

Air Pollution Mitigation: Essential for effective prevention and control of Non-Communicable Diseases in India

Summary

This brief explains the health and economic burden of air pollution in India and its linkages with major non-communicable diseases (NCDs) such as cardiovascular diseases (CVDs), chronic respiratory diseases (CRDs), cancers, diabetes and mental health conditions. India was ranked eighth in the list of world's most polluted countries, in 2022, with 39 out of 50 most polluted cities of the world being in India. Annual Particulate Matter (PM) 2.5 levels in India were nearly 10 times higher ($53.3 \mu\text{g}/\text{m}^3$) than the limits set by the World Health Organization (WHO) ($5 \mu\text{g}/\text{m}^3$). With the growing NCD burden in India (64% of deaths due to NCDs in 2019) a comprehensive national response to NCDs is incomplete without robust air pollution mitigation across the country. This brief highlights that exposure to air pollution results in wide-ranging damage to almost all organs of the human body and is a major risk factor for NCDs. There is a need to build a pan-India narrative around air pollution not just as an environmental issue for a few regions but, as a public health challenge that affects people across the length and breadth of the country. Air pollution is a year-long and there is a need of co-ordinated multi-stakeholder and multi-sectoral approach to tackle this dual burden of NCDs and air pollution in India. This brief provides recommendations to further strengthen the NCDs and air pollution action agenda.

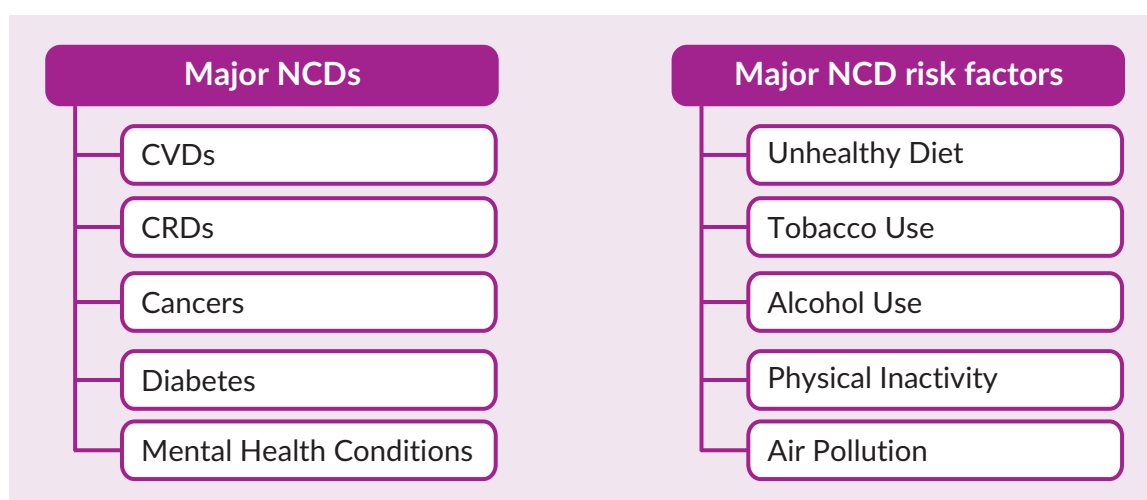
Linkages between NCDs and Air Pollution

Worldwide, air pollution is considered as one of the most serious risk factors which severely impacts the global population, and particularly the vulnerable populations including women, children, elderly and people living with chronic health conditions. Air pollution contributed to 11.7% of all deaths globally and 17.8% (1.67 million deaths) of the total deaths in India, in 2019.¹

***In 2021, 12 of the 15 most
polluted cities in the
Central and South Asia Region
were in India.²***

Before 2018, the 4X4 approach for NCD included CVDs; CRDs; cancers and diabetes as the major four NCDs and unhealthy diet, tobacco use, alcohol consumption and physical inactivity as the four major NCD risk factors. The Declaration of the third United Nations High Level Meeting (UN HLM) on NCDs, in September 2018 had highlighted critical areas of national, regional and global action on NCDs and there was a shift to a more comprehensive 5X5 approach.

