

Integrated Air Quality Management Strategies for Cities



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December 17, 2002

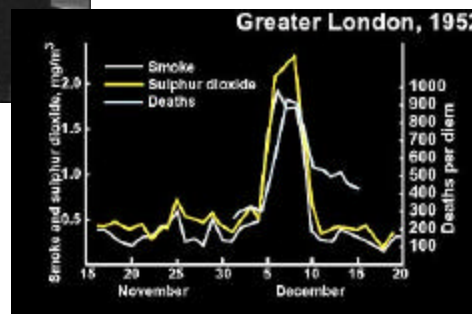
Better Air Quality in Asian Cities 2002

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London Fog: December, 1952



- 4,000 deaths (with upper estimates of 12,000) attributed to this air pollution event



Foundation for Air Quality Management

- Motivation for Air Quality Management in the United States:

- Public health concerns
- Future expansion in sources of pollution
 - Growth of cities, industries and vehicle fleet
- Compromised visibility



- US Clean Air Act (1970) & amendments (1977)

- National air quality standards
- Designation of attainment areas
- New source performance standards & mobile sources
- State implementation plans
- Prevention of significant deterioration



- Amended Clean Air Act (1990)

- Acid rain: emissions trading program for SO_x & NO_x



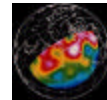
- Air toxics: technology based standards



