USEPA and Climate Co-Benefits

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Overview

- Co-Benefits
- USEPA's Integrated Environmental Strategies (IES) Program
- History of IES projects in Asia
- Current IES projects in India and China
- Opportunities in the Chinese buildings sector




Why Focus on Co-Benefits?

- Co-Benefits = All the positive outcomes associated with multiple, simultaneous reductions of GHGs and local air pollutants
- Allows sustainable development, climate change mitigation, energy policy, public health, environment and other policy objectives to be linked and evaluated
- Helps prioritize options in an environment where resources are limited
- Potentially offset a substantial portion of costs

IPCC on Co-Benefits

"The notion is that policies pursuing sustainable development and climate change mitigation can be mutually reinforcing…Sometimes called ancillary benefits or **co-benefits**, these effects will contribute to the sustainable development goals of the jurisdiction in question…It leads to a strong focus on integrating sustainable development goals and consequences into the climate mitigation policy framework, and on assessing the scope for such ancillary benefits."

-Chapter 12, IPCC Fourth Assessment Report, Working Group III

"Northrop (2004) reports that more than 600 cities worldwide have participated in programmes to implement measures aimed at reducing local GHG emissions…Kousky and Schneider (2003) find that cities have primarily adopted GHG policies with **co-benefits**."

– Chapter 13, IPCC Fourth Assessment Report: Working Group III

Integrated Environmental Strategies




Increasing International Attention

- G8 Environment Ministers Meeting
- Asia-Pacific Partnership
- Clean Air Initiative: Asia
- Global Atmospheric Pollution Forum

Integrated Environmental Strategies



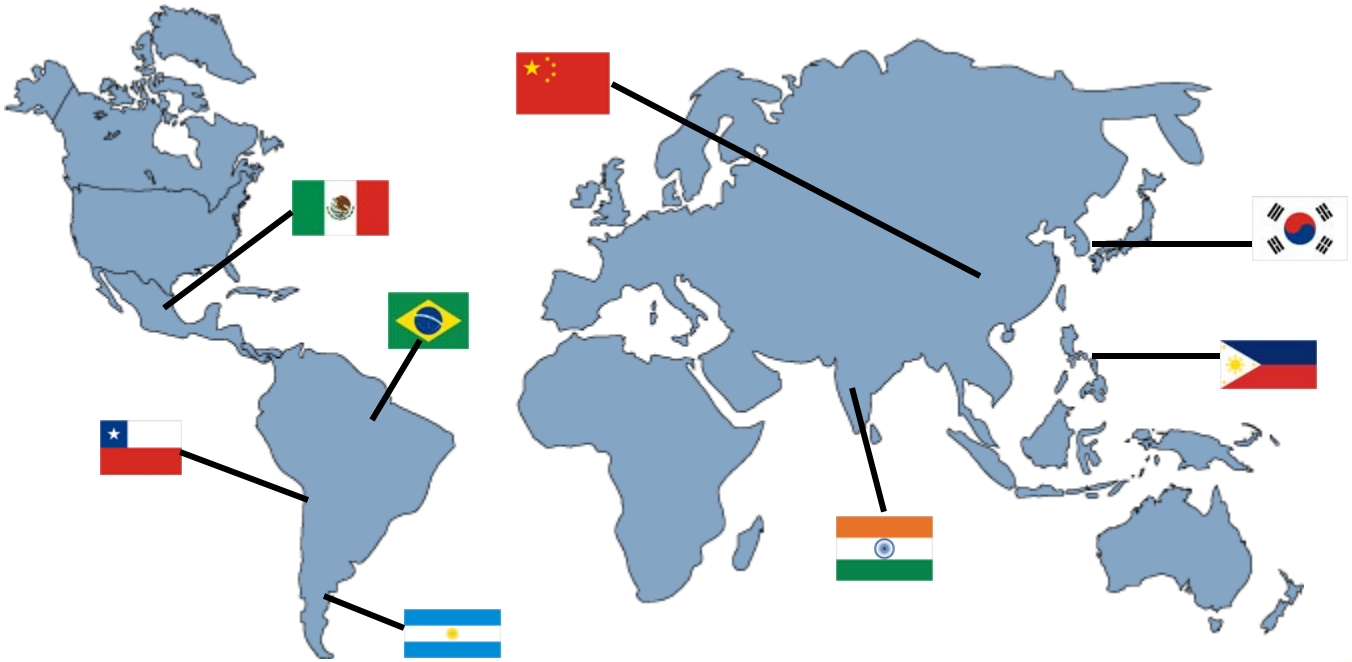

Integrated Environmental Strategies (IES)

- Established in 1998 as a capacity-enhancing co-benefits program
- Partners local teams in developing countries with experts and tools from USEPA, other IES projects and other organizations (e.g. USAID, NREL, etc.)
- Past focus: working with local officials to analyze the co-benefits of integrated air quality and greenhouse gas mitigation strategies
- Future focus: directing IES cooperation towards partnerships with officials at the national level