Figure 1: 5X5 approach of NCD prevention and control³



The Global Action Plan for the Prevention and Control of NCDs (2013-2020) had put forth nine global targets to be attained by 2025 in order to reduce the preventable burden of morbidity and mortality due to NCDs. India was the first country to adopt the global NCD targets to its national context. The country had set a tenth target to reduce exposure to indoor air pollution by 50% relative reduction in household use of solid fuels as primary source of energy for cooking by 2025.⁴ In response to the growing NCD burden (74% of all global deaths and 64% of deaths in India, in 2019) addressing air pollution as a major risk factor is the need of the hour.¹ In India, out of the total deaths attributable to air pollution in 2019, the largest proportions were due to major NCDs like chronic obstructive pulmonary disease (COPD) (32.5%) and ischaemic heart disease (29.2%), followed by stroke (16.2%), lower respiratory infections (11.2%) and diabetes (3.8%).⁵ Coupled with the adverse health consequences, exposure to air pollution can also lead to economic burden on individuals, families, communities and the country as a whole.

The economic loss due to lost output from premature deaths and morbidity from air pollution was 1.36% of the Gross Domestic Product (GDP) in India, equivalent to INR 260,000 crores (US\$ 36.8 billion) in 2019.⁵

Programmatic and Policy Response to Air Pollution in India

To combat poor air quality levels in India, there are various Governmental policies and programmes in place. These programmes and policies are being implemented under the aegis of key ministries and agencies including the Ministry of Environment, Forest and Climate Change (MoEFCC), Ministry of Health and Family Welfare (MoHFW), Central Pollution Control Board (CPCB) and National Centre for Disease Control (NCDC).



Selected Air Pollution Mitigation Programmes in India

National Air Quality Monitoring Programme (NAMP)⁶

- Year of Launch- National Ambient Air Quality Monitoring (NAAQM) launched in the year 1984 later renamed as NAMP in 2009.
- Nodal Agencies/Ministries: CPCB, State Pollution Control Boards (SPCBs), Pollution Control Committees (PCC), National Environmental Engineering Research Institute (NEERI), Nagpur
- Objectives- To determine status and trends of ambient air quality and to keep a check on whether the prescribed ambient air quality standards are violated or not.

National Clean Air Programme (NCAP)⁷

- Year of Launch- 2019
- Nodal Agencies/Ministries: MoEFCC, CPCB, State Pollution Control Board (SPCB), Ministry of Road Transport and Highways, Ministry of Power, Ministry of Petroleum and Natural Gas, Ministry of New and Renewable Energy, Ministry of Heavy Industry, Ministry of Housing and Urban Affairs (MoHUA), Ministry of Agriculture, Ministry of Finance, MoHFW, NITI Aayog, experts from the industry, academia, and civil society.
- Objectives- To ensure stringent implementation of mitigation measures for prevention, and control of air pollution and to augment public awareness and capacity building measures on air pollution.

National Programme for Climate Change and Human Health (NPCCHH)⁸

- Year of Launch- 2019
- Nodal Agencies/Ministries: MoHFW, NCDC, Centers of Excellence (CoE)- All India Institute of Medical Sciences (AIIMS), New Delhi, Postgraduate Institute of Medical Education and Research (PGI), Chandigarh, Vallabhbhai Patel Chest Institute (VPCI), Public Health Foundation of India (PHFI)
- Major objectives under this programme includes creating general awareness among vulnerable communities like children, women and marginalised population, healthcare providers and policy makers regarding impacts of climate change on human health.
- Capacity Building of programme officials/staffs through trainings and development of training modules on air pollution and health are other important components of this programme.

Selected Air Pollution Mitigation Programmes in India

India is home to more than 24 crore households out of which about 10 crore households are still deprived of Liquefied Petroleum Gas (LPG) as cooking fuel and use solid fuels like coal, firewood, dung cakes, etc which is the major source of indoor air pollution.⁹ Few selected programmes addressing indoor air pollution includes:

PAHAL (Pratyaksh Hanstantrit Labh) Gas Scheme¹⁰

- Year of Launch- 2013
- Nodal Agencies/Ministries: Ministry of Petroleum and Natural Gas
- The scheme aims to benefit LPG consumers by directly transferring the subsidy amount to their respective bank account to enable the consumers to access affordable LPG connections without any issue and thus promoting the usage of cleaner fuels.

