



**CLIMATE &
CLEAN AIR
COALITION**

TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

Sectoral Solutions for BC Mitigation

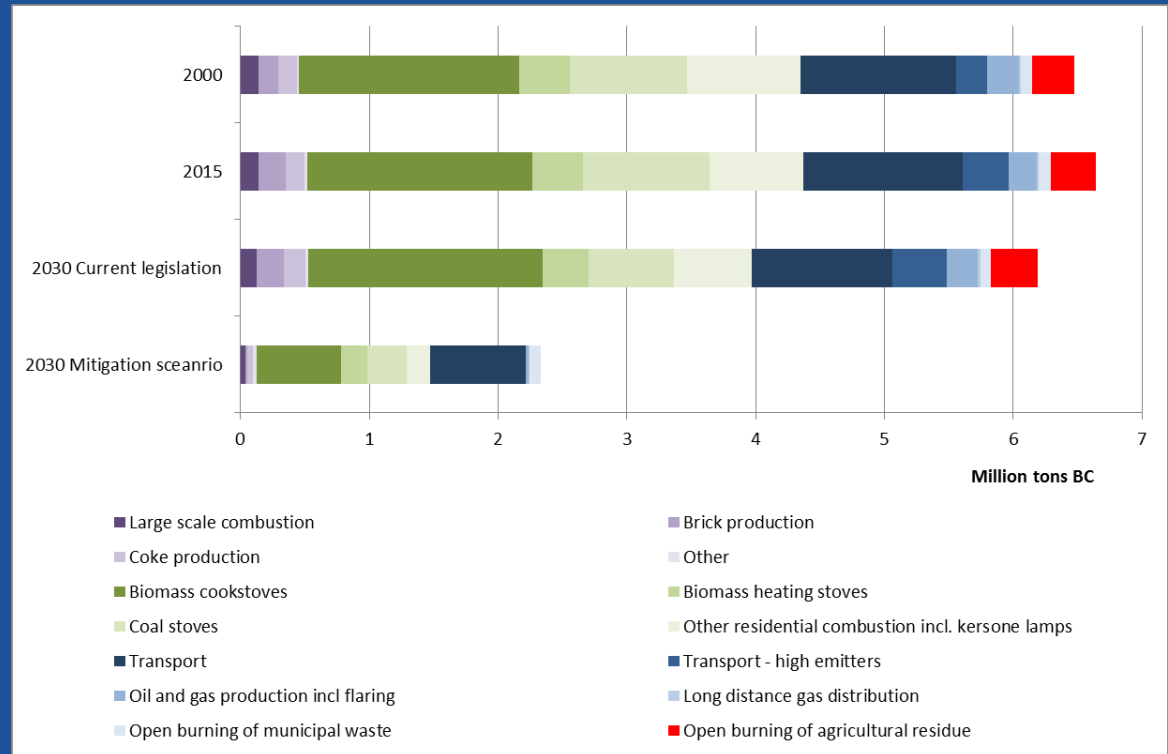
Nathan Borgford-Parnell

Science Affairs

11 September 2019

Global Anthropogenic Black Carbon Emissions

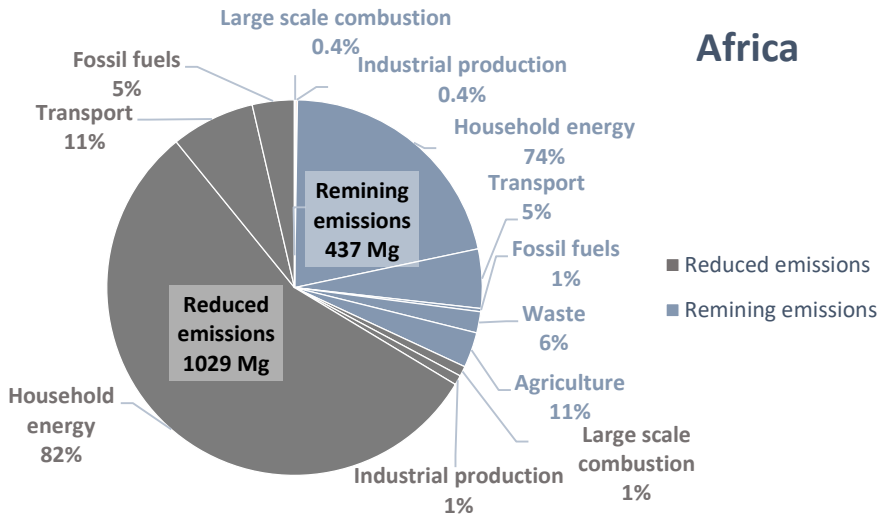
- Black Carbon emissions are relatively stable and expected to decrease slightly under current policies
- 60-70% total mitigation potential of Black Carbon by 2030