- New mobile source controls

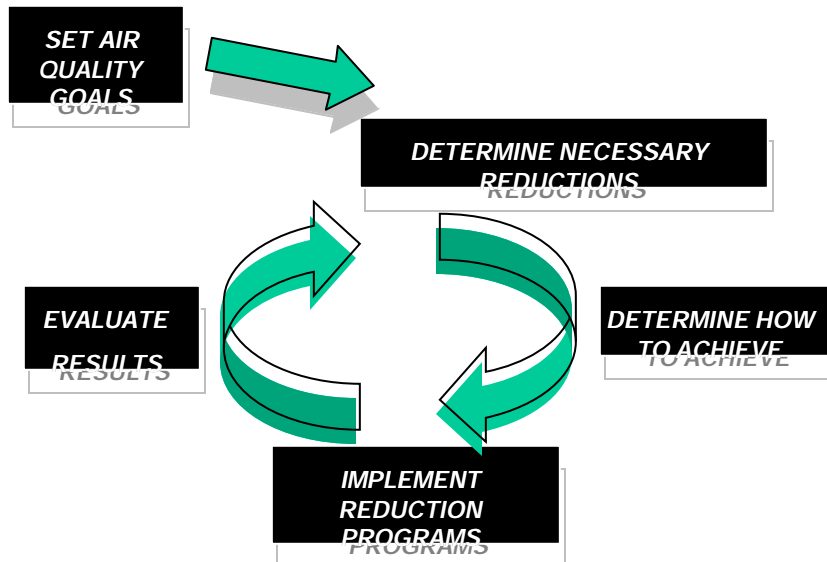


- Expanded regional approach to address ozone transport



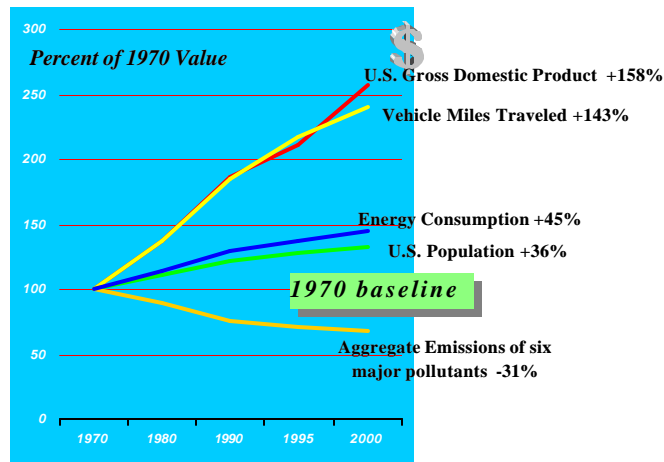
Foundation for Air Quality Management

Air Quality Management Cycle



Foundation for Air Quality Management

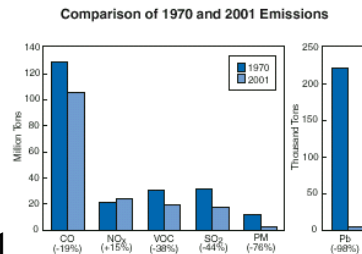
Air pollution decreases while economic growth increases



United States Progress Toward Clean Air

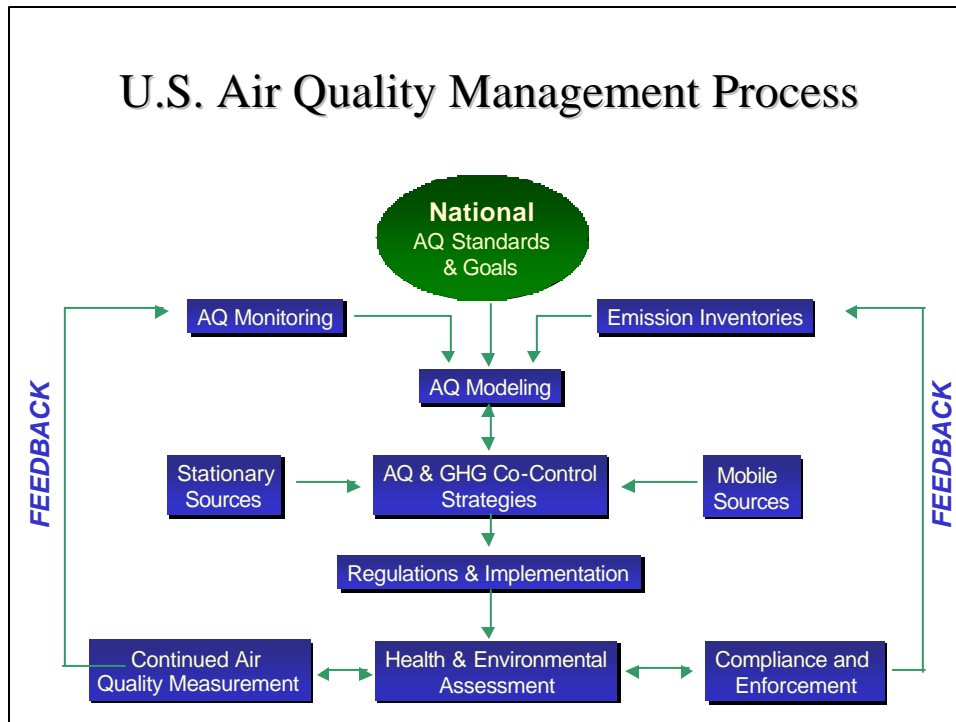
Benefits of Clean Air

- Benefits exceeded costs by more than 40 to 1 (1970-90)
- 70% of 1990 ozone nonattainment areas now meet clean air requirements
- Rules since 1990 reduce toxic emissions by 1.5 million tons a year -- 15 times the reductions achieved in the previous 20 years.




United States Progress Toward Clean Air






Federal Role



- National standards, rules, and enforcement
- National & regional planning/coordination
- Multi-state trading programs
- Maintains national consistency
- Technical guidance
- Report on progress in reducing air pollution
- Ultimate authority & accountability

State Role



- State rules
- Source Permits
- Compliance & enforcement
- Implementation Plans
- Implement national rules & guidance
- Monitoring, modeling, emission inventories
- Public outreach and innovative approaches

Federal-State Roles in AQM in United States

Co-Benefits Approach

- Promote “integrated” approaches that address AQ & GHG objectives while meeting public health & economic objectives

Air Quality

Climate

Health

Economy

- EPA’s Integrated Environmental Strategies Program (IES)
 - Provide technical assistance/capacity-building program for selected developing countries

Integrated Environmental Strategies

Why Is It Important to Find Strategies with Multiple Benefits?

