

Citizen Scientist Training Program in Patna: Empowering Locals for Hyperlocal Air Pollution Mapping



Citizen Scientist Training Program in session

Patna, Bihar, June 10, 2024 – The Bihar State Pollution Control Board (BSPCB), in collaboration with Development Alternatives (DA) and the United Nations Development Programme (UNDP) India, successfully hosted a ‘Stakeholder Consultation and Citizen Scientist Training Event’ on June 10th 2024, at the BSPCB, Parivesh Bhavan, Patna. This event marks a significant milestone in the hyperlocal mapping of Patna's air pollution and greenhouse gas (GHG) emissions, aiming to empower local communities to engage and enhance environmental monitoring.

The event commenced with a welcome address by S. Chandrasekar, IFS, Member Secretary of BSPCB, who underscored the importance of community involvement in combating air pollution. He highlighted the elevated levels of particulate matter (PM 2.5 and PM 10) in the Indo-Gangetic plains, originating from both anthropogenic and geogenic sources. While geogenic sources pose challenges for control, identifying and mapping anthropogenic sources can significantly aid mitigation efforts.

Mr. Chandrasekar emphasised that while Continuous Ambient Air Quality Monitoring Systems (CAAQMS) provide accurate macro-level (city-wide) data, this initiative, employing low-cost IoT sensors, will complement these efforts by providing micro-level hyperlocal data. This real-time data, accessible via a dashboard, will offer actionable insights for pollution mitigation and encourage multisectoral participation crucial for effective city-level planning.

Shubham Tandon, Analyst-Resilience at UNDP-India, introduced the project, emphasising its goals to create a hyperlocal dataset on targeted point and non-point sources of air pollution and measure emissions in Patna. He highlighted various initiatives by UNDP-India in mitigating air pollution, including the GeoAI intervention in the Bihar brick sector. He stressed the importance of deriving

actionable insights from the data collected through this project and formulating use case pathways to aid the board in implementing and monitoring effective mitigation strategies.

Dr. Soumen Maity, Vice President of Development Alternatives Group, delivered the keynote address, focusing on the innovative methods being deployed, such as citizen science and the use of IoT sensors for real-time Air Quality data collection. He emphasised, "By leveraging innovative technology and community involvement, we are confident that this project will set a new standard for air quality monitoring and mitigation through data-driven strategies in Patna."

Dr. Maity also spoke about DA's ongoing collaboration with BSPCB on various initiatives, including the formation of low-carbon development pathways for the Industrial and Brick sectors of Bihar. He added, "Our goal through this project isn't just to collect data, but to understand how this data can improve Patna's air quality. We aim to translate this information into actionable implementation strategies. Long-term partnerships are essential for identifying and implementing effective solutions in the state."

Dr. D.K. Shukla, Chairman of BSPCB, delivered a special address, reinforcing the government's commitment to improving air quality in Patna. He noted the increasing public awareness of air pollution and its significance. Dr. Shukla highlighted ongoing studies with IESD - BHU, IIT Kanpur, and IIT Delhi to identify the sources of air pollution in various districts of Bihar. He emphasized, "Hyperlocal mapping of air pollution in our city is crucial for identifying the sources that deteriorate Patna's air quality. With real-time data collection and validation efforts, we can derive immediate actionable insights to mitigate these issues effectively."



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The training sessions included a detailed presentation on the introduction to air pollution and the vital role of citizen scientists in air quality monitoring, led by Avinash Kumar, Program Officer at Development Alternatives. The training entailed a detailed session on the basics of air quality, the impacts of pollution, and a detailed explanation of the data collection categories, along with procedures to collect data. Dr. Dharendra Kumar, MD & CEO of Airshed, led demonstrations of air

quality sensors. Ambarish Narayanan from MistEO conducted training on the VAYU a UNDP mobile app, equipping participants with practical skills for data collection.

The event concluded with closing remarks from Dr. Naveen Kumar, Scientist at BSPCB. These newly trained volunteers will play a crucial role in collecting and analysing data on air pollution, providing invaluable insights into pollution patterns across the city, he added.

Looking ahead, this collaboration will deploy 50 low-cost air quality monitoring sensors across Patna city, targeting critical sources of air pollution. The data collected will inform policy and community actions to manage and mitigate air pollution arising from various sources in the city, ultimately contributing to a cleaner and healthier environment for all residents.