

International Workshop on Air Pollution & Public Health: Challenges and Interventions

TEACHER'S ACTIVITY REPORT 2019 - 2020.

FACULTY: Science **DEPARTMENT/COMMITTEE:** Zoology **IQAC ACTIVITY No:** SVC/2019-20/ZOO/VM/2

NAME OF THE ACTIVITY: International workshop			
DATE	FACULTY	DEPARTMENT/COMMITTEE	COORDINATOR NAME
5 th -7 th February 2020	Science	Zoology	Dr. Vartika Mathur, Dr. Richa Mishra, Dr. Pooja Gokhale, Dr. Namita Nayyar and Dr. Preeti Khandelwal
TIME	VENUE	NUMBER OF PARTICIPANTS	NATURE: Outdoor/Indoor
NA	Radisson Blu, Dwarka, New Delhi	78	Indoor
SUPPORT/ASSISTANCE:	Sri Venkateswara College, All India Institute of Medical Sciences (AIIMS), Cadila Pharmaceuticals, Cipla and Indraprastha Gas Limited (IGL)		

BRIEF INFORMATION ABOUT THE ACTIVITY (CRITERION NO. – III and VII):

TOPIC/SUBJECT OF THE ACTIVITY	International Workshop on Air Pollution & Public Health: Challenges and interventions
OBJECTIVES	This workshop provided a platform for all the stakeholders, including scientists, doctors, policy makers and industries, to come together to deliberate on how to improve traditional approaches as well as the use of science, technology and innovation to mitigate air pollution and health effects associated with it.
METHODOLOGY	<p>The Workshop included two Panel Discussion Sessions and eight Technical Sessions besides the Inaugural and Concluding Sessions together with 13 experts and professionals from developing countries viz., Bhutan, Cambodia, Cuba, Egypt, Indonesia, Iran, Malaysia, Myanmar, Nepal, Palestine, Sri Lanka, Zambia, Zimbabwe; and 65 eminent medical professionals, scientists, government officials, industry representatives as well as students from the host country, India:</p> <p>Inaugural Session commenced by:</p> <p>Dr. P. Hemalatha Reddy, Principal, Sri Venkateswara College, Dr. Amitava Bandopadhyay, Director General, NAM S&T Centre Prof. (Dr.) Randeep Guleria, Professor & Director, All India Institute of Medical Sciences (AIIMS), Delhi</p> <p>8 Technical session:</p> <p>Technical Session - I chaired by Prof. Mohammad Kafi (President, Ferdowsi University of Mashhad, Iran) and Prof. Anant Mohan (HOD, Dept of Pulmonary medicine, Critical care and Sleep Medicine, AIIMS)</p> <p>Technical Se9 msson – II chaired by Ms. Leo Choe Peng (Associate Professor, School of Chemical Engineering, Universiti Sains Malaysia, Parit Buntar) and Dr. Asani Bhaduri (Assistant Professor, Molecular and Computational Biology, Cluster Innovation Centre, University of Delhi)</p> <p>Technical Session – III chaired by Mr. Chador Wangdi (Sr. Program Officer Ministry of Health, Department of Public Health, Kawangjansa, Thimphu) and Dr. Sagnik Dey (Associate Professor, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi)</p> <p>Technical Session – IV chaired by Dr. Abdelfattah R.A. Almallah (Director, Water and Environmental Studies Institute, An – Najah National University, Nablus) and Dr. N. Latha</p> <p>Technical Session – V was chaired by Mr. Clavel Mulenga (Public Health Inspector, Lusaka City Council, Lusaka) and Dr. Ravindra Kumar (Head, Transportation Planning and Environment</p>

	Division, Senior Principal Scientist and Professor ACSIR, CSIR-Central Road Research Institute (CRRI), New Delhi) Technical Session – VI chaired by Dr. Thammita Anuruddha (Principal Research Scientist, National Engineering Research and Development Center (NERDC), Ja-Ela) and Dr. Nirmal Kumar Technical Session – VII was chaired by Dr. Thammita Anuruddha and Dr. Nirmal Kumar Technical Session – VIII was chaired by Dr. P. Hemalatha Reddy and Dr. Nour Shafik Emam Elgendy (Professor (Head Manager), Petroleum and Environmental Biotechnology (Petroleum Biotechnology Laboratory), Egyptian Petroleum Research Institute (EPRI), Cairo)
OUTCOMES	Participants learnt about the harmful effects of air pollution to human health, plants, environment and one health, causes of pollution and various remediation policies and techniques being implemented and studies in various countries. The conference ended with drafting a policy paper in the form of resolution for air pollution mitigation that was circulated to governments of all the NAM countries

PROOFS & DOCUMENTS ATTACHED (Tick mark the proofs attached):

Notice & Letters✓	Student list of participation	Activity report	Photos ✓	Feedback form
Feedback analysis	News clip with details	Certificate✓	Any other✓ (Policy document)	

(To be filled by IQAC)

IQAC Document No:	Criterion No: III and VII	Metric No:
Departmental file no:	IQAC file No;	

NAME OF TEACHER & SIGNATURE	NAME OF HEAD/ COMMITTEE INCHARGE & SIGNATURE	IQAC COORDINATOR (SEAL & SIGNATURE)
Dr. Vartika Mathur		

For Reference

Criterion I	Curricular Aspects (planning & Implementation)	Criterion V	Student Support & Progression
Criterion II	Teaching Learning & Evaluation	Criterion VI	Governance
Criterion III	Research, Innovations & Extension	Criterion VII	Institutional Values & Best Practices
Criterion IV	Learning Resources and Infrastructure		

Proofs

REPORT

CENTRE FOR SCIENCE & TECHNOLOGY OF THE NON-ALIGNED AND OTHER DEVELOPING COUNTRIES

(NAM S&T CENTRE)

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INTERNATIONAL WORKSHOP

ON

‘AIR POLLUTION AND PUBLIC HEALTH: CHALLENGES AND INTERVENTIONS’

5 – 7 FEBRUARY, 2020

NEW DELHI, INDIA

BRIEF REPORT

Air pollution is recognized as one of the top five causes of mortality linked to respiratory and heart diseases worldwide. According to a WHO report, air pollution leads to 7 million deaths world-wide with a total of 4.3 million deaths linked to household air pollution and 2.7 million related to ambient air pollution.

In developing countries, ambient air pollution primarily results from industrial emissions, vehicular combustion processes, fires, biogenic productions, burning of agricultural waste and smoke as well as dust particles blown by wind from one region to the other. Common ambient air pollutants include Particulate Matter (PM₁₀ and PM_{2.5}), Ozone, Carbon Monoxide, Sulphur Dioxide and Oxides of Nitrogen. Household air pollution is mainly due to cooking on open fires inside homes, as well as using biomass such as wood, cow dung, charcoal and kerosene as cooking fuel, without proper ventilation system.

Long term exposure to air pollution may lead to weakening of immune system and other negative health outcomes including strokes and respiratory conditions such as Asthma, Chronic Obstructive Pulmonary Disease (COPD), Lung Cancer and Allergies as well as Cataracts, Cardiovascular and other diseases. Cleaner and better air quality is a fundamental right, making it imperative for all the stakeholders, including scientists, doctors, policy makers and industrialists, to come together and deliberate on how to improve traditional approaches as well as on the use of Science and Technology and Innovation (STI) to develop inexpensive and sustainable methods to mitigate air pollution and the health effects associated with it.

Considering the above, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), New Delhi, jointly with Sri Venkateswara College, University of Delhi organised an '**International Workshop on Air Pollution and Public Health: Challenges and Interventions**' at Hotel Radisson Blu, Dwarka in New Delhi, India during 5 -7 February 2020.

There were altogether 78 participants in the Workshop including 13 experts and professionals from developing countries viz., Bhutan, Cambodia, Cuba, Egypt, Indonesia, Iran, Malaysia, Myanmar, Nepal, Palestine, Sri Lanka, Zambia, Zimbabwe; and 65 eminent medical professionals, scientists, government officials, industry representatives as well as students from the host country, India.

