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## **Treat air pollution as a health problem**

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The unprecedented COVID pandemic has shown that every citizen willingly contributes to the fight against a problem that not only has a direct consequence on our health, but the impact is visible. While quantifying the magnitude of such impacts attributed to any risk factor is the domain of the scientists, the visibility mediates the urgency of action to alleviate the problem. Because air pollution is a silent killer, the urgency of the battle against air pollution is not fully realized.

### **Air pollution is a risk factor, not a disease**

Often the question is raised about the conclusive evidence of air pollution exposure impact on the Indian population. Numerous studies exist in developed countries establishing how exposure (both short and long-term) to air pollution leads to various diseases. There is no scientific basis to believe that the Indian population may be immune to air pollution and not get impacted the same way. The only difference could be the magnitude of the impact because of the different socio-economic conditions in India, for which we have little direct evidence. However, as Professor Kirk Smith (a public health champion who passed away recently) used to say, “absence of evidence is not evidence of absence”. It is just that India has not invested enough in finding the evidence.

To map the global health and prioritize the relative importance of various risk factors, the Global Burden of Disease (GBD) effort<sup>1</sup> was initiated. After years of deliberation and debate, India finally initiated state-level disease burden<sup>2</sup>, which provided the best possible estimates of the health impacts of air pollution<sup>3</sup>. Many new studies are either conducted in recent times or are in progress enriching the local evidence pool. Surely, the impacts will improve in future with better data and model (just like the skill of weather forecasting has improved over the years), but the India GBD exercise has established air pollution as the second largest risk factor demonstrating the urgency with which the issue needs to be resolved.

It is important to understand that air pollution is a risk factor (like ‘smoking’) and not a disease. That is why no death certificate mentions ‘air pollution’ or ‘smoking’ as a cause of death; rather it mentions lung cancer or heart attack that may be attributed to ‘air pollution or ‘smoking’ or to some other risk factor following the unified framework evolved by the GBD exercise. After decades of efforts, the risk of ‘smoking’ is accepted unanimously. It is high time for accepting the same for ‘air pollution’.

### **Mitigation measures must ensure health benefits**

The staggering health burden of air pollution and relentless advocacy has led to the launch of the National Clean Air Program (NCAP) by the Government of India. This is an important milestone as it recognizes air pollution as a national problem. However, the NCAP alone with its urban-centric plan is not sufficient to resolve the problem, as recent studies<sup>4,5</sup> showed that the single largest contribution to outdoor air pollution at a national scale is the household emissions. It is, therefore, important for India to (1) ensure effective implementation of Pradhan Mantri

Ujjwala Yojana and Deen Dayal Upadhyay Gram Jyoti Yojana to eradicate emissions from household fuel use, (2) unify these programs, and (3) evolve an infrastructure to track the progress of implementation. Without any rural monitoring, it seems to be difficult as the ground-based air quality monitoring network is only limited to the cities. Although the network is being expanded under the NCAP, estimates<sup>6</sup> suggest that India needs to invest almost a billion USD to establish and maintain a robust network of reference-grade monitoring across the country. India must take advantage of advancements in alternate monitoring techniques (satellite, low-cost sensors and models based on deep learning, etc.) and evolve a hybrid monitoring system to generate robust evidence of an improvement in air quality linked to these social programs.

Nearly three-fourths of the Indian population breaths air that has fine particulate matter (that penetrates our lungs when we breathe) level above the national standard, which itself is four times higher the World Health Organization (WHO) air quality guideline (AQG). We must realize that meeting national standard does not ensure zero risk and therefore, the ultimate target should be meeting WHO-AQG. While any improvement is a step forward, it is meaningless unless conclusive evidence of health benefits from various ongoing and proposed interventions is established.

### **India should invest in air quality health impact research**

Epidemiologically, the role of particle toxicity on health risk is yet to be understood. India should invest in exploring this link in future with well-designed long-term cohort studies. Such efforts require an interdisciplinary approach, often missing in the Indian funding ecosystem. Control measures on the key air pollution sources are expected to reduce co-emitted greenhouse gas emissions and thereby provide opportunities for climate co-benefits.

In the present circumstances, meeting the national standard seems to be a daunting task. Unless air pollution is treated as a health problem, the seriousness with which the problem requires to be addressed will never be realized. We should learn from the international experience and believe that cleaning up the air along with economic growth is achievable with technological interventions and strict compliance. We must act now before it is too late for our future generations.

### **Recommended reading**

1. <http://www.healthdata.org/gbd>
2. <https://phfi.org/wp-content/uploads/2018/05/2017-India-State-Level-Disease-Burden-Initiative-Full-Report.pdf>
3. Balakrishnan et al. (2019), *The Lancet Planetary Health*, 3(1), 26-39.
4. Chowdhury et al. (2019), *Proceedings of the National Academy of Sciences of the United States*, 116(22), 10711-10716.
5. <https://ccapc.org.in/policy-briefs/2019/5/30/the-contribution-of-household-fuels-to-ambient-air-pollution-in-india-a-comparison-of-recent-estimates>
6. Brauer et al. (2019), *Atmospheric Environment*, 216, 116940.