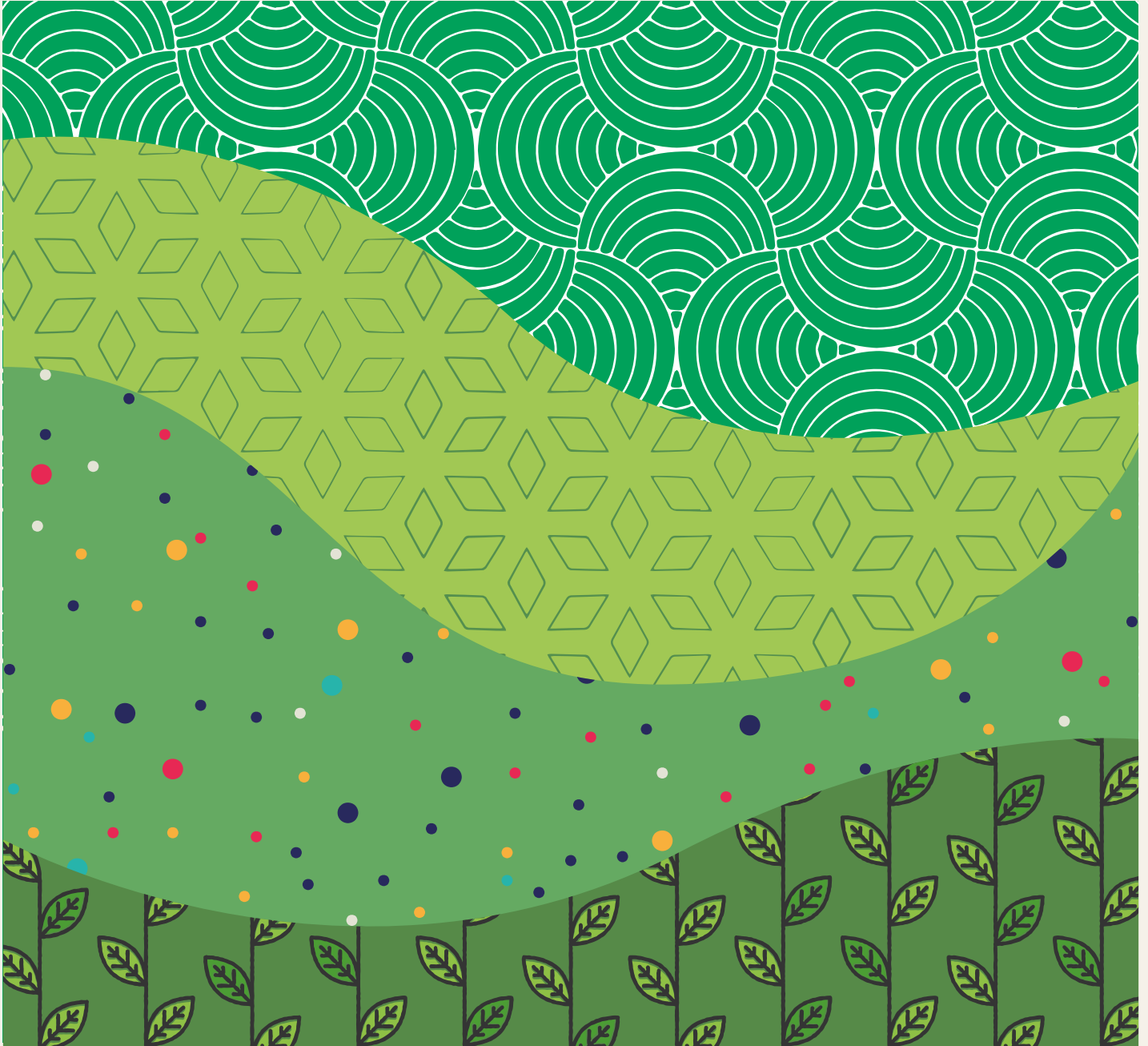




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CONVENING

REPORT

Health Matters:
Air Pollution & its Impacts
March 2023

About Ranchi Municipal Corporation

Ranchi city is governed by Municipal Corporation which comes under Ranchi Metropolitan Region, the primary responsibility is of urban management. It is the second Municipal Corporation of erstwhile Bihar and the first Corporation in the state of Jharkhand. With 55 administrative Wards, the corporation's jurisdiction extends over an area of 175.12 sq.



About Asar Social Impact Advisors

Asar Social Impact Advisors (Asar) is a start-up in the social and environmental impact space in India. Our focus is the climate challenge and opportunity facing India today. Asar exists to empower individuals, organizations, and networks working on the climate crisis by collaborating, coordinating, and collectivizing their efforts to amplify their effectiveness and impact.

