CLEAN AIR FUND
AIR QUALITY DATA STRATEGY
2021 – 2024

HOW THE CLEAN AIR FUND IS IMPROVING THE ACCESSIBILITY, USABILITY AND ACTIONABILITY OF AIR QUALITY DATA

CLEAN
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FUND

ACKNOWLEDGEMENTS

The Clean Air Fund is funded by:

IKEA Foundation

WHO WE ARE

The Clean Air Fund is a philanthropic organisation working globally to empower funders, researchers, policymakers and campaigners to deliver clean air for all. We assist funders in their grant-making, and provide direct grants and other kinds of support to organisations in the field. Alongside this, we look to build and strengthen the clean air movement. We do this by finding, scaling and replicating winning solutions and arguments, sharing lessons, and improving evidence and understanding of the air quality challenge globally.

As of early 2021, we work in India, the UK, and East and South East Europe. We also fund projects through our global programme, in cases where we see strong opportunities to strengthen global capacity and ambition, mobilise new players or learn from existing work.

OUR DATA STRATEGY

This strategy sets out the Clean Air Fund's approach to improving the accessibility, usability and actionability of air quality data. We have written it **for funders**: to develop and collaboratively work towards common goals, targets and actions through our collective funding, and **for implementers**: to provide guidance on the ideas, initiatives and projects that the Clean Air Fund and its partners are looking to support.

For comments, questions and enquiries please get in touch:
data@cleanairfund.org

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OUR VISION FOR AIR QUALITY DATA

Action on air pollution is far behind where it needs to be. Billions of people are breathing unhealthy air and millions are dying prematurely each year as a result.

Air quality data is fundamental to solving this issue. Data tells us how much pollution is in the air we breathe and where that pollution comes from. This information informs our understanding of how air pollution impacts our health, our environment and our economy, and is fundamental in designing, implementing and enforcing policies and solutions.

Creating a compelling case for change, driven by data, is a complex, multi-stakeholder problem, and one that the Clean Air Fund is committed to solving.

This strategy presents how we will do it, culminating in our vision for the global air quality data field:

BY 2030, AIR QUALITY DATA IS GLOBALLY UBIQUITOUS: CITIZENS UNDERSTAND THE QUALITY OF THE AIR THAT THEY BREATHE AND EVERY POLICYMAKER HAS GOOD ENOUGH DATA ON WHICH THEY MAKE INFORMED DECISIONS.

This vision will be delivered through our theory of change: the framework that the Clean Air Fund and our partners will use to direct funding in the coming years.

