive network of national and international analytical laboratories, I have developed a strong team of scientists focused on developing and validating environmental bio-monitoring protocols that can be applied for large scale population exposure and health surveillance. I am also leading molecular epidemiology exercises to develop an indigenous "exposome" platform to address environmental health impacts in holistic ways.

c. Assessing neuro-behavioral impacts of lead in children in India

Despite the phase out leaded gasoline in the late 1990s, exposures to lead continue to pose health risks for children in India. I have been involved in a long-term collaboration with investigators at Harvard University to profile the exposures in children as well as assess associated neuro-behavioural impacts and the role of gene-polymorphisms in effect modification. These studies provide some of the first continuous exposure-response relationships for lead and neuro-behaviour in India and were part of the evidence pool used in the phase out of leaded petrol in other low and middle -income countries. My team is currently re-visiting lead exposures across multiple states in India to reassess health risks.

d. Involvement with global and national technical assessments on air quality and health

I have contributed as a lead technical author and working group member to several national and international technical assessments concerned with air quality and health including, the Global Burden of Disease and Comparative Risk Assessments (GBD 2000, GBD 2010, GBD 2013, GBD 2015, GBD 2017, GBD 2019, GBD 2021), India State level Disease burden Initiative (2017 and 2019), The Lancet Commission of Air Pollution and Health (2017 and 2021), The IARC Monographs for household (2006) and ambient air pollution (2013), The Global Energy Assessment (2009), the World Health Organisation Air Quality Guidelines for ambient and household air pollution (2006, 2014, 2021) and the Indian National Air Quality Index (2014). I currently serve as a member of the Expert Group to develop strategy so as to generate country specific evidence on the impacts of climate change & environmental factors on health for the Indian Council for Medical Research, Govt. of India.

e. Developing academic and research infra-structure for environmental and occupational health in India

Over the last two decades, with support provided by the ITREOH and GHES programs of The Fogarty International Center, NIH and the International Integrated Experts Program of the GTZ and a network of academic collaborators, I have trained over 50 doctoral and post-doctoral scholars. I have also designed and launched multiple Bachelors and Masters programs in Public Health, Industrial Hygiene and Safety, Environmental Health and more recently **Climate Change and Human Health** within my university to create sustained human resource capacities in the country.

NAME DR. KALPANA BALAKRISHNAN	TITLE Professor of Biophysics & Dean (Research) Director WHO Collaborating Center for Occupational & Environmental Health ICMR Center for Advanced Research on Environmental Health Department of Environmental Health Engineering Sri Ramachandra University, Chennai, India	BIRTH DATE 7/29/63
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Education

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
All India Institute of Medical Sciences, New Delhi, India	B.Sc.(Honors)	1983	Human Biology
Johns Hopkins University, Baltimore, MD, USA	Ph.D.	1991	Biophysics
Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD, USA	Post Doctoral training	1993	Environmental Physiology
Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD, USA	Post Doctoral training	1994	Population Dynamics
Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD, USA	Post Doctoral training	1995	Environmental Health Engineering/Risk Assessment

Positions

2020-present	Dean (Research), Sri Ramachandra Institute for Higher Education and Research (SRIHER), Porur, Chennai
2015-2020	Associate Dean (Research), Sri Ramachandra Institute for Higher Education and Research (SRIHER), Porur, Chennai
2010- present	Director, SRU-ICMR Center for Advanced Research on Air Quality, Climate and Health, The Indian Council for Medical Research, Govt. of India, SRIHER, Porur, Chennai.
2007 - present	Director, World Health Organization Collaborating Centre for Research and Training on Occupational and Environmental Health, SRIHER, Porur, Chennai.
2003 - present	Professor of Biophysics, Department of Environmental Health Engineering, SRIHER, Porur, Chennai.
2000-2012	Professor of Biophysics and Head, Department of Environmental Health Engineering, SRU, Porur, Chennai.
2000- 2003	Associate Professor of Biophysics and Head of Environmental Health Engineering, SRU, Porur, Chennai.
1995 - 2000	Assistant Professor of Biophysics and Course – Co-ordinator for the College of Allied Health Sciences, SRU, Porur, Chennai.
1992 – 1995	Assistant Professor, University of Maryland, University College, College Park, MD, USA.
1987 – 1989	Instructor, Department of Biophysics, Johns Hopkins University, Baltimore, MD, USA. 2000

Awards & Honours

2022	India Research Excellence Citation award by Clarivate Analytics (Web of Science)
2014	Fellow of the National Academy of Medical Sciences , India
2008	Distinguished Scientist Award for Outstanding contributions to the field by an Indian Public Health Scientist or Practitioner in the area of Environmental Health Sciences by Public Health Foundation of India , New Delhi.

- 2000 **Hari Om Ashram Trust Award for Outstanding Scientist** in area of interaction between Science and Society, awarded by The **University Grants Commission, Government of India.**
- 1999 **Citation and medal for outstanding accomplishment** as a distinguished women scientist in the area of environmental research awarded by the **Govt. of Tamil Nadu, India.**
- 1998 **Citation for Outstanding accomplishment** in the area of environmental education awarded at the **Sixth World Environmental Congress**, New Delhi, India.
- 1997 Gold Medal and citation for outstanding accomplishment in the area of environmental health awarded by **Sri Ramachandra – Harvard Medical International**, Chennai, India.

Important Special Assignments

July 2023 to present	Editor in Chief, Journal of Health and Pollution, EHP Publishing Group, National Institute of Environmental Health Sciences, USA
June 2022 to present	Member, Technical Expert Group, National Programme on Climate Change and Human Health, National Centers for Disease Control, Ministry of Health and Family Welfare, Govt. of India
June 2022 to present	Member, Technical Advisory Group for the City Clusters Project for the Office of the Principal Secretary to Prime Minister Office, Govt. of India
September 2020 to present	Member, Scientific Advisory Group on Air Quality and Health for the World Health Organisation, Geneva
September 2020 to present	Member, Global Health Oversight Committee for the Health Effects Institute, Boston, USA
September 2017 to present	Member, Scientific Advisory Committee, Stockholm Environment Institute, Stockholm, Sweden
February 2015 to present	Member, Clean Cooking Implementation Science Network for The Fogarty International Center, National Institutes of Health, Bethesda, MD, USA.
January 2012 to present	Associate Editor, International Journal for Public Health, Springer.
March 2015 to present	Chair, Environmental Risk Factor Group, India State Level Disease Burden Initiative of the ICMR, Govt. of India, PHFI, New Delhi and IHME, USA
February 2020 to June 2022	Commissioner, Rockefeller-Boston University high-level Commission on Health Determinants, Data, and Decision-making (3-D Commission)
July 2018 to June 2022	Member, International Advisory Group of Research Hub for Urban Sustainability, Health and Equity, Wellcome Trust, London, UK
November 2009 to 2012	Regional Editor (India) , Environmental Health Perspectives, The Official Journal of the National Institute of Environmental Health Sciences, USA
June 2016 to October 2021	Member, Technical Working Group, WHO Air Quality Guidelines Update 2021
June 2016 to May 2021	Member, Scientific Advisory Committee, National Institute of Occupational Health, ICMR, Govt. of India
January 2016 to May 2021	Member, Scientific Advisory Committee, National Institute for Research on Environmental Health, ICMR, Govt. of India
January 2012 to March 2020	Member, Editorial Board, Air quality, Atmosphere and Health, Springer.
January 2018 to October 2018	Scientific Advisor, First WHO Global Conference on Air Pollution and Health
January 2014 to June 2016	Member, Steering Committee on Health Related Issues in Air Pollution, Ministry of Health and Family Welfare, Govt. Of India
January 2014 to June 2016	Member, Expert Group on Uniform Air Quality Indices for Indian Cities, Central Pollution Control Board, Govt. Of India
August 2015	Chair of the Global Platform on Air Quality and Health, World Health Organisation, August 20-27, Geneva.
December 2014	Chair of World Health Organisation Regional Meeting on Air Quality and the Launch of WHO Indoor Air Quality Guidelines: Household Fuel Combustion, December 12-14, New Delhi , India.
August 2014	Member, Technical Advisory Group, World Health Organisation Conference on Climate and Health.

