Road to Meeting India's National clean air goals: Hurdles & Solutions

Recommendations from the Discussion

More than three years into India's **National Clean Air Programme (NCAP)**, central and state governments have taken multiple mitigation measures to reduce air pollution. But, India's air pollution problem is much more complex. Air pollution management in India requires a multi-institutional approach integrating technological and long-term solutions at the core. With just two years remaining to meet India's NCAP targets of reducing up to 30% particulate matter levels in more than 130 non-attainment cities, time is running out fast.

The National Knowledge Network (NKN) was established two years ago to create a network of academic knowledge partners who can support the State Pollution Control Boards (SPCBs) and the Urban Local Bodies (ULBs) in facilitating research and act as an advisory body for improved implementation of the NCAP at the ground level. While Memorandum of Understanding (MoUs) have been signed with more than 100 Institutes of Repute (IoRs) across the 23 states where NCAP is applicable, the frameworks of engagement need to be shaped better for smoother institutional engagement.

Recent ground research proves that there is a disconnect in the understanding of the relevance and scale of the problem in the ULBs and their role and awareness in tackling this crisis. The gaps in these linkages towards effective ground implementation are one of the key factors which require strengthening. Multidimensional coordination is required along with the political will and administrative compliance and action for effective mitigation.

Climate Trends recently organised a virtual discussion with 14 key representatives from implementing agencies responsible for managing India's air pollution crisis, to understand the progress being made under the NCAP, across a range of parameters like air quality monitoring, capacity building of implementing agencies, policies for mitigation efforts, recruitment of well-trained staff, resource deployment, transparency in data and public awareness efforts to control the health impacts.

The individuals discussed **how the NKN structure be strengthened for effective implementation by local authorities** and **the institutional challenges and solutions for implementing agencies**.

Key Takeaways and learnings

- There has been a substantial change in the overall strategy of the country's air quality management efforts over the last decade. Policies are now based on science, driven by data analytics and inputs from the scientific community are invited. Air pollution is no longer considered a seasonal or local problem and states need to address it through an airshed approach for better results.

- **Continuous engagement** between IORs and implementation agencies is essential to keep up the momentum on NCAP. The interactions must help create emission inventory, better monitoring, identify hotspots and propose interventions.
- **Technology-based interventions** need to be adopted faster and made affordable to help enhance the enforcement capacities of implementation agencies. These can also be used to ensure transparency in data sharing and enhance public participation in the effort to reduce air pollution. Technology can also be used to create better monitoring and evaluation systems to check on-ground implementation. Technological innovations can be identified by NKN and eventually be considered for funding from the MoEFCC.
- **Knowledge sharing** must be encouraged among IORs, implementation agencies and other stakeholders to ensure a successful effort or solution can be replicated in other cities or states. Through NKN, bigger IORs must capacitate local IORs to help ULBs for day-to-day monitoring and implementation of the NCAP. NKN must facilitate regional regional meetings with IORs who can help modify, rethink or rephrase activities and midterm course correction.
- Control efforts like smog towers cannot be viewed as long-term solutions and source control should be the primary objective. This must be backed by a **techno-economic model** where technology deployed makes source control economically feasible.
- There are **resource limitation**s for both implementation agencies and IORs. While implementation agencies and states are already looking for funding support beyond the government sources, formal agreements between the IORs and Urban Local Bodies are needed. This will enable IORs to receive compensation and dedicate personnel and capacity toward NCAP thereby making the model more sustainable.
- IORs require funding for equipment and personnel and hence **financial commitments** are crucial. An air quality action forum can be set up to enable all stakeholders to explore funding opportunities from corporates, philanthropies etc. NKN could also assist IORs when technical support is needed.
- **Synergies between the government, expert institutions and civil society** are essential to be able to better utilise resources. Government departments must improve interactions within themselves for better convergence and coordination. A need assessment must be undertaken so IORs know what the ULBs need and expect from them. IORs must engage more closely with the ULBs to understand on-ground realities.
- **Need a paradigm shift in air quality monitoring systems** which will be more transparent, accurate and prompt. This could help the implementing agencies better identify sources. Monitoring of PM 2.5 must also be strengthened by the PCBs across cities. To expand NCAP's scope beyond the non-attainment cities, alternative measurement techniques like low-cost sensors, mobile monitoring vans and satellite data must be explored. Hybrid measurement studies can be considered going forward.
- IORs must use the engagement as **an opportunity to strengthen their own systems.** Personnel with interest and expertise in air quality must be brought on board to encourage research and work beyond NCAP. Beyond the requirements of the ULBs, IORs must also use their expertise to suggest air pollution mitigation based on scientific evidence.

- **All cities need a framework for assessment** to determine pathways to achieve the air pollution reduction targets. For instance, NASA's satellite-based trend assessment of atmospheric pollution over the Indo-Gangetic Plain (IGP). A performance matrix must be developed for annual evaluation.
- Research must be used to **bring health to the forefront** in the fight against air pollution. Health organisations or government bodies must be engaged to include health in the planning stage of air pollution reduction policies. The health perspective can be integrated in the performance matrix along with PM level reduction.
- There must be a **training or capacity-building program** for all three parties - IORs, ULBs, and PCBs to exchange ideas, set expectations and create a mechanism to operate. All ULBs should have their air quality management cells which include scientists.
- Any **relevant research from the IORs must be shared with ULBs** and others to create awareness about the subject. Scientific studies and other material needs to be taken to various departments because currently there is a huge roadblock in understanding the subject, control measures, fund requirement and infrastructure requirement.