By sharing our strategy and the thinking behind it, we will encourage funders, implementers and other interested institutes to engage with us, share our vision and put forward ideas to help us to deliver it. By sharing knowledge and inviting feedback, we hope to foster collaboration and further build the air quality field.
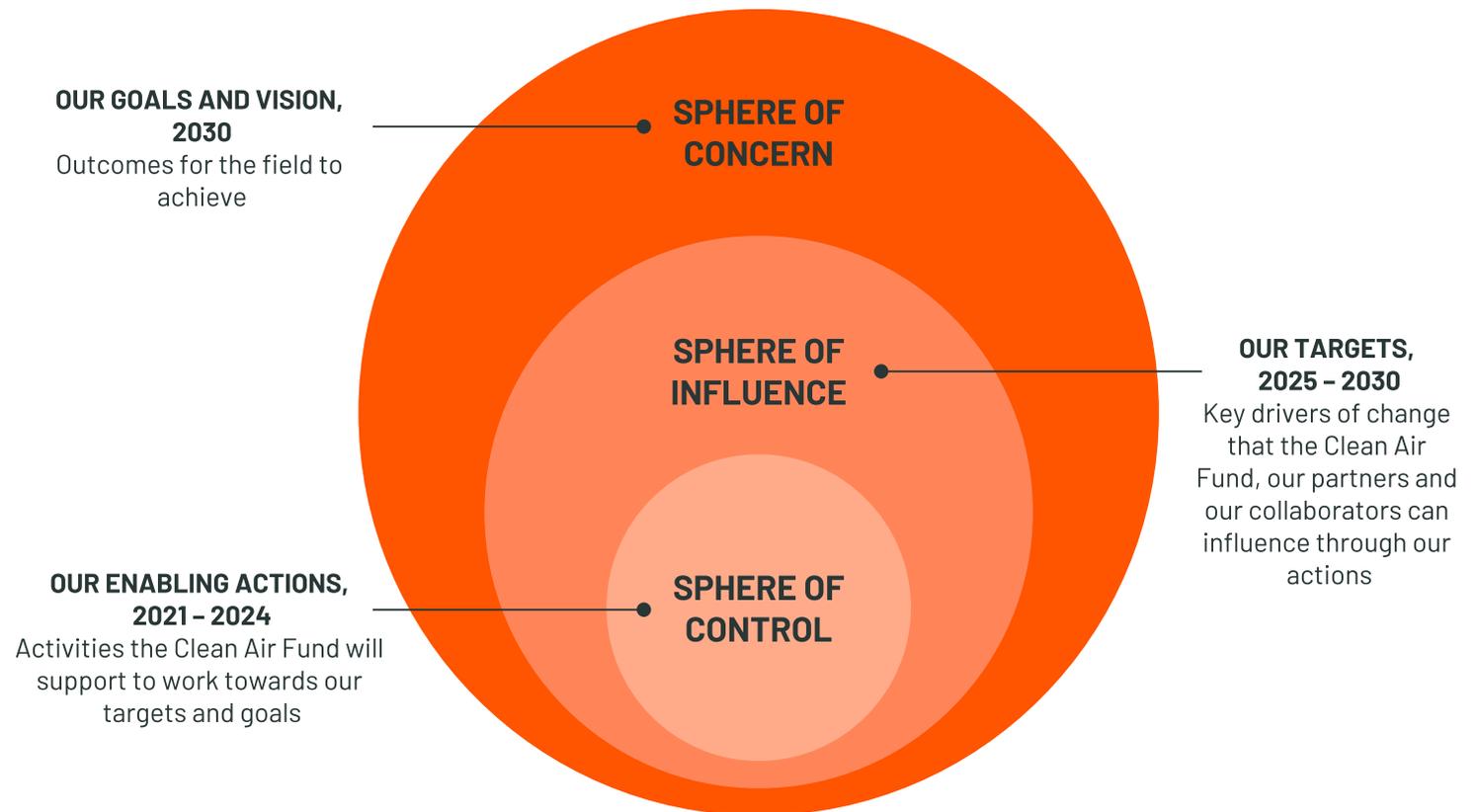
HOW WE WILL DELIVER OUR VISION

We cannot achieve our vision alone. We have therefore mapped out the steps that we and our partners need to take to go from the current situation (today) to a world in which our vision is a reality (2030), building on deep collaboration across an increasingly harmonised field as we go. We have set out this pathway by considering what is in our spheres of control, influence and concern.

In our sphere of control are the grants that we will fund: This strategy establishes a set of "enabling actions" – outputs that we want our grants to achieve - that will drive the Clean Air Fund's grant making approach over the next three years. This will be reviewed in 2023 and a new set of actions developed to respond to the situation at that time (for publication in 2024).

In our sphere of influence are the targets we and our partners will work towards: our targets define what we want our grants to collectively achieve. These are ambitious, and so we need others to collaborate and provide additional funding to achieve them.

In our sphere of concern are the goals we want the air quality data field to achieve: These goals are ambitious and can only be achieved through broad buy-in, long-term commitment and ambitious action across the field. We believe our vision can be a reality if these goals are successfully met.