January 2014	Temporary Advisor, World Health Organisation . Chair of Technical Consultation on creating a Global Platform for Air Quality and Health, January 30-31, 2014, WHO, Geneva
May 2013	Temporary Advisor, United Nations World Health Assembly Joint Session of the World Health Organisation and The Climate and Clean Air Coalition (CCAC)
June 2012-June 2013	Member of the Scientific Advisory Committee, Climate and Clean Air Coalition, United Nations Environment Program (UNEP), Paris
January -November 2013	Member, Technical Working Group For International Agency For Research on Cancer Monograph on Ambient Air Pollution
June 2011 to December 2014	Member, National Board of Examinations, Government of India
January 2011 to December 2014	Member, Technical Task Force for Indoor Air Quality Guidelines for the World Health Organization, Geneva.
October 2010	Temporary Advisor, World Health Organisation Food-borne Disease Burden Epidemiology Reference Group (FERG) meeting 2010, Geneva.
February 2010 to February 2011	Member, Technical Advisory Board for strengthening the R&D infrastructure of the Ministry of Environment & Forests, Govt. of India.
February 2010 to February 2011	Member, National Selection Committee, National Environmental Sciences Fellowship Program, for the Ministry of Environment & Forests, Govt. of India
October 2009	Temporary Advisor, World Health Organisation for the I Joint meeting of WHO-ILO collaborating centers to formulate joint implementation plan for The Global Plan of Action on Workers Health.
January 2009 to June 2012	Member, Expert Panel for the Food-borne Disease Burden Epidemiology Reference Group (FERG) of the World Health Organisation
August 2008 to December 2012	Member, Expert Group (Indoor Air Pollution) for Revised Comparative Risk Assessment and Global Burden of Disease Estimation (GBD 2010) study funded by the Bill and Melinda Gates Foundation.
September 2008 to December 2012	Lead Author for Knowledge Module on Solid Fuel Use and Health for the 2011 Global Energy Assessment being published by The International Institute for Applied Systems Analysis (IIASA), Vienna, Austria.
November 2007	Temporary Advisor, World Health Organisation for the conduct of training on Occupational Risk Assessment Toolkits for SEARO countries
September 2006	Temporary Advisor, World Health Organisation for the formulation of Indoor Air Quality Guidelines
March 2006- present	Member, Technical Review Committee, ICMR Indo-US Consortium for research and training in occupational and environmental health
March -September 2006	Temporary Advisor, The International Agency for Research on Cancer, The World Health Organisation for preparation of IARC monograph on solid fuel smoke associated with domestic combustion
April 2006-present	Director, SRU Air Pollution related Disease Diagnostic Center set up by the Gas Authority of India Ltd. Govt. Of India.
March 2006- present	Director, SRMC Centre for Information Services, International Labour Organisation, Geneva
March -October 2005	Temporary Advisor, World Health Organisation for the Revision of WHO Air Quality Guidelines 2005.
August 2005 – August 2007	Member, State level Environmental Monitoring Committee, Tamil Nadu State Pollution Control Board, Chennai
January 2005- June 2010	Member, University Development Task Force, SRU, Chennai
May 2002	Temporary Advisor, World Health Organisation, Technical Facilitator for the World Health Assembly on “ Global Burden of Disease”
June 2003 – June 2005	Technical Advisor, The World Bank, for a four province environmental health intervention project for indoor air pollution associated with solid fuel use, in China

Important Extra-Mural Grants

6/2024 to present	Co-Principal Investigator for project entitled "Modeling long-term PM 2.5 exposures for estimating exposure-response relationships between ambient air pollution and premature coronary artery disease: A retrospective pooled analyses of data from multiple rural-urban cohorts in Southern India" funded by the Health Effects Institute, USA
9/2022 to present	Site Principal Investigator for multi-country project entitled "Assessing the 5-Year Effects of a 500-Day LPG Stove and Fuel intervention: the HAPIN Cohort Follow up study" funded by the National Institutes of Health, USA.
2/2018 to present	Co-Investigator and Advisor for project entitled "National Environmental Health Profile for Air Pollution and Health Effects: A multi-city assessment" funded by Ministry of Environment, Forests and Climate Change, Govt. of India
4/2012 to present	Co-Principal investigator for training grant entitled " Global Health Equity Fellowships " in collaboration with University of California Berkeley, funded by the Fogarty International Centre, National Institutes of Health, USA .
6/2020 to 6/2024	PI for project entitled "Assessing the role of LPG coverage at scale to achieve household air pollution and ambient air pollution exposure reductions using hyper-local, low-cost PM2.5 sensor networks: implications for the Pradhan Mantri Ujjwala Yojana program in India" funded by the Implementation Science Network, NIH Fogarty International Center, Bethesda, USA.
7/2107 to 7/2022	Principal Investigator for project entitled" Delhi Air Pollution and Health Effects (DAPHNE)" funded by DBT, Govt. of India and NERC, UK
10/2016 to 6/2022	Site Principal Investigator for project entitled "Household air pollution and health: a multi-country LPG intervention trial " funded by the National Institutes of Health, USA
8/2016 to 6/2022	Principal Investigator for project entitled "Air Pollution, Health and Climate in India: Building Capacities for Health Research and Program Evaluation " Funded by Indo-US Knowledge Initiative, USIEF
1/2019 to 12/2021	Co-Investigator and Advisor for project entitled "Assessing the influence of workplace, mode of commuting and residence characteristics on personal exposures to fine particulate matter (PM 2.5) in UN employees at New Delhi (PEEPs)" funded by the World Health Organisation, SEARO, New Delhi.
8/2016 -12/2108	Co-Investigator for project entitled "Assessment of health risks for mercury exposure through human biomonitoring in Chennai". Funded by World Health Organisation (SEAR and EUR Offices)
3/2016 -12/2018	Principal Investigator for project entitled" Developing exposure-response relationships for cardio-respiratory health risks and household air pollution in rural communities of Tamil Nadu, India" in collaboration with Tufts University, USA. Funded by the Global Alliance of Clean Cookstoves, UN Foundation, PHI, CDC
3/2016 -12/2018	Co -principal Investigator for project entitled " Increasing LPG Use During Pregnancy: A Pilot evaluation of the GIU Campaign" in collaboration with KEMRHC, Pune and UC Berkeley. Funded by Implementation Science Network, NIH, USA,
2/2015- 11/2016	Co-investigator for project entitled "Exposure assessment and modeling for PM _{2.5} in the Andhra Pradesh Children and Parents Study (APCAPS), a prospective cohort examining risk factors for cardiovascular health effects in India" in collaboration with London School of Hygiene and Tropical Medicine, UK ; University of Minnesota, USA, Public Health Foundation of India, National Institute of Nutrition, India. Funded by the European Research Council.
6/2014 -11/2016	Co-investigator for pilot study entitled "Exploring respiratory health outcomes from sustained use of efficient cook-stoves: A pilot cluster randomized trial in rural households of Andhra Pradesh and Karnataka" in collaboration with Washington University, St. Louis, MO, USA and Foundation for Ecological Security, Anand, India, funded by the National Institutes of Health, (R21) USA.
12/2013-6/2016	Co-Principal investigator for exploratory grant on" Orofacial Clefts: Nutritional and Environmental Risk Factors" in collaboration with Utah State University and University of Dundee, funded by National Institutes of Health (R21),USA and the UKIERI, UK.
3/2010-8/2015	Principal Investigator and Center Director for Centre for Advanced Research on Environmental Health (Air Pollution), Indian Council of Medical Research, Govt.of India.
4/2012- 8/2012	Principal Investigator for project entitled "Developing a framework for health effects of air pollution, in Lumbini, Nepal" funded by The World Health Organization, SEARO.
8/2011- 10/2013	Co-Investigator for project entitled" The National New Born Stove Trial: A Pilot Feasibility Assessment" in collaboration with UC Berkeley, Columbia University, and INCLIN Trust,