The **Foreign participants** were from **Bhutan** [**Mr. Chador Wangdi**, Sr. Program Officer Ministry of Health, Department of Public Health, Kawangjansa, Thimphu]; **Cambodia** [**Mrs. Heng Dina**, General Manager, Ly Vireak Clinic and Pharmacy MEDICA, Khan Dangkor, Phnom Penh]; **Cuba** [**Ms. Marisol Romeu Hernández**, Head of the Biotechnology Unit, Delegation of the Ministry of Science Technology and Environment, Havana]; **Egypt** [**Dr. Nour Shafik Emam Elgendy**, Professor (Head Manager), Petroleum and Environmental Biotechnology (Petroleum Biotechnology Laboratory), Egyptian Petroleum Research Institute (EPRI), Cairo]; **Indonesia** [**Dr. Widayarani**, Researcher, Indonesian Institute of Sciences, Jakarta]; **Iran** [**Prof. Mohammad Kafi**, President, Ferdowsi University of Mashhad]; **Malaysia** [**Ms. Leo Choe Peng**, Associate Professor, School of Chemical Engineering, Universiti Sains Malaysia, Parit Buntar]; **Myanmar** [**Dr. Moe Myitzu**, Director, Department of Research and Innovation, Yangon]; **Nepal** [**Dr. Bimala Devi Devkota Paudel**, Senior Scientific Officer, Faculty of Science, Nepal Academy of Science and Technology (NAST), Lalitpur]; **Palestine** [**Dr. Abdelfattah R.A. Almallah**, Director, Water and Environmental Studies Institute, An – Najah National University, Nablus]; **Sri Lanka** [**Dr. Thammita A.S. Anuruddha**, Principal Research Scientist, National Engineering Research and Development Center (NERDC), Ja-Ela]; **Zambia** [**Mr. Clavel Mulenga**, Public Health Inspector, Lusaka City Council, Lusaka] and **Zimbabwe** [**Ms. Gloria Winnie Sikayi**, Senior Environmental Health Officer, City of Harare, Harare].

The Indian Panel Members and Plenary Speakers in various sessions were: **Dr. Randeep Guleria, MD, DM** [Professor & Director, All India Institute of Medical Sciences (AIIMS), Delhi]; **Dr. Anant Mohan, MD, FRCP, FCCP** [Professor and Head, Department of Pulmonary Medicine & Sleep Disorders, AIIMS, Delhi]; **Dr. Sagnik Dey** [Associate Professor, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi]; **Dr. Vartika Mathur** [Assistant Professor, Sri Venkateswara College, University of Delhi]; **Dr. Chandragouda Dodagoudar** [Sr. Consultant, Medical Oncology, BLK Super Speciality Hospital, New Delhi]; **Dr. Gopi Chand Khilnani, MD** [Chairman – Pulmonary, Critical Care & Sleep Medicine, Pushpawati Singhanian Hospital & Research Institute]; **Dr. Rajesh Chawla, MD, FCCP** [Senior Consultant, Institutes of Critical Care, Respiratory and Sleep Medicine, Indraprastha Apollo Hospitals]; **Dr. Kiran Guleria, MD** [Director Professor, University College of Medical Sciences, GTB Hospital]; **Dr. Karan Madan, MD, DM** [Assistant Professor, Department of Pulmonary Medicine & Sleep Disorders, AIIMS, Delhi]; **Dr. Mradul Kumar Daga, MD** [Director-Professor in Medicine and Resource, Maulana Azad Medical College]; **Dr. Varinder Singh, MD, FRCPCH** [Director Professor of Pediatrics, Lady Hardinge Medical College]; **Mr. Amit Jain** [Vice President, Sales and Marketing, Cadila Pharmaceuticals Limited]; **Mr. Chander Mohan** [Scientist G, Department of Science & Technology, Government of India]; **Dr. Vijay Hadda, MD** [Assistant Professor, Department of Pulmonary Medicine & Sleep Disorders, AIIMS, Delhi]; **Mr. Jatinder Singh Kamyotra** [Director, Central Pollution Control Board]; **Mr. N. Mohan** [Deputy General Manager and Head of Electrical Vehicles Charging Infrastructure Department, M/s. Energy Efficiency Services Limited (EESL), an entity under the Ministry of Power, Government of India] and **Mr. P.K. Pandey** [Vice President, Marketing, Indraprastha Gas Limited].

The Indian participants who had presented their papers in various sessions were: **Dr. Pawan Tiwari** [Assistant Professor, Department of Pulmonary Medicine and Sleep Disorders, AIIMS, New Delhi]; **Dr. Kavita Verma** [Research Scholar, Department of Zoology, Sri Venkateswara College, University of Delhi]; **Dr. Pooja Gokhale Sinha** [Assistant Professor, Department of Botany, Sri Venkateswara College, University of Delhi]; **Dr. Asani Bhaduri** [Assistant Professor, Molecular and Computational Biology, Cluster Innovation Centre, University of Delhi]; **Ms. Garima Sharma** [Animal Plant Interactions Laboratory, Department of Zoology, Sri Venkateswara College]; **Dr. Naveen Arora** [Chief Scientist, CSIR-Institute of Genomics and Integrative Biology, University of Delhi Campus, Delhi]; **Dr. Richa Misra** [Assistant Professor, Department of Zoology, Sri Venkateswara College]; **Ms. Keerti Mishra** [Programme Associate, Science and Engineering Research Board (SERB), Government of India, New Delhi]; **Dr. Deeksha Katyal** [Assistant Professor, University School of Environment Management, Guru Gobind Singh Indraprastha University, New Delhi]; **Ms. Anjali Yadav** [MPhil student, Department of Zoology, University of Delhi]; **Dr. Sanjukta Subudhi** [Senior Fellow, DBT-TERI Center of Excellence in Advanced Biofuel and Biocommodities & Environmental and Industrial Biotechnology Division, The Energy and Resources Institute, New Delhi]; and **Dr. Ravindra Kumar** [Head, Transportation Planning and Environment Division, Senior Principal Scientist and Professor ACSIR, CSIR-Central Road Research Institute (CRRI), New Delhi].

The NAM S&T Centre was represented by Dr. Amitava Bandopadhyay, Director General; Mr. M. Bandyopadhyay, Senior Adviser; Ms. Jasmeet Kaur, Programme Officer; and Mr. Abhay Nambiar, Ms. Gloria Cherian and Ms. Nidhi Utreja, Research Associates.

The three-day dynamic International Workshop was successfully held with an objective to discuss and deliberate upon the emerging causes and hazards of air pollution including its associated effects on public health in general, and focusing on the health of women and children in particular and to strategize various traditional and scientific approaches for its mitigation. The Workshop included **two Panel Discussion Sessions** and **eight Technical Sessions** besides the Inaugural and Concluding Sessions – over the three days duration.

The Inaugural Session commenced with a welcome address by **Dr. P. Hemalatha Reddy**, Principal, Sri Venkateswara College, University of Delhi which was followed by an address by **Dr. Amitava Bandopadhyay**, Director General, NAM S&T Centre, who presented the genesis of the event and also briefly described the activities of the Centre (an Inter-governmental Organisation), and highlighted the need for affirmative action on mitigation of air pollution by collaboration and cooperation between various countries and how the NAM S&T Centre could facilitate in achieving these goals. The honorable Chief Guest was **Prof. (Dr.) Randeep Guleria**, Professor & Director, All India Institute of Medical Sciences (AIIMS), Delhi who expressed his concerns on the effect of Air Pollution on Human Health by sharing his professional experience as a Doctor with his research focus on Pulmonology, Respiratory and Sleep Medicine and stated that the biggest challenge of Air Pollution is that it is an invisible danger and it is hard to fight something that one cannot see, touch, feel or taste. The session concluded with the Vote of Thanks by **Dr. Vartika Mathur**, Assistant Professor, Sri Venkateswara College, University of Delhi, which was followed by an official Group Photo Session.

Technical Session - I was chaired by Prof. Mohammad Kafi and Prof. Anant Mohan which started with a Plenary Lecture on “*Air Pollution: Know your Enemy*” - *Insights from around the Globe*’ by Prof. Anant Mohan followed by presentation of scientific papers by foreign and Indian participants viz., Dr. Moe Myitzu (Myanmar) [Title: ‘*Air Pollution Monitoring and Determination of the Concentration of Toxic Element in Air*’]; Dr. Pawan Tiwari (India) [Title: ‘*Air Pollution: Burden of Disease in Developing Countries*’]; Dr. Bimaladevi Devkota Paudel (Nepal) [Title: ‘*Air Pollution in Nepal: Status, Impacts and Policy Perspective*’] and Ms. Gloria Winnie Sikayi (Zimbabwe) [Title: ‘*Air Pollution: Know your Enemy: Insights from Around the Globe : A Case Study of Harare*’].