For any queries or questions related to the report please reach out to

[**contact@asar.co.in**](mailto:contact@asar.co.in)



TABLE OF CONTENTS

Introduction	04
About Ranchi	06
About the Convening	07
Objectives	08
Sessions and Discussions	09
Key Points	11
a) Progress Under NCAP	11
b) Air Quality Levels & Monitoring Infrastructure	12
c) Air Pollution Health Impacts	13
d) Role of Media	14
e) Ensuring Citizen Participation	14
Key Suggested Interventions	15
a) Improving AQ Network	15
b) Emission Inventorization	16
c) Hotspot Mapping	16
d) Emergency Response (GRAP)	16
e) Capacity Building	17
f) Robust Pollution Risk Communication System	17
Recommendations	18
Quotes	19
Abbreviations	24
Agenda	26



INTRODUCTION

Air pollution has become a matter of serious concern in many parts of the country, with Ranchi, the capital of Jharkhand, being no exception to the problem of air pollution, especially in its urban centers. The data from the Global Burden of Disease shows that about 17% of the total deaths in Jharkhand in 2019 were attributed to air pollution. The top five risk factors for mortality in the state in 2019 were air pollution, high blood pressure, unsafe water and poor sanitation, high blood sugar, and a poor diet. It is important to point out that air pollution is not only considered the world's biggest environmental health threat, where it causes and exacerbates many diseases ranging from asthma to cancer, pulmonary diseases, and heart disease but now it is considered a serious threat for the quality of our life and possibly its survival.

Given the complex nature of the problem with its multiplicity of sources and effects, it is clear that there is no "silver bullet" solution. Addressing this problem will require a multi-sectoral approach, driven by environmental and health data, science & evidence, and a proper strategy. Realizing the seriousness of the problems, the Government of India launched the National Clean Air Program (NCAP) in the year 2019, under which city-specific clean air action plans have been prepared for the prevention and control of air pollution. Ranchi has been selected as one of the million-plus cities under the Fifteenth Finance Commission (XV-FC) and an action plan has been prepared for the city with defined mitigation measures to control pollution from all sources. The formulation and implementation of an action plan is important because improving air quality through emission reduction and stricter air quality regulations is the most effective strategy.

Effective policies to reduce emissions at the source is clearly preferable but plenty of evidence also supports the importance of preventive measures and risk reduction because of the fact that air pollution will remain a reality for a few years even if the mitigation measures are being implemented efficiently.

Given the ubiquity and magnitude of the problem, consideration should be given to develop effective preventive measures and risk reduction systems to reduce overall air pollution exposure to protect public health. The health care providers can be reliable translators of scientific health information for the general public to reduce air pollution exposure. In addition, existing healthcare infrastructure, such as ASHA, public health clinics, and primary health centers, can also play a role in disseminating information related to air pollution, including advisory for communities to reduce their exposure, especially to the most vulnerable groups. Medical associations are also powerful partners. Further, a well-defined risk communication system for sending public information on air quality index integrated with context-based health messaging and early-warning systems is important to tackle this risk factor.



With this background, the convening “Health Matters – Air Pollution and its Impacts” was organized to discuss and deliberate on the linkage between polluted air and the deteriorating health of people in the state. The discussion focused on risk reduction and preventive measures for air pollution. It also provided a forum to discuss the effects of air quality on health and share experiences, needs, and concerns. A more practical and participatory approach was expressed as the need to achieve clean air with health at the forefront.



ABOUT RANCHI

Ranchi is the capital city of the Indian state of Jharkhand, also known as the 'City of Waterfalls'¹. It is the most populous city of the state with a population of 1,073,427 as per Census 2011 and is being developed as a Smart City under the flagship Smart City Mission. The city has witnessed massive development, urbanization, and industrial growth. Though development can be a boon and a bane at the same time. This rich land of tribals known for living in harmony with nature, is facing massive environmental degradation in the past several years. One such environmental problem is air pollution. The city, as well as the state, is facing the brunt of air pollution in the form of increased health and economic burden.

So far, around 93 cr. have been released by the 15th Finance Commission to implement the measures prescribed in the city action plan. Various stakeholders and government bodies are meant to work together to improve the quality of the air in the city.

A systematic source apportionment study of Ranchi has not been done so far. Though there are many speculated sources which are attributed to the deteriorating air quality of the city. Emissions from factories, construction dust from buildings, flyovers, bridges, vehicular emissions, etc. are some of the most prominent sources of pollution in the city².

Ranchi along with two other cities in Jharkhand is listed amongst the 131 non-attainment cities failing to meet the prescribed air quality standards and was bought under the purview of the National Clean Air Program in the year 2020-21. Under this program, a comprehensive city action plan and micro action plan have been developed.

¹ <https://ranchi.nic.in/>

² <https://rb.gy/sjfbt>





ABOUT THE CONVENING

‘Health Matters: Air Pollution and its Impacts’ took place on 1st February 2023 at Ranchi. It was organized by Ranchi Municipal Corporation in partnership with Asar Social Impact Advisors Pvt Ltd. It brought some very prominent stakeholders together to discuss and deliberate on the issue.

