DELIVERING ON AIR QUALITY, CLIMATE CHANGE AND HEALTH

A World Health Organization, UN Environment, World Meteorological Organization partnership, supported by the Climate and Clean Air Coalition

COMBATTING AIR POLLUTION: A PRIORITY FOR HEALTH, CLIMATE AND SUSTAINABLE DEVELOPMENT

In order to address more efficiently the challenges that countries and cities face because of air pollution, the World Health Organization (WHO), the United Nations Environment Programme (UN Environment) and the World Meteorological Organization (WMO), with the support of the Climate and Clean Air Coalition (CCAC), are joining forces to deliver their services in an integrated and complementary manner to improve air quality and consequently, the health and well-being of citizens worldwide.

A cooperation between WHO, UN Environment and WMO, supported by the CCAC, captures the strengths and expertise of the different organizations to better monitor air quality and its impacts on health and the environment, and provide improved tools to policy makers and practitioners to implement effective interventions and validate their results.

The objective of this partnership is to raise awareness of the health impacts of poor air quality and of the solutions available to prevent and reduce air pollution. Futhermore, we will support countries and cities to take action in mitigating the sources of pollution and greenhouse gases so as to improve public health and well-being, and contribute to reducing climate change.

Building from the three agencies' unique mandate and comparative advantages, the partnership will address air pollution challenges in a synergistic and impactful manner at the global and regional level, while developing targeted joint and complementary activities in selected countries and cities.

In addition In addition to increasing efficiencies and improving service delivery of the three agencies, such collaboration is expected to stimulate intersectoral partnerships among a range of stakeholders at the national level, so as to significantly reduce the death toll from air pollution by 2030 and combat climate change, in line with the aims of the Sustainable Development Goals for 2030.
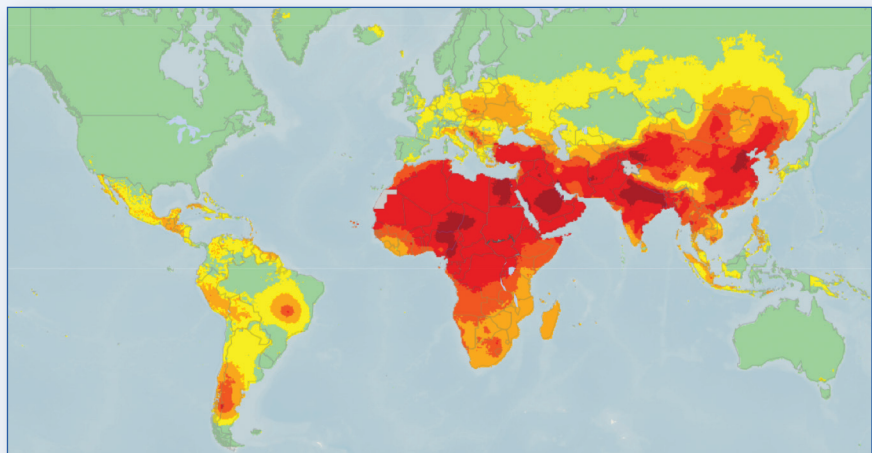
Air Quality and the Sustainable Development Goals

The Sustainable Development Goals (SDG) call for achieving substantial reductions in air pollution-related deaths (SDG 3), improving urban air quality (SDG 7) and improving access to clean household energy (SDG 11) by 2030.

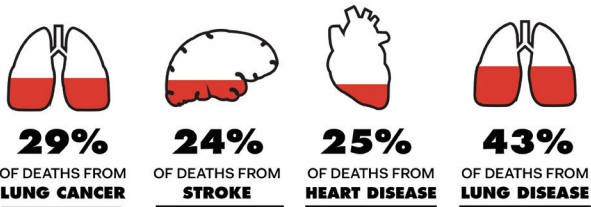### Economic impacts of air pollution

The economic impacts are significant: the World Bank estimates that ambient air pollution alone costs more than $ 5 trillion in lost welfare and $ 225 billion in lost income.

WHO 2018: Global ambient air pollution; annual mean ambient PM2.5 (http://maps.who.int/airpollution/)

THE INVISIBLE KILLER

Air pollution may not always be visible, but it can be deadly.