Technical Session – II chaired by Ms. Leo Choe Peng and Dr. Asani Bhaduri began with the Plenary Lecture on *‘Ambient Air Pollution Exposure in India : Challenges and Opportunities’* by Dr. Sagnik Dey which was followed by presentation of scientific papers by Ms. Kavita Verma (India) [Title: *‘Effect of Air Polycyclic Aromatic Hydrocarbons in Food Chain: Direct and Indirect Exposure’*]; Dr. Pooja Gokhale Sinha (India) [Title: *‘Carbon Footprint: Emission Analysis of Urban Youth in Delhi’*]; and Mr. Clavel Mulenga (Zambia) [Title: *‘The Impacts of Indoor Air pollution on Human Health in Informal Settlement (Case study of Mazyopa Compound - Lusaka District)’*].

Technical Session – III chaired by Mr. Chador Wangdi and Dr. Sagnik Dey had the Plenary Lecture on *“Air Pollution: A Burden on ‘One Health’”* by Dr. Vartika Mathur. This was followed by presentation of scientific papers by Dr. Thammita A. S. Anuruddha (Sri Lanka) [Title: *‘Quantifying the Carbon Emission of the Crematoria to Identify the Carbon Sinkable Tea Vegetation Requirement to Counterpoise the Carbon Foot Print’*]; Dr. Asani Bhaduri (India) [Title: *‘Wildfire and Wildlife – A lesser known Pollution’*]; and Ms. Garima (India) [Title: *‘Impact of Air Pollution on Plant Microbiome : an Insight into Urban Ecosystems’*].

Technical Session – IV chaired by Dr. Abdelfattah R.A. Almallah and Dr. N. Latha started with the Plenary Lecture on *‘Air Pollution and Public Health’* by Dr. Chandragouda Dodagoudar. This was followed by presentation of scientific papers by Dr. Widyarani (Indonesia) [Title: *‘Visible Electricity: Environmental Impact of Coal-Fired Power Plant on Local Air Quality’*] and Dr. Naveen Arora (India) [Title: *‘Impact of Air Pollution on Respiratory Inflammation/Cancer’*]. Thereafter, a panel discussion was held on, *‘Air Pollution : Challenges in High-Risk Groups’*. The Members of the Panel were, Dr. Rajesh Chawla (Moderator), Dr. Kiran Guleria, Dr. Karan Madan, Mr. Amit Jain, Prof. M.K. Daga and Prof. Varinder Singh. The panel members had an illuminating and enlightening discussion on how air pollution has adverse effects on the health of vulnerable groups in the society, namely pregnant women and fetus, children and senior citizens.

Technical Session – V was chaired by Mr. Clavel Mulenga and Dr. Ravindra Kumar and had presentation of scientific papers by Dr. Abdelfattah R. A. Almallah (Palestine) [Title: *‘Long Term Monitoring of Air Pollution from Quarries with Health Effects, Managerial, and Technical Solution’*], Dr. Richa Misra (India) [Title: *‘Effect of Air pollution on Microbiome and Health’*], Prof. Mohammad Kafi (Iran) [Title: *‘Role of Universities in Air Pollution Control (Experience of Ferdowsi University of Mashhad)’*], and Ms. Keerti Mishra (India) [Title: *‘Ill Effects of Rising Air Pollution on Public Health and Measures Adopted Globally to Improve Air Quality’*].

Technical Session – VI chaired by Dr. Thammita Anuruddha and Dr. Nirmal Kumar began with the Plenary Lecture on *‘Alarming Rise of Respiratory Inflammation : Is Air Pollution a Contributor?’* by Dr. G.C. Khilnani which was followed by presentations of scientific papers by: Ms. Leo Choe Peng (Malaysia) [Title: *‘Air Pollution Abatement Technologies’*], Dr. Deeksha Katyal (India) [Title: *‘Evaluating the Engagements of Educational Institutions in Alleviating Air Pollution’*], Mrs. Heng Dina (Cambodia) [Title: *‘The Challenges and Intervention of Air Pollution to Health Issue in Cambodia’*], and Ms. Anjali Yadav (India) [Title: *‘Impairment of Immunity by Air Pollution May Increase the Susceptibility to Tuberculosis During Winters’*].

Technical Session – VII was chaired by Dr. Thammita Anuruddha and Dr. Nirmal Kumar which started with presentations of scientific papers by Dr. Nour Shafik Emam Elgendy (Egypt) [Title: *‘Biovalorization of Organic Waste Biomass into Different Valuable Products as Out-of-Box Approaches for Mitigation of Air Pollution’*]; and Ms. Marisol Romeu Hernández (Cuba) [Title: *‘Actions to Mitigate Health Effect Caused by Air Pollution’*]. This was followed by the second Panel Discussion on, *‘Decreasing Air Pollution Exposure: Use of Masks, Air Purifier, Alternate Fuels, and Other Innovations’*. The Members for the Panel were, Shri Chander Mohan (Moderator), Mr. P.K. Pandey, Mr. J.S. Kamyotra, Dr. Vijay Hadda and Mr. N. Mohan. They discussed on how technological intervention could be the solution to mitigate air pollution and the concomitant effects.

Technical Session – VIII was chaired by Dr. P. Hemalatha Reddy and Dr. Nour Shafik Emam Elgendy which began with the Plenary Lecture on *‘Recommendations for Sustainable Solutions’* by Prof. Randeep Guleria. This was followed by presentation of scientific papers by Mr. Chador Wangdi (Bhutan) [Title: *‘Air Quality in Bhutan’*], Dr. Ravindra Kumar (India) [Title: *‘Improving Road Condition Strategies to Reduce Fuel Consumption and CO₂ Emission’*], and Dr. Sanjukta Subudhi (India) [Title: *‘Opportunities to Address Air Pollution with Transport Biofuel: Potential to Reduce Nanoparticle Emissions’*].

During the Concluding Session, extensive discussions were held, and suggestions and ideas were shared and a ‘**New Delhi Resolution**’ with a set of recommendations was extensively discussed and unanimously adopted by the participants. The Concluding Session was chaired by Dr. P. Hemalatha Reddy, Principal, Sri Venkateswara College and Dr. Amitava Bandopadhyay, Director General, NAM S&T Centre. The “*Certificates of Participation*” were then handed over to the participants by Prof. (Dr.) Randeep Guleria, Dr. P. Hemalatha Reddy, Dr. Amitava Bandopadhyay and Mr. M. Bandyopadhyay.

A visit to Delhi-Haat, an open-air “*Craft Bazaar and Food Plaza*” located in New Delhi and the office of the NAM S&T Centre at India Habitat Centre was arranged for the foreign delegates. During their visit, the participants discussed possibilities of cooperation between the NAM S&T Centre and their respective countries/institutions.

The participants expressed gratitude to the sponsors, organisers and hosts - NAM S&T Centre and Sri Venkateswara College, for the excellent arrangements and efficient coordination of the Workshop. They also appreciated that such scientific event not only provided opportunities to them to meet, engage, gain and share knowledge on a common platform, but also facilitate in better understanding of this multifaceted global environmental issue.