The convening was entirely centered around solutions. It is the first step towards a series of future dialogues, partnerships and work to make the air of Ranchi cleaner.

The panel of experts discussed solution-oriented approaches to reduce the impact of air pollution on human health such as the issuance of health advisories, health sector preparedness, localized emission inventory, and air quality forecasting among various other solutions.

The convening brought together 150 delegates which included representatives from the Ranchi Municipal Corporation, health experts, doctors, ward councilors, research, academia, and civil society.

The dignitaries included Hon'ble Mayor Dr. Asha Lakra, Municipal Commissioner; Mr. Shashi Ranjan (IAS), Assistant Municipal Commissioner; Mr. Jyoti Kumar Singh, President of Indian Medical Association-Ranchi; Dr. Shambhu Prasad, President of Jharkhand State Health Services Association (JHASA); Dr. P.P. Shah; Dr. Gufran Beig; Dr. Atri Gangopadhyay; Ms. Tanushree Ganguly; Mr. Polash Mukherjee; Dr. Tanushree Bhattacharya; Dr. Nitish Priyadershi; Dr. Ravindra Khaiwal; and Mr. Manjeet Singh Saluja.



The Objectives of the convening were:

- ❖ To draw focus on preventive measures, risk reduction, and air quality monitoring
- ❖ To provide a platform to enable dialogue on air quality and health impacts and an opportunity to share experiences, needs, and concerns.
- ❖ Identify areas of potential synergy between stakeholders to build continuous collaborative work that will enable the National Clean Air Program to achieve its objectives effectively.

SESSIONS & DISCUSSION

The conference was divided into two sessions -

- 1) The Inaugural Session and
- 2) The Technical Session



In the Inaugural session, many administrative dignitaries were present. These included -

Dr. Asha Lakra, (Mayor of Ranchi), Shri Jyoti Kumar Singh (Assistant Municipal Commissioner), Mr. Manjeet Singh Saluja (Technical Officer, WHO), Shri Sambhu Prasad (Secretary, IMA Ranchi), Shri P.P. Shah (President, JHASA), Shri Sanjay Mishra (President, Ranchi Press Club); and finally Shri Sashi Ranjan (The Municipal Commissioner of Ranchi) who could not attend the conference though sent a virtual message to the attendees.





The technical session comprised panel discussions driven by eminent personalities of their respective fields -

Dr. Gufran Beig, Dr. Atri Gangopadhyay, Ms. Tanushree Ganguly, Mr. Polash Mukherjee, Dr. Tanushree Bhattacharya, Dr. Ravindra Khaiwal, and Mr. Manjeet Singh Saluja. The session was moderated by Dr. Nitish Priyadarshi, a prominent environmentalist.

He started the session with a broad question on the importance of preventive measures and the role of the Government in cleaning the air in Ranchi. With a focus on the health effects of air pollution, he initiated the discussion on the preparedness of the health sector, air quality forecasting, and robust monitoring stations for better air quality management

The discussion was engaging and informative. The expert panelists on the domain of air pollution shared their experiences from previous projects implemented in the different parts of the country, plus their knowledge of the landscape and the regional factors that influence the issue of air pollution. The information shared was simple and effective so as to ensure everybody in the room understood the issue.



Major points of discussion and key interventions recommended in the convening are presented below.

I. KEY POINTS

a) Progress Made Under NCAP

Mr. Jyoti Kumar Singh, Assistant Municipal Commissioner-Ranchi put forward the administrative perspective for the management of air pollution in the city. He acknowledged the fact that green cover in the city has reduced over the years and there has been a tremendous rise in the number of vehicles. At the same time, he explained that this trajectory is inevitable and every country on the path of development follows it.

He touched upon the progress made by RMC under the National Clean Air Programme- a tripartite agreement has been signed between RMC, JSPCB, and IITs. The objective of this agreement is to have more wholesome discussions and communications to come up with effective solutions to the air pollution problem of the city. Apart from this, various other measures like sweeping machines, new buses, squads for preventing biomass burning, etc. have been implemented in Ranchi.

Despite the implementation of all the above-mentioned measures, he stressed the fact that inter-departmental coordination is a must along with tailored functioning towards efforts for reduced pollution levels.

The behavioral change could be in the form of adopting good practices, and also reporting the polluting activities if one comes across them. He pointed out that youth have a big role to play as well. To enable the same, RMC is generating a lot of IEC material to make the masses aware of the problems as well as the solutions.

» **He also stressed the importance of cooperation and participation from the citizens in terms of behavioral change and the adoption of solutions presented.**



b) Air Quality Levels & Monitoring Infrastructure

During the convening, the status of the existing air quality monitoring infrastructure was discussed. In Jharkhand, around 100 deaths per lakh, are attributable to air pollution, and the life expectancy of the people in the city is reduced by almost 5.4 years owing to air pollution. But even after this grim situation, the very first step towards addressing the issue i.e. monitoring, is in a very bad shape. There are 2 manual monitoring stations and only 1 Continuous Ambient Air Quality Monitor (CAAQM) in the city. Without an effective monitoring system, it is difficult to track the progress made under the existing policies and programs for pollution reduction.

