Funding opportunities

to support clean air action across India

sensinglocal

SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

sensinglocal

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This report - *'Funding opportunities to support clean air action across India'* has been commissioned by **Shakti Sustainable Energy Foundation** and created by **Sensing Local**.

AUTHORS:
Sensing Local: **Ankit Bhargava, Sobia Rafiq, Rashmi Krishnan**
Shakti Sustainable Energy Foundation: **Aishwarya KS**

REVIEWER:
Shakti Sustainable Energy Foundation: **Shubhashis Dey**

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Shakti Sustainable Energy Foundation

Shakti Sustainable Energy Foundation works to facilitate India's transition to a cleaner energy future by aiding the design and implementation of policies that promote clean power, energy efficiency, sustainable transport, climate policy and clean energy finance

Website: www.shaktifoundation.in

Sensing Local

Sensing Local, an 'Urban Living Lab' (ULL) based in Bengaluru serves as a site for city observation, learning and innovation with a specific focus on improving the state of environment and public health. As a practice, it serves as an in-between-step that formalises learning and experimentation in the urban context to achieve impact at a faster pace for the largest section of society. The prime thrust of the Living Lab is to act as a catalyst for the city's ecosystem of decision-makers, and 'break through' the trap of repetitive, fragmented and myopic actions.

Website: www.sensinglocal.in

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Methodology

The report identifies funding opportunities in the air quality sector in India that have been determined using three primary sources of information. The recent report '*Building a thriving ecosystem to tackle India's air pollution problem*' that looked at mapping and assessing India's air quality ecosystem has served as the starting point for this study. This report captured detailed inputs from 87 air quality actors across the country about the challenges they face in their work and their priority concerning top workstreams to be funded. These were assimilated to create a long list of funding opportunities in the sector, categorised into themes, and organised as per the key needs of the ecosystem. This framework is used to structure the report.

It was followed by interviews with air quality actors with the specific domain expertise to fill in knowledge gaps. Further, these opportunities were presented at the India Air Quality Convening 2021 that included domestic and global philanthropies and several other organisations that work on air quality in India. The inputs from information sessions and specific feedback in the convening have also been assimilated into the final report.

Abbreviations

A-PAG : Air Pollution Action Group

ADRI : Asian Development Research Institute

AQ : Air quality

CAAQMS : Continuous Ambient Air Quality Monitoring Stations

CEE : Centre for Environment Education

CEED : Center for Environment and Energy Development

CEEW: Council on Energy, Environment and Water

CEMS : Continuous Emission Monitoring

CPCB: Central Pollution Control Board

CSTEP : Center for Study of Science, Technology and Policy

ICMR : Indian Council of Medical Research

IHME : Institute for Health Metrics and Evaluation

IIPH : Indian Institute of Public Health

ICC : India Climate Collaborative

IoR : Institute of Repute

MOEFCC : Ministry of Environment, Forest and Climate change

NCAP : National Clean Air Programme

NGT : National Green Tribunal

NKN : National Knowledge Network

NRDC : National Research Development Corporation

PCB : Pollution Control Board

PHFI : Public Health Foundation of India

SPCB : State Pollution Control Board

ULB : Urban local body

WRI : World Resources Institute

Summary of funding opportunities in the air quality sector

Responding to needs of the stakeholders, associated thematics & interconnections within

Capacity building

Need: Invest in capacity building across the sectors and different actors towards creating a local skilled workforce at a national level.

- **#1** Align with National Knowledge Network to support the creation of training material
- **#2** Provide technical support to government agencies
- **#3** Support participatory processes in planning and policymaking
- **#4** Build capacity in civil society organizations on how to use AQ data and citizen science for air quality monitoring

Ecosystem building

Need (A): Create new avenues that facilitate alignment, coordination and collaboration

- **#5** Support opportunities for engagement of private actors/social enterprises/start-ups with government
- **#6** Build community resource portals

Need (B): Development of a robust local and sectoral ecosystem

- **#7** Create city, regional, national and sector coordinators to drive collective action
- **#8** Support field building to widen the ecosystem across different geographies, sectors and types of stakeholders

Co-ordinators can help play an enabling role to support participatory processes

Data repository could be linked to the community resource portal

Co-ordinators can help liaison with government

Communication

Need: Support more voices and perspectives for air pollution

- **#9** Increase participation of vulnerable groups such as citizens, school children, marginalized communities.
- **#10** Support forums for the medical community to be vocal advocates of public health
- **#11** Train scientists and researchers to actively engage in public discourse
- **#12** Promote art as a medium of public engagement
- **#13** Facilitate media engagement on AQ beyond the English-speaking, middle-class and Delhi centric bubble

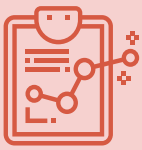
Air quality governance & management

Need (A): Regulation and management of regional pollution

#19 Support studies to develop strategies for regional air-shed management

Need (B): Augment compliance to emission standards across polluters in different sectors

#20 Engage with government and private stakeholders to ensure compliance



Data and Knowledge

Need: Aggregate available knowledge and assemble more complete data sets to aid informed decision making

Access to open data

Case studies for low cost monitoring

#14 Build a unified data and knowledge directory

#15 Map and aggregate low cost sensor networks, data and its use cases

AQ funding

Need (A): Augmenting ULB's AQ budgets

#21 Unlock larger funds for AQ through cross sectoral opportunities

Need (B): Augment support from domestic philanthropies & make grants available for all actors

#22 Pool in allied funds for air quality

Health

Need: Strengthen the link between air quality and health through creation of new evidence and better messaging

Leveraging doctors as trusted voices

#16 Support health studies with India based cohorts that investigate the impact of air pollution

#17 Aggregate and simplify learnings from health impact studies

#18 Build a health advisory system

Thematic

Capacity Building

Need

(A) Invest in capacity building across the sectors and different actors towards creating a local skilled workforce at a national level

#1

Funding opportunity

Align with National Knowledge Network to support the creation of training material

The National Knowledge Network (NKN) is currently designing certification-based graded skilling modules linked to the national skill development council. One of the primary recipients will be government officials at the city level, including the ULB and related departments. They are now the epicentre of the implementation of air quality action. Air quality presents itself as a new area for work and accountability for these officials who currently lack the required capacity and technical skills to undertake it.

Areas for capacity building within the skilling programme include:

- Build an understanding of air pollution, the contributing sources and associated health impact
- Tasks and operations as per responsibilities and reporting protocols
- Optimization and automation of data collection and data management

Philanthropy has a critical supporting role to play in two key ways:

1. **Enrich the quality of the skilling programme** by bringing in global expertise and sharing learnings from their efforts towards capacity building.
2. **Support widening the outreach and scaling these modules across the country**.
    - Within government, support engagement to convert knowledge for action at all the tiers of officials and bridge gaps through contextualization.
    - Translate and augment NKN's skilling programmes for capacitating existing and upcoming non-government entities, consultancies, NGOs, and other civil society groups engaged in the air quality sector. Doing so is critical since civil society does and will continue to make up the bulk of the ecosystem.

While there are some parallels in the nature of capacity building and training required for government officials and non-government entities, several aspects will be specific to each of the two types of stakeholders.

Other aspects to note here are the following:

- Historically, public funds often tend to be allocated to capex heavy aspects like infrastructure building or equipment. In contrast, very little gets utilized on softer aspects such as capacity building and training.
- 42 of the 132 NCAP cities that have been recipients of the 2200 Cr grant released under the 15th Finance Commission can offer a starting point for capacity building.
- Capacity building will have to be about skilling and not just knowledge exchange. So far, such efforts have also been very technology-focused and do not address the political, economic, health, or sociological aspects of air pollution. For example, air quality budgeting needs to be strengthened, and expertise needs to go beyond measurement or source apportionment or emissions inventories.

