NEWSLETTER
JAN-DEC 2021

CLEAN AIR ASIA INDIA ROUND-UP 2021

From the India Director's Desk

Prarthana Borah
India, Director

THE YEAR THAT WAS

2021 was somewhat of a landmark year for us. Despite the pandemic with team members transitioning to return to office, others working from home, and the fear of COVID looming large over us following the tragedy of Delta in Delhi, our enthusiasm was at its highest to define the Clean Air Asia way to nudging Indian cities to transition from air quality awareness to action. Since 2016 we have been interacting with cities, officials and key stakeholders in the air quality space to assess needs, explore gaps and identify directions for action. This year we consolidated our work done over the last 5 years to match our own strengths as an organisation with needs we felt we would best meet.

Capacity building is an area not discussed enough, especially in the air quality space. It is also our strength as a global organisation. At a time when state pollution control boards, municipal corporations and smart cities are talking about clean air we hope the adapted versions of our Train for Clean Air International modules developed for Indian cities will strengthen knowledge and skills to integrate scientific Air Quality Management principles in the clean air action process in cities. We have also initiated strategic interventions through a hot spot approach in Delhi both for residential and industrial hot spots. This we wish will provide an alternative micro intervention strategy to reduce air pollution in Delhi. Our interventions with the micro, medium and small industry has opened a dialogue on the importance of the inclusion of this sector in the air pollution dialogue. Our youth clean air network, now integral to our programmes having completed 5 years in 2021 continues to grow.

2021 was a year when we produced 8 publications, 1 film, and conducted more than 12 capacity building programmes for over 200 government officials from Indian cities. It would not have been possible without some wonderful partners who supported our reach, donors who believed in us and a wonderful team who drove the delivery process.

Thank you everyone for supporting the cause of Clean Air. My journey as Director of Clean Air Asia ends here. It has been wonderful to be part of a great organisation that has given me the opportunity to contribute to the Air Quality Movement.

Happy New Year!

Best Wishes,
Prarthana Borah

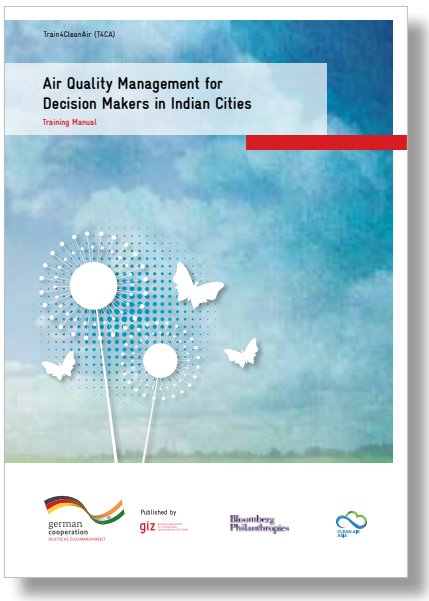
A PRIMER ON CRITICAL ISSUES IN COST – BENEFIT ANALYSIS FOR AIR POLLUTION REDUCTION STRATEGIES IN INDIAN CITIES

The Primer is a tool to assess air pollution solutions in a city through a cost benefit analysis and to support more efficient decision making on Air Quality Management in India based on economics. The idea is also to improve planning and execution and pave the way to the identification of interventions, estimation of costs and benefits, evaluation of impact and prioritization of interventions based on these. Another significant objective of this document is to kickstart the conversations that will hopefully in time lead to the development of a standard framework and to create guidelines on Economics of Air Quality Management in India.

ADVANCING CLEAN AIR WITH APPROPRIATE TECHNOLOGY: A POLICY BRIEF FOR ADDRESSING THE NEEDS OF MICRO, SMALL AND MEDIUM ENTERPRISE

This policy brief is a result of our work on understanding technology for clean air and an assessment of the MSME sector. It highlights the challenges of supporting the MSME sector to address air pollution by transitioning to clean technology and presents strategies for the way forward. CAA has tried to look into the Government initiatives which have been introduced to help and ensure smooth growth in the MSME industries. The challenges which are being faced by industries along with a few suggestions for overcoming these have also been elaborated on in the policy brief.

Train For Clean Air (T4CA) Manuals on Air Quality Management. In support to the National Clean Air Programme, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH under the Indo-German Development Cooperation and Bloomberg Philanthropies supported Clean Air Asia to develop five training manuals based on the T4CA (Train for Clean Air) manuals. Since the implementation of CAPs (Clean Air Plans) lies with the city, officials involved in the mitigation of air pollution in need of capacity development could benefit through these manuals.



I. Air Quality Management for Decision Makers In Indian Cities

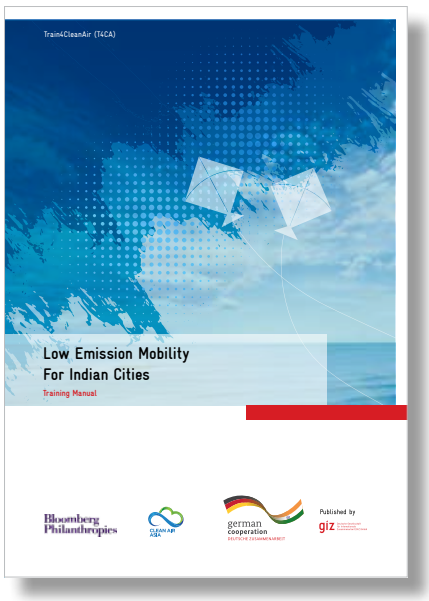
This manual enables participants involved in decision making roles to develop basic understanding of air pollution and the key components required to develop a programme to manage urban air pollution and to achieve better air quality. The aim is for participants to gradually achieve a higher level of understanding of urban air pollution and the measures to be taken to monitor air quality and to prevent and control urban air pollution in India.

II. Effective Air Quality Communication For Indian Cities

This manual enables participants to formulate an effective communication strategy to gain public support for improving air quality in a targeted area and to create positive public opinion and participation in air quality management (AQM) programs. The aim is for participants to understand the key interventions required to improve public participation in implementing clean air action plans with the help of and effective communication strategy is highlighted in this manual.

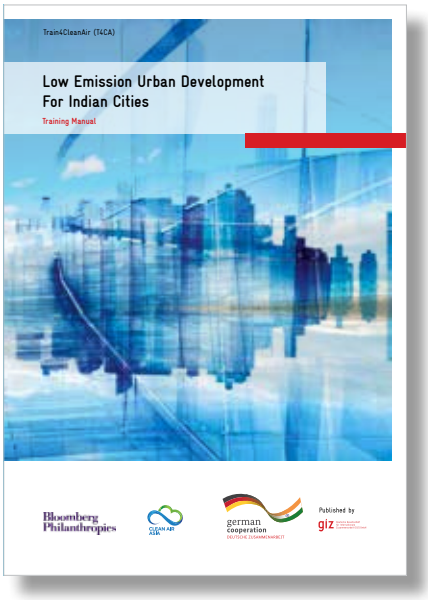
III. General Air Quality Monitoring For Advancing Air Quality Management

This manual enables participants to develop their understanding of the need for data on air pollution and the key components required to develop a scientific air quality monitoring programme in a city. The aim is for participants to gradually achieve a higher level of understanding of the measures taken to monitor air quality and its role in air pollution mitigation in India.



IV. Low Emissions Mobility For Indian Cities

This manual enables participants to develop their understanding of the impact of transport emissions in the quality of air in a city. It outlines the key components required to develop a low emission mobility programme that reduces urban air pollution. The aim is for participants to achieve a higher level of understanding of transport, mobility, and urban air pollution. This includes measures to reduce the need to travel, shift to more efficient transport modes, and improve vehicle and fuel efficiency to achieve better air quality in Indian cities.

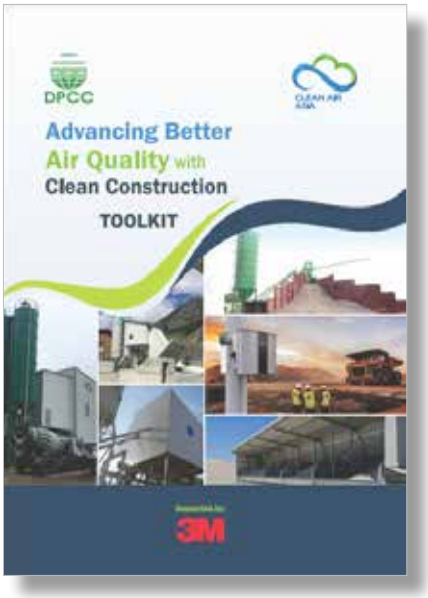


V. Low Emission Urban Development

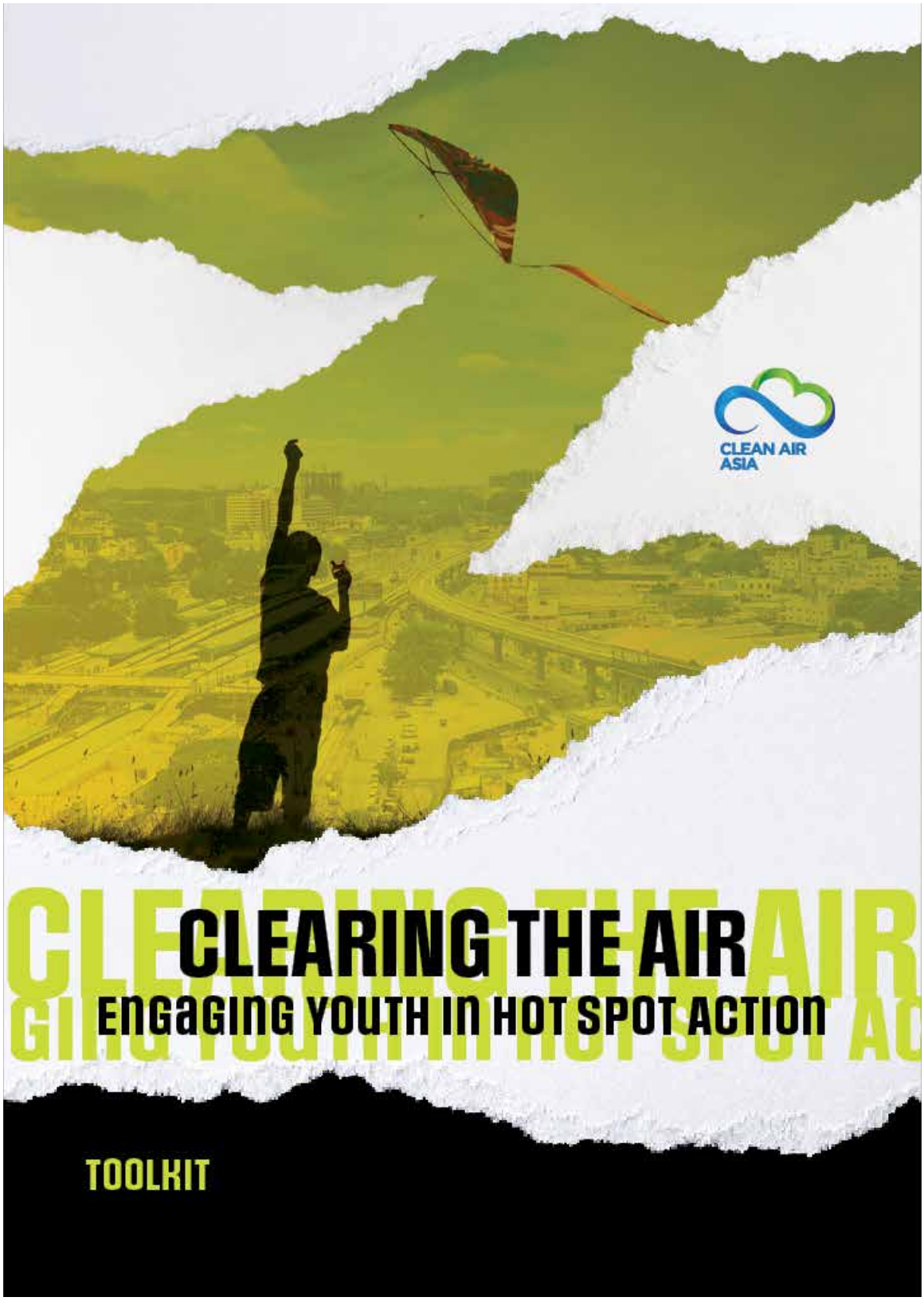
This manual enables participants to develop their understanding of urban development, urban planning and co-relate the two areas with air quality. It outlines the key components required for a city planning that can promote low emissions development and help in reducing urban air pollution. The aim is for participants to achieve a higher level of understanding of impact of urban development on air pollution, need for urban planning to integrate clean air action and its intersection with urban development planning strategies.

