SDC Network **Climate, DRR & Environment**

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

WELCOME

Clean Air, Climate and Health
Learning Journey

25 September 2025

This online event will start soon

SDC Network **Climate, DRR & Environment**

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

WELCOME

Clean Air, Climate and Health
Learning Journey

25 September 2025

Team

André Wehrli

Senior Policy Advisor /
Focal Point Climate, DRR,
Environment Network
SDC

Rafael Millán

Regional Programme
Officer - Embassy of
Switzerland in Peru
SDC Regional Hub Lima

Valentin Messmer

Programme Officer -
Renewable Energies,
SDC Section Climate,
DRR and Environment

Cesar Robles

Senior Advisor
Learning & Communication,
Helvetas Swiss
Intercooperation

Before we start…

Introduce yourself in the chat

Please write:

- Your name
- Your affiliation
- Where you are joining from

Rename yourself with language preference

Find your name in the partcipants list, right click to **rename**, e.g.

André Wehrli, SDC- English, Spanish

Tech tips (rules of the game)

If you have comments or questions during presentations, please post them in the chat, or wait for the Q&A moment

If you can’t hear or see: close and restart the meeting, and close other programs

This event is being recorded for internal documentation purposes

Keep your smartphone ready: you will need it a few times.

ENGLISH

Interpretation available

Live voice interpretation is available for Spanish - English.

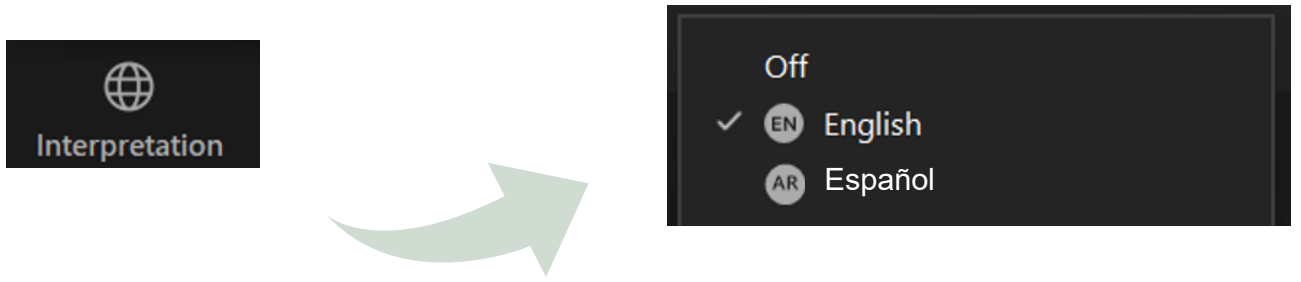
Click on the “Interpretation” icon (globe) in your menú bar and select language.

ESPAÑOL

Interpretación disponible

Interpretación en vivo disponible para español – inglés.

Haga clic en el ícono de “interpretación” (globo) en el menú y seleccione el idioma.



Today's journey

Setting the scene

Rafael Millán
Regional Programme Officer - Embassy of Switzerland in Peru
SDC Regional Hub Lima

Key Input
HEALTH

Marloes Eeftens
Research Group Leader Sensoring and Environmental Epidemiology
Swiss Tropical and Public Health Institute – Swiss TPH

Key Input
CLIMATE

Amanda Curry
Coordinator - Clean Air Flagship Climate and Clean Air Coalition – CCAC

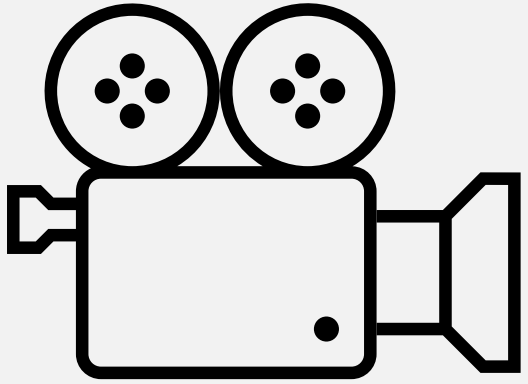
INTERACTION

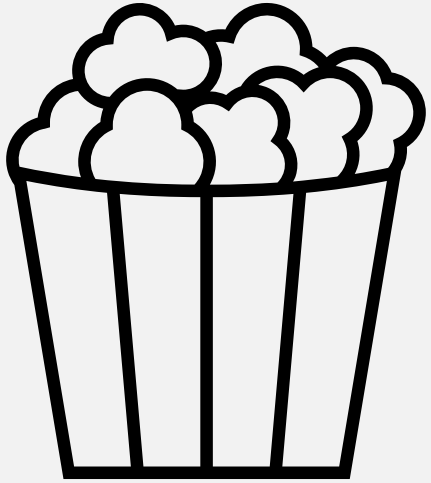
Group Discussions to dive into our own experiences, challenges and solutions

OUTLOOK

What's the way forward?

Global Expert Input





https://www.instagram.com/reel/DO9A6tnDtTZ/?igsh=NG5mdWhrdmRlN21i

Setting the **Scene**

Clean Air, Climate and Health
Learning Journey

25 September 2025

Rafael Millán

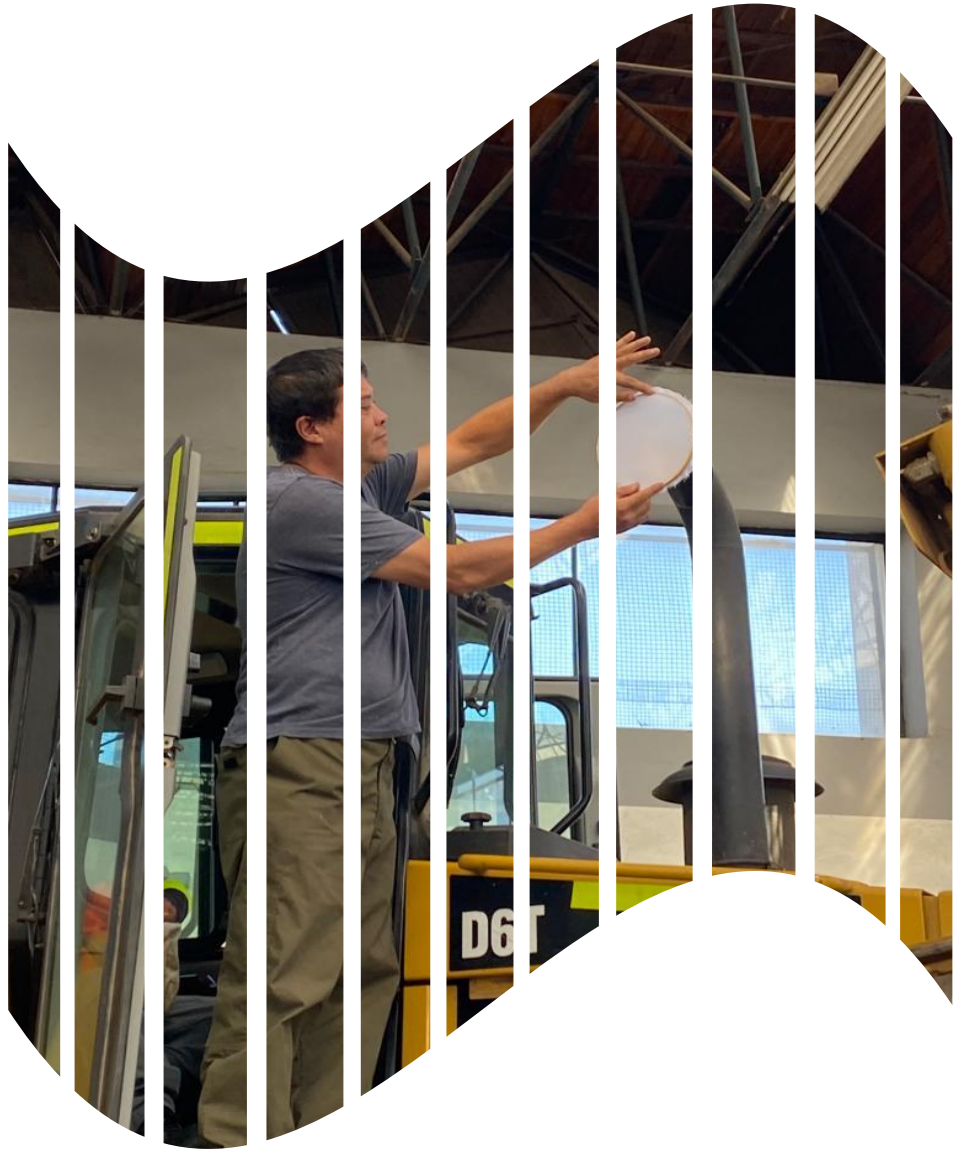
Regional Programme Officer - Embassy of Switzerland in Peru
SDC Regional Hub Lima

The Challenge of Air Pollution

- 9 out of 10 people breathe polluted air
- Major causes: vehicles, industry, biomass
- Linked to 7 million premature deaths annually
- Urban populations around the world face increasing risks

SDC Regional Action in Latin America

- Aire Puro (Central America): eliminated leaded gasoline, monitoring networks
- Aire Limpio (Bolivia): 12 monitoring networks, sustainable mobility
- PRAL (Peru): Clean Air Plans in Arequipa, Cusco, Trujillo
- EELA: cleaner brick kilns in 9 countries
- CALAC & CALAC+: soot-free buses, clean construction machinery



Key Achievements

- Phase-out of leaded gasoline across Central America
- National air quality systems in Bolivia and Peru
- 4,000 brick producers modernised across Latin America
- 7 million tons CO_2 and 444 tons black carbon avoided (CALAC+)
- Stronger institutions, empowered civil society, better policies

Looking Forward

- Consolidate clean transport transitions
- Expand air quality monitoring and data access
- Strengthen policy frameworks for off-road machinery
- Foster regional and global cooperation
- Invest in sustainable urban futures