Unnat Chulha Abhiyan¹¹

- Year of Launch- 2014
- Nodal Agencies / Ministries: Ministry of New and Renewable Energy
- The objective of this programme is to develop and deploy improved biomass cookstoves for providing cleaner cooking energy solutions in rural, semi - urban and urban areas using solid fuel for cooking.

Pradhan Mantri Ujjwala Yojana (PMUY)¹²

- Year of Launch-2016
- Nodal Agencies / Ministries: Ministry of Petroleum and Natural Gas
- PMUY aims to minimize health issues arising from the use of unclean fossil fuel and to control indoor pollution.

Selected Sub-national Standards, Policies and Rules focusing on Air Pollution

Graded Response Action Plan (GRAP) (2017)¹³	To curb the air pollution and maintaining the air quality in National Capital Region of Delhi, a Graded Response Action Plan has been prepared for implementation under different AQI categories namely, Moderate & Poor, Very Poor, and Severe along with a new category of "Severe+ or Emergency.
Comprehensive Action Plan (CAP) (2017)¹⁴	Comprehensive action plan aims to identify the short-term priority actions, as well as the long-term goals to present a pollution source-wise action plan.
Odd Even scheme in Delhi (2017)¹⁵	According to the scheme, all private vehicles, except two-wheelers will be allowed to run across the city based on their registration numbers (odd or even).

Other initiatives in India to mitigate Air Pollution

Climate and Clean Air Coalition (CCAC): India has joined CCAC and is the 65th country to join the partnership, in 2019. The coalition will work with coalition of other countries to adopt cleaner energy, environment-friendly transport and proper agriculture and industrial waste management to promote clean air.¹⁶

Country Partnership Framework (CPF): CPF, India was developed as a result of strong collaboration between the World Bank Group (WBG) and India. The programme is introducing tools to support state and regional air quality management approaches.¹⁷

Need of Multi-pronged Approach to Mitigate Air Pollution as a risk factor for NCDs

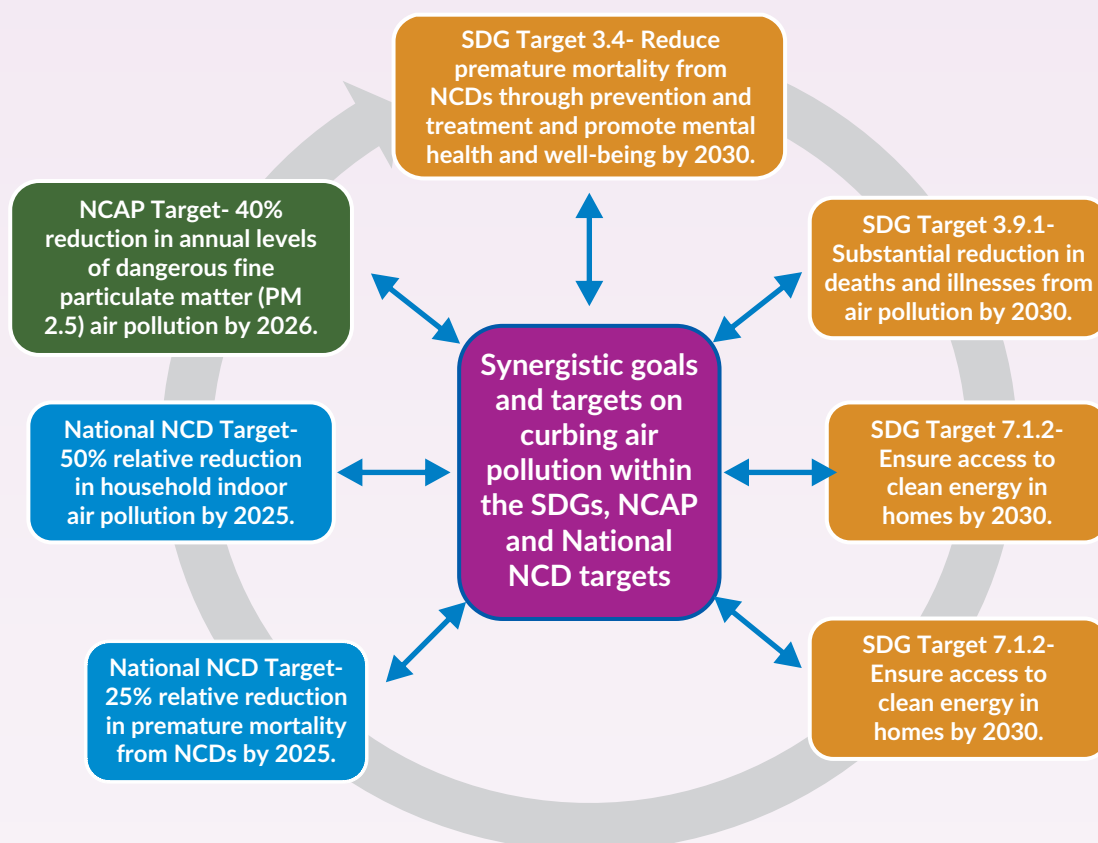
The multi-faceted challenge of air pollution in India warrants a multi-stakeholder and multi-sectoral approach towards its mitigation. Departments of the National and State Governments, key sectors like health, environment, transportation, power, petroleum, rural and urban development, agriculture, and finance, need to act towards a common goal of clean air. These arms of the Government must be supported by other key stakeholders such as: Civil Society Organisations (CSOs), people with lived experience (living with one or more NCDs), communities adversely impacted by air pollution, youth, research scientists, economists, healthcare professionals and the private sector.



