

LOCAL, NATIONAL, REGIONAL, AND GLOBAL LINKS IN ECOLOGICAL ENVIRONMENTAL MANAGEMENT

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Summary

The idea of sustainable development has been advocated by scholars and politicians since the early 1970s and has gradually been accepted by the people of the world. Nonetheless, the interference of all sorts of vested interests has meant that these theoretically fair policies have not necessarily been implemented smoothly. Therefore, much attention will be paid to the problem of management and implementation. Sustainable development is a global problem. From a global perspective, the management of the ecological environment can be divided into four interrelated levels: local, national, regional, and global management.

1. State Governments Are Subject to Ecological Environment Management

In the twenty-first century, and especially the first half, states and their governments will be the subject to state-to-state political and economic exchanges, because it is difficult for the people to transcend geopolitical and national limitations. All international agreements have to be confirmed and enforced through state legislation. The problem of the ecological environment (eco-environment), although influencing all surrounding countries and the entire globe, is still defined as an internal affair within the scope of state sovereignty. Therefore, the problem of eco-environmental management has to be

addressed via the states.

In the historic process of economic globalization, the market has a bearing on state management. Yet, the eco-environment is a typical external problem for the market, which demands that governments play a role in macro-control. In addressing the eco-environmental problem, profit maximization is not the goal. Given coordinated development of the economy and eco-environment, its goal is to realize unity between economic efficiency, social efficiency, and eco-environmental efficiency. For this reason, it will not permit the market to play a spontaneous role, but rather, through government control, ensure a distribution of resources that is favorable to the coordinated development of social, economic, and eco-environmental development and thus realize the unity of the three efficiencies. Actually, with a market economy market regulation and government management are not absolutely opposed to each other, but rather supplement each other and coexist.

In the case of market dysfunction, more government control must be considered, whereas in the case of government dysfunction, more market regulation is needed. Government control must, in compliance with the principles of the market economy and microeconomic theory, formulate and implement industrial policies, adopt the rule of law, and enhance management of enterprises and institutions that have close relations with the public economic sectors. In a market economy, the function of the government for eco-environmental management could be summarized as: formulate and enforce rules and laws, create market conditions, correct market defects, and maintain the objective orientation. On this account, government eco-environmental management could be defined as:

- (a) Deciding the strategy, setting out the plan, defining the priorities, and actively organizing the implementation of the overall policy.
- (b) Bringing into play the organization and coordination role of all levels of governments, government and industrial sectors, enterprises and institutions, and the localities in the protection of the eco-environment.
- (c) In accordance with the law, formulating environment protection policy, regulations, and standards, using appropriate measures to guide and standardize the environmental acts of the subjects of the micro economy, and exerting forceful containment and effective interference to enterprises' external non-economic actions.
- (d) Supervising and managing the environment and guaranteeing the implementation of relevant laws, regulations, policies, standards, and environmental programs and plans.
- (e) Organizing and nurturing ecological resources and environment industrial market and creating conditions for the raising of market efficiency as much as possible.
- (f) Promoting and organizing the construction of the infrastructure in environmental protection, the development and popularization of science and technology, and other social service activities.
- (g) Throughout society, developing eco-environment education and increasing the sense of coordinated development of the eco-environment and the economy of the whole society.

In short, in a market economy efforts must be devoted to establishing a complementary relationship between government regulation and market regulation instead of a mutually exclusive or substitutive relationship. With the efficient allocation of eco-environment resources, there are three circumstances in which the role of government must be stressed:

- (a) When externalities do not exist or can be neglected and the market mechanisms are effective, the government must play a more active role in providing market information services and maintaining market order.
- (b) When the underdeveloped market fails to bring the market mechanisms into play, the government must vigorously organize and nurture the market of eco-environment resources; at the same time it must resort to other means such as reinforcing the implementation of laws, administrative regulations, etc. Government may, for example, promote the shaping of the resources property rights trading market, encourage the internalization of external non-economic activities by collecting taxes on pollutant emission, and readjust unreasonable resource prices, etc.
- (c) When the eco-environment resources property right is hard to identify and when the externalities and public nature are hard to exclude, even market mechanisms under mature market economic conditions do not always work. In such cases, government must use legal and administrative means to coordinate the use of ecological and environment resources (e.g. screen and grant emission licenses, review and approve construction projects, set forth and enforce environment standards, etc.).

In its 1997 book *Five Years after Rio: Innovations in Environmental Policy*, the World Bank Environment Bureau highly praised and affirmed the role of government in eco-environmental management, pointing out that some 100 countries had set forth their domestic sustainable development strategies or state environment action agendas with a view to guiding environmental management. Many other examples of effective eco-environmental management were also cited.