Key Input **Health**

Clean Air, Climate and Health
Learning Journey

25 September 2025

Marloes Eeftens

Research Group Leader
Sensoring and Environmental Epidemiology
Swiss Tropical and Public Health Institute – Swiss TPH

marloes.eeftens@swisstph.ch



Swiss TPH

Air pollution and health: Problems – solutions – and roadblocks

Marloes Eeftens

Research Group Leader Sensoring and Environmental Epidemiology

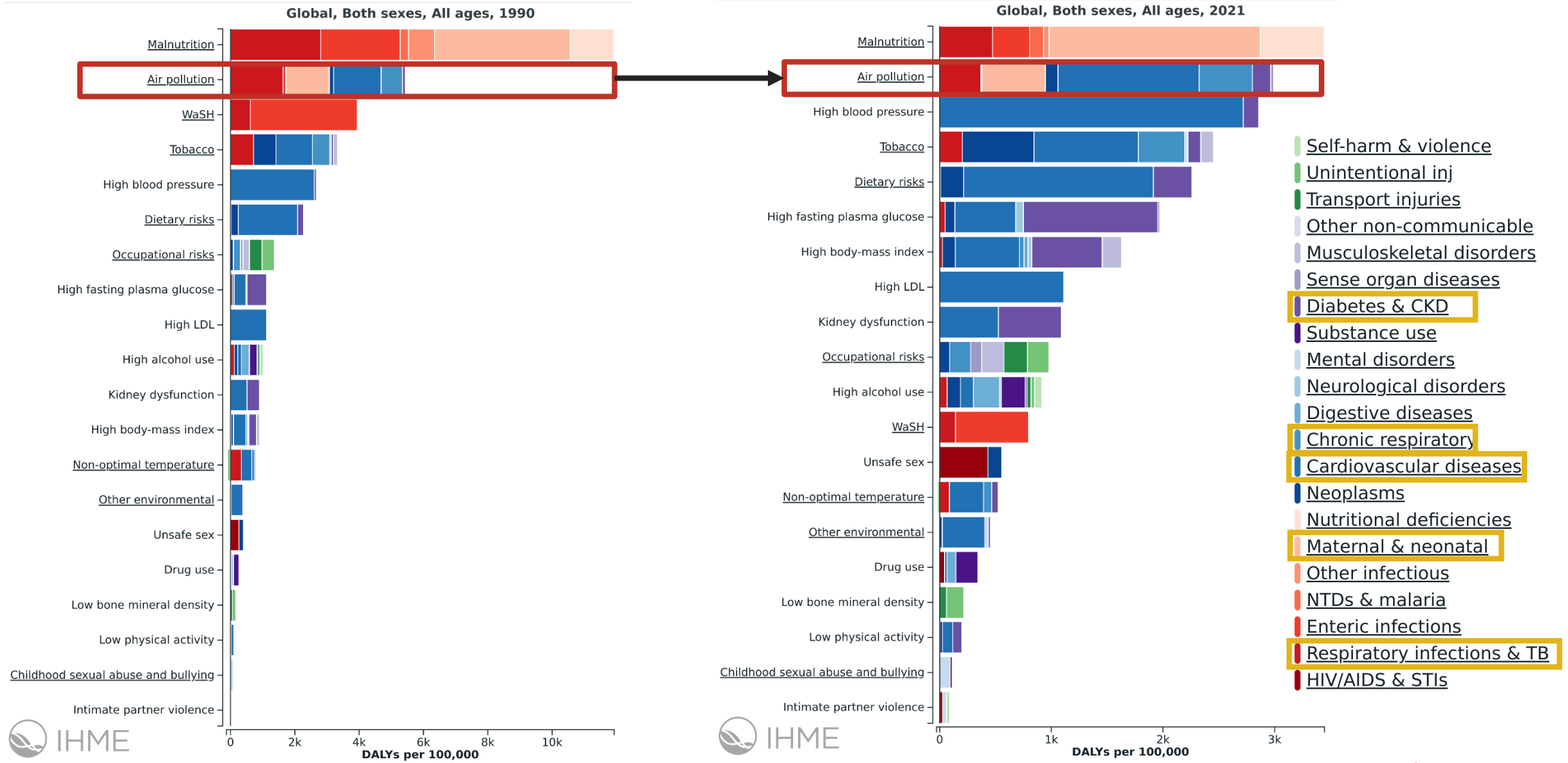
marloes.eeftens@swisstph.ch

25 September 2025

Swiss TPH

What is the problem?

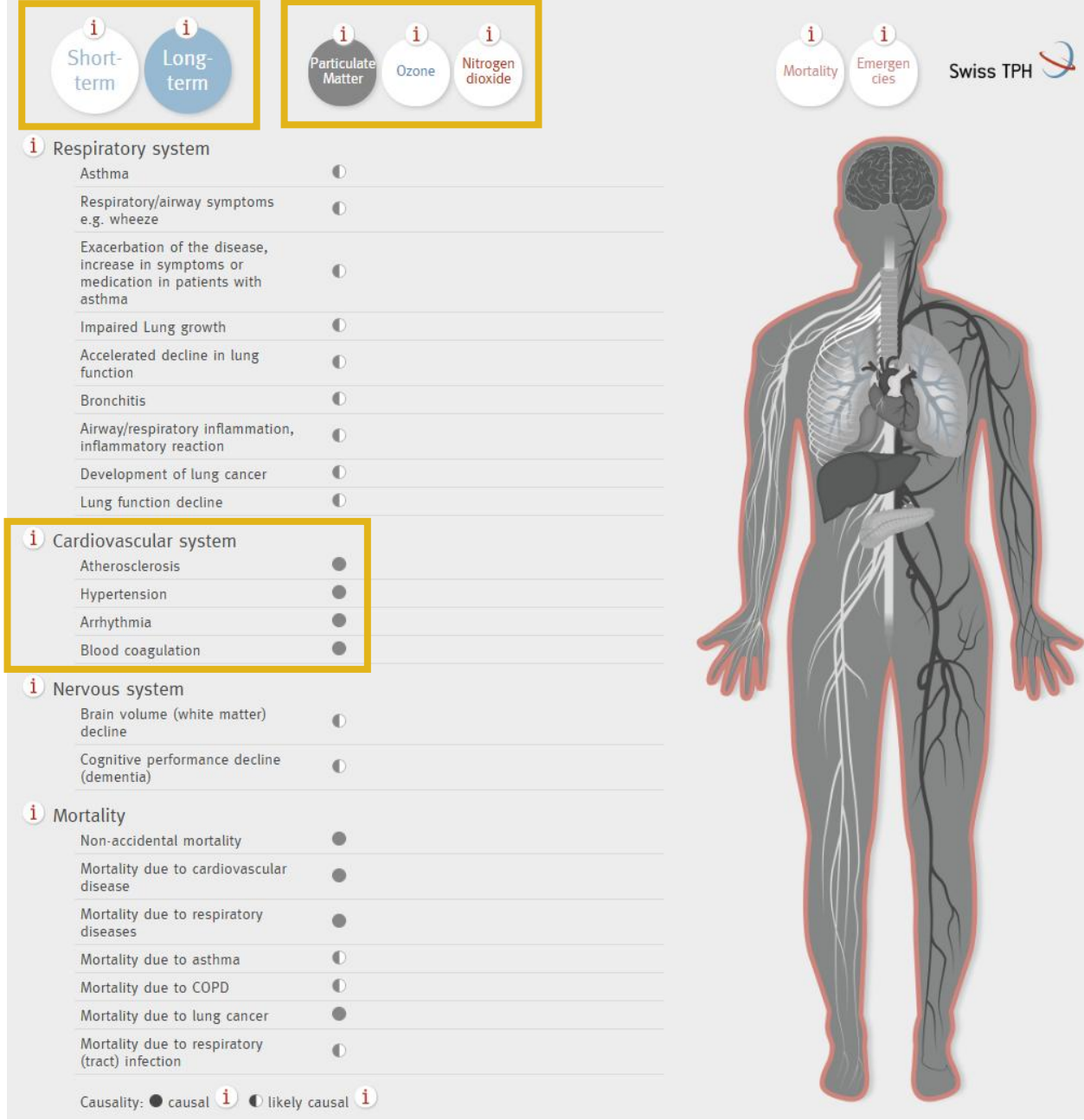
Global Burden of Disease



From: https://vizhub.healthdata.org/gbd-compare/#

Air pollution affects many organs

- Long or short-term effects
- Different pollutants
- State of the evidence

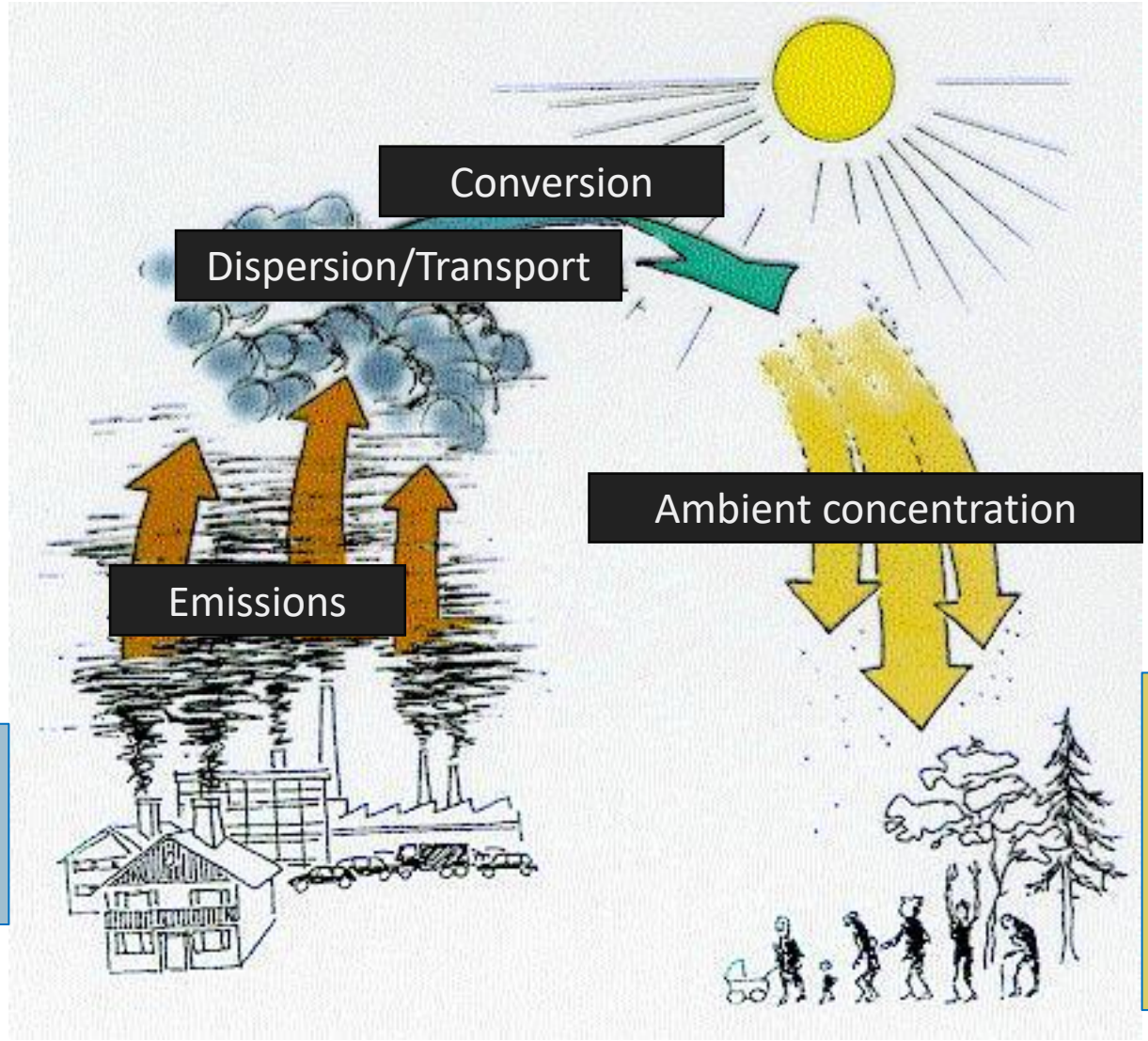


From:
https://www.swisstph.ch/en/projects/ludok/healtheffects

Swiss TPH

What is the solution?

