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Environmental Economics and Environmental Policy
No. 2

1. Development and Environment

Ecological System (Natural System) and economic system

Environmental Issues: Brown Issue and Green Issue

Development (Growth) and Environment

EKC: Environmental Kuznets Curve

Basis of Public Policy

Market Failure

1. Monopoly
2. Public goods: non-rivalness and non-excludability
3. Externality: Pecuniary and Technical externality

Economic regulations and social regulations

Social regulations: Transport regulation, Drag and Food regulation,
Occupational safety regulation, Cosmetic regulation,
Environmental regulation → pollution control, nature conservation

Environmental problems; pollution → health impact/damage（chronic bronchitis, asthma）
← Epidemiology: Environmental standards

Emission source → emission source control：stationary source and mobile source, point and non point source → emission (effluent) standards

Government Failure: inefficiency

3 types of Environmental Policy: CAC, MBIs, VA

Comprehensive Risk Management: Health Risk and Ecological Risk ← Comparative Risk Analysis

Sustainable Society, Sustainable Society, Sustainability:

Low Carbon Society
Circular Society
Nature co-existence Society

2. History of Environmental Policy in Japan

1950s Rapid Economic Growth, Yokkaichi Air Pollution, Pollution Victim Protest Movement

Citizen movements, pioneering role of local governments

1964 Yokohama Pollution Control Agreement（横浜市公害防止協定）

1967 Basic Law for Environmental Pollution Control（公害対策基本法）

1968 Air Pollution Control Law（大気汚染防止法）

K Value Controls: $q=K\times10^{-3}\times He^2$, K Values: 3.0-14.5 (17.5), q: $kg/Nm^3/h$

1974 Total Load Controls

1970 Pollution Diet（公害国会）、Water Pollution Control Law（水質汚濁防止法）
1971 Creation of Environment Agency（環境庁）
1972 Natural Environment Preservation Law（自然環境保護法）
1973 Compensation Law for Pollution-Related Health Damage (1987 amended)
（公害等健康被害補償法）、PPP: Polluter Pays Principle
1974 Amendment of Air Pollution Control Law（Total pollutant load control）
1979 Amendment of Water Pollution Control Law（Total pollutant load control）
1993 Environment Basic Law（環境基本法）
1994 Basic Environment Plan（環境基本計画）
1997 Environmental Impact Assessment Law（環境影響評価法）
1998 Law Concerning the Promotion of the Measures to Cope with Global Warming
（地球温暖化対策推進法）
2000 Circular Society Basic Law（循環型社会形成推進基本法）
2001 Ministry of Environment（環境省）
2002 Law for the Promotion of Nature Restoration（自然再生推進法）

3. Air Pollution and Pollution Control Policy in Japan

Air pollution

SO_2 HMV: 0.1ppm, 24HAV: 0.04ppm
NO_2 24HAV: 0.04-0.06ppm
SPM(PM10, PM2.5) HMV: 200 μg/m^2
O_3 1HAV: 0.06ppm
Benzene YAV: 0.003mg/m^3
（Trichloroethylene, Ethylene, Tetrachloroethylene, Dichloromethane, Dioxin）

Emission source control

Factory (plant)
Emission standards: SOx：K value regulation（1968）$q=K\times10^{-3}\times He^2$
K Values: 3.0-14.5 (17.5), q: kg/Nm^3/h
Total pollutant load control（1974）

Automobile
SOx, NOx, PM10, PM2.5

4. References

Committee on Japan's Experience in the Battle against Air Pollution (1997), *Japan's Experience Against Air Pollution: Working towards Sustainable Development*, The Pollution-Related Health Damage Compensation and Prevention Association, Tokyo.

Field, B. and M. K. Field (2009), *Environmental Economics: an Introduction, 5th ed.*, McGraw-Hil

Matsuoka, S. (2000), Implementation of environmental policy in the developing countries: Regulatory Instrument and their efficiency, *Journal of International Development Studies*, 9 (2), pp.11-36.
http://www.f.waseda.jp/smatsu/

5. Schedule of Course Work

1. Introduction: Theory and practice of Environmental Economics and Environmental Policy (9/28)

Part 1: Historical Development of Environmental Policies

We will review the history of pollution and combating against pollution in Japan.

2. Air Pollution and Policy (10/5), (10/12 will be closed)
3. Water Pollution and Policy (10/19)
4. * Students have to make a short report and presentation about the situation of major pollution issues (air and water) and ambient standards in your home country.

Part 2: Theory of Environmental Policies

We will see three basic types of environmental policies, Command and Control (CAC), Market Based Instruments (MBIs), and Voluntary Approach (VA) and their efficiency.

