

TECHNICAL MEASURES TO REDUCE BLACK CARBON AND PARTICULATE MATTER FROM AGRICULTURAL BURNING (draft)

CLRTAP Expert Group on Techno-Economic Issues

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UNEP/WMO ASSESSMENT 2011

Major measures to reduce emissions of black carbon (BC) and tropospheric ozone (O₃)

- improved wood stoves;
- application of diesel filters to engines;
- improved waste management (curbing releases);
- recovery of releases from oil and gas extraction;
- ban on field burning of agricultural waste.

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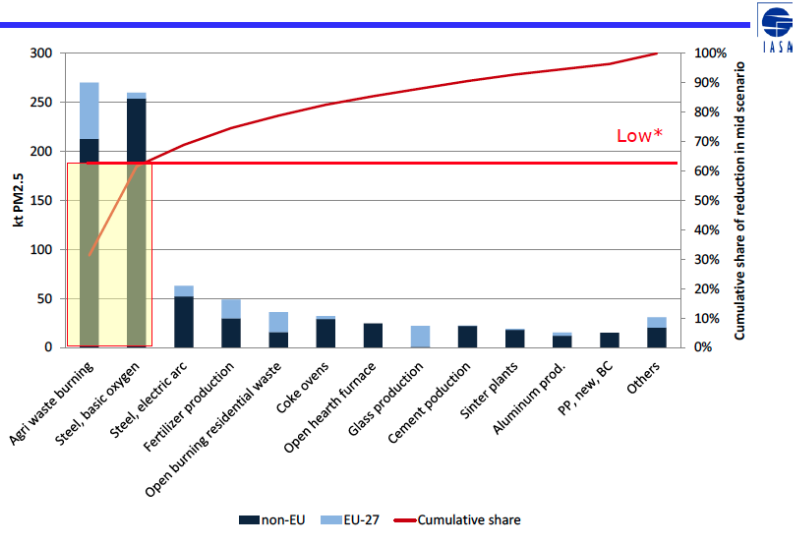
All identified measures are currently in use worldwide but much wider and more rapid application is required to achieve the identified benefits. Could be done under existing policies to address air quality and development

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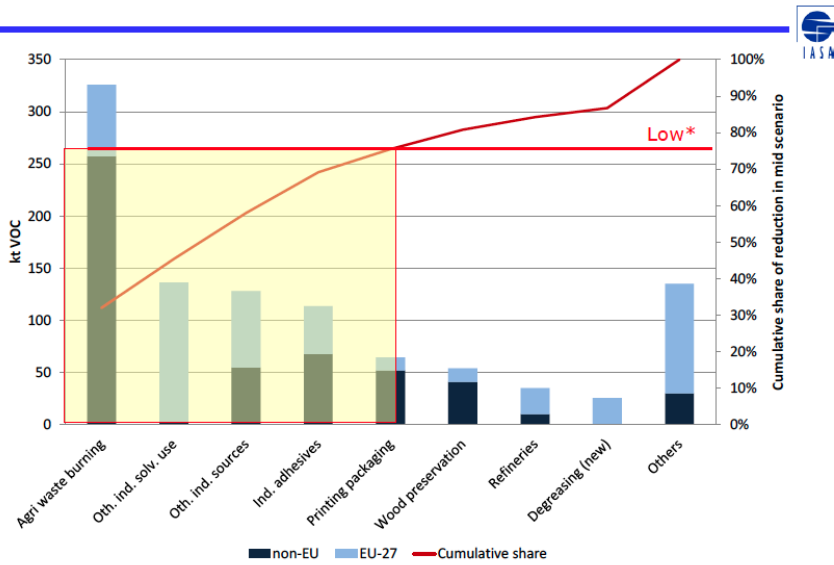
Major benefits of taking measures on BC and O₃

- **reduction of global warming by 0.5°C in 2050 (if implemented by 2030);**
- **avoidance of 2.4 million premature deaths/year (when fully implemented);**
- **avoidance of crop (maize, rice, soybean, wheat) loss of 52 million tonnes/year (when fully implemented).**

Cost-effective PM2.5 reductions in the mid scenario



Cost-effective VOC reductions in the mid scenario



Recommended measures to reduce BC emissions from agriculture

- **ban open field burning of waste and harvest residue;**
- **incorporate harvest residue in soil;**
- **consider alternative use of harvest residue and waste.**

Alternative use of harvest residue and waste

- **use straw and harvest residue as bedding material for farm animals (later to be incorporated into soil);**
- **use straw for heating buildings provided that furnaces are equipped with proper technology to reduce emissions of BC;**
- **use baled straw as building material;**
- **use harvest and forest residue in bio-char production (charcoal), creating carbon sinks and improving soil structure.**

Incorporation of manure into soil

- **improved techniques of timely manure application (modern machinery and equipment) to limit nutrient losses and emissions to the atmosphere;**
- **optimization: nutrient requirements/manure dosage/timing.**

Research and development

- **offer technical assistance, seminars and studies on environmental and health-related cause-effects relationships;**
- **offer extension services on agricultural practices for better yield and profitability;**
- **stress efficiency and food security;**
- **demonstrate advantages of non-burning methods;**
- **support management programmes and strategies for controlled burning in agriculture and forestry;**
- **address limitations for controlled burning.**

Opportunity for CLRTAP

- **Control of PM/BC must be an integral component of measures within CLRTAP to improve air quality and reduce climate impact**
- **Can set an example for worldwide action**

Co-benefits

- **Short-lived climate pollutants (SLCPs) offer important opportunities for integration of issues, exploring synergies and co-benefits regarding air quality, climate and development**
- **Short- and longterm concerns combined**

Urgency

There is a sense of urgency for action on SLCPs worldwide, but particularly concerning the protection of the Arctic. The issue will be raised at the UN summit Rio +20 in June 2012. Regional initiatives may pave the way for global progress.