OUR GOALS AND VISION, 2030
Outcomes for the field to achieve

SPHERE OF CONCERN

SPHERE OF INFLUENCE

SPHERE OF CONTROL

OUR TARGETS, 2025 – 2030
Key drivers of change that the Clean Air Fund, our partners and our collaborators can influence through our actions

OUR ENABLING ACTIONS, 2021 – 2024
Activities the Clean Air Fund will support to work towards our targets and goals
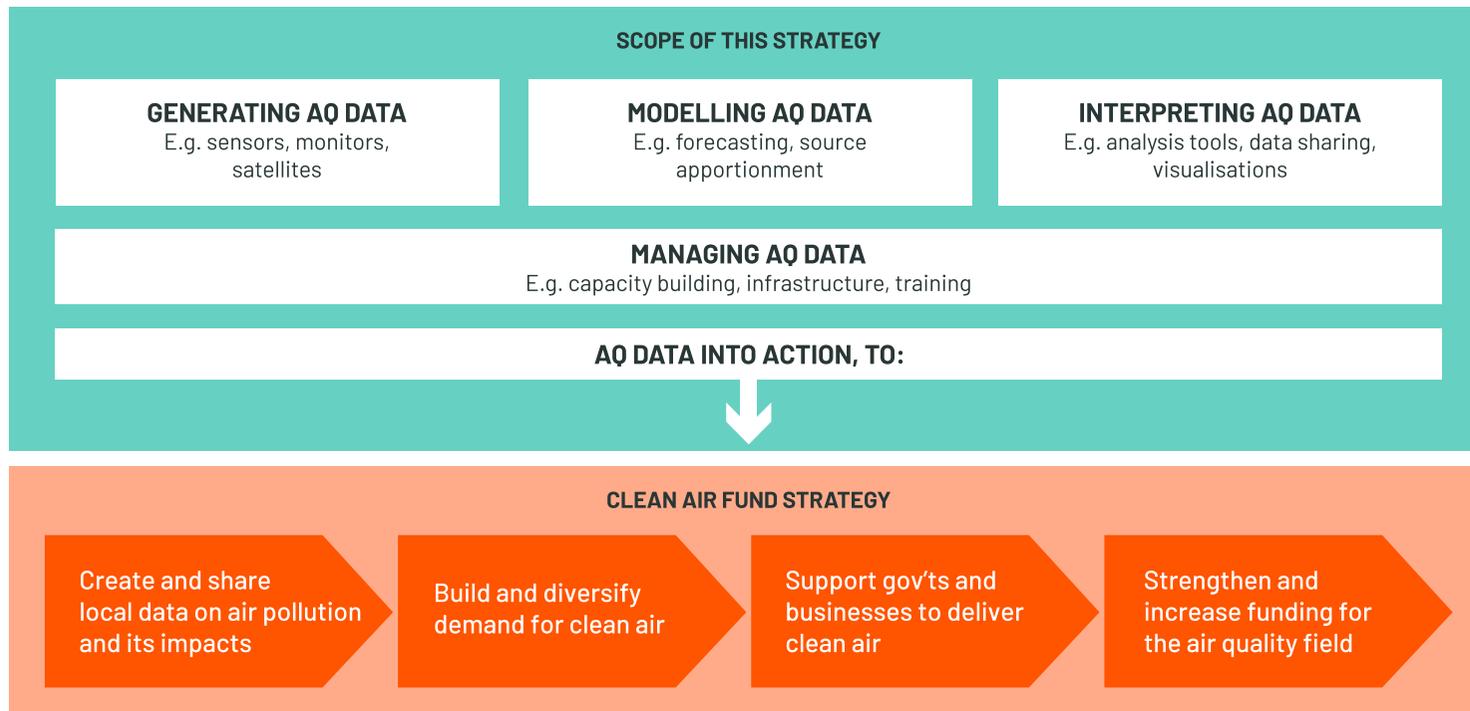
THE SCOPE OF OUR STRATEGY

This strategy considers all elements of air quality data: including the generation of data (from wearable sensors to satellites), the modelling of data (from Gaussian plumes to chemical weather forecasts), the interpretation of data (from APIs to quality control) and the management of data (the human and legal dimensions, such as operational capacity, political engagement and availability of funding). These elements alone are not enough to meet our vision - data must also be actionable - transformed into information through effective communication and made accessible to the intended user.