29% OF DEATHS FROM **LUNG CANCER**

24% OF DEATHS FROM **STROKE**

25% OF DEATHS FROM **HEART DISEASE**

43% OF DEATHS FROM **LUNG DISEASE**

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- The World Health Organization sets global Air Quality Guidelines, based on scientific evidence about air pollution exposure, health risks and interventions, and works to build health sector capacity to assess health risks from air pollution and provide leadership for policies that reduce those risks. WHO is the custodial agency for monitoring progress on three air pollution-related SDG targets.

- UN Environment supports governments to formulate and take action to improve air quality and share air quality data, through supporting air quality monitoring and assessments, capacity building in a number of key sectors that impact air quality (such as transport and waste), awareness raising, as well as strengthened cooperation, partnerships and exchange of good practices.

- The World Meteorological Organization provides expertise on the relationship between air quality and weather, climate and other environmental factors, and works at enhancing the capabilities of Member countries to observe and operationally forecast air-quality.

- The Climate and Clean Air Coalition provides its implementing capacity, its scientific expertise and its network of partners and stakeholders in order to support actions to prevent and address air pollution consistent with climate action.

AIR POLLUTION: THE COSTS TO HEALTH AND CLIMATE

Some 23% of premature deaths annually are due to modifiable environmental risks, according to WHO[1]. Among those, air pollution is the largest environmental risk to health and one of the top three risk factors for mortality overall. Some *7 million people across the world die each year prematurely due to exposure to high levels of air pollution, outdoors and at home.*

- Key air pollution sources include: transport and power generation; building and household energy use; industry; municipal waste and agricultural emissions; forest fires and peatland emissions; and sand and dust.

- Key air pollutants, particularly black carbon and methane, also have near-term climate impacts that accelerate the pace of global warming.

- Most air pollution sources are significant emitters of longer-lived greenhouse gases, particularly CO_2 and nitrous oxide (N_2O).

Air pollution affects almost everyone. About 9 out of 10 people worldwide breathe air polluted above WHO Air Quality guideline levels. In rural areas, household air pollution emissions are a major cause of ill health, along with emissions from agriculture and forest fires. Developing cities and countries often face the highest pollution levels, and children, women, the elderly, the chronically ill, and other vulnerable groups are most at risk. The good news is that strategies that reduce emissions can benefit health immediately as well as mitigating climate change, creating many win-wins for public health, development and the planet. Action at national, regional and urban levels is urgently needed to combat the global air pollution crisis, improve public health and reduce climate change.

[1] WHO-report, 2016; Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks

AIR QUALITY MANAGEMENT: KEY STEPS
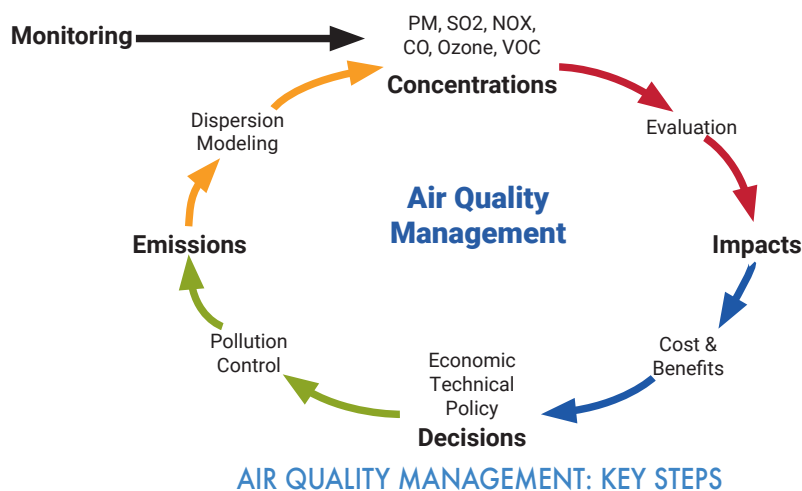
The World Health Organization, UN Environment, the World Meteorological Organization, with the support of the Climate and Clean Air Coalition have identified 5 critical action areas[2] where they can deploy their expertise and provide assistance to countries and cities to improve air quality

Details are provided below on plans for stronger collaboration in 5 key over-arching action areas: 1) mapping of air pollution data, its sources and health impacts 2) Communicating and advocating at all levels; 3) Effective responses to acute air pollution episodes; 4) Supporting science-based solutions and capacity to act. 5) Implementing solutions. Additionally, UN Environment, WHO and WMO are also supporting other critical thematic work both as individual agencies as well as jointly. Examples include: Estimation of economic impacts of air pollution; Air quality legislation and regulation; Local government action on air pollution; Sand and dust storms; and Biomass burning including peat fires leading to haze episodes.