- Many are countries struggling to balance:
 - Economic development
 - Long-term risk minimization (i.e. global change)
 - Short-term pressing needs (i.e. air quality, public health)
- Countries are approaching problems as multiple risks
 - To better understand links between issues
 - To integrate solutions for multiple benefits
- Identify and support practical steps which encourage sustainable development

Integrated Environmental Strategies

IES Goals and Objectives

- † **Support and promote comprehensive analysis** of environmental, public health, economic development & AQ/GHG mitigation benefits of integrated strategies
- † **Build analytical capacity & expertise**
- † **Incorporate results into local (& national) policy initiatives** to reduce air pollution/GHG's and improve energy efficiency
- † **Engage policy makers** in discussions that link research to policy and build support for integrated approaches
- † **Promote/build support for implementation of plans** to reduce air pollution/ GHG's and improve energy efficiency

IES Approach

Institutions

- Develop workplan and establish country teams
- Set goals, establish priorities, link to government efforts, establish team, develop work plan

Analysis

- Define integrated mitigation strategies/measures;
- Develop energy & emission scenarios
- Identify key health damaging and precursor pollutants; refine emission & AQ inventories
- Identify air quality models to conduct dispersion modeling & exposure analysis
- Identify appropriate health effects and economic development end-points, available data, analytical methodologies/models
- Identify appropriate economic valuation methods/tools to assign value to avoided health, economic and environmental effect end-points
- Complete policy analysis

Implementation

- Hold workshops to discuss results with policymakers
- Integrate results with energy, economic development, air quality plans
- Develop implementation strategy

IES Projects



- Current Status:

- *Phase I Completed:* Chile, China (Shanghai), S. Korea, Argentina
- *Underway:* China (Beijing & National), Brazil, Mexico, India
- *Initiated:* Philippines

Selected Results



- **China**
 - IES results used as inputs for Shanghai 10th 5-Year Plan
 - Using inputs to plan for Beijing Olympics
- **Chile**
 - Applying for GEF funds for hybrid buses as part of Transport Master Plan for Santiago
 - forged understanding in local AQ officials of linkages between local AQ measures and global issues like climate
- **S. Korea:** MOE commissioned national study following Seoul IES project
- **Mexico:** added GHG benefits into PROAIRE plan
- **Argentina:** GHG benefits analysis helping with UNFCCC national communication and defining local air quality strategy development

Lessons Learned

- **Political support** necessary at national and local levels
- **Keep end goal – implementation -- in mind** from the outset (e.g., engage policymakers, stakeholders, public, industry in reducing air pollution and GHGs)
- In-country teams must be willing to **collaborate** with other organizations to complete multi-disciplinary analysis
- Need access to **long term/high quality AQ data and health statistics**
- Customize project to fit **local issues and needs**-- e.g., AQ problems and transportation
- Use **models** appropriate to the analysis

Tools

- IES Handbook (in preparation) & case studies
- Health Benefits model (CAPMS & Chilean Health model)
- Air quality management toolkit (completion expected 4/03)
- Training
 - Emission inventories
 - Emissions trading
 - AQ monitoring
 - Modeling
 - Economic analysis
 - Health benefits analysis
 - Emissions trading
 - Air quality management

For more information

US EPA air program: <http://www.epa.gov/oar/>

Air quality tools: <http://www.epa.gov/ttn/>

IES: <http://www.nrel.gov/icap/>

More Information



Also...

- <http://www.AirImpacts.org>
- http://www.worldbank.org/wbi/cleanair/global/topics/health_imp.htm
- <http://www.epa.gov/clearskies/>

More Information