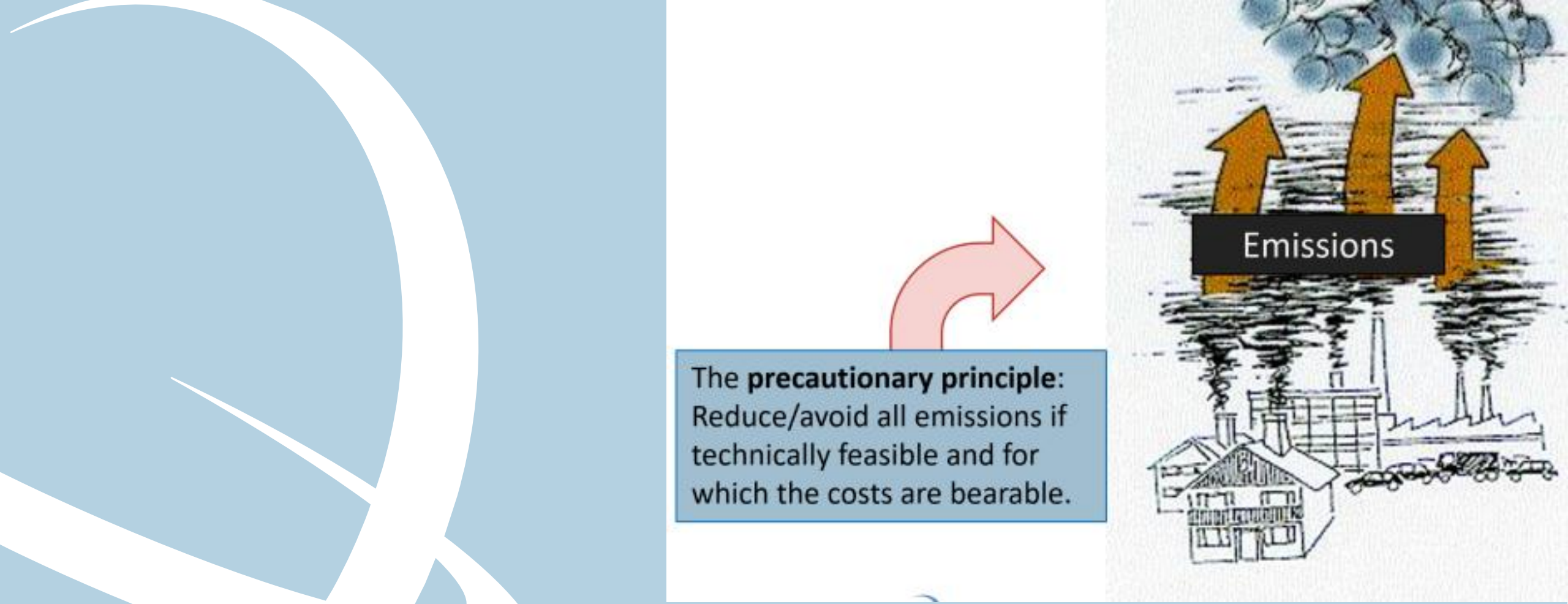
Air pollution regulation – two places to act



The **precautionary principle**: Reduce/avoid all emissions if technically feasible and for which the costs are bearable.

Make sure that:

1) The **health of people** and **animals** does not suffer.
2) **Buildings** are not damaged.
3) The fertility of the **soil**, the quality of the **water**, and **ecosystems** are not negatively affected.



What is the solution?

Reduction of emissions

Air pollution has natural and anthropogenic sources…

Examples of **anthropogenic** sources:

- Traffic (cars, motorcycles, mopeds, trucks, buses, trains)
- Airplanes, propellor planes, helicopters, drones
- Recreation (barbecue, campfires, fireworks, motorsports)
- Industry
- Agricultural burning, intensive cattle farming
- Residential combustion (cooking, heating)
- Smoking (Environmental Tobacco Smoke)
- Power generation
- Construction
- War (bombs, missiles)

Relatively easy to control and regulate

Examples of **natural** sources:

- Volcanic eruptions
- Wildfires
- Desert dust
- Pollen?

Relatively hard to control and regulate

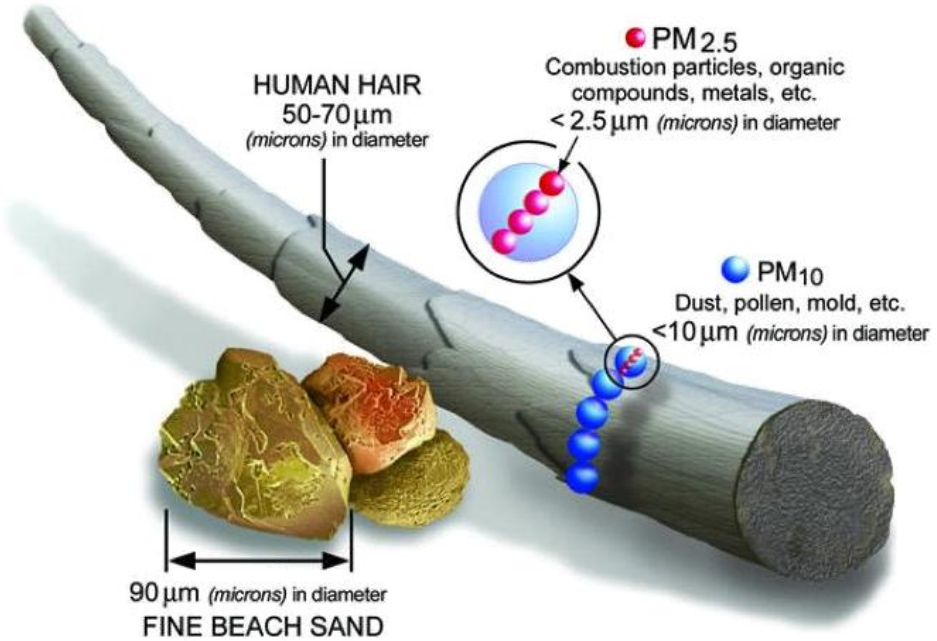



Air pollution is a heterogeneous mixture of gases and particles

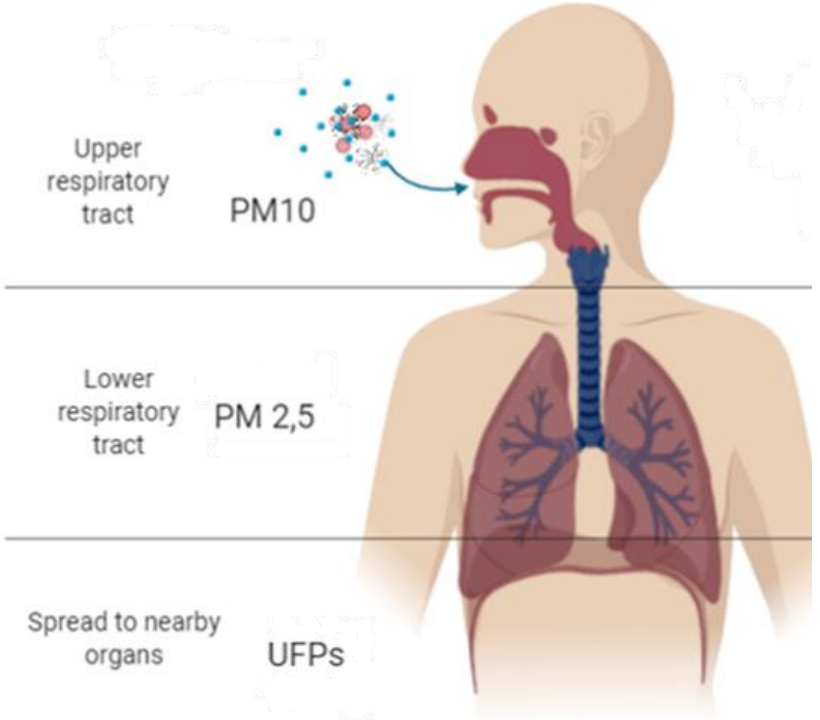
- **Nitrogen Dioxide: NO_2**
  - Brownish gas, irritates the respiratory system
  - Originates from combustion (N_2 in air is oxidized)
- **Ozone: O_3**
  - Stratospheric ozone protects us from UV radiation, but ground-level ozone is an airway irritant
  - Secondary air pollutant: formed by a reaction
    - NO_2+UV-light→NO+O
    - $O + O_2 \rightarrow O_3$
- **Particulate Matter (PM)**

Particulate matter (PM) – Size matters!

- Different size fractions: PM_{10}, $PM_{2.5}$, ultrafine particles (<0.1 µm)
- The smaller the particles, the deeper they penetrate into the lungs
- Ultrafine particles can transcend between the lung-blood and blood-brain barriers
- We don't have enough epidemiological evidence on ultrafine particles (yet)



