The Integrated Environmental Strategies (IES) Program: Local Benefits With Global Results

Kong Chiu
U.S. Environmental Protection Agency
Washington, DC

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IES: U.S. EPA's Integrated Environmental Strategies Program

- Established in 1998 as a capacity-enhancing co-benefits program.
- Partners local teams in developing countries with experts and tools from U.S. EPA, other IES projects, and other organizations (e.g., U.S. AID, NREL).
- Flexible, to address local air quality and public health needs of stakeholders in cities.
- Identifies and analyzes integrated (i.e., air-quality improvement and greenhouse-gas mitigation) strategies and co-benefits.

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 programs
- Fuel switching
- Public transport and land use
- Retirement of older vehicles
- Efficiency standards for new vehicles/appliances

Integrated

Global

- Carbon sequestration
- Forest management
- Control of other GHGs (CH_4, N_2O, CFCs, SF_6)
- Geoengineering

Jason West et al (2002)

What are “co-benefits”?

- All the beneficial outcomes of a policy that reduces two or more air emissions simultaneously.
- For IES, reductions in emissions of greenhouse gases as well as local, conventional air pollutants.
- Also includes human health benefits and associated economic benefits due to reduced local air pollution.

Why do co-benefits analysis?

- From a decision making perspective, co-benefits analysis allows energy options, health impacts, and GHG emissions to be linked together and evaluated.
- Co-benefits analysis enables sound policy making to be based on quantitative analysis.
- It helps prioritize options in an environment where resources are limited.
- Supports mitigation analysis to inform environmental programming and decisionmaking (e.g., could be applicable to UNFCCC national communications).

IES goals

- Identify strategies that improve local air quality while meeting public health, economic development, and GHG mitigation objectives.
- Provide stakeholders with quantitative estimates of local and global co-benefits of policies and technologies.
- Engage stakeholders to lay groundwork for implementation of cost-effective air quality management strategies.
- Build analytical, institutional, and human capacity for multidisciplinary analysis of health, environmental, and GHG mitigation impacts of alternative strategies.
- Transfer tools and methodologies for co-benefits analysis.

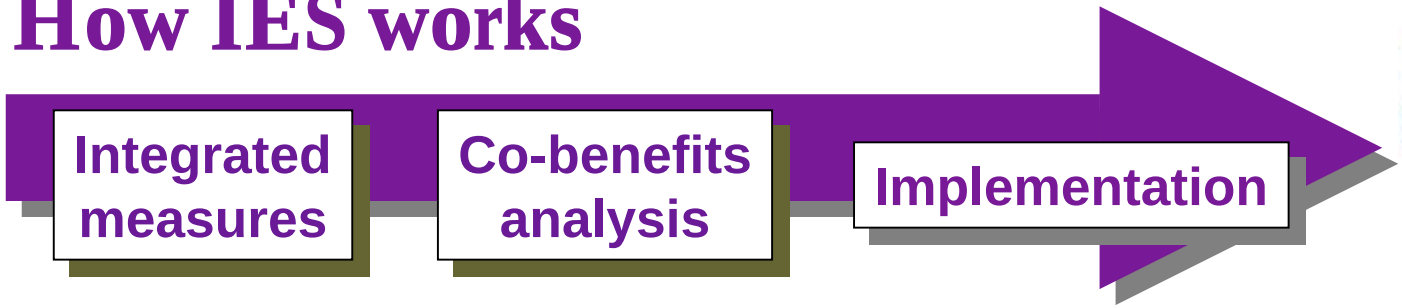
Partners

- Collaborators:
  - US Agency for International Development (U.S. AID)
  - Host-country local and national governments
  - Research institutions and civil society
- Technical contractor:
  - U.S. National Renewable Energy Laboratory (NREL)

Partners (continued)

Countries with IES projects: China, India, Philippines, South Korea, Argentina, Brazil, Chile, Mexico

How IES works



- Prepare baseline emissions inventory to better understand sources of AQ and GHG emissions.
- Focus on measures that could feasibly be implemented.
- Develop alternative, integrated scenarios of measures based on local objectives using energy/economic models.

- Estimate concentrations of air pollution and exposure through AQ modeling.
- Estimate air pollution public-health benefits.
- Compare costs and benefits of alternative mitigation options and business-as-usual scenarios.
- Present results and seek feedback from policymakers/ stakeholders, fostering support for implementation.

- Integrate results into planning processes.
- Implement measures to capture AQ and GHG benefits.

IES Case Study: Beijing, China

- Integrated Measures
  - Developed from Beijing Olympic Air Quality Action Plan.
  - Include changing coal boilers to natural gas, improving residential lighting and A/C practices, LPG in taxis, expanding public transportation development and vehicular emission standards.
- 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)

Beijing Case Study, cont'd

- Implementation
  - After completion of final analysis (Fall, 2004), distribute to local policy makers.
  - Held preliminary policy makers workshop.
  - Will work with Beijing Environmental Protection Bureau and Beijing Olympics Planning Commission to integrate results into 2008 air quality planning for Beijing area.

Key questions for policymakers

- What are the **health impacts** of changes in policies that impact air quality? What is the economic value of these health impacts?
- What are the **GHG emissions reductions** associated with these measures?
- How can an integrated approach **benefit decision-making** on how to spend limited funds?
- How can **co-benefits** be quantified to be meaningful?
- How can **integrated analysis tools and approaches** benefit existing decision-making processes?

Selected IES Partner achievements

- In-country teams completed initial assessments in Argentina, Brazil, China, Chile, Korea, Mexico, Philippines. Potential AQ, public health, and GHG reductions are significant.
- Partners in Santiago, Shanghai and Seoul used results and the IES approach in developing AQ management plans.
- Beijing is using the IES approach to support their Olympics air quality planning process.
- Chile used IES results to support successful application for GEF funds to implement measures.
- Korea's analysis showed that 71% of cost of reducing CO_2 emissions by 10% in 2010 would be offset by health benefits from associated AQ improvements.

Supporting our IES Partners

- Air Pollution Health Benefits Assessment Model (APHEBA) users' guide and training course.
  - Will provide a resource for conducting health benefits assessments of changes in air pollution concentrations.
- Training course and materials on health benefits analysis.
  - Will provide basic information and training to country experts with conducting health benefits analysis as part of integrated environmental analysis projects.
- "Reduced form" analytical tools and methodologies.
  - Will support analysis of air pollution and GHG mitigation co-benefits where local data for detailed analysis of air pollution public health benefits is lacking.

Supporting the International Co-Benefits Community

- IES website to be launched in Fall 2004 - features information on methodology, country reports, other publications.
- IES Handbook.
  - Guidance document for policymakers, technicians.
  - Proposed release date: Fall 2004
- Co-benefits panel at Better Air Quality 2004 Conference, Agra, India, December 2004.
- International version of manual for EPA's Environmental Benefits Mapping and Analysis Program (BenMAP) software.

For more information

Katherine Sibold
U.S. Environmental Protection Agency
Washington, DC
Sibold.katherine@epa.gov

IES email box at ies@epa.gov
My email: chiu.kong@epa.gov

Thank You!