

Kitakyushu Initiative for a Clean Environment: Successful and Transferable Practices
Ningbo (China): Efficient application of integrated policies for the urban environment

Institute for Global Environmental Strategies¹

Target Area: Whole area of urban environment

Time Period:

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1. Background

Ningbo is located along the coastline of China, on the south wing of the Yangtze river. This city covers an area of 9,365 km², and has a population of 5,494,000. Ningbo is a well-known tourist and cultural spot with an annual rate of GDP per capita of approximately 13.3%; GDP per capita grew from RMB12,100 in 1995 to RMB22,000 in 2000.

The city has invested 7.434 billion yuan in environmental protection. During its rapid economic growth, the City of Ningbo has succeeded in reducing the progression of pollution from industrial activities, improving urban environmental infrastructure, adjusting the industrial structure, and raising citizens' awareness of environmental protection through integrated economic and environmental policies in a short period of time. Ningbo rose from its position at 35 to 5 in the Urban Environmental Quality Examination System² in 1993 and became an Environmental Model City³ in 2001.

2. Environmental challenges

With a fast growing economy through a policy of improving the city by using and promoting the port, the city could not keep with environmental challenges. Major environmental problems include the urban layout and industrial structure of the city, outdated environmental protection infrastructure, and poor quality of the surface water. Ningbo is seeking a win-win approach integrating economic growth and environmental protection.

3. Achievements

3.1 Strategic implementation of Creation of Environmental Model Cities policy (1997-2000)

Ningbo targeted the achievement of the objectives of the national policy (includes economic growth, population growth, resource consumption, state of the environment, environmental management level and coordination between social and economic development, infrastructure construction and environmental protection) through the following methods:

- a. Development of "Ningbo Environmental Model City Implementation Plan" (1998) and division of duties for each department
- b. Development of final stage activities (2000)

A new institutional arrangement was made in 2000 to implement this plan. The implementation team was comprised of the mayor, vice-mayor, head of each municipality, and head of related departments (planning committee, urban planning, economic committee, public welfare,

² Urban Environmental Quality Examination System (UEQES) is a governmental policy to evaluate urban environmental management in cities in China.

³ Creation of Environmental Model Cities is a national policy that aims to create a group of model cities where the economy, society and the environment are balanced and well coordinated.

environmental protection). Team leader meetings were held once a month, member meetings every two weeks and task force meetings once a week, with governmental leaders taking on the role of coordination in the construction of urban environmental infrastructure and relocation of businesses. With the collaboration of the team and city inspection department, inspections could be conducted on the activities of related departments and pollution prevention measures of businesses and time limits imposed on unfinished activities.

Creation of Environmental Model Cities is a successful policy that is encouraged by the national government that indicates concrete targets in five fields (basic conditions, social and economic development, environmental quality, environmental construction and environmental management). Through Creation of Environmental Model Cities policy, Ningbo established urban environmental improvement as a priority issue, leading to effective implementation and results.

Strong local governmental leadership and initiative of the mayor was key in carrying out the implementation of this policy. Partnerships between related departments, and participation of businesses and residents proved effective. Information disclosure and environmental education played an important role in involving the citizens in activities.

3.2 Development and application of regulatory and economic instruments

3.2.1 Development and implementation of local environmental laws and regulations

In addition to the laws stipulated by the national government, Ningbo developed and implemented 24 additional regulations and local rules that cover water pollution control of rivers; quality of drinking water sources; control of smoke, soot and dust pollution; control of noise pollution at construction areas; environmental management for food and drink service industries; relocation of industries, and others.

- Successful results could be achieved quickly and effectively because the local governmental outline regulations with detail implementation strategies.
- Regulation enforcement capacities have been enhanced with inter-departmental coordination, increased human and financial resources.

3.2.2 Strict regulatory measures and support system

From 1996 to date, Ningbo has taken steps to monitor and close down, temporarily stop production, or relocate a large number of severely polluting enterprises. In 1996, 260 small-scale industries either ceased production or closed down and 42 large and medium-scale businesses were relocated leading to a reduction of 8,200 tons of COD emissions per year.