#2

Funding opportunity

Provide technical support to government agencies

In addition to capacitating government agencies through skilling programmes, they will also require technical and scientific support in their day to day air quality work at the following levels:

1. **National level:** Work with Ministry of Environment, Forest and Climate change (MOEFCC) and Central Pollution Control Board (CPCB) on measuring and reporting improvements
2. **State level:** In addition to the domain based expertise for air quality actions, State Pollution Control Boards (SPCBs) also need support in streamlining and automation for data collection processes and creation of GIS and data cells. There continues to be manual data collection taking place. PCBs also require capacity building with regard to source apportionment (SA) studies and emissions inventories (EI) as these exercises have been undertaken by the IoRs. Another reason for this is that a challenge remains that even SA and EI studies for the same city often have different assessments.
3. **City (ULB) level:**
    - Strengthen planning and implementation decision
    - Effective utilization of AQ funds, accounting for actions across departments where air quality may not be the primary objective
    - Support inter-agency coordination at city level and fulfilment of compliance mandates from CPCB, NGT and other central level institutions

Examples of on-going efforts

Asian Development Research Institute (ADRI) is working with partner organizations in Bihar to support the PCB in informing air quality actions. World Resources Institute (WRI) is engaging in Surat to support local government agencies in implementing city action plans.

Thematic | Capacity Building

Need | Invest in capacity building across the sectors and different actors towards creating a local skilled workforce at a national level

#3

Funding opportunity

Support participatory processes in planning and policymaking

The two key national programmes National Clean Air Programme (NCAP) and National Knowledge Network (NKN), have not currently made provisions for active involvement of civic society or other air quality actors, particularly at the city level. Hence, there is a need to create programmes that help institutionalise participatory processes in planning and policymaking efforts. City action plans are instrumental to driving air pollution reduction across the country that are now going into the implementation phase.

There are three sets of anchors that will drive decision-making in the future. These include SPCBs responsible for coordination between inter-agencies actors, ULBs that are implementing agencies for action plans, and Institutes of Repute (IoR), appointed as the knowledge partners to provide technical guidance for air quality action plans.

The way city action plans have been created is evidence of the lack of multi-stakeholder participation that has driven the government's plan-making. Many of the action plans have been copy-paste jobs, and in other cases, they are informed by a select few technical experts. While a few organisations have orchestrated stakeholder sessions, it is also unclear how much they have incorporated comments by non-governmental actors.

There are currently no formal, open channels to engage with the government agencies on air quality monitoring, regulation, and planning. The existing trends are an antithesis of what is needed to tackle air pollution, given the scale and complexity of the issue. These are greater ownership by decision-makers and public alike, higher alignment, coordination and collaboration between government and non-government efforts, research and action, and across sectors.

The decision-making processes need to be made inclusive because air pollution is not just an environmental issue but also a health and social justice crisis. Unless there are dedicated attempts to correct this trajectory, the action plan implementation and utilisation of the limited budgets are also likely to follow the existing trends. Institutionalising participation in research, planning and action within the government towards will enable:

- Creation of communication channels for continuous interaction between governmental and non-governmental actors in the ecosystem.

- Ground-up prioritisation of issues
- Informing of the practical feasibility of solutions and expected impact
- Bringing higher transparency and building greater trust
- De-risking and future-proofing of solutions while also ensuring they will have higher buy-in
- Offer multiple entry points for prospective collaborations
- Local and regional coordinators can play a crucial role to enable this, as elaborated in funding opportunity #7.

#4

Funding opportunity

Build capacity in civil society organizations on how to use AQ data and citizen science for air quality monitoring

Civil society actors play a key role in raising issues, informing solutions, and holding the government accountable. They need to be equipped with the appropriate data to ask the right questions, mobilize around the right priorities and better represent their beneficiaries. Lack of data continues to be the biggest roadblock identified repeatedly by the ecosystem. Assembling the many disaggregated data sources and knowledge has been identified as one key area of work under funding opportunity #14. However, two other relevant areas for capacity building include:

Training civil society actors in the use of air quality data
It entails de-mystifying and democratizing the access and application of different types of air quality data (such as regulatory monitoring data, satellite data, etc.) that can foster understanding of local issues and generate evidence for action. It is imperative to empower grassroots organizations and capacitate upcoming organizations in the growing air quality ecosystem.

Citizen science for air quality monitoring
Citizen science is also critical in India, where the regulatory monitoring networks are inadequate in terms of geographical coverage and creating a wholesome understanding of the air pollution issue. It offers an affordable, democratic, scalable instrument of engagement. Citizen science can also help break paralysis caused by over-dependence on often incomplete or inadequate data.

It also relates to the need to humanize the issue of air pollution to make it more personal and relatable to the larger public. Cold, hard numbers need to be complemented by capturing people's lived experience to make people the centre of the technocratic problem-solving process and help make the consequences of actions visible. Thus, informing prioritization of activities and a sense of urgency to reduce air pollution.

The opportunity for philanthropy here is to continue to support more citizen science efforts to increase air quality data and local evidence about the impact of air pollution in diverse contexts. The need for exposure-based studies is elaborated in funding opportunity #16. At the same time, this also links to the need to take stock of existing low-cost sensor networks and their use cases so far, as outlined in funding opportunity #15.

Thematic

Ecosystem Building

Need

(A) Create new avenues that facilitate alignment, coordination and collaboration

#5

Funding opportunity

Support opportunities for engagement of private actors/ social enterprises/start-ups with government

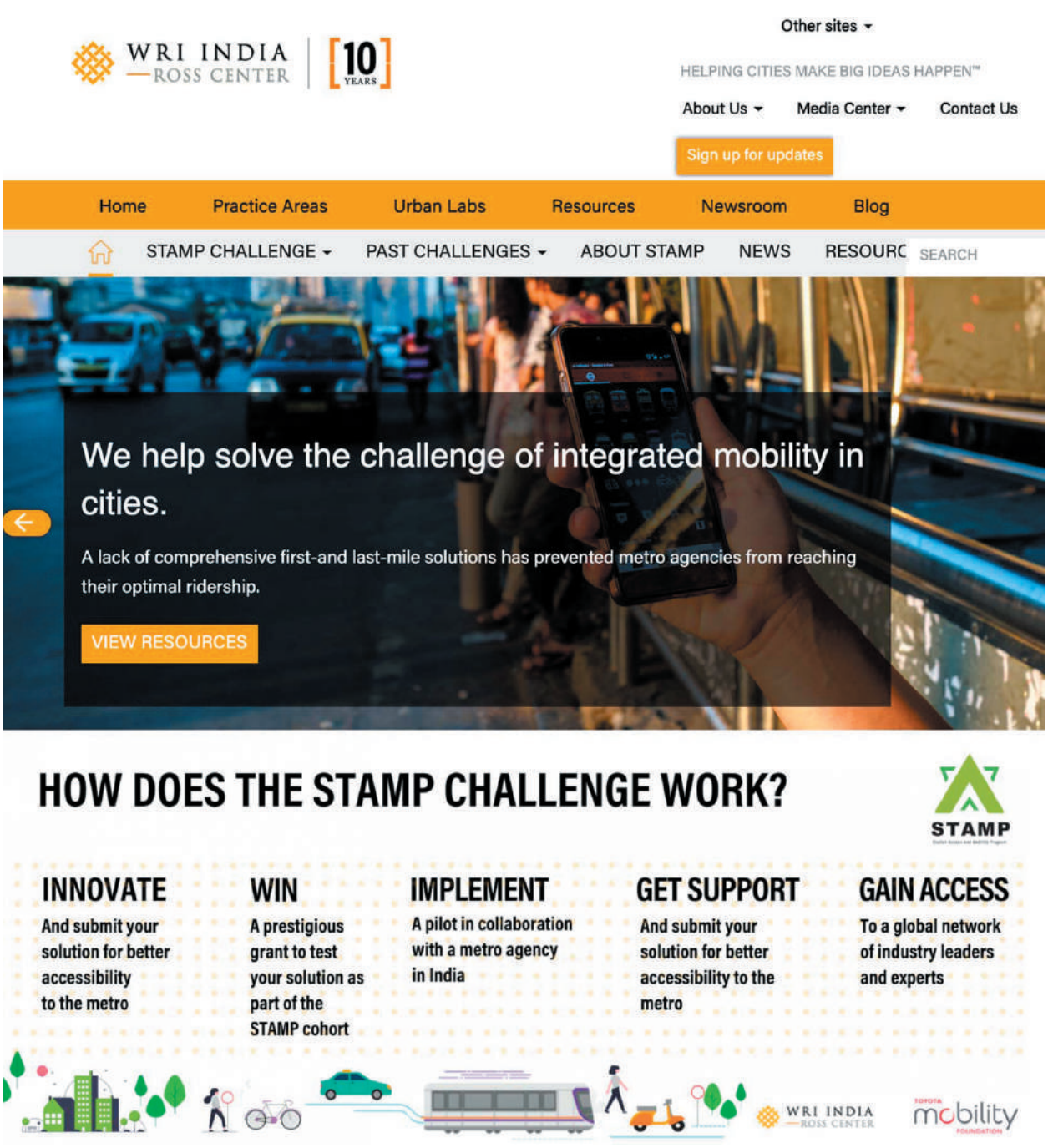
The private sector has a vital role in supporting air quality action. There is a need to help direct latent intellectual capital and skills towards solving known issues and help find traction for scalable innovations, and establish market-based solutions to transition to clean energy or reduce emissions. Currently, start-ups often struggle to find traction; there is a mismatch between 'demand' on the ground and efforts directed towards innovative solutions. In addition, there is very little synergy between start-ups and the government, and the ecosystem has repeatedly noted the inertia within government to form public-private partnerships. Therefore, there is a need to create targeted programs that support innovative solutions and partnerships for scale development.

Examples of on-going efforts

Station Access and Mobility Program (STAMP) *is a multi-city, multi-year initiative, started by WRI India and Toyota Mobility Foundation, that works with metro agencies to enable multi-modal integration of transportation modes in Indian cities.*

India Clean Air Challenge (ICAC) *is a new initiative that has launched recently. It is conceived through a collaboration between ACT Environment, Air Pollution Action Group (A-PAG), Green Artha, Environmental Defence Fund (EDF) and Social Alpha, amongst others and in partnership with the government. It seeks products, technology innovation, solutions, processes and business models that have the ability to deliver clean air at scale. The challenge will award +1 million dollars to facilitate government implementation for winning ready-to-deploy technologies.*

More initiatives like STAMP and ICAC must be undertaken on a continuous basis across sectors and geographies to create new avenues of support and target specific challenges in the air quality sector.



Source: https://wricitiesindia.org/STAMP/content/about-stamp

#6

Funding opportunity

Build community resource portals

Currently, there are several independent platforms and networks/groups, such as the Clean Air Collective and India AQ Hub, where different segments of the air quality community can engage. In addition, there are also various regional networks such as 100%UP and Clean Air Implementation Network, amongst others. Such networks and groups at the local and regional level that help connect people, offer avenues to seek support, enable collaborations and disseminate information are invaluable.

However, as the ecosystem grows, there is a need for parallel, digital systems that aggregate and structure necessary information and resources to be available to a broader pool of organisations, even those not visible in such networks, thus addressing inherent asymmetries fragmentation. Doing so will aid the day to day working of existing organisations and newer, upcoming ones. Such efforts can also help shine a light on the critical gaps in information that require concerted and systematic efforts to be addressed.

Examples of on-going efforts

India Climate Collaborative's (ICC) is supporting creation of a dashboard to map and showcase air quality organisations from across the country. A potential next step here is to expand the dashboard to create a community resource portal with the following features:

- ***Directory of profiles of different AQ actors** to help find like-minded partners for collaborations or seek advisory and support*
- ***Aggregate critical air quality information** such as the must-know actionable air quality knowledge, repository of local stories, events, campaigns*
- ***Links to key data sets** (expanded in funding opportunity #14)*
- ***Archive recent studies, reports and updates of projects/initiatives** to extend the reach of existing work and create awareness and understanding of progress taking place in different sectors or regions. It will also enable peer to peer learning and curb duplication of efforts.*

Prototype dashboard developed as part of a study to map India's air quality ecosystem

Source: India Climate Collaborative and EdelGive Foundation

Thematic | Ecosystem Building

Need

(B) Development of a robust local and sectoral ecosystem

#7

Funding opportunity

Create city, regional, national and sector coordinators to drive collective action

The inherent complexity and multifacetedness of the air pollution issue require an engagement that is cross-disciplinary, collaborative, long term, and coordinated across scales.

As previously stated in funding opportunity #2, there continue to be no formal avenues for participation with civil society and other kinds of air quality actors in the NCAP and NKN framework. Even at the ULB level, government agencies are not yet acting as enablers to assimilate different air quality efforts. Divergent 'asks' to the government agencies tend to create confusion and delay actions. In addition, project-based funding of individual organizations limits engagement with a big picture view for air quality in a given sector/city.

Therefore, there is a need for 'coordinators' anchored either in a geographic or sectoral context that can help organize and synergise efforts outside of the government to support collective air quality action in the following manner:

- Help build capacities to solve context-specific problems, bringing together new and existing air quality actors to work in unison.
- Creating forums to enable peer to peer learning
- Support engagement of local ecosystem organisations with ULBs on city action plans
- Anchor institutionalisation of multi-disciplinary participation processes in decision making for clean air actions
- Help aggregate shared resources in terms of actionable knowledge and relevant air quality data
- Coordinate and amplify advocacy and solutioning efforts amongst different actors for a given city/sector
- Create spaces for deliberation and foster more collaborations/coalitions
- Identify linkages between the city, state and national efforts to align local initiatives and vice versa

Examples of on-going efforts

Asar as a coordinator for Clean Air Collective

This nationwide network now has over a hundred organisations across India. This peer group is considered a reliable source for air quality knowledge, a place to discover work that different organisations are undertaking, webinars and other information sessions across India, ongoing campaigns etc. There have also been spin-offs as state-level chapters, such as in Maharashtra and Punjab.

City action hubs (proposed)

As a next step, Asar also envisions the need to create City Action Hubs, focussed on aligning communication and advocacy efforts towards implementing clean air action plans in cities in an inclusive manner. These hubs could potentially take on the additional requirements stated in this chapter earlier.

Sector specific: Sustainable Mobility Network

Anchored by Asar and Purpose, this is a network of organisations that bring different skills to realise an 'accelerated and significant impact on a decarbonised transport-mobility pathway in specific states-cities in India'. In this initiative, as coordinators, Asar and Purpose are steering the efforts of 12 organisations funded under the joint grant, spanning four states.

Overall, there is a need for long term coordinators representing all the NCAP cities and the key air quality sectors to strengthen local ecosystems and achieve greater alignment between organisations and across scales of governance.

#8

Funding opportunity

Support field building to widen the ecosystem across different geographies, sectors and types of stakeholders

Field building refers to increasing the number of people and organisations working on air quality. Tier 2, 3 cities, rural areas, industrial areas and mining areas represent some of the most severely affected by air pollution. Yet, their voices have been largely missing from the mainstream. There is also a lack of air quality data here, with Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and Continuous Emission Monitoring (CEMS) data either inaccessible or insufficiently available. A critical need is to support grass-root organisations to create local evidence concerning environmental and health impact in the public domain and amplify local stories.

Among the under-represented stakeholders include experts and organisations from the domains of health, social science etc. Health experts are vital to establishing air pollution as a public health concern through research studies, taking stock of trends of public health impact and public-facing communication. There is also a strong need to improve public health records to capture the diagnostic and outpatient data in clinics/hospitals that showcase the link between air pollution and health. While, social science experts from disciplines such as environmental law, economics, urban political ecology can help understand state capacity and improve governance. They can help root scientific advice to government, advocacy, and policy efforts in their social, political, and historical settings. Currently, they are also hardly represented in the National Knowledge Network.

Thematic

Communication

Need

(A) Support more voices and perspectives for air pollution

Air quality communication has primarily centred around English-speaking, middle-class audiences and issues in the Delhi region. There is a need to widen the audience for air quality communication by ensuring communication in more Indian languages. In addition, new and innovative modes of communication and engagement must be encouraged. Finally, there must be more room for the representation of diverse voices in the air pollution discourse, both those affected by the issue and the knowledge providers. Thus, genuinely capturing air pollution in its complexity and multiplicity commensurate with being a nation-wide problem.