ADVANCING BETTER AIR QUALITY WITH CLEAN CONSTRUCTION TOOLKIT OF CONSTRUCTION

One of the first kind, this toolkit for clean construction has been envisaged by Clean Air Asia India, as an effort towards improving the capacity building for concerned stakeholders involved in construction activities, namely civil engineers, architects, construction skilled professionals, management professionals, state pollution control board, and local governing bodies. The main aim of this toolkit is to promote a safer environment for workers and general public as well as controlled dust emissions while doing construction at the project sites.



CLEANING THE AIR: ENGAGING YOUTH IN LOCAL HOTSPOT ACTION



The toolkit focusses on youth engagement and involvement. It can be used by youth to design an engagement strategy and support the creation of a clean air action plan around a local hot spot. It provides directions on generating local data and conceptualizing local action in and around hot spots.

INCREASE IN USE OF PRIVATE VEHICLES AND AIR POLLUTION

Aniruddh Vaghela
Programme Assistant, Clean Air Asia, India

Air pollution is considered as a one of the serious environmental concerns of the urban cities where majority of the population is exposed to poor air quality. Air pollution exposure is estimated to kill seven million people worldwide every year. According to a WHO study, almost all of the global population (99%) breathe air that exceeds their air quality guideline limit containing high levels of pollutants. The rapid urbanization has resulted in a tremendous increase in the number of motor vehicles. Air pollution, specifically in the form of particulate matter, is a serious challenge in India, and transportation is considered as a significant factor in the nation's air quality problems. According to the 2017 Global Burden of Disease, some 1.1 million people in India die prematurely each year from diseases directly related to air pollution, making it the fifth leading cause of death in the country. Transportation sources account for approximately a third of PM pollution in India, and a somewhat higher proportion of nitrogen oxides (another set of compounds harmful to human health). Due to the continuous growth in the number of vehicle and the consequent increase in traffic, vehicles are now becoming the main source of air pollution in India. Increased household income, sustainable economic growth and improved road infrastructure have led to the rising demand of private vehicles. The demand of private vehicle in India has been growing rapidly. There has been a continuous rise in the number of registered motor vehicles in India since 1951. The total number of registered motor vehicles increased from about 0.3 million in March 1951 to 230.03 million up to 31st March 2016. The total registered vehicles in India grew at a Compound Annual Growth Rate (CAGR) of 9.9 per cent in between 2006 and 2016.

Automotive vehicles emit several pollutants depending upon the quality of the fuel they consume and efficiency of the engine. The emission of pollutants from vehicles also includes fugitive emissions of the fuel and the source and level of these emissions based on vehicle type, its maintenance, etc. The major pollutants emission contains carbon monoxide (CO), nitrogen oxides (NO_X), photochemical oxidants, air toxics, namely benzene (C6H6), aldehydes, 1,3 butadiene (C_4H_6), lead (Pb), particulate matter (PM), hydrocarbon (HC), oxides of sulphur (SO_2) and polycyclic aromatic hydrocarbons (PAHs). The predominant pollutants in petrol/gasoline driven vehicles are hydrocarbons and carbon monoxide and the predominant pollutant from the diesel - based vehicles are Oxides of nitrogen and particulates.

The vehicular emissions create severe effects on both human health and ecology. Vehicle emissions have wide range of adverse effect on health and environment. The effects of emission vary, and may be direct or in-direct, starting with reduced visibility to causing cancers and even death in some cases of acute exposure to pollutants, especially carbon monoxide. These air pollutants directly affect the respiratory and cardiovascular systems. High levels of Sulphur Dioxide and Suspended Particulate Matters are associated with increased mortality, morbidity, and impaired pulmonary function. Diesel engines are a major source of pollution, emitting particulate matter and nitrogen oxides, which contribute to the production of ground-level ozone, acid rain, hydrocarbons, and other pollutants. These emissions can damage plants, animals, crops, and water resources. Emissions from diesel exhaust can lead to serious health conditions, such as asthma and allergies. They can also worsen heart and lung diseases, especially for vulnerable populations such as children and older individuals. Particulate matter is a main emission product of automobiles, especially diesel engine vehicles. Particles matter generally pass through the nose into the lungs. Once inhaled these pollutants can affect the health and lungs and cause adverse health effects. One of the major harmful pollutants is Carbon monoxide which causes blood clotting when it reacts with haemoglobin and reduces the supply of oxygen in the circulatory system. The risk increases rapidly in areas that are densely populated.

The biggest challenge that confronts cities today is the intractable problem of automobile dependence. As the automobile dependence continues to grow, it is adversely affecting the quality of urban life. Congestion, unsafe roads and pollution remain their bane. It is critical to keep up the pressure to ensure public participation and demand action. People can also play a role in combating pollution by reducing footprint, carpooling, public transport and increasing use of cycles for transportation. Building up the public transport agenda with an appropriate mix of improved bus systems and rapid transit systems will present a daunting challenge in Indian cities. Clean vehicle and fuel technologies provide us with an affordable, available means of reducing transportation-related air pollution and climate change emissions. These include fuel-efficient vehicles that use less oil; cleaner fuels that produce fewer emissions; and electric vehicles that can entirely remove tailpipe emissions.

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FEBRUARY – MARCH 2021 – CAPACITY BUILDING WORKSHOPS – AIR POLLUTION MONITORING, COMMUNICATION FOR BETTER AIR QUALITY AND IMPLEMENTATION OF CLEAN AIR ACTION PLAN

Clean Air Asia India organised Capacity building workshops through February and March 2021. Three clusters were identified for these trainings. The objective of the trainings was to improve knowledge on Air Pollution Monitoring, Communication for Better Air Quality and Implementation of Clean Air Action Plan. These trainings attended by over 150 officials from pollution control boards, city municipal corporations, smart city missions and environment departments, were conducted in the online mode. Key decision makers also discussed the need to have local specific inputs in these modules in order to address specific problems addressed by cities and states. The trainings were conducted with support from the International Union of Conservation of Nature (IUCN), India Country Office.

Cluster 1 – Haryana
Cluster 2 – Uttar Pradesh
Cluster 3 – Odisha, Delhi NCR and Andhra Pradesh

SEPTEMBER 14TH – OCTOBER 12TH : CAPACITY BUILDING TRAINING : T4CA MANUALS

Clean Air Asia in collaboration with GIZ and Bloomberg Philanthropies successfully completed a month-long capacity building training program for FIVE (5) Train for Clean Air Manuals which were launched on the 7th of September 2021; International Day of Clean Air for Blue Skies. These five manuals are focussed on Air Quality Management, Effective Air Quality Communication, Air Quality Monitoring, Low Emission Mobility and Low Emission Urban Development for Indian cities.

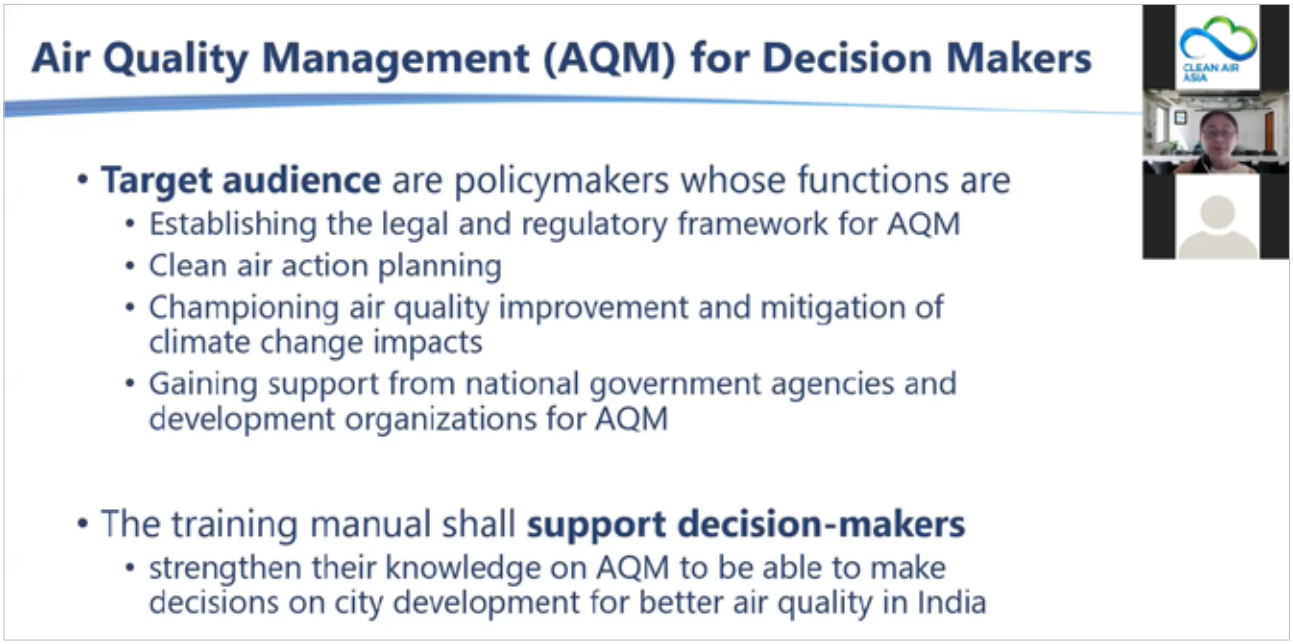
The trainings were held from the 14th of September 2021 till the 12th October 2021 as per the following schedule under the able guidance of mentors/trainers from India and abroad.

More than 200 participants from 30 Smart cities and 50 Non-attainment Cities attended these trainings. The trainings also saw participation from international borders like Dhaka and Istanbul as well as from new cities like Gangtok, Gandhinagar, Rohtak, Aizwal, Gurugram and many more.

