NATIONAL WORKSHOP

"Air Pollution and Health Linkages: Better Understanding for Impact Assessment, Setting Environmental Guidelines and Standards"

held on June 1, 2019 at PHD Chamber of Commerce & Industry

Organised By

Indian Association of Air Pollution Control (Delhi Chapter)

DRAFT RECOMMENDATION OF THE WORKSHOP

Exposures to high air pollutants in India pose considerable human health risk. Methodologically investigated data to understand the exact linkage between various air pollutants and its impact on human health is not available. Even though the regulatory agencies are monitoring the air quality at several locations in India for almost three decades, sufficient researched data is not available on the impacts of these pollutants on human health. Environmental health data of good quality could serve as a valuable tool for estimation of the health impacts of air pollutants, which could set priorities for appropriate action. Although the Ministry of Environment, Forests and Climate Change, the Central Pollution Control Board, Indian Council of Medical Research, NTPC Limited, Public Health Foundation of India, etc. commissioned few environmental health impact studies to assess the manifestations of various diseases attributable to air pollution, but no definite conclusion could be drawn. As such, there is a need to carry out cohort studies throughout the country to establish cause-effect relationship and these studies need to be more focussed and result oriented. In 2003, the MOEF&CC has brought out a Vision Statement on Environmental Health in order to internalize the environmental health issues in setting up of environmental standards and evolving measures and action programmes for the protection of public health against pollution.

The strong linkage between development, productivity, pollution and health requires more integrated and inter-sectoral approaches to address public health issues. This will enable the government to take intervention measures for population residing near the industrial areas, urban areas having high vehicle density and exposed to heavy metals and hazardous pollutants. Vulnerable groups such as infants, old persons and children need protection against the air pollution hazards.

In order to understand and give more recognition to Air Pollution and Health linkages, IAAPC (Delhi Chapter) organized Workshop on "Air Pollution and Health Linkages: Better Understanding for Impact Assessment, Setting Environmental Guidelines and Standards"

The primary objective of the workshop was:

- 1. Gather scientific information (study methodology and conclusion) and causeeffect data on the relationship between air pollution and human health.
- 2. Utilize health-based data for developing national discharge standards and estimating disease burden in different areas on the country.
- 3. Use environmental health data in the policy planning and decision making related to all aspects of development.

Dr. J.S. Sharma, President-IAAPC welcomed all delegates. Dr. S.D.Attri, Dy Director General, India Meteorological Department explained the objectives of the workshop, Guest of Honour, Dr. J.P. Gupta, Chairman, Expert Appraisal Committee (Industry-2), MOEF&CC addressed the delegates and emphasized the traditional philosophies followed in India since time immemorial for sustainable development. Dr. Manoranjan Hota, Former Advisor MOEF&CC & Member Expert Appraisal Committee, MOEF&CC delivered the keynote address, where he explained the Vision Document 2003 of MOEF&CC on the subject Environmental Health. In his Address the Chief Guest Dr. R.S.Dhaliwal, Head, Non Communicable Diseases, Indian Council of Medical Research, deliberated on the research work being done in the country and emphasized the requirement of applied research on air quality and health linkages. Thereafter, Mr. S.K.Gupta, Secretary-IAAPC proposed the Vote of Thanks.

The Technical Session 1: Health Studies was Chaired by Dr. K.T.Bhowmik, Addl MS, Bhagwan Mahavir Medical College, New Delhi and Co-Chaired by Prof Anubha Kaushik, Director (International), IP University, New Delhi. Following 5 presentations were made by the experts and discussed.

- 1. Dr. Raj Kumar (Vallabhbhai Patel Chest Institute, University of Delhi) Clinical Profile of Respiratory Illness due to Air Pollution and Early Diagnosis Tools
- 2. Dr. Poornima Prabhakaran (Public Health Foundation of India) Overview of PHFI Research Studies on Air Pollution & Health Outcomes
- 3. Dr. D. Prabhakaran (Director, Center for Chronic Condition and Injuries and Vice President (Research and Policy), Public Health Foundation of India Diagnostic tools for understanding air pollution linkage with Cardio Vascular Diseases
- 4. Dr. Arun Sharma (University College of Medical Sciences, University of Delhi) Research Methodologies for Assessing Health Effects of Air Pollution
- Dr. S.K. Paliwal, (Central Pollution Control Board, Delhi) Requirement of Health Impact Assessment Studies for EIA Study of Thermal Power Plants

The Technical Session 2: Methodology For Health & Air Pollution Measurment was Chaired by Dr. B. Sengupta, Former Member Secretary, Central Pollution Control Board and Co-chaired by Dr. Rajendra Prasad, CEO Ecotech Instruments. Following 5 presentations were made by the experts and discussed.