Our strategy works broadly across the air quality data sector to foster collaboration and bridge across siloes. This strategy stops at the point air quality data is applied indirectly: for example, in health impact research or for general campaigning, as these priorities are delivered through other Clean Air Fund thematic strategies.

REVIEWING THE CURRENT SITUATION

In forming this strategy, we undertook an in-depth review of the sector and a consultation process with experts from the field. Our findings and assessment of the current situation, which underpins this strategy, can be found at cleanairfund.org/publication/data-strategy.

SCOPE OF THIS STRATEGY

GENERATING AQ DATA	MODELLING AQ DATA	INTERPRETING AQ DATA
E.g. sensors, monitors, satellites	E.g. forecasting, source apportionment	E.g. analysis tools, data sharing, visualisations

MANAGING AQ DATA
E.g. capacity building, infrastructure, training

AQ DATA INTO ACTION, TO:

CLEAN AIR FUND STRATEGY

| Create and share local data on air pollution and its impacts | Build and diversify demand for clean air | Support gov'ts and businesses to deliver clean air | Strengthen and increase funding for the air quality field |

OUR APPROACH: FOUR WORKSTREAMS

To reach our vision, we have identified four key workstreams through which the Clean Air Fund can add the most value. These form the basis of the Clean Air Fund's work on air quality data and underpin the actions, targets and goals outlined in this strategy.

1. PILOTING AND INNOVATION

GOAL: Cost and capacity are no longer barriers to widespread monitoring

RATIONALE: Generating data is difficult and expensive; many governments don't do it as a result. Those that do still lack high density of measurements, and many do not make the data open. Small sensors, satellite remote sensing and other emerging technologies (e.g. machine learning) represent scalable ways to overcome these gaps, but each have their own set of challenges that need to be resolved.

2. DATA FOR ENGAGEMENT

GOAL: Citizens understand the quality of the air that they breathe

RATIONALE: Air quality data is currently applied narrowly, often remaining highly technical, poorly communicated and limited to academic or specialist audiences. As such data is underused for non-technical purposes, such as helping people to reduce their exposure. Overcoming this can open up a largely untapped application of air quality data.

3. DATA INTO POLICY

GOAL: Policymakers have good enough data on which they make informed decisions

RATIONALE: Large amounts of observational and modelled data already exist, including across LMIC regions, but there is a lack of skills and approaches to gain actionable value from it. There are few intermediary user-facing tools, and as a result, applications remain confined to academic or Global North users. Where data is used within policymaking, it largely looks backward (at historic air quality) rather than forward (at forecasting air quality with a view of implementing policy). Capacity for air quality management is weak almost everywhere, but particularly at the city level.

4. SHARING AND SCALING BEST PRACTICE

GOAL: Data, knowledge, and experience is widely shared across a connected field

RATIONALE: The air quality data field is relatively siloed: hardware producers, software developers, academics, policymakers, and civil society need to work together better to maximise the value of data through aggregation, innovation and new products. The sector is also changing rapidly, with new sensor companies continually emerging and capabilities quickly improving. There is a need to document learnings and convene key stakeholders, and to improve dissemination and replication of successful approaches.

PUTTING OUR APPROACH INTO ACTION
WORKSTREAM 1: PILOTING AND INNOVATION

GOAL: Cost and capacity are no longer barriers to widespread air quality monitoring

TARGETS

1a: All cities with populations greater than 250,000 monitor air pollution (exploiting innovation)

1b: Best practice and appropriate applications of small sensor, satellite and other emerging technologies are determined, piloted and made accessible to all

1c: International standards for small sensors are developed and applied commercially in the majority of small sensor sales

1d: The deployment of small sensors that provide policy relevant information is affordable for all countries

ENABLING ACTIONS

1.1: Pilot emerging innovation in a diversity of environments and for a range of end-user applications