From: US Environmental Protection Agency

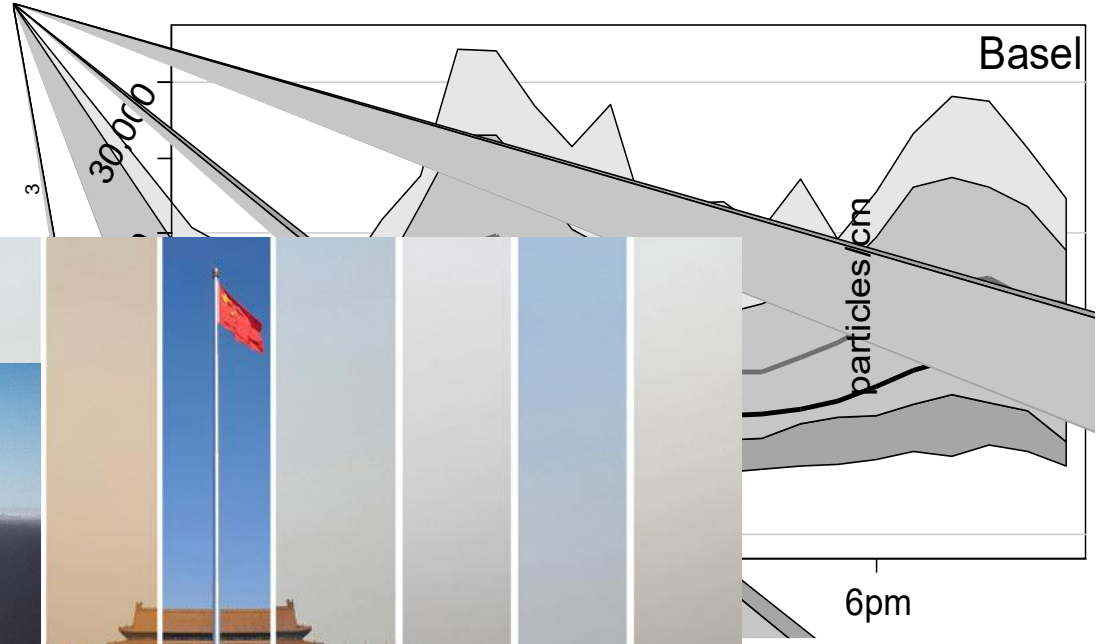


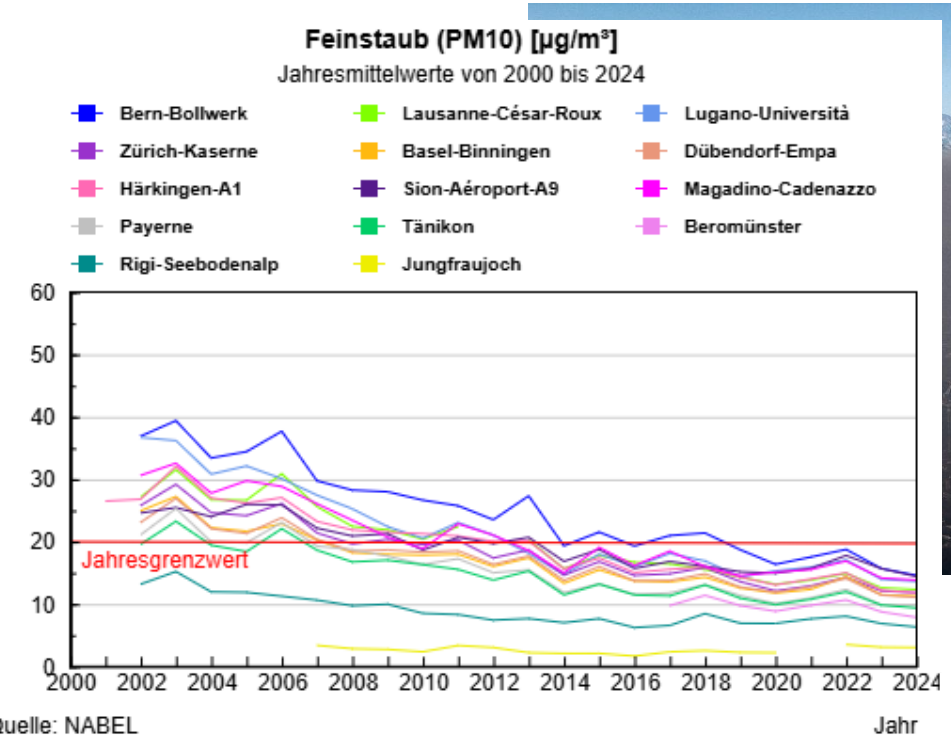
From: Loaiza-Ceballos, 2021

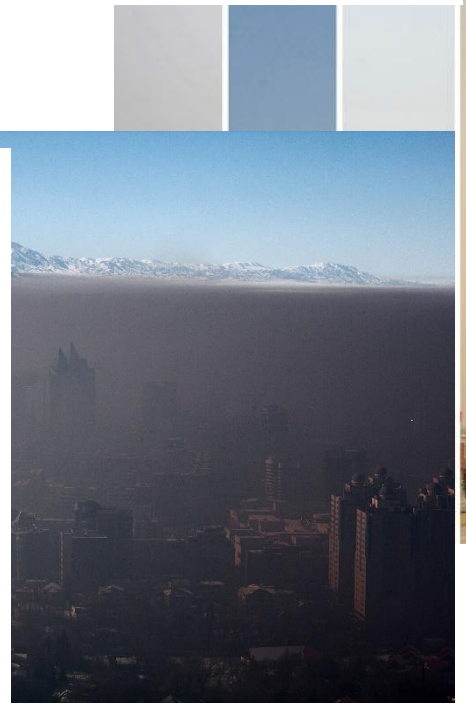
Air pollution concentrations vary in time…

- Diurnal - rush hour
- Daily basis - weather & activity dependent
- Seasonal basis - inversions, heating season
- Long-term trends

From: Meier et al., 2015

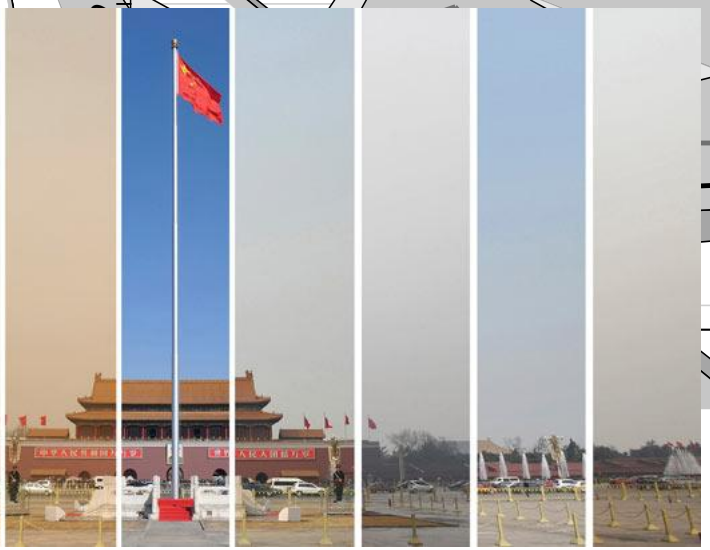






Almaty, Kazakhstan during an inversion

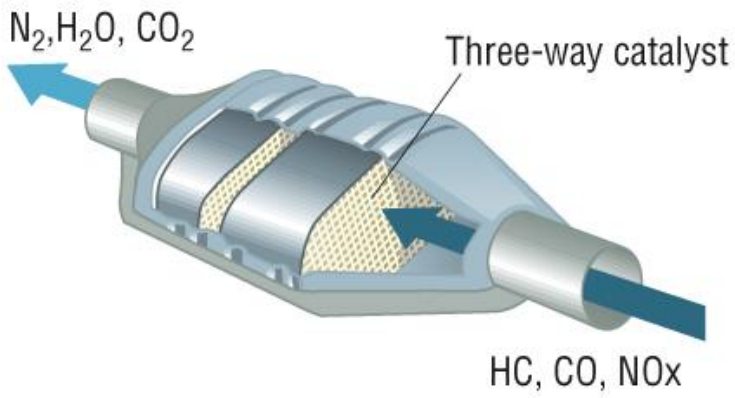
From: NABEL Switzerland

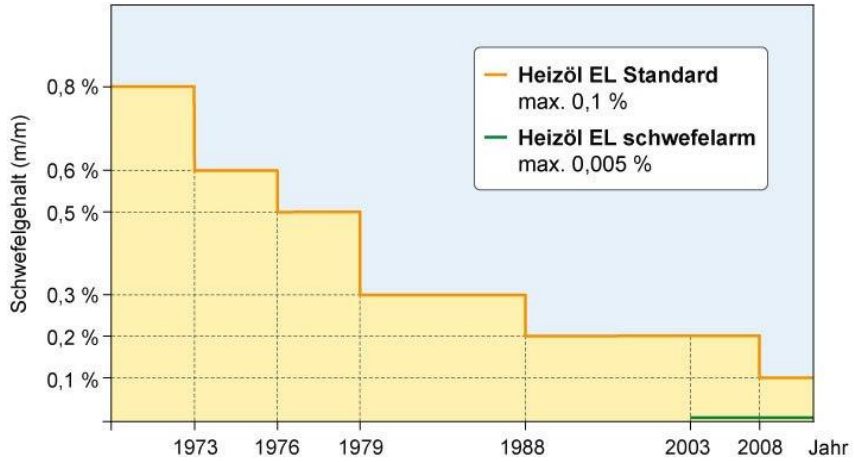


Air Pollution over Tiananmen Square, China
From: The Guardian

Examples of interventions on the emissions side

- Since 1970: Phase-out of tetra-ethyl lead as anti-knock agent in petrol for cars
- 1970-2010: Use of increasingly low-sulfur fuels
- Since 1987: Catalytic converters on cars: reduction of NO_X, oxidation of CO and unburned hydrocarbons
- 1990: Irish coal ban
- From 2000 onwards: Diesel particulate filters
- From 2035 onwards: Electric driving - no more combustion engine sold in Europe after 2035!



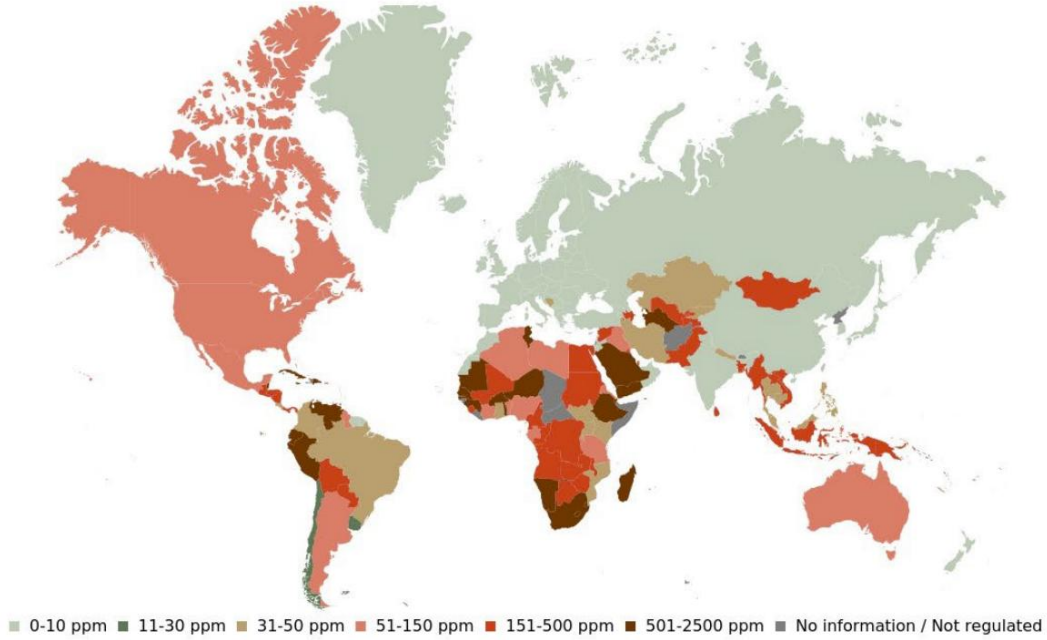


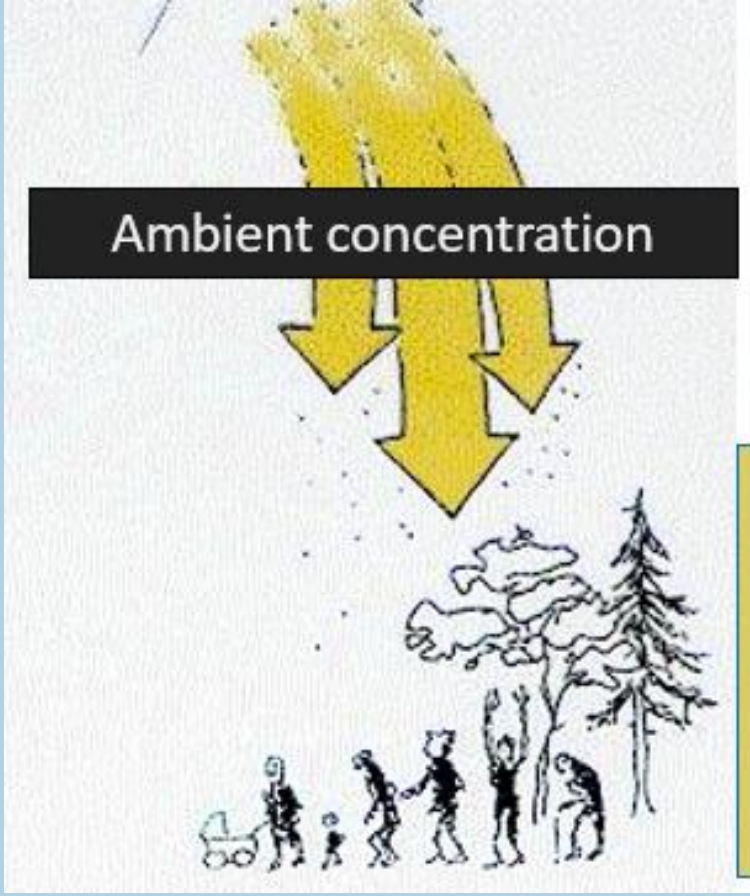
Roadblocks

- Still a lot of unnecessary anthropogenic pollution
- Environmental inequality: polluting activities / fuels are moved to low & middle income countries