Air Quality Management for Decision Makers in Indian Cities

14th September 2021

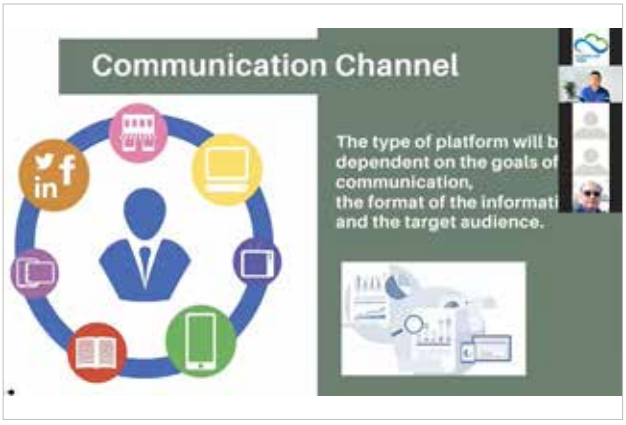
GUIDING MENTOR/TRAINER **MS. GLYNDA BATHAN**
Deputy Executive Director
Clean Air Asia, Manila, Philippines



Effective Air Quality Communication for Indian Cities

21st September 2021

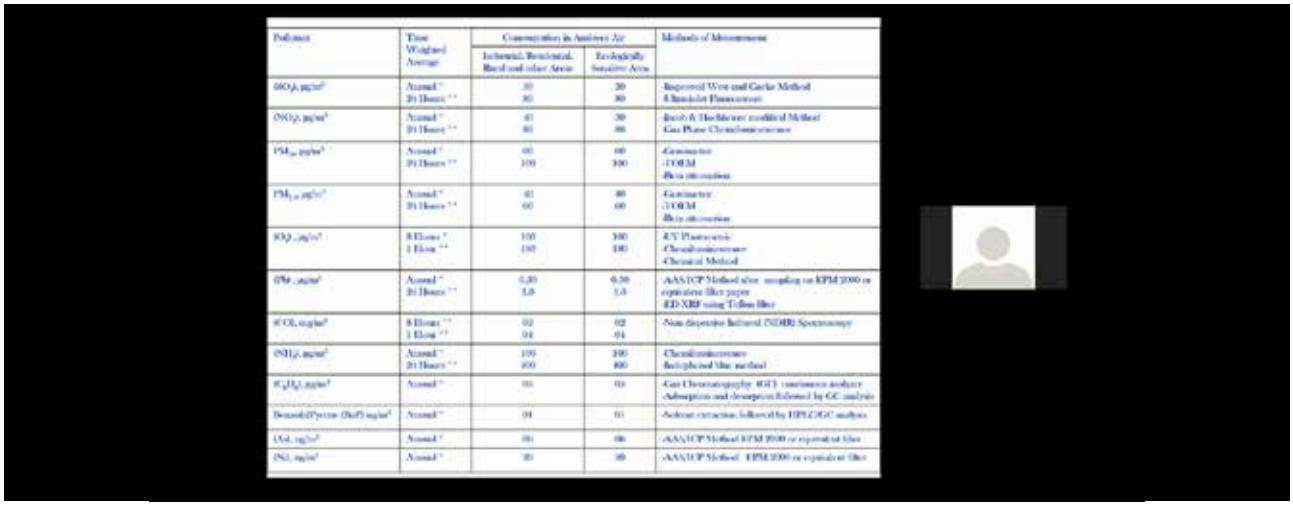
GUIDING MENTOR/TRAINER: **DR. GARY HAQ**
Researcher,
SEI York



Air Quality Monitoring for Advancing Air Quality Management in Indian Cities

28th September 2021

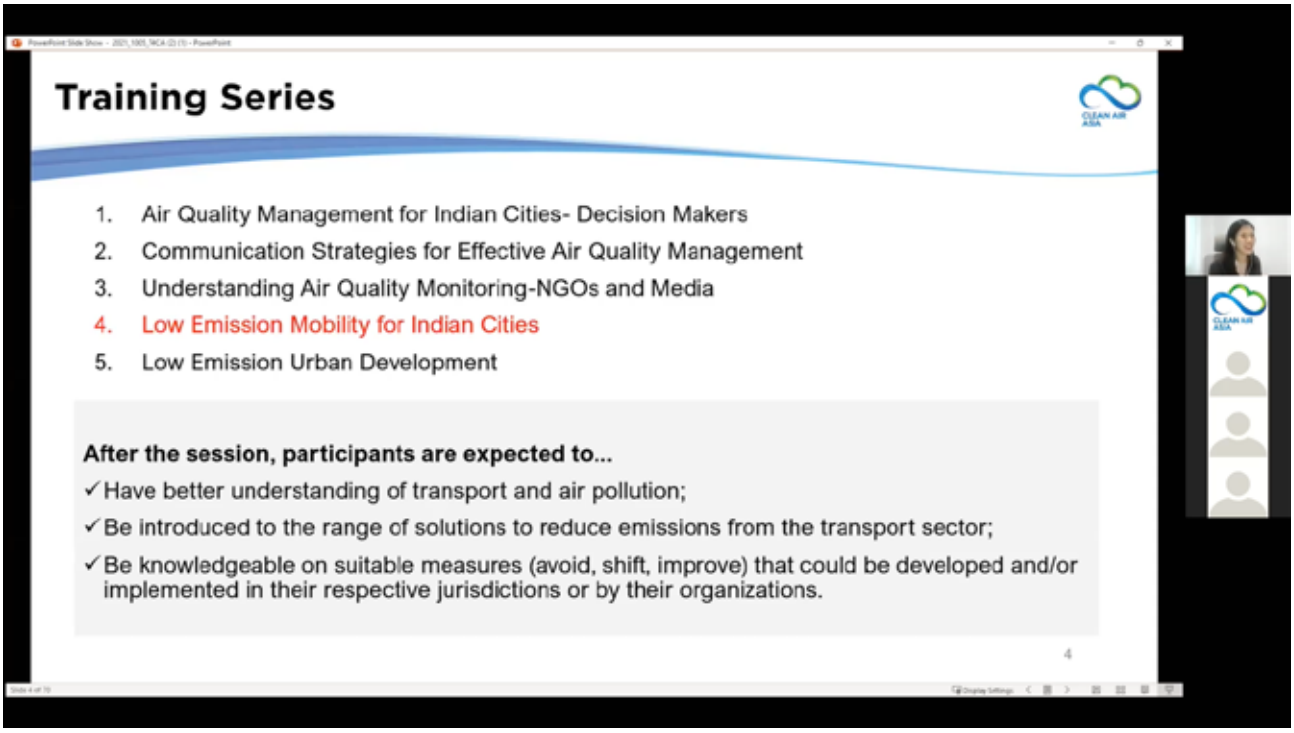
GUIDING MENTOR/TRAINER: **PROF. MUKESH SHARMA**
Indian Institute of Technology (IIT), Kanpur, UP, India



Pollutant	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
		Industrial, Residential, Rural and other Areas	Ecologically Sensitive Area	
SO_2, µg/m³	Annual * 24 Hours **	50 80	20 80	-Improved West and Gaeke Method -Ultraviolet Fluorescence
NO_2, µg/m³	Annual * 24 Hours **	40 80	30 80	-Jacob & Hochheiser modified Method -Gas Phase Chemiluminescence
PM_{10}, µg/m³	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TOEM -Beta attenuation
$PM_{2.5}$, µg/m³	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TOEM -Beta attenuation
O_3, µg/m³	8 Hours * 1 Hour **	100 180	100 180	-UV Photometric -Chemiluminescence -Chemical Method
Pb, µg/m³	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper -ED XRF using Teflon filter
CO, mg/m³	8 Hours ** 1 Hour **	02 04	02 04	-Non dispersive Infrared (NDIR) Spectroscopy
NH_3, µg/m³	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
C_6H_6, µg/m³	Annual *	05	05	-Gas Chromatography (GC) continuous analyzer -Adsorption and desorption followed by GC analysis
Benzo(a)Pyrene (BaP) ng/m³	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
As, ng/m³	Annual *	06	06	-AAS/ICP Method EPM 2000 or equivalent filter
Ni, ng/m³	Annual *	20	20	-AAS/ICP Method EPM 2000 or equivalent filter

Low Emission Mobility for Indian Cities

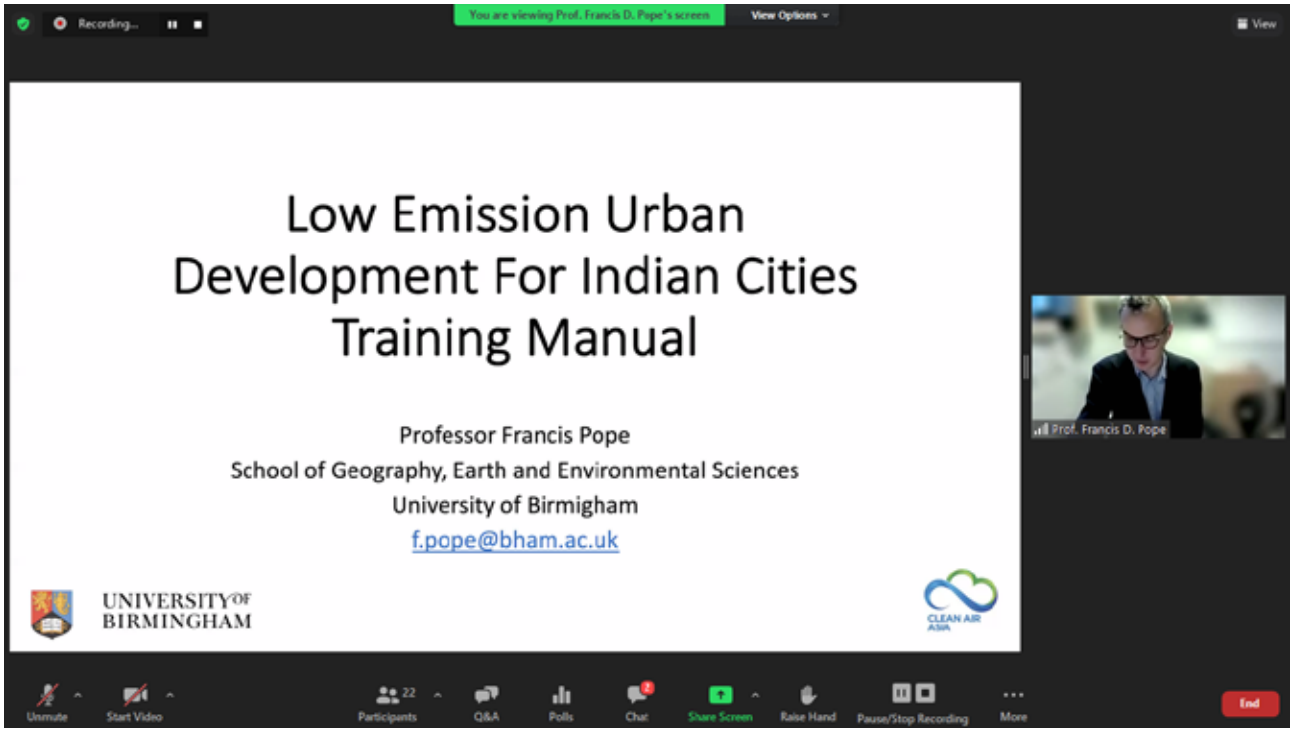
5th October 2021 GUIDING MENTOR/TRAINER: **MS. KATHLEEN DEMATERA-CONTRERAS**
Sustainable Transport Lead,
Clean Air Asia, Manila, Philippines



Low Emission Urban Development for Indian Cities

12th October 2021

GUIDING MENTOR/TRAINER: **PROF. FRANCIS D. POPE**
Chair of Atmospheric Sciences,
University of Brimingham, United Kingdom



OCTOBER 27TH 2021 – CAPACITY BUILDING TRAINING – ADVANCING BETTER AIR QUALITY WITH CLEAN CONSTRUCTION

Clean Air Asia India organized a capacity building training in collaboration with Delhi Pollution Control Committee (DPCC) on 'Advancing Better Air Quality with Clean Construction' at Delhi Secretariat, New Delhi. Clean Air Asia India launched the 'Advancing Better Air Quality with Clean Construction' toolkit. More than 150 participants from built environment sector attended the training.