	India , funded in part by The World Bank.
6/2011- 6/2012	Principal Investigator for project entitled” Developing Trainer Guidance and Implementing a regional Framework for Basic Occupational Health Services” funded by The World Health Organization, SEARO.
11/2009-3/2012	Principal Investigator for project entitled “Evaluation of Improved Biomass stoves: a pilot assessment for 2 states” funded by United Nations Environment Programme in collaboration with UC San Diego, USA and TERI(New Delhi).
8/2009-8/2010	Principal Investigator for project entitled “Update of the Global Indoor Air Pollution Database” funded, by USEPA, Washington DC, USA.
1/2008- 6/2010	Co-principal investigator for project entitled “Monitoring and Evaluation of Improved Biomass Stoves in Tamil Nadu and Karnataka”, funded by The Shell Foundation, USA
5/2007- 6/2011	Co-Principal investigator for research and training grant entitled” International Training in Research on occupational and environmental health (ITROEH)” in collaboration with University of California Berkeley, funded by the Fogarty International Centre, National Institutes of Health, USA .
5/2007-3/2011	Principal investigator for project entitled “Time series Analysis of health effects of Air Pollution”, funded by the joint ICMR-CDC(Indo-US) Consortium on Occupational and Environmental Health, in collaboration with Ohio Super Computing Center, Ohio State University, USA
6/2010- 12/2010	Principal Investigator for project entitled “Assessment of heat stress, worker productivity and climate change: A pilot assessment” funded by the World Health Organisation, SEARO.
1/2008/- 2/2010	Principal Investigator for project entitled “ Occupational Safety and Health Aspects of CTC Substitutes: An assessment for 8 industrial sectors” funded by GTZ-India under the Joint GTZ-Proklima-Ozone Cell (MOEF), Govt.of India Collaborative Program.
8/2007- 12/2009	Co-principal Investigator for project entitled “Impact assessment for water quality interventions in districts of Southern India”, funded by The Agora Foundation, USA in collaboration with University of California, Berkeley
6/2008- 12/2009	Co-Principal Investigator for project entitled “Design of a Basic Occupational Health Services Framework for public health systems in Tamil Nadu” funded by the World Health Organisation (India Office).
3/2006- 12/2008	Principal investigator for project entitled “Sound chemicals management for a healthier environment in India and Vietnam” funded by The European Commission, Belgium in collaboration with (GTZ) GmbH, Germany.
5/2005 - 3/2009	Principal investigator for project entitled” Risk management strategies for small scale enterprises in Uttar Pradesh” funded by IDRC, Canada.
10/2004- 1/2009	Principal investigator for project entitled “Estimating health effects of air pollutants through time series analysis in Chennai, India” funded by The Health Effects Institute, Boston, USA.
11/2004- 3/2006	Principal investigator for project entitled “Environmental pollution, social structure, and health outcomes in India-a pilot study” in collaboration with University of Maryland, USA funded by National Institutes of Health, Bethesda USA, under a sub-contract to The National Council of Applied Economic Research, Govt. Of India.
1/2005-1/2006	Principal investigator for small grants programme to establish bio-aerosol monitoring programs in South India funded by ACGIH, USA.
10/2003- 10/2007	Principal investigator for project entitled “Baseline assessment of environmental and health status of the solid waste management sector in Chennai” funded by the Central Pollution Control Board, Govt. Of India.
9/2003- 12/2008	Principal investigator for project entitled “Integrated evaluation of indoor air pollution reduction strategies based on green-house gas emissions and health effects” funded by the United States Environmental Protection Agency.
1/2003- 3/2008	Co-principal investigator for DHHS –NIH Small research grant Grant #1 R03 TW005914-01A1; PI- Howard Hu Harvard School of Public health) entitled “Study of Lead Exposure & Outcomes Amongst Children in Chennai, India”.
3/2002- 3/2008	Co-Principal investigator for training grant entitled” ” International Training in Research on occupational and environmental health (ITROEH)” in collaboration with University of California, Berkeley, funded by the Fogarty International Centre, National Institutes of Health, USA .
3/2001-12/2006	Principal investigator for project entitled “Comparative risk assessment for environmental health concerns in Manali Industrial Area funded under the Environmental Epidemiology – Preparation of National Environmental Health Profile Project of the Ministry of Environment and Forests, Government of India.

12/2000 – 6/2003	Principal Investigator for project entitled “Indoor air quality monitoring in rural households of Andhra Pradesh” funded by ESMAP Unit, The World Bank, Washington D.C.
6/2000- 3/2003	Principal investigator for project entitled “Health Risk assessment for Occupational Exposures to airborne pollutants in textile workers in Tamil Nadu” funded by the Tamil Nadu State Pollution Control Board.
08/1999 – 3/2001	Principal investigator for project entitled “Indoor air quality assessment in rural Tamil Nadu” funded by the Indira Gandhi Institute for Development Research under the UNDP Cap 21 Programme.
5/1999 – 1/2002	Principal Investigator for project entitled “Economic valuation of health damage in North Chennai using a comparative risk assessment framework” funded by the Indira Gandhi Institute for Development Research under the World Bank technical assistance Scheme for Capacity building in Environmental Economics.
5/1997 – 6/1997	Principal Investigator for UNIDO (Vienna, Austria); grant for Occupational Environmental Monitoring in the leather Industry.
05/1998 –9/1998	Principal Investigator for the development of a model hospital waste management system at the SRU hospital supported by UNHCS.

Professional Memberships

2002-present	International Society for Environmental Epidemiology (Elected Officer of the Council 2009-2011)
2002-present	National Safety Council, India
2000-present	Environmental Mutagenesis Society of India
1998-present	Indian Association of Occupational Health
1998-present	American Industrial Hygiene Association, USA.
1998-present	ACGIH, USA.