Technical Session Speaker Ms. Tanushree Ganguly stressed the need for robust air quality monitoring infrastructure to develop air quality forecasting systems in the near future in Ranchi.

She gave the example of Delhi, which has a robust network of approximately 40 monitors across the city. Even after the extensive network of monitors, the forecasting system of the city often underestimates the pollution levels. It just predicts the quality of air in the city and struggles to provide an accurate quantification of the pollution levels.

» **A robust forecasting system requires an efficient network of monitors that are strategically located across the city providing minute-to-minute data.**



Mr. Shashi Ranjan (IAS), Municipal Commissioner, Ranchi





c) Air Pollution Health Impacts

All the speakers at the conference stated that air pollution is the biggest threat to human health. We are losing lives every year owing to air pollution and Jharkhand is no exception to that. In the state, every 100 out of 1 lakh deaths is linked to air pollution. These statistics are grim but often, the issue of air pollution is not provided the due seriousness it deserves. The speakers reasoned that it is the case because of the fact that the effect of air pollution is not immediately visible and acts like a slow poison. The impact of air pollution is not just restricted to the lungs and respiratory tract.

COPD and bronchitis used to be smoking-induced diseases, but now due to air pollution this is not the case. Air pollution also plays a role in increasing the severity of tuberculosis. It makes the lungs weak which cannot be reversed by any medical treatment. One of the most recent examples, people who recovered from severe COVID especially face problems because of air pollution. The number of cancer cases diagnosed in patients is at an all-time high. Also, these diseases used to be associated with older age but not anymore. The majority of the people visiting the hospitals for diagnosis are youngsters. All of these issues are a direct result of rising pollution levels.

» **Dr. Atri Gangopadhyay, the pulmonologist on the panel, revealed that the implications of air pollution could range from common flu to cancer. He shared a few alarming observations from his daily practice in Ranchi. Asthma was considered a genetic issue, but now people with no family history of asthma are being diagnosed with it.**



d) Role Of Media

This discussion shed light on the importance of the role of media in the narrative of air pollution. Mr. Sanjay Mishra shared how the natives who live in areas around the city, in absolute harmony with nature, are facing the brunt of air pollution. Even though they don't have any contribution towards it. The cases of cancer are on a steep rise in these places. At the same time, the people in the cities who are exacerbating the issue have the privilege of turning a blind eye to these issues owing to the fact that they can afford the preventive measures and reduce the impacts to some extent.

» **In this context, the role of the media is very crucial. Stories need to shed an honest light on the realities of the situation. He said that media coverage could result in actions and solutions to be taken up at a greater pace and scale. He also highlighted the fact that media needs to be a medium between the general public and the government, academia, etc.**



e) Ensuring Citizen Participation & Support For Clean Air

All the panelists agreed on the fact that without citizen participation and cooperation, clean air will never become a reality. To ensure the same, first, it is very important to raise the awareness of the citizens on the problem. Citizens should be aware of the clean air action plan & micro action plan of their respective city, the prevailing air quality, and the implemented measures and avenues where their own contribution is essential.

» **Citizens should know about the usage of the Public Grievance Redressal System (PGRS) to connect with the right authorities whenever they come across a practice breaking the rules. This could be a first step towards ensuring their right to clean air.**

II. KEY SUGGESTED INTERVENTIONS

The panelists in the second session emphasized that Ranchi, being the capital city, has the responsibility to lead the way for clean air in the state. If the city is able to meet this responsibility, other cities in the state will follow suit. The following interventions were suggested by the experts.



a) Improving AQ Network

The most important step is to improve the monitoring network of the city; at least 6 continuous monitoring stations are required across Ranchi. The data from these monitors should be made available in the public domain as this will increase public understanding of the issue and ensure their participation and support. AQI display on LED boards at major intersections of the city is a good step. Further, once the AQ monitoring network is in place, Ranchi can be brought under the SAFAR program, with daily air quality status updates, forecasts and health advisories issued. This program has been proven effective in many cities of India in reducing air pollution exposure, especially for vulnerable communities.

With an increased AQ monitoring system a systematic air quality assessment of the city can be done. Local factors like topography, geography, and meteorology with respect to air quality should also be studied to understand the most efficient solutions for the city.

Regular AQ monitoring enables planning and prioritization of mitigation strategies developed under the Clean Air Plan, enabling the tracking of progress and effectiveness of existing policies and solutions.

b) Emission Inventorization

The experts pointed out that the most effective way to deal with air pollution is by curbing the emissions at the source rather than deploying end-pipe solutions. Inventory of emission sources in the city is an important aspect of air quality management. Generalized actions do not serve the purpose owing to the scale and complexity of the issue. Emissions inventories help prioritize actions and target sources with the maximum contribution.