The event was inaugurated by Dr. K. S. Jayachandran, Member Secretory, DPCC who began his address by giving a brief background about the event and moved on to explain the impacts of air pollution on health.

Ms. Prarthana Borah, Director, Clean Air Asia, India gave a presentation titled 'Addressing Air Pollution from construction." The presentation included urban scenarios with reference to air pollution in general, air pollution in Delhi and severe negative health effects caused due to air pollution.

Post the launch of the Toolkit, Mr. Sandeep Narang's shared a presentation on "Capacity Building on Advancing Better Air Quality with Clean Construction", which highlighted the importance of capacity building to advance better air quality at construction sites with sustainable examples.

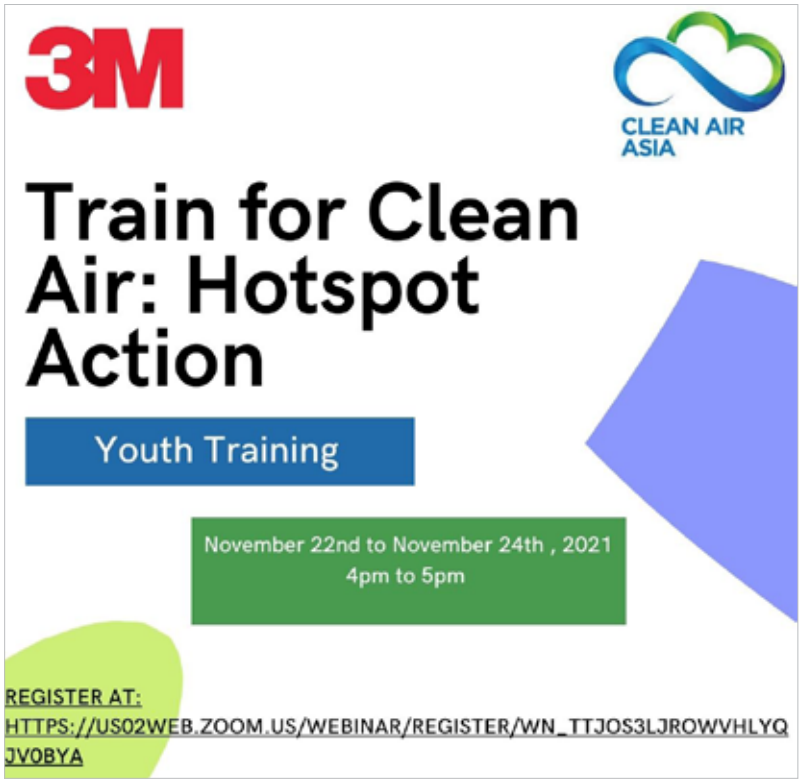
The training was successfully completed with an interactive feedback and question answer session.

NOVEMBER 23RD 2021 – STAKEHOLDER CONSULTATION – EXPLORING POSSIBILITIES OF BETTER AIR QUALITY THROUGH CLEAN ENERGY AND TECHNICAL INTERVENTIONS IN MSME.

Clean Air Asia India organised a stakeholder consultation for the exploring clean energy and technical intervention policies for the MSME sector, it was a closed event.

NOVEMBER 25TH 2021 – CAPACITY BUILDING TRAINING – ADVANCING BETTER AIR QUALITY WITH CLEAN CONSTRUCTION

Clean Air Asia organised a virtual training in collaboration with Delhi Pollution Control Committee (DPCC) on 'Advancing Better Air Quality with Clean Construction'. It saw over 160 participations from construction sector.



TRAIN FOR CLEAN AIR: HOTSPOT ACTION – 22ND NOVEMBER 2021 TO 24TH NOVEMBER 2021

Clean Air Asia India conducted virtual Youth Training for engaging them in local hotspot action. Dr. William R. Avis was our trainer, he is a Research Fellow at University of Birmingham. There were more than 50 students across 6 colleges who participated in the youth training from three hotspots Rohini, Dwarka and R.K. Puram.


Zoom Webinar
Recording...
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Prerna Sharma
Clean Air Asia
CLEAN AIR ASIA
William R. Avis
Pranhana Borah
Unmute
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Q&A
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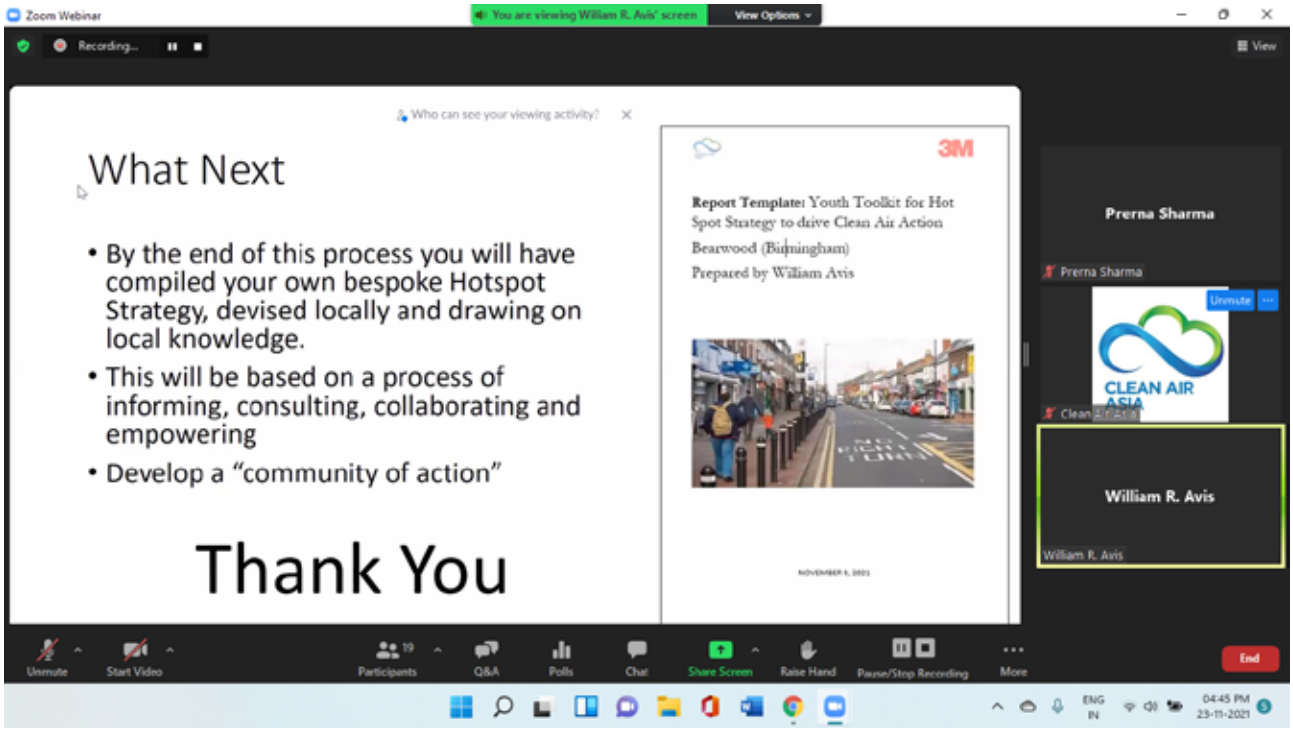
Zoom Webinar
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View Options
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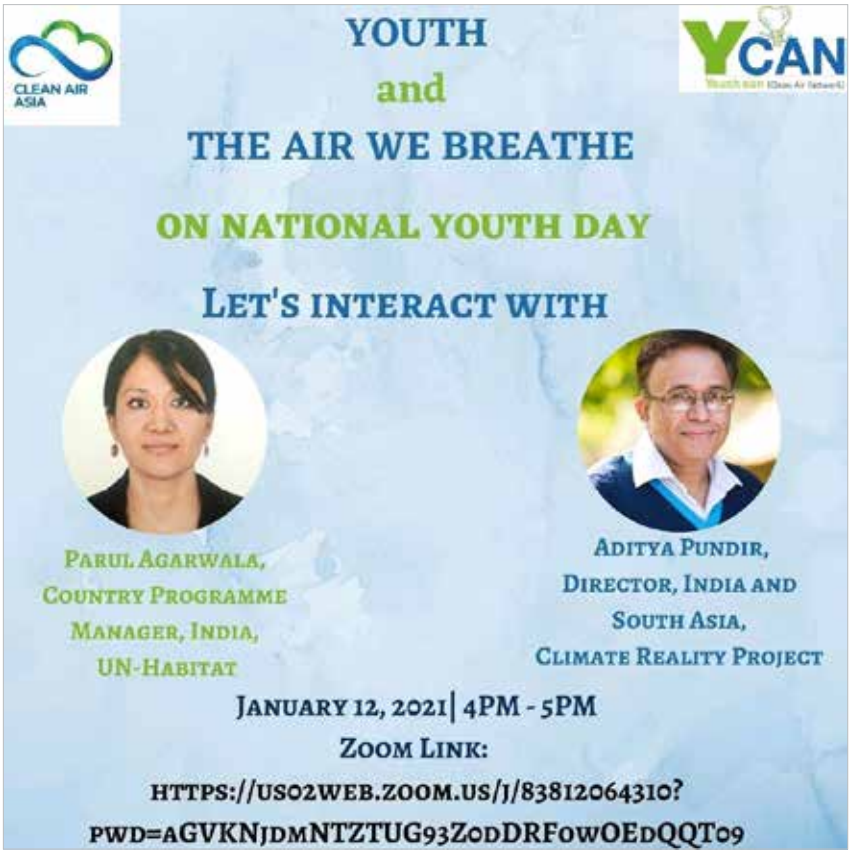
View
Who can see your viewing activity?
What Next
• By the end of this process you will have compiled your own bespoke Hotspot Strategy, devised locally and drawing on local knowledge.
• This will be based on a process of informing, consulting, collaborating and empowering
• Develop a "community of action"
Thank You
3M
Report Template: Youth Toolkit for Hot Spot Strategy to drive Clean Air Action
Bearwood (Birmingham)
Prepared by William Avis
Prerna Sharma
Prerna Sharma
Unmute
CLEAN AIR ASIA
Clean Air Asia
William R. Avis
William R. Avis
Unmute
Start Video
Participants
Q&A
Polls
Chat
Share Screen
Raise Hand
Pause/Stop Recording
More
End

YOUTH AND THE AIR WE BREATHE

Clean Air Asia organised a discussion "Youth & the Air We Breathe" on 12th January 2021 i.e. National Youth Day, with youth crusaders of our country to discuss what lessons were learnt from 2020 lockdown and how to bring innovative solutions to see clean blue skies in 2021.



YOUTH USE TECHNOLOGY TO FIGHT AIR POLLUTION

The Youth for Clean Air Network, YCAN (Youth CAN), was created with the objective of engaging youth in exploring and implementing solutions for clean air. One area of intervention includes youth driven technological innovations for improving air quality. Clean Air Asia, India hosted virtual dialogues – The Air Tech Fair on the 8th of April 2021. The winners of this fair were Rajhrita Dutta – developed an app called Air Map which is based on the principle of awareness amongst the masses so that they can avoid areas with high density of air pollution. And Shivam Bachhety - developed a Machine Learning solution called Air Ninja, to help predict AQI, pollution levels and air contaminants using data and images for Delhi i.e. Quantitative Data and Image Data.

