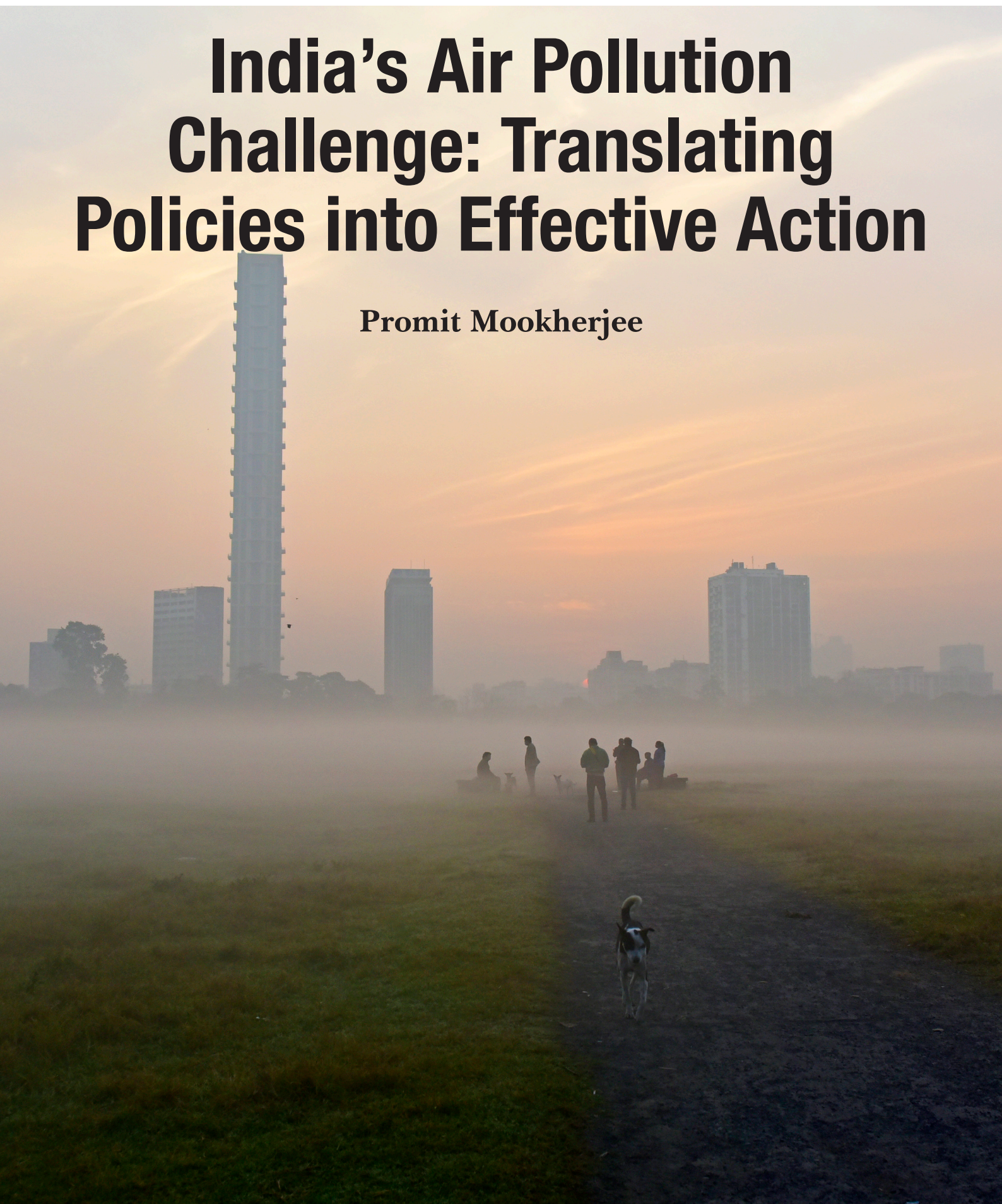


India's Air Pollution Challenge: Translating Policies into Effective Action

Promit Mookherjee



Introduction

Air pollution remains one of the biggest threats to India's environment and is a serious impediment to economic development. A *Lancet* study estimated that air pollution in India accounted for 1.7 million premature deaths in 2019, which is nothing less than 17.8 percent of the total deaths recorded in the country that year.¹ Both ambient particulate matter (PM) pollution and household air pollution contributed significantly to these deaths. The same study estimated that economic losses from premature deaths and morbidity amount to US\$ 37 billion annually or 1.36 percent of India's GDP.

