



**CLIMATE &  
CLEAN AIR  
COALITION**

TO REDUCE SHORT-LIVED  
CLIMATE POLLUTANTS

# Clean Air and Climate Benefits through 3R Policies and Initiatives

8th Regional 3R Forum in Asia and the Pacific

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# Key messages



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## Why is this important?

- Air pollution - biggest environmental health risk – **6.5 million premature deaths** per year
- **Welfare losses** – Exposure to air pollution (outdoor & indoor) costs USD 5.11 trillion per year
- **Increase resilience** – impacting climate & extreme weather events

## There are solutions – measure cities can take

- Join up **air quality and climate policies/actions**
- **Cleaner and controlled mobility**
- Cleaner **household energy**
- Cleaner **production** processes
- Improved **agriculture** and **waste management** practices
- Banning open burning of **waste**
- **Taxation** ('polluter pays')
- **Awareness** campaigns - policy and public (behaviour)



**BREATHE  
LIFE**

Clean Air. Healthy Future.



















# Impact of Air Pollution Emissions

Different scales – all impacting cities. Where are decisions taking on policy on



# SHORT-LIVED CLIMATE POLLUTANTS

## Near term response to mitigation

SUBSTANCE	 ANTHROPOGENIC SOURCES	LIFETIME IN ATMOSPHERE	 LOCAL  REGIONAL  GLOBAL
			IMPACTS/MITIGATION
BLACK CARBON (BC)		DAYS	  
METHANE (CH <sub>4</sub> )		12 YEARS	  
TROPOSPHERIC OZONE (O <sub>3</sub> )		WEEKS	  
HYDROFLUORO-CARBONS (HFCs)		15 YEARS (WEIGHTED BY USAGE)	