YCAN AV

Clean Air Asia India launched a new video for YCAN (Youth for Clean Air) in November this year to mark 5 years since its inception in 2017. The AV showcases the journey of YCAN from a small room in New Delhi with a handful of members to the nationwide network of volunteers spread across the cities of India. The AV highlights the activities and initiatives taken by the YCAN members to spread awareness about air pollution and innovative solutions that they implemented for the same. It talks about the development of the VAYU App - air pollution measurement app – and how the app has been designed to not just tell people about the air pollution levels but also motivate them to make conscious lifestyle choices to curb air pollution. Watch our complete AV by clicking on the link below.

FOUR DECADES OF AIR POLLUTION LAWS: SCENARIO AND PROGRESS

Gitanjali Sreedhar
Programme Assistant, Clean Air Asia, India

Rapid urbanisation in major cities appears to be expanding in the twenty-first century. During the 1950's ,only 30% of the world's population lived in cities; by 2014, that figure had climbed to 54 percent, and by 2050, it is expected to reach 66 percent. Apart from the increase in population, the average size of cities has also increased. With this increase in the population pattern in the cities, governments strive to address the negative implications such as traffic congestion, waste disposal, and resource availability, even as the additional issues emerge. Cities in India are grappling with a slew of issues, including environmental concerns. The issue of air is the most important of them all.

There are numerous sources of air pollution. Vehicle emissions, agricultural burning, dust formation, particularly from building sites, depletion of forest cover, and inadequate waste management are all factors that contribute to poor air quality. One of the issues with addressing air pollution purely at the city level is that some elements that lead to higher pollution levels originate in the surrounding sub-urban areas. The Air Act's history is entwined with international events that opened the path for environmental debate. The Stockholm Conference on Human Environment (1972), for example, saw 113 countries pledge to develop legislation to conserve natural resources. The Indian government established the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, and the Environment (Protection) Act, 1986 in response to growing international awareness. After decades of handling environmental issues such as pollution on an ad-hoc basis, the passage of the Air Act was a significant event with the potential to transform air quality governance in India.

The Air Act has generally remained loyal to its original print in the forty years after it was enacted, with the core framework of the Act staying intact. In contrast, the United States' Clean Air Act of 1963 is regularly revised to ensure that it responds appropriately to new sources of depleted air quality and scientific advances in the field of air quality management.

The Act was significant in establishing a framework for air pollution regulation. It establishes a method for monitoring pollutants, establishing standards for emitters, developing clean air plans, and establishing an enforcement mechanism through PCBs.

The Air Act empowered state governments to proclaim any area or places within their state as an 'air pollution control area' for the purposes of the Act at the time of its enactment. State governments, on the other hand, began to designate large regions of the state as air pollution control areas in the mid-to-late 1980s.

The CPCB launched the first nationwide air pollution monitoring programme, National Ambient Air Quality Monitoring, in 1984. (NAAQM). This programme was only being carried out on seven stations in Agra and Anpara at the time. It was later renamed as National Air Monitoring Programme, and it now includes almost 804 stations in 344 cities.

The Air Act also includes a regulatory structure that compels polluting enterprises to get permission from the relevant SPCB before proceeding with their operations. The industry's ability to operate is subject on the SPCB's pollution mitigation requirements being met. These consents are renewed on a regular basis, and information about the consents is obliged to be publicly accessible under the Act. Thus, any person aggrieved by the grant of such a consent or challenging compliance with the conditions mentioned in the consent may move an application before the Appellate Authority constituted under the Air Act.

The CPCB developed the 'National Ambient Air Quality Standards' for twelve parameters, including SO_X, NO_X, particulate matter and ozone, using its powers under the Air Act. Compliance with these standards is a required condition in most consent applications and may also serve as the basis for PCBs issuing directions under Section 31A of the Act. For example, the Delhi Pollution Control Committee banned the bursting and sale of firecrackers in order to keep air pollutants within the prescribed limits. Similarly, section 31A directives have been issued to prohibit the burning of solid waste, the implementation of plans such as the Graded Response Action Plan (GRAP), and even the resolution of complaints about noncompliance with air quality standards.

The National Clean Air Programme (NCAP) India released by the Ministry of Environment, Forest and Climate Change (MoEF&CC) in January 2019 as government's first action plan to address the national crisis of air pollution. Given the magnitude and urgency of this issue, the government's initiative to prepare an action plan with nation-wide applicability is timely. The government acknowledged that air pollution is not an urban-centric problem, and that it requires multi-scalar and cross-sectoral coordination across government institutions. It has also made a move towards augmenting the air quality measurement and monitoring network. The NCAP acknowledges air pollution to be a regional problem (for instance, the Indo-Gangetic plains are identified as particularly polluted).

We as a country have been continuously taking measures to mainstream air pollution and improve the air quality, but these efforts are yet to make an impact.

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DISCUSSION ON ECONOMIC AND TECHNOLOGY SOLUTIONS FOR CLEAN AIR

The event was held on 1st April, 2021. The discussions mainly focused on how to assess appropriate technology for clean air and create a repository that would serve as a one stop shop for air pollution solutions. The economics of air pollution was also discussed along with the need for looking into a cost benefit analysis before undertaking clean air action planning. The need for a specific focus and a more diversified approach to the needs of the medium, micro and small industry was also deliberated upon.

AIR TECH FAIR

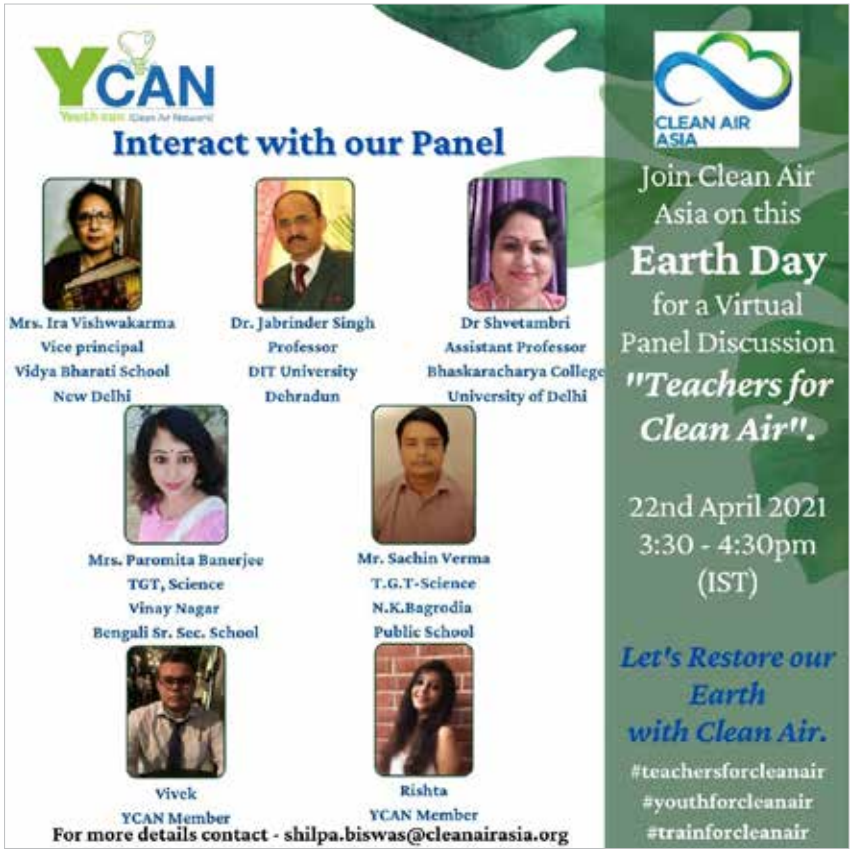
The Air Tech Fair was a virtual event held on the 8th of April 2021. The objective of these virtual dialogues was to discuss technology related solution for Clean Air and Clean Air management technologies and for innovators to showcase their novel ideas for technological solutions towards clean air. The fair was inaugurated by eminent Chief Guests- Prof. Sujit Bhattacharya, Chief Scientist, CSIR-NISTADS; Dr. Govind, Senior Principal Scientist, CSIR-NPL; Yuki Yoshida, Second Secretary, Environment Attaché, Embassy of Japan & Panel discussion with panellists from different expertise. Following innovators participated in this virtual exhibition:

Organizations/Companies

i. Mitsubishi Power India Pvt. Ltd
ii. Devic Earth Pvt. Ltd.
iii. Pi Green Innovations
iv. Smart Air
v. Nitto Denko India Pvt. Ltd.
vi. Clairco
vii. Chakr Innovation's
viii. Jal Technologies PRKRUTI
ix. Greenway Grameen Infra Pvt Ltd.
x. AiRTH
xi. Phoenix Robotix Pvt. Ltd.
xii. Blue Sky Analytics "Breezo"
xiii. UnBorne
xiv. Polred Equipments
xv. Sna Sistec Pvt Ltd.
xvi. Ambee

Individual Innovators

xvii. Rajhrita Dutta
xviii. Shivam Bachhety
xix. Nelly Neha Reddy
xx. Anubhav Gupta



TEACHERS FOR CLEAN AIR

On the occasion of Earth Day 2021, YCAN and CAA organised a virtual panel discussion with Educators and YCAN members to discuss how our planet Earth can be restored with cleaner and better air. This virtual event was held on the 22nd of April 2021.

WORLD ENVIRONMENT DAY – REIMAGINE, RESTORE, RECREATE

The event on 5th June, 2021 focused on reimagining, restoring and recreating to achieve clean air in cities. An invigorating online panel discussion comprising of YCAN members as well as other youth panellists was organised to discuss ways in which this could be achieved.

Our presenters were:

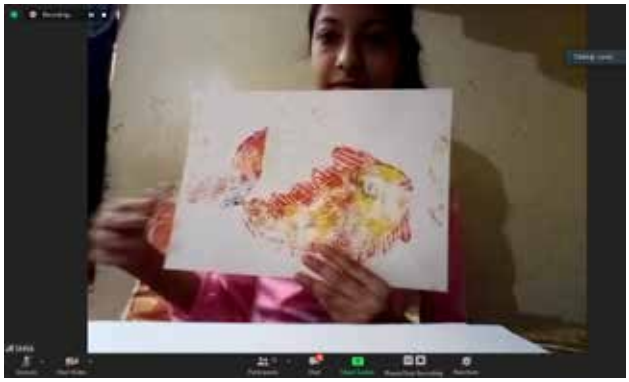
- Vedant Bhallal, YCAN Nagpur – Restore Air with green technologies that support clean air
- Bandana Saikia and Devyanshi Mondal, YCAN Pune – Breathing in the Post Pandemic World
- Abha Verma, YCAN Pune – Action to Halt Reaction: Action Plan to Recreate lifestyle for Clean Air
- Tanvi Jhalani, Meghna Sherman and Anveeksha Anand, YCAN Pune – Restore Air with youth movement that inform and engage people.
- Kriti Singh, YCAN Agra – Re-create Air: Youth Innovation to Achieve Better Air

WORLD PHOTOGRAPHY DAY – IDEAS, INNOVATION AND IMPACT FOR CLEAN AIR

This event was organised on the 19th of August, 2021. It was open call for all to send in their entries, depicting stories about the positive action being taken in your surroundings or society by people to improve air quality. The winner of this contest was Vini Sharma, whose photograph depicted the beautiful relationship of youth with nature.

