# Introduction of Ambient Air Quality Monitoring in China

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**China National Environmental Monitoring Center( CNEMC)**
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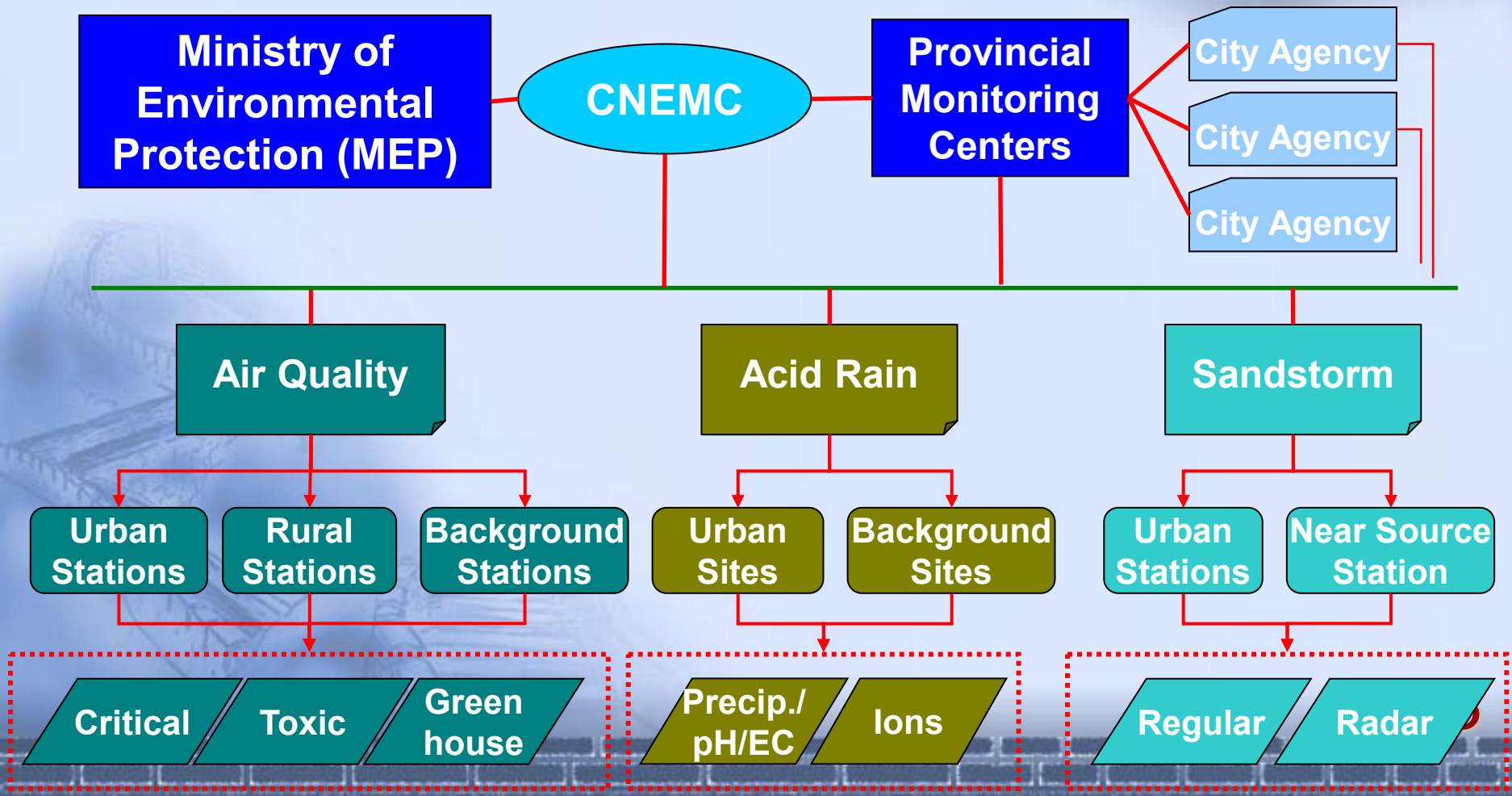
# Contents

- Overview of Ambient Air Quality Monitoring Program in China
- Air quality during the Past 10 Years
- Challenges and Future Plan for monitoring