Publications

A. Indexed Journal Articles/Book Chapters

2024

1. Carlos F Gould, Rob Bailis, Kalpana Balakrishnan, Marshall Burke, Sebastián Espinoza, Sumi Mehta, Samuel B. Schlesinger, José R. Suarez-Lopez and Ajay Pillarisetti. In praise of cooking gas subsidies: transitional fuels to advance health and equity. Environ. Res. Letters Accepted Manuscript online 28 June 2024 doi: 10.1088/1748-9326/ad5d06.
2. Devan A. Campbell, Michael Johnson, Ricardo Piedrahita, Ajay Pillarisetti, Lance A. Waller, Katherine A. Kearns, Jacob Kremer, Erick Mollinedo, Jeremy A. Sarnat, Maggie L. Clark, Lindsay J. Underhill, John P. McCracken, Anaité Diaz-Artiga, Kyle Steenland, Ghislaine Rosa, Miles A. Kirby, **Kalpana Balakrishnan**, Sankar Sambandam, Krishnendu Mukhopadhyay, Saritha Sendhil, Amudha Natarajan, Florian Ndagijimana, Ephrem Dusabimana, Lisa M. Thompson, William Checkley, Laura Nicolaou, Stella Hartinger, Jennifer L. Peel, Thomas F. Clasen, and Luke P. Naeher. Factors Determining Black Carbon Exposures among Pregnant Women Enrolled in the HAPIN Trial. Environmental Science & Technology 2024 58 (23), 10162-10174. DOI: 10.1021/acs.est.3c09991
3. Patil SS, Puttaswamy N, Cardenas A, Dana Boyd Barr, Santu Ghosh, Kalpana Balakrishnan. Protocol for CARES-HAPIN: an ambidirectional cohort study on exposure to environmental tobacco smoke and risk of early childhood caries BMJ Open 2024;14:e083874. doi: 10.1136/bmjopen-2024-083874
4. Checkley W, Thompson LM, Hossen S, Nicolaou L, Williams KN, Hartinger SM, Chiang M, **Balakrishnan K**, Garg SS, Thangavel G, Aravindalochanan V, Rosa G, Mukeshimana A, Ndagijimana F, McCracken JP, Diaz-Artiga A, Sinharoy SS, Waller L, Wang J, Jabbarzadeh S, Chen Y, Steenland K, Kirby MA, Ramakrishnan U, Johnson M, Pillarisetti A, McCollum ED, Craik R, Ohuma EO, Dávila-Román VG, de Las Fuentes L, Simkovich SM, Peel JL, Clasen TF, Papageorgiou AT; Household Air Pollution Intervention Network (HAPIN) Investigators. Cooking with liquefied petroleum gas or biomass and fetal growth outcomes: a multi-country randomised controlled trial. Lancet Glob Health. 2024 May;12(5):e815-e825. doi: 10.1016/S2214-109X(24)00033-0. PMID: 38614630; PMCID: PMC11027158.
5. Lai PS, Lam NL, Gallery B, Lee AG, Adair-Rohani H, Alexander D, **Balakrishnan K**, Bisaga I, Chafe ZA, Clasen T, Díaz-Artiga A, Grieshop A, Harrison K, Hartinger SM, Jack D, Kaali S, Lydston M, Mortimer KM, Nicolaou L, Obonyo E, Okello G, Olopade C, Pillarisetti A, Pinto AN, Rosenthal JP, Schluger N, Shi X, Thompson C, Thompson LM, Volckens J, Williams KN,

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51. C. Technical Manuals

52. Sankar Sambandam, Krishnendu Mukopadhyay, Kalpana Balakrishnan Occupational Safety and Health Aspects of CTC substitutes in 8 industry sectors, 2010. *Prepared in collaboration with GTZ, India and the Ozone Monitoring Cell, Ministry of Environment and Forests, Govt. Of India.*
53. M. Nithyanandam, Nobert Wagner, Kalpana Balakrishnan, Vijayalakshmi K, Ana Boschio Technical training manual on safety in stone quarrying and crushing industries, 2009. *Prepared in collaboration with IDRC, Canada*
54. K Balakrishnan, Patrick Breyse, Ayyappan Ramalingam Technical training manual on evaluation assessment & control of workplace hazards, 2006
55. K Balakrishnan, Nobert Wagner Technical training manual on safety in construction industries, 2006
56. K Balakrishnan, S Sankar, Ayyappan Ramalingam Technical training manual on control banding and application in industries, 2005 *Prepared in collaboration with ILO and GTZ.*
57. K Balakrishnan, Padma Srikanth. Technical training manual on Recognition, Evaluation and Management of Bioaerosols in Health Care Facilities Prepared in collaboration with Association of Microbiologists, India, October 2005
58. K Balakrishnan, K Rampal Technical training manual on OHSAS 18001/ILO OSH Management Systems Prepared in collaboration with National University of Malaysia and National Safety Council, Tamil Nadu chapter, January, 2003
59. K Balakrishnan, P Jayachandran, Jack Parker, Val Vallyathan. Technical training manual on Diagnosis, Management and Medical Surveillance of Pneumoconioses and other Related Lung Diseases. *Prepared in collaboration with Directorate General of Mines Safety, Directorate General Factory Advice Service & Labour Institutes, Inspectorate of Factories, Govt. of Tamil Nadu, National Institute of Occupational Health, National Institute of Miners' Health, The Indian Association of Occupational Health, National Safety Council (Tamil Nadu Chapter).*
60. K Balakrishnan, Sankar Sambandam, G. Swaminathan. *Technical training manual on Applied Chemical Safety Prepared in collaboration with Tamilnadu Petroproducts*
61. K Balakrishnan, S Sankar, Ayyappan Ramalingam Guidelines on OSHAS 18001/ILO OSH Management Systems *Prepared in collaboration with National University of Malaysia and National Safety Council, TamilNadu Chapter*
62. K Balakrishnan, Val Vallyathan Technical training manual on Recognition, Prevention and Control of Occupational Respiratory Diseases *Prepared in collaboration with the National Institute for Occupational Safety and Health, USA, 2001.*
63. K Balakrishnan Howard Hu Technical training manual in Evaluation of Metals Toxicity *Prepared in collaboration with the Metals Epidemiology Group, Channing Laboratories, Harvard School of Public Health, USA.*
64. K Balakrishnan, Patrick Breyse, Peter Lees. Technical training manual on Hazard Prevention and Control in the Work Environment: Airborne Dust *Prepared in collaboration with the Johns Hopkins University NIOSH Educational Resource Centre, Baltimore, USA, and Central Leather Research Institute, Chennai, India, 2000.*
65. K Balakrishnan, Madhukar Pai. Technical training manual in Environmental Epidemiology *Prepared in collaboration with the Tamil Nadu Pollution Control Board and sponsored by the Ministry of Environment and Forests and the World Health Organisation*
66. K Balakrishnan, VN Rayudu. Biomedical waste management *Manual prepared for the Environmental Training Institute, Tamil Nadu State Pollution Control Board, 1999.*
67. K Balakrishnan, Jurgen Hannak, G. Jayaraj. Occupational Safety and Health Manual for the Leather Industry *Prepared in collaboration with the United Nations Industrial Development Organisation, 1999.*
68. K Balakrishnan, Jane Metcalfe, Aparna Koppikar, Jim Coglian. Technical Training Manual in human health risk assessment methodologies *Prepared in collaboration with The United States Environmental Protection Agency, 1999.*
69. K Balakrishnan, Patrick Breyse Technical training Manual in Industrial Hygiene Measurements *Prepared in collaboration with the Johns Hopkins University NIOSH Educational Resource Centre, Baltimore, USA, 1999.*

Invited Presentations at Major Conferences, Workshops and Meetings

1. *2024 Invited Speaker* at India Climate Summit hosted by the Times Now Publishing Group and Climate Trends Inc., New Delhi, India June 28, 2024. Panelist for a discussion on “Managing Heat Waves and Air Quality in the face of Climate Change”