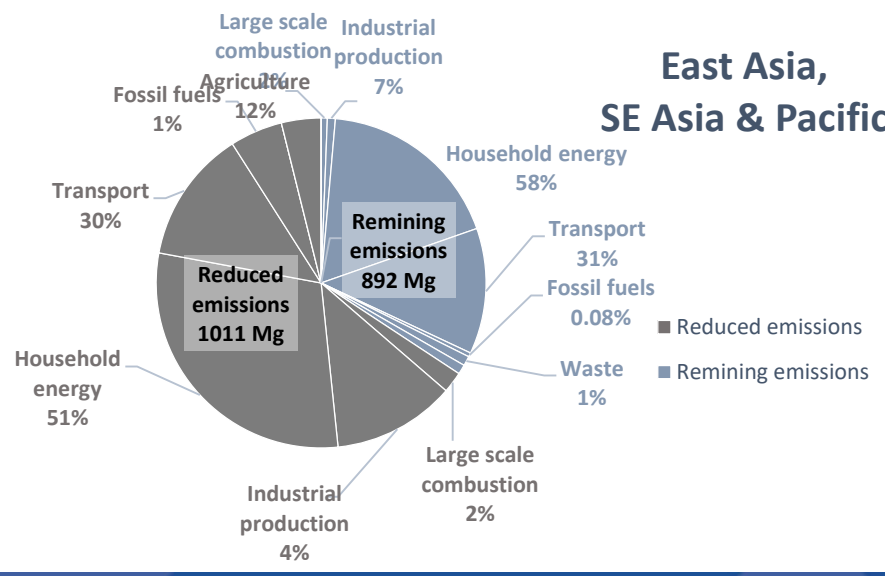
Source: GAINS model (IIASA); Klimont Z. et al. (2017); Stohl A. et al. (2015)