» **Since each city is different and unique, customized solutions based on the local sources and situations are needed to be implemented to gain optimal results.**

c) Hotspot Mapping

The panelists suggested hotspot mapping for Ranchi, and the efficient implementation of local hot spot action plans to reduce the high air pollution exposure and mitigate the sudden increase in AQI levels. This would also improve the overall ambient air quality.

It is a faster and temporary solution till the systematic source apportionment and emission inventory is developed for the city. The process, complexity, and robustness of this exercise can vary. One of the panelists shared that the simplest form of this exercise could be by involving the local citizens in the process. In this, the citizens/groups move around the city and note/mark down the activities and sources that are visibly polluting the air. This activity has been conducted and proven successful in Uttar Pradesh.

» **Hotspot mapping can be defined as the process of identifying the locations in a city with elevated levels of pollution (as compared to other areas) because of certain activities or sources.**

d) Emergency Response -Graded Response Action Plan (GRAP)

GRAP is an emergency response plan designed to manage extremely high pollution and reduce exposure and has been developed under the Ranchi Clean Air Action Plan. Also, it should be developed based on the baseline pollution levels, demography, and health status of the population residing in the city. The emergency response plan requires graded and progressive interventions including stringent actions and restrictive measures as air quality worsens.

» **However it is important for Ranchi to proactively implement it and the measures should be based on air quality forecasts, rather than retroactively implementing them once acceptable levels are breached.**

e) Capacity Building

The capacity of the local communities is very important so that they can share the issues that they are facing directly with the responsible agencies to demand action.

» **The capacity of the health system and research institutions should be improved to provide more evidence-based studies.**

f) Robust Air Pollution Risk Communication System

The panelists emphasized the fact that there is a need for cross-learning from the good practices and approaches present across the country.

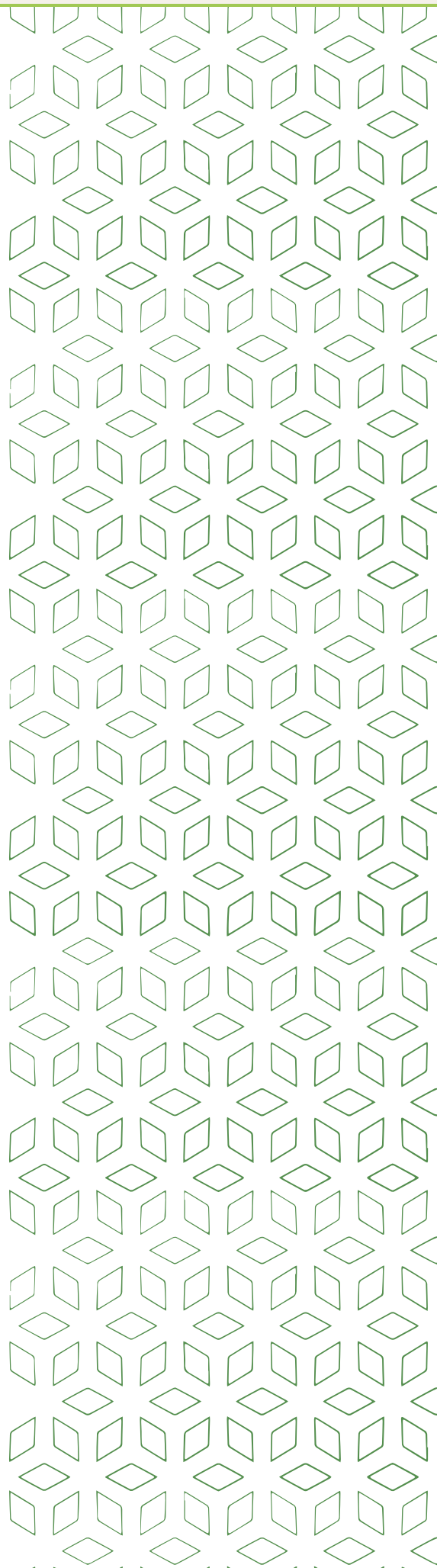
Ahmedabad Municipal Corporation developed the Air Pollution and Response Plan which is a health-based program designed to protect the citizens and to increase awareness of air pollution. As part of the program, the air pollution monitoring and early warning system was started and information was disseminated about the daily Air Quality Index (AQI) through 11 LED screens across the city. The early warning system also informs people about days of excessive pollution, and medical professionals have been trained to respond to emergencies related to air pollution. The other major components of this plan includes inter-departmental coordination and sharing of responsibilities, community and public awareness, vulnerable group focussed activities, capacity building of medical professionals, and integration of all for mitigation activities.