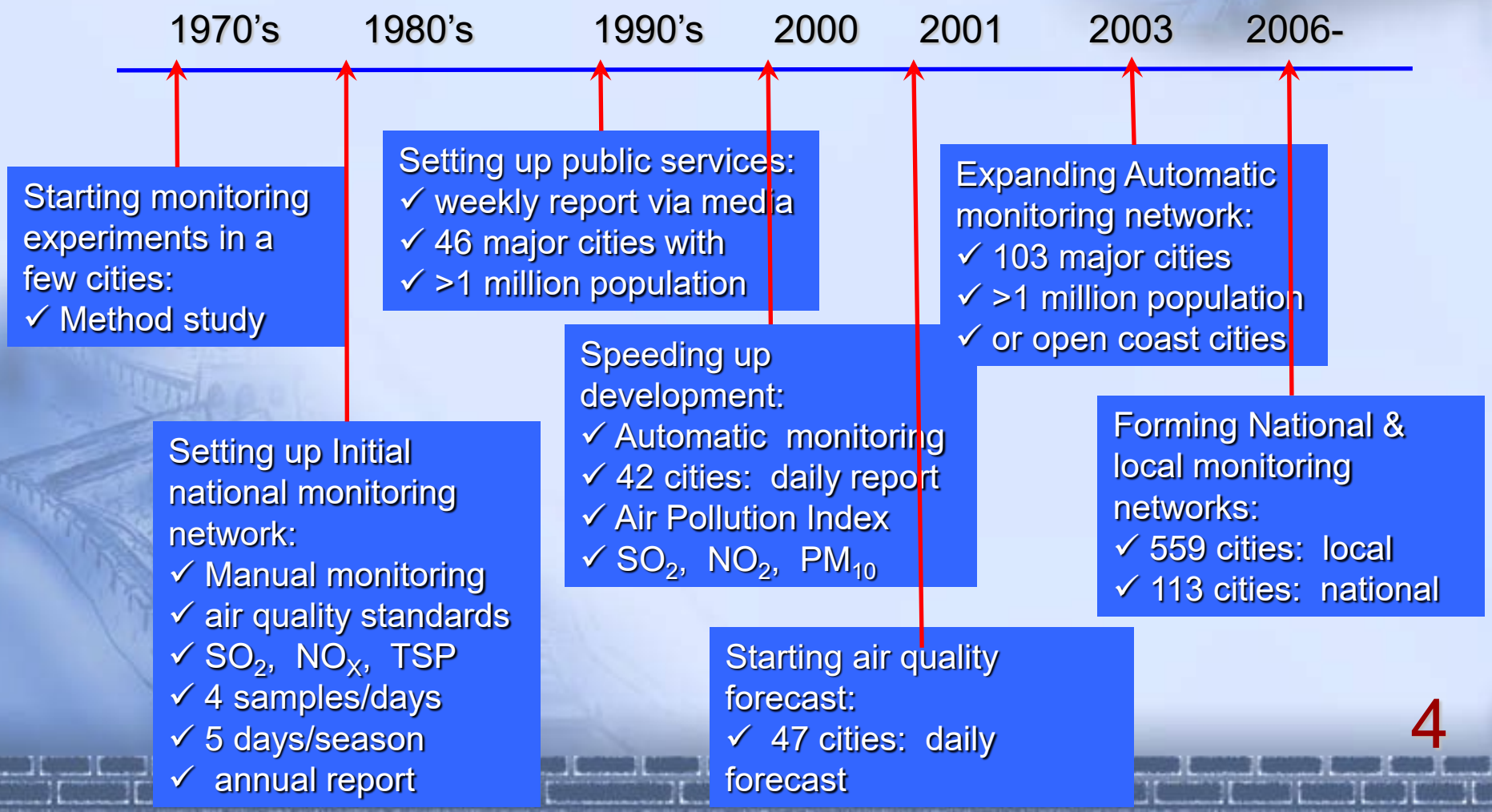
# Part 1 Ambient Air Quality Monitoring Program