#9

Funding opportunity

Increase participation of vulnerable groups such as citizens, school children, marginalized communities

Schools as air quality actors

Schools are emergent but important air quality actors since children are most at risk of being impacted due to long-term exposure to air pollution. Training programmes among youth and student groups are mainly in English and focus on the Delhi region, aside from a few efforts in Kolkata and Chennai. Current engagements also tend to be brief and episodic. Further, the school curriculums are devoid of understanding the practical problems about the environment and public health.

Some of the actions that need to be taken include:

- Revising the school curriculum to ensure longer-term engagement on air pollution and fostering an environmental mindset among children.
- Building on existing air quality awareness modules and translating to other languages to scale up dissemination in other cities and states with the help of local champions.
- Capacitating schools to monitor and evaluate their impact due to air pollution, advocate for improving their local environment, and limit children's exposure.

Examples of on-going efforts

London has created a fund to support clean air audits and green infrastructure to improve local air quality.

Organizations like Lung care foundation and Care for Air have development training and engagement modules for school children.

Marginalized communities

Marginalized communities are often the most affected by air pollution and least represented in regulatory data and media attention. Development and industrial contexts also come with a class and caste narrative. In the absence of infrastructure for air quality monitoring and other support systems, there is a need to capture local stories that can act as evidence of how air pollution affects their lives and bring urgency for action.

Source: https://lcf.org.in/bestclub/

200 London schools sign up to clean air audits

200 London schools in areas of high air pollution will sign up to a City Hall scheme that aims to protect pupils from toxic air.

The scheme involves clean air audits, carried out by engineering consultancy WSP, which assess the air quality before making recommendations to the school to improve air quality.

The scheme has already been trialled in 50 schools across 23 London boroughs. London Mayor Sadiq Khan issued a £1m fund which provided each of the 50 schools with a £10,000 starter grant and enabled any of the other London schools located in areas exceeding legal air pollution limits to apply for green infrastructure funding.

Source: https://airqualitynews.com/2020/01/23/200-london-schools-sign-up-to-clean-air-audits/

#10

Funding opportunity

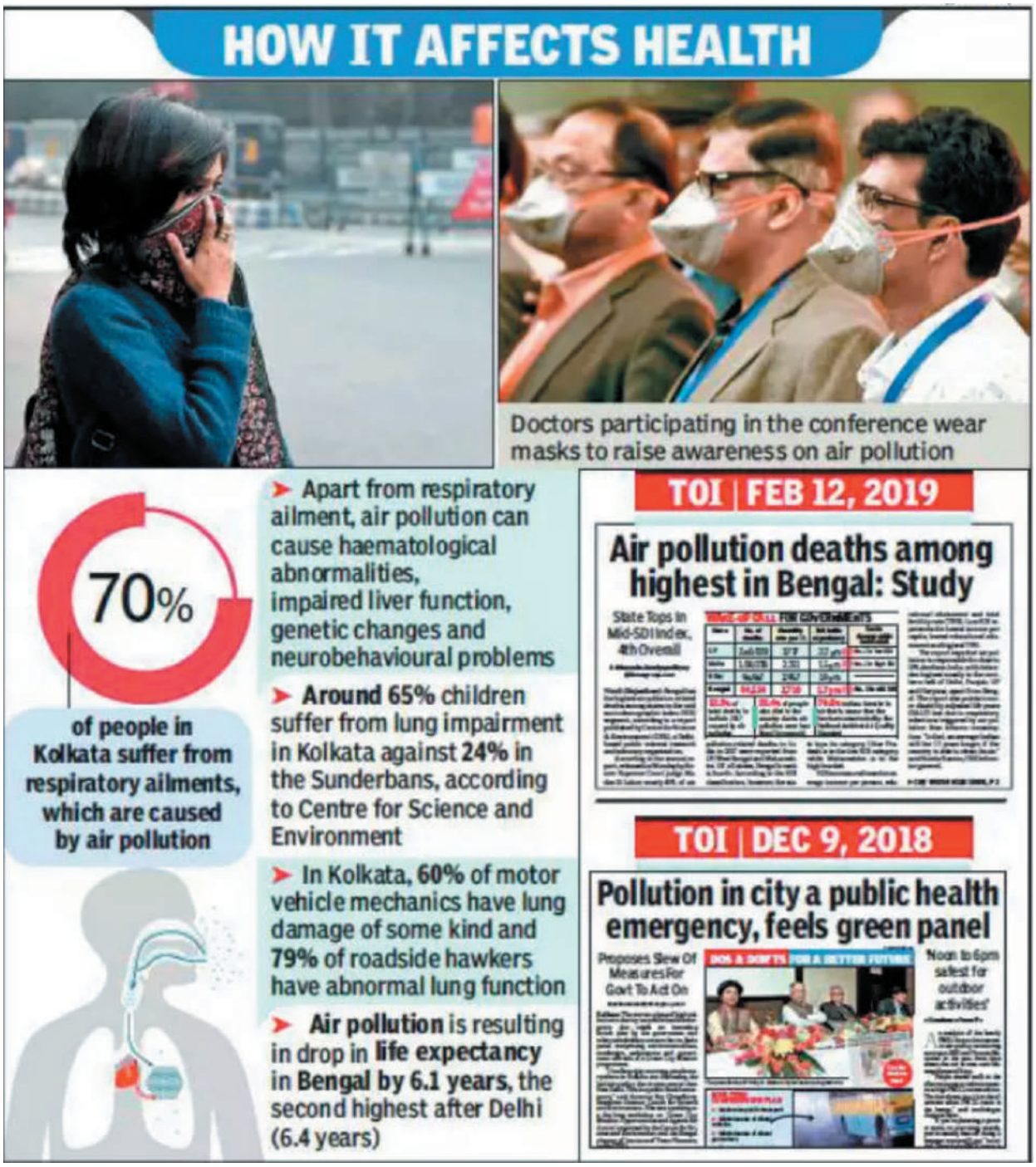
Support forums for the medical community to be vocal advocates of public health

The need for more health experts to engage as air quality actors is stated in funding opportunity #8. However, there is also a need to create avenues to bring voices of the medical community, such as doctors at the centre of public discourse, towards the following goals:

- Leverage their trusted voices to create public awareness as well as nudge behavioural shifts
- Amplify advisories to encourage the public to take preventive measures to reduce exposure
- Motivate the larger ecosystem of doctors/clinics/hospitals to aid in data collection to improve public health records required for research studies.
- Reinforce the state of public health as the fundamental baseline for measuring the impact of policies and action plans.

Mobilizing the medical community to engage with the public will result in a more informed citizenry and motivate more people to participate in advocacy and accountability campaigns. It will also urge patients to take preventive care and reduce their exposure. In addition, improving the quality of hospital data can enhance the reliability of research studies. Various actors can also use it to identify trends in a given city and provide personalized, well-informed health advisories.

An additional point to be noted here is that health is currently not an NCAP mandate, which inhibits the allocation of air quality funds available to cities for health risk mitigation.



Currently, around 20%- 25% of beds across city hospitals are occupied by patients with respiratory distress….."We'll lay down a set of recommendations and forward it to the government," said pulmonologist Dhiman Ganguly of CMRI Hospital.

Source: https://timesofindia.indiatimes.com/city/kolkata/doctors-wage-war-against-rising-air-pollution-in-kolkata/articleshow/68030830.cms

#11

Funding opportunity

Train scientists and researchers to actively engage in public discourse

Scientists and researchers seek training to better understand how to communicate with advocacy and communications experts and play a more significant role in directly engaging with policymakers through National Knowledge Network and other efforts.

The training programme is for providing guidance on how best to portray information, so it is easy to follow and doesn't get lost in data and numbers. Doing so can also help the sector go beyond simplistic and often reductive narratives, focusing on uncertainties and the crux of where issues really lie to address the air pollution issue better collectively.

