Summary of stakeholder activities and needs

**C40.** Created and led by cities, the C40 Cities connects around 100 cities, representing 700+ million people and one quarter of the global economy. C40 Cities is focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks, while increasing the health, wellbeing and economic opportunities of urban citizens.

Working across multiple sectors and issues, C40 convenes networks that provide a range of services in support of cities’ climate change and public health efforts. C40 has 16 networks that cover the mitigation, adaptation and sustainability topics of highest priority to C40 cities and with the potential for the greatest climate impact.

**Activities:** C40’s air quality program works with cities through peer to peer knowledge sharing, direct technical assistance, and research in air quality management, climate action planning, policy implementation, and financing, to help cities remove barriers to delivering sustainability policy. As part of C40’s Deadline 2020 commitment, it is currently working with member cities in developing climate action plans with efforts to evaluate the wider environmental and economic benefits of GHG mitigation. C40 will also be launching a Knowledge Hub with articles, policy briefs, case studies, and data products which offers an opportunity to house and share urban air quality data products with city staff.

**Needs:** City needs and interests differ but some ideas on potential opportunities for indicators and analysis that can help improve decision-making and public communication in cities include (1) improved understanding of the public health burden of air pollution at a city scale (2) reliable data on contributions to pollution exposure for local sources within cities vs sources outside of cities (3) reliable data on the contributions to air pollution exposures from major source sectors, useful in communications of priority sectors (4) assessment public health benefits of meeting WHO guidelines in cities (5) improved screening tools for rapid assessments of air quality benefits of urban policies (tools that can be implemented by non-atmospheric scientists) (6) urban scale air pollution forecasts to improve risk communication in cities (7) easily accessible data on citywide air quality and temporal trends in cities without high quality monitoring data.

Geographic locations: Addis Ababa; Amsterdam; Auckland; Beijing; Bengaluru; Berlin; Buenos Aires; Chengdu; Chennai; Ciudad de México; Copenhagen; Dar es Salaam; Delhi NCT; Dubai Durban (eThekwini); Hanoi; Houston; Istanbul; Jakarta; Johannesburg; Kolkata; Lima; London; Los Angeles; Milan; Nairobi; Portland; Quezon City; Quito; Rio de Janeiro; Salvador; Seoul; Sydney; Tel Aviv; Tokyo; Vancouver; Venice; Warsaw

**Clean Air Institute (CAI)** is a non-profit organization committed to protecting public health by enabling data-driven decision-making processes to abate air pollution and mitigate climate change. Our organization is based in Washington DC. CAI is interested in partnering with leading institutions and researchers to support the use of Earth observations for air-quality management and public health protection policymaking process.

**Activities:** We provide knowledge services, engage stakeholders, facilitate the introduction of disruptive technologies and mobilize networks for developing and implementing integrated solutions to achieve air quality, climate change, and sustainable development goals.
Climate and Clean Air Coalition The Climate and Clean Air Coalition is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations committed to protecting the climate and improving air quality through actions to reduce short-lived climate pollutants. Our global network currently includes 137 state and non-state partners, and hundreds of local actors carrying out activities across economic sectors. We support actions on the ground through 11 initiatives, and our Solution Centre provides a forum for scientists, experts and decision makers to share their expertise and trial new technology.

Activities: BreatheLife. The Climate and Clean Air Coalition, World Health Organization, UN Environment and World Bank co-lead the BreatheLife campaign to raise global awareness about the health and climate impacts from air pollution and promote solutions to mitigate emissions. A number of organizations are official supporters of the campaign, including C40, ICLEI, Clean Air Institute, Clean Air Asia, Vital Strategies, Clean Cooking Alliance, and nrg4SD.

Our focus is on high-level political outreach, development of communication materials and peer-to-peer exchange of best practices. As part of the BreatheLife campaign, governments are encouraged to join the BreatheLife Network to showcase their actions to improve air quality and share best practices within the network.

Urban Health Initiative. The WHO leads the Urban Health Initiative pilot projects in Accra, Ghana and Kathmandu, Nepal as part of the Climate and Clean Air Coalition’s Health Initiative. A key objective is to support development and implementation of a comprehensive urban health impact assessment toolkit for cities to use to support integrated air quality and climate mitigation planning.

Needs: The needs of each government seem to vary quite a bit depending on their access to air quality data - but there is universal appreciation for communication materials developed by the WHO on air quality and health, and strong interest in sharing best practices to engage citizens to garner support for air quality measures. Some governments have committed to achieving WHO Air Quality Guidelines or Interim Targets by 2030, and there is a strong need to help governments map out a pathway toward achieving these goals. There is an opportunity to develop a custom dashboard for the BreatheLife cities to showcase the air quality and health data and present tools that can be used by government officials to easily convey the local health impacts from air pollution to drive further mitigation action.