IES Partnerships in Asia

- IES projects in Asia have been completed in China, India, South Korea, and the Philippines
- Additional IES projects are currently underway in China, South Korea, and India



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Selected Accomplishments of IES Projects

- **China**:
  - IES framework was used to evaluate measures considered for 2008 Olympics in Beijing
  - IES guidance was used to evaluate Total Emissions Control policies
- **South Korea**:
  - IES work fed into Korea's climate change strategy
- **India:**
  - IES analysis of the Hyderabad City Action plan was presented to national and local policymakers by the Andhra Pradesh Pollution Control Board (APPCB)
- **The Philippines**:
  - IES analysis led to policy recommendations that could save the Manila government 3 to 19% of the Health Budget by 2010




Current Project: China National Assessment

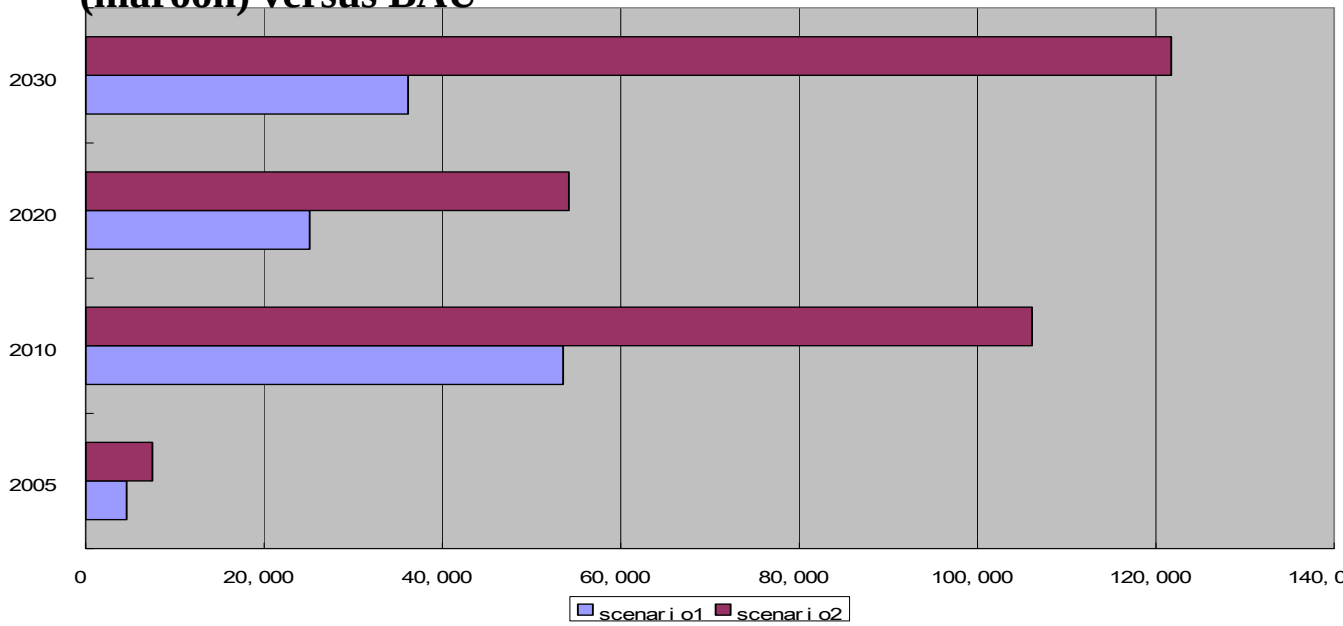
- Released in March 2008
- Examined the air quality and public health impacts of clean energy and transport sector strategies
- Considered 3 policy scenarios:
  - Business as Usual (BAU)
  - Scenario 1: Climate Change Policies (CCP)
  - Scenario 2: CCP + Pollution Control Policies (PCP)




Results: China National Assessment

- Scenario 1 (CCP) policies were most effective in simultaneously reducing GHG emissions and local/regional pollutants
- Scenario 2 (CCP+PCP) policies had the greatest potential health benefits

Estimated avoided premature deaths with CCP (blue) and CCP + PCP (maroon) versus BAU



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Current Project: India Source Apportionment Study

- Four objectives:
  - Determine major particulate matter sources
  - Build capacity in sampling and analysis
  - Strengthen local environmental management
  - Provide data to support the reduction of both PM and GHG emissions through integrated strategies

- Some key findings:
  - The majority of PM concentrations resulted from mobile sources
  - Pollution from diesel fuel increased from both mobile and industrial sources since 2001
  - Construction activities and vehicles increased pollution by intensifying the concentration of fine dust particles in the air
  - Waste burning represented a significant source of pollution
  - Increases in transportation efficiency showed significant potential for reducing GHG emissions

- Based on the findings of the IES co-benefits analysis, the Andhra Pradesh Pollution Control Board (APPCB) recommended several intervention strategies as particularly effective in achieving co-control of PM and CO2 in Hyderabad