In order to implement these strict regulations, support for businesses that have been displaced due to

the closure or relocation of industries have been provided. The support measures included the provision of discounts on the purchasing price of land for relocation and the elimination of tax when converting to tertiary industries, among others.

- For severely polluting small-scale businesses, it is more economically efficient to close down or temporarily cease production rather than invest heavily in updating facilities to comply with environmental regulations. Additionally, in times of rapid economic growth, shift to a market economy, and transformation of industries, this type of action has little effect on the local economy.
- A system of economic instruments to support strict regulatory measures can ensure that activities proceed smoothly for all concerned parties.

3.2.3 Increase of environmental investment

Environmental investment in Ningbo for the years 1998 to 2000 is as follows:

1998	1.85 billion yuan	1.89% of GRP
1999	2.05 billion yuan	1.92% of GRP
2000	3.53 billion yuan	2.96% of GRP

From 1998 to 2000, environmental infrastructure investment accounted for 74% of the total investment in environment. With large investment in environmental infrastructure, percentages of urban gas, solid waste treated, urban sewage treated, and urban green areas have increased rapidly.

Investment in industrial pollution control (end-of-pipe) peaked in 1999 at 0.33 billion yuan, accounting for 16.1% of the total investment in environment. To control pollution at the source, the implementation of simultaneous design, construction and operation of new projects reached its peak in 1999 at 0.31 billion yuan, accounting for 15.2% of the total investment in environment.

Operating costs of environmental infrastructure have increased rapidly and in 2000 reached its peak at 0.28 billion yuan, accounting for 8% of the overall environmental investment.

With vibrant economic development in Ningbo, it has become possible for large-scale investment in environmental measures. Strengthening the investment of end-of-pipe measures and actions to control pollution at the source has led to a reduction of emissions.

Table 1 Economic and environmental indicators

ECONOMIC INDICATORS	
Percentage increase of GRP	Annual average of 13.5% (1996-2000)
Increase in per capital GRP	Annual average of 10.8%
ENVIRONMENTAL INDICATORS	
<i>Air (Decrease in air pollution emission density (1996-2000))</i>	
TSP	0.214 to 0.154 (Standard is 0.2m g/m ³)
SO ₂	0.02 to 0.015 (Standard is 0.06m g/m ³)
Nox	0.042 to 0.035 (Standard is 0.08 m g/m ³)
<i>Water quality</i>	
Drinking water source compliance to standards	94.4% to 100%
Ambient surface water compliance to standards	96.09% to 100%
<i>Noise Pollution</i>	
Average noise value	55.0 dB to 53.4 dB (Standard is 60 dB)
Average traffic noise	68.5 dB to 68.1 dB (Standard is 70 dB)
<i>Natural Conservation</i>	
Natural conservation protection area coverage	5.9% to 6.99%
Green areas coverage	30.09% to 33.52%
Green area per capita	4.8m ² to 7m ²
<i>Urban Environmental Infrastructure</i>	
Domestic wastewater treatment	1% to 53.56% (1996-2001)
Urban gas supply	100%
Urban domestic garbage treatment	0% to 100% (1994- end of 2001)
<i>Industrial Pollution Control</i>	
Industrial solid waste comprehensive utilization	67.23% to 72.86% (Standard is less than 70%)
Industrial wastewater effluent compliance	100% (Of 1,556 enterprises in the city, 1,355 have met standards. Two hundred and one businesses have been closed down or have made a transition in their activities.)

4. Transferability

- Effective national system for evaluating local government environmental performance: Urban Environmental Quality Examination System & Creation of Environmental Model Cities
- Unique indicator system
- Strong local motivation in Creation of Environmental Model Cities; Strong leadership of city government
- Partnerships between related departments and participation of all actors in society
- Full use of economic instruments as support measures in response to strict regulations
- Increase in environmental investment with the same pace of economic development