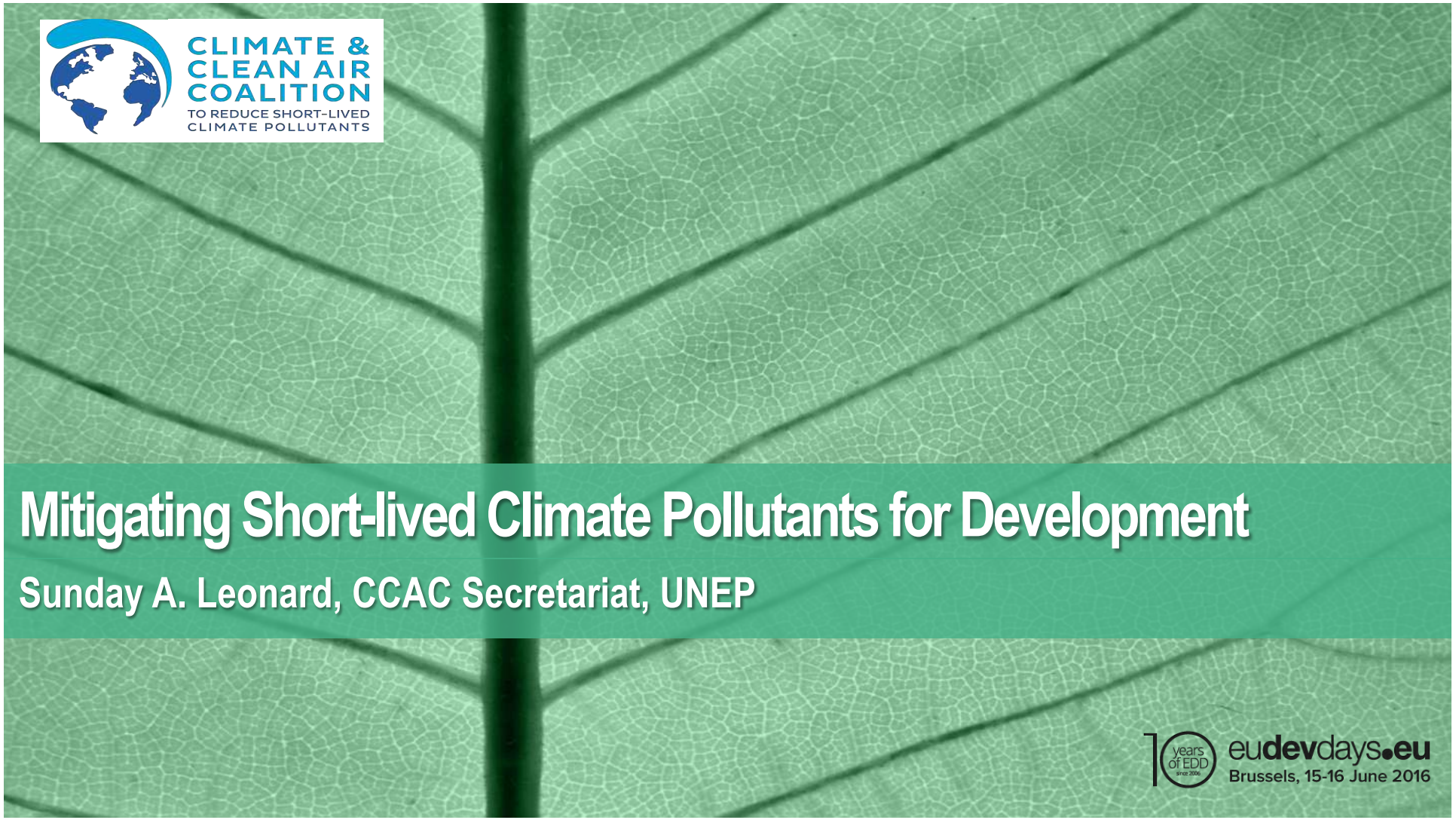

Mitigating Short-lived Climate Pollutants for Development

Sunday A. Leonard, CCAC Secretariat, UNEP

10 years of EDD since 2006
eudevdays.eu
Brussels, 15-16 June 2016

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

In the beginning was…

… science

UNEP

World Meteorological Organization

Integrated Assessment of Black Carbon and Tropospheric Ozone

UNEP

Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers

A UNEP Synthesis Report

UNEP

HFCs: A Critical Link in Protecting Climate and the Ozone Layer

A UNEP Synthesis Report

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RESEARCH ARTICLE

Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security

SHARE

Drew Shindell[1,*], Johan C. I. Kuylenstierna[2], Elisabetta Vignati[3], Rita van Dingenen[3], Markus Amann[4], Zbigniew Klimont[4], Susan C. Anenberg[5], Nicholas Muller[6], Greet Janssens-Maenhout[3], Frank Raes[3], Joel Schwartz[7], Greg Faluvegi[1], Luca Pozzoli[3,†], Kaarle Kupiainen[4], Lena Höglund-Isaksson[4], Lisa Emberson[2], David Streets[8], V. Ramanathan[9], Kevin Hicks[2], N. T. Kim Oanh[10], George Milly[1], Martin Williams[11], Volodymyr Demkine[12], David Fowler[13]

Abstract

Tropospheric ozone and black carbon (BC) contribute to both degraded air quality and global warming. We considered ~400 emission control measures to reduce these pollutants by using current technology and experience. We identified 14 measures targeting methane and BC emissions that reduce projected global mean warming ~0.5°C by 2050. This strategy avoids 0.7 to 4.7 million annual premature deaths from outdoor air pollution and increases annual crop yields by 30 to 135 million metric tons due to ozone

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

who we are...

In 2012 with 7 founding partners

Today the Coalition has 111 partners:

50 countries

16 IGOs

45 NGOs

First global effort on collective SLCPs action

Voluntary, partner-led

Catalytic

Complementary to CO_2 mitigation

Action-oriented

Partners on the ground

Scale up good practice

Policy based on science

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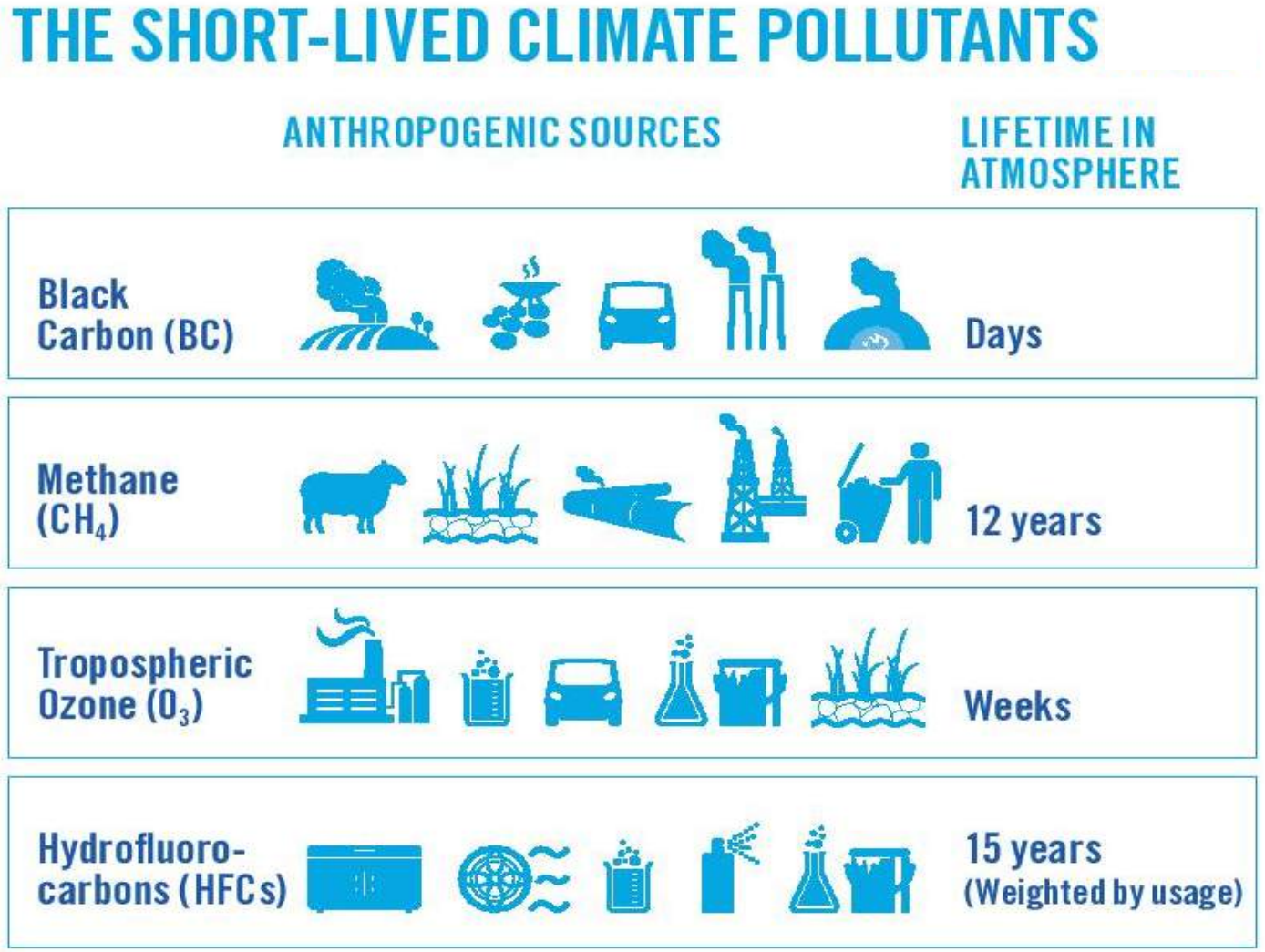
THE SHORT-LIVED CLIMATE POLLUTANTS

Relatively short lifetime in the atmosphere and a warming influence on near-term climate.



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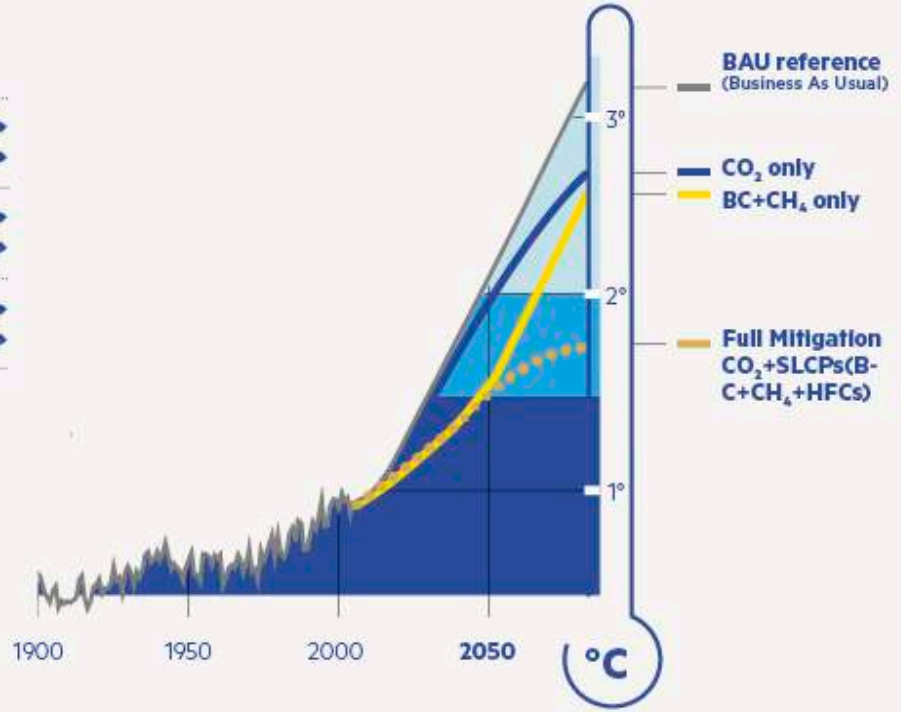
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

SLCP CLIMATE BENEFITS

Avoided Global Warming by 2050

BC + CH_4	0.5°C
HFCs	0.1°C
SLCPs	0.6°C



SIMULATED TEMPERATURE CHANGE
UNDER VARIOUS MITIGATION SCENARIOS

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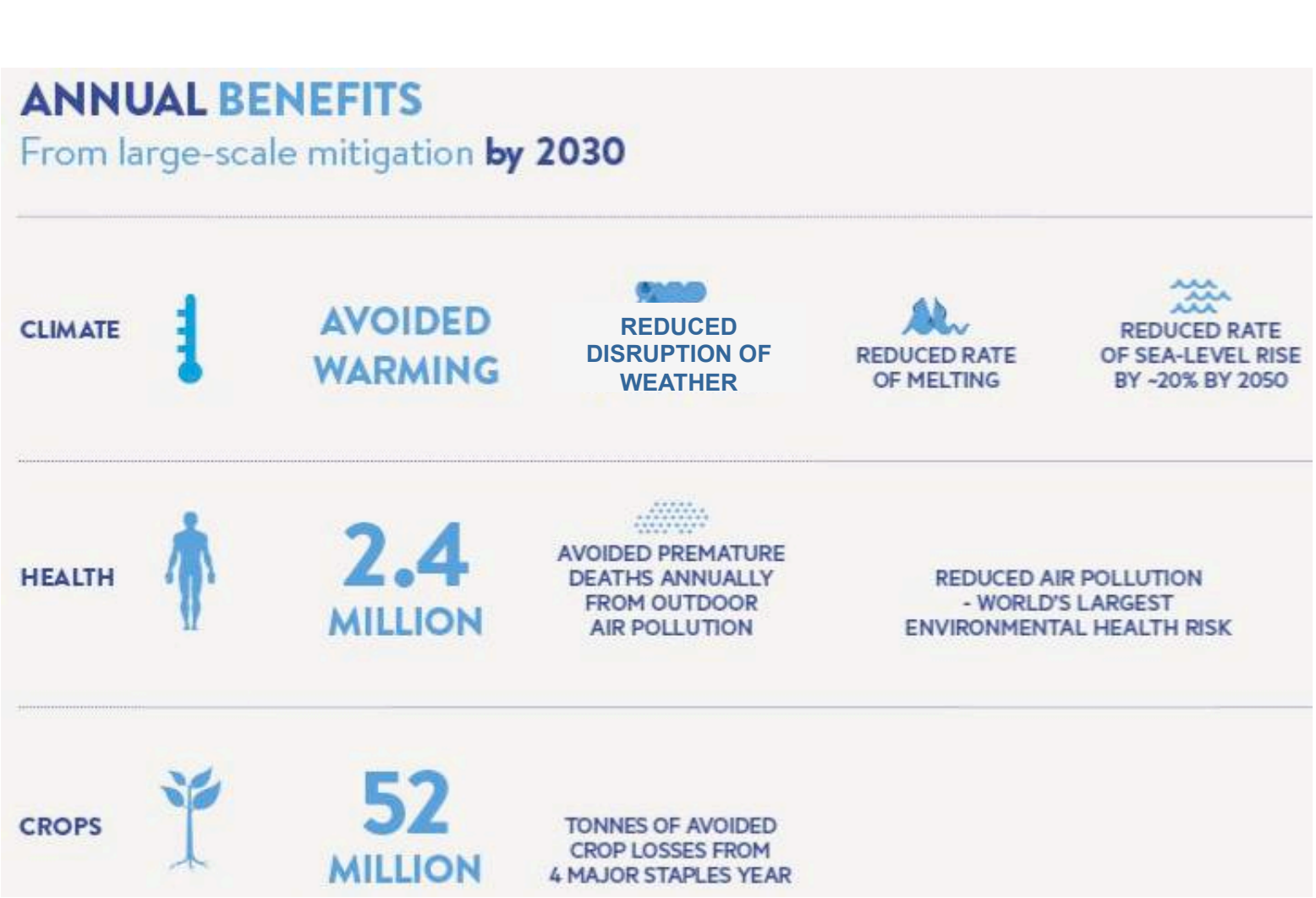
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

ANNUAL BENEFITS

From large-scale mitigation by 2030



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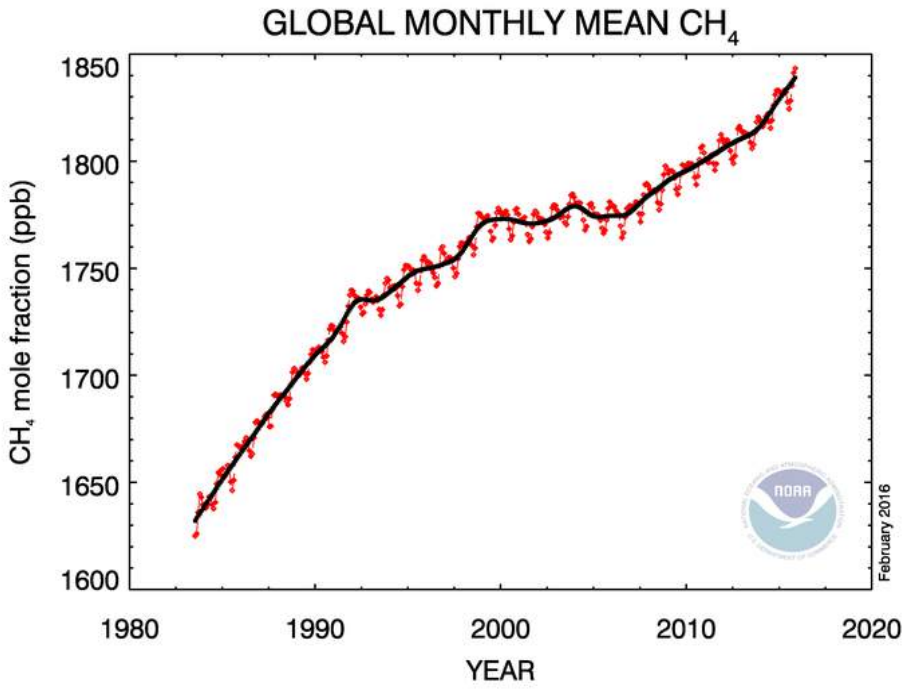
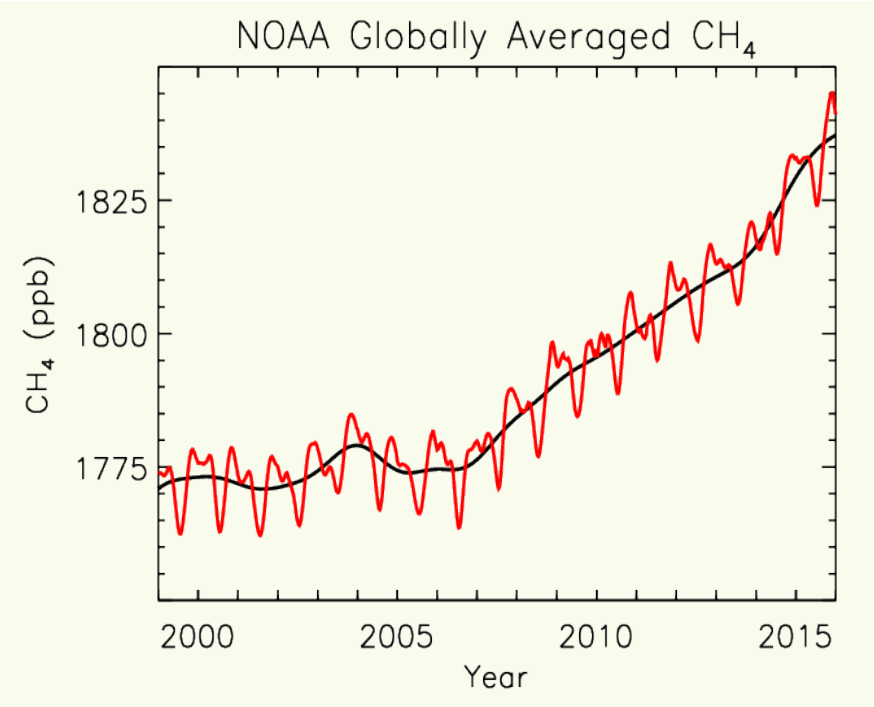
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

RECENT SLCP KNOWLEDGE

Methane emissions is growing…





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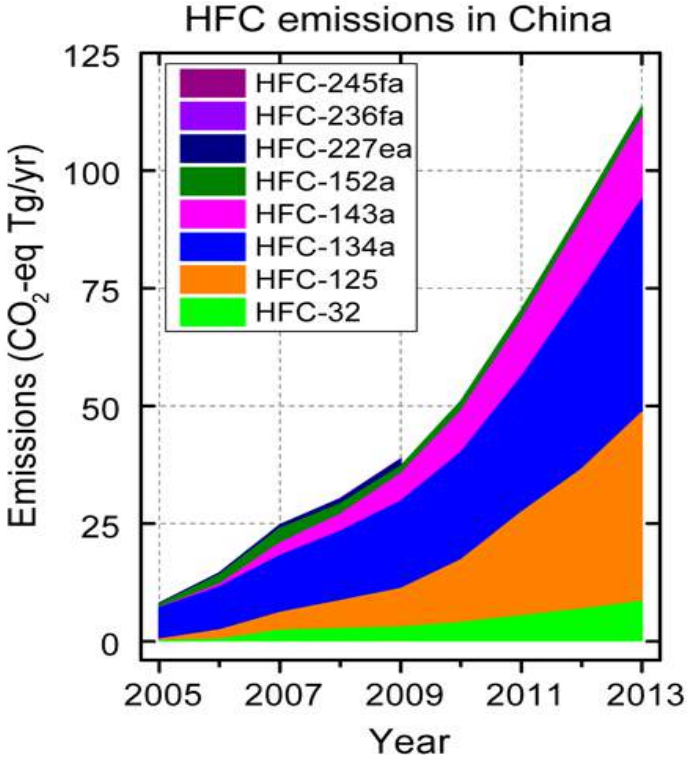
RECENT SLCP KNOWLEDGE

HFCs are growing too…



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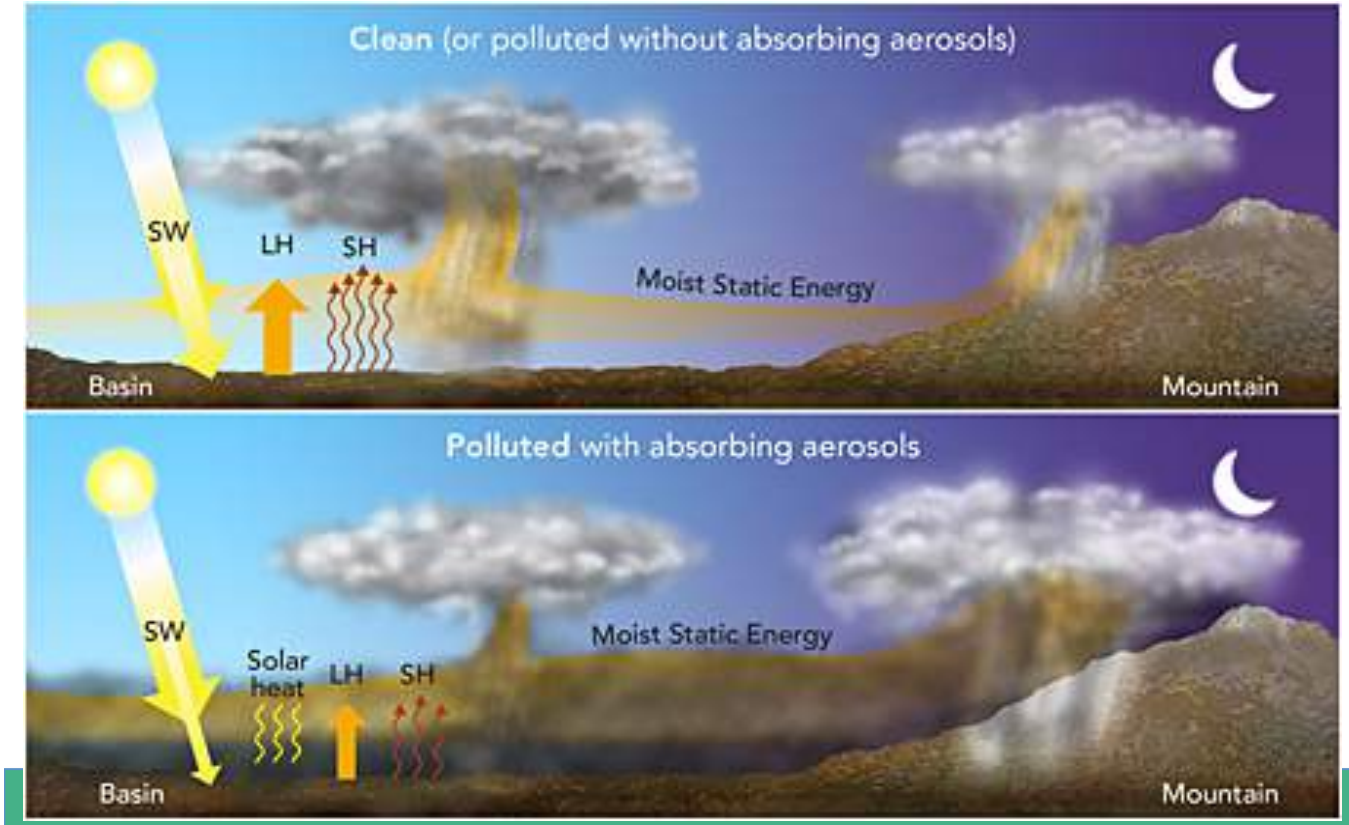
RECENT SLCP KNOWLEDGE

Black carbon is impacting climatic patterns…



Fan et al. 2015 – The 2013 flood in Sichuan was linked to absorbing air polluting aerosols including black carbon - *Geophysical Res. Lett.*

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TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

URGENT ACTION NEEDED…

SLCP mitigation will help slow down the **rate of climate change**

Climate Change is Already On Us

Arctic sea ice vanishing in fall; Glaciers retreating worldwide
Permafrost retreating poleward; Species moving upward and poleward
SW US & Mediterranean drying out; More heatwaves in Europe, Asia, Australia

nature
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Repeated large-scale retreat and advance of Totten Glacier indicated by inland bed erosion

Current **rates** of climate change could trigger instability in a major Antarctic glacier, resulting in more than 2m of sea-level rise

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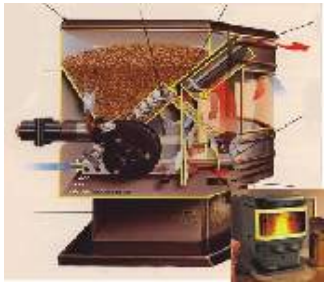
BLACK CARBON MITIGATION MEASURES

improved biomass stoves

modern coke ovens

remove big smokers / DPF

cooking with clean fuel



pellet biomass heating stoves

improved brick kilns

reduce flaring

coal briquettes replacing coal

reduce agricultural burning

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METHANE MITIGATION MEASURES

intermittent aeration -paddy

recovery from wastewater

recovery from oil and gas

recovery from landfill

recovery from livestock manure /change feed

coal mine methane capture

reducing pipeline leakage

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HFCs MITIGATION MEASURES







phase-down the use of high-GWP HFCs in all sectors

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TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

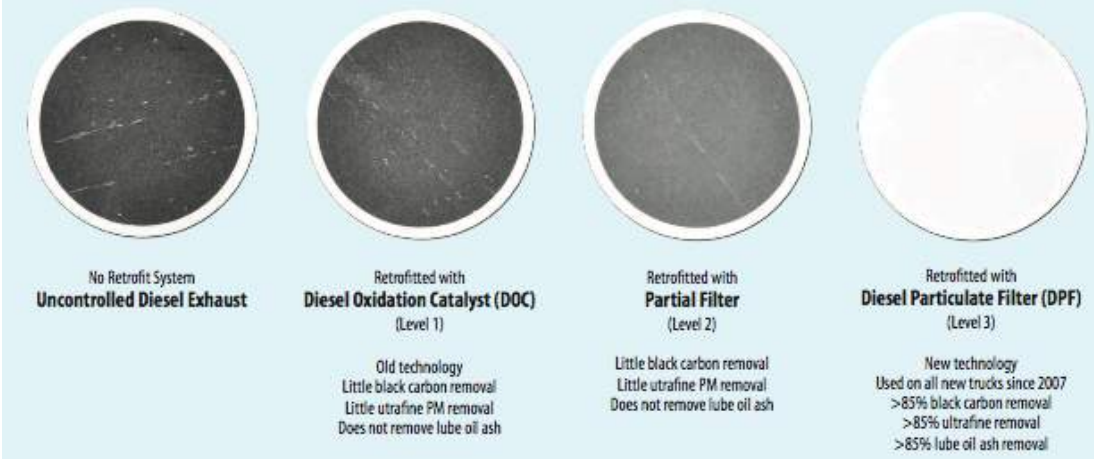
SLCP MITIGATION MEASURES

SLCP abatement measures are:

- **proven and often already in use,** *hence does not require significant technical innovation*
- **at little cost or no net cost,** *although initial capital investment may be needed, many will achieve cost savings over time*
- *Could also* **contribute to carbon dioxide mitigation**

ULTRA-LOW SULFUR FUEL

Diesel Particulate Filter (DPF)



CLIMATE & CLEAN AIR COALITION
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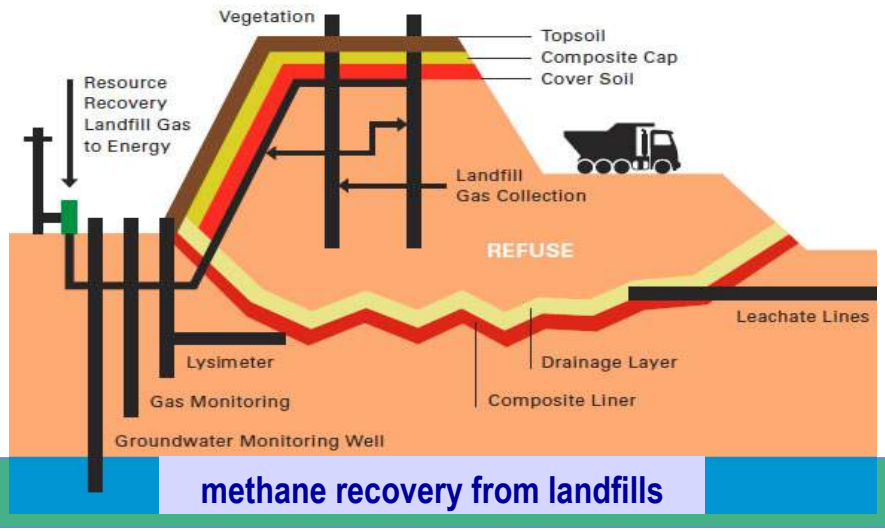

methane recovery from landfills

Chinese low-concentration coal mine methane utilization

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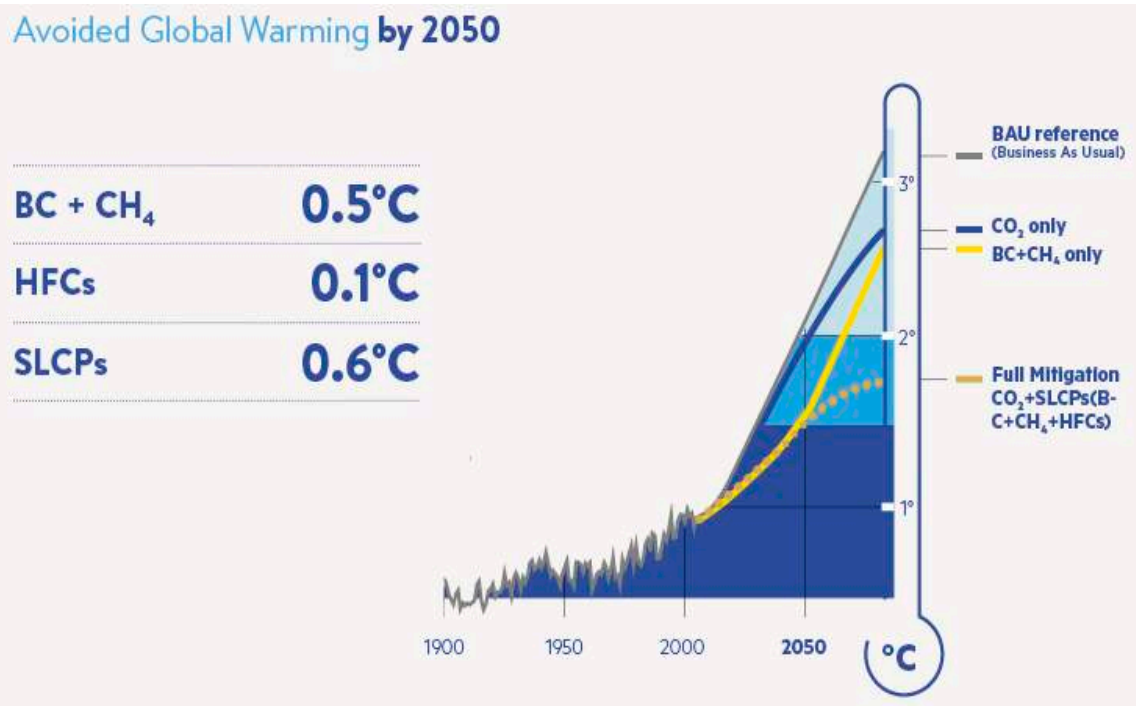
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

SLCPs MITIGATION & PARIS AGREEMENT



"…holding 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..."