Stubble burning in Pakistan
From: https://imaggeo.egu.eu/view/4190/

Maximum sulfur limits in gasoline, 2023
From: Stratas Advisors





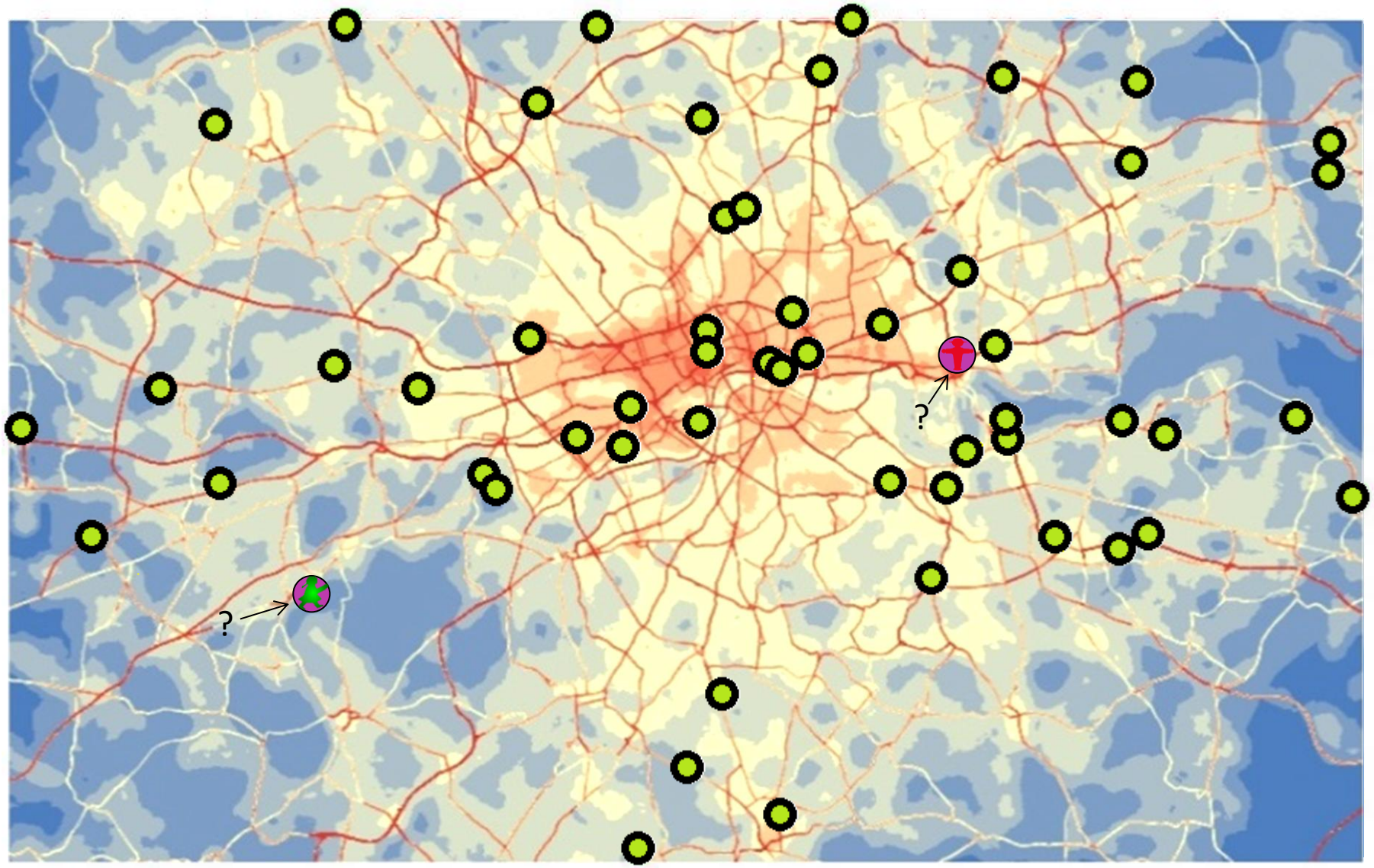
Make sure that:

1) The **health of people** and **animals** does not suffer.
2) **Buildings** are not damaged.
3) The fertility of the **soil**, the quality of the **water**, and **ecosystems** are not negatively affected.

What is the solution?

Regulation of ambient concentration

Ambient concentrations: Epidemiological studies in a nutshell

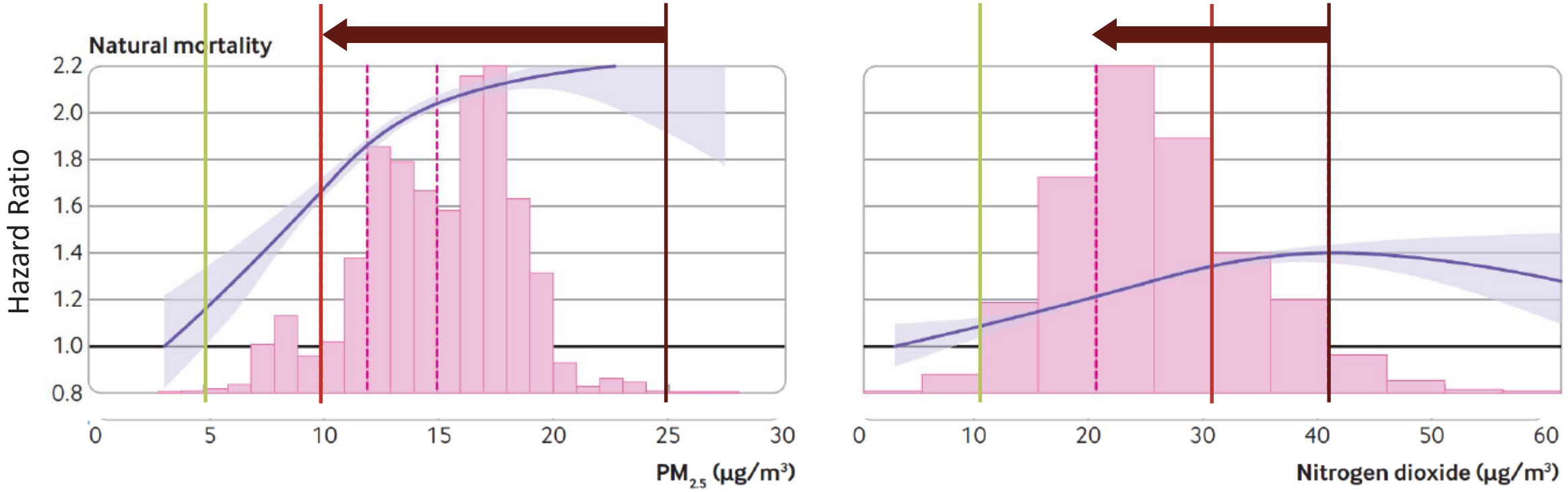


Swiss TPH

What does a concentration-response curve have to do with health protection?

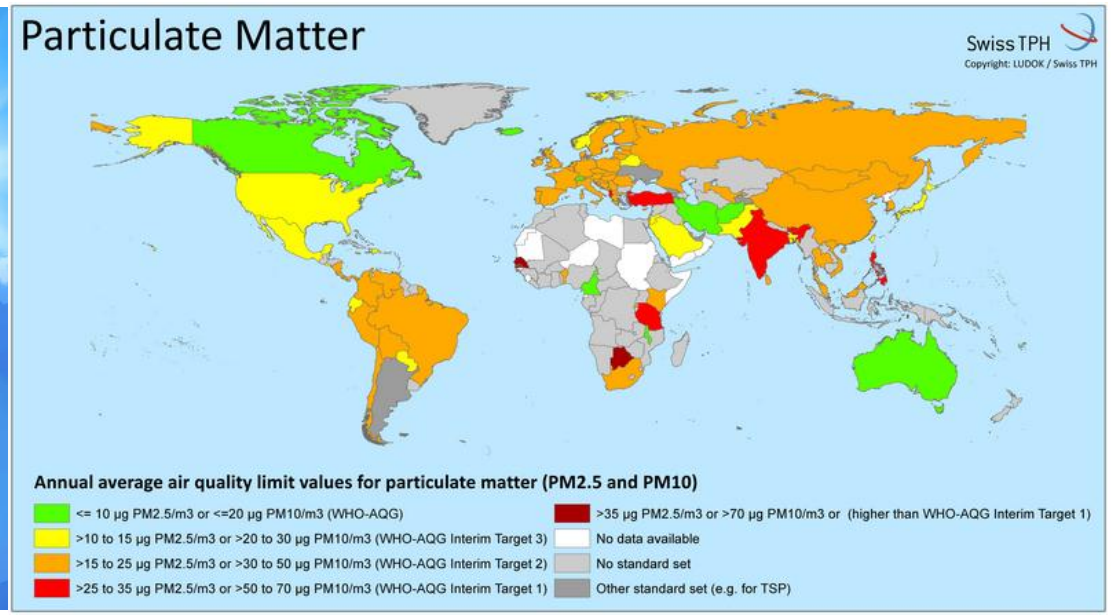
- **Pink**: The exposure distribution on the European population
- **Blau**: Concentration-response curve: the risk increases with higher exposure
- The **brown** line shows the current air quality standards in der EU and changes planned for 2030
- The **red** line shows the current air quality standards in Switzerland
- The **green** line shows what World Health Organization (WHO) recommended in 2021
- Every additional reduction in air pollution benefits public health

Strak, Weinmayr, Rodopoulou et al., 2021. Results from the ELAPSE study: Effects of Low-Level Air Pollution: A Study in Europe

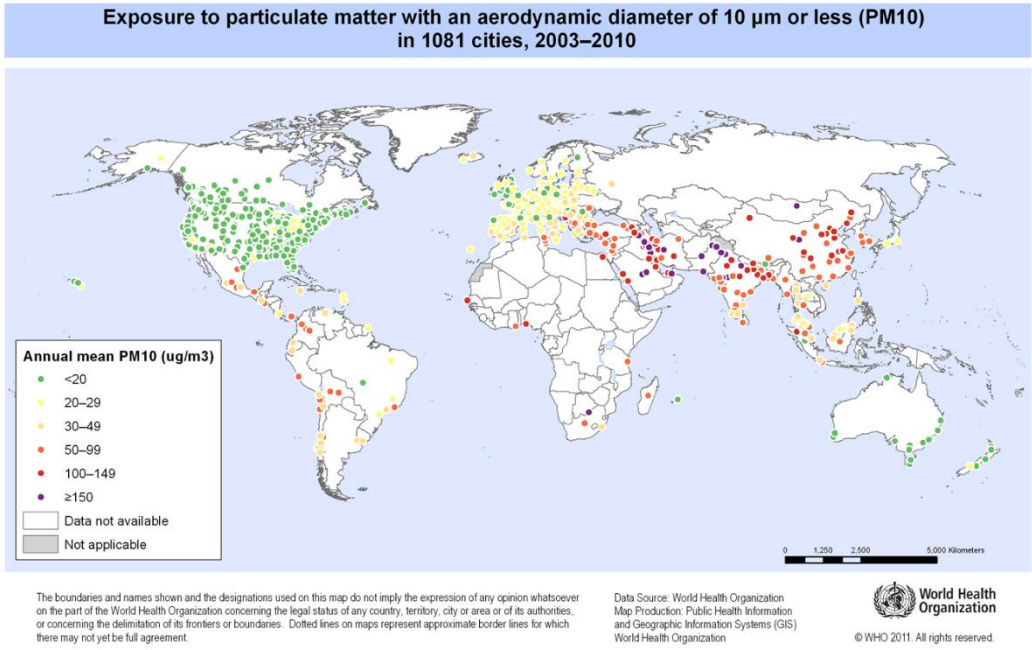


Roadblock: are the current laws sufficient to protect our health?

