

***Urban Air Quality Management:
Applications of Market-based Instruments***
***城市空气质量管埋：
经济政策的分析和应用***

Jian Xie
The World Bank

*Better Air Quality in Asian and Pacific
Rim Cities*
December 2002

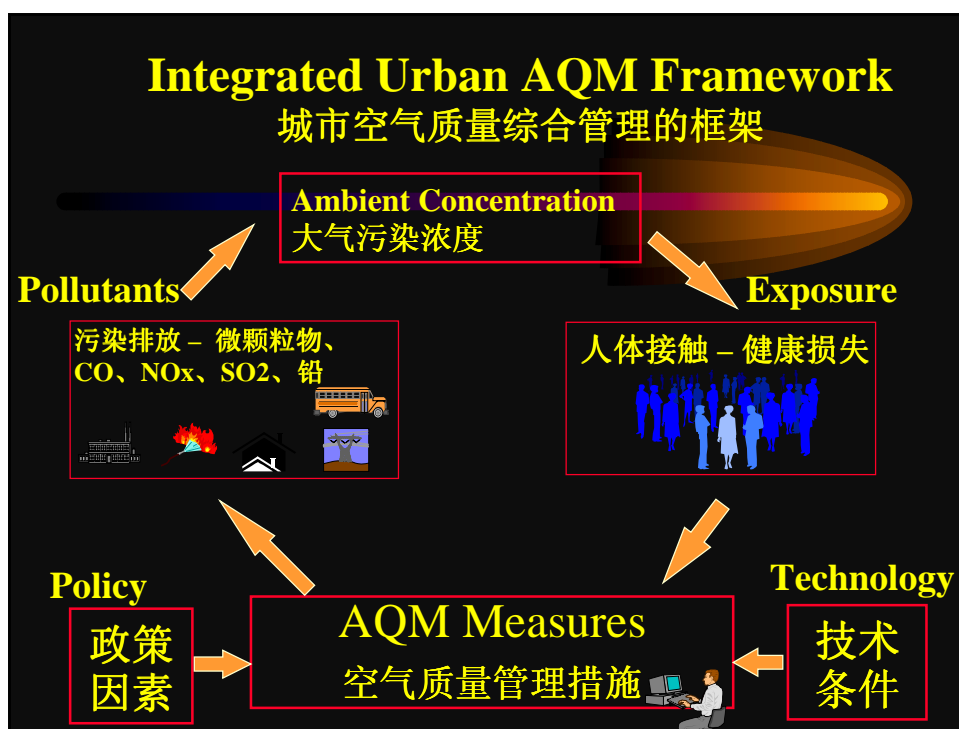
Urban air pollution is a widespread problem in the region. In China alone, it was estimated that air pollution caused about 180,00 pre-mature deaths each year in major Chinese cities. The loss is equivalent to 5% GDP.

空气污染已成为一个地区乃至世界性的问题，在中国一些城市尤其突出。据世界银行估算，如果中国主要城市的空气质量达到国家二级标准，可避免十八万人口的过早死亡。按支付意愿法计算，其避免的健康损失大约相当于全国国民生产总值的5%。

Source: World Bank, 1997, Clear Water Blue Skies.

The Causes of Air Pollution 大气污染的产生原因

- Multi-sectoral, involving energy, transport, urban planning, environment, and other sectors
- Complex, related to development level, technology, regulatory framework, institutional setting, enforcement capability, and public awareness



Why Policy? Market Failure **为什么需要政策? 市场失灵**

Market failure – the free market does not lead to optimal allocation of resources and produce optimal welfare. 市场机制不能导致资源的有效配置，无法实现社会最优。

Main causes 市场失灵的主要原因：

- ▲ Externalities (pollution) 外部性
- ▲ Lack of ownership 产权不明、无市场
- ▲ Insufficient information 信息不对称
- ▲ Monopoly 垄断

Therefore, policy interventions are necessary
因此，需要政府的政策干预。

Policy Failure 政策失灵

Many government policies that aim to correct market failure and increase welfare, however, may lead to a net loss 政策的使用不当导致问题没有得以解决甚至恶化

Forms of policy failure 具体形式有：

- Fail to intervene while necessary 该管的没管
- Unnecessary intervention 不该管的瞎管
- Wrong intervention 错上加错
- Incomplete intervention 考虑不周

Main causes of policy failure **产生政策失灵的主要原因**

- **Poor understanding of problems**
对问题认识不足以至误导
- **Driven by non-economic or other interests**
非经济的或其它利益驱动
- **Unforeseen, unprepared or under-estimated factors**
未预见的、无准备的和低估的因素
- **Bad timing or out of date**
政策实施时机不对或过时
- **Complex interactions of various policies**
政策之间复杂的相互作用关系

Examples of Environmental Impacts of Sectoral Policies **部门政策的环境影响**

- **Industrial composition and location** 工业结构和布局政策
- **Energy pricing and clean fuels** 能源价格
- **Public transit, transport planning and traffic management** 公共交通、道路规划和交通管理
- **Road pricing, license fee, gasoline tax, parking fee** 车价、牌照费、汽油价、停车费

Classification of Env Policy Instruments 环境政策手段的分类

- **Command & control measures (CAC) vs. market-based instruments (MBI)** 行政命令-经济激励
- **Direct vs. indirect** 直接-间接
- **Voluntary vs. involuntary** 自愿-强制
- **Classification of World Bank's publication "Five Years After Rio"** 世行“里约后五年”一书中的分类 (世界银行, 1997)