- Organization & Structure



# Part 1 Ambient Air Quality Monitoring Program

- History

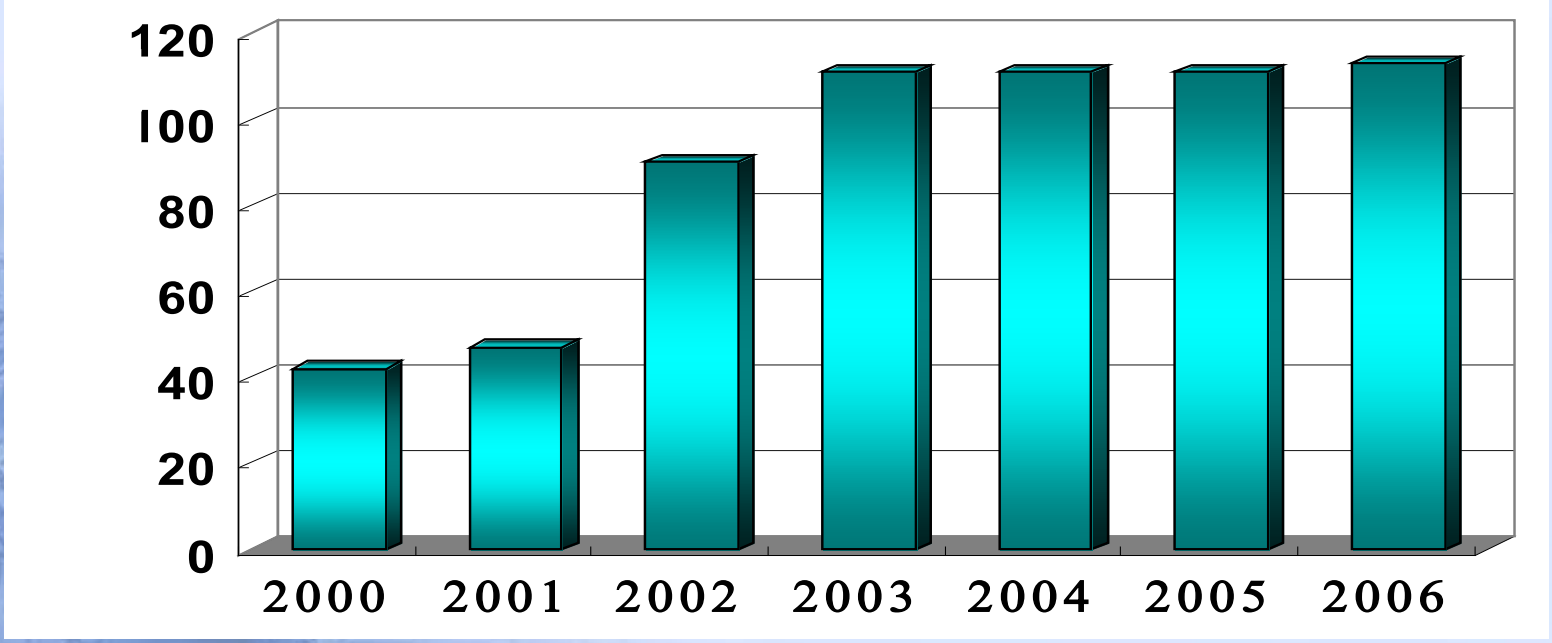


# National Environmental Monitoring Network

- Urban air quality monitoring network
  - 113 major cities with 661 monitoring sites
- Acid rain monitoring network
  - 347 cities with 431 monitoring sites
- Dust and sandstorm monitoring network
  - 82 cities with 82 monitoring sites
- ……

# Part 1 Ambient Air Quality Monitoring Program

- Number of major City joined into daily report system



# Part 1 Ambient Air Quality Monitoring Program

- **NAAQS in Chir**
  - **GB3095-1996**
  - **GB3095-201?**

Background area

Resident area

Industrial area

| | | Concentrations (mg/m³) | | |
|---|---|---|---|---|
| | | level 1 | level 2 | level 3 |
| $SO_2$ | annual | 0.02 | 0.06 | 0.1 |
| | daily | 0.05 | 0.15 | 0.25 |
| | 1-hr | 0.15 | 0.5 | 0.7 |
| $NO_2$ | annual | 0.04 | 0.08 | 0.08 |
| | daily | 0.08 | 0.12 | 0.12 |
| | 1-hr | 0.12 | 0.24 | 0.24 |
| $PM_{10}$ | annual | 0.04 | 0.1 | 0.15 |
| | daily | 0.05 | 0.15 | 0.25 |
| TSP | annual | 0.08 | 0.2 | 0.3 |
| | daily | 0.12 | 0.3 | 0.5 |
| NOx | annual | 0.05 | 0.1 | 0.1 |
| | daily | 0.1 | 0.15 | 0.15 |
| | 1-hr | 0.15 | 0.3 | 0.3 |
| CO | daily | 4 | 4 | 6 |
| | 1-hr | 10 | 10 | 20 |
| O3 | 1-hr | 0.12 | 0.16 | 0.2 |

# Comparison of Standards

| