



Short-lived climate pollutants: The scientific case for fast policy action



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Air pollution: unfinished business on the sustainable development agenda

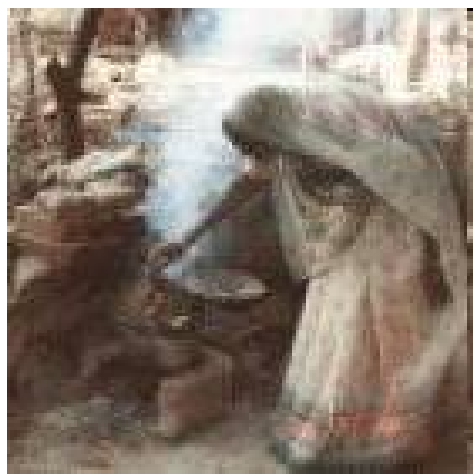


Outdoor air pollution

“Some progress” Despite some progress, outdoor air pollution continues to have serious impacts on the environment & human health.



About 1.3 (3.7?) million premature deaths each year due to outside air pollution.



Indoor air pollution

“little or no progress”

“Indoor air pollution from particulate matter continues to have major health impacts, particularly on women and children.”

- 3 billion people cook and heat using open fires and leaky stoves burning biomass and coal.
- Around 2 million people die each year prematurely from illness attributable to indoor air pollution

Source: WHO statistics

What are short-lived climate pollutants?

Short-lived climate pollutants: Cause global warming & relatively short-lived in the atmosphere.

Black carbon, methane, tropospheric ozone, hydrofluorocarbons (HFCs)

Multiple benefits of reducing short-lived climate pollutants:

- Reduce air pollution - Protect health and crops
- Slow down near-term global warming, reduce regional impacts of climate change



A package of 16 measures can substantially reduce black carbon + methane emissions and achieve multiple benefits



Three UNEP studies with scientific community

1. *"Near Term Climate Protection and Clean Air Benefits"*
2. *"Global Assessment of Black Carbon and Tropospheric Ozone"*
3. *"HFCs: Critical Link in Protecting Climate and the Ozone Layer"*

Emission reductions in 2030 (rel. to BAU)

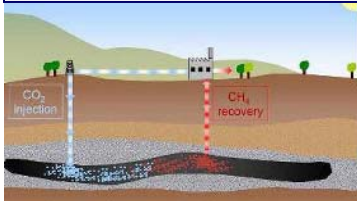
Methane : $\approx$ - 40%

Black carbon : $\approx$ - 80%



Black carbon measures

- Improved stoves
- Upgraded brick kilns
- Particle filters for diesel vehicles



Methane measures

- Recovery from fossil fuel production (oil & gas production; coal mines)
- Waste / landfill management



No technical breakthroughs.

These measures already implemented in many countries

Cost-effective

How Achieve

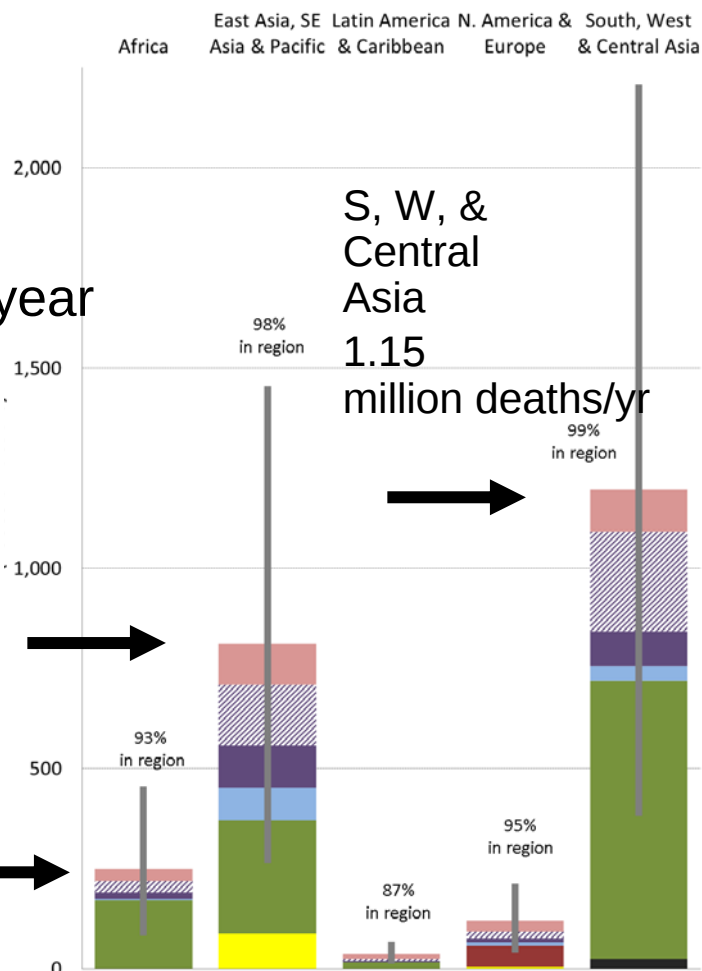
Action against short lived climate pollutants reduces air pollution & saves lives



