

# THE AIR QUALITY MANAGEMENT IN WEIHAI

*Sun Pingyi, Vice director, Senior Engineer,*

*Weihai Environmental Protection Agency, China*

# **1. GENERAL BACKGROUND**



Weihai is a coast city, located in the eastern tip of Shandong peninsula, the total area is 5436 square kilometers, with a population of 2.47 million, has 986km coastline.

- After China open up to the outside of the world, Weihai enjoys all the preferential policies and a unique location, the economy, urban construction developed very fast.
- Weihai is facing high environmental pressure along with the fast development, especially the air pollution.
- The air pollution sources mainly are: cooking, heating and vehicle emission.
- Weihai has paid much attention on the environmental protection in its very beginning, try to explore a sustainable development way.

## **2. INITIATIVES AND ACTIVITIES**

# 1. Government subsidize, encourage residents use clean fuel for cooking

- Before 1980, use grass, wood and grain stems for cooking. caused serious air pollution.
- 1980s, use bottle LPG
- 1990, use pipe coal gas
- 2003, use pipe LNG
- Government subsidize about 1/3 for the residents

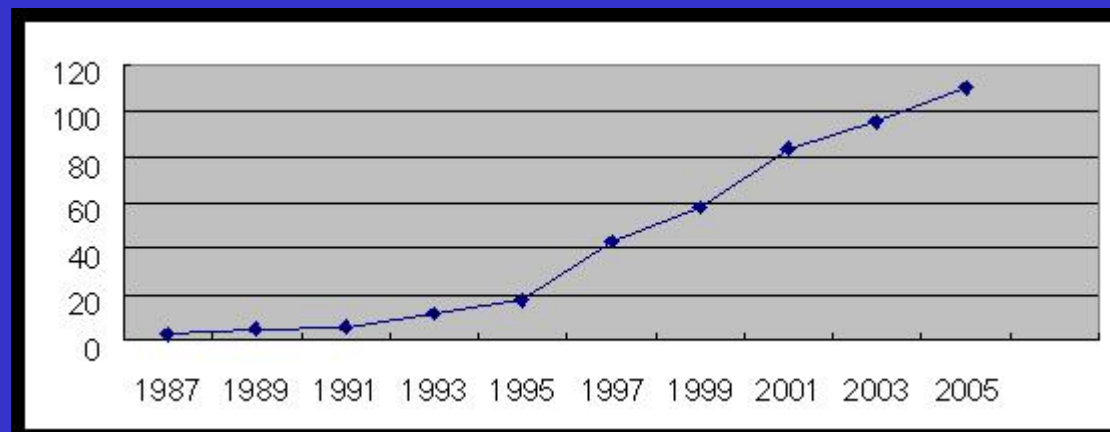
## 2. Using district heating system for heating

- Before 1980, use stove for heating
- 1980s, use small boilers
- After 1990, use district heating system
- Constructed 4 heating & power stations in the urban area, using electronic precipitators to reduce the flying ash, circular-floating bed boilers plus limestone to reduce the emission of  $\text{SO}_2$

### 3. Improving the public transportation system

- government allocate the land for bus station, invest for the new buses, subsidize 1 million/a, remit taxation
- abstract private to invest, lease, operate the public buses
- Use monthly ticket, give half price to the students, grand the ticket to the old residents
- 1997, began use no ticket officer system; 2001, began use electronic ticket system, both were the pioneer in China.

Passengers that use the public transportation system (million)





## 4. Reuse the grain stems, forbidden burn it in the wild land

- Central and local government issued several regulations, forbidden farmers burn the grain stems in the wild land
- Construct the methane-generating pit
- Construct biogas station.
- Develop animal husbandry
- Reuse in the farmer land as fertilizer.
- As raw material for some industries
- The reuse rate for the grain stems in Weihai is 90%

## 5. Improving the monitoring system, open the information to the public

- Weihai began to monitor the air quality in 1982, established continuous automatic monitoring system in 2000, monitor SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>
- began to publish the environmental quality in 1995, after 2000, publish the air quality daily through the media.

# **3. ACHIEVEMENTS**

The clean fuel initiative makes almost 100% residents use clean fuel for cooking. reduce about 90% TSP and SO<sub>2</sub> emission, eliminate the residue generation, save 30-40%energy, decrease the fire accidents, improve the air quality both indoor and outdoor, improve the residents' living environment and health, especially women and children.

The district heating system initiative makes all the factories and apartments in the urban area use the district heating system, there is no stove and small boiler anymore. Compared with the stove or small boilers, the district heating system can save 40-50% energy, reduce 30-40% SO<sub>2</sub> and 60-70% TSP emission, improved the air quality, save the residents' health, especially during the winter.

The public transportation initiative makes about 80% passengers use the public transportation system for travel. The convenient public transportation system is avoided the motor bicycle booming period, reduced the demand for private car. Compared with the private car, especially motor bicycle, the public transportation saves energy, reduces the emission of TSP, HC, NO<sub>x</sub> and CO<sub>2</sub>, and reduces the traffic jam.

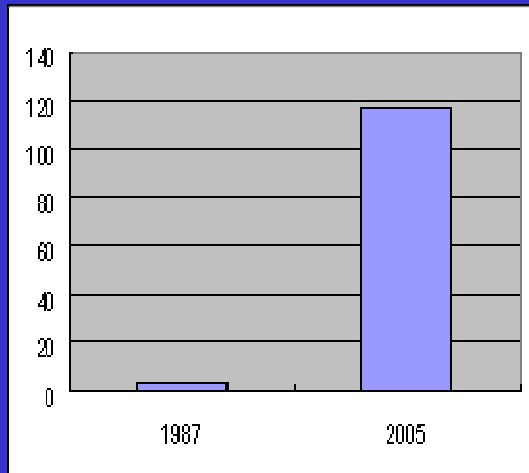
The grain stems reuse initiative makes about 90% grain stems reused, that improves the ecologic system conservation and the farmland quality, increase the farmers' income, alleviate poverty;

Forbidden burning the grain stems in the wild land protected the air quality.