2. *2024 Invited Plenary Speaker* at the British Occupational Hygiene Association held in Dublin Ireland June 10-13, 2024. Talk entitled "Creating Seamless Health Breathing Spaces for Workers and Communities in India: Impractical Dream or Feasible Reality"
3. *2024 Invited Speaker* at the Annual American Thoracic Society Meeting held at the San Diego Convention Center, San Diego, CA, USA. May 17-22, 2024. Debate Talk entitled "We're really Cooking Now! Pro-Con Debate on Gas Stove Risks to Lung Health".
4. *2024 Invited Key Note Speaker* at the Air Sensors International Conference held at Riverside Convention Center, Riverside, CA, USA, May 1-3, 2024. Talk entitled "Sensors Looking Back, Looking Forward"
5. *2024 Invited Key Note Speaker* at the CAFÉ Climate Human Health Conference March 2024 organised by the CAFÉ Research Coordinating Center, Boston University February 5-7, 2024. Talk entitled "Building and Bolstering Scientific Capacities for Climate and Human Health in India"
6. *2023 Invited Speaker* at the Annual American Thoracic Society Meeting held at the Washington Convention Center, Washington D.C USA. May 19-24, 2023. Talk entitled "Creating Healthy Breathing Spaces Addressing the dual challenge of air pollution and climate change in LMICs".
7. *2022 Invited Plenary Speaker* at the Workshop on Air Quality and Health organized by CAPHER, India at AIIMS, New Delhi, May 17-19, 2022. Talk entitled "Creating Seamless breathing Spaces in India: Where are we and where could we be headed"
8. *2022 Invited Speaker* at the Annual American Thoracic Society Meeting held at Moscone Convention Center, San Francisco, CA, USA. May 13-May 18, 2022. Talk entitled "Exposure Monitoring for Household Air Pollution: What is known and where could we be headed?"
9. *2022 Invited Opening Plenary Speaker* at the Air Sensors International Conference held at Pasadena Convention Center, Pasadena, CA, USA, May 10-13, 2022. Talk entitled "Creating seamless healthy breathing spaces in India: Role of low cost air quality sensors".
10. *2022 Chair and panel discussant* at the International Virtual Workshop organized by Health Effects Institute, USA April 29, 2022. Talk entitled "Health Applications for Satellite derived Air quality: Opportunities and Pitfalls".
11. *2022 Invited Speaker* at the Asian Society for Quality in Health Care for the South Asian Round Table, April 12, 2022. Talk entitled "Implications of the new WHO air quality guidelines for the health sector."
12. *2022 Invited Speaker* at the Annual National Pulmonology Conference (NAPCON) held at Varanasi, April 1-3, 2022. Talk entitled "Implications of the new WHO Air Quality Guidelines for pulmonary care practice".
13. *2022 Invited Speaker* at the Workshop on Air Quality and Health organized by CAPHER, India at AIIMS, New Delhi, 16 February, 2022. Talk entitled "*Making a health case for clean household energy : The framing and conduct of the multi-country Household Air Pollution Intervention (HAPIN) Trial.*"
14. *2021 Invited Panel Speaker* at Virtual International Workshop conducted for World Pneumonia Day Celebrations by Breathe Life Foundation, November 12, 2021. Talk entitled "Reducing Household Air Pollution(HAP) Learnings from national clean energy initiatives for targeted pneumonia prevention in India".
15. *2021 Invited Speaker* at the University of California, Environmental Health Seminar Series Berkeley, CA, USA, November 10, 2021. Talk entitled: Two decades of SRU-UCB collaboration: The journey for cleaning air.
16. *2021 Invited Panel Speaker* for INSPIRE Dissemination Workshop on WHO Air Quality Guidelines organised by Center for Policy Research, New Delhi, October 13, 2021. Talk entitled "The new WHO Guidelines: What are they telling us".
17. *2021 Invited Speaker* for India Clean Air Summit organised by C-STEP, Bangalore, 26 August, 2021. Talk entitled "Indoor Air Pollution and Health Impacts: The need for sound epidemiological studies"
18. *2021 Invited Panelist* at the Ministry of Earth Sciences-UKRI COPT-26 Curtain Raiser on Adaptation and Resilience, September 29, 2021 New Delhi.
19. *2021 Invited Speaker* for the Virtual **Royal Society of Medicine** Lecture Series on March 31, 2021. Talk entitled "Healthy Breathing Spaces: Addressing the dual challenge of air pollution and climate change".

20. *2021 Invited Speaker* at the Annual meeting of the Indian Association of Preventive and Social Medicine Conference (IAPMSCON) held at Nagpur, March 18, 2021. Talk entitled "The Challenge of Creating Healthy Breathing Spaces in India"
21. *2021 Invited Speaker* for Update on Pulmonary, Critical Care and Sleep Medicine (PULMOCRIT) 2021 organised by AIIMS, New Delhi, 20-21 March, 2021. Talk entitled "Air Pollution and Respiratory Consequences: Lest we forget"
22. *2021 Inaugural Plenary Speaker* at the CERCA (Center of Excellence for Research on Climate and Air Pollution) at IIT-Delhi on March 5, 2021. Talk entitled "Just a Pair of Lungs: The Challenge of Creating Healthy Breathing Spaces in India"
23. *2020 Virtual Invited Speaker* for Women in STEM organized by Central Leather Research Institute, Chennai 14 December 2020. Talk entitled "Challenges and Opportunities for Women in Science".
24. *2020 Invited Virtual Speaker* at International Society for Exposure Sciences, 23-26 August 2021. Talk entitled "Strategic exposure monitoring to strengthen the health narrative within The Pradhan Mantri Ujjwala Yojana in India".
25. *2020 Invited Virtual Speaker* at International Society of Environmental Epidemiology Conference 23-26 August 2021. Talk entitled "The Tamil Nadu Health Effects of Air Pollution(TAPHE)Study(2010-2015):Framing New Paradigms for Evidence Based Advocacy.
26. *2020 Invited Virtual Speaker* for Boston University School of Public Health Dean's Seminar Series, 28 May 2020. Talk entitled: India's response to COVID: What can we learn?
27. *2020 Invited Virtual Speaker* at the Indian Waste Management Association Meeting 12 May 2020. Talk entitled "Unmasking air pollution risks in COVID -19".
28. *2019 Kiruba Sankar Oration* at St. Johns Medical College and Research Institute, Bangalore India, December 5, 2019. Talk entitled "Creating Seamless Breathing Spaces: The challenge of addressing air pollution in India.
29. *2019 Invited Speaker* at UN Staff technical Seminar of Air Pollution and Health, WHO-SEARO, New Delhi, November 26, 2019. Talk entitled "Catalyzing air quality actions to address the health burden from ambient and household air pollution: Experience from field studies in India"
30. *2018 NIEHS Keystone Seminar Speaker* at NIEHS, Raleigh, North Carolina April 5, 2018. Talk entitled "The dual burden from household and ambient air pollution in India: Building an evidence integration model for air quality actions".
31. *2018 Plenary Speaker* at the Joint scientific workshop on GBD-MAPS India, co-sponsored by the Health Effects Institute, Public Health Foundation of Indian Institute of Technology Bombay, January 11, 2018, New Delhi.
32. Talk entitled Indian Studies in A Global Context: Making the case for resonance with the global pool of evidence.
33. *2018 Plenary Speaker* at the Special Environmental Health Seminar Series at the Center for Policy Research, New Delhi, January 10, 2018. Talk entitled "Air pollution as a preventable cause of adverse birth outcomes in India: New evidence from cohort studies in Tamil Nadu, India.
34. *2017 Plenary Speaker* at Symposium of Air Quality and Health organized by India Toxicological Research Institute, Lucknow November 23, 2017. Talk entitled "Establishing exposure-response relationships for PM_{2.5} exposures, birth weight and acute respiratory infections in rural-urban cohorts in Tamil Nadu: Initial results from the TAPHE study".
35. *2017 Invited Speaker* at Indo-US (ICMR-CDC) meeting on Research and Capacity Building in Environmental Health April 14-16, 2017, held at CDC, Atlanta, USA. Talk entitled "Strategic Epidemiological approaches to address the dual burden from ambient and household air pollution in India"
36. *2017 Invited Speaker* at the World Cleft Congress held at Chennai India, February 13, 2017. Talk entitled "Air pollution as a preventable cause of adverse birth outcomes: Perspectives from the field in India"
37. *2016 Plenary Speaker* at Indo-US (ICMR-CDC) meeting on Air Quality and Health, February 24-26, 2016, New Delhi. Talk entitled "Assessing health effects of air pollution in India: A summary of recent progress in research evidence".
38. *2016 Invited Chair* for the Joint Session for the Asia Pacific Science Panel and Authors Meeting for the Asia Pacific Regional Assessment on Air Quality and Health for the United Nations Environment Programme, at UNEP Regional HQ, Bangkok June 6-8, 2016.

