CDM & Co-benefits: Developing linkages between sustainable development and climate change

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OECD work: sustainable development & climate change

- Macro-economic, environmental modelling
- Policy analysis
- Policy dialogue
- International collaboration

Outline

1. What are co-benefits & why are they important?
   - the example of air pollution
2. CDM - co-benefits in project design & selection
3. Conclusions

Conclusions and next steps

- Co-benefits can be large - should be counted
- Influence project choice, design & timing of project
- Use co-benefits in project design – prioritise project types that deliver co-benefits
  - e.g. toward integrated approaches to climate and air pollutions policy agendas
- Other "CDM-like" mechanisms – e.g. sectoral CDM, unilateral CDM or sectoral approaches with crediting – may be better able to capture co-benefits

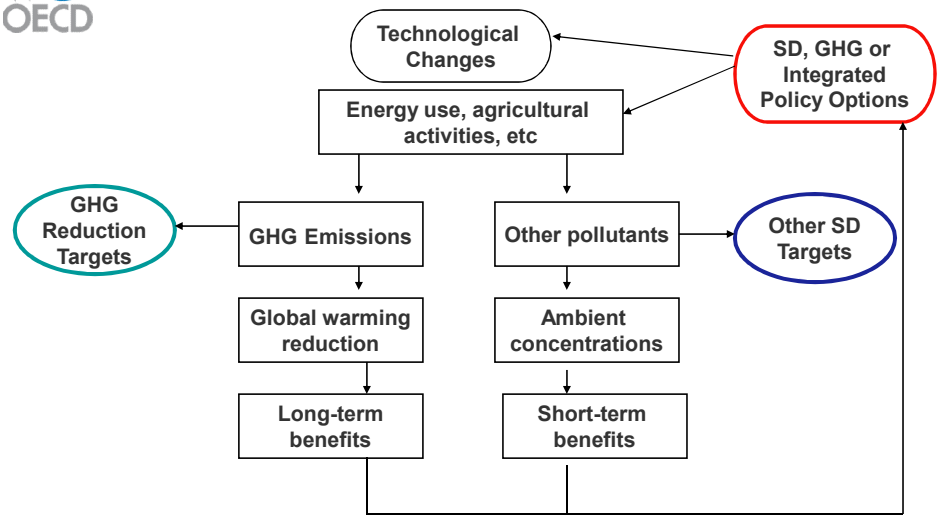
Co-benefits: what, when & how?

Co-benefits: describe (parallel) non-climate change benefits of climate mitigation policies (GHG reduction)

Typical characteristics:

- near- & mid-term timeframes
- co-located with emission reductions
- differ from direct benefits of GHG policy

Benefits of GHG Mitigation & SD Policies



Source: Adapted from Cifuentes et.al. 2000

Co-benefits can vary widely

In terms of

- What they are:
  - Direct vs indirect co-benefits
- Where they are felt:
  - Company-specific, local, regional, national
- Who benefits:
  - Project developer and/or local community and/or government

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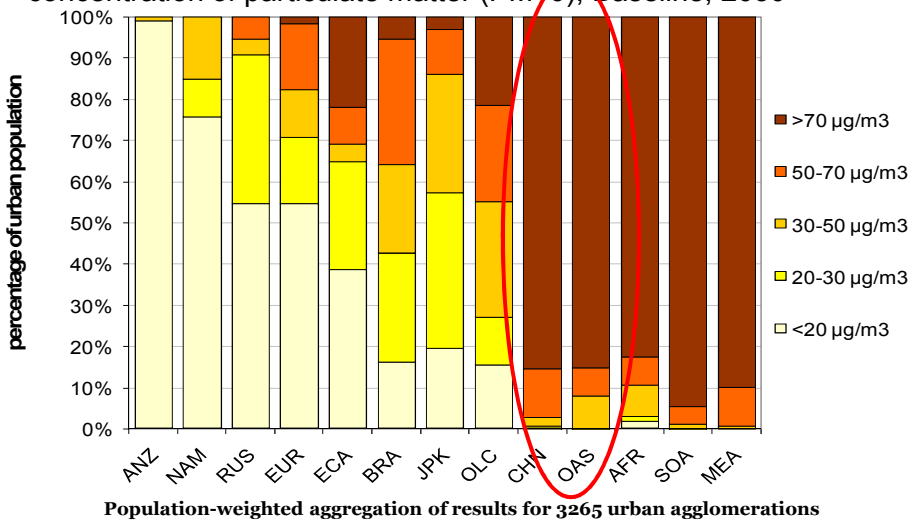
Environment,Air Pollution & Health Interactions