Geographic location: There are currently 55 governments in the network from Europe, Africa, Asia/Pacific and the Americas, including 34 cities, 18 regional governments and 3 countries representing 153 million citizens.

Environmental Defense Fund is bringing together innovators from industry, universities and advocacy groups to transform data into action and slash emissions from major sources that contribute to poor health and climate change.

Activities: Using cutting-edge sensor technology across cities worldwide, we’re shining a light on air pollution block-by-block to clear the air, foster healthier communities and inspire a groundswell of action. Building upon our pioneering work in Oakland that shows how air pollution varies as much as eight times within one city block, EDF and our partners are combining state-of-the-art technology with new data analytics to better understand people’s exposure to air pollution and it’s impacts on health in other cities like Houston and London. Visualizing the invisible threat at the local level, where people experience it, and documenting the benefits of policy interventions can lead to more effective, data-driven solutions and, ultimately, healthier air.

To deliver the promise of new, high-resolution sensing technologies (mobile monitoring, distributed networks and remote sensing), EDF is working to inform and accelerate clean air solutions at multiple scales of governance—local, regional, national and international. Our focus is on tackling critical scientific, institutional and policy barriers to generating actionable information, demonstrating what is
possible through on-the-ground engagement in four regions across the world, and working with partners to scale lessons learned and best practices globally.

**Needs:** Our approach is necessarily tailored to local circumstances and local needs. Some cities may lack the reliable, accurate and/or publicly available emission monitoring data needed to allow for accurate attribution of air pollution, itself a pre-requisite of smart policymaking. Others may need empirical data at local scales, improved modeling and forecasting and/or tools for assessing the distribution of cost, benefits and air quality health impacts of various policy interventions across neighborhoods within cities. Applying lessons learned from this work, there is an opportunity to develop a comprehensive framework cities can use to measure, map, and target mitigation actions to protect the most vulnerable and ensure equitable distribution of benefits within cities.

The Global Climate and Health Alliance is made up of health organizations from around the world united by a shared vision of a world in which the health impacts of climate change are kept to a minimum, and the health co-benefits of climate change solutions are maximized, through leadership, advocacy, policy and engagement. We bring health civil society organizations together around key global climate events, including through our annual Global Climate and Health Summit alongside the annual UNFCCC climate negotiations. We have helped to raise the voice of the health sector calling for urgent climate action, such as spearheading, ahead of Paris, declarations representing 13 million health professionals. Most recently, we will be launching and co-chairing, with the World Health Organization, the new WHO-Civil Society Working Group to Advance Action on Climate Change and Health. GCHA coordinates the global Unmask My City initiative, an initiative by health professionals for clean, safe air in our cities. Unmask My City is a global initiative which supports doctors, nurses and public health workers and organizations to mobilize in cities to protect health and the climate from the effects of air pollution. To implement this global initiative, we work closely with the Health and Environment Alliance, and with the US Climate and Health Alliance and the UK Health Alliance on Climate Change, and local organizations and coalitions in each city. Unmask My City promotes practical solutions and creates tangible, city level policy changes that drive a clear downward global trend in air pollution by 2030, with related reductions in illnesses and deaths, as well as in greenhouse gas emissions.

Health Effects Institute (HEI) is a research funding organization interested in how satellite products can improve exposure estimation (reduce exposure misclassification) for various pollutants with sufficient spatial resolution that could reduce error and bias in epidemiologic estimates or improve health impact estimates. We’re interested in how our grant applicants might use these satellite products at various geographic scales to capture exposures in different populations; we have several who already are.

**Activities:** Using our State of Global Air, we want to use satellite products to communicate air pollution levels on different temporal and spatial scales (rather than the national, annual averages we present on the site). Of interest are NASA products that give insight into changes in emissions/air quality over time. We did add a visualization on SO2 in China from NASA this year to the site, that suggests the declines in coal use there have led to lower SO2 levels.