International Workshop

On

Air Pollution & Public Health: Challenges & Interventions

Mortality According To WHO Regional Groupings



- Over 2 Million in South-East Asia Region
- Over 2 Million in Western Pacific Region
- Nearly 1 Million in Africa Region
- About 500 000 in Eastern Mediterranean Region
- About 500 000 in European Region
- Over 300 000 in Americas Region

7 Million estimated deaths linked to Air Pollution



34% from Ischemic Heart Disease



20% from stroke

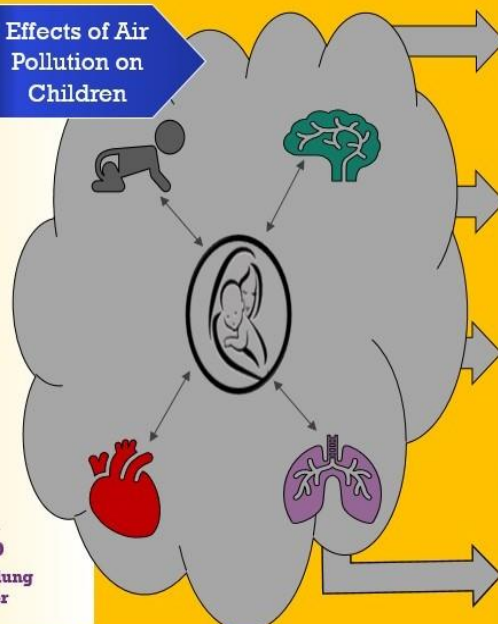


21% from pneumonia

19% from Chronic Obstructive Pulmonary Disease (COPD)

7% from lung cancer

Effects of Air Pollution on Children



- Low Birth Rate
- Premature Birth
- Infant Mortality
- Impaired Mental and Motor Development
- Behavioral Disorders
- Stunted Lung Growth
- Reduced Lung Function
- Increased Risk of Developing Asthma
- Increased risk of heart disease, stroke and diabetes in adulthood



CENTRE FOR SCIENCE & TECHNOLOGY OF THE NON – ALIGNED AND OTHER DEVELOPING COUNTRIES (NAM S&T CENTRE), NEW DELHI, INDIA



SRI VENKATESWARA COLLEGE, UNIVERSITY OF DELHI, NEW DELHI, INDIA



Hotel Radisson Blu – Dwarka, New Delhi, India



5th – 7th February 2020



International Workshop on **AIR POLLUTION AND PUBLIC HEALTH: Challenges and Interventions**

February 5-7, 2020

Radisson Blu, Dwarka Sector-13, Delhi, India

This Workshop aims to bring together scientists, doctors, medical and pharma professionals, technologists, academicians and other stakeholders with an interest in working towards the vision of 'Clean Air for Health'

Organized by:

**Sri Venkateswara College, University of Delhi &
NAM S&T Centre, Delhi**

**Let's get together for
'CleanAirNow'**



Call for Full paper presentations
(Oral/Poster)

Deadline for Abstract submission: 1 January, 2020

Full paper mandatory for inclusion in Conference proceeding



Chairpersons: Dr. P. Hemalatha Reddy (Principal, SVC) & Dr. Anilava Bandopadhyay (DG, NAM S&T Centre)

Convener: Dr. Vardha Mathur (Asst. Professor, SVC)

Email: apphw2020@gmail.com; www.airpollutionworkshop.com



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**INTERNATIONAL WORKSHOP
ON
AIR POLLUTION AND PUBLIC HEALTH:
CHALLENGES AND INTERVENTIONS**

**NEW DELHI, INDIA
5 – 7 FEBRUARY 2020**

ORGANISED BY

	CENTRE FOR SCIENCE & TECHNOLOGY OF THE NON – ALIGNED AND OTHER DEVELOPING COUNTRIES (NAM S&T CENTRE), NEW DELHI, INDIA
	SRI VENKATESWARA COLLEGE, UNIVERSITY OF DELHI, NEW DELHI, INDIA

INTRODUCTION

Air pollution is recognized as one of the top five causes of mortality linked to respiratory and heart diseases worldwide. Ambient (outdoor) and household (indoor) air pollution have contributed to about 4.9 million deaths (8.7% all deaths globally) and 147 million years of healthy life lost (5.9% of all DALYs globally), according to the *State of Global Air 2019*, the annual report by Health Effects Institute (HEI) in cooperation with the Institute for Health Metrics and Evaluation (IHME), making it the fifth highest cause of deaths worldwide. According to the same report, 8 out of the 10 countries with highest mortality are from the global south. In developing countries, the situation is worse due to rise in industrialization, agricultural activities, large scale deforestation, significant biomass use for cooking and a general lack of awareness. According to a WHO report, air pollution leads to 7 million deaths world-wide with a total of 4.3 million deaths linked to indoor air pollution and 2.7 million deaths related to outdoor air pollution. It also states that the largest burden of diseases and mortality due to air pollution was found to be from low and middle income countries in the South-East Asia and Western Pacific Regions.

In developing countries, outdoor air pollution primarily results from industrial emissions, vehicular combustion processes, fires, biogenic productions, burning of agricultural wastes and the smoke as well as dust particles blown by wind activity from one region to the other. Moreover, recent reports suggest that monsoon, although cleanses the environment locally, may transport the pollutants upwards towards the stratosphere through convection, from where they disperse globally. Common outdoor air pollutants include Particulate Matter (PM10 and PM2.5), Ozone, Carbon Monoxide, Sulphur Dioxide and Oxides of Nitrogen as well as spores and pollens. Indoor or household air pollution is mainly due to cooking on open fires inside homes, using biomass such as wood, cow dung and charcoal or kerosene for cooking fuel and without proper ventilation system. Passive smoking is another significant source of indoor air pollution as the smoke inhaled by the passive smoker contains a mixture of about 4000 chemicals of which about 40 are carcinogenic. Paints, chemical cleaning agents, pesticides, home furnishings, dust mites, molds, fungi and bacteria are the other sources of indoor pollution. Other than Sulfur Dioxide and Oxides of Carbon and Nitrogen, indoor air pollutants include Benzene, Vinyl Chloride and Acrolein. Particulate phase chemicals chiefly include Alkaloids, Nicotine and its derivatives, Aromatic Amines and Polycyclic Aromatic Hydrocarbons (PAH).

Long term exposure to air pollution may lead to weakening of immune system and other negative health outcomes including strokes and respiratory conditions such as Asthma, Chronic Obstructive Pulmonary Disease (COPD), Lung Cancer and allergies as well as Cataracts, Cardiovascular and other diseases. Moreover, in women, another severe negative consequence of air pollution is the development of Breast Cancer. It has been estimated by WHO that indoor air pollution leads to the death of more than 2000 children under the age of five daily. Children, compared to adults, have a higher metabolic and oxygen consumption rate because they are in the growing phase. Therefore, adverse effect of exposure to any air pollutant is greater in children compared to adults. However, despite this alarming data, cultural and socio-economic norms of the societies serve to limit the steps taken to alleviate the harmful exposure of women and children to indoor air pollution.

Thus, there is a pressing need to create awareness among people, especially women in developing countries, about the serious threat posed by air pollution not only to the environment, but also to their health and wellbeing. Cleaner and better air quality is a fundamental right, making it imperative for all the stakeholders, including scientists, doctors, policy makers and industrialists, to come together and deliberate on how to improve traditional approaches as well as the use of science, technology and innovation to mitigate air pollution and the health effects associated with it.

In order to focus on the above issues, the Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) jointly with Sri Venkateswara College,

University of Delhi, India announces the organisation of an **International Workshop on 'Air Pollution and Public Health: Challenges and Interventions'** in New Delhi, India during **5 – 7 February 2020**.

OBJECTIVES OF THE WORKSHOP

The main objectives of this Workshop are:-

- To deliberate upon the emerging causes and hazards of air pollution;
- To evaluate the current scenario of the effects of air pollution on public health in general, and the health of women and children in particular;
- To plan and strategize various traditional and scientific approaches to mitigate air pollution and its harmful effects on health;
- To promote International Cooperation on programmes for mitigating the hazards of air pollution on public health.

THEMES TO BE COVERED

1. “Air Pollution: Know your Enemy” Insights from around the Globe

Speakers may cover topics such as (not limited to) Monitoring of pollution levels- regional and global scenario; Sources and constituents of air pollution.

2. Air Pollution: A Burden on ‘One Health’

Speakers may cover topics such as (not limited to) Effect of air pollutants on the ‘One Health triad’: plants, animals and humans.

3. Indoor Air Pollution: A Devil at Home?

Speakers may cover topics such as (not limited to) Sources, constituents and effects of indoor air pollution.

4. Air pollution & Respiratory diseases: Turning Acute to Chronic

Speakers may cover topics pertaining to related evidence.

5. Alarming Rise of Cancer: Is Air Pollution a Contributor?

Speakers may cover topics pertaining to related evidence.

6. Impact of Air Pollution on Reproductive health

Speakers may cover topics such as (not limited to) Effect on fertility, pregnancy, maternal, foetal and neonatal health.

7. Mitigation Strategies and Role of Public Private Partnership

Speakers may cover topics such as (not limited to) Strategies to combat air pollution at individual and community level; Role and responsibilities of government and private sector.

8. Recommendations for Sustainable Solutions

Speakers may cover topics such as (not limited to) Current policies and scope for stricter implementation

EXPECTED OUTCOME

- An evaluation will be carried out on the current situation of air pollution in developing countries.
- Pros and cons of current approaches to air pollution control at various levels will be assessed.
- Future fundamental approaches and how the use of science and technology interventions can mitigate region-specific air pollution as well as reduce or prevent their adverse effects on health will be determined. This information will be disseminated to relevant agencies in participating countries for implementation by the concerned agencies.