ART MENTORSHIP PROGRAMME

Clean Air Asia India organised an Art Mentorship Program, under the guidance of mentor Sonal Srivastava (Design Mentor and Creator of the award-winning kids show M.A.D. for POGO televisions). The main purpose of this program was to engage with school children and train them about using the Clean Air Toolkit in a creative manner, and in the process learn about air pollution and air quality. This program was spread across 2 months (from September – October 2021) and comprised of 4 batches of students. A total of 60 students underwent this training.



Water, Air, Waste Management, Bio Diversity.

8th March 2021 ORGANISED BY: **ENVIROTECH ASIA**

3R and Circular Economy for Restoring Ecosystem and Achieving Clean Water, Land and Air

5th June 2021 ORGANISED BY: **ISPER**


YCAN
REIMAGINE
RECREATE
RESTORE
#GenerationRestoration
WORLD ENVIRONMENT DAY
UN environment programme
CLEAN AIR ASIA
Engage with our passionate youth panel in "Youth Dialogue-
RE imagine store create
for clean air in your city"
on this World Environment Day
5th June 2021
2:00 pm - 3:00 pm (IST)
Register using the link
https://bit.ly/2R7MYVI
Youth Panelists:
Vedant Ballal
Bandana Saikia
Deyashini Mondal
Tanvi Jhalani
Meghna Sherman
Anveeksha Anand
Kirti Singh
Abha Verma

World Environment Day 2021

"3R & Circular Economy for Restoring Ecosystem and Achieving Clean Water, Land and Air"

5th June 2021, Time: 11.30 AM to 2.00 PM (IST)

Event Partners | **Organizer ISPER**

UNCRD | 3R WASTE foundation – Moving Towards a Circular Economy | ALL INDIA INSTITUTE OF LOCAL SELF-GOVERNMENT | INSTITUTE FOR SPATIAL PLANNING & ENVIRONMENT RESEARCH – PANCHKULA

Key Speakers

Time (IST)

11.30 AM to 2.00 PM

Dr. Kulwant Singh (Ph D),
President, ISPER and CEO, 3R WASTE Foundation, Gurugram, India
Moderator
Overview of the Programme

Professor Asit K. Biswas,
Distinguished Professor, Glasgow University, U.K
Keynote Address

Dr. Anupam Khajuria,
UNCRD, Japan,
The Role of 3R and Circular Economy to achieve clean Water, Land and Air

Professor Sunil Herat,
School of Engineering and Built Environment, Griffith University, Queensland, Australia

Mr. Rohit Kakkar,
Deputy Advisor, CPHEEO, Ministry of Housing and Urban Affairs
Element of Circular Economy in Urban Wastewater Management in India

Professor Ashwani Luthra,
GND University, Amritsar
Restoration of Urban Ecosystem in the Post- Covid World

Ms. Prarthana Bora,
India Director, Clean Air Asia
Achieving Clean Air Through a Circular Economy

K. Surjit Singh, Secretary General and Director General Research, ISPER
Welcome Address

Dr. N. B. Mazumdar,
Chairman, International Academy of Environmental Sanitation and Public Health, New Delhi

Panelists

Mr. Somesh Sharma,
Expert, Environment and Sustainable Development Planning, IHS, The Netherlands

Dr. Harpreet S Kandra,
Australia

Dr. Deepty Jain,
Assistant Professor, TERI School of Advanced Studies

Mr. Girish Chadha,
Editor and Publisher

Mr. Rajiv Sharma,
General Manager, HUDCO

For Registration:
Follow the **QR CODE or LINK:** https://forms.gle/jQ4x719Y76UmebEG8

Environment, Policy and Health: A 2021 Perspective

5th June 2021 ORGANISED BY: **IIT Madras, Department of Civil Engineering**

Healthy and Green Recovery from COVID – 19

28th July 2021 ORGANISED BY: **Sphere India**

COVID-19

COVID-19 ACADEMY

Sphere India
National Coalition of Humanitarian Agencies in India

Healthy and Green Recovery from COVID-19

Addressing the 73rd World Health Assembly on May 18th 2020, WHO Director-General said that the pandemic is a reminder of the intimate and delicate relationship between people and planet and gave six WHO prescriptions and accompanied actionables, which are practical steps for implementing the WHO Manifesto for a healthy recovery from COVID-19. They aim at creating a healthier, fairer and greener world while investing to maintain and resuscitate the economy hit by the effects of COVID-19. This session will focus on three WHO prescriptions which are; Prescription No. 1. Nature, Prescription No. 2. WASH, and Prescription No. 5. Healthy & Liveable City.

Date: 28th July 2021, Wednesday | Time: 5:00 PM - 6:00 PM
Registration link: http://tiny.cc/CA280721 | Meeting ID: 875 9202 2039 | Password: 12345

UNDP

Panellist: Mr. Rajarshi Chakraborty
State Project Officer, UNDP Sikkim

Panellist: Ms. Prarthana Borah
India Director, Clean Air Asia India

WaterAid

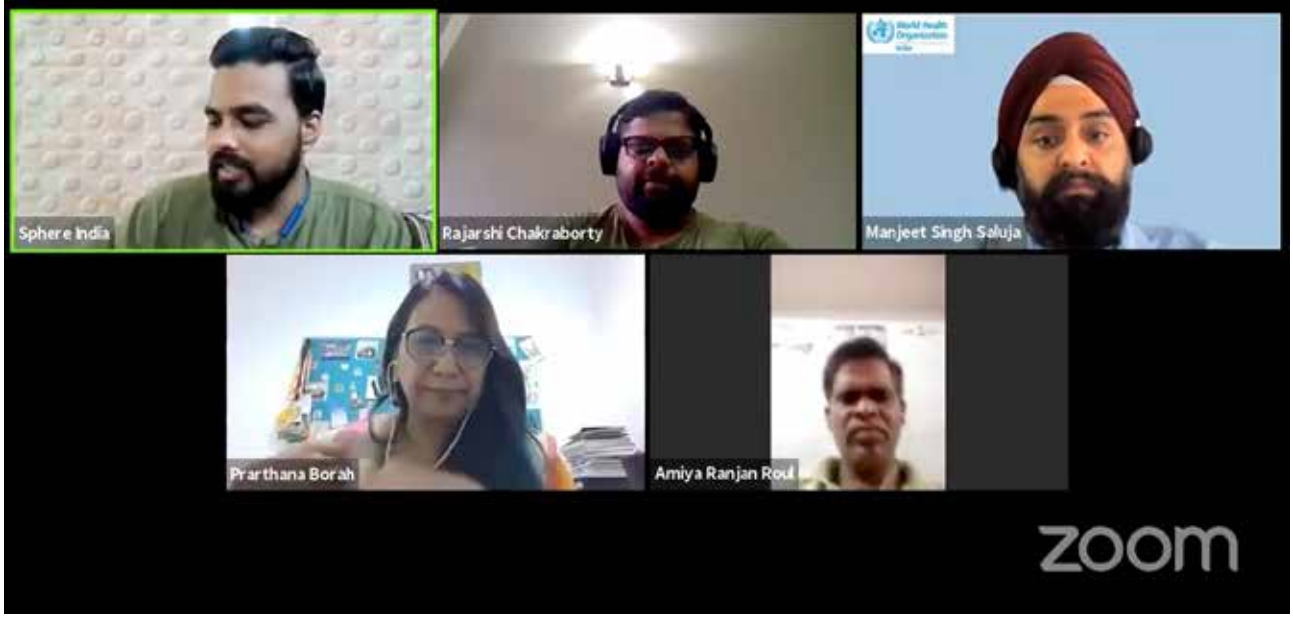
Panellist: Mr. VR Raman
Head of Policy, WaterAid India

World Health Organization India

Moderator: Mr. Manjeet S. Saluja
National Professional Officer, WHO

Streamed live
http://tiny.cc/CAyoutube

Supported by World Health Organization India, unicef, WFP World Food Programme, HCL FOUNDATION



Access to Clean Cooking Energy for Rural Household in India

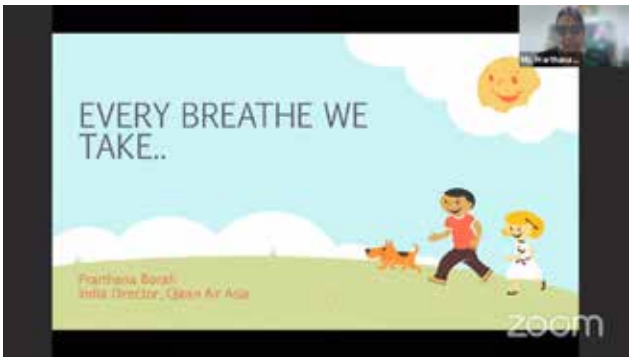
28th July 2021 ORGANISED BY: **Climate Reality India and World Vision**