- Most countries have "acceptable" limit values that are (far) above the WHO's recommendations
- For particulate matter, only PM_{10} und $PM_{2.5}$ are regulated, ultrafine particles not (yet)
- Regulations do not ensure clean air when they are not enforced



Kutlar Joss, Eeftens, …, Künzli, *IJPH*, 2017



From: World health Organization, 2011

Environmental Epidemiology

1) Air pollution remains a major problem around the world
2) Reduction of emissions and regulation of ambient air and enforcement are solutions
3) Roadblocks:
   - Unnecessary anthropogenic emissions and inequal distribution of polluting activities
   - Current legislation accepts exposure levels at which health effects still occur, and do not yet regulate all pollutants

Contact me at:
marloes.eeftens@swisstph.ch
Swiss TPH
Research Group «Sensoring and Environmental Epidemiology»

Key Input **Climate**

Clean Air, Climate and Health
Learning Journey

25 September 2025

Amanda Curry

Coordinator - Clean Air Flagship
Climate and Clean Air Coalition – CCAC

amanda.brown@un.org

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS
a UNEP convened initiative

Integrated Action for Air Quality & Climate

Amanda Curry Brown, Clean Air Flagship Coordinator
Climate & Clean Air Coalition (CCAC) Secretariat

Photo: Alexander Mils on Unsplash

01

The Problems

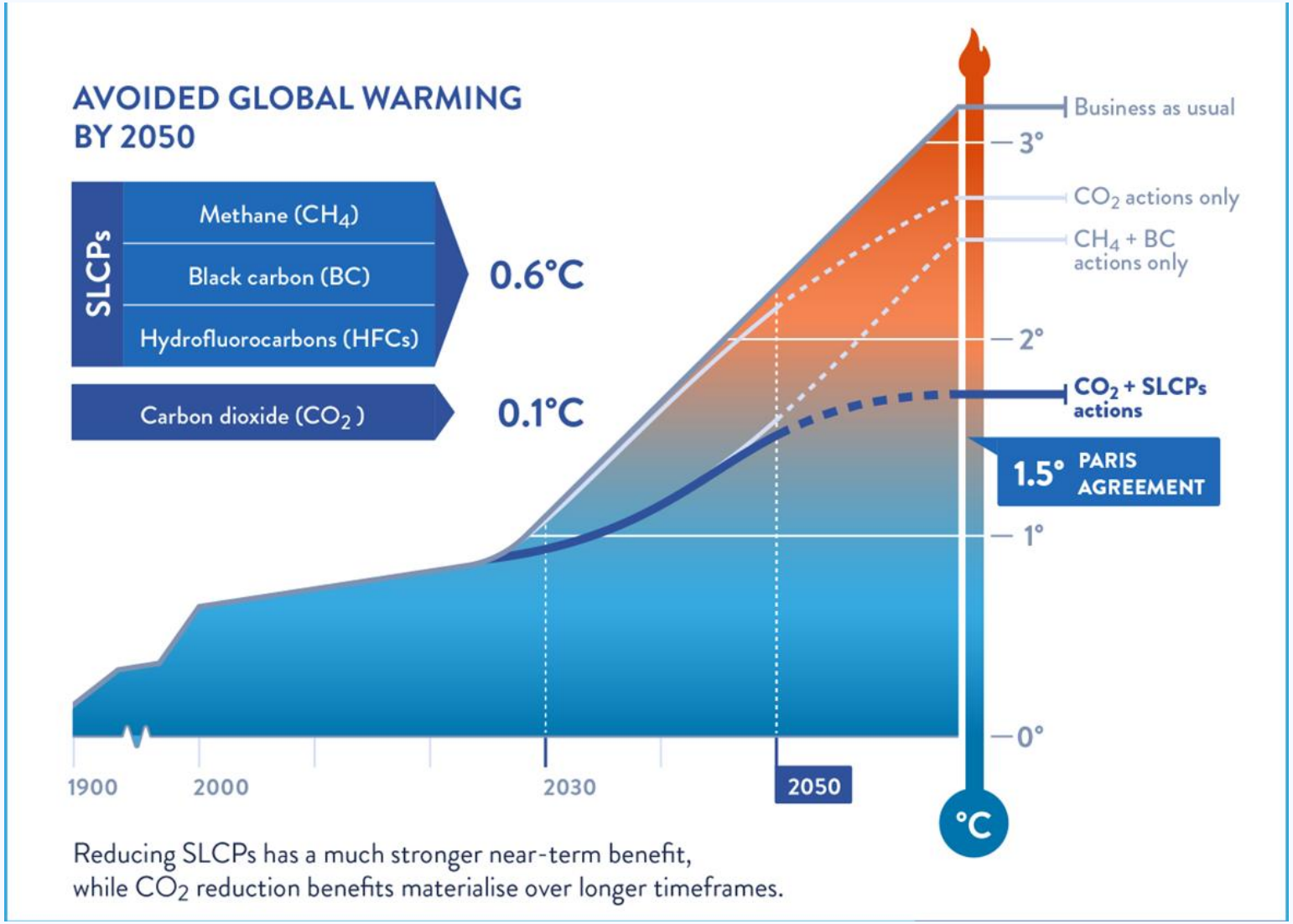
The Problem of Air Pollution

Air pollution kills millions of people each year, impacts supplies of the food we eat, and costs the global economy trillions of dollars

These impacts are not shared equally – 95% of the deaths are in developing countries and vulnerable populations are more susceptible to harm

Improving air quality returns benefits many times the cost

The Problem of Climate Change

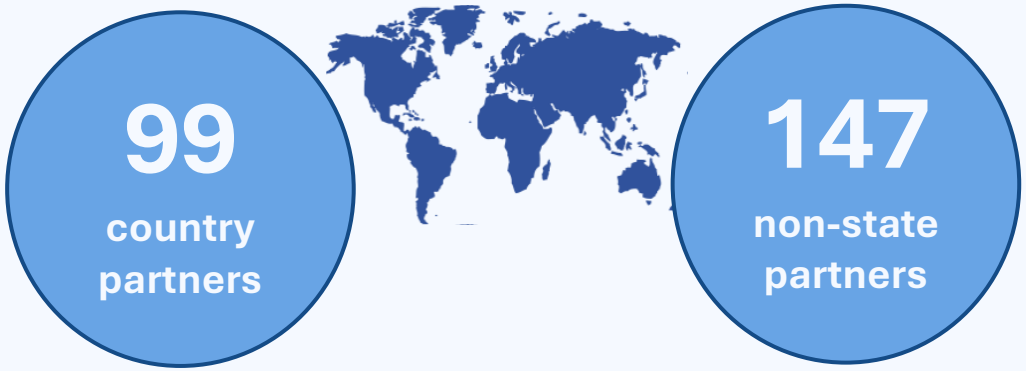


02

An Integrated Solution

Meet the CCAC

A global, voluntary partnership dedicated to tackling short-lived climate pollutants, including **methane, black carbon, hydrofluorocarbons, and tropospheric ozone**



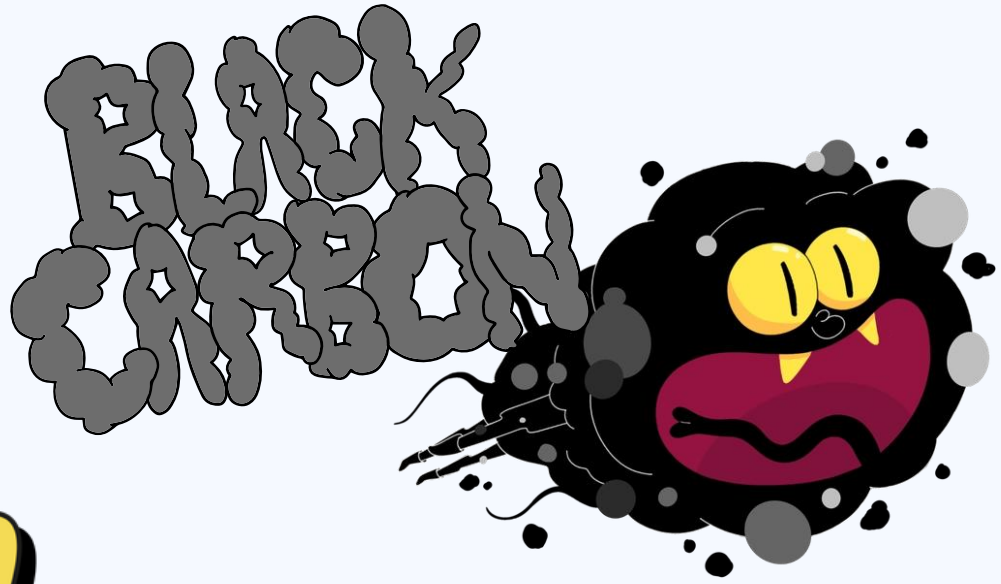
The CCAC promotes an integrated approach to climate and clean air, with low-cost, readily available solutions to be implemented this decade

CCAC Ministerial Meeting, COP27, Sharm El Sheikh, Egypt

What Are Short-Lived Climate Pollutants?

SLCPs provide us the best chance of avoiding the worst of the climate crisis and limiting warming to 1.5C.

SLCPs are responsible for up to **50% of global warming**, and some are also **dangerous air pollutants** which negatively affect human health and the environment.



Sources of Short-Lived Climate Pollutants

HFCs / Cooling

Household Energy

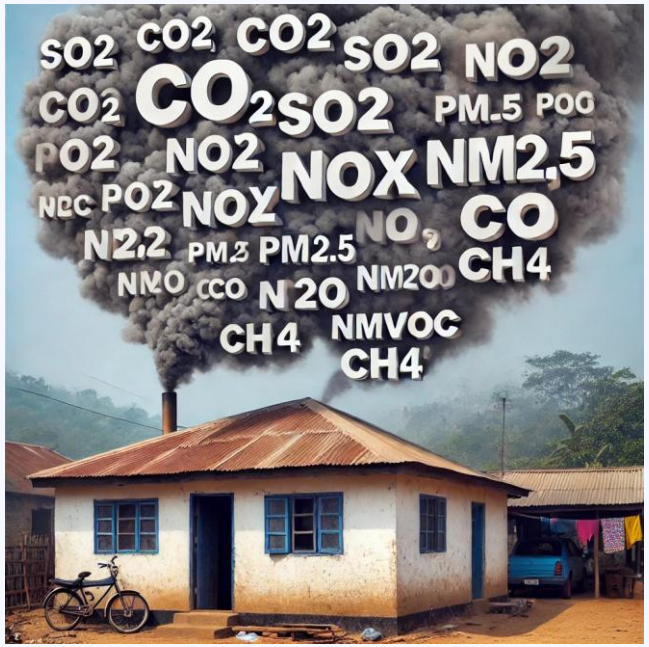
Waste

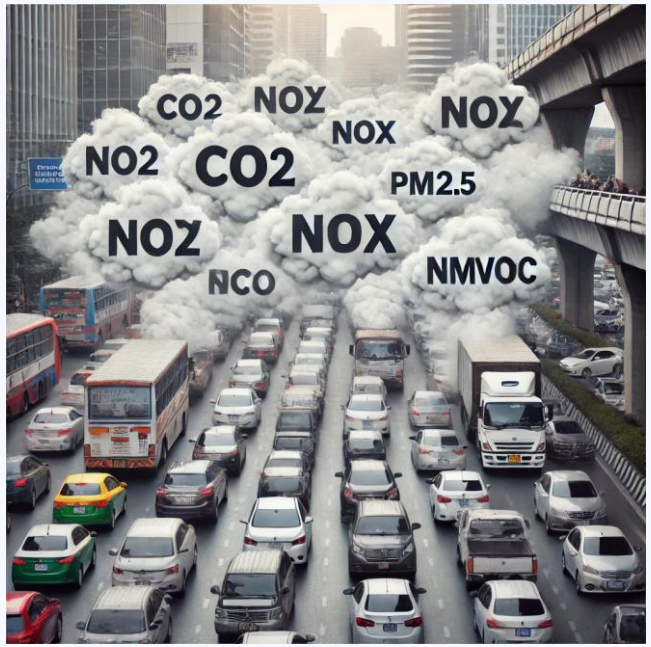
Heavy-Duty Vehicles & Engines

Fossil Fuels

Agriculture

Many Sources Co-Emit Pollutants





- When you reduce emissions, multiple pollutants can be reduced at the same time
- Multiple impacts over multiple timescales and local, regional and global scales

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS
a UNEP convened initiative

03

What is CCAC doing?