» **The Air Information and Response Plan currently operational in the city of Ahmedabad could be operationalized in Ranchi specific to the city's needs.**



RECOMMENDATIONS

- ❖ Effective preventive measures and risk reduction systems to be put in place to reduce overall air pollution exposure to protect public health.
- ❖ City-specific evidence-based health studies on the effects of air pollution to fill knowledge gaps and develop appropriate preventive policies for risk management.
- ❖ Roadmap for health-based decision-making process and an effective dissemination system to reduce overall exposure to protect public health.
- ❖ Robust air quality monitoring network and source apportionment study to understand and prioritize air pollution mitigation measures.
- ❖ Concerted and coordinated efforts among all concerned stakeholders including government departments, health professionals, media, and civil society organizations.





“Air pollution is not just a city or a state problem but a national problem. Hence it will require a strategic collective approach for its effective solution. The role of the society and the individual cannot be undermined. It is very important to raise awareness on the issue, bring all the stakeholders on board and collectively work towards solving it.”



“The Corporation has already prioritized reducing air pollution as an important public issue and we are taking a proactive approach in adopting innovative cleaner solutions. We are promoting public awareness to bring support at the forefront. The deliberations held today are expected to set a new direction for the Corporation's efforts to reduce the health effects of air pollution too.”



“The objective of this convening is to have more wholesome discussions and communications to come up with effective solutions to the air pollution problem of the city.”



Dr. Asha Lakra
Hon'ble Mayor of Ranchi



Mr. Shashi Ranjan, IAS
Municipal Commissioner
Ranchi



Mr. Jyoti Kumar
Assistant Municipal Commissioner
Ranchi





“The role of the media is crucial to bring out the stories of those suffering because of the activities in the city.”



“Healthcare providers who are key stakeholders, should be trained to become an effective medium for delivering harm-reduction strategies to their patients in their clinical practice.”



“There should be additions to the curricula in medical schools in the country to include modules on air pollution and health to raise awareness in the health care community”



Mr. Sanjay Mishra
President
Ranchi Press Club



Dr. Shambhu Prasad
President
Ranchi Chapter of Indian Medical Association



Dr. P P Shah
President
Jharkhand State Health Service Association





“A resilient health system that protects the health effects caused by air pollution, especially those who are vulnerable, needs to be prioritised; in addition to sustainable development.”



Dr. Manjeet Saluja
Technical Officer
World Health Organization

“It is high time that we have an air quality forecasting system for planning interventions and issuing health advisories for risk reduction and preventive measures”



Dr. Gufran Beig
Founder Director
System of Air Quality Forecasting and Research
(SAFAR) Programme Indian Institute
of Tropical Meteorology

“The implications of air pollution could range from common flu to cancer. Earlier, asthma used to be a genetic issue, but now people with no family history of asthma are being diagnosed with it”



Dr. Atri Gangopadhyay
President
East Chest Council of India





“Based on the population of Ranchi, at least 6 continuous monitoring stations are required. Without monitoring we cannot track the progress made by the implementation of various measures under the policies. Source identification, source apportionment and monitoring are needed.”



“Issuing health and early-warning systems should be introduced in the state.”



“We need to understand that ambitious projects like the Air Quality Forecasting System is a distant reality without a proper continuous air quality monitoring network in place. Already existing systems like the Public Grievance Redressal System should be brought into use”.