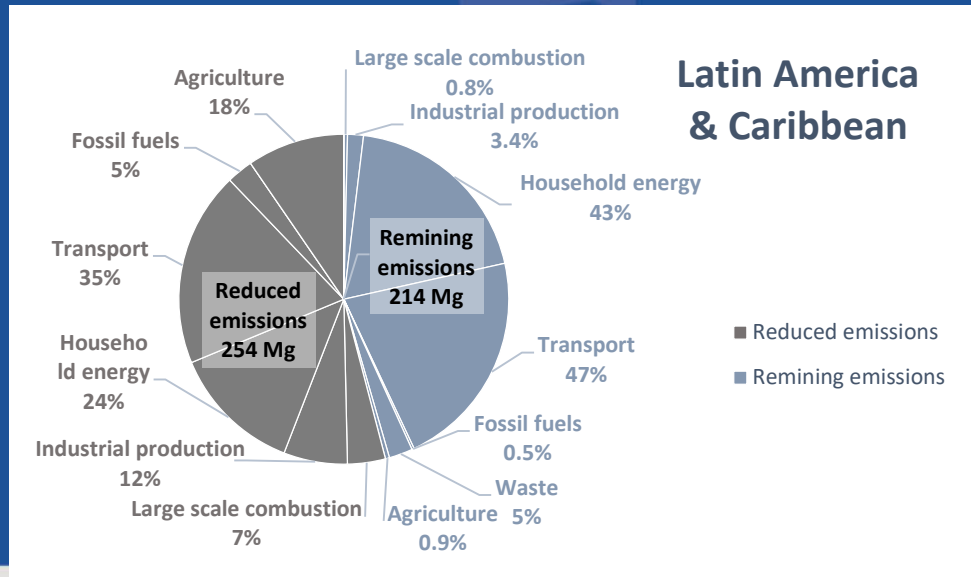
Africa

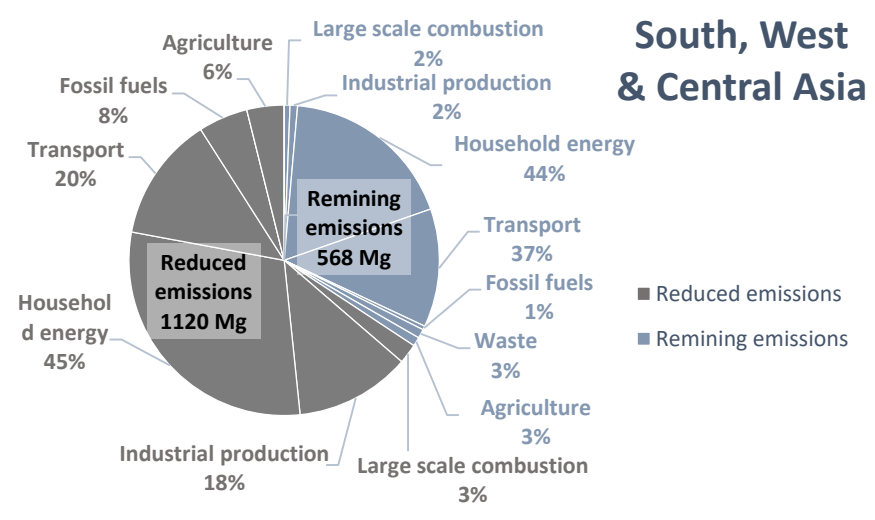
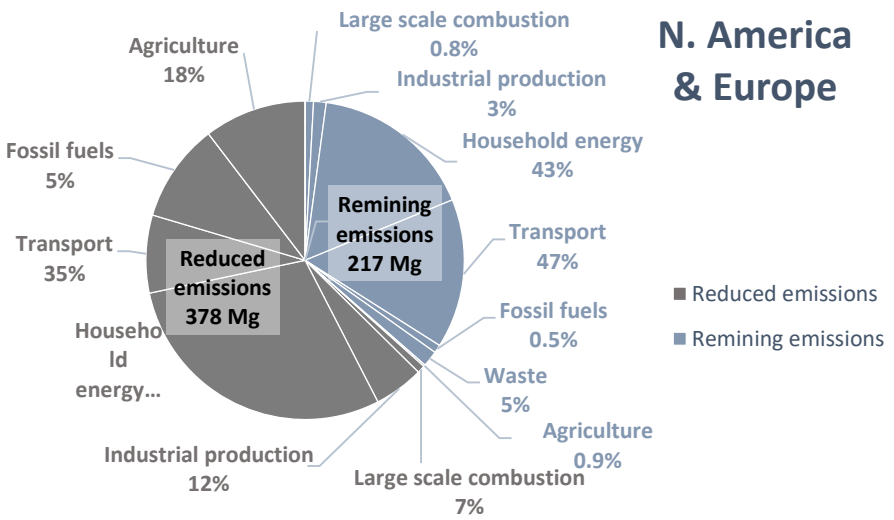


East Asia, SE Asia & Pacific



Latin America & Caribbean





Household Energy

Replace traditional cooking to clean burning modern fuel cookstoves

Replace traditional cooking and heating with clean-burning biomass stoves

Eliminate kerosene lamps

Replace lump coal with coal briquetted for cooking and heating

Replace wood stove and burners with pellet stoves and boilers

Industrial Production

Modernize traditional brick kilns to vertical shaft brick kilns

Modernize coke ovens to recovery ovens

Transport

Use diesel particulate filters for road and off-road vehicles

Fast transition to EURO VI/6 vehicles and soot-free buses and trucks

Eliminate high-emitting diesel vehicles

Agriculture

Ban open-burning of agricultural waste

Fossil Fuels

Eliminate and/or improve oil flaring and gas production

Waste Management

Ban open burning of municipal waste



Black carbon is never emitted alone. The co-emitted gases include carbon monoxide (CO), methane (CH₄), non-methane volatile organic compounds (NMVOCs), and nitrogen oxides (NO_x made up of NO₂ & NO), all ozone (O₃) precursors, as well as other GHGs (CO₂, N₂O). Also, BC can be co-emitted with other primary carbonaceous particles (organic carbon –OC-) and inorganic gases precursors (SO₂, NO_x and NH₃) of secondary PM_{2.5}.



Ghana's 4th National Greenhouse Gas Inventory

CO₂, CH₄, HFCs, PFCs, SF₆, N₂O

NO_x, CO, NMVOCs, PM_{2.5} (Black Carbon)

“The widening of the variety of gases in the inventory was crucial because it helped to enhance the utility and relevance of the results beyond climate change to the impacts of SLCPs and air pollution on **human lives, agricultural productivity, ecosystems, and sustainable development.**”





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THANK YOU