



U.S. EPA's Integrated Environmental Strategies (IES) Program

**SB 26 Side Event
Good Governance for Climate and Development, &
Co-Benefits Innovation
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Integrated Environmental Strategies Program



Overview

- Introduction to IES
- IES measures and case studies
- Looking ahead

Integrated Environmental Strategies Program

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U.S. EPA's Integrated Environmental Strategies (IES)



- Established in 1998 as a **capacity-building program** to promote analysis and understanding of the potential co-benefits of GHG mitigation.
- **Partners local teams in developing countries with experts** and tools from U.S. EPA, other IES projects, and other organizations (e.g., NREL). Developing countries do analysis.
- Identifies and **analyzes integrated (i.e., air-quality improvement and greenhouse-gas mitigation) strategies** and co-benefits.
- **Flexible approach** to address sustainable development goals (e.g. improved air quality and associated health benefits) and GHG mitigation.

What are integrated measures?



- Low-sulfur coal
- Smokestack controls
- Catalytic converters
- Inspection and maintenance
- Diesel particle traps
- Evaporative controls

Local

Integrated

- Clean fuels/renewables
- Energy efficiency
- Fuel switching
- Methane gas recovery
- Public transport / land use
- Retirement of older vehicles
- Efficiency standards for new vehicles/appliances

Integrated

Global

- Carbon capture/geosequestration
- Forest management
- Control of other GHGs (N₂O, CFCs, SF₆)

Adapted from Jason West et al (2002)

Selected Measures Studied in Country Analyses



Mexico

- Solar water heaters and increase in CFL uptake in residential and commercial buildings

Republic of Korea

- Promotion of low-NO_x boilers for industrial sectors
- Fugitive VOC regulation for industrial sources
- Eco-building certification for commercial buildings

Chile

- Residential buildings: Shift from wood/kerosene use to NG
- Residential & commercial buildings, and outdoor lighting: Increased use CFL, sodium lamps, fluorescent reflectors

IES Philippines: Transport options in Manila



- Integrated Measures- selected from a range of transport measures
- Co-Benefits Analysis
 - Compared business-as-usual scenario against a range of transport measures. Effects projected for 2005, 2010, and 2015.
 - Models used: NCTS traffic model (transport emissions); ISCLT3 (air pollution); adapted Covello-Merkhofer model (health impact assessment)

Transport Measures Analyzed



- Transportation Demand Management – license plates (TDM)
- Rail-based mass transit
- Bikeways
- Maintenance of vehicle inspection system (MVIS)
- Compressed natural gas buses (CNG)
- Cocodiesel for diesel fuels → 5% coco methyl ester : 95% diesel (CME)
- 2 stroke tricycle converted over to 4 stroke engine (TC4stroke)
- Diesel particulate traps (DPT)

- Multiple policy scenarios:
 - Short term (implemented 2005), combo-1 (MVIS, TDM, CNG, CME, DPT, Bikeways)
 - Midterm (implemented 2010), combo-1 + TC4stroke
 - Long term (implemented 2015), combo-1+ TC4 stroke + Railways

Study Results



- PM/GHG reductions
 - PM reduction of up to 40 tons per day in 2015, down 70% for combination scenario from BAU levels
 - CO2 reduction of up to 27,000 tons per day for combination scenario in 2015, down 53% from BAU levels
- Health impacts, combined policy scenario (for 2015, the implementation year)
 - Up to 590 early deaths averted; 36,000 asthma episodes averted ; ~10,000 other cardiopulmonary episodes
 - Up to \$1.83 billion Philippine pesos (~\$33 million USD)

IES-China: Energy Options in Beijing



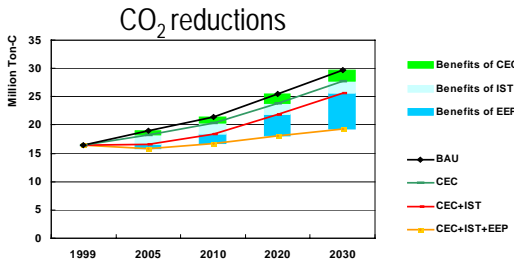
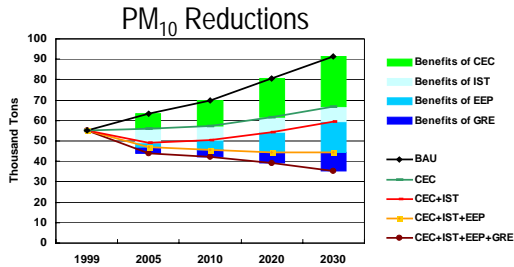
- Integrated Measures
 - Developed from Beijing Olympic Air Quality Action Plan
- Co-Benefits Analysis
 - Compared business as usual scenario against scenarios with measures. Projected out 30 years
 - Models used: LEAP 2000 (energy), ISC (air pollution), APHEBA (health benefits)

Energy Measures Analyzed



Policy Scenario	Key Features
Business as Usual (BAU)	No new policies implemented
Clean Energy Consumption (CEC)	-Changeover of coal-fired industrial boilers to natural gas -Use of liquefied petroleum gas for cooking in rural residences -Expanded natural gas power in grid
Industry Structure Transformation (IST)	-Adjust and/or relocate steel, cement, petroleum, and chemical industries from urban locations -Reduce more than one million tons of coal equivalent capacity of coking
Residential Energy Efficiency Improvements (EEP)	-Improve residential lighting and air conditioning energy efficiency practices -Initiate fuel economy program in light vehicles
Green Transport (GRE)	-Expand public transportation development -Slow growth of private car ownership -Incorporate LPG in taxis -Implement vehicular emission standards

Study Results



Outlook for the Future



Future activities will build on previous IES work

- Focus on specific sectoral approaches (e.g., buildings, cement)
- Expand co-benefits to include more than air quality improvements and health impacts (e.g., economic benefits, energy security)
- Emphasize sustainable development objectives
- Build capacity in different areas (e.g., Best Practices, Sector –Based Emission Inventories)

Next Steps



- Scope out work plan for next 2-3 years
- Coordinate with Japanese Ministry of Environment, key NGOs and others
- Develop/refine tools

Thank you!



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