Air pollution is a cross-sectoral problem with emissions originating from diverse sources. Particulate matter poses the biggest challenge, with emission levels continuously exceeding standards, particularly in urban areas. Industrial activities (36 percent) and residential combustion (39 percent) account for the bulk of PM_{2.5} emissions. The transport sector, concentrated largely in urban centres, adds another 4 percent although, being an on-ground source, its real impact on air quality is higher.²

Other pollutants, such as the oxides of nitrogen (NO_x) and of sulphur (SO_x), and ozone, are still within prescribed limits in India but are rising. Emissions of NO_x come mainly from the transport sector (35 percent), thermal power plants (22 percent), and the agricultural sector (15 percent). Emissions of SO_x are primarily from the industrial sector (49 percent) and power (43 percent). The patterns of emissions in urban areas are different from the overall national picture: road dust, construction activities, and transport are the main contributors to both PM_{2.5} and PM₁₀ emissions. The contribution of different sectors also changes with the seasons: for example, emissions from dust and construction in cities are higher in the winter, particularly in the north. Trans-boundary sources of emission also contribute sizeably to city pollution.²

In recent years, policymakers have paid more attention to the worsening air pollution. The National Air Quality Standards were established in 1982 and have been updated periodically to indicate appropriate air quality levels and provide a uniform basis for assessing them at the national level. The National Air Quality Monitoring Programme (NAMP) is being implemented to determine the status of ambient air quality and monitors compliance with prescribed standards. Perhaps the most significant step has been the announcement of the National Clean Air Programme (NCAP) for Indian cities in 2019. The plan mandates 122 cities with high pollution levels to devise city-specific action plans with the overall aim of reducing PM2.5 emissions by 20-30 percent by 2024 compared to 2017 levels.

Various central ministries have also implemented programmes to promote clean technologies in different sectors. Some notable schemes include the implementation of the BS-VI emission standard for motor vehicles, the National Electric Mobility Plan 2020, energy efficiency labelling for energy-intensive home appliances, and the Ujjwala Mission aimed at accelerating LPG penetration in households.

Despite these schemes, however, the *World Air Quality Report 2021^a* suggests that air pollution in India worsened in 2021, with average PM2.5 levels around 58.1 micrograms per cubic meter, more than 10 times the guidelines set by the World Health Organization (WHO).³ The report listed 63 Indian cities among the 100 most polluted in the world. The reasons for this are multiple. While policies have been announced with much expectation, their actual mandate remains weak – in particular, the NCAP has been criticised for lacking teeth. It has been implemented as a “cooperative and participatory” initiative rather than one with a legal mandate that can enforce strict compliance.⁴ The plan also lacks a clear fiscal and funding strategy, with budgetary allocations remaining stagnant and inadequate; only INR 390 crore is allocated in Budget 2022 for the programme.⁵ Nor has any effort been made to find innovative financial tools that would ensure dedicated funds for the programme.

a The report is published by Swiss air quality technology company, IQAir.

Even monitoring systems, the first step to framing effective policies, remain inadequate. In 2021, India had only 804 air quality monitors, which translates to about 0.14 monitors per million people, well below the numbers for other countries such as China (1.24), the US (3.4), and Brazil (1.8).^{6,7} Reports by the Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change have also stressed the need for greater budgetary allocation to combat air pollution, apart from better utilisation of funds and greater transparency on how NCAP will be funded.

What explains the lack of effective large-scale action on air pollution? To answer this question, Air Quality Asia (AQA) and the Observer Research Foundation (ORF) organised the 5th Annual Roundtable Consultation on Addressing India's Air Pollution Challenge, over two days, in February 2022. Participants included Members of Parliament (MPs), air quality experts, civil society stakeholders, and industry leaders.

The following paragraphs summarise the most essential themes discussed during the consultation.

a. Clean technologies have evolved rapidly, but financing and regulation lag behind.

The dependence on fossil fuels for powering industrial activity and transport is among the primary reasons for rising air pollution. In the last decade, cleaner technologies have evolved rapidly, leading to a massive reduction in cost of generation from renewable sources. Globally, the costs of solar energy, wind energy, and storage batteries have dropped by 85 percent since 2010;⁸ biomass and tidal power are further alternatives. The cost of solar generation, for instance, in some regions, has fallen below INR 2.50 per unit.⁹ While the focus has been on utility-scale solar, decentralised solutions such as rooftop solar are also becoming increasingly viable. These technologies need to be deployed at a faster pace.