CCAC's Approach

Political Advocacy

Convening leaders showcase the importance of **addressing SLCPs, air pollution, and health**

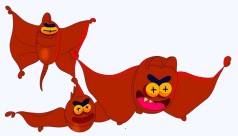
Scientific and Integrated Approach

Creating a scientifically-based approach that **integrates both climate and clean air action to give decision makers the confidence to act**

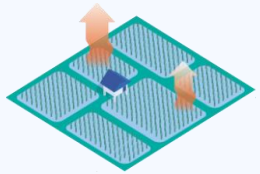
Country-Driven Projects

Support countries with **capacity building, expert assistance, planning, science research, and support the development of national policies**

Action on Super Pollutants

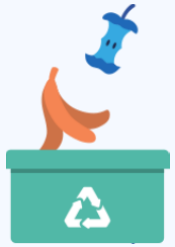


Tackling SLCPs in Brazil



CCAC project **integrating methane mitigation into national agriculture strategies**

CCAC project **reducing methane emissions from the livestock sector**



Partnering with CCAC to develop a **methane mitigation strategy for the waste sector**

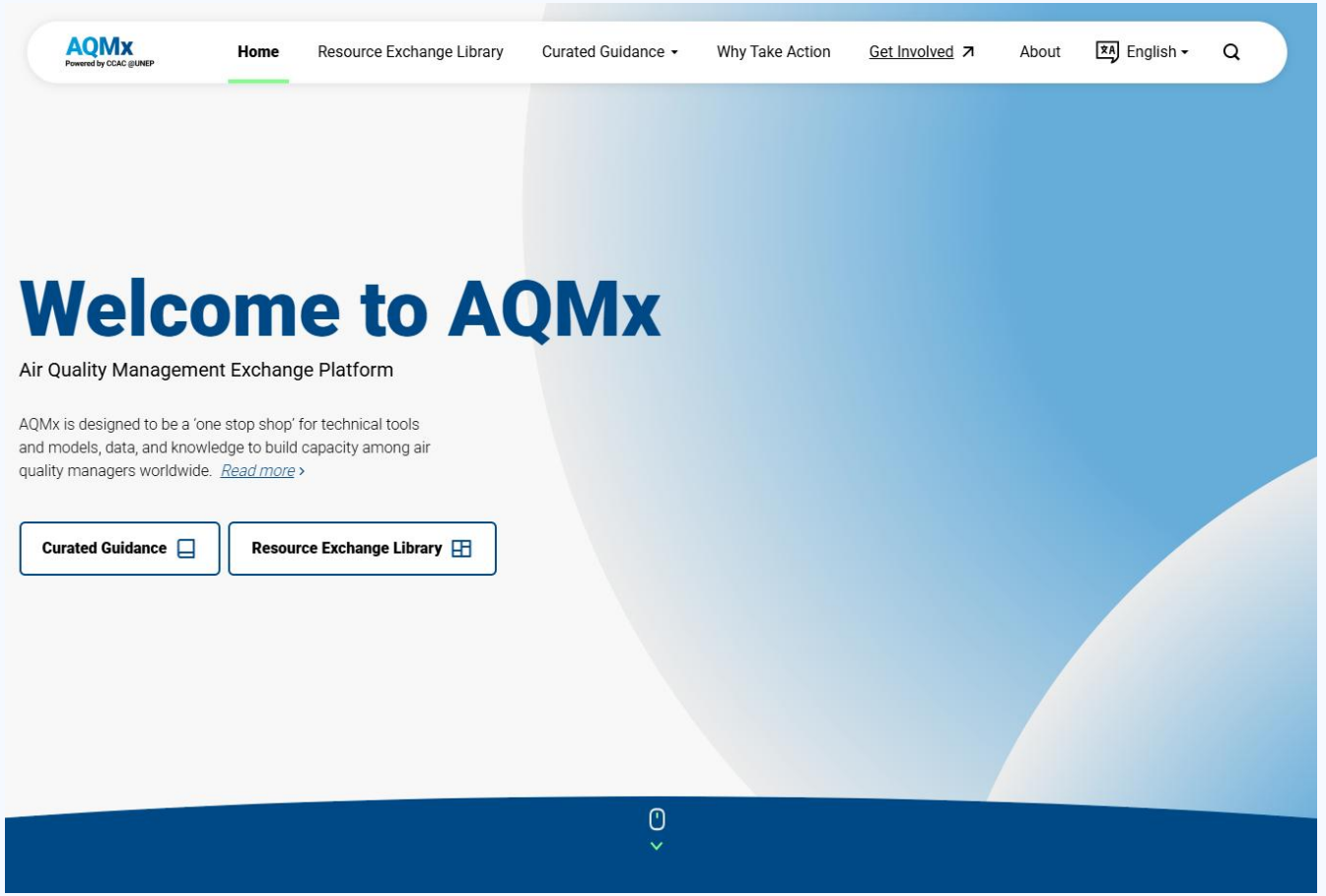
Fast action on country-led priorities since joining the CCAC in 2023

AQMx

- A "one-stop-shop" for knowledge and guidance on air quality management

- A trusted source for air quality managers worldwide, supporting them in the implementation of effective clean air policies and in meeting the **WHO air quality guidelines** and interim targets

- A collaborative process, harnessing collective knowledge: **AQMx TAG** leading the development of the guidance + members of the CCAC **Clean Air Task Team** taking part in the review process to ensure buy-in + **Air Quality Managers** focus group



AQMx Content: Curated Guidance

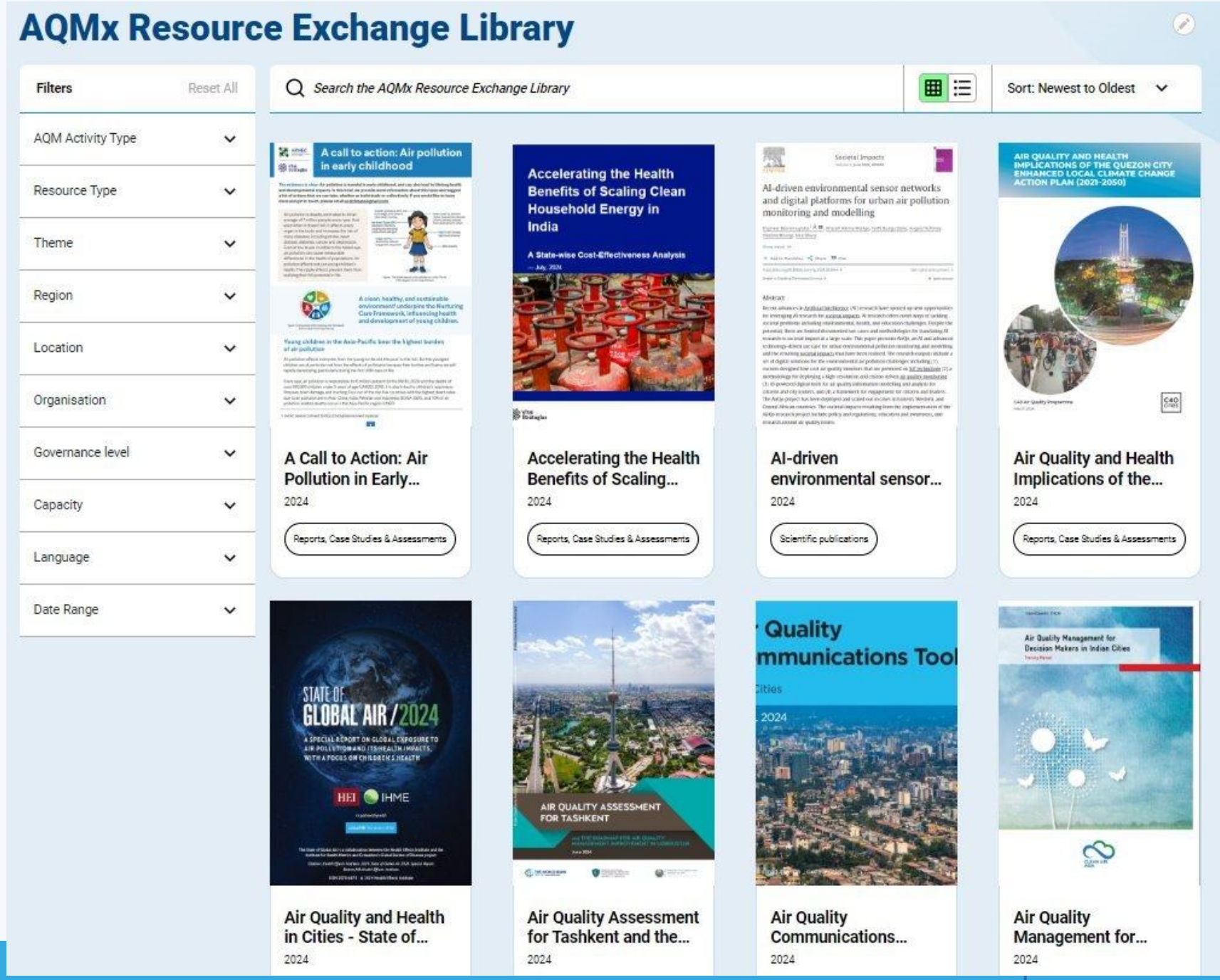
8 Curated Guidance pages with 10 basic steps to get started with AQM for jurisdictions with different levels of expertise

AQMx Resource Exchange Library

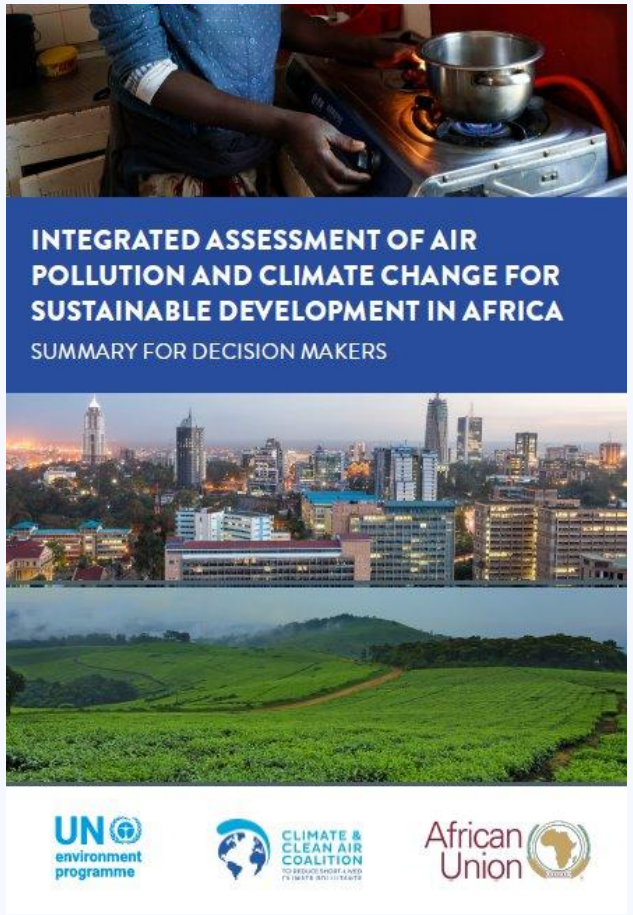
Resource Types:

- Databases
- Guidelines, Tools & Models
- Reports, Case Studies and Assessment
- Scientific Publications
- Online Training & Resources
- Standards, Regulation, Legislation and Agreements

More than 900 resources, to be updated over time.