Other interests:
- Regional interests: Asia – South and East Asia; Eastern Europe (Coal use)
- Other air pollutants: NO2 and O3 spatial surfaces

Moms Clean Air Force unites over one million moms and dads united against air pollution – including the urgent crisis of our changing climate – to protect our children’s health. We work across the US on national and local policy issues, through a vibrant network of state-based chapters. Our moms meet with lawmakers at every level of government and on both sides of the political aisle to build support for commonsense solutions to pollution. We have staff and field consultants working on the ground in 12
states, and we are currently hiring field consultants in 5 additional states. Our advocacy at the federal level includes fighting the Trump administration’s rollbacks of bedrock pollution protection standards, mostly through EPA rulemaking. We are currently working to fight rollbacks of the Clean Car Standards, the Clean Power Plan, and methane pollution standards, as well as harmful changes to the Mercury and Air Toxics Standards. We also work against the general undermining of scientific expertise at EPA that threatens the integrity of the National Ambient Air Quality Standards for criteria air pollutants. We also encourage federal lawmakers to provide much-needed oversight to the current administration on air pollution and climate change in the form of briefings, hearings, reports, and sign-on letters. In addition to advocacy at the federal level, we support state and local initiatives that protect communities from air pollution and climate change, including state-level renewable energy standards and carbon pollution targets, the development of climate action plans, state-level methane protections, and other initiatives. Our field coordinators and volunteers are always seeking state-level, county-level, and city-level data about health impacts that they can use in their conversations and presentations with lawmakers and community members. They are especially eager to see complex science presented in simple language for non-scientists and non-policy-makers so that they can easily convey locally-relevant health information. This helps them feel more confident in their outreach and helps to engage more community members.

**Orbis Air, LLC** supports a range of clients (the World Bank, U.S. State and municipal governments, C40, etc) working on air quality management and climate change mitigation simultaneously.

**Activities:** Current activities include: implementation of comprehensive AQM pilots in African cities (i.e. including monitoring, inventory, health assessment, modeling, decision support, stakeholder engagement and regulatory design/ implementation/enforcement). Orbis also undertakes analytical work and develops decision support tools that account for the multiple benefits of reducing air pollution, SLCPs and GHG emissions.

**Needs:** There continues to be a need for integrated scoping tools (i.e. simple to use tools that provide AQ, health, energy, ag and CO2e/AGTP25 benefits for AAP and HAP interventions) as well as readily available decision support tools for municipal and project level analysis.

**Geographic location:** Orbis Air, LLC supports the World Bank’s PMEH program, which is conducting pilots in 7 cities - 4 in Africa - including Accra, Lagos, Johannesburg and Cairo.

**Stockholm Environment Institute** is one of the lead partners of the Climate and Clean Air Coalition (CCAC) Initiative on Supporting National Action and Planning to reduce short-lived climate pollutants (SNAP).

**Activities:** As part of SNAP we support countries by helping them to develop emission mitigation plans by training them in the use of a tool called LEAP-IBC, or the Long-range Energy Alternatives Planning System with the Integrated Benefits Calculator. LEAP started life as an energy planning tool, and has been used extensively by countries to calculate GHG emission scenarios, for NDC development and reporting to the UNFCCC. It has been used in over 190 countries. We have enhanced LEAP to be able to also calculate air pollutant emissions and estimate impacts on air pollution concentrations and health and climate impacts through the development of the IBC. The pollutant concentrations are calculated using the results of the GEOS-Chem Adjoint model, run by Daven Henze at the University of Colorado. Countries supported under SNAP are using this tool to i) develop emission scenarios for air pollutants, Short-Lived Climate Pollutants (SLCPs) and GHGs; ii. show the change in progression in emissions under different mitigation scenarios, iii) quantify the change in national-scale population weighted average PM2.5 concentrations and iv) quantify the impact of this change on human health and global temperature change (in annual time-steps).

At the moment we are helping 12 countries to develop detailed national SLCP mitigation plans, and also promote the generation of integrated air quality and climate planning. We are also supporting a number
of other countries to start to use the tool and develop black carbon emission inventories (and also the emissions of the other substances). The support is provided through training workshops and remote training.

**Needs:** Through our work with countries we are getting requests for further enhancements to the tool that would support their decision making. One aspect we have been pursuing is to establish concentration-response functions (with Susan Anenberg and others) which could be used in the IBC to estimate further health outcomes.

**Geographic locations:** Bangladesh, Colombia, Cote d’Ivoire, Ghana, Mexico, Nigeria, Chile, Ethiopia, Jordan, Liberia, Maldives, Morocco, Peru, and Togo

**Vital Strategies** provides technical expertise and consultative services to inform policies and public discourse around air pollution and its health impacts around the world. Policy solutions that control emission sources are the most effective ways to improve air quality and health.

**Activities:** In South and Southeast Asia, where air pollution is a leading risk factor for premature death, we provide support to governments to address emissions. For example, in Indonesia, we partner with Jakarta’s city government and non-governmental organizations to develop an air quality management plan.