Training can take many versions, such as workshops or Sci-Com fellowships, that support a cohort of scientists and researchers across the country to democratise scientific knowledge. They may focus on their institutions and regions through a myriad of mediums such as videos, articles, publishing digestible summaries of the latest scientific research etc.

#12

Funding opportunity

Promote art as a medium of public engagement

Art being a mass medium can play a strong role in public engagement that goes beyond news articles and reports, offering new ways for people to connect with the problem that often affects people differently at a personal level and across different cities/regions in the country. This includes:

- Offering compelling and contextual narratives to show why we need to care more about air quality
- Helping bring urgency for action and build empathy, putting the lives of people most impacted at the centre of the crisis
- Demonstrating a variety of ways air pollution is manifesting
- Demystifying the science and causal links to air pollution
- Breaking set imaginations and perception of good and bad air quality situations

Examples of on-going efforts

Art installation: Artificial lung *(https://lcf.org.in/lung-installation-to-demonstrate-the-impact-of-air-pollution-in-delhi)*

Exhibition: Breathless In India *(https://www.purpose.com/art-exhibit-of-indias-air-pollution-will-leave-you-breathless)*

Art installation - Pollution Pods *(https://nextcity.org/daily/entry/in-london-step-out-of-one-bubble-and-into-another)*

This lung installation has been located in many cities. It depicts human lungs retrofitted with HEPA filters and a fan that mimics breathing.

Source: https://www.news18.com/news/buzz/a-pair-of-clean-lungs-was-installed-in-delhi-6-days-ago-this-is-what-it-looks-like-after-diwali-1933521.html

Exhibition: Breathless In India captured the stories of the people who are the most impacted by air pollution and are fighting it everyday, using art and culture to present it to people who may not see the daily effects. It represented 6 cities – including busy metros like Delhi, Bangalore, Mumbai and the lesser known places like Korba and Ennore.

Source: https://www.purpose.com/art-exhibit-of-indias-air-pollution-will-leave-you-breathless/

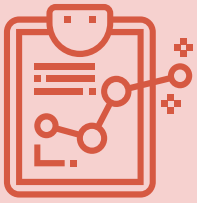
#13

Funding opportunity

Facilitate media engagement on AQ beyond the English-speaking, middle-class and Delhi centric bubble

There is a dire need to expand engagement and communication on air quality in other Indian languages. Organizations engaged in communications report that their engagement with regional media has resulted in more quality reporting. In addition, there is now a lot of interest in localizing the conversation and demystifying data at the local level not just for the government but for all the groups. However, the most significant barrier to communication in Indian languages continues to be a skill gap and the lack of local stakeholders who work on air pollution and do communication work.

It was also widely noted that communications efforts need to stay away from scare tactics because it leads to knee-jerk reactions from policymakers. Instead, there is a need to create space for them to engage with the public demand and create an enabler environment to act in the best manner possible. Campaigning and communications groups have to be in conversation with technical organizations to ensure the accuracy of information and accessibility to the latest and most relevant research.



Thematic

Data and knowledge

Need

(A) Aggregate actionable knowledge and assemble more complete data sets to aid informed decision making

#14

Funding opportunity

Build a unified data and knowledge directory

Organisations working across the country and multiple sectors currently use numerous Indian and international sources of air quality data and knowledge. It includes regulatory monitoring data, sectoral data (energy, transport, health, waste, industries etc.), research reports, academic papers, etc. While a significant amount of data sets are generated at various levels of government, other important sources of air quality information include think tanks, research institutions and academic institutions.

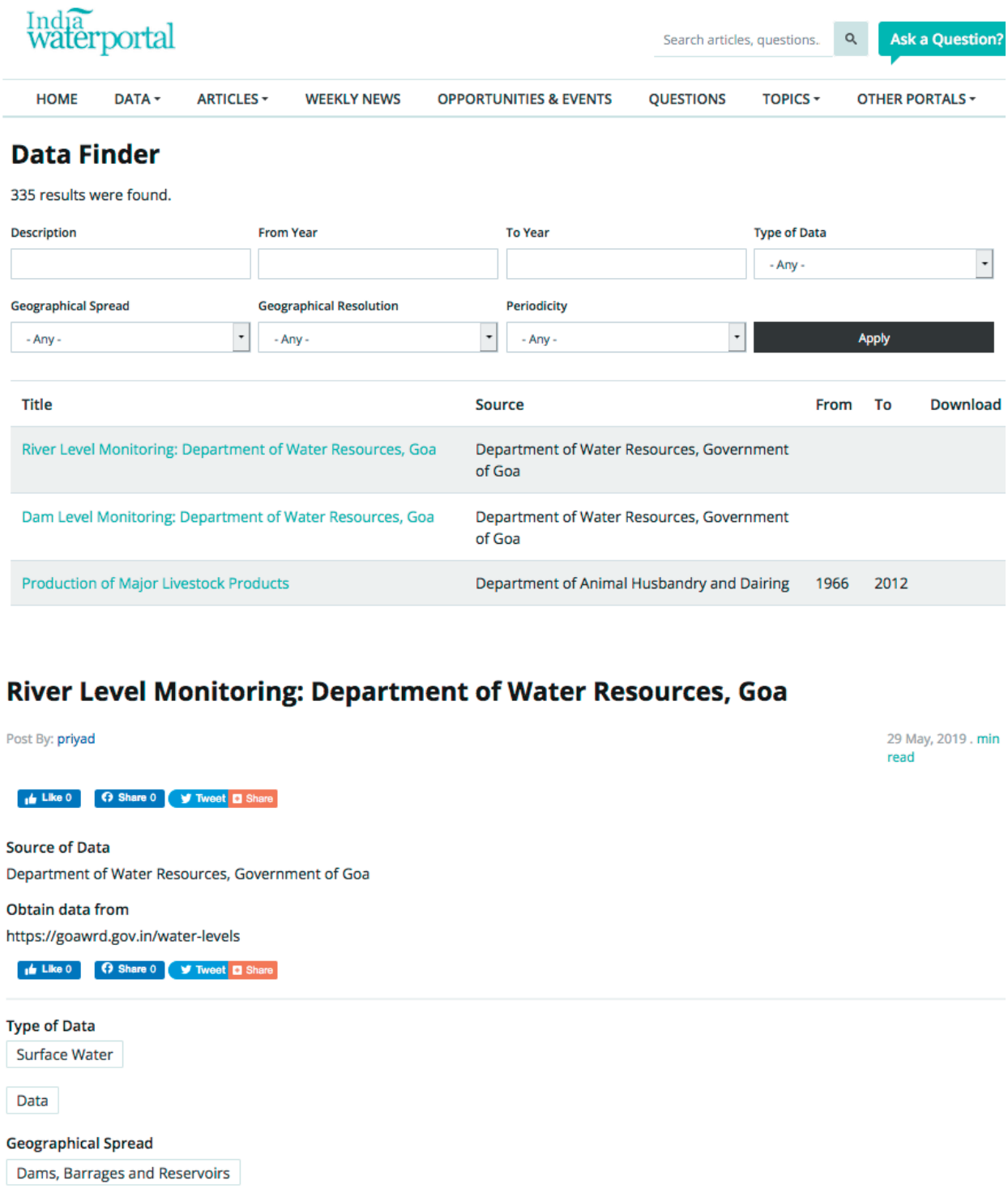
It is evident that while some sources of data and knowledge are commonly known, many are known only in select circles. Data sets are also currently riddled with gaps and even totally absent at times. Reports and academic papers are continuously released, but the scientific knowledge already established and available in the public domain remains unclear.

As a result, there is a need to organise air quality information to ease its discovery and more systematic identification of gaps. This would aid existing organisations and, importantly also benefit the many new and upcoming organisations entering the sector.

A unified data and knowledge repository would have three goals:

- Repository of data/direct links of sources
- Indexing of data with key attributes to bring greater transparency and aid complementary efforts (eg. date, accuracy level, sample set, level of granularity, legitimacy etc.)
- Important reports with summary of key takeaways

This data directory can be integrated with the community resource portal, detailed in funding opportunity #6.