Results: India Source Apportionment Study

Estimated Reductions in PM10 and CO2 through Co-Benefits Measures compared to Business as Usual Projections for 2010

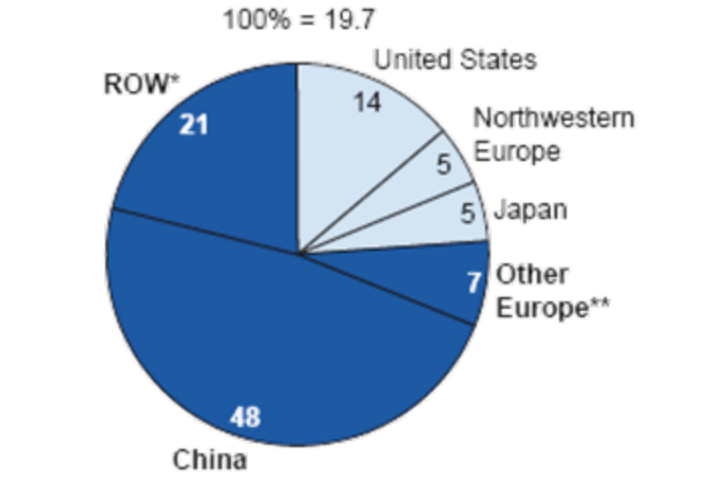
Form of Intervention	**Tons of PM10**	**% Reduction PM10**	**Tons of CO2**	**% Reduction CO2**
Convert all petrol-based three-wheelers to liquefied petroleum gas (LPG)	847	2.5	105,847	1.1
Promote public transport (reduce km traveled)	1,554	4.5	642,599	6.9
Replace 50% of the current diesel public transport bus fleet with newer diesel buses	211	0.6	55,851	0.6
Inspect and maintain in-use vehicles, to improve deterioration rates by 5%	202	0.6	154,670	1.6
Double the stringency of emissions standards for in-use diesel goods vehicles (light and heavy duty)	1,317	3.8	834,393	8.9
Promote wet sweeping to reduce silt loading on paved roads by 20% and increase moisture content on unpaved roads by 5%	630	1.8		
Improve dust collection efficiency at industrial sites by 25%	2,105	6.1		

Integrated Environmental Strategies




Future Opportunities -- Commercial Buildings and Energy Consumption in China

Breakdown of Growth in Commercial Sector, 2003-2020



* Rest of world.

** Including Mediterranean Europe and North Africa, and Baltic/Eastern Europe.

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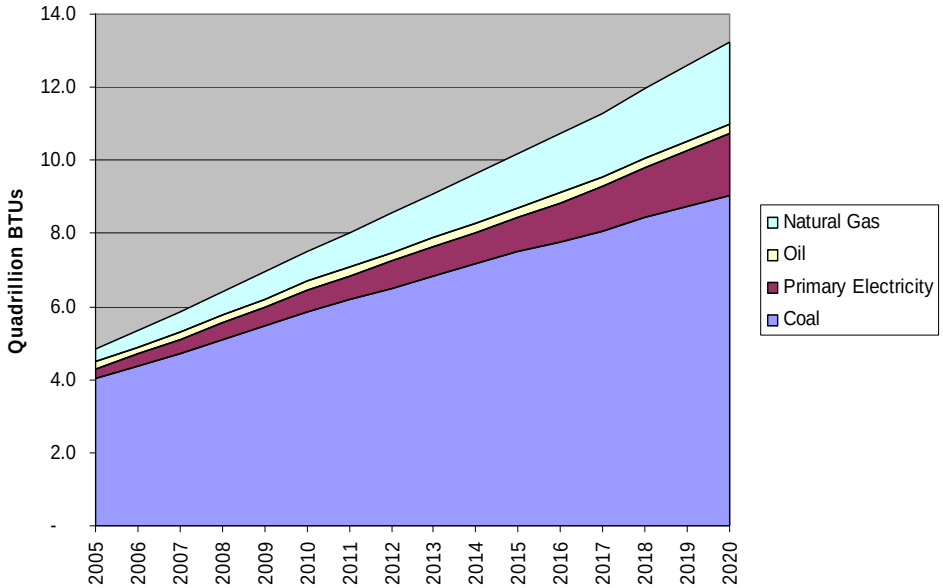
Primary Energy Consumption by Fuel in Commercial Buildings



Ernest Orlando Lawrence Berkeley National Laboratory

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Co-Benefits of Energy Efficient Buildings

- Improved air quality for local conventional pollutants, such as SO2, NOX, and PM
- Reduced greenhouse gas emissions
- Improved public health as a result of lower levels of ozone and reduced emissions
- Assistance in meeting sustainable development objectives
- Improved energy security/less reliance on imported resources and imported fuel OR better utilization of indigenous resources (i.e., coal)
- Increased resources as a result of energy efficiency savings that can be spent on other investments

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