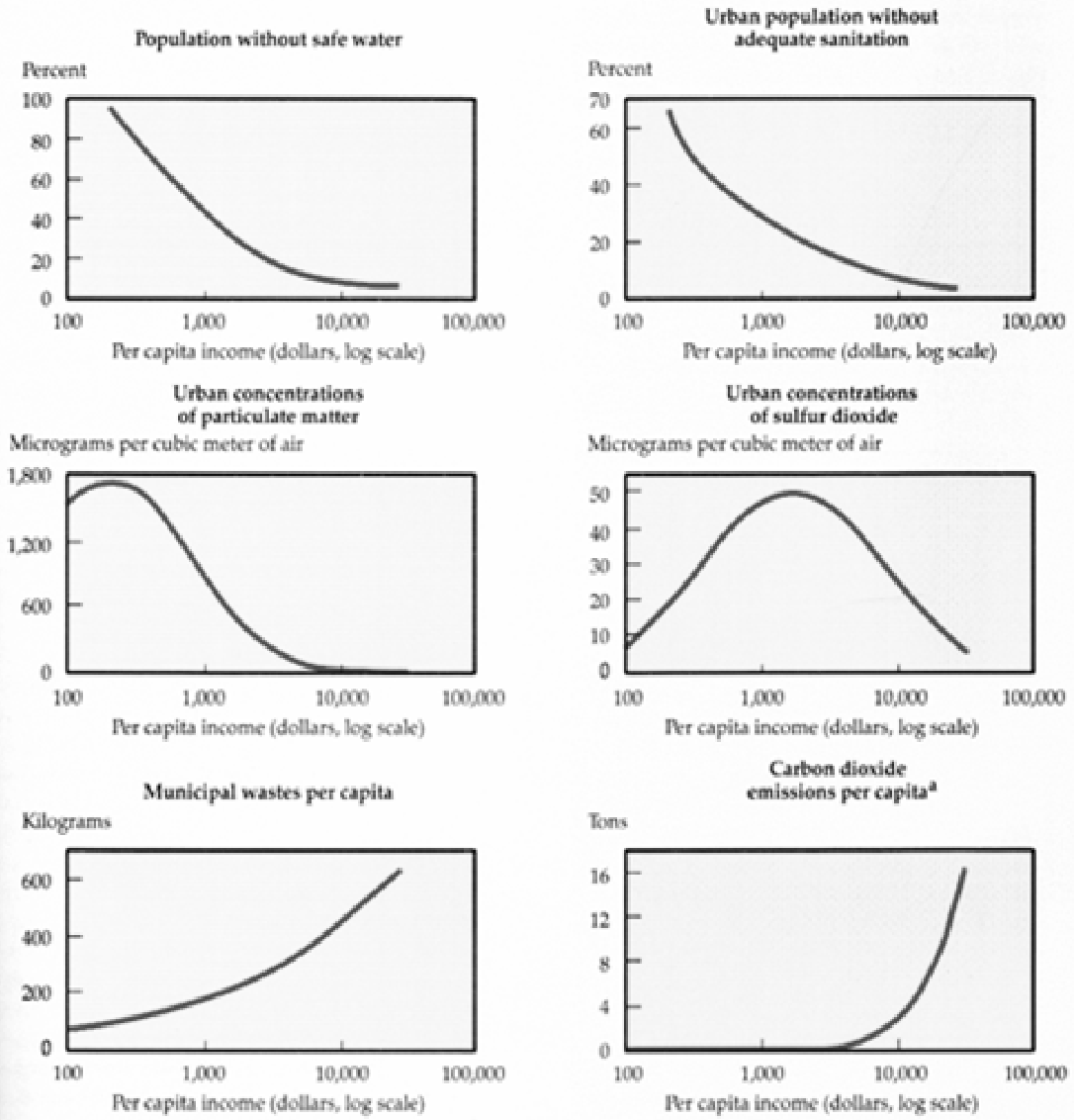
5. CAC and MBIs and the comparison of their efficiency (1)
6. CAC and MBIs and the comparison of their efficiency (2)
7. Voluntary Approaches and theory of Policy Mix
8. Climate Change Policy
9. * Students have to a short report and presentation about the pollution control policy (air, water and climate) in your home country.

Part 3: Economic Evaluation on Environmental Policy and Project

In this part, we will discuss policy evaluation and economic evaluation of environmental policy, focusing on Cost of Illness (COI), Stated Preference (SP), and Revealed Preference (RP).

10. PDCA Cycle and Policy Evaluation
11. Cost Benefit analysis in Environmental Policy
12. Economic Valuation on Environmental Policy-COI, SP and RP
13. Contingent Valuation Method (CVM) and Travel Cost Method (TCM)
14. The Design of Environmental Policy
15. * Students have to a short report and presentation about Policy Evaluation of the pollution control policy (air, water or climate) in your home country. Concluding remarks

Figure 4 Environmental indicators at different country income levels



Note: Estimates are based on cross-country regression analysis of data from the 1980s.
a. Emissions are from fossil fuels.
Sources: Shafik and Bandyopadhyay, background paper; World Bank data.