Data finder on India water portal: It is a website that shares knowledge and builds communities around water and related issues in India. Managed by Arghyam, the Portal 'has become a valuable archive of resources, working papers, reports, data, articles, news, events, opportunities and discussions on water. It has also become a place to share experiences and solutions, to talk to water experts, and to learn about the work that others are doing in sustainable water management in India.'

Source: https://www.indiawaterportal.org/datafinder

#15

Funding opportunity

Map and aggregate low-cost sensor networks, data and its use cases

In the last few years, many low-cost sensor projects have come up across the country, generating significant amounts of local-level air quality datasets. Unfortunately, this data is usually not publicly accessible and blocked behind paywalls. Each sensor company has its own data publishing portal, and this data is also not readily comparable due to differing data quality and calibration.

In most cases, sensors are used by individual organizations for their specific project purposes. As a result, networks are designed in silos and often abandoned after a limited time for various reasons. Overall, the trend of who is utilizing this data and what purposes the networks serve remains unclear to the larger air quality community.

Yet, it is evident that low-cost sensors are the future since the regulatory monitors are too expensive to be scaled to cover the expanse of the country. In this context, there is a need to take stock of the low cost sensor networks as a parallel, complementary and scalable system for generating actionable air quality monitoring information. It would entail the following:

- Creating a registry to map the different sensor networks
- Collaboratively working with sensor companies to aggregate retrospective data
- Documenting use cases to derive guidance for design of citizen science initiatives, and predictable applications of data and end goals
- Identify projects that have stopped due to expired funding and need support

Further, it must be noted that hybrid monitoring is currently being tested as the optimal model for integrating low-cost monitors where sensors are co-located with regulatory monitors. Three on-going experiments looking to pave the forward are:

- Clean Air Catalyst programme in Indore by WRI
- IIT Kanpur, Bloomberg and four other sensor startups working with Maharashtra PCB in Mumbai
- Clean Air fund working in Gurgaon

Thematic

Health

Need

(A) Strengthen the link between air quality and health through creation of new evidence and better messaging

#16

Funding opportunity

Support health studies with India based cohorts that investigate the impact of air pollution

India state-level disease burden initiative by Indian Council of Medical Research (ICMR), Public Health Foundation of India (PHFI) and Institute for Health Metrics and Evaluation (IHME) provides an assessment of disease burden in each state. Plenty of global studies demonstrate the link between air quality and health. However, government agencies continue to seek more evidence in the form of health studies based on India based cohorts.

There is a need for exposure-based studies that focus on the following:

- Impact from key sources of air pollution such as vehicular emissions, waste burning sites etc.
- Occupational hazards for mining workers, delivery workers, construction workers
- Impact on vulnerable groups such as children, mothers, elderly

Health researchers also stress the need to investigate the impact of pollutants beyond particulate matter. For example, air toxins such as polycyclic aromatic hydrocarbons, volatile organic compounds and trace metals are noted to be much more deleterious to human health than PM2.5 alone.

Examples of on-going efforts

One such effort includes the Children's Investment Fund Foundation (CIFF) working with All India Institute Of Medical Science (AIIMS) to carry out health studies based in India to generate local evidence with the focus on impact on children.

Theme: Health

Need: Strengthen the link between AQ and health through creation of new evidence and better messaging

#17

Funding opportunity

Aggregate and simplify learnings from health impact studies

While conducting studies to assess health impact of air pollution is critical to address current issues and target select regions or population groups, one pain point remains that there is a lack of awareness and acknowledgement of the evidence that already exists from previously conducted studies.

There is a need to aggregate this knowledge and translate the learnings and insights into easy-to-understand language. This information can further feed into air quality awareness campaigns, health advisories, identifying gaps and opportunity areas for new research amongst other actions.

Theme: Health

Need: Strengthen the link between AQ and health through creation of new evidence and better messaging

#18

Funding opportunity

Build a health advisory system

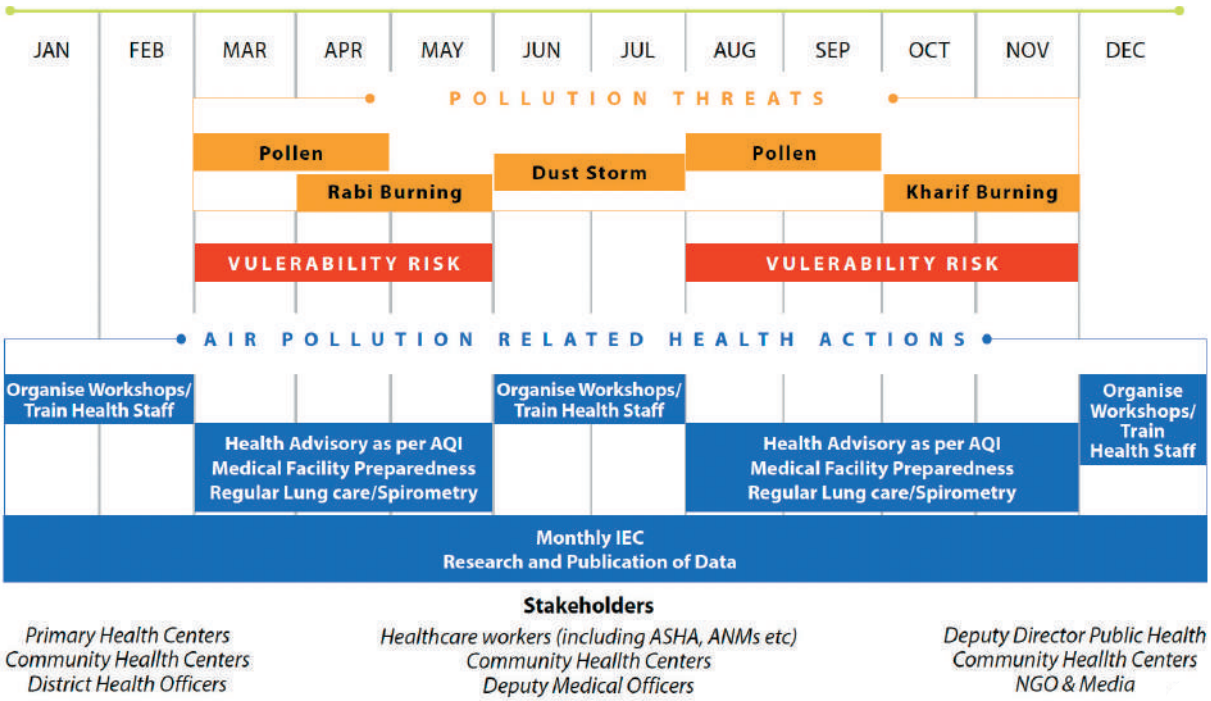
It is widely recognised that there is a need for targeted, humanised communication on air quality that can enable informed action. In addition to creating awareness, air quality communication has to evolve into year-round health advisory systems that guide people to minimise exposure and mainstream air quality in public discourse, just like temperature levels or weather conditions. While the audience is the general public, a key beneficiary is the vulnerable groups such as children, the elderly, people with respiratory illness, etc., that are most at risk when air quality worsens.

Health advisory systems would include information such as whether it is a good or bad air day and relate the advisory with people's day to day activities in terms of what different people can do and what they shouldn't. It would also include medical advice for vulnerable and affected people, particularly during bad air days/seasons. Furthermore, such communication would benefit from being rooted in the trusted voices of the medical community and other local community influencers/leaders. Multiple mediums can be used here, such as radio, newspaper, digital public boards, text alerts etc.

Globally, several such initiatives have been undertaken. Some have been focussed on schools, while others are for the general public. The Delhi government has also attempted to create health advisories for schools, and a similar information system is required across many places in India. A recent report, 'Building Breathable cities', also recommends the need for structured air quality communication that includes health advisories and disease calendar for the year.