Action Area 1: Identifying and mapping of air pollution and its sources and health impacts to enable impactful action

Expected outcome: improve and harmonize air quality data to map air quality worldwide, and identify sources of air pollution and health impacts.

Achievements for scale up:

- WHO's ambient air quality database[2] updated in May 2018 compiles data (PM_{10}, and $PM_{2.5}$) for 108 countries and 4300 cities and WHO's Air Quality exposure map[3]. It is used to inform official country and regional estimates of exposure and disease burden[4].
- WMO community operates the global network for atmospheric chemical composition (mostly unpolluted condition), has expertise of performing and quality control these measurement, data sharing and archiving and atmospheric composition modelling from global to urban scale.
- Global assessment on sand and dust storms (including main causes and proposed mitigation actions).
- UN Environment has demonstrated as a proof of concept the use of low-cost sensors for air quality monitoring in Kenya.

Planned key outputs by 2020:

- Improved maps of the atmospheric pollution (with higher temporal and spatial resolution) available for the health impact studies.
- Updated WHO Air Quality guidelines (to be released in 2020).
- Release of technical report on *Low-cost sensors for the measurement of atmospheric composition: overview of topic and future applications* (2018).
- Further pilots on use of low-cost sensors for air quality in 4 countries in Europe, Africa and Latin America and the Caribbean in 2018-2019.
- Air quality assessments for health and environmental policies in 6 countries in Africa and Asia Pacific.
- Global Environment Outlook 6 *Healthy Planet, Healthy People* – Air Quality Chapter (to be released in 2019).

Action Area 2: Communicating and advocating at all levels

Expected outcome:

Ensure awareness by policymakers and the public of air pollution health and climate risks and widespread adoption of key policy and personal solutions in urban as well as rural areas by 2030.

Achieve significant reductions in air pollution in cities and countries that have committed to the BreatheLife campaign by 2030.

Achievements for scale up:

WHO, UN Environment and CCAC are jointly leading the BreatheLife campaign, which is raising awareness about health and climate risks from air pollution and of the solutions among three target groups – policymakers, the health sector and the general public. To date, 24 cities, 12 regions and 4 countries have requested to join the campaign.

Planned key outputs by 2020:

- BreatheLife will expand the global base of countries, regions and cities committed to action, climaxing with a call to action at the *Global Conference on Air Pollution and Health* organized by WHO in collaboration with UN Environment, WMO, CCAC and partners in Geneva (Oct-Nov 2018).
- By 2020, the BreatheLife campaign should engage 10 countries and 150 cities (to cover 500 million people) with targets to clean up the air by 2030.
- BreatheLife will expand its social media outreach through the "BreatheLife Challenge" aimed at individual commitments to cleaner, healthier, cleaner and greener behaviors.
- BreatheLife will also expand its regional outreach through tailored campaigns and events in Africa and Asia, with partners who have improving air quality and health as a central focus and a strong presence on the ground, e.g. other UN agencies, Clean Air Asia, Clean Air Institute, ICLEI, and the Global Alliance for Clean Cookstoves.

Action Area 3: Providing effective responses to acute air pollution episodes

Expected outcome:

Countries and cities can put in place rapid response plans, and individual citizens are able to take immediate measures when acute air pollution episodes occur/are forecasted, in order to reduce health impacts as much as possible and to take decisions that may limit the extent and duration of the episode.

Achievements for scale up:

Technical know-how and experience in multi--scale forecasting and information systems for acute air pollution episodes.

Planned key outputs by 2020:

- Improved air quality forecasting, through enhanced collaboration with AQ forecasting centres worldwide to increase coverage, providing data such as maps of the air pollution levels in real-time.
- Recommendations and good practice guidance/training materials for the use of air quality forecasting from global to urban scales.
- Provision of evidence based guidance for the general population, health care workers and policy-makers on protecting their health during the acute episodes of air pollution, including immediate sector specific emission reduction measures.
- Pilot testing of the guidance in 2 countries in Asia by 2020.