- Awareness programmes for increased public understanding of the public health risks associated with air pollution in developing countries will be evolved.

PROGRAMME OF THE WORKSHOP

A tentative programme of the Workshop is given below:

Date	Programme	
Tuesday, 4 th February 2020	Arrival of Delegates in New Delhi, India	
Wednesday, 5 th February 2020	Inauguration and Plenary sessions	Technical sessions
Thursday, 6 th February 2020	Technical Sessions	Technical Sessions
Friday, 7 th February 2020	Concluding Sessions – Discussion and Adoption of Resolution	Field Visit
Saturday, 8 th February 2020	Departure of Delegates	

A detailed Session-wise Programme will be made available before the Workshop.

VENUE

The Workshop would be organized at Radisson Blu Hotel, Dwarka, New Delhi, India

ABOUT THE ORGANIZERS

NAM S&T CENTRE

The Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre; www.namstct.org) is an inter-governmental organisation with a membership of 47 countries spread over Asia, Africa, Middle East and Latin America. The Centre was set up in 1989 in New Delhi, India. It undertakes a variety of programmes, including organisation of workshops, symposiums and training courses and implementation of collaborative projects. It also offers short – term research fellowships to scientists from developing countries in association with the Centres of Excellence in various countries. The Centre also brings out technical books and other scientific publications in different subjects of interest to developing countries. The Centre’s activities provide opportunity for scientist – to – scientist contact and interaction; familiarising participants on the latest developments and techniques in the subject areas; identification of the requirements of training and expert assistance; locating technologies for transfer between the members and other developing countries, and dissemination of S&T information etc. In addition, the Centre encourages academic R&D – industry interaction in the developing countries through its NAM S&T – Industry Network.

SRI VENKATESWARA COLLEGE (UNIVERSITY OF DELHI)

From its humble beginning in 1961, Sri Venkateswara College has established itself as a leading institution of higher learning. Throughout its existence it has sought to combine the goals of academic excellence and integrity with the ideals of diversity, equity as well as social and environmental justice — imparting not just skills to its students, but also ethical and moral values. Today, with the strength and support of Tirumala Tirupathi Devasthanams (TTD) Trust, Sri Venkateswara College has emerged as a premiere institution amongst the colleges of University of Delhi – offering undergraduate degrees in science, commerce and humanities. Moreover, the college is in partnership with various national and international academic and research bodies as well as private industries. With its integrated teaching and research approach that maximizes specializations, interdisciplinary perspectives, and state-of-the-art facilities, the college strives to

create a stimulating atmosphere for learning, intellectual growth, logical thinking and high standards of ethical and environmental awareness along with academic excellence. Accordingly, the college has been honored with several awards and accolades such as a Centre for 'Potential for Excellence' (2004-2008) by University Grants Commission (UGC) and as 'Star College' by the Department of Biotechnology (DBT), Government of India (2011) and 'DBT Star Status' (2016 till date) for all the science departments in the college.

PARTICIPANTS

The Workshop programme has been primarily designed for scientists, doctors, medical and pharmaceutical professionals, technologists, researchers and academicians working in the relevant field in the organisations, institutions, government departments, ministries and industries of the developing countries.

The selection of the participants will be strictly based on merit and relevance of their current responsibilities to the subject of the Workshop as well as the quality of the extended abstract of the paper submitted by them along with the completed nomination form.

A pre-condition for participation in the Workshop is that the participants must submit the full manuscript of their papers, in **MS-Word format**, at least **14 days** before the commencement of the programme.

RESOURCE PERSONS

The resource persons for the Workshop will comprise experts and professionals in the relevant field.

SUBMISSION OF APPLICATION

Experts and scientists desirous of participating in the Workshop, **excepting those from India**, may submit their application form **electronically** directly to the NAM S&T Centre as early as possible, but latest before **Monday, 23rd December 2019**.

Applicants from India should however submit their applications to Sri Venkateswara College, University of Delhi, New Delhi, India.

The Nomination Form should be completed in all respects, typewritten or in clear handwriting in capital letters, and no column should be left blank. The following documents must be submitted as e-mail attachments:

- i. Filled in Application Form (blank Form enclosed)
- ii. An extended (**about 2 pages**) abstract (**in MS Word format**) of the paper that would be presented at the workshop
- iii. A short (**maximum two pages**) CV (**in MS-Word format**) in the Format enclosed with the Application Form.
- iv. Copy of the relevant pages of the passport

The documents at (ii) and (iii) above must be in MS-Word Format; PDF or image files will not be accepted. Hard copies of the Nomination Form and the above attachments are **NOT**

REQUIRED to be submitted.

PRESENTATION OF PAPERS

Each participant will be required to present a country status report and/or a research/scientific paper; clearly indicating the specific theme area (themes mentioned above) for the abstract to be included based on its suitability. However, the final allotment of the abstract in a particular theme

is at the discretion of the organizers, based on the appropriateness of the work.

PUBLICATION AS A FOLLOW UP OF THE WORKSHOP

A publication edited by one or more international experts and based on the papers presented by the resource persons and participants during the Workshop and also containing papers contributed by other experts in the field - will be brought out in the form of a book as follow up of this programme. Therefore all the participants must submit the manuscripts of their full papers in **MS-word** format well in advance, but at least 14 days before the commencement of the Workshop.

LOCAL HOSPITALITY AND TRAVEL

Local hospitality in New Delhi including accommodation, meals and local transport for the foreign participants sponsored by the NAM S&T Centre will be provided from **Tuesday, February 4th (noon) to Saturday, February 8th (noon)** (i.e. from one day before to one day after the completion of the Workshop). The participants are requested to book their flights accordingly; otherwise, they will have to make their own arrangements of stay beyond these dates.

FINANCIAL ARRANGEMENTS FOR INTERNATIONAL TRAVEL

The financial terms and arrangements for international travel of the foreign participants will be conveyed to individual applicants on receipt of the application form and other documents.

ENTRY FORMALITIES AND IMMIGRATION

Participants of the Workshop must be in possession of a current passport or any other internationally recognised travel document, which must have a period of validity of at least six months beyond the period of stay in India and must be endorsed for travel to India.

Participants should have a valid visa for entry into India. The Indian diplomatic mission located in the country of the participant should be approached for obtaining an entry visa. For a large number of countries, however, online visa application is required. If required, the organisers will facilitate the issuance of visa by providing the participants with an official letter of invitation.

OTHER USEFUL INFORMATION

The weather in New Delhi during the Workshop period is likely to be foggy and sunny with the expected temperature to be ~24°C during the day time and ~6°C during the nights.

Indian Standard Time is +05.30 hours ahead of GMT.

The Indian Currency is Rupee (INR); the present current exchange rate is **US\$1 ≈ 71 INR.**

NOTE

- *The governments / institutions of the selected participants will be required to bear the following costs:*
 - All expenses in the home country incidental to travel abroad, including expenditure for passports, required medical examinations, vaccinations and miscellaneous expenses such as internal travel to the airport of departure in the home country.
 - Salary and other related allowances for the participants during the period of the Workshop.
 - Cost of medical insurance to cover the period of participation in the workshop.
- *The organisers of this Workshop will not assume responsibility for the following expenditure in connection with the participant's attendance in the Workshop:*

- *Expenses incurred with respect to any insurance, medical bills or hospitalisation fees.*
- *Compensation in the event of death, disability or illness of participants.*
- *Loss of personal belongings or compensation for damage caused to them by climatic or other conditions.*
- *Other costs, including airport tax and excess baggage.*

Contact Details

NAM S&T CENTRE

Prof. Dr. Amitava Bandyopadhyay,

Director General,
Centre for Science & Technology of the Non – Aligned and other Developing Countries
(NAM S&T Centre),

Zone – 6A, 2nd Floor, India Habitat Centre, Lodhi Road,
New Delhi – 110003, India

Tel: + 91 – 11 – 24645134, 24644974; Fax: + 91 – 11 – 24644973

E-mail: namstcentre@gmail.com, namstct@bol.net.in

Website: <http://www.namstct.org>

Mr. M. Bandyopadhyay,

Senior Adviser,

Address, Tel. and E-mail: (O) same as above.