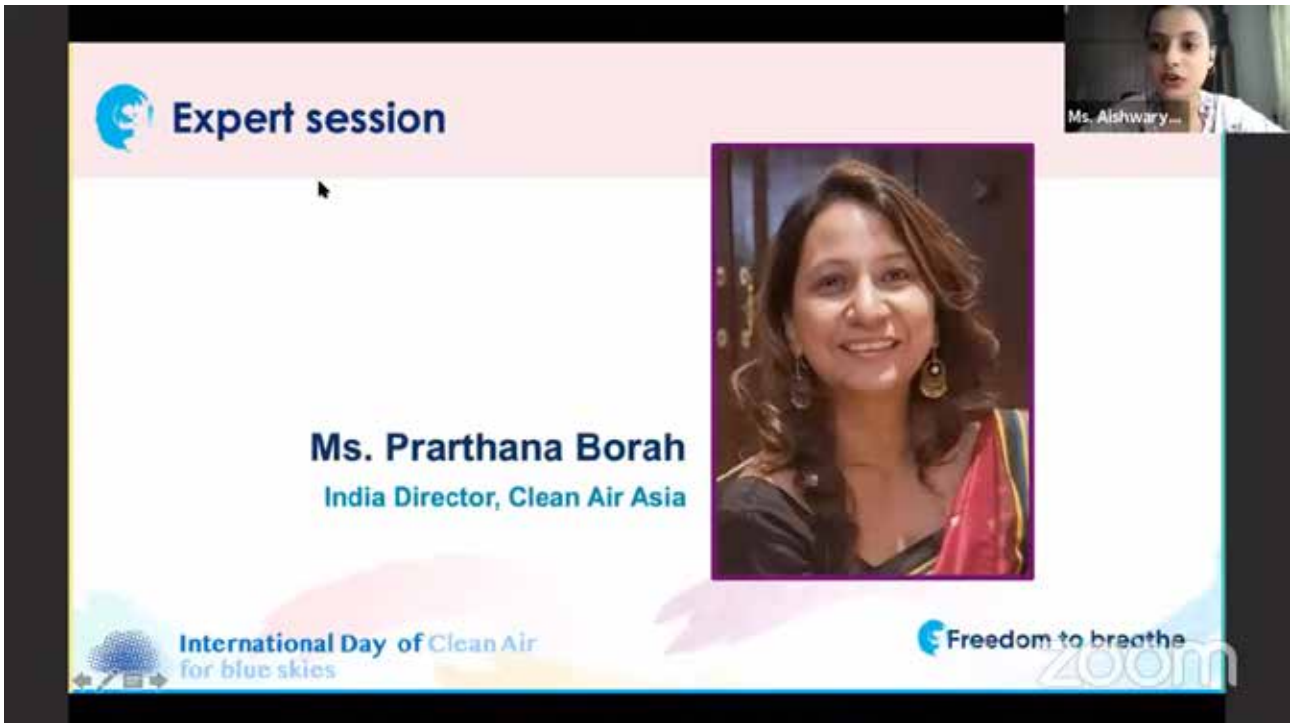
Climate Action for Safer World

19th August 2021, *World Humanitarian Day* ORGANISED BY: **Sphere India**

School for Clean Air/ World Clean Air Day Event

7th September 2021 ORGANISED BY: **CEE Paryavaran Mitra**



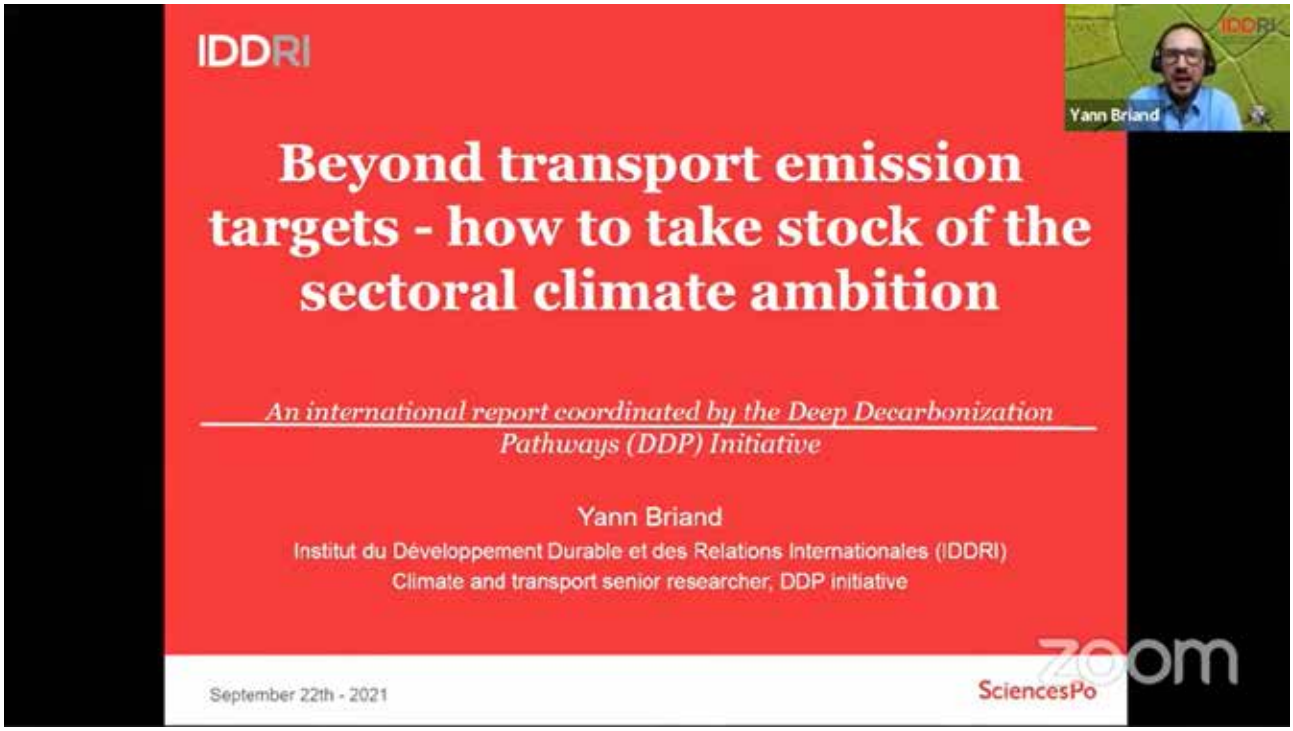


Demystified – Leader Summit – Sustainable Livelihood towards an Inclusive Future

10th September 2021 ORGANISED BY: **Sustainable Advancements**

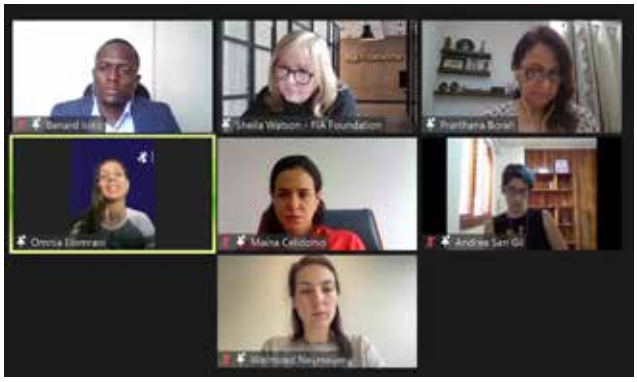
Beyond transport emission: How to take stock of the sectoral climate ambition (Deep Decarbonising Pathway)

23rd September 2021 ORGANISED BY: **IDDRI**



Move4Change – Mobilizing youth for the agendas of safe, active, sustainable mobility and air quality

30th September 2021 ORGANISED BY: **FIA Foundation**



Communication Workshop

28th June 2021 ORGANISED BY: **CEED India**

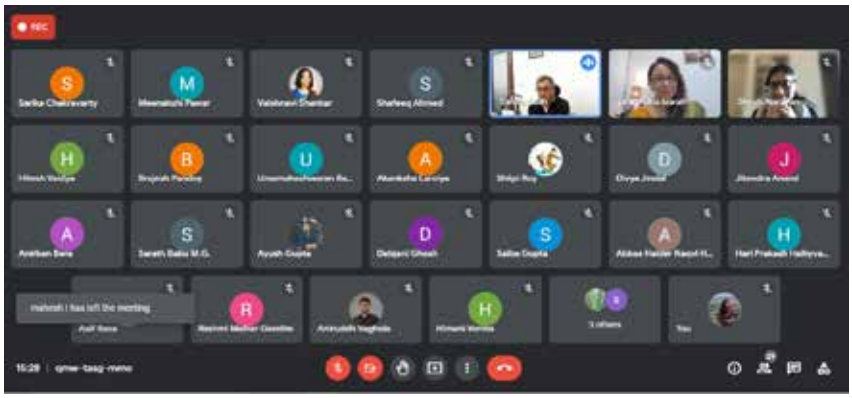
SDG 13 in a capsule with Ms. Prarthana Borah

7th October 2021 ORGANISED BY: **Sustainable Advancement**

NIUA – LCPC, World Habitat Day

4th October 2021

ORGANISED BY: **NIUA**



Mainstreaming Climate Actions at Local Level

30th October 2021

ORGANISED BY: **Urban Resilience and Adaptation for India and Mongolia - Urgent Lecture Series**

Co-funded by the Erasmus+ Programme of the European Union

Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions
619050-EPP-1-2020-1-DE-EPPKA2-CBHE-JP

URGENT *Lecture Series*

4th Lecture

Mainstreaming Climate Actions at Local Level

Date : 30 October 2021, Saturday
Time : 1315 – 1445 Hrs IST

Connect to
***Join with* Google Meet**
https://meet.google.com/uvg-jvfu-hnd

Speakers

Dr Nambi Appadurai
Director & Strategy Head
Climate Resilience Practice
World Resources Institute (WRI)

Trained in Public Policy and Development Studies, his overarching research interest intersects the areas of sustainable development, climate risk management, adaptation, environmental policy, institutional development and governance. Most of his research work is focused on Community Based Adaptation to climate change in the Asian and African. His international career includes stints with the World Bank, UNEP, ADB, CGIAR, MEA, among others. He has immensely contributed to UNFCCC COP, IPCC-AR and many others of similar kind.

Ms Prarthana Borah
India Director
Clean Air Asia
New Delhi

An Economist by training, she leads the implementation of India Strategy, working towards advancing better air quality in Indian cities. Prior to this, she led policy support initiatives at the Centre for Environment Education like GoI's policy documents for UNFCCC, COPs, CBD and SDGs. She is also involved in public and youth engagement programmes. She is member of Management Sub Committee - Forum for Global Change, University of Birmingham and Steering Committee Member - Clean Environment and Planetary Health of Australian National University and IIT Chennai

YOUTHFORCLEANAIR.COM

YCAN, or Youth Can, is the 'Youth Clean Air Network' for Indian cities, initiated by Clean Air Asia – an NGO working towards better air quality across Asia. YCAN, is a youth-based volunteer network, whose main aim is to achieve solutions for cleaner air in Indian cities through innovative use of technology and by spreading awareness about air pollution. Although the YCAN volunteers come from different academic backgrounds, they are all equally passionate about working for air quality issues and improving the air quality in their regions. This voluntary group of young enthusiastic people, working under CAA bring unique and fresh perspectives towards approaching air pollution, and this is crucial to finding creative solutions for this problem. YCAN focuses on exciting and diverse ways of bringing air quality into the mainstream. Be it city-specific awareness campaigns or discovering technology solutions, YCAN aims to contribute to cleaner, safer air in Indian cities through discussion, innovation and collaboration.

CITIES4CLEANAIR.COM

The Clean Air Knowledge Network (CAKN) is a forum to discuss better air quality. A platform for sharing successful interventions by city governments to reduce air pollution. This website is a repository for all the documents, information, government policies and information specific to Indian cities. The website currently hosts details related to the Air Action Plan, the Monitoring Network of the city, as well as the Government Policies, Acts and Laws for the respective city for 43 Indian cities. this database expands everyday as more initiatives and policies are implemented by the government and governing bodies to abate air pollution. This website is a great knowledge base for not only people working in the field of air pollution, but also for students, researchers and anyone who is interested to understand the state of air and the actions being taken for improving it in their cities.

CLEANAIRHEALTHYCHILDREN.COM

Clean Air Asia India believes that education is a key factor in abating the problem of air pollution. And this platform has been created keeping exactly this in mind. It focuses on the work that Clean Air Asia India is doing with the schools in different cities in India to make the school environment healthier by reducing the air pollution in the respective schools. This initiative involves school administration, parents, teachers and of course the students, who are made aware of the hazards of air pollution on their health. This is done by installing advanced air pollution sensors and instruments in their school premises which gives live data on air health around the schools. This data is shared with all the stakeholders so that they can make conscious choices with respect to air pollution. The website also displays live air data from these schools around the country. Clean Air Asia believes that through education we can support initiatives to minimize hazardous exposure to air pollution.

VAYU APP

The VAYU app, or Value Air You Use app has been developed and created by YCAN members, as a product of the first Technology Hackathon organised by Clean Air Asia India. This app tells you about the air quality in not just your city but multiple cities across India and it also has a unique feature to encourage people to adopt environment friendly lifestyle practices by taking pledges through the pledge feature built in the app. This interactive pledge feature connects you with a larger community of environment conscious people and also lets you become an active clean air warrior, working to improve the air quality in your city.

PARTICULATE MATTER – MALEDICTION TO THE ENVIRONMENT

Gunjan Goswami
Dept. of Chemistry, Faculty of Science, Dayalbagh Educational Institute, Dayalbagh, Agra, India

Air pollution is a familiar environmental health hazard. We know what we're looking at when brown haze settles over a city, exhaust billows across a busy highway, or a plume rises from a smokestack. Particulate matter (PM) poses a substantial threat to human health. The potential impact of which on human health has been unanimously acknowledged and which has been a concern for public health. By now the epidemiological data are in agreement in indicating PM as an alarming environmental factor associated with increase in mortality, morbidity many respiratory and cardiovascular diseases. Epidemiological, controlled human exposure, and toxicological studies have demonstrated a variety of health effects in response to particulate matter (PM) exposure with some of these studies indicating that populations with certain characteristics may be disproportionately affected.