Action Area 4: Supporting science-based solutions and building capacity to act in health, environment and economic sectors.

Expected outcome:

Expert guidance is available and capacity of national and local governments, including the health sector, is built to develop and implement air pollution management plans that also incorporate climate mitigation objectives.

Achievements for scale up:

- The Urban Health Initiative, currently pilot tested in Accra (Ghana) and Kathmandu (Nepal), is informing local governments on health and economic impacts of policies in polluting sectors, tracking impacts of interventions and the policymaking process and raising awareness and promoting public health protection by involving citizens through communication campaigns.
- The SNAP Initiative (Supporting National Action and Planning on Short-Lived Climate Pollutants) of the CCAC is working in 23 countries.
- Asia Pacific Regional Report on Science-based Solutions identifies a portfolio of 25 clean air measures that would contribute to achieving the SDGs while delivering significant benefits for human health, environment, crop yields as well as climate and socio-economic development.

Planned key outputs by 2020:

- The Urban Health Initiative will be implemented in 2 additional cities in 2019 and a training package will be developed to enhance capacity of country and city officials to develop relevant air pollution mitigation strategies.
- The SNAP Initiative will support additional countries to prioritize mitigation action for health and climate, as well as action at the urban level, building on the experience of the Urban Health Initiative.
- Air quality management strategies will be developed in 5 cities in Africa (Addis Ababa, Abidjan, Kigali, Nairobi, Ouagadougou) and in 2 cities in Asia and the Pacific (Phnom Penh and Varanasi). Another 2 cities to be further supported in the next year.

Action Area 5: Implementing solutions in sustainable development

Expected outcome:

Countries and cities are supported in their efforts to deploy solutions to improve air quality in priority sectors.

Achievements for scale up:

- 2016 report: Actions taken by governments on Air Quality: in order to provide a picture of policies and measures in place across the globe to prevent and address air pollution, UN Environment launched a report "Actions taken by governments on Air Quality" in 2016.

Planned key outputs by 2020:

- A new assessment of policies and actions taken by governments (by 2021) will be released by UN Environment.

Example of solutions - *Addressing indoor air quality*

Achievements for scale up:

In order to take action, countries and cities need to have standards and policies in place. The *WHO Guidelines for indoor air quality: household fuel combustion* provides technical recommendations that define what fuels and technologies can be considered clean for health. These guidelines, paired with the WHO's Clean Household Energy Solutions Toolkit (CHEST) provide the tools and resources needed for actors in the health and others sectors develop and implement effective clean household energy policies and programmes.

Planned key outputs by 2020:

Implementation of the WHO indoor air quality guidelines in countries; improvements of the different modules done in different countries involving representatives from the health, environment and other sectors as appropriate.

Example of solutions - *Mobility*

Achievements for scale up:
Vehicles are significant sources of PM2.5 and in many cities the major source. To address this issue, there is an urgent need to introduce low-sulfur fuels coupled with cleaner vehicle emissions standards. UN Environment and the CCAC are working in more than 60 developing/ transition countries to support the development of policies to address emissions from transport.

Planned key outputs by 2020:
Additional work will leverage the already ongoing work in these countries. Activities/products that can be delivered in countries and cities through support from UN Environment include:

- Low sulphur fuel standards/ roadmaps
- Vehicle emission standards/roadmaps
- Used Vehicles Strategy
- Electric mobility strategy
- Soot free bus roadmaps
- Non-motorised transport policies

Example of solutions - *Waste*

Achievements for scale up:
There are proven solutions to improve waste management practices that will reduce emissions from the sector and lead to cleaner, more sustainable cities. The CCAC's Municipal Solid Waste Initiative works with a network of cities around the world to advance waste sector mitigation practices.

Planned key outputs by 2020:
Help enable 1,000 cities, and their national governments, to track emissions reductions, self-fund or obtain sustainable financing for capital projects that reduce and prevent emissions, and scale up actions beyond the existing network.

[2] http://www.who.int/airpollution/data/cities
[3] http://maps.who.int/airpollution/
[4] http://www.who.int/airpollution/data