# Maximizing Air & Climate Co-Benefits

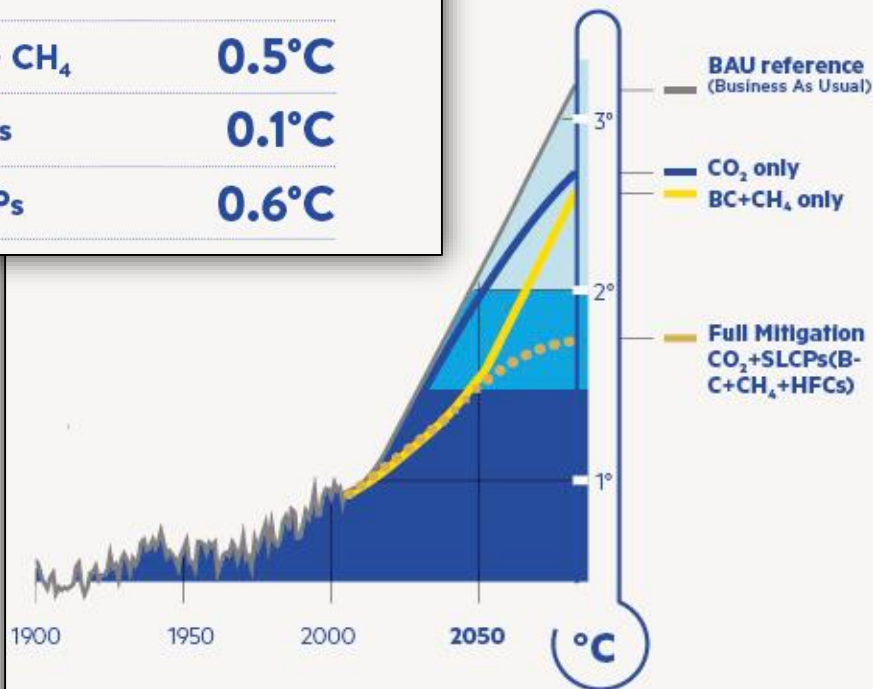
## SLCP CLIMATE BENEFITS

Avoided Global Warming by 2050

BC + CH<sub>4</sub> 0.5°C

HFCs 0.1°C

SLCPs 0.6°C



SIMULATED TEMPERATURE CHANGE UNDER VARIOUS MITIGATION SCENARIOS

## ANNUAL BENEFITS

From large-scale mitigation by 2030

CLIMATE



AVOIDED WARMING

REDUCED RATE OF SEA-LEVEL RISE BY ~20% BY 2050

HEALTH



2.4 MILLION

AVOIDED PREMATURE DEATHS ANNUALLY FROM OUTDOOR AIR POLLUTION

CROPS



52 MILLION

TONNES OF AVOIDED CROP LOSSES FROM 4 MAJOR STAPLES YEAR

Fast action to reduce short-lived climate pollutants, especially methane and black carbon, has the potential to slow down the warming expected by 2050 by as much as 0.6 Celsius degrees, in ADDITION to making deep cuts in CO<sub>2</sub> emissions



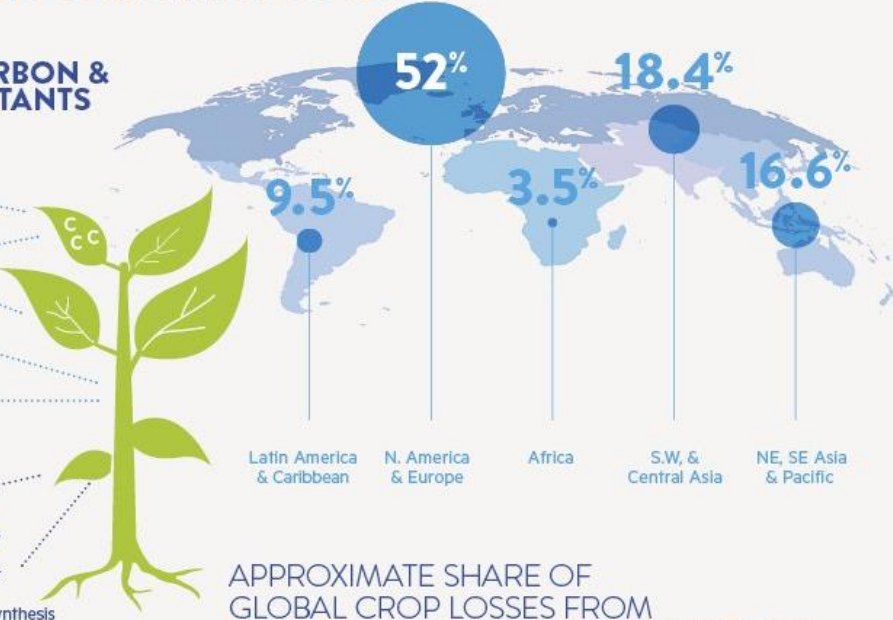
# Raise awareness on the impacts

Losing 50 million tonnes of staple crops per year

## SLCP EFFECTS ON PLANTS DUE TO:

- O<sub>3</sub>
- BLACK CARBON & CO-POLLUTANTS

- Impeded photosynthesis
- Reduced ability to sequester carbon
- Plant cell damage
- Reduced crop production
- Reduced quality and nutritive value of food and feed
- Increased leaf temperature (uncertain effect)
- Reduced sunlight reaching plants affecting photosynthesis (uncertain effect)

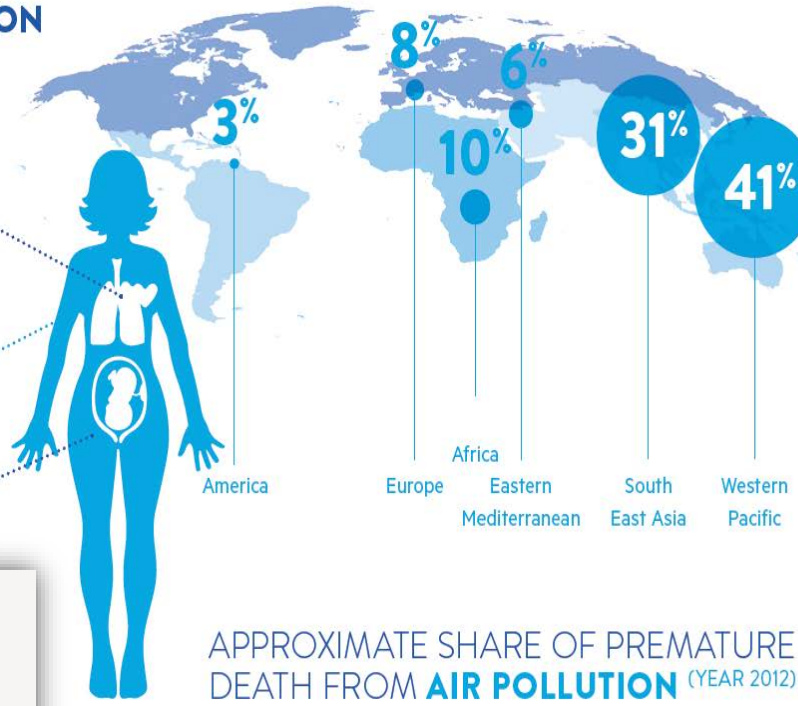


APPROXIMATE SHARE OF GLOBAL CROP LOSSES FROM WHEAT+RICE+MAIZE+SOYBEAN (YEAR 2000)

## DISEASES DUE TO:

- OZONE (O<sub>3</sub>)
- PM2.5 AIR POLLUTION

- Chronic obstructive pulmonary disease (COPD)
- Childhood pneumonia
- Ischaemic heart disease
- Stroke
- Asthma
- Breathing problems airway inflammation
- Chronic respiratory illness
- Reduced lung function
- Low birth weight



APPROXIMATE SHARE OF PREMATURE DEATH FROM AIR POLLUTION (YEAR 2012)

6.5 million premature deaths per year from air pollution  
Biggest environmental health risk



# Control Measures for Short-Lived Climate Pollutants

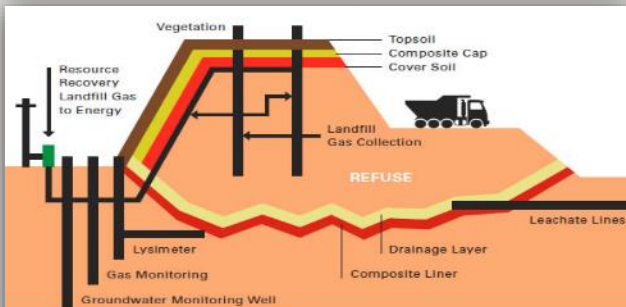
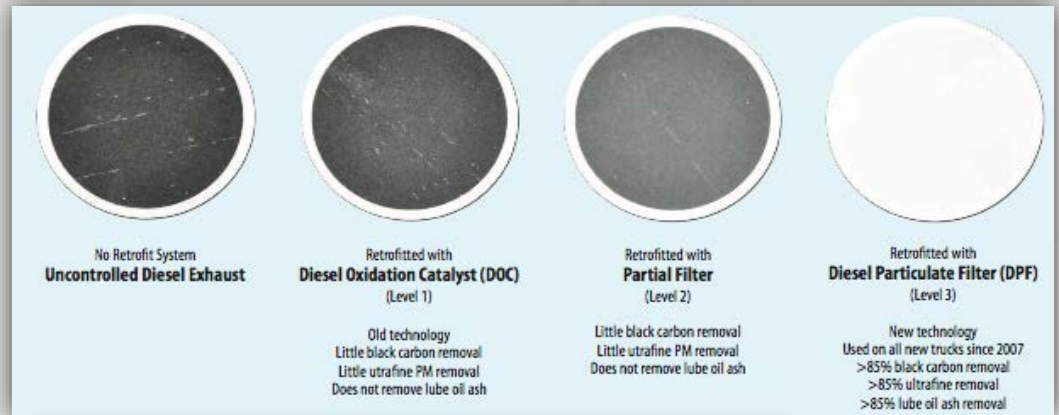
- Proven and often already in use
- Little cost or no net cost *initial capital investment – cost savings over time*
- *Could also contribute to carbon dioxide mitigation*



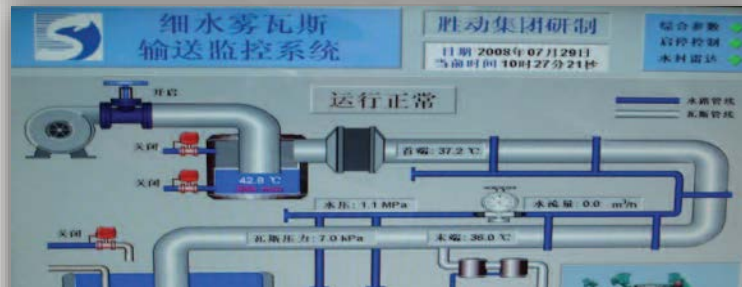
ULTRA-LOW  
SULFUR FUEL



Diesel Particulate  
Filter (DPF)



methane recovery from landfills



Chinese low-concentration coal mine methane  
utilization



# Climate & Clean Air Coalition

Methane, Black Carbon & HFC actions



AGRICULTURE



BRICKS



HOUSEHOLD



DIESEL



OIL & GAS



HFCs



WASTE



ASSESSMENTS



FINANCE



SNAP



URBAN HEALTH

**Political leadership – partner driven - transformative**

**FAST ACTION**

**QUICK RESULTS**

**MULTIPLE BENEFITS**



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[www.ccacoalition.org](http://www.ccacoalition.org)



# SLCP Sources from MSW

## Methane

produced from food and garden waste kept in anaerobic conditions.

Black Carbon  
produced from burning of waste  
and transport by dirty diesel vehicles



# Municipal Solid Waste Sector

## SLCP reduction

- Reduce waste
- Separate waste at the source
- Treat separated waste
- Collect and control the biogas, if possible use the biogas



# Benefits of Improving Waste Management while mitigating SLCPs

## ENVIRONMENTAL



- Climate change mitigation
- Air quality protection
- Water quality protection
- Litter reduction

## SOCIAL



- Improved public health
- Worker protection
- Improved welfare of the informal sector
- Improved aesthetics

## ECONOMIC



- Job creation
- Resource conservation
- Costs reduction
- Energy generation



# WASTE INITIATIVE

Mitigating SLCPs from Municipal Solid Waste



## Objective:

Reduce emissions of SLCPs across the municipal solid waste sector by providing a comprehensive package of resources, technical capacity building, and a global network of cities to facilitate the design and implementation of locally appropriate actions.

## Added value of the Initiative:

- Working directly with cities
- Support from partners
- Mobilizing experts from all over the world





# Waste Initiative Strategy



## Components of the Strategy

- 1. City Action:** work with a targeted group of cities towards implementation of actions to reduce SLCPs from the waste sector (clustered cities).
- 2. National capacity building:** Strengthen national frameworks to reduce SLCPs at the city level.
- 3. Scale up action** beyond Waste Initiative cities through self-directed action (toolbox):
  - Create and deploy a standardized and internationally vetted set of tools to scale up the results of components 1 and 2
  - Inform key networks and forums to catalyze broader action

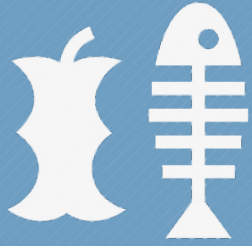


MSW Initiative is working with its partner cities on the following focus areas



- **Reduce waste** generation
- Address **open burning**
- Promote **organic diversion** programs: composting and anaerobic digestion
- Use landfills as final disposal options and enhance landfill operations - promote **landfill gas recovery**
- Institute **recycling programs**
- Improve **waste collection & handling equipment**
- **Measure and track** SLCP emissions reduction





Support and incentivize national, and local efforts to avoid CH<sub>4</sub> emissions by diverting organic waste from landfills



Regulate and incentivize the capture and utilization of methane from existing and new landfills



Eliminate open burning of waste and aim for universal collection by 2025

Launch a private sector partnership to divert biodegradables from large generators

Adopt a national goal of reducing food loss and waste by 50% by 2030

# CCAC High-Level Assembly Commitments



WASTE



# WHAT CAN YOU DO?

## Advocate for better air quality:



Provide **clean cooking** and **heating stoves** to rural communities



Don't **openly burn** waste



Use **cleaner-burning** fuels



Prioritize the use of **walking, cycling** or rapid **urban transit** over private vehicles



Switch to **clean diesel** and improved engines for transport and freight



Ensure industries use **clean technologies**



Have stricter vehicle emissions and efficiency **standards**



Establish, adhere to and enforce **air quality standards**



Switch from kerosene lamps to **clean lighting technologies** like solar lights



Invest in **renewable energy**



Stop emissions of **climate pollutants** such as black carbon, ozone and methane to save lives and help **reduce global warming** by **0.5C**

Transport & handling of waste

Use of biogas from AD plants and landfills



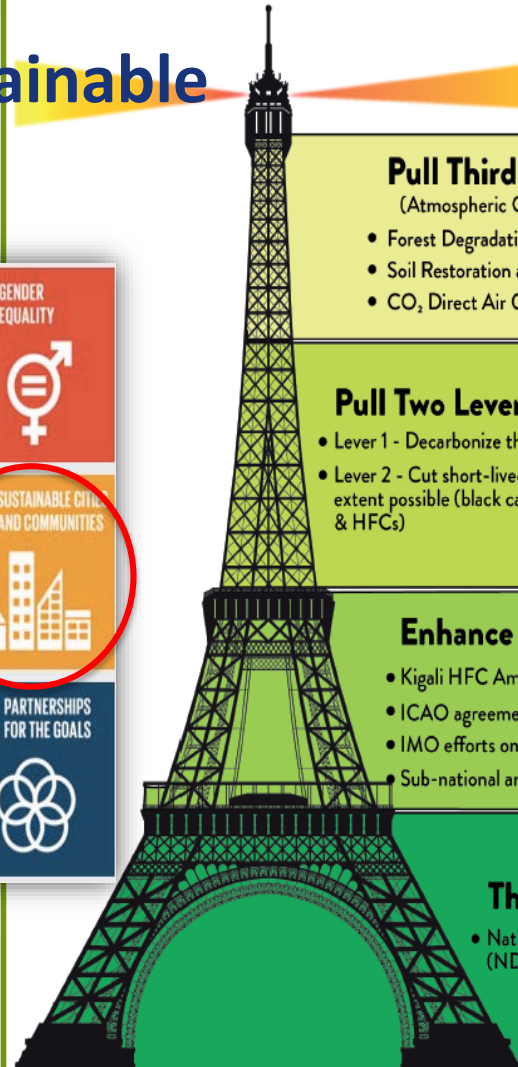


# Global to local: Climate & Sustainable Development Action

## Climate Policy Success



<p><b>Pull Third Lever: ACE</b> (Atmospheric Carbon Extraction)</p> <ul style="list-style-type: none"> <li>• Forest Degradation Reversal &amp; Afforestation</li> <li>• Soil Restoration and Eco-System Management</li> <li>• CO<sub>2</sub> Direct Air Capture and Storage</li> </ul>	2030 - 2050
<p><b>Pull Two Levers: Carbon &amp; SLCPs</b></p> <ul style="list-style-type: none"> <li>• Lever 1 - Decarbonize the global economy with renewables</li> <li>• Lever 2 - Cut short-lived climate pollutants to maximum extent possible (black carbon, methane, tropospheric ozone, &amp; HFCs)</li> </ul>	2020 - 2050 Today - 2030
<p><b>Enhance Sister Agreements</b></p> <ul style="list-style-type: none"> <li>• Kigali HFC Amendment to the Montreal Protocol</li> <li>• ICAO agreement on aircraft emissions</li> <li>• IMO efforts on shipping emissions</li> <li>• Sub-national and city-scale climate action plans</li> </ul>	2016 and Beyond
<p><b>The Paris Agreement</b></p> <ul style="list-style-type: none"> <li>• Nationally Determined Contribution (NDC) mitigation pledges</li> </ul>	2015 and Beyond



**SDGs: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management**

**Paris Agreement**  
*“the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels”*



# BREATHE LIFE

Clean Air. Healthy Future.

## Campaigning: Raise Awareness among Citizens

- Providing Authoritative Air Quality Data portrayed interactively
- Run social media campaigns
- Work with media organizations to tell the story
- Provide awareness materials
- Promote the work cities are doing to improve air quality

AIR POLLUTION ISSUE GLOBALLY

**Over 80% of the world's cities  
have air pollution levels over  
the WHO guideline for safe air**



SEE YOUR OWN CITY'S LEVEL AT: [BREATHELIFE2030.COM](https://www.breathelife2030.com)

**BreatheLife2030.org**



World Health  
Organization

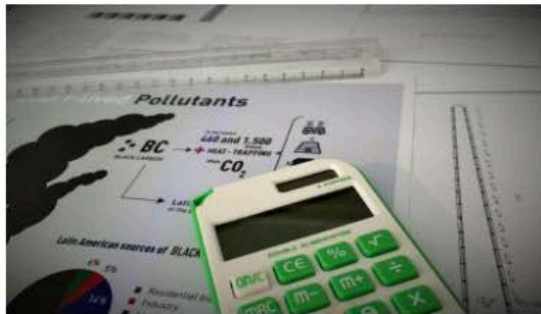


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# Share Solutions

[www.ccacoalition.org/SOLUTIONCENTER](http://www.ccacoalition.org/SOLUTIONCENTER)



## GUIDELINES & TOOLS

Information to help implement SLCP reduction measures such as: guidelines, methodologies, alternate technologies, and assessment tools.



## WEBINARS & TRAINING

Improve knowledge and skills, develop strategies, or train others with these materials.



## EXPERT ASSISTANCE

Get one-on-one consultation and advice on a range of short-lived climate pollution issues and actions.





# Reducing emissions from the waste sector results in many benefits for local communities

## Short-lived climate Pollutants



Black carbon emissions from vehicles and equipment



Black carbon emissions from open burning and landfill and dump fires



Methane emissions from landfills and dumps

## Solutions



Efficient waste collection, transport, and handling



Preventing waste burning



Organic waste management



Landfill gas capture

## Benefits



### ENVIRONMENTAL

- Reduced impact on climate change
- Air quality protection
- Water quality protection
- Litter reduction



### SOCIAL

- Improved public health
- Worker protection
- Improved health and safety for the informal sector
- Improved aesthetics



### ECONOMIC

- Job creation
- Resource conservation
- Costs reduction
- Energy generation

Learn how the Climate and Clean Air Coalition is helping cities reduce short-lived climate pollutant emissions from the municipal solid waste sector:

[ccacoalition.org/waste](http://ccacoalition.org/waste)



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# Conclusions

## Maximise co-benefits of Air and Climate Action:

- improve urban air quality
- address climate change and extreme events
- feed a growing population

Emissions of **short-lived climate pollutants** affect all these factors


**Political support essential** – allocate resources, regulate

**‘Polluter pays’** – tax & incentives

**Raise awareness** – public & policy

**Involve key-stakeholders** – inclusive & clean growth

**MUNICIPAL SOLID WASTE PLATFORM**  
Supporting cities and national governments in their efforts to reduce short-lived climate pollutants



● Letter of intent ● Assessment stage ● Action plan development ● Work plan development ● Implementation plan development ● Mentor ● About stages and our work

Get resources from Climate & Clean Air Coalition's municipal solid waste initiative to address methane, black carbon, and other air pollutant emissions from the waste management sector!

[Take action today](#)

[waste.ccacoalition.org](http://waste.ccacoalition.org)

[www.ccacoalition.org](http://www.ccacoalition.org)



# Thank you!

For further questions or information  
contact:

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**LEARN MORE:**



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