Modelling Air Quality and Greenhouse Gases

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Air Quality and Greenhouse Gases

IIASA, International Institute for Applied Systems Analysis
Greenhouse gas–Air pollution Interactions and Synergies: The GAINS tool

Social development and economic activities

Emission control options:
~2000 measures, co-control of 10 air pollutants and 6 GHGs

Emissions
Costs

Atmospheric dispersion

Health, ecosystems and climate impact indicators

National Emission Ceilings

Cost-effectiveness
Policy targets

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PM2.5 source contribution in Delhi 2015

- Diesel soot
- Road dust, tyre wear, brakes
- Fireworks, cremation, etc.
- Trash burning, BBQ, smoking
- Cookstoves
- Small industries
- High stacks power & industry
- Sec. PM2.5: Agr. NH3 + SO2/NOx
- Agricultural waste burning
- Soils and vegetation
Facts and figures about agricultural emissions in the EU

80% of NH₃ emissions emerge from 5% of the farms in the EU
Conclusions

- Well-designed clean air policies can deliver a wide range of co-benefits on multiple development goals, and motivate action that also benefits global commons.

- IIASA’s systems perspective is widely applied for policy analyses around the world, most recently in the context of the World Bank’s ‘Pollution Management and Environmental Health’ (PMEH) program.

- An improved understanding and quantification of the social and environmental drivers of health impacts could provide important and tangible linkages between different sectoral models and allow a better appreciation of win-win policy options.