SRI VENKATESWARA COLLEGE (UNIVERSITY OF DELHI), NEW DELHI, INDIA

Dr. Vartika Mathur

Assistant professor,

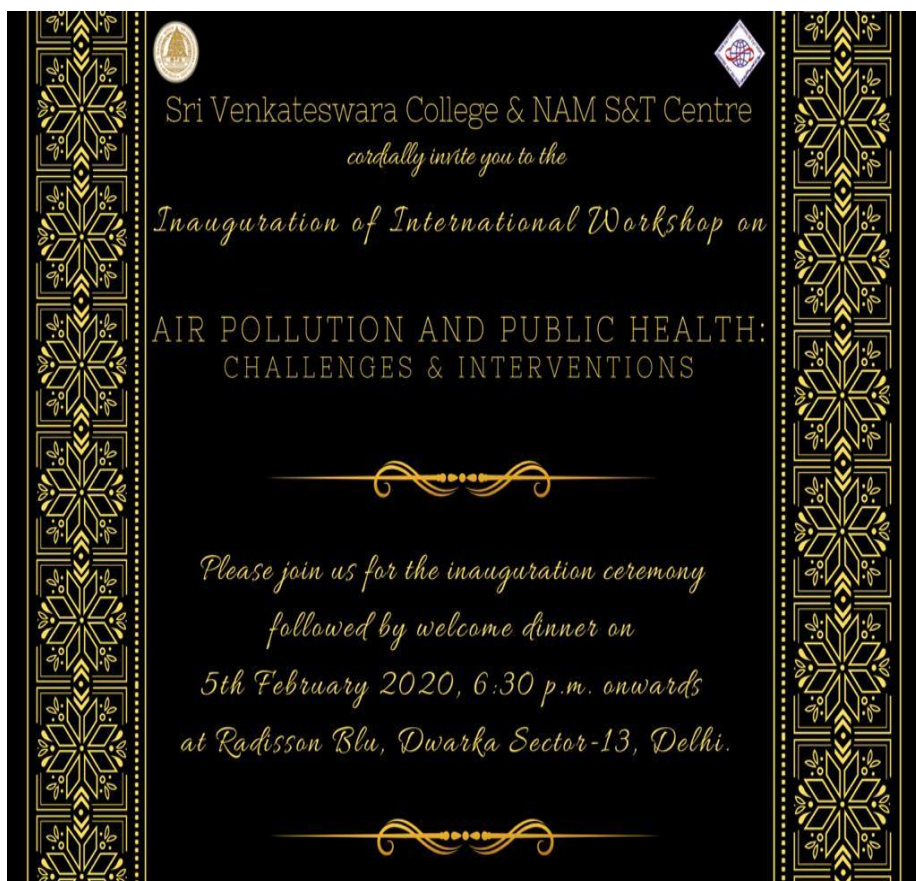
Dept. of Zoology,

Sri Venkateswara College,

University of Delhi,

Benito Juarez Marg,

Dhaula Kuan, New Delhi



NEW DELHI RESOLUTION

ON

AIR POLLUTION AND PUBLIC HEALTH: CHALLENGES AND INTERVENTIONS

We the participants of the three-day International Workshop on **'Air Pollution and Public Health: Challenges and Interventions'**, held in New Delhi, India during 5 -7 February, 2020;

Representing the governments, academic and research institutions and S&T agencies from Bhutan, Cambodia, Cuba, Egypt, India, Indonesia, Iran, Malaysia, Myanmar, Nepal, Palestine, Sri Lanka, Zambia and Zimbabwe;

EXPRESSING gratitude to the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) and Sri Venkateswara College (University of Delhi), India, for organizing the workshop and the industry sponsors for their support;

RECOGNIZING that air pollution is a multifaceted global environmental issue because the air pollutants from stationary and mobile sources are frequently transferred over great distances and across national borders, with serious implications on 'One Health', and a lot needs to be done to find workable and sustainable solutions to control the same;

BEING DEEPLY CONCERNED about the existing and potential damage to the natural and man-made environment and the increasing evidence of effects on human health resulting directly or in combination with the other factors, from emissions of major air pollutants from fossil fuel combustion and their conversion products;

BEING CONSCIOUS that some of the effects of air pollution on the environment are cumulative over time, and may be difficult or impossible to reverse; and

FURTHER ACKNOWLEDGING that a number of NAM and other developing countries have committed themselves to implement reduction of annual carbon and sulphur emissions;

**Unanimously resolve and
recommend the
following:**

- Appropriate policies should be adopted and programmes initiated to control air pollution resulting from emissions of oxides of carbon, sulphur & nitrogen;
-

hydrocarbons and particulate matter, from stationary and mobile sources in order to achieve acceptable levels of ambient air quality.

- Efforts should be made to have continuous monitoring systems of primary and secondary pollutants and their sources to provide precise information about the level of air pollution in a region-specific manner, including hotspots, to get a clear idea about the intensity and magnitude of the problem.
 - Member countries should share the information about emissions of different categories of air pollutants from various sources.
 - In order to precisely establish the cause-effect relationship, efforts should be made to continuously monitor and record seasonal fluctuations in air pollution levels and correlate with increased incidents of associated health issues.
 - Governments, industries as well as research and healthcare institutions should encourage trans-disciplinary, holistic research to study the effects of air pollution on human, animal and plant health.
 - The understanding of concept of 'One Health' should be promoted especially in the context of air pollution.
 - Special emphasis should be given to conduct in-depth analysis of the sources, types, causes and effects of indoor and ambient air pollution.
 - Capacity building programs, workshops and training sessions should be conducted to sensitize people about the causes and harmful effects of indoor and ambient air pollution.
 - Governments should encourage educational institutions to adopt pedagogical tools in curriculum in environment and climate change to increase awareness and sensitize students on harmful effects of air pollution and their role in minimizing the effects.
 - Local health workers and medical practitioners should be encouraged to be involved in epidemiological programs, to create database of various health issues related to air pollution.
 - Governments should encourage and fund start-ups and researchers engaged in designing environment friendly solutions in sectors such as transportation, household cooking, construction etc. to minimize emission of air pollutants.
 - Appropriate emission control strategies should be adopted on national and international basis, which may include emission standards for various categories of
-

polluters, within a legal framework, and other effective and efficient means of reducing the pollution levels.

- Internationally coordinated research and development programmes should be supported and undertaken aimed at better understanding of the effects of air pollution on man and the environment, and improving technologies for fossil fuel combustion and control of pollutant emissions.
- Governments in NAM and other developing countries should encourage the use of biofuels and other sources of renewable energy. Focus should also be directed towards waste management and biotreatment of polluted environments.
- All major industrial and infrastructure projects should undergo a human health impact assessment as a part of the approval process.
- Industries should be mandated to adopt 'Cleaner Technologies' in their production processes to reduce air pollution at source. Industries should be encouraged with incentives to implement 'Process Optimization' and 'Process Integration' for mitigation of air pollution.

It was also agreed that the above set of recommendations should be integrated as a part of the already existing air pollution control policies of various NAM and other developing countries.

**Thus, unanimously
adopted on this day,
the 7th February 2020
in New Delhi, India**



International Workshop

on

"Air Pollution and Public Health: Challenges & Interventions"



CERTIFICATE OF PARTICIPATION



THIS IS TO CERTIFY THAT

Dr. Vartika Mathur

successfully convened the International Workshop on "Air Pollution and Public Health: Challenges & Interventions" held on 5-7 February 2020 at New Delhi, India.

DR. P. HEMALATHA REDDY
Chairperson, APPHW 2020

DR. AMITAVA BANDOPADHYAY
Chairperson, APPHW 2020



International Workshop

on

"Air Pollution and Public Health: Challenges & Interventions"



CERTIFICATE OF PARTICIPATION



THIS IS TO CERTIFY THAT

Prof. /Dr. /Mr. /Ms. Kavita Verma

participated/ presented paper/ delivered an invited lecture/Plenary talk in the International Workshop on "Air Pollution and Public Health: Challenges & Interventions" held on 5-7 February 2020 at New Delhi, India.