In transport, both national and state governments are promoting low-polluting fuels such as compressed natural gas (CNG) and liquefied natural gas (LNG), as well as bio-fuels and electric vehicles (EVs), both of which are emission-free at the point of use. EVs, in particular, have substantial potential to reduce air pollution; they are already more cost-effective in the long run than their fossil fuel counterparts. The National Electric Mobility Mission Plan (NEMMP) and state-level EV policies provide substantial incentives to buy these vehicles. The increased blending of ethanol with petrol also provides an attractive low-emission alternative, which reduces oil imports and has the potential to create more farm-based jobs as well.

Though increasingly viable, the uptake of clean technology remains below optimum levels. The upfront cost is high, and the perception of high-risk hinders the large-scale flow of adequate funding. Financial institutions will need to step up the share of clean technologies in their portfolios. Public spending alone will not be enough; instead, the public sector should focus on crowding in private investment. This will entail greater collaboration with private investors to provide viability gap funding where needed and identify effective risk-sharing mechanisms. Public-private partnerships must also be refined and scaled up to ensure equal partnership of all parties. Immediate areas for improvement include reducing regulatory hurdles, better risk sharing, and smoother land acquisition.

The regulatory and governance structures around clean technologies have also not kept pace with technological progress. In the energy sector, the poor financial condition and lack of accountability of state-level distribution companies (discoms) means that regulations are often not implemented.¹⁰ Many discoms have been unable to fulfil their renewable purchase orders or make timely payments to generators, leading to a liquidity crunch for them and increased risk perception of renewable projects. A stronger regulatory mechanism and reform of the power sector will be essential. In transport, government actions have focused largely on fiscal incentives to create demand. Regulatory instruments, such as stringent energy efficiency standards and production mandates for zero-emission technologies and charging infrastructure are yet to be fully utilised. These could be essential to increase the uptake of cleaner fuels.

b. Public awareness must be increased to strengthen political will.

While there are many policies and programmes to tackle air pollution, their on-ground implementation is half-hearted. Programmes remain largely on paper due to lack of funding. One of the crucial reasons is that air pollution is still not a high-priority issue for policymakers. Participants at the roundtable agreed that this is related to lack of public awareness. An all-India survey by the *Association for Democratic Reforms* in 2018 in 524 constituencies on the governance issues that mattered most to the public found that air pollution was only 17th on their list of priorities, with just 11 percent of respondents mentioning it.¹¹


To remedy this, efforts need to be made to increase public awareness by effectively communicating the causal relationship between air pollution and the health of their families and their incomes. Air pollution should be included in the syllabus from the primary level to make children understand and communities hold their elected representatives accountable. At the same time, however, the issue should not be politicised. Instead, political parties should collaborate to give this problem the importance it deserves.

c. Cross-stakeholder cooperation should be improved.

No single stakeholder can tackle air pollution on their own. The need for cooperation is evident, considering 30 percent of urban pollution comes from sources outside city boundaries.¹² The asymmetric distribution of resources and knowledge among stakeholders needs to be overcome and duplication of effort, avoided. The union and state governments, and different state and local bodies, all need to coordinate their efforts.

The NCAP, too, highlights the importance of collaboration. This focus, however, is lacking in city-level action plans. A recent study found that none of the city-level action plans for the NCAP cities had a strategy for cross-state collaboration.¹³ An exception can be made of the Delhi government, which has in the past tried to work with adjoining states, particularly to address the issue of stubble burning. However, rather than focus on effective interventions, the discourse became one of blame-shifting. Eventually, both the Centre and the Delhi government were warned by the National Green Tribunal to focus on real solutions.

Participants at the roundtable agreed on the need for a cooperation forum to bring together multiple stakeholders. The forum should consolidate existing knowledge and the resources of different agencies across states to identify and fund holistic solutions. It should be structured in a way that it does not simply add another institution to an already complicated governance structure but complements the existing ones. There have been earlier attempts to create such a forum, but they failed to effectively engage the different stakeholders. Lessons from past experiences should be incorporated to create a new forum that will be more effective in the long run.

There was broad consensus at the roundtable that air pollution poses a serious threat to India's sustainable development targets. Solutions are known and available; what is lacking is their large-scale implementation. Political will must be strengthened, and focused on providing adequate funding and strong regulatory oversight. All stakeholders should come together to collaborate on finding long-term solutions as the cost of inaction is steep, and the lives of millions are at stake. 

Annexure

List of participants on Day 1 of the roundtable

Nitin Gadkari, Minister for Road Transport and Highways, Government of India.

Shashi Tharoor, Member of Parliament, Lok Sabha.

Priyanka Chaturvedi, Member of Parliament, Rajya Sabha.

Amar Patnaik, Member of Parliament, Rajya Sabha.

Rajiv Pratap Rudy, Member of Parliament, Lok Sabha.

Endnotes

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About the Author

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