39. *2015 Invited Speaker* at I Meeting of the Global Implementation Science Network for Clean Household Energy held at the Fogarty International Center, National Institutes of Health. Talk entitled "Making the argument for clean fuels : consolidating the evidence base for actions on household air pollution in India , April 20, 2015 Bethesda, MD, USA.
40. *2015 Invited Speaker* at Tufts University Global Health Symposium organized on the occasion of World Health Day. Talk entitled" Integrating air pollution in chronic disease cohorts: Opportunities within the TAPHE and PURSE-HIS cohorts in Chennai, Tamil Nadu", April 7, Boston, USA
41. *2015 Invited Speaker* United Nations Environment Programme Meetings of the Asia Pacific Clean Air Partnership (APCAP) consultation on Establishing a Science Panel and developing a Regional Assessment.
42. Talk entitled "Burden of disease attributable to ambient and household air pollution: Making a case for a regional assessment", 9-12 March. Tokyo, Japan.
43. *2015 Invited Speaker* at Fogarty International Center Advisory Board Meeting at National Institutes of Health Talk entitled" Strategic directions for global research on household air pollution", February 6, Bethesda, MD, USA
44. *2014 Invited Speaker and Chair* World Health Organisation Regional Meeting on Air Quality and the Launch of WHO Indoor Air Quality Guidelines: Household Fuel Combustion, December 12-14, New Delhi , India
45. *2014 Invited Speaker* at Inter-Ministerial Round Table at the International Conference on Climate and Health
46. at World Health Organisation, Geneva, Switzerland. Talk entitled "Interfacing Climate and Air Quality Actions in India, August 2014.
47. *2014 Invited Speaker* at Environmental Health Seminar Series at Duke University, USA. Talk entitled "Examining health effects of air pollution in longitudinal cohorts in India: Opportunities for International collaboration", North Carolina, USA, March 2014.
48. *2014 Chair of Working Group* for the Technical Consultation on creation of a Global Platform for Air Quality organized by The World Health Organisation, Geneva, January 2014.
49. *2013 Invited Speaker and Chair* at the 2013 National Pulmonology Conference entitled "Analysing burden of disease estimates attributable to household air pollution to inform intervention priorities" Chennai, November 2013.
50. *2013 Invited Speaker* at Environmental Health Seminar Series organized by Department of Environmental Health Sciences, Columbia University, NY entitled "Examining health effects of air pollution in pregnant mother-child cohorts in Southern India: Opportunities for strengthening the evidence on exposure-response relationships", New York, September 2013.
51. *2103 Invited Plenary Speaker and Chair* at the 2013 Conference of the International Society of Environmental Epidemiology (ISEE), the International Society of Exposure Science (ISES), and the International Society of Indoor Air Quality and Climate (ISIAQ), Basel, Switzerland, August 2013.
52. *2013Invited Speaker* at the **UN World Health Assembly** on behalf of WHO. Talk entitled " Addressing Climate and Health Co-benefits of Short lived Climate Pollutants from household fuel combustion", Geneva, Switzerland, May 2013.
53. *2013 Invited Speaker* at World Occupational Health Day Celebrations at IGCAR entitled "Global Burden of Disease for Occupational Risk Factors", Kalpakkam Chennai, July 2013.
54. *2013 Invited Keynote Speaker* at Fulbright Seminar on Environment in India organized by North Carolina State University, entitled "Cleaner air for healthier homes: Addressing the differential health impacts on women, men and children in India" , Raleigh, North Carolina, April, 2013.
55. *2013Invited Speaker* at Panel discussion organized by Health Effects Institute, USA and Center for Science and Environment , New Delhi entitled" The burden of disease attributable to air pollution: Implications of the GBD 2010 study findings in India", India Habitat Center, New Delhi, February 2013.
56. *2013Invited Speaker* at Panel discussion organized by IIT Delhi entitled" The GBD 2010 study: Implications for the burden attributable to household air pollution in India", IIT Delhi, New Delhi, January 2013.
57. *2012 Invited Panel Speaker at the* National Press Club, Washington D.C. entitled "The Global Burden of Disease Study 2010: Findings on household air pollution in South Asia, December 2012.