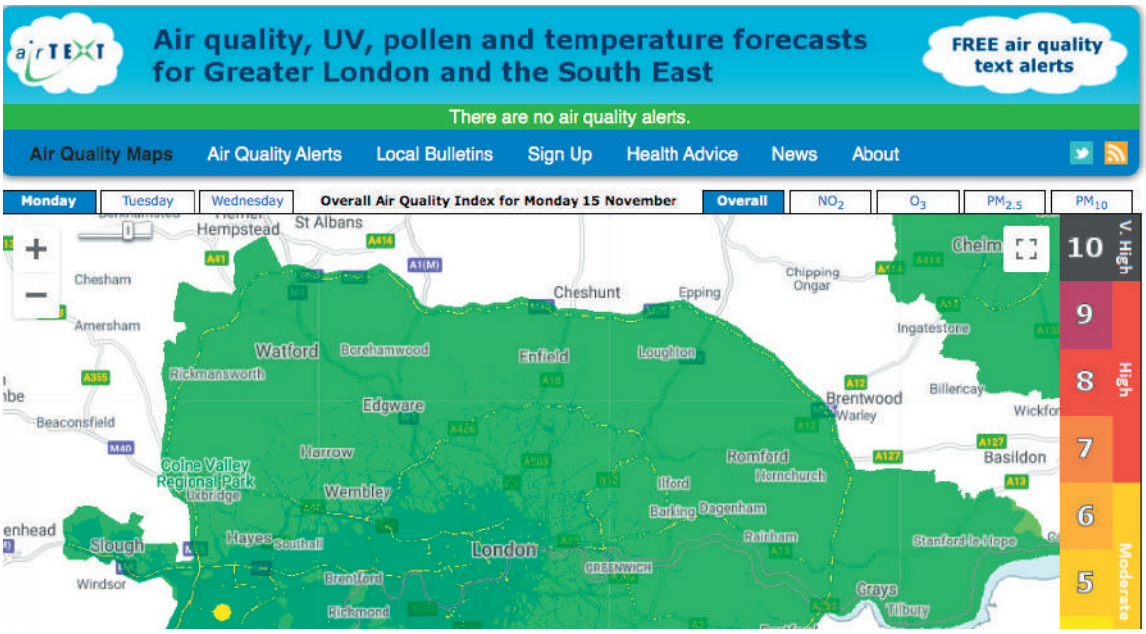
Examples of on-going efforts

- ***Delhi health advisory on air pollution*** *(Source: www.health.delhigovt.nic.in)*
- ***Pollen calendar for Chandigarh***
- ***Air pollution alerts for general public by a London borough*** *(AirTEXT)*



Pollen calendar for Chandigarh provides an understanding to healthcare professionals and people who suffer from allergic reactions to identify likely allergy triggers

Source: Report -Building breathable and healthy cities, July 2021



'AirTEXT is a unique air quality information service for people who live or work in London and who suffer from asthma, emphysema, bronchitis, heart disease or angina'.

Source: http://www.airtext.info/

Thematic

Air quality governance and management

Need

(A) Regulation and management of regional pollution

#19

Funding opportunity

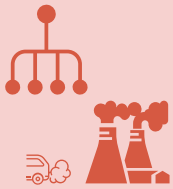
Support studies to develop strategies for regional air-shed management

NCAP is currently only focused on cities, and there is no institutional mechanism to look at regional air quality. There is also no management and administrative framework to regulate emissions from adjacent industries, agriculture, power plants etc., that severely affect the people who live near them and contribute to regional pollution that significantly impacts air quality in cities.

'NCAP is clear about the city being the unit of action planning and implementation. The November 2019 the Finance Commission report brings into focus the "air-shed" as the unit of planning and air quality management. The air-shed approach that brings in the sources of pollution impacting the air quality outside the city limits, is a mismatch with NCAP's action planning that is restricted by the city limits of the non-attainment city' - Report: Clearing the air: highlights of city actions in 2020 to reduce air pollution, by NRDC, CEE and IIPH, Gandhinagar.

Despite the availability of national and regional air quality models such as those developed by Urban Emissions and Dr Sagnik Dey, IIT Delhi, the government's receptiveness to regional air shed management has been unclear so far. The Commission for Air Quality Management (CAQM) is the only such entity set up for the purpose of tackling regional air pollution catering to the NCR region.

In this context, there is a need to support studies on regional air-shed management that look into the monitoring and compliance perspectives and identify barriers such as legal, funding and governance. It must also be noted that NGT has ordered for creation of state level action plans that should offer another point of reference for regional air-shed management.



Need

(B) Augment compliance to emission standards across polluters in different sectors

#20

Funding opportunity

Engage with government and private stakeholders to ensure compliance

In industries and power plants, compliance with emission standards has been a major issue of contention. Taking the case of thermal power plants alone, the Environment Ministry had first notified the improved emission standards in December 2015 for implementation by the end of 2017. However, this deadline was extended to 2022 due to resistance from the industry [1]. Further, in 2021, it is reported that the *'Ministry of Power requested the Environment Ministry to extend the deadline for meeting emission norms for all thermal plants from 2022 to 2024, citing delays due to various reasons, including the coronavirus pandemic and import restrictions'* [2].

The shifting deadlines show the lack of commitment and challenges to reducing emissions. A key issue highlighted by organisations like CSE and CREA is that the cost of non-compliance is lower than the cost of complying with rules to reduce emissions. *'The maximum penalty imposed on non-compliant thermal plants is 20 paise per unit of electricity. But the cost of retrofit of pollution control equipment to meet the new norms for these plants is estimated to be between 30 and 70 paise per unit of power generated'* [1]. It means that thermal power plants can continue to pollute by paying a lower price for not installing pollution control devices.

While the penalisation structure has to change, enforcement of emission standards itself remains a challenge. In addition, the adoption of air pollution control interventions also imposes a cost burden on the stakeholders, where financial returns are seen as limited or nil. In this situation, philanthropy can play the following roles:

- Aid the government to enhance monitoring and evaluation with respect to emissions
- Develop market based mechanisms such as Emission Trading Scheme (ETS) that has been piloted in Gujarat and is now also being adopted in Punjab.
- Nudge the ecosystem to develop innovative mechanisms that facilitate emissions reduction be a catalyst to attract further investments

1 https://www.hindustantimes.com/india-news/paying-emission-fines-cheaper-for-thermal-plants-than-following-norms-101618167373910.html
2 https://www.livemint.com/industry/energy/govt-issues-new-deadlines-for-thermal-power-plants-to-meet-emission-standards-11617377487965.html

Thematic

AQ Funding

Need

(A) Augmenting ULB's AQ budgets

#21

Funding opportunity

Unlocking larger funds for AQ through cross sectoral opportunities

Most city clean air action plans have been created as assemblages of different sectoral actions, many of which are regular activities/projects that are already budgeted and undertaken by the ULBs and other related departments. These plans are in no way comprehensive of everything to be done to tackle air pollution in a given city. At the same time, there is currently no structured air quality impact assessment framework to assess and qualify a specific action that can and must be funded under the clean air funds. This means on one side, air quality funds are being oddly allocated for activities like building roads. At the same time, there are many opportunity areas across different sectors to transition to clean energy, reduce source emissions, or even mitigate exposure that are not acknowledged and budgeted.

One example is that solid waste management (SWM) departments are exploring the conversion of diesel-fuelled waste dump trucks with electric trucks that can reduce emissions drastically. Similarly, under the national programme - Cycles 4 Change challenge, there is cycling infrastructure being designed and piloted in cities across India that can enable thousands of kilometres of zero-emission trips. However, in both these cases, air quality is not necessarily considered a key motivator or a co-benefit. The same is valid for solving construction and demolition waste that is seen as a problem of managing waste, but the contribution of construction debris to road dust and resulting air pollution that has severe health impacts is ignored.

Tapping into these kinds of sectoral budgets and re-designing these programmes to meet air quality goals can significantly augment actionable areas and air quality funding. Doing so would also influence the scale, design and speed of implementing such activities in varying degrees.