DR. VARTIKA MATHUR
Convenor, APPHW 2020

DR P. HEMALATHA REDDY
Chairperson, APPHW 2020

DR. AMITAVA BANDOPADHYAY
Chairperson, APPHW 2020





College Name: Sri Venkateswara College

ACTIVITY: International workshop on Air Pollution & Public Health: Challenges and interventions

Date: 5-7th February, 2020

Time: NA

Venue: Radisson Blu

Criterion No: ~~I/II~~/ III/ ~~V/VII~~

INTERNATIONAL WORKSHOP

On

Air Pollution and Public Health: Challenges and Interventions

05 - 07 FEBRUARY 2020

NEW DELHI, INDIA

LIST OF PARTICIPANTS

FOREIGN DELEGATES			
S. No.	COUNTRY	NAME & DESIGNATION	ADDRESS/CONTACT DETAILS
1.	BHUTAN	Mr. Chador Wangdi Sr. Program Officer	Ministry Of Health Department Of Public Health Kawangjangsa Thimphu E-Mail: chador@health.gov.bt Tel: +97517916350
2.	CAMBODIA	Mrs. Heng Dina General Manager	Ly Vireak Clinic and Pharmacy MEDICA Khan Dangkor Phnom Penh E-Mail: madinaheng@gmail.com Tel: +85561 977 133
3.	CUBA	Ms. Marisol Romeu Hernández Head of the Biotechnology Unit	Delegation of the Ministry of Science Technology and Environment Habana E-Mail: jbicocitma@ccniai.inf.cu ; marisol@citmahabana.gob.cu Tel: +5378625704; +53524981111; +5352137107
4.	EGYPT	Dr. Nour Shafik Emam Elgendy Professor (Head Manager)	Petroleum and Environmental Biotechnology (Petroleum Biotechnology Lab) Egyptian Petroleum Research Institute (EPRI) Cairo E-Mail: nourepri@yahoo.com ; nourelgendy2610@gmail.com Tel: +20235684545
5.	INDONESIA	Dr. Widyarani Associate researcher	Research Unit for Clean Technology Indonesian Institute of Sciences Bandung E-Mail: widvarani@lipi.go.id Tel: +6289501709629
6.	IRAN	Prof. Mohammad Kafi President	Ferdowsi University of Mashhad Mashhad E-Mail: m.kafi@um.ac.ir Tel: +985138836010

7.	MALAYSIA	Ms. Leo Choe Peng Associate Professor	School of Chemical Engineering Universiti Sains Malaysia Parit Buntar E-Mail: ghcpleo@usm.my ; leochoepeng@yahoo.com Tel: +6057160440; +60125955599
8.	MYANMAR	Dr. Moe Myitzu Director	Department of Research and Innovation Yangon E-Mail: moemvitzu@gmail.com ; mstrdheadoffice@gmail.com ; Tel: +951667601; +959972367791
9.	NEPAL	Dr. Bimala Devi Devkota Paudel Senior Scientific Officer	Faculty of Science Nepal Academy of Science and Technology (NAST) Lalitpur E-Mail: diku98@gmail.com ; Tel: 97714388599; 9779841031253
10.	PALESTINE	Dr. Abdelfattah R. A. Almallah Director	Water and Environmental Studies Institute An – Najah National University Nablus E-Mail: mallah@najah.edu Tel: +970598551995; +070597511514
11.	SRI LANKA	Dr. Thammita A.S. Anuruddha Principal Research Scientist	National Engineering Research and Development Center (NERDC), Ja-Ela E-Mail: anuruddhalk@gmail.com Tel: +94112402784; +94712533242
12.	ZAMBIA	Mr. Clavel Mulenga Public Health Inspector	Lusaka City Council Civic Centre, Lusaka E-Mail: clavelmulenga2@gmail.com Tel: +260969234858; +260977570409
13.	ZIMBABWE	Mrs. Gloria Winnie Sikayi Senior Environmental Health Officer	City of Harare, Harare E-Mail: wgsikayi@gmail.com Tel: +263772608778; +263774833921

INDIAN PARTICIPANTS

S. NO.	COUNTRY	NAME & DESIGNATION	ADDRESS/ CONTACT DETAILS
PLENARY SPEAKERS			
14.	INDIA	Prof. (Dr.) Randeep Guleria Professor & Director	All India Institute of Medical Sciences (AIIMS) New Delhi E-Mail: director.aiims@gmail.com Tel: +911126594805
15.	INDIA	Prof. (Dr.) Anant Mohan Professor & Head	Department of Pulmonary Medicine & Sleep Disorders, All India Institute of Medical Sciences (AIIMS), New Delhi E-Mail: anantmohan@yahoo.com

16.	INDIA	Dr. Sagnik Dey Associate Professor	Centre for Atmospheric Sciences Indian Institute of Technology, New Delhi E-Mail: sagnil@cas.iitd.ac.in , sagnikdey.iitd@gmail.com
17.	INDIA	Dr. Vartika Mathur Assistant Professor	Sri Venkateswara College, University of Delhi E-Mail: vmathur@svc.ac.in Tel: +919810386575
18.	INDIA	Dr. Chandragouda Dodagoudar Sr. Consultant Medical Oncology	BLK Super Speciality Hospital New Delhi E-Mail: drchandra1976@yahoo.co.in
19.	INDIA	Dr. Gopi Chand Khilnani Chairman	Pulmonary, Critical Care & Sleep Medicine, Pushpawati Singhania Hospital & Research Institute New Delhi E-Mail: gckhil@gmail.com
PANELISTS			
20.	INDIA	Dr. Rajesh Chawla Senior Consultant	Institute of Critical Care, Respiratory and Sleep Medicine Indraprastha Apollo Hospitals New Delhi E-Mail: drchawla@hotmail.com
21.	INDIA	Dr. Kiran Guleria Director Professor	University College of Medical Sciences Guru Teg Bahadur Hospital New Delhi E-Mail: kiranguleria@yahoo.co.in
22.	INDIA	Dr. Karan Madan Assistant Professor	Department of Pulmonary Medicine & Sleep Disorders All India Institute of Medical Sciences (AIIMS) New Delhi E-Mail: drkaranmadan@gmail.com
23.	INDIA	Prof. (Dr.) Mradul Kumar Daga Director & Professor	Maulana Azad Medical College New Delhi E-Mail: drmraduldaga@gmail.com
24.	INDIA	Prof. (Dr.) Varinder Singh Director Professor	Lady Hardinge Medical College and Assoc Kalawati Saran Children's Hospital New Delhi E-Mail: 4vsingh@gmail.com
25.	INDIA	Mr. Amit Jain Vice President - Sales and Marketing	Cadila Pharmaceuticals Limited Mumbai E-Mail: jain.amit@cadilapharma.co.in
26.	INDIA	Dr. Chander Mohan Chair Professor- Tribal Studies [Former Scientist G and Head, SEED, KIRAN, NCSTC, Mission Societal and Director, Vigyan Prasas Department	Jawaharlal Nehru University, New Delhi E-Mail: chanderm@gmail.com

		of Science & Technology, Ministry of Science and Technology, Government of India, New Delhi]	
27.	INDIA	Dr. Vijay Hadda Assistant Professor	Department of Pulmonary Medicine & Sleep Disorders All India Institute of Medical Sciences (AIIMS) New Delhi E-Mail: vijayhadda@yahoo.com
28.	INDIA	Mr. Jatinder Singh Kamyotra Director	Central Pollution Control Board (CPCB) Ministry of Environment, Forest and Climate Change Government of India New Delhi E-Mail: kamyotra@yahoo.co.in
29.	INDIA	Mr. N. Mohan Deputy General Manager and Head	Electrical Vehicles Charging Infrastructure Department, Energy Efficiency Services Limited (EESL) Promoted by The Ministry of Power Government of India E-Mail: nmohan@eescs.co.in
30.	INDIA	Mr. P.K. Pandey Vice President - Marketing	Indraprastha Gas Limited (IGL) New Delhi E-Mail: pk.pandey@igl.co.in
PRESENTERS			
31.	INDIA	Dr. Pawan Tiwari Assistant Professor	Department of Pulmonary Medicine and Sleep Disorders All India Institute of Medical Sciences (AIIMS) New Delhi E-Mail: pavan14281@gmail.com
32.	INDIA	Ms. Kavita Verma PhD Scholar	Department of Zoology Sri Venkateswara College, University of Delhi New Delhi E-Mail: kavitav282@gmail.com Tel: +918685837604
33.	INDIA	Dr. Pooja Gokhale Sinha Assistant Professor	Department of Botany Sri Venkateswara College, University of Delhi New Delhi E-Mail: pgokhale@svc.ac.in Tel: +911124118590, +919999747375
34.	INDIA	Dr. Asani Bhaduri Assistant Professor	Molecular and Computational Biology, Cluster Innovation Centre, University of Delhi New Delhi E-Mail: asani.bhaduri@gmail.com , asani.bhaduri@ducc.ac.in Tel: +919818877069
35.	INDIA	Ms. Garima Sharma PhD Scholar	Department of Zoology Sri Venkateswara College, University of Delhi New Delhi E-Mail: garima.biochem.1@gmail.com