Command & Control vs. Market Based 行政命令 vs 经济激励

- **C&C = directly decide pollution emissions and control efforts; e.g., emissions permits and standards**
行政命令 = 直接决定污染控制, 如许可证和标准
- **Market-based instruments = provide financial incentives of pollution control through price adjustments; e.g., taxes, fees, and tradable permits**
经济激励 = 通过影响价格为污染控制提供财政上的激励, 如环境税、排污收费和许可证交易

Advantage of Market-based Instruments 经济激励的优势

- Cost effective 费用效果好
- Encouraging technologic innovations 能促进技术革新
- Flexible 灵活性强

Why CAC popular? 行政命令手段流行的原因

- Political economics 政治经济学因素
- Direct and immediate results 能产生直接结果
- Low monitoring costs sometimes 一些行政命令政策的监测成本较低

Classification of “Five Years After Rio” “里约后五年”的分类

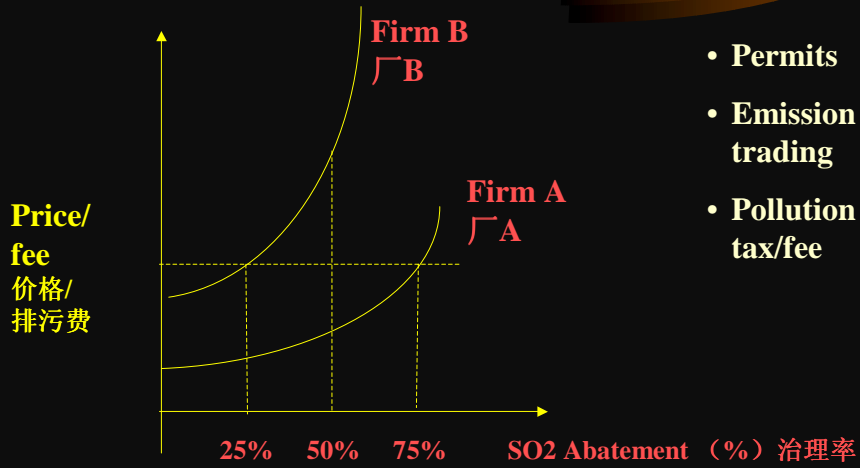
Using market 利用市场	Creating market 创建市场	Command & control 行政命令	public participation 公众参与
Subsidy Env tax Fee Deposit-refund	Property rights Decentralization Emission trading	Standard Ban Permit Quota	Information disclosure Public Participation

World Bank, 1997, Five Years After Rio: Innovations in Environmental Policy
 详见“里约后五年：环境政策的创新” 世界银行 1997，中国环境科学出版社，1998

Policy Analysis – Case One

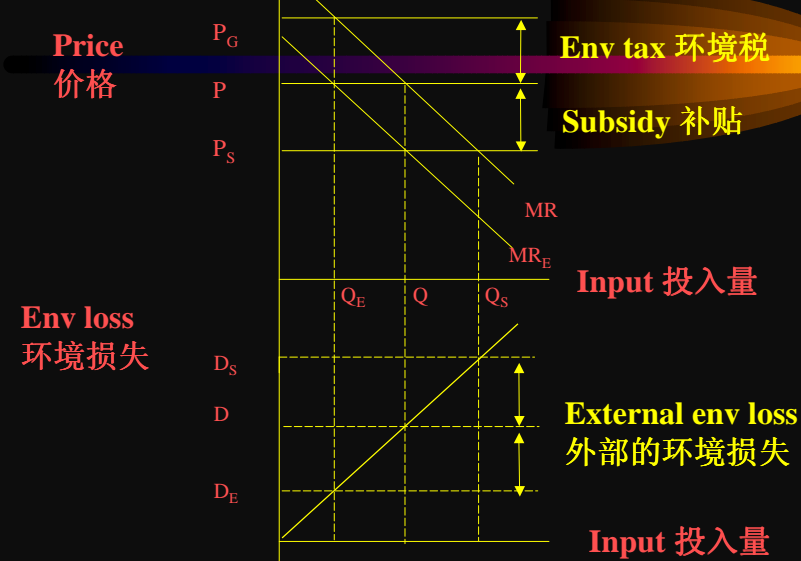
环境经济政策分析 – 例子1

SO₂ marginal abatement cost 边际治理成本



Policy Analysis – Case Two

环境经济环境分析 – 例子2



Criteria of policy-making **政策决策中应考虑的因素**

- **Effectiveness/efficiency** 措施的费用效果和效率
- **Regulatory framework, institutional setting and implementation capacity** 法律体系、机构设置及执行能力
- **Interactions of policies** 政策之间的相互作用
- **Income distribution and social impacts** 对社会和收入分配的影响
- **Public awareness and participation** 公众意识和参与

Applications of Env Policies **政策手段应用的案例**

- **Emissions permits** 排放许可证
- **Environmental taxes, e.g., sulfur tax in Sweden and ODS tax in U.S.** 环境税，如硫税（瑞典）和ODS税（美国）
- **Pollution levy in China** 排污收费（中国）
- **Emissions trading, e.g., SO₂ trading in U.S.** 排污权交易，如SO₂排放权交易（美国）

Applications of Env Policies (Cont.) ***政策手段应用的案例（续）***

- **Auction of ODS use permits in Singapore**
许可证交易，如ODS许可证拍卖（新加坡）
- **User fee, e.g., road pricing in Singapore**
使用费，如市中心区行车费（新加坡）
- **Payments for env services in Costa Rica**
环境服务的付费（哥斯达里加）
- **Environmental labeling and information disclosure**
能耗标识（澳大利亚）、环境标识、空气质量指数等信息手段

Thank You!

Jian XIE
Sr. Env Specialist
The World Bank

谢剑
高级环境专家
世界银行

Jxie@worldbank.org