Integrated Assessment of Air Pollution and Climate Change for Sustainable Development in Africa

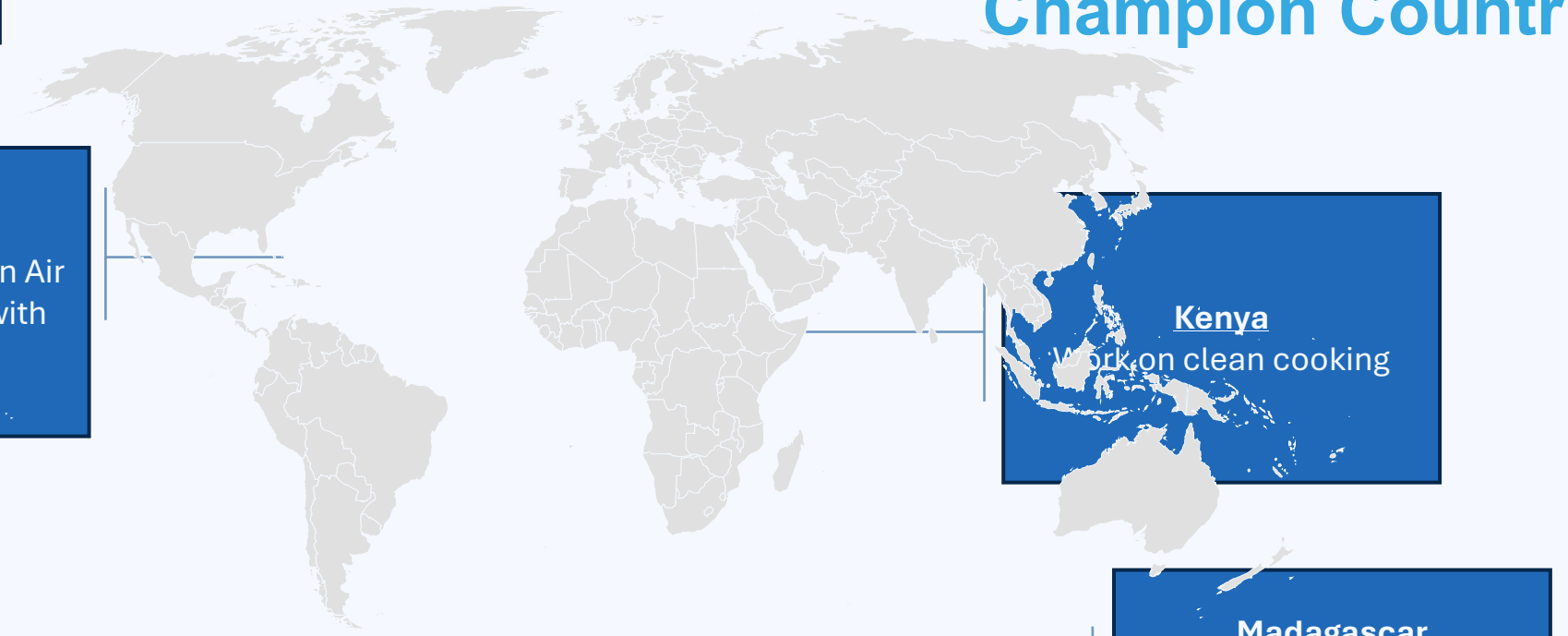


- **Partners**: CCAC, Stockholm Environment Institute, UNEP-ROA, African Union Commission
- **37 Mitigation Measures**:
  - **Targeted key sectors**: Transport, industry, agriculture, waste, and household energy
  - Reduce emissions of PM2.5, black carbon, and methane, improving health & food security
  - **Benefits**: Prevents hundreds of thousands of deaths, improves crop yields, and mitigates climate change
- Implementation: Requires **regional cooperation, strong policies, and investment in clean technology**

Africa Clean Air Programme Champion Countries

Morocco
Updating emission inventory , and improve regulations and standards of air pollution in the industrial sector

Ghana
Center of Excellence in Air Quality Monitoring, with CAF



Kenya
Work on clean cooking

Madagascar
Regional standards on air Quality for the Indian Ocean Commission and the SADC

South Africa
(TEA) includes national clean air action plan as a roadmap for SLCP, GHG, and air pollutant reductions (short to long term)

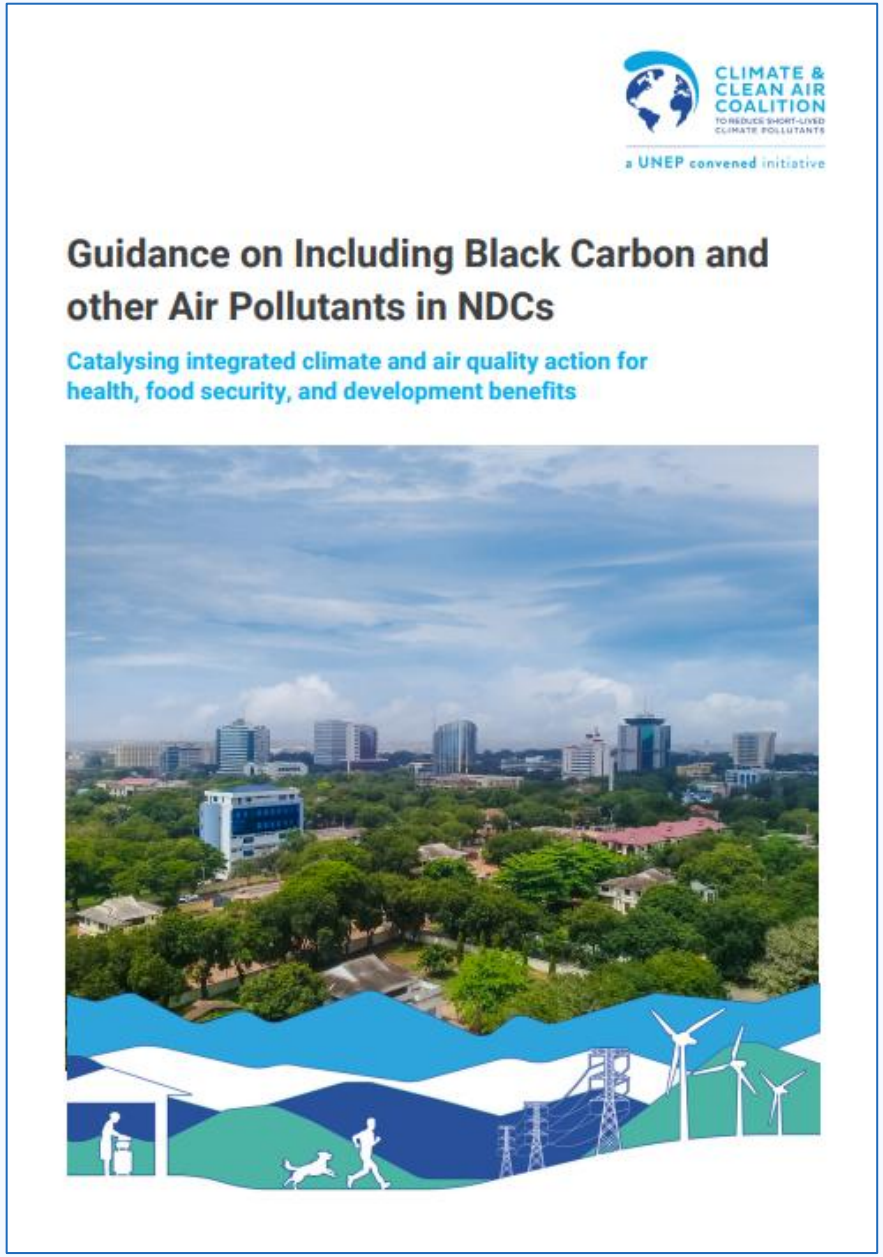
CCAC NDC GUIDANCE

1. **Include Specific Measures to Reduce Black Carbon and Tropospheric Ozone Precursors**

2. **Align Climate and Air Quality Commitments**
   Including measures or goals set in national or subnational air quality action plans.

3. **Set additional quantified targets for emissions reductions**

4. **Quantify and Include Human Health, Food Security, and Other Benefits**
   Including ozone benefits as a result of reductions in other SLCPs e.g. methane.



04

What are the challenges?

Key Challenges to an Integrated Approach on Air Quality & Climate

- Pollution comes from many sources and doesn't stop at borders
- Many countries lack access to air quality monitoring and other data
- Limited technical capacity or human resources can hinder progress
- There is insufficient funding for air quality projects and the funding available does not reach those who need it most

Photo: Jonatan on Unsplash

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

a UNEP convened initiative

Thank You!

Let’s make this interactive

1
Select your group

Select the group of your choice based on your language preference

How?
Find the «Breakout room» icon and select the group.

If you can’t see the icon, go to «more» options.

2
Discuss using leading questions

In your group, discuss openly these two leading questions:

English
Q1: What clean air solutions from your region could work elsewhere?
Q2: What obstacles do we face across regions, and how can we overcome them together?

Español
Q1: ¿Qué soluciones de aire limpio de su región podrían funcionar en otros contextos?
Q2: ¿Qué obstáculos enfrentamos entre regiones y cómo podemos superarlos juntos?

3
Groups are self-facilitated

There’s no moderator or note-taker.

You are invited to discuss at your own pace – taking into account the leading questions.

Group work lasts aprox 15 minutes.

> Back in plenary, we will ask you about your key findings

Group Questions

English

In your group, discuss openly these two leading questions:

Q1:
What clean air solutions from your region could work elsewhere?

Q2:
What obstacles do we face across regions, and how can we overcome them together?

Preguntas para grupo

Español

En su grupo, les invitamos a que dialoguen abiertamente siguiendo estas preguntas:

Q1:
¿Qué soluciones de aire limpio de su región podrían funcionar en otros contextos?

Q2:
¿Qué obstáculos enfrentamos entre regiones y cómo podemos superarlos juntos?

Join at menti.com | use code 1858 4134

Mentimeter

What is a take-away or key idea from your discussion?

Outlook
Pitches

Clean Air, Climate and Health
Learning Journey

25 September 2025

LA – Adrian Montalvo
Head of CALAC+ Programme
adrian.montalvo@swisscontact.org

India – Anju Goel
Senior Fellow at TERI - The Energy and Resources Institute
agoel@teri.res.in

South-East Asia – Philippe Brunet
Head of SDC Regional Thematic Hub Bangkok
philippe.brunet@eda.admin.ch

China – André Prevot
Group Head Gasphase and Aerosol Chemistry PSI
andre.prevot@psi.ch

Mongolia – Benoît Meyer-Bisch
Sector Policy Advisor, PGE / Governance, SDC
benoit.meyer-bisch@eda.admin.ch

Join at menti.com | use code 1858 4134

Mentimeter

In a word, what do you think about today's Learing Journey?

Before we finish, let us know what do you think today

WRAP UP

THANK YOU

To all participants, speakers and co-organizers for making this Learning journey happen!

JOIN US NEXT TIME

Don’t miss the next session of the Learning Journey:

15 October 2025
(same time)

STAY TUNED

Resources and more details at
www.sdc-cde.ch/en/reduction-pollution

Or contact
cde-network@eda.admin.ch

Organisers & speakers: please remain online