1.1. Special Exception 1: The Malaysian Experience in Sewage Management

Special exception 1—Malaysia's experience in sewage control in the olive oil industry—indicates that, in developing countries, a set of well-formulated environment policies might be very effective in controlling industrial pollution.

Through such measures as adopting a license system, imposing standards on pollutants, and collecting emission taxes, the Malaysian government has reduced wastewater emissions by the olive oil industry. The government set forth tough standards for the emissions in its rules and regulations on environment quality: taking biochemical oxygen demand (BOD) volume density as a major indicator, in 1978/79 it demanded that only with a reduction in BOD density from 25 000 mg/L to 5000 mg/L could wastewater be emitted. In 1981, the standard was 500 mg/L, and in 1984 it was 100 mg/L. In addition to standardization of emission, emission taxes are collected according to the emission of the BOD load. Wastewater with a BOD load higher than the standard is charged a fee of Ringgit100 (US\$40) for each ton. For those equal to or lower than the standard, each ton is charged Ringgit10, while processing factories that successfully exploit technologies of

reducing BOD are given the preferential conditions of paying less emission tax.

The result of the implementation of this policy is very gratifying. The sewage discharge in the olive oil industry is steadily reducing to the standard of BOD 100 mg/L (see Table 1).

	1978	1979	1980	1981	1982	1984	1989
Production of olive oil (1000 tons)	1786	2188	2573	2822	3511	3715	6057
Produced BOD (ton/day)	563	690	850	1000	1100	1640	1693
Emitted BOD load (ton/day)	563	222	130	58	35	4	5
Reduction rate of produced BOD (%)	0.0	67.8	84.7	94.2	96.8	99.8	99.7

^a BOD = biochemical oxygen demand

^b mg/L = milligrams per liter

Source: A. Markandya and A. Shibli, Industrial pollution control policies in Asia: how successful are the strategies? *Asian Journal of Environmental Management*, **3**(2), November (1995).

Table 1. Malaysia: Wastewater emission control experience in the olive oil industry (*Source:* A. Markandya and A. Shibli, Industrial pollution control policies in Asia: how successful are the strategies? *Asian Journal of Environmental Management*, **3**(2), November (1995))

From 1978 to 1989, although the number of olive oil factories increased by 93% and production of olive oil registered a sharp increase from 1.8 million tons to 6.1 million tons, the BOD load discharged to public waters steadily lowered from 563 tons per day in 1978 to 58 tons per day in 1981 and a mere 5 tons per day in 1989. Research also indicates that these policies did not lead to a loss of competitiveness of the olive oil industry.

1.2. Special Exception 2: Japan's Security-Return System in Solid Wastes Recycling

Japan is one of the most successful countries with regard to cyclic utilization of solid wastes. Japan has promulgated a *Cyclic Utilization Law* and over the years the Japanese government has been a staunch supporter of cyclic utilization projects. In 1989/90, Japan recycled 92% of alcohol bottles, 50% of waste paper, 43% of aluminum-made pop-top cans, and 48% of glass bottles. In addition to government and public support, the "security-return system" also serves as a stimulus to cyclic utilization. Beer bottle cyclic utilization operates as follows. The beer producer collects a security on every 20 bottles of beer. The collecting order is that the producer collects from the wholesaler, the wholesaler collects from the retailer, and the final payer is the consumer. When the packaging and bottles are collected, the security is returned in the sequence of the sales. Through the beer bottle dealer, the security is returned to the beer producer. The "security-return system" has also been established for soft drink cans by some local governments, communities, and consumer cooperatives.

1.3. Special Exception 3: Costa Rica's Forest Felling Tax, Afforestation Security, and Service Fee

Costa Rica amended its *State Forest Law* in 1986, providing for, first, the levying of a tax tantamount to 10% of the value of the felled trees. Second, the feller must submit a 20% security so as to guarantee the source of funds for reforestation. Third, the feller is obliged to road maintenance and other service fees. The reform of the fell tax system successfully increased the tax revenue of the forestry industry, which registered an actual increase of 15 times between 1985 and 1989. Although in most circumstances the deforestation security is lower than the cost of re-forestation, since the reform of the forestry policy, forestation has expanded notably, with the speed of re-forestation rising from 10 square km per annum in 1980–1985 to 250 square km per annum in 1990.

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Biographical Sketch

Qing Teng is a lecturer at Beijing Language and Culture University (formerly Beijing Language Institute). She graduated from the People's University of China (English Department), perfected her Chinese at Beijing University, and studied French at Bordeaux University in France. She worked as a librarian at Tsinghua University, Beijing, and as an assistant researcher at the Electronic Science Research Institute of China before joining Beijing Language and Culture University, where she teaches contemporary Chinese literature and history to foreign students, while writing freelance for several Chinese and French newspapers and magazines.