Premature
mortalities
avoided
in 2030
thousands/year

East Asia +
Pacific
750
thousand
deaths/yr

Africa
200
thousand
deaths/yr



**Reducing black carbon
protects public health**

Avoided premature
mortalities (2030) from
outdoor air pollution

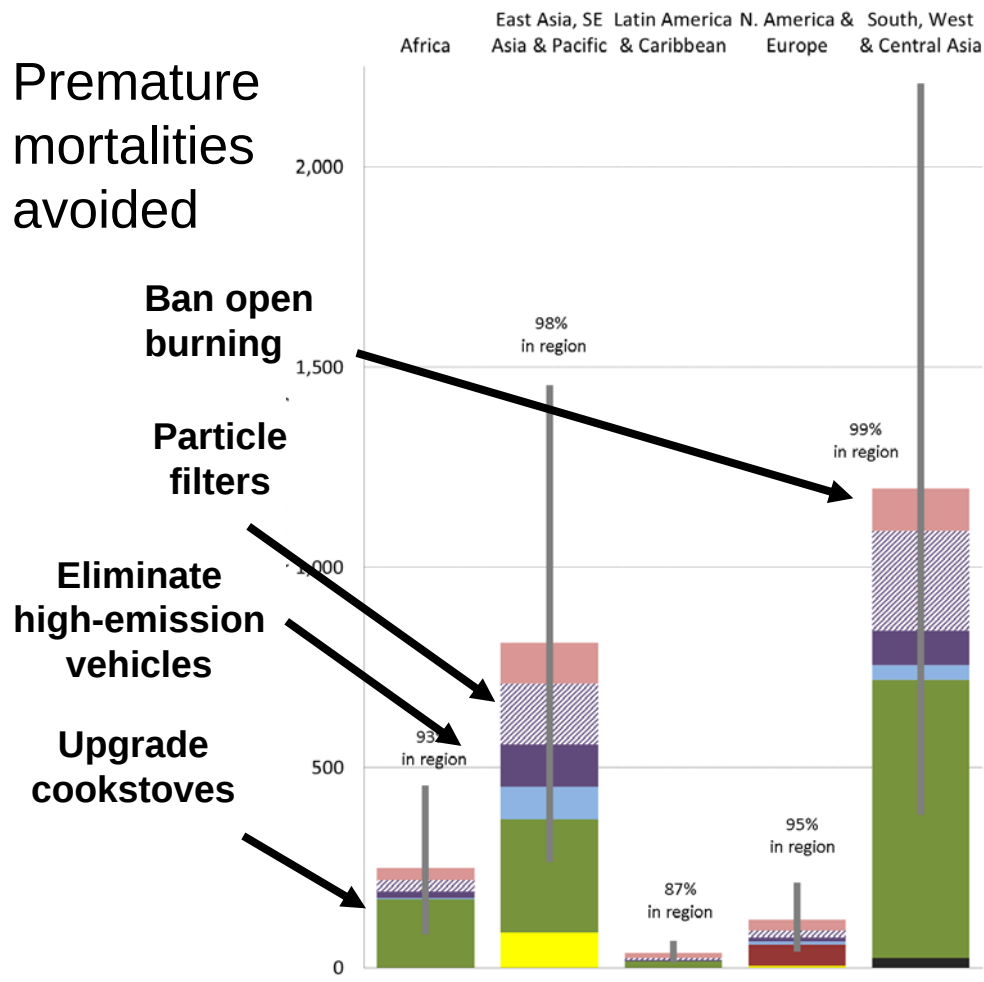
Total lives saved globally
= 2.4 million / year

From UNEP (2011)

Action against short lived climate pollutants reduces air pollution & saves lives



Premature
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From UNEP (2011)

Action against short-lived climate pollutants reduces crop damage



Positive impact of methane + black carbon reduction measures on reducing ozone damage to crops

Avoided crop damage in 2030 (4 crops):

Regional examples:

North America + Europe: 4.8 million tonnes /year

E Asia, Pacific: 9.7 million tonnes /year

Total worldwide : 32 million tonnes / year





against short-lived climate pollutants slows down global warming



near-term global warming

near-term global warming $\approx 0.4 - 0.5$ °C (2010 - 2050) relative to
→ *almost halving* temperature rise

near-term global warming?

melts

glaciers

and ice, ice caps, → sea level rise,
climate change

near-term CO₂ reductions

near-term climate pollutants: slows down **near-term** global warming
for long term climate protection

Glacier lake
outburst floods