Policy problem

- Air pollution has a direct effect on human health causing death and illness
- Main drivers:
  - Tropospheric ozone (precursors: methane - a GHG; NOx)
  - Particulate matter (PM)
- High economic costs of health problems:
  - Example of costs: OECD countries spend 6-16% of GDP on health costs - what portion driven by environmental problems
- If instead spent more upstream on environmental problems, could reduce downstream health costs

The OECD Environmental Outlook to 2030

Air Pollution: Distribution of the urban population by annual mean concentration of particulate matter (PM10); Baseline, 2030

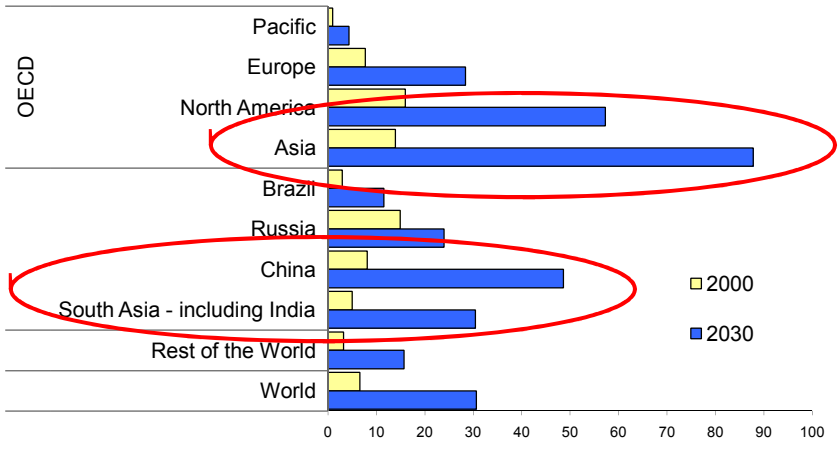


Population-weighted aggregation of results for 3265 urban agglomerations

OECD Environmental Outlook modelling suite, final output from IMAGE cluster

The OECD Environmental Outlook to 2030

Environment & Health: Premature deaths from ozone in urban air pollution, Baseline



Premature deaths per million inhabitants

OECD Environmental Outlook modelling suite, final output from IMAGE cluster

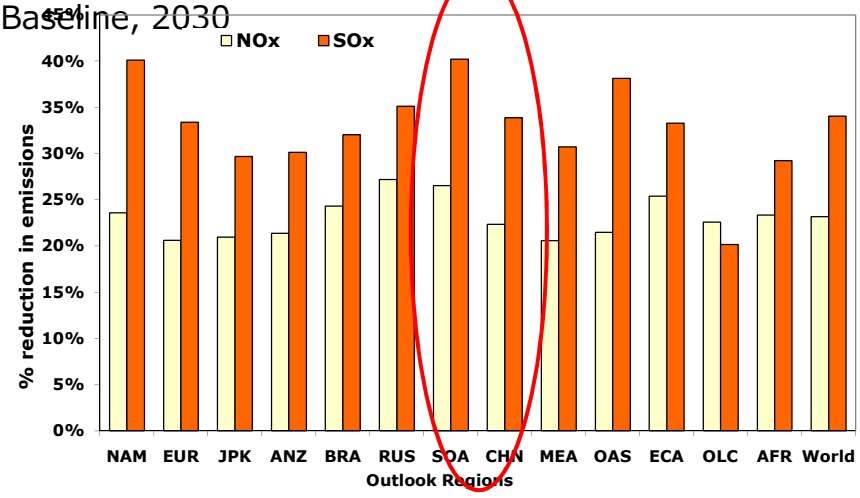
Air Pollution: *Policy solutions*

- Target policies to address air pollution with co-benefits in tackling climate change to cost-effectively address both issues
  - (e.g. combating methane, both a precursor of ground-level air pollution and a powerful GHG).