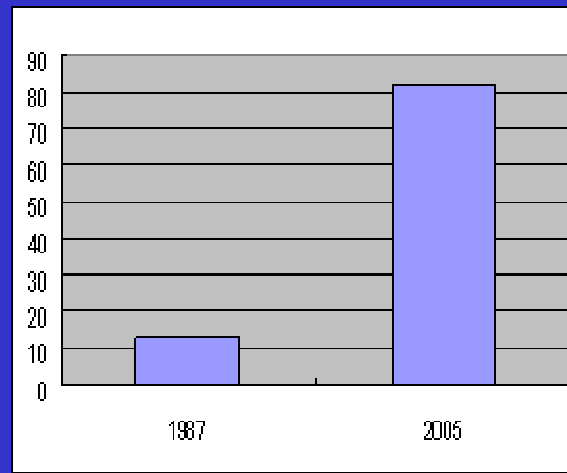
The open environmental information initiative improves the transparency in local decision-making, improves the governance.

Increase the environmental awareness of the public, attract more people participate in the environmental protection.

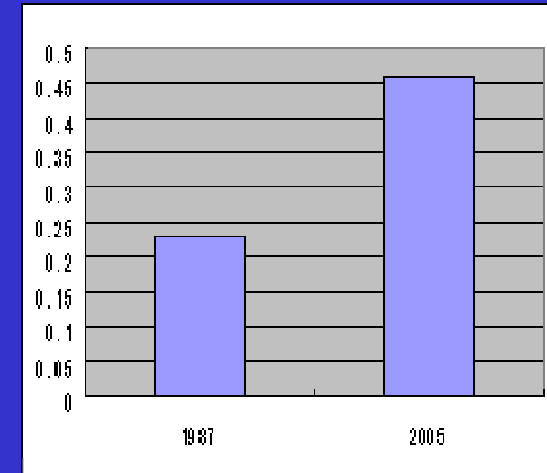




GDP billion

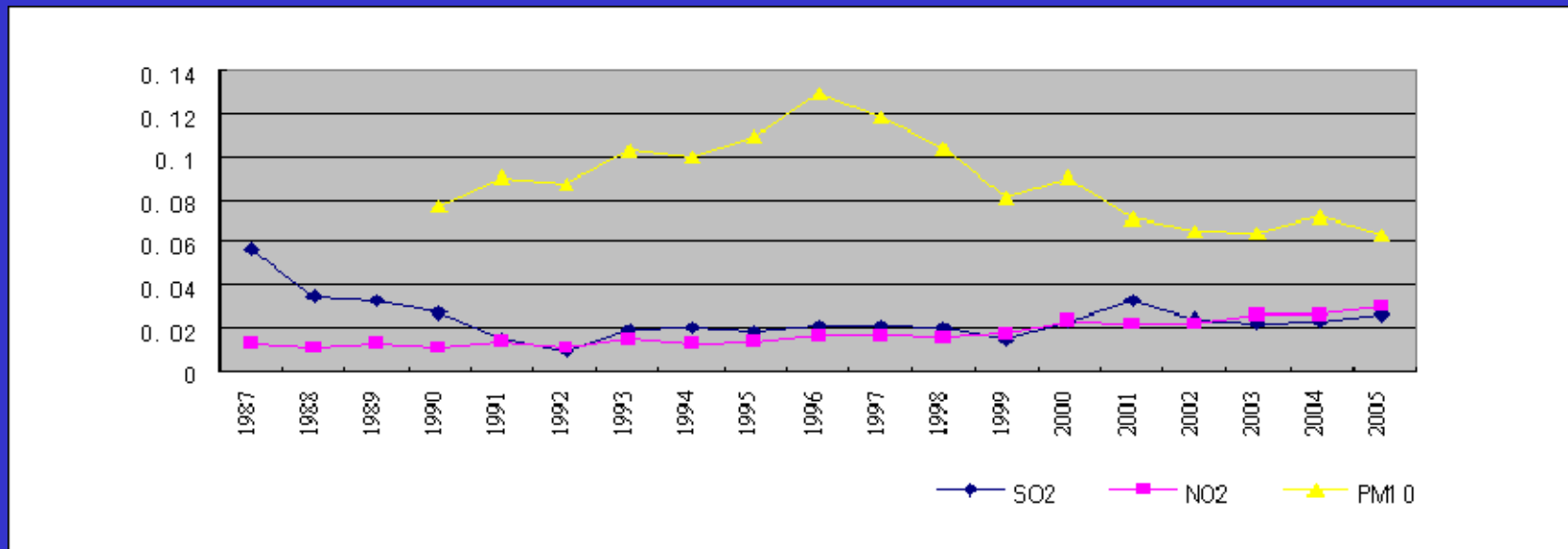


developed urban area  
km<sup>2</sup>



urban population  
million

The main air quality indicators in Weihai from 1987-2005 (mg/m<sup>3</sup>)



# Weihai was awarded

- National Sanitary City
- Environmental Protection Model City
- National Garden City
- National Excellent Tourism City
- Best Model City of Improving Living Environment by UN
- UN-Habitat Scroll of Honor Award

## 4. CHALLENGES

- high coal consumption
- vehicle emission
- Improve the economic mechanism