1.2: Aggregate ongoing sensor evaluation efforts

1.3: Develop internationally agreed small sensor data standards

1.4: Build capacity and develop clear guidance to enable the uptake and appropriate application of small sensors, satellites and other emerging technologies

1.5: Ensure data and knowledge from small sensors, satellites and other emerging technologies is readily contributed to and accessed by global users

1.6: Support and advocate for the open-source development of innovative modelling and analytical tools (e.g. machine learning)

1.7: Influence greater private investment into the air quality data sector

PUTTING OUR APPROACH INTO ACTION
WORKSTREAM 2: DATA FOR ENGAGEMENT

GOAL: Citizens understand the quality of the air that they breathe

TARGETS

2a: The number of people using personal exposure monitors increases substantially

2b: Citizens routinely interact with air quality data (akin to weather data)

2c: Air quality monitoring campaigns are routinely undertaken by educators, communities & citizens

2d: Citizen-collected data aggregates with other data sources to form actionable information

ENABLING ACTIONS

2.1: Develop standard guidance and protocols for communicating and visualising citizen-collected data

2.2: Develop toolkits and guidance for community organisations and grassroot campaigners to measure personal exposure

2.3: Integrate air quality learning into school curricula through educational materials utilising wearable sensors

2.4: Engage leading technology companies to integrate air quality data into everyday applications (smart watches, phones, weather apps, street maps, social media etc.)

2.5: Develop easily understandable guidance on appropriate exposure sensors for intended applications (linked to targets 1.5 and 1.6)

2.6: Document and disseminate compelling examples of where data has resulted in action to promote replication

PUTTING OUR APPROACH INTO ACTION
WORKSTREAM 3: DATA INTO POLICY

GOAL: Policymakers have good enough data on which they make informed decisions

TARGETS

3a: Sub-city scale PM concentration and source attribution is known in all urban areas with a population greater than 250,000 people

3b: Governments of all urban areas with a population greater than 250,000 people establish air quality targets, make plans to meet them and commit long term funding to deliver those plans

3c: Policy relevant tools (integrating available observational and modelled data) are developed for every global region

3d: Air quality data is central to forming, enforcing and assessing policy

ENABLING ACTIONS

3.1: Drive governments to commit to ambitious goals for tackling air pollution and to measure and publicly report on progress

3.2: Develop replicable approaches for building technical capacity within low-income regions

3.3: Maximise the use of existing monitoring and modelling systems to provide policy relevant information

3.4: Develop air pollutant emission inventories and source attribution capacity for data-poor regions

3.5: Develop and pilot data and modelling tools that aggregate diverse datasets (satellites, ground-monitoring and models) to provide actionable information

PUTTING OUR APPROACH INTO ACTION
WORKSTREAM 4: SHARING AND SCALING BEST PRACTICE

GOAL: Data, knowledge, and experience is widely shared across a connected field

TARGETS

4a: International coordination of the AQ data sector is significantly enhanced: driven and funded by support from a global institute (at UN level)

4b: All national governments make the air quality data they generate programmatically open to all

4c: A regular (at least biannual) global convening brings together key stakeholders to drive collaborative action to addressing AQ data challenges

4d: Centralised platforms for AQ data, toolkits and best-practice are accessible and widely used globally (linked to target 1b)

ENABLING ACTIONS

4.1: Aggregate existing knowledge, tools, models and evaluations through accessible channels

4.2: Develop open data platforms to aggregate diverse data sources

4.3: Produce thought leadership products highlighting gaps and opportunities

4.4: Promote global and regional forums and convenings with key stakeholders

4.5: Foster upskilling of the next generation in the air quality data sector

WORKING WITH US IN DELIVERING THIS STRATEGY

The Clean Air Fund plays a catalytic role in advancing the air quality data field. We do this by supporting a diversity of organisations that can deliver our strategic objectives. Each grant we make must have a strong theory of change and demonstrate a clear pathway to scale.