Dr. Tanushree Bhattacharya
Associate Professor
Birla Institute of Technology



Dr. Ravindra Khaiwal
Professor of Environment Health
PGI Chandigarh



Ms. Tanushree Ganguly
Programme Lead
Council of Energy, Environment and Water

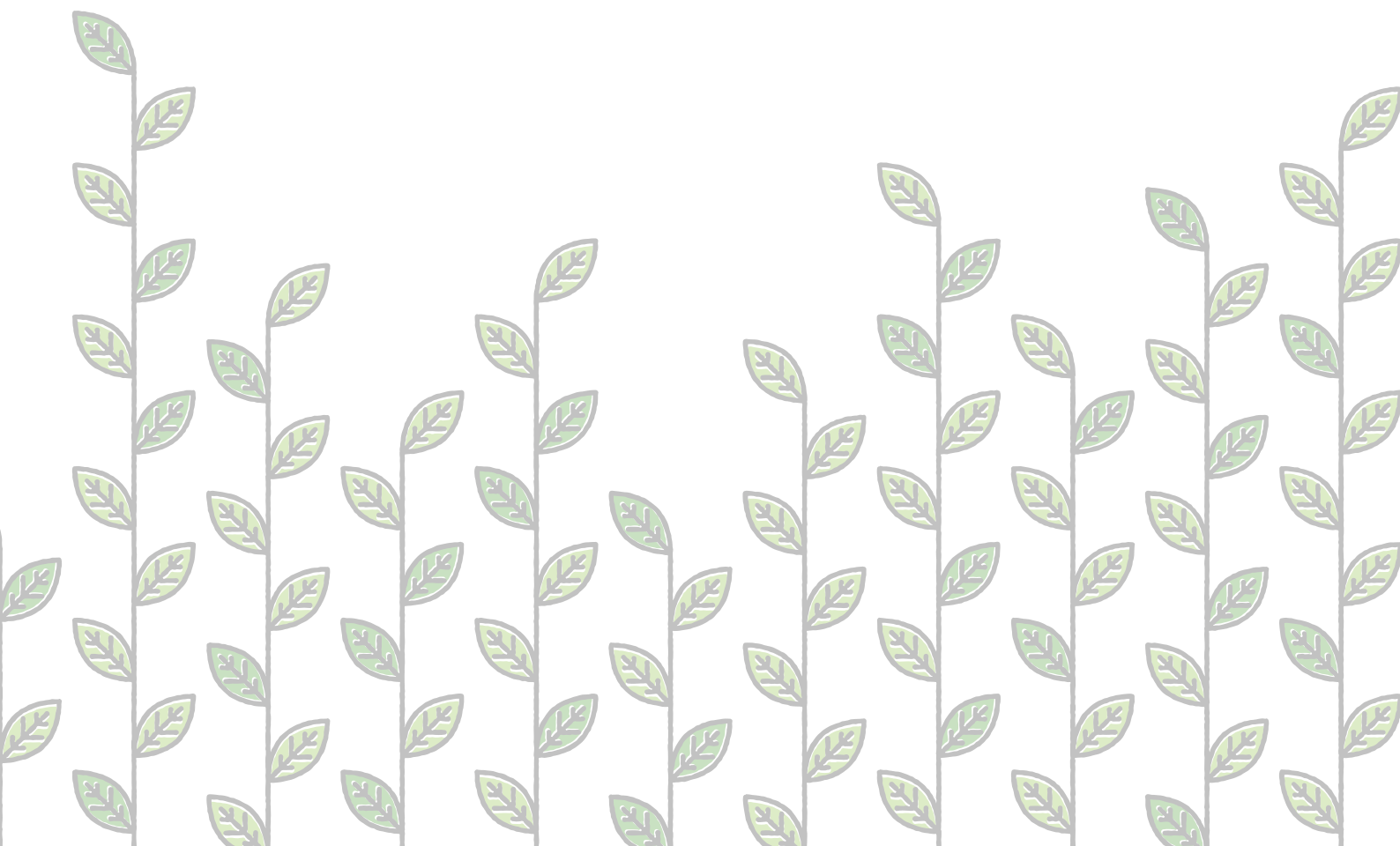




The inter departmental coordination and sharing of responsibilities, community and public awareness, vulnerable group focussed activities, capacity building of medical professionals, integration of all for mitigation activities are all important measures to reduce air pollution.”



Mr. Polash Mukerjee
Lead
Air Quality of Natural Resources
Defense Council (NRDC) India



LIST OF ABBREVIATIONS

ASHA - Accredited Social Health Activist

AQ - Air Quality

AQI - Air Quality Index

CAAQM - Continuous Ambient Air Quality Monitor

COPD - Chronic Obstructive Pulmonary Disease

GRAP - Graded Response Action Plan

IEC - Information, Education, and Communication

JSPCB - Jharkhand State Pollution Control Board

NCAP - National Clean Air Program

PGRS - Public Grievance Redressal System

RMC - Ranchi Municipal Corporation

SAFAR - System of Air Quality Forecasting and Research

WHO - World Health Organization

XV-FC - Fifteenth Finance Commission



Agenda of Health Matters – Air Pollution and its Impacts

February 1, 2023	
10:30 am - 11:00 am	Registration
Inaugural Session	
11:00 am - 11:05 am	Welcome address Ankita Jyoti, Asar Social Impact
11:05 am - 11:15 am	Setting the context Shri Jyoti Kumar Singh, Assistant Municipal Commissioner, Ranchi Municipal Corporation
11:15 am - 11:20 am	Keynote Address Shri Sanjay Mishra, President, Ranchi Press Club
11:20 am - 11:25 am	Keynote Address Mr Manjeet Singh Saluja, Technical officer, World Health Organization--India
11:25 am - 11:30 am	Keynote Address Shri Shambhu Prasad, President, Indian Medical Association--Ranchi
11:30 am - 11:35 am	Keynote Address Dr P.P Shah, President, Jharkhand State Health Society Association
11:35 am - 11:40 am	Special Guest Address Shri Shashi Ranjan, IAS, Municipal Commissioner, Ranchi

11: 40 am -11:50 am

Chief Guest Address

Dr Asha Lakra, Hon'ble Mayor, Ranchi

12:00 pm -12:10 pm

Tea Break

Panel Discussion

Clean Air for Jharkhand – Towards a Better Place for all

12:10 pm – 1:40 pm

Moderator: Dr. Nitish Priyadarshi Assistant Professor,
Ranchi University

Prof. (Dr.) Gufran Beig
Founder Project Director, SAFAR at IITM Ministry of Earth
Sciences