Particulate matter is a complex but stable gaseous suspension of liquid and solid particles in the earth's atmosphere many of which are hazardous. Particulate matter categorised on basis of size as PM_{10}, $PM_{2.5}$ and PM_1 particles with (aerodynamic diameter ≤10µm, ≤2.5µm and ≤1µm) respectively. Fine particles pose the greatest risk. These fine particulate matter ($PM_{2.5}$) is an air pollutant that is a concern for people's health when levels in air are high. $PM_{2.5}$ are tiny particles in the air that reduce visibility and cause the air to appear hazy when levels are elevated.

This complex mixture includes both organic and inorganic particles- dust, pollen, soot, smoke, and liquid droplets. Examples of particulates are dust and salt particles, and water and sulphuric acid droplets. Particles vary greatly in size, composition, and origin resulting from various anthropogenic activities. Industrial facilities, Power plants, combustion, fossil fuels, sea spray, vehicles, incinerators, dust and fires are the major source of particulate matter.

Number of adverse health impacts have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted $PM_{2.5}$ and PM_{10} can be inhaled, with some depositing

throughout the airways. $PM_{2.5}$ is more likely to travel into and deposit on the surface of the deeper parts of the lung, while PM_{10} is more likely to deposit on the surfaces of the larger airways of the upper region of the lung. Particles deposited on the lung surface can induce tissue damage, and lung inflammation. Submicron aerosols (PM_1 Particles with size≤1 µm) represent a major research challenge in atmospheric science as they are complex mixture of chemicals which can be directly released in the atmosphere from the sources or can be formed as a product of gas-to-particle conversion through chemical reaction (Pateraki et al. 2020). They have large surface area due to which they have higher probability than larger particles to introduce adverse health effects (Slezakova et al. 2013). The decrease in the aerodynamic diameter has led to a significant increase in the chemical reactivity of PM for heavy metal adsorption, enhancing the toxicity of those particulates (Wang et al. 2020). Submicron particles carry toxic substances like PAHs and trace elements which lead to short- and long-term human health effects. Water-soluble fractions of submicron particles, metals and organic constituents have the capability to generate reactive oxygen species (ROS) that can damage DNA (Lei et al. 2004).

Human health risk assessment studies on finer aerosol atmospheric particles have recently grown in importance. The latest report on particulate matter explains their impact on human health. Exposure to such particles can affect both your lungs and your heart. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including: decreased lung function. increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing. Some particles less than 10 µm in diameter can get deep into your lungs and some may even get into your bloodstream which causes harm to various organs like kidney, brain and liver. Air pollution is the 4th leading risk factor for early death worldwide (SOGA, 2020). More than 90% of the global population lived in areas where concentrations exceeded the air quality guideline of WHO. The latest report confirms that climate change isn't just a problem for future generations, but one that affects every one of us today (IPCC,2021).

The current status is inconclusive but still noteworthy. Throughout the twentieth century, activists have continuously raised the level of particulate matter. Spirit should get into young minds to lower down emissions; the day would not be so far when levels will be within permissible limits. Achieving this will ensure the health of future generations and keep them safe from unwanted diseases.

Since particulate matter directly affects public health, regulatory standards should be made by various environmental protection agency for sub-micron particles. It is imperative that a national campaign be launched to educate children and young people. By reducing the use of harmful additives, natural and anthropogenic sources of particulate matter, societies can bring down pollution. In order to build a healthy life and environment, this is essential.

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CAA IN MEDIA

मीडिया वर्कशॉप का आयोजन

नेशनल क्लीन एयर प्रोग्राम के प्रति जनजागरुकता की जरूरत

सिटी रिपोर्टर . पटना

राज्य में क्लीन एयर एक्शन प्लान के तकनीकी पहलुओं पर सेंटर फॉर एनवायर्नमेंट एंड एनर्जी डेवलपमेंट (सीड) ने ऑनलाइन मीडिया वर्कशॉप किया। नेशनल क्लीन एयर प्रोग्राम के तहत राज्य सरकार ने 2019 में पटना, गया और मुजफ्फरपुर के लिए योजना तैयार की थी। हालांकि अबतक इसका प्रभावी क्रियान्वयन और निचले स्तर तक जनजागरुकता का प्रसार नहीं हो सका है। यह एक बड़ी चुनौती है। सीड के सीईओ रमापति कुमार ने कहा कि शहरों में बढ़ते वायु प्रदूषण को मुख्यधारा की बहस में रखने में मीडिया की सर्वोपरि भूमिका होगी। क्लीन एयर एशिया की इंडिया डायरेक्टर प्रार्थना बोरा ने कहा- स्वच्छ वायु के प्रति पब्लिक एजुकेशन का स्तर बढ़ाने और विविध स्टेकहोल्डर्स के बीच सूचनाओं के आदान-प्रदान में मीडिया बेहद कारगर भूमिका निभा रहा है। पत्रकार अशोक मिश्रा ने पत्रकारों की नियमित ट्रेनिंग और कैपेसिटी बिल्डिंग पर जोर देते हुए कहा कि इस तरह के आयोजनों से मीडिया समुदाय को किसी विषय विशेष पर व्यापक समझ प्राप्त करने में बहुत मदद मिलती है।

National Clean Air Programme ke Prati jagrupta ki zarurat

https://epaper.bhaskar.com/detail/453368/103735362/bihar/29062021/384/image/

Media can play a major role in ensuring accountability and awareness on air pollution

https://epaper.sanmarglive.com/3144423/PATNA/28-Jun#clip/61460328/6ee2350b-f902-4de3-a937-d11d9b5d3b76/993.3842239185751:614.759931620678

Media can play major role in ensuring accountability and awareness on air pollution

Clean Air Asia India successfully completes five Train for Clean Air (T4CA) Capacity Building on Air Quality Management

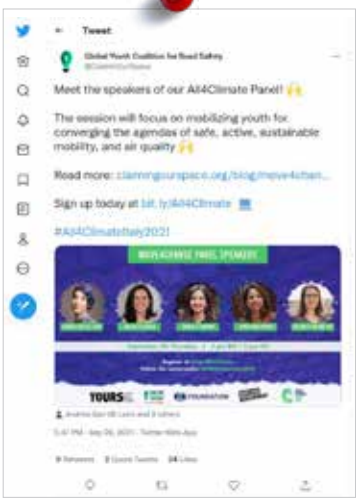
Clean Air Asia India successfully completes five Train for Clean Air (T4CA) Capacity Building on Air Quality Management

https://www.newswireonline.com/clean-air-asia-completes-five-train/

Al- Jazeera English – Schools in New Delhi close indefinitely

https://www.youtube.com/watch?v=T7_Glc3S3Rk

SOCIAL MEDIA - TWITTER FEED

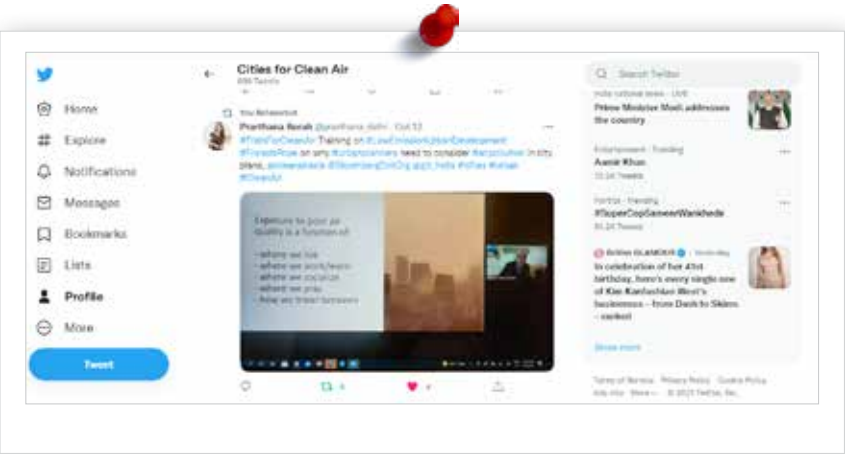



Cities for Clean Air


Cities for Clean Air
Introduction


Cities for Clean Air


Thread
NIUA, India
Prarthana Borah from @cleanairasia on achieving co-benefits of addressing climate change & air pollution together– The sources of pollutants contributing to climate change & air pollution are the same. The discourse of addressing both needs to be integrated at the city level.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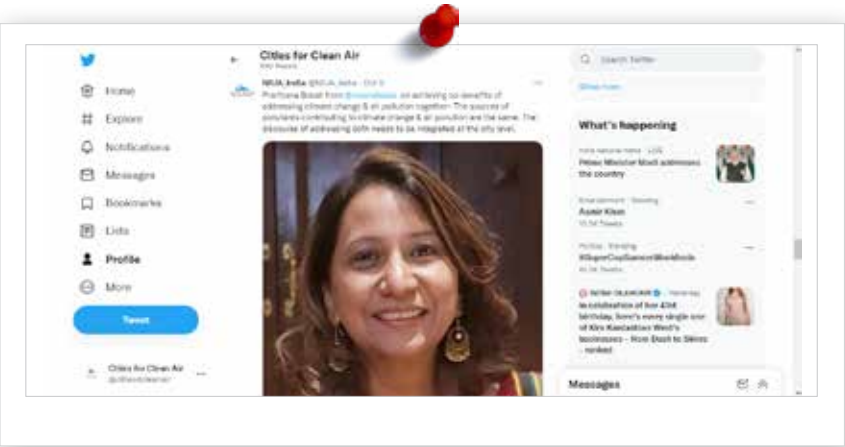
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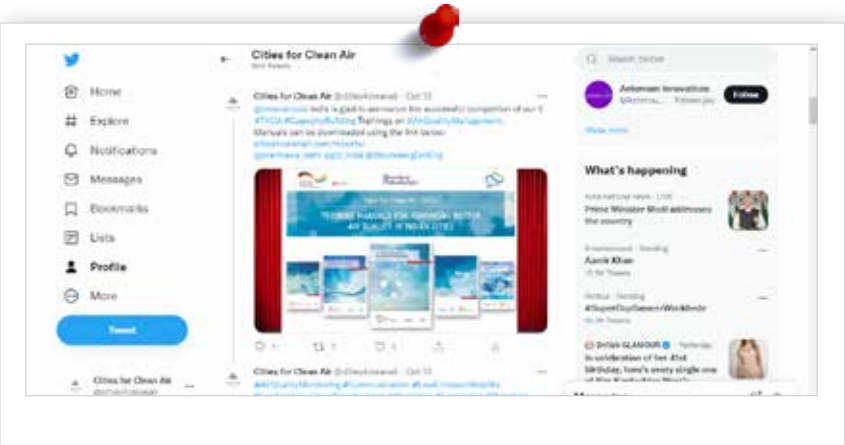
Communication Workshop
Forging public narrative in favour of clean air in Bihar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Media can play major role in ensuring accountability and awareness on air pollution


Cities for Clean Air @cities4cleanair · Jun 20
#WEDIASPEAKS communication workshop in #Bihar, @prarthana_delhi, India Director, @cleanairasia speaks about messaging for behaviour change to improve air pollution in Indian cities.
#dialogue #airpollution #cleanair4all @cities4cleanair @CEED_India

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