- Dr. Sagnik Dey (Dept of Atmospheric Sciences, IIT Delhi) International Methods for Conducting Air Pollution Health Impact Study Exposure Modelling: Challenges & Opportunities
- Dr. TK Joshi (Former Head- Centre for Environ Health, MAMC) & Dr. J K Moitra (EMTRC)
 Case Studies on Health Impact Assessment due to Air Pollution from Thermal Power Plants: Overview of Methodologies
- 8. Dr. Pavan Tiwari (AIIMS) Correlation of Acute Changes in Air Quality with Emergency Admissions
- Dr. Abhijit Pathak, CPCB, Delhi Linking Air Quality and Health: Need Assessment Beyond Regulatory Monitoring Practice
- Dr. K. Krishnamurthy (NEERI Nagpur) Health Impacts of Air Quality on Nagpur - Environmental and Epidemiology Based Health Risk Assessment Study on Multi-pollutants and Sensitive Populations

Following experts provided valuable concluding remarks during the Valedictory Session: Mr. Paritosh Tyagi (Former Chairman CPCB), Dr. B. Sengupta (Former Member Secretary CPCB), Dr. J. Bhasin, Former Dy Director, NEERI, Dr. J.S.Sharma,

President IAAPC and Member Expert Appraisal Committee (Industry 2), MOEF&CC, Dr. S.K.Tyagi, (Former Head, Toxic Air Lab, CPCB) and Dr. Abhijit Pathak (Scientist-CPCB). The recommendations of the workshop is given below:

- "Health in all Policies" should be the mantra for India so that remedial measures are formulated and implemented for its most polluted cities. Members of all stakeholder ministries should be involved in final policy-making for air pollutionenvironment, health, power, urban transport, energy, industry, renewable energy. Regular stake-holder consultation for periodic review of all policies is a must.
- In order to stop duplication of research, a centralized registry of research work should be created, preferably by ICMR and all research projects should be listed on it. The list should be accessible online
- 3. It is important to avoid wastage of resources in conducting research on less important issues and avoid poor quality research work. MoEF&CC should prepare guidelines for all researchers in the country to carry out research on air quality and health linkages, prioritise areas of research on health impact suitable for framing national ambient air quality standards and discharge standards.
- Ministry of Health should work towards making illness, disease, morbidity and mortality data available from hospitals, municipal corporations and district health records.
- Ministry of Health, Ministry of Environment and Ministry of Science and Technology should provide directives in a centralized manner to prioritize research topics and allocate funds to researchers accordingly
- Local coordination units should be made at city, district and state level to form interdisciplinary research groups involving all stakeholders to carry out exposure impact assessment studies and evolve decentralised air action plans at state/city/district level.
- MoEF&CC vide OM dated 19-11-2018 issued standard conditions to be stipulated in Environmental Clearance for thermal power plants:

- i. Bi-annual Health check-up of all the workers is to be conducted. They study shall take into account of chronic exposure to noise which may lead to adverse effected like increase in heart rate and blood pressure, hypertension and peripheral vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.
- ii. Baseline health status within study area shall be assessed and report be prepared. Mitigation measures should be taken to address the endemic diseases.

MOEF&CC should mention the methodology of data collection (secondary data) / generation (primary data), who should conduct the check-up, qualification and experience of medical professionals, etc.

- 8. There is an urgent need to develop a harmonised protocol for conducting Health Impact Assessments (HIA) in India .Current ground experiences in doing HIA may be drawn upon to feed into this process. Once the protocol is developed, capacity building at all levels should be initiated.
- Integrated Environmental and Health Impact Assessment (IEHIA) is followed in many countries. HIAs must become an integral part of regulatory clearances (for large scale development projects, where the magnitude of impacts are huge) over next few years just as EIAs.
- 10. HIA should be commissioned and conducted by regulatory authorities and not by industry owners to avoid conflict of interest. At least the regulatory authorities should get involved and closely monitor the study process.
- 11. The Comprehensive Environmental Pollution Index (CEPI) is currently providing minimal emphasis on HEALTH (air pollutants-30, Soil pollutants-30, water pollutants-30 and health -10, in an index of 100). This should be revised at earliest.
- 12. Research at local / city (micro) level to understand the burden of diseases due to air pollution in terms of disability, morbidity, mortality and productivity losses should be initiated. (Presently the burden of disease is done at macro (district) level)

- 13. Long Term (15 years and more) cohort based research studies are required in India the understand the extent of health impact of air pollutants, especially in Critically Polluted Areas identified by CPCB/MOEF.
- 14. An integrated satellite based air quality monitoring system is required for India to get hourly PM_{2.5} at 1 km radius for the entire country. This data will be useful for health impact study.
- 15. Air shed based delineation of areas for entire country is important and air quality management approach should be based on air shed management specially to understand the impact of air pollution on human health.
- 16. Personal exposure modelling tool suitable for Indian conditions, and specifying the measurement of uncertainty, should be developed by Health Institutes (PHFI, SRMC, AIIMS, CNCI, etc)
- 17. Issue regarding toxic components of PM₁₀ / PM_{2.5} (Organic Carbon, Elemental Carbon, Heavy Metals like As, Pb, Ni, Hazardous Air Pollutants, etc.) should be addressed for better understanding of health impact assessment studies.
- 18. Finalize the Model TOR / Guidelines for conducting health impact study CPCB / MOEF may consider constituting an Expert Committee with following members:
- a. Prof. A.K. Sharma, University College of Medical Sciences, Delhi University
- b. Representative from Public Health Foundation of India
- c. Representative from AIIMS
- d. Representative from NEERI
- e. Prof. Sagnik Dey, Centre for Atmospheric Sciences, IIT Delhi
- f. Representative from CPCB / MoEF
- g. Representative from IAAPC(DC)