Mr Manjeet Singh Saluja
Technical officer, Environment and Public Health, World
Health Organization--India

Dr. Ravindra Khaiwal
ProfessorCommunity Medicine and School of Public Health,
PGI Chandigarh

Mr. Polash Mukerjee
Lead -Air QualityNatural Resources Defense Council (NRDC)
India

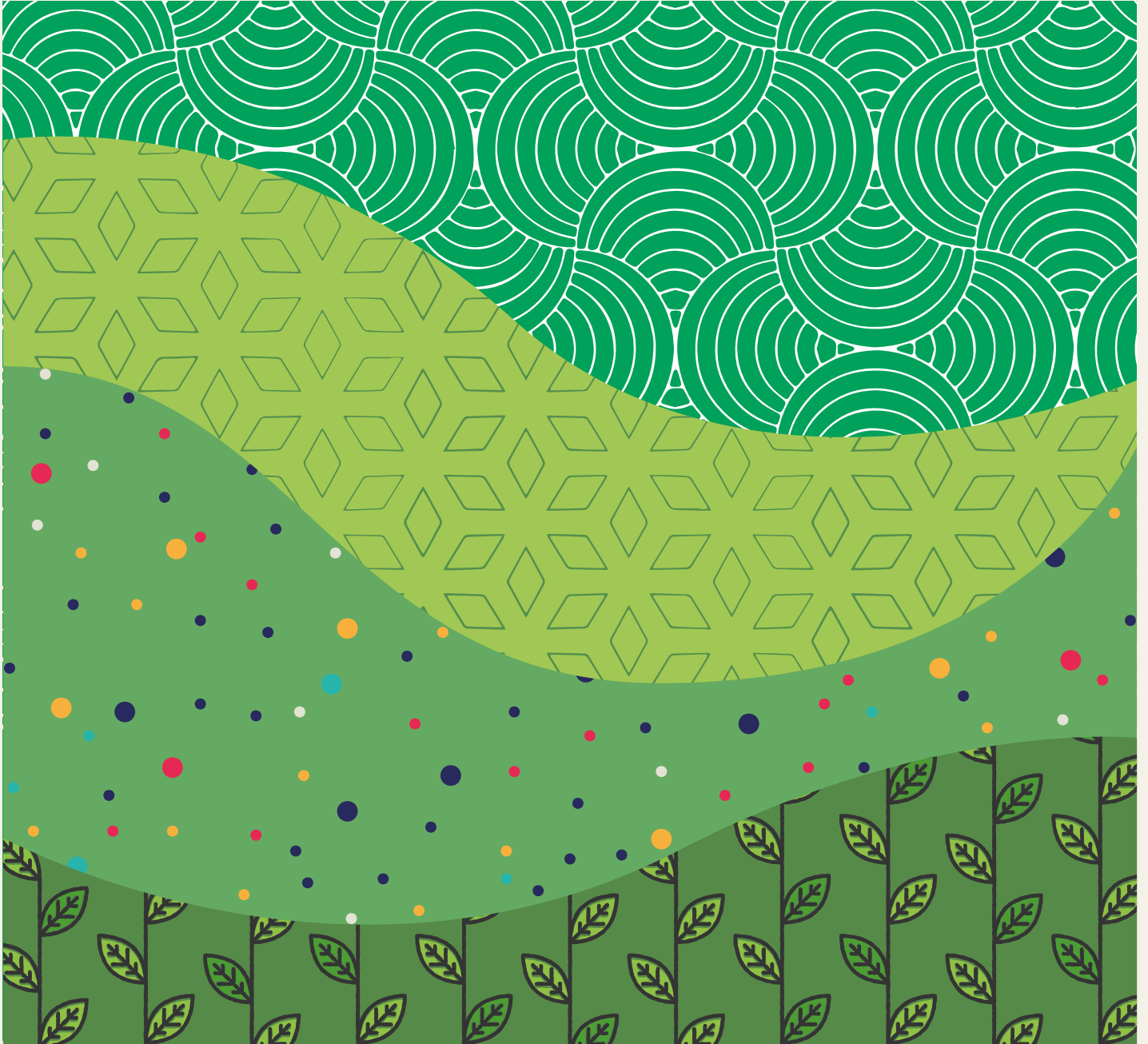
Dr. Tanushree Bhattacharya
Associate Professor, Birla Institute of Technology

Ms. Tanushree Ganguly
Program Lead, Council on Energy, Environment & Water
(CEEW)

Dr Atri Gangopadhyay
Governor-- East Chest Council of India

1:40 pm -1:55 pm	Q & A
1:55 pm -2:00 pm	Closing Remarks and Way forward
2:00 pm onwards	Lunch





Asar Social Impact Advisors Pvt Ltd

No 16, 7th Temple Road,
15th Cross Malleswaram
Bangalore, Karnataka- 560003

contact@asar.co.in

<https://www.linkedin.com/company/asar-social-impact-advisors/>