Key Recommendations

It is clear that a comprehensive national response to NCDs is incomplete without robust air pollution mitigation across the country. However, there is a need to build a pan-India narrative around air pollution not just as an environmental issue for a few regions but, as a public health challenge that affects people across the length and breadth of the country. It is also essential to operationalise a long-term, sustained and multi-component strategy for air pollution mitigation and not just sporadic seasonal measures. Key recommendations are summarised.

Synergistic goals and targets on curbing air pollution within the Sustainable Development Goals (SDGs), NCAP and National NCD Targets (Image Source- HRIDAY)



Prioritising multi-stakeholder and multi-sectoral coordination to address air pollution as an urgent NCD and public health issue

- ◆ Advancing inter-ministerial and inter-departmental coordination between key sectors including environment; health; transportation; urban affairs; rural affairs; finance; power; petroleum and natural gas.
- ◆ Establishing synergy and integration between key NCD and air pollution centric programmes of the Government, including NAMP (MoEFCC), NCAP (MoEFCC), and NPCCHH (MoHFW).
- ◆ Channelising efforts of key NCD prevention and control stakeholders towards achieving the national NCD target of 50% relative reduction in household use of solid fuels as a primary source of energy for cooking.
- ◆ Garnering multi-stakeholder support for expanding the national NCD target to encompass both indoor and outdoor (ambient) air pollution.
- ◆ Convening multi-stakeholder taskforces, at the national and sub-national levels comprising of experts in NCDs/public health and air pollution/atmospheric sciences, including representatives from the Government; UN partners; research scientists; medical professionals; urban local bodies; civil society; people with lived experience/people living with NCDs affected by air pollution; youth; communication and health promotion specialists and the community at large.
- ◆ Integrating the expertise people living with NCDs affected by air pollution as key stakeholders in decision making processes.

Strengthening the evidence base for multiple pathways linking NCDs and air pollution

- ◆ Expanding the local evidence base linking the adverse health outcomes of exposure to indoor and outdoor (ambient) air pollution to major NCD including CVDs, diabetes, cancers (apart from lung cancer) and mental health conditions.
- ◆ Generating robust research evidence on the negative consequences of air pollution leading to economic and agricultural losses and further exacerbating vulnerabilities and socioeconomic disparities among marginalised populations.
- ◆ Rolling-out a health surveillance-based system to quantify the health benefits of air pollution mitigation strategies and vice-versa, the health risks (including NCDs) of unchecked exposure to air pollution.