The OECD Environmental Outlook to 2030

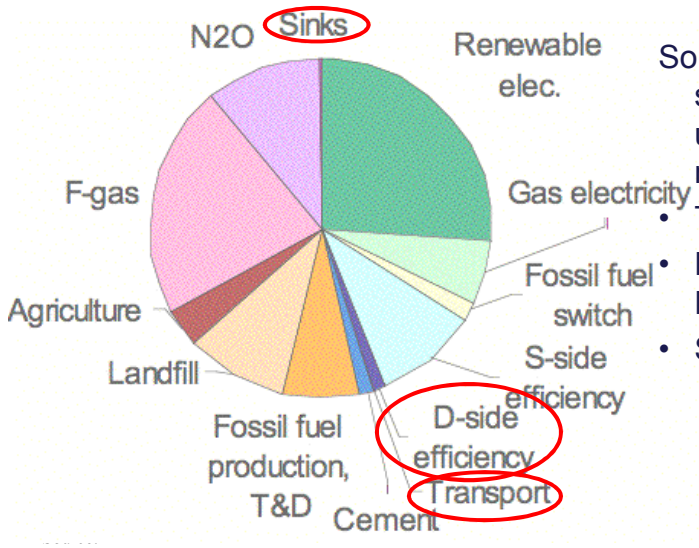
Air pollution co-benefits of GHG mitigation:

reduction in NOx and SOx emissions; 450ppm case and Baseline, 2030



Source: OECD (2008), *OECD Environmental Outlook to 2030*
OECD Environmental Outlook modelling suite, final output from IMAGE cluster

CDM: Sectoral distribution



Some key sectors under-represented:

- Transport
- Energy Efficiency
- Sinks

Adapted from UNEP Risoe
1.11.07

Co-benefits : renewables

- Strategic
  - Electricity production in energy/power-hungry countries
  - Energy security/reduced imports
  - Growth of domestic industry
- Environmental
  - Reduced local air pollution, pressure on forest resources
- Economic
  - Employment
  - Electricity-related income (or reduced costs)
  - Government subsidies/benefits (sometimes)
  - Distributed generation (lower T&D costs)
- Developmental
  - Rural electrification, reduced energy poverty
- Local
  - Improved health (cookstoves, biogas)
  - Fertiliser (sludge)

Co-Benefits Energy efficiency (S-side)

Economic

- Reduced electricity/fuel costs
- Increased reliability of energy provision (can increase production volumes)

Environmental

- Reduced cooling water consumption
- Reduced local air pollution (SOx, NOx)

Co-Benefits Energy efficiency (D-side)

Strategic

- Reduced energy poverty

Economic

- (Employment)

Local

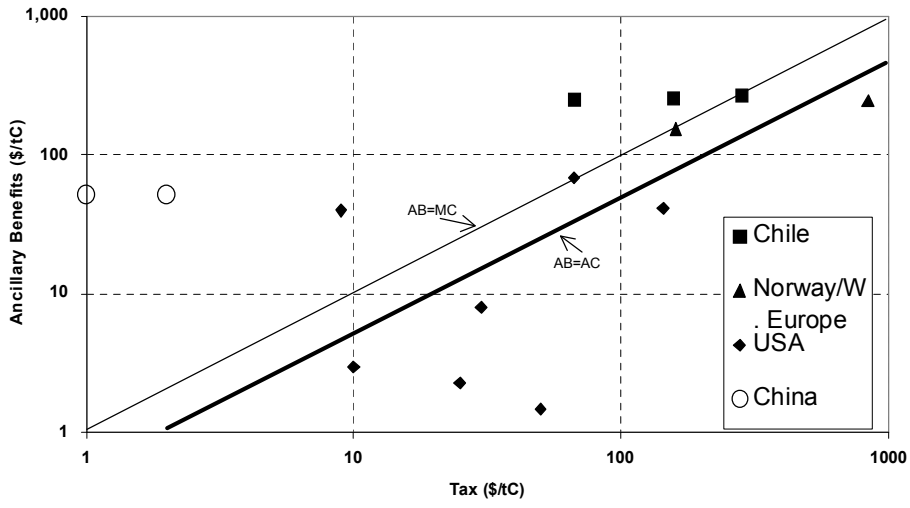
- Reduced local air pollution/increased health

Other project types

Methane reduction (waste, agricultural)

- lowers tropshperic O3 episodes
- Avoids crop losses (mid-latitudes), agricultural & macro-economic benefits
- Improves urban air pollution - human health benefits

Co-Benefits vs C-tax
(1996 US$ per tonne carbon)



Source: Davis, McGlynn, Krupnick, 2000

Barriers to some project types with multiple co-benefits

- Financial
  - Often high investment costs…
  - … and relatively low "CDM return on investment"
- Project-related
  - Long lead-times, relatively high monitoring effort/cost
- CDM-related
  - Lower volume of credits, additionality assessment not straightforward, lack of appropriate methodologies (en. efficiency), high relative transaction cost
- Disconnect between who pays for project & who gets co-benefits

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