We focus our grant making in our lighthouse geographies: currently the UK, Eastern and South Eastern Europe, and India. We will be expanding to a country or region in Africa from late 2021. We also support global level activities that extend beyond or cannot be limited to single geographies (such as international convenings and data aggregation platforms).

We select grants to fund through direct negotiation with our partners. We do not accept unsolicited proposals, but we do want to hear from organisations that can help us to deliver the objectives of this strategy. We may invite proposals from partners where we see a demonstrable alignment in strategic objectives, a clear understanding of the problem being addressed, applicability to our geographies and a planned pathway to scale.

Our strategy has ruled out funding projects that:

- Are wholly related to indoor air quality (we focus on ambient air quality).

- Focus on purifying air (we focus on mitigation over adaptation).

- Invest significantly in capital equipment.

- Are at low 'technology readiness levels', without a clear short-term application and route to scale.

- Do not support replication, meaning we expect all outputs, learnings and techniques used to be made transparent and actively disseminated to other groups.

As a charitable organisation the Clean Air Fund does not support for-profit entities through its grant-making except in exceptional circumstances and where the outputs are charitable in nature and not for business benefit.

WHAT WE'VE ALREADY ACHIEVED

The Clean Air Fund is not starting from scratch. Since our launch at the UN General Assembly in 2019 we have supported a diverse variety of projects to improve the accessibility, usability and actionability of air quality data, delivered in our lighthouse geographies and through a targeted global programme. For example, through our partners, we:

DEMONSTRATE INNOVATIVE TECHNOLOGIES TO FILL DATA GAPS (PILOTING AND INNOVATION)

With a consortium of partners led by the Environmental Defense Fund, we funded Breathe London: the world's most advanced network of small sensors to map London's air pollution in unprecedented detail. Our pilot deployment evaluated clean air policies and raised awareness of air pollution across London, and continues to share the know-how generated to help other cities to deploy and use innovative new technologies to aide their air quality management.

© Environmental Defense Fund

HELP COMMUNITIES TO COLLECT AIR QUALITY DATA AND USE IT EFFECTIVELY TO RAISE AWARENESS (DATA FOR ENGAGEMENT)

With Healthcare Without Harm we support hundreds of hospitals and health professionals to collect and use air quality data in India. Our funding is training and empowering medical professionals to collect and understand air quality data themselves, to use this information in their day-to-day interactions with patients, and to become clean air champions to push for improved air quality in their communities and to policy makers.

© Healthcare Without Harm

INCREASE LOCAL GOVERNMENT CAPACITY TO MANAGE AIR QUALITY (DATA INTO POLICY)

We work with C40 to engage the world's greatest cities to raise mayoral ambition on air quality, overcome gaps in data and evidence, and design and deliver solutions to deliver clean air. Our work is underpinned by the C40 Clean Air Cities Declaration: pledging the 37+ signatory mayors to set ambitious pollution reduction targets and implement substantive clean air policies that put cities on a path to meeting World Health Organization guideline levels of air quality. We help cities meet this ambition through a wide-ranging programme of technical assistance and best practice sharing.

© C40 Cities

INCREASE THE TRANSPARENCY, ACCESSIBILITY AND USABILITY OF AIR QUALITY DATA (SHARING AND SCALING BEST PRACTICE)

We support OpenAQ, the largest open-source air quality data platform in the world. The platform collects real-time air quality data produced by governments, private companies, research institutions, community organizations and individuals, making it accessible to and actionable by everyone. The platform averages 35 million data downloads a month, underpinning countless applications and initiatives.

© OpenAQ

GET INVOLVED

Work with us to implement this strategy: we are looking for funders to support us in delivering this strategy and for innovative ideas to directly fulfil our enabling actions, aligned to the criteria set out in page 12.

Contact: **data@cleanairfund.org**

Clean Air is a Human Right.

90% of the world's population – approximately 6.8 billion people – live in places where the air they breathe is damaging their health.

The issue is getting more urgent.

We believe in a world where everyone can breathe clean air.

Help us make it happen.

Interested in joining forces?

www.cleanairfund.org
@cleanairfund

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