Through Inspire: Health Advocates for Clean Air—our coalition of health practitioners around the world who advocate for clean air—we are raising the profile of air pollution as a health issue and providing clinicians with the tools they need to communicate air pollution risk to their colleagues, patients, and policymakers.

Part of our work includes training journalists to find and use data on the sources and health impacts of air pollution, and on techniques for building compelling, solution-focused stories. Our communications experts also conduct research to better understand what people around the world know about air pollution and how they perceive their personal risks. Our expert staff and consultants are developing comprehensive and innovative guidance for city governments around the world looking to jumpstart their air quality management systems, focusing on air quality monitoring systems, policy solutions, and public engagement strategies. Global progress on environmental issues requires public awareness and civil society demand.

**Needs:** We are exploring potential additional locations, and are keen to hear about locations with demonstrated political will to improve air quality, as well as strategic implementation partners interested in collaborating to accelerate clean air progress

**Geographic location:** S and Southeast Asia, including perceptions of air quality work, journalist and clinician trainings. Places we are currently actively implementing: Jakarta. Places we are further exploring for potential implementation as we develop the innovation guide include urban areas of India, elsewhere in Indonesia, and Ethiopia (Addis).

**Washington D.C. DOE** DOEE interacts with many types of stakeholders, primarily residents and the regulated community. To achieve positive outcomes from these efforts DOEE takes a variety of approaches and employs technology to make the interactions more effective.

**Activities:** Some highlights of DOE’s recent stakeholder activities:
- DOEE conducts extensive stakeholder outreach for developing air pollution control strategies, air regulations and air quality improvement plans. DOEE actively participates and taps into various local, metro-level, and Mid-Atlantic and Northeast regional level forums.
- DOEE held extensive stakeholder outreach in order to develop the Sustainable DC 2.0 Plan. It kicked off on Earth Day 2017 and began by conducting professional polling and talking to 3,000 residents
through both open houses and pop up events at libraries and metro stations. It then proceeded to having 400 residents participate in 7 work groups, all while community meetings were being held around the city, in particular in communities of color. Following release of the plan, public comment was sought, and again pop up events were held to ensure residents knew that public comment was sought by the District.

- DOEE also conducted extensive stakeholder outreach in developing the Volkswagen Settlement Mitigation Plan. DOEE issued a request for information, conducted an online survey using Survey Monkey, held several open houses in communities of color, and solicited comments on a draft mitigation plan.

**Needs:**

- DOEE exploring a citizen-enforcement pilot for vehicle anti-idling regulations where citizens will be able submit documented evidence for issuing citations (normally residents can only submit a request for enforcement personnel to issue a citation), which will lead to better health outcomes and reduce air pollution and GHGs while allowing residents to have direct role in the efforts for reducing the impacts of pollution on their health.
- DOEE is also undertaking efforts to streamline regular interactions with the regulated community, such as permitting, through use of technology. Doing this would ease the burden on the regulated community, while also making it easier for finer scale data to be provided to DOEE to improve decision making processes.
- DOEE also employs technologies to improve information that can be provided to stakeholders such as modeling health impacts of air pollution using BenMap to better communicate the problems of air pollution or to better analyze the health impacts on residents.

**WHO PAHO** leads the BreatheLife campaign in the Americas, working together with the Clean Air Institute and UN Environment in this effort. We have used the campaign to engage countries and cities in our region towards preparing a roadmap to tackle air pollution.

**Activities:** We organized the launching of the campaign with stakeholders from the Ministries of Health and Environment of our priority countries in Medellin, Colombia, in October 2017. We have organized two trainings on AIRQ+, a methodology to measure burden of disease attributable to air pollution, in Jamaica (2018) and in Mexico (May 2019).

We consider that the BreatheLife campaign is an opportunity to work with a specific country that has already committed to reduce air pollution through joining the campaign and that has already a roadmap. Our strategy has been to promote the campaign, help them with their roadmaps and offer technical support in issues that are of their interest. For example, we are organizing a workshop in Colombia in June 2019 for all the Colombian cities that have joined the campaign with experts in three issues that they requested: air quality monitoring; sustainable transport and mobility; and development of integrated emission inventories. Our idea is to give targeted support to the countries that have joined the campaign.

**Needs:** Our main challenge is the limited resources to support our countries on capacity building.

**Geographic locations:** At the moment, we have BreatheLife government network members in Argentina, Chile, Colombia, Dominican Republic, Ecuador, Honduras, Panama, and Mexico. Brazil and Peru are about to join the campaign and we are hoping to get more cities in Argentina.