58. *2012 Invited Lecture at the United States State Department* entitled "Cleaner Air for Healthier Homes: An integrated evaluation of research evidence for policy", Washington D.C. December 2012.
59. *2011 Invited Speaker* at the Centers for Disease Control Forum on household air pollution. Talk entitled: Harmonising methods on measurement of PM and CO in household air pollution studies. Atlanta, GA December 2012.
60. *2011 Invited Plenary Speaker* for International Forum on Occupational Health and Safety: Policies, Profiles and Services, organized by the Finnish Institute of Occupational Health, Espoo, Finland, June 2011.
61. *2011 Invited Working Group Chair and Plenary Speaker* for International Workshop and Seminar on Scoping the Global Research Agenda for Household Air Pollution Related to Solid Fuel Use Organized by NIH, The US State Department and USAID. Talk entitled "Epidemiological and Casual Inference Models for Pre-existing Community Interventions in India, Washington D.C, May, 2011.
62. *2011 Invited Special Lecture* at the UN Foundation and Global Alliance for Clean Cook stoves. Talk entitled
63. How clean is clean enough: A review of initial results from field assessment of market based cook stoves in India, Washington D.C. ,May 2011.
64. *2011 Invited Poster Presentation* entitled" An expanded time-series analysis of mortality and morbidity impacts of air pollution in Chennai: a 4 year follow up of the HEI-PAPA program" organized by the Health Effects Institute, Boston, Massachussets, May 2011.
65. *2011 Invited Special Lecture* at the Center for Global Health, University of Michigan at Ann Arbor. Talk entitled: Recent progress in air pollution related epidemiological assessments in India: A review of outdoor and indoor air pollution studies, Ann Arbor, MI, April 2011.
66. *2011 Invited Special Lecture* at the Environmental and Occupational Health Sciences Institute, Rutgers University. Talk entitled "Designing exposure assessment strategies for longitudinal studies on air pollution related health impacts in India" , Newark, NJ, April 2011.
67. *2011 Invited Roundtable Speaker* for the technical committee meeting for development of Indoor air quality guidelines at the World Health Organization, Geneva, Switzerland, January 2011.
68. *2011Invited Roundtable Speaker* for the 3rd Food Borne Epidemiology Reference Group Meeting at the World Health Organization, Geneva, Switzerland, October, 2010
69. *2010Invited Speaker and Trainer* for Global Health Leadership Forum organized jointly by University of California Berkeley and Graduate School of Economics, Barcelona, Spain, July 2010.
70. *2010 Invited Plenary Speaker* for World Conference on Health promotion (IUHPE) organized by the World Health Organisation, Geneva, Switzerland, July 2010. Talk entitled "Occupational Heat stress in Developing Countries : New implications in the context of Climate Change" .
71. *2010 Invited Plenary Speaker* for International Meeting on Global Health and Vaccination: Environmental Change and Global Health" ,June 2010, Tromso, Norway. Talk entitled " Developing exposure assessment paradigms for routine estimation of the work-related heat stress burden in India: Implications for climate change related heat impacts"
72. *2010 Invited Speaker* at the Directors' Seminar Series, ATSDR, Centers for Disease Control (CDC) Atlanta, May 2010. Talk entitled "Recent Progress on assessing exposures to air pollution from solid fuel use in India".
73. *2010 Invited Speaker* at the Directors Seminar Series, Scripps Institute of Oceanography, SanDiego,CA, April 2010. Talk entitled "Air Pollution and Climate Change: The Health Co-benefits Landscape in India"
74. *2010 Distinguished Lecture* at the EHS Seminar Series, University of California School of Public Health, Berkeley, USA, April 2010. Talk entitled "Integrated assessments for emissions, exposure, and user behavior in improved stove programs for health and climate protection: Experiences from India: Household Energy, Climate Air Pollution, and Health , Distinguished Lecture" .
75. *2010 Invited Speaker* for National Technical Training Workshop on Air Pollution Measurements, organized by National Physical Laboratory, New Delhi, March 2010. Talk entitled" Integrated exposure assessments for air pollutants in India."
76. *2009 Invited Speaker* for International Consultation on Improved Biomass stoves organized by the United States Embassy, New Delhi and USAID (New Delhi Office), New Delhi, November 2009. Talk entitled "Household combustion of Solid Fuels: An exposure and health effects review for India".
77. *2009 Invited Speaker* for Joint Indo-US ICMR CDC workshop on Climate Change and Human Health, Goa, India, August 2009. Talk Entitled "Integrating human and health and climate co-benefits for air pollution in India".

78. *2009 Invited Roundtable Speaker* for Global Energy Assessment Report Lead Authors Meeting, Vienna, Austria June, 2009. Talk entitled "Household Energy and human health in developing countries".
79. *2009 Invited Roundtable Speaker* for Joint Indo-US ICMR-CDC Occupational and Environmental Health Consortium meeting, Neemrana, India Talk entitled "Design of Interventional Studies for Indoor Air Pollution related to Household Combustion of Solid Fuels".
80. *2009 Invited Plenary Speaker* for the Annual Meeting of The Indian Association of Occupational Health, Mumbai, India, April 2009. Talk entitled "Biological Monitoring for Occupational Health Risk Assessment".
81. *2009 Invited Plenary Speaker* for I Joint WHO-Collaborating Center-ILO-CIS Center meeting at World Health Organization HQ, Geneva, Switzerland. WHO-ILO Networking Benefits: Experiences from occupational and environmental health practice in India
82. *2009 Invited Plenary Speaker* for International Conference on BioEthics organized by SRU and University of Miami, Florida, USA, in Chennai, India. Talk entitled "Environmental Ethics: An emerging concern for environmental equity".
83. *2008 Invited Speaker* for the Annual DAE Safety & Occupational Health Professionals Meet at Kalpakkam, Tamil Nadu, December 2008. Talk entitled "Emerging Paradigms for Occupational Health Risk Management".
84. *2008 Invited Speaker* for the GURME International Workshop on Air Quality Forecasting, Indian Institute of Tropical Meteorology, Pune, December 2008. Talk Entitled "Exposure reconstruction strategies for air pollution related health effects research"
85. *2008 Invited Symposium Speaker* for The Annual Conference of the International Society for Environmental Epidemiology at Pasadena, CA, USA. Talk entitled "Exposure misclassification issues for air pollution research in rapidly developing countries", October 2008.
86. *2008 Invited Speaker* for the III International Control Banding Workshop held in collaboration with the annual World Safety Congress in Seoul, Korea. Talk entitled "Chemical Risk Management Toolkits for small and medium enterprises in Southern India", July 2008.
87. *2007 Invited Speaker* at the 7th Annual meeting of the WHO Collaborating Centre Network in Occupational Health, Kuala Lumpur, Malaysia. Talk entitled "Capacity building Initiatives in occupational safety and health: Lessons learnt in India", September 2007.
88. *2007 Invited Lecture* at the School of Public Health, University of Michigan, Ann Arbor. Talk entitled "Evidence base for Air Pollution Related Health Impacts in India", May 2007.
89. *2007 Key note address* entitled: The Global Action Plan for Healthy Workers at The National Workshop on Occupational Safety, IGCAR, Kalpakkam, November 2007.
90. *2007 Session Co-Chair and Invited Symposium speaker* for the Annual Meeting of the International Society for Environmental Epidemiology at Mexico City, for mini-symposium on "Air pollution related health effects in Asia" funded by HEI, November 2007
91. *2006 Invited Speaker* for the 6th Annual Meeting of the WHO Collaborating Center Network in Occupational Health, Milan, Italy. Talk entitled "Occupational Risk Management Toolkits: Pilot projects for control banding applications in Southern India", June 2006.
92. *2005 Invited lecture* at The World Bank. Talk entitled "Scaling exposure and health assessment for indoor air pollution related to solid fuel use: Lessons learnt from the HEED project", April 2005.
93. *2005 Invited Lecture* at the Harvard School of Public Health. Talk Entitled "Environmental Health in India: Challenges and Opportunities", April 2005.
94. *2005 Invited Lecture* at The School of Public Health, University of California, Berkeley. Talk entitled "New paradigms for Exposure Assessment for Environmental Hazards in India", May 2005.
95. *2005 Session Chair* and invited speaker for 10th Annual International Conference of The International Society for Indoor Air Quality and Climate, Beijing China. Session entitled "Pollution from household fuel combustion in developing countries" sponsored by the USEPA, September 2005.
96. *2005 Session Chair* and invited speaker for the 7th International Conference on OH Education & Training for Everyone Everywhere organized by International Commission on Occupational Health in Strausberg, France, September 2005.
97. *2005 Invited Speaker* for Indo-German meeting on Environmental Toxicology in Ahmedabad, India. Talk entitled "Indoor air pollution associated with household solid fuel use-Results of exposure assessment and modeling exercises in Southern India".
98. *2004 Session Chair and invited speaker* for International Conference on Better Air Quality in Agra, India. Session entitled "Exposure assessment for indoor air pollution associated with household fuel use", December 2004.