Capacity building of key stakeholders to advance robust action on NCDs and air pollution

- ◆ Strengthening research capacity through cross-pollination and knowledge sharing between NCD/public health researchers and air pollution scientists, to foster integration in policies and programmatic interventions.
- ◆ Sensitising medical associations and professionals beyond pulmonologists, including cardiologists, endocrinologists, neurologists, psychiatrists, gynaecologists, paediatricians, community medicine specialists and others, to render advice on precautions for minimising health impact of air pollution exposure.

References

1. GBD Results. Institute for Health Metrics and Evaluation. [cited 2023 Mar 25]. Available from: <https://vizhub.healthdata.org/gbd-results/>
2. IQAir. World Air Quality Report. 2022. Available from: <https://www.iqair.com/in-en/newsroom/worldairquality-report-press-release-2022>
3. United Nations System Standing Committee on Nutrition. Third United Nations High-level Meeting on NCDs [Internet]. 2018. Available from: <https://www.unscn.org/en/topics/ncds?idnews=1835>
4. Noncommunicable diseases. Global action plan for the prevention and control of NCDs 2013–2020 [Internet]. Who.int. World Health Organization; 2013 [cited 2023 Mar 25]. Available from: <https://www.who.int/publications/i/item/9789241506236>
5. India State-Level Disease Burden Initiative Air Pollution Collaborators. Health and economic impact of air pollution in the states of India: The Global Burden of Disease Study 2019. Lancet Planet Health. 2021 [cited 2023 Mar 25];5(1): e25–38. Available from: [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(20\)30298-9/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30298-9/fulltext)
6. CPCB | Central Pollution Control Board. (2021). CPCB. Available from: <https://cpqb.nic.in/about-namp/>
7. Climate Change. National Clean Air Programme. Gol. [cited 2023 Mar 25]. Available from: https://moef.gov.in/wp-content/uploads/2019/05/NCAP_Report.pdf
8. Ministry of Health and Family Welfare-Government of India. National programme on climate change & human Health (NPCCHH). Gol. [cited 2023 Mar 25]. Available from: <https://www.ncdc.mohfw.gov.in/index1.php?lang=1&level=2&sublinkid=877&lid=660&Background=Dark&font=Increase>
9. Pradhan Mantri Ujjwala Yojana: A Giant Step Towards Better Life For All [Internet]. Gov.in. [cited 2023 Mar 25]. Available from: <https://pib.gov.in/newsite/printrelease.aspx?relid=148971>
10. Marketing – PAHAL [Internet]. Gov.in. [cited 2023 Mar 25]. Available from: <https://mopng.gov.in/en/marketing/pahal>
11. Government making efforts to reduce dependence on traditional biomass cooking [Internet]. Gov.in. [cited 2023 Mar 25]. Available from: <https://pib.gov.in/PressReleaseSelfPage.aspx?PRID=1525934>
12. Pradhan Mantri Ujjwala Yojana: A Giant Step Towards Better Life For All [Internet]. Gov.in. [cited 2023 Mar 25]. Available from: <https://pib.gov.in/newsite/printrelease.aspx?relid=148971>
13. Lanka S. Graded Response Action Plan (GRAP): The Solution to Delhi's Air pollution. 2019 [cited 2022 Jan 7];1–12. Available from: <https://www.aqi.in/blog/graded-response-action-plan-grap-the-solution-to-delhis-airpollution/>
14. Comprehensive Action Plan for Air-pollution Control with the Objective to Meet Ambient Air Quality National Capital Region, including states of Haryana, Rajasthan and Uttar Pradesh. 2017; Odd-Even rule back in Delhi: Here's all you need to know about the scheme. The Indian Express [Internet]. 2019 Sep 13 [cited 2023 Mar 25]; Available from: <https://indianexpress.com/article/cities/delhi/odd-even-rule-in-delhi-pollution-all-you-need-to-know-about-the-scheme-5991996/>
15. India joins the Climate and Clean Air Coalition [Internet]. [cited 2022 Jan 7]. Available from: <https://www.unep.org/news-and-stories/press-release/india-joins-climate-and-clean-air-coalition>
16. Country Partnership Framework for India [Internet]. Worldbank.org. [cited 2023 Mar 25]. Available from: <https://www.worldbank.org/en/cpf/india>

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