			Tel: +918130815996
36.	INDIA	Dr. Naveen Arora Chief Scientist	Council of Scientific and Industrial Research (CSIR) – Institute of Genomics and Integrative Biology University of Delhi Campus, Mall Road, Delhi E-Mail: navdelhi@hotmail.com Tel: +919650626627
37.	INDIA	Dr. Richa Misra Assistant Professor	Department of Zoology Sri Venkateswara College, University of Delhi New Delhi E-Mail: richamisra@svc.ac.in Tel: +919811971403
38.	INDIA	Ms. Keerti Mishra Programme Associate	Science and Engineering Research Board (SERB) Department of Science and Technology Government of India New Delhi E-Mail: keertim033@gmail.com , keerti.serb@gmail.com Tel: +919643781427
39.	INDIA	Dr. Deeksha Katyal Assistant Professor	University School of Environment Management, Guru Gobind Singh Indraprastha University (GGSIPU) New Delhi E-Mail: dceekshakatyal@gmail.com
40.	INDIA	Ms. Anjali Yadav MPhil Student	Department of Zoology, University of Delhi E-Mail: anniev2411@gmail.com
41.	INDIA	Dr. Sanjukta Subudhi Senior Fellow	DBT – TERI Center of Excellence in Advanced Biofuel and Biocommodities & Environmental and Industrial Biotechnology Division The Energy and Resources Institute (TERI) New Delhi E-Mail: ssubudhi@teri.res.in
42.	INDIA	Dr. Ravindra Kumar Head & Senior Principal Scientist, and Professor ACSIR	Transportation Planning and Environment Division, CSIR – Central Road Research Institute (CRRRI) New Delhi E-Mail: ravindra261274@gmail.com , ravinder.erni@nic.in Tel: +9101126312268, +919654732909

OTHER INDIAN PARTICIPANTS			
43.	INDIA	Prof. A.K. Raina Professor & Head	Department of Environment Sciences University of Jammu Jammu & Kashmir E-Mail: anilkraina@yahoo.com
44.	INDIA	Mr. Amit Garg Director (Commercial)	Indraprastha Gas Limited, New Delhi E-Mail: gargam@igl.co.in
45.	INDIA	Mr. Anoop Singh PhD Student	Department of Zoology University of Delhi New Delhi E-Mail: anoop.singh.du@gmail.com
46.	INDIA	Mr. Vishal Sharma PhD Student	Department of Zoology, University of Delhi New Delhi E-Mail: s.vishalzoology@gmail.com
47.	INDIA	Dr. N. Latha Associate Professor	Department of Biochemistry, Sri Venkateswara College, University of Delhi New Delhi E-Mail: nlatha@svc.ac.in
48.	INDIA	Dr. Anita Verma Associate Professor	Department of Zoology, Sri Venkateswara College, University of Delhi New Delhi E-Mail: dranitaverma@yahoo.com
49.	INDIA	Dr. S. Venkata Kumar Associate Professor	Department of Commerce, Sri Venkateswara College, University of Delhi New Delhi E-Mail: svkumar@svc.ac.in
50.	INDIA	Dr. J. Lalita Associate Professor	Department of Electronics, Sri Venkateswara College, University of Delhi New Delhi E-Mail: jlalita@svc.ac.in

ORGANISERS			
51.	INDIA	Dr. Amitava Bandopadhyay Director General	NAM S&T Centre New Delhi E-Mail: namstcentre@gmail.com , amitava_bandopadhyay@yahoo.com Tel: +911124644974 Mobile : +919599027373 Fax: +911124644973
52.	INDIA	Mr. M. Bandyopadhyay Senior Advisor	NAM S&T Centre New Delhi E-Mail: namstcentre@gmail.com Tel: +911124645134/+911124644974 (O)
53.	INDIA	Mr. Abhay Nambiar Research Associate	
54.	INDIA	Ms. Jasmeet Kaur Programme Officer	
55.	INDIA	Ms. Nidhi Utreja Research Associate	
56.	INDIA	Ms. Gloria Susan Cherian Research Associate	
57.	INDIA	Mr. Jayakumaran Public Relations Manager	
58.	INDIA	Mr. Sunil Kumar Accounts Manager	
59.	INDIA	Mr. Rahul Kumra Private Secretary to Director General	
60.	INDIA	Mr. Pankaj Buttan Data Processing Manager	
61.	INDIA	Dr. P. Hemalatha Reddy Principal	

62.	INDIA	Dr. Preeti Khandelwal Assistant Professor	Department of Zoology Sri Venkateswara College, University of Delhi New Delhi E-Mail: preetikhandelwal.svc@gmail.com
63.	INDIA	Dr. Namita Nayyar Assistant Professor	Department of Zoology Sri Venkateswara College, University of Delhi New Delhi E-Mail: nayyarnamita@gmail.com
STUDENTS / VOLUNTEERS			
64.	INDIA	Ms. Akshanshi Gulani BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: akshanshi.gulani@gmail.com
65.	INDIA	Mr. Amit Bhatt BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: bhattamit430@gmail.com
66.	INDIA	Ms. Mansi Dhingra BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: maina2mansi@gmail.com
67.	INDIA	Mr. Durga Bahadur Mizor BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: dthapa825@gmail.com
68.	INDIA	Ms. Ayushi Sarraf BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: ayushisarraf3@gmail.com
69.	INDIA	Mr. Nirmegh Basu BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: nirmeghbasu@gmail.com
70.	INDIA	Ms. Akansha Saxena BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: akanshasaxena1312@gmail.com
71.	INDIA	Mr. Soumya Ranjan Mallick BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: srmgudu906@gmail.com
72.	INDIA	Mr. Shivam BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: sk9891750087@gmail.com
73.	INDIA	Mr. Saadan Hussain BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: saadanhusain60@gmail.com
74.	INDIA	Mr. Vaibhav Sharma BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: vaibhavsharmavs719@gmail.com

75.	INDIA	Mr. Rishabh Yadav BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: yadavrishabh7e@gmail.com
76.	INDIA	Mr. Dipanshu Chaturvedi BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: dipanshu2k@gmail.com
77.	INDIA	Mr. Himanshu Gautam BSc Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: himanshu.gautam8130@gmail.com
78.	INDIA	Ms. Surbhi Agrawal PhD Student	Sri Venkateswara College, University of Delhi New Delhi E-Mail: singer.surabhi@gmail.com

Certificate of Submission



SRI VENKATESWARA COLLEGE
(University of Delhi)

Internal Quality Assurance Cell

Chairperson

Prof C. Sheela Reddy
Principal
Sri Venkateswara College

IQAC Coordinator
Dr. N. Latha
Department of Biochemistry

External Members
Prof Debi P Sarkar
Department of Biochemistry
University of Delhi South
Campus

Prof Alo Nag
University of Delhi South
Campus

Dr. Gitanjali Yadav
NIPGR, Delhi

Internal Members
Dr. Meenakshi Bharat
Department of English

Dr. Lalitha Josyula
Department of Electronics

Dr. Namita Pandey
Department of Political
Science

Dr. A. K. Chaudhary
Department of Physics

Dr. K.C. Singh
Department of Physics

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Department of Mathematics

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Department of History

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Department of Zoology

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Department of Commerce

Dr. Padma Priyadarshini
Department of Sociology

Dr. Nimisha Sinha
Department of Biochemistry

Shri D. Venkat Ramana
A.O(I/C)

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N. Latha

IQAC Coordinator
Sri Venkateswara College
Coordinator, IQAC
Sri Venkateswara College
(University of Delhi)
Dhaula Kuan, New Delhi-110021

C. Sheela Reddy
PRINCIPAL

PRINCIPAL
Sri Venkateswara College
(University of Delhi)
Dhaula Kuan, New Delhi-110021

Website : www.svc.ac.in

E-mail : iqac@svc.ac.in