99. 2004 *Invited Speaker* for 2nd International Meeting on Application of Control banding Techniques in Developing countries organized by WHO/ILO in Utrecht, Netherlands, June 2004.
100. 2004 *Invited Speaker* for Workshop on "Prevention of Air Pollution in Asia (PAPA) program of The Health Effects Institute, USA in Bangkok, Thailand, December 2004.
101. 2004 *Session chair* for International round table on occupational safety & health organized by USEFI, Chennai
102. 2003 *Invited speaker* for Indo-US workshop on "Modeling of transport of Air pollutants organized by National Environmental Engineering Research Institute (NEERI), Nagpur and Ohio Supercomputer Centre (OSC), USA
103. 2003 *Invited Speaker* at the Annual Global Health Council meeting in Washington D.C, May 2003. Talk entitled "Comparative Health risk assessment for environmental hazards".
104. 2003 *Invited speaker and session Co-Chair* for The international conference on lead poisoning prevention organized by The National Safety Council, in partnership with the Alliance to End Childhood Lead Poisoning, the Children's Environmental Health Network, the Coalition for Lead Safe Kids, and the U.S. Environmental Protection Agency, Washington, D.C., June 2003
105. 2003 *Invited Speaker and Session Co-Chair* for the Fourth International Conference on Environmental Mutagens in Human Populations (4th ICEMHP) held in, Brazil, May 2003. Talk entitled "Exposures to indoor air pollution associated with solid fuel combustion: implications for children's health in developing countries"
106. 2003 *Invited Speaker* for The Annual meeting of Environmental Mutagenesis Society International at Miami, Florida, May 2003. Talk entitled "Emerging threats to children's environmental health- the situation in developing countries" on May 2003.
107. 2003 *Invited Speaker* for the South East Asian Regional meeting of the World Health Organisation in Phuket, Thailand 2003. Talk entitled "Strategies to strengthen occupational safety and health in SEAR countries.
108. 2003 *Invited Lecture* at World Bank Consultation on Indoor Air Pollution organized by the Foreign Loan Office, Beijing China, February, 2002. Talk entitled "Design and implementation of large scale field studies on exposure assessment for indoor air pollution related to solid fuel use".
109. 2002 *Plenary speaker* on Indoor air pollution and children's health at the International Conference on Children's Health organized by the World Health Organisation, Bangkok, March 2002.
110. 2002 UNITED NATIONS GENERAL WORLD HEALTH ASSEMBLY Technical Facilitator for Ministerial Round Table on 'Risks to Health', organized by The World Health Organisation (HQ), Geneva on 13-14th May 2002.
111. 2002 *Invited speaker* for Regional Workshop on Household Energy, Indoor Air Pollution and Health, May 2002, New Delhi, co-ordinated by the World Bank and Tata Energy Research Institute.
112. 2002 *Invited case study presentation* entitled "Job-exposure- health profile for the tanning industry in Southern India" at The American Industrial Hygiene Conference and Exposition, San Diego, California, June 2002.
113. 2002 *Invited speaker and session Co-chair* at the 9th International Conference on Indoor Air Quality and Climate for the World Bank symposium on addressing indoor air quality issues in developing countries Monterey, California, July 2002. Talk entitled "Respirable particulate levels in rural households of Andhra pradesh, India - daily concentrations and time activity data".
114. 2001 *Invited Speaker* for USEPA/USAID sponsored workshop on integrated Environmental strategies organized during the Annual International Society for Environmental Epidemiology meeting held at Garmisch Partenkirchen, Germany, 2001.
115. 2001 *Invited speaker* for National Seminar on Industrial Safety, Hazard & Risk Assessment (ISHRA) Organised by the National Productivity Council, November, 2001.
116. 2001 *Plenary address* at the International Workshop in Industrial Toxicology held at JNTU Hyderabad. Talk entitled "Disaster preparedness for chemical emergencies"
117. 2001 *Invited speaker* for Occupational Safety and Health Training Programme Organised by the Indira Gandhi Centre for Atomic Research, Kalpakkam, November, 2001.
118. 2001 *Invited Speaker* for the 8th National symposium on Environment organised by IGCAR Kalpakkam and the Department of Atomic Energy Government of India, Entitled "Health risk assessment for exposure to pesticides: A case study of endocrine disruptors", June 1999, Kalpakkam, Tamil nadu
119. 2000 *Invited Speaker* for the World Health Organisation Global Consultation on Indoor air Pollution in Developing countries, Washington, D.C., May 2000.
120. 2000 *Chair* for Round Table session on Occupational Safety and Health in Developing Countries at the Annual

Industrial Hygiene Conference and Exposition of the American Industrial Hygiene Association, Florida, USA, May 2000.

121. 2000 Invited Speaker and Chairperson at the International Conference on Environmental & Occupational Respiratory Diseases, Organised by ITRC, Lucknow, India October, 2000.
122. 1999 *Invited speaker* for National Seminar on Industrial Safety, Hazard & Risk Assessment (ISHRA) Organised by the National Productivity Council, November, 2001.
123. 1999 *Invited Speaker* for International Seminar on Lead Poisoning organised by the George Foundation in association with CDC, Atlanta, February 1999, entitled “Health risk assessment for lead exposure in Chennai”.
124. 1999 *Invited Speaker* for the Commonwealth Conference on Leather technologists, entitled “Occupational safety and health in the Leather industries”, CLRI, Chennai, India, June 1999.
125. 1999 *Chairperson* for session on Occupational Safety and Health in Tanneries at the Annual Leather Technology Meet at CLRI, Chennai, February 1999
126. 1998 Invited Speaker for the USAEP International training workshop on Medical Waste treatment technologies, entitled “Current Indian Scenario in medical waste disposal – problems and solutions, Mount Kisco, New York, USA, May 1998
127. 1998 *Invited Speaker* for Regional Seminar on Biomedical waste management organised by the Tamil Nadu State Pollution Control Board in association with the United States Asia Environmental Partnership, February, 1998 entitled “Hospital waste Management: Strategies for sustainable initiatives.”

Teaching Assignments

1. Course Director: Mater of Public Health (Occupational and Environmental Health)

Courses: Introduction to Global Occupational and Environmental Health, Exposure assessment and Control, Advanced Exposure Assessment Methods for Air pollution

2. Masters in Industrial Hygiene and Safety

Courses: Introduction to Occupational & Environmental Health; Industrial Hygiene I: Chemical, Physical and Biological Hazards

3. Post-Graduate Certificate in Industrial Health

Courses: Exposure assessment for occupational health; Occupational health risk management

4. Certification for the National Board of Occupational Safety and Health (NEBOSH) UK

Courses: Chemical, Biological and Physical Hazards in the Work Environment

5. Ph. D.

Graduated

- Kavitha K: Lead and neurobehaviour in children in Chennai (Graduated January 2010)
- S. Sankar: Exposure Assessment for Indoor Air Pollutants related to solid fuel combustion (Graduated January 2011)
- R. Padmavathy: Indoor air pollution and respiratory health impacts in Southern India (Graduated January 2012)
- Suchitra K: Assessing bio-aerosol exposure profiles in hospital environments in Southern India (Graduated March 2013)
- Priscilla Johnson: Respiratory health impacts related to Ozone and fine particulate exposure in Chennai (Graduated July 2014)
- Santu Ghosh: Developing spatial and functional analytical models for air pollution related health impacts in Chennai (Graduated September 2015)

Ongoing

- R. Ayappan: Developing risk calculators for chemical hazards in small and medium enterprises of S. India
- R. Raguathan: Developing risk calculators for ergonomic hazards in the automotive industries of S. India
- G. Thangavel: Estimating exposure response relationships between ambient air pollution (AAP) and birth weight among a cohort of pregnant women in Chennai city.
- Jayachelvi Babu: Assessing health risks from multi-metal exposures through human biomonitoring in Chennai, Tamilnadu.
- Vigneswari: Examining Determinants of Child Growth and Development among children in rural Tamil Nadu