Need

(B) Augment support from domestic philanthropies & make grants available for all actors

#22

Funding opportunity

Pool in allied funds for air quality

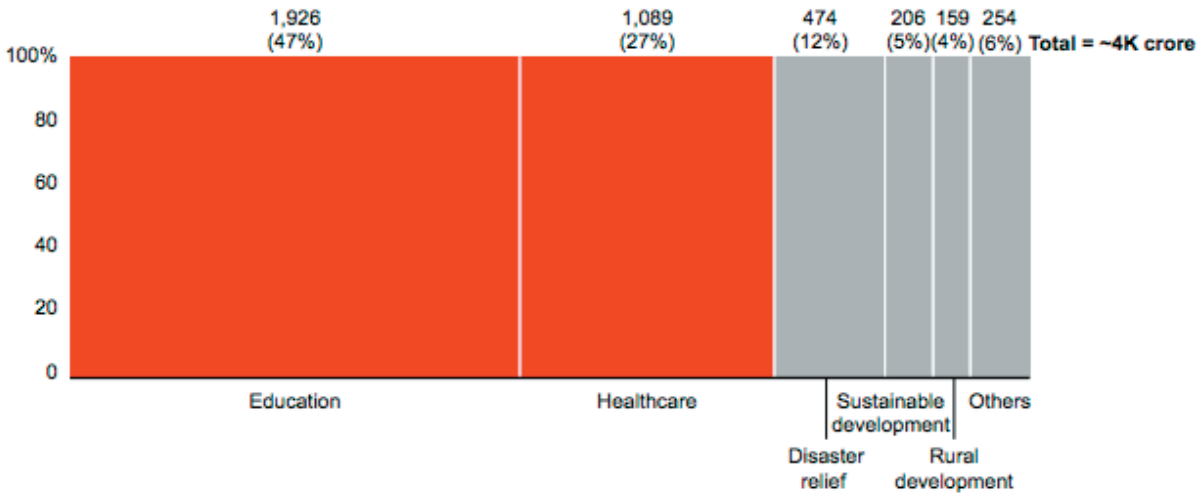
As per the State of Global AQ funding 2021 report states, the air quality sector is severely underfunded, with < 0.1% of global philanthropic funds spent on improving air quality. It further states that Indian philanthropy has the opportunity to play a pioneering role in improving air quality. Aside from increasing the overall pool of philanthropic funding, it is noted by global philanthropies that their domestic counterparts are better placed to leverage local resources and contacts, shape political will and potentially work more freely.

While one way is to increase direct funding of air quality projects, another opportunity is to integrate air quality goals through smaller add on funds within existing funding blocks with common beneficiaries or outcomes.

While the data points on Indian philanthropic spending are few, a good case in point is that the available reports showcase how it is dominantly focussed on education and health, amongst the top issues. Both are highly relevant areas of engagement for air pollution because children are a critical at-risk demographic. At the same time, there is a need to invest in inculcating an environmental mindset in children and enabling schools to become air quality champions. Similarly, air pollution also has a major effect on public health.

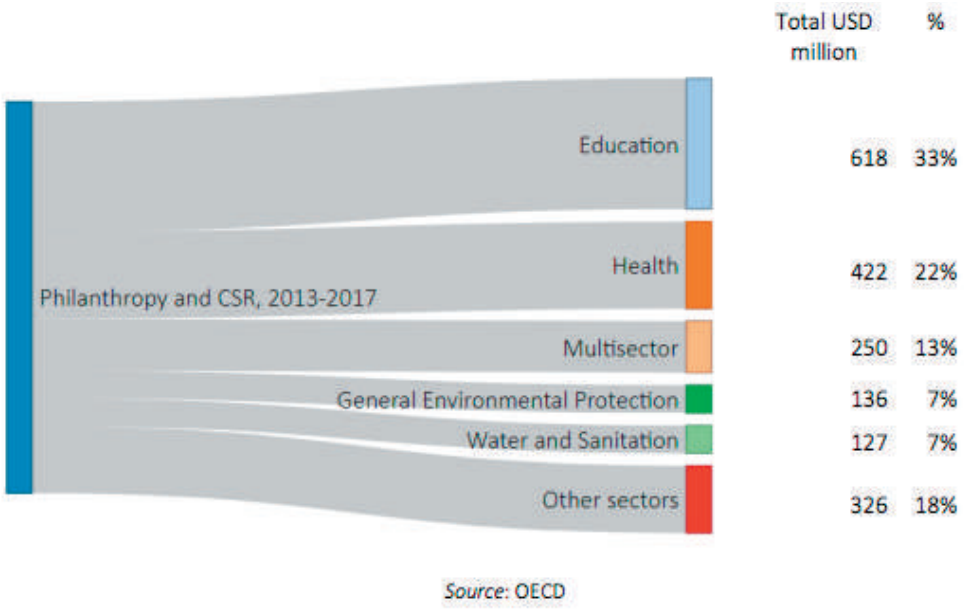
According to the India Philanthropy Report 2021 report by Bian and Company, private-sector funding totalled about INR 64,000 crore—close to 23% more than in fiscal year 2019. Corporate Social Responsibility (CSR) funding—accounts for 28% of funding. Retail investors (<INR 5 crore donations each) account for another 28%. The balance (about 20%) comes from family philanthropy. The report further states that while other sources remained stagnant, family philanthropy has tripled its corpus, growing to INR 12,000 crore in FY20. Looking closely at the breakdown of these funds, 47% are spent on education, 27% on health.

Another report - India's Private Giving: Unpacking Domestic Philanthropy and Corporate Social Responsibility, by OECD Centre On Philanthropy, states that between 2013 - 2017, 33% of India's domestic philanthropy and CSR was spent on education and 22% on health.



Donations by family philanthropies in India (INR crore, FY 20). Family philanthropy accounts for 20% of the total private sector funding and this is dominantly concentrated in the education and health sector.

Source: India Philanthropy Report 2021, by Bian and Company



Between 2013 - 2017, 33% of the domestic philanthropy and CSR in India was spent on education and 22% on health.

Source: India's Private Giving: Unpacking Domestic Philanthropy and Corporate Social Responsibility, by OECD Centre On Philanthropy

Diversity of funding opportunities

Specific to types of stakeholders

Ecosystem building

#5 Support opportunities for engagement of private actors/social enterprises/start-ups with government *(Start-ups/ incubators)*

Communication

#9 Increase participation of vulnerable groups such as citizens, school children, marginalized communities. *(Schools, vulnerable community groups)*

#10 Support forums for the medical community to be vocal advocates of public health *(Media and comms, medical experts)*

#11 Train scientists and researchers to actively engage in public discourse *(Scientists and researchers)*

#12 Promote art as a medium of public engagement *(Artists)*

Data and Knowledge

#15 Map and aggregate low cost sensor networks, data and its use cases *(Start-ups, philanthropies)*

Air quality governance & management

#20 Engage with government and private stakeholders to ensure compliance *(Government agencies, private actors, think-tanks, researchers)*

AQ funding

#21 Unlock larger funds for AQ through cross sectoral opportunities *(Government agencies)*

#22 Pool in allied funds for air quality *(Philanthropies)*

Health

#16 Support health studies with India based cohorts that investigate the impact of air pollution *(Public health researchers)*

#17 Aggregate and simplify learnings from health impact studies *(Public health researchers)*

#18 Build a health advisory system *(Public health researchers, medical experts)*

Specific to geography

Ecosystem building

#8 Support field building to widen the ecosystem across different geographies, sectors and types of stakeholders

Communication

#13 Facilitate media engagement on AQ beyond the English-speaking, middle-class and Delhi centric bubble

Air quality governance & management

#19 Support studies to develop strategies for regional air-shed management

Addressing eco-system wide needs

Capacity building

#1 Align with National Knowledge Network to support the creation of training material

#2 Provide technical support to government agencies

#3 Support participatory processes in planning and policymaking

#4 Build capacity in civil society organizations on how to use AQ data and citizen science for air quality monitoring

Ecosystem building

#6 Build community resource portals

#7 Create city, regional, national and sector coordinators to drive collective action

Data and Knowledge

#14 Build a unified data and knowledge directory