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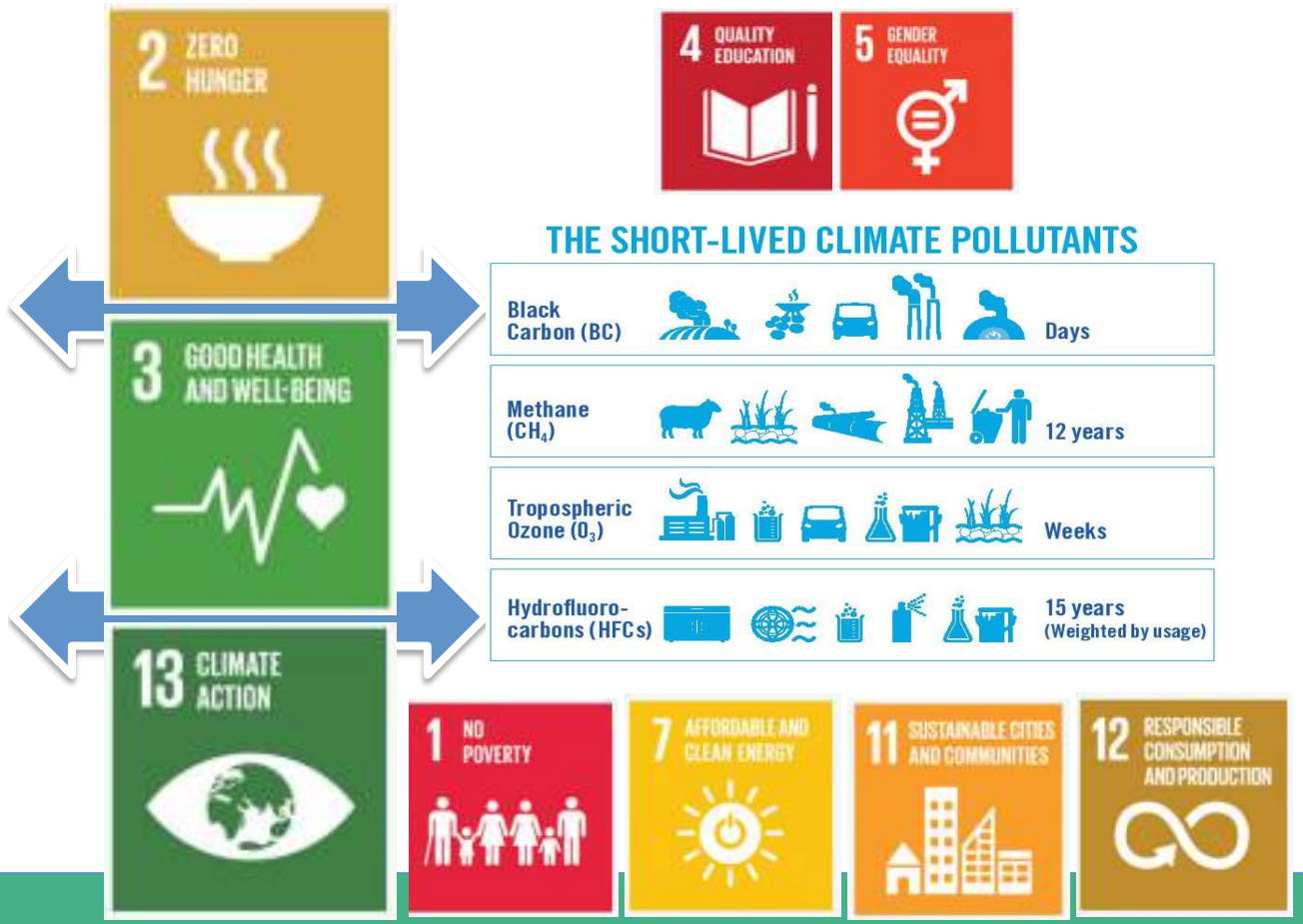
SLCP MITIGATION & THE SDGs

SUSTAINABLE DEVELOPMENT GOALS

THE GLOBAL GOALS
For Sustainable Development



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TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

SLCP MITIGATION, PARIS AGREEMENT & SDGs

THE GLOBAL GOALS
For Sustainable Development

PARIS2015

SUSTAINABLE DEVELOPMENT GOALS

Two-target approach in NDCs –
long lived & short lived pledges – co-benefits

Metrics methodology - accounting for SLCPs

Opportunities NDCs:
- Stock taking 2018
- Increase ambitions in reviews

Opportunity to achieve SDGs…

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

IN SUMMARY…

- Latest knowledge shows that emissions of important of SLCPs including methane and HFCs are increasing.
- Yet proven, cost effective and already in use SLCP abatement measures are available.
- Actions on SLCPs can significantly contribute to achieving the Paris Agreement.
- SLCP emission reduction is interlinked with several of the Sustainable Development Goals and will contribute to their achievement.
- One way of incorporating SLCPs mitigation into the Paris Agreement and SDGs implementation process is by adopting a "two target approach" which takes into consideration the near- and long-term impacts and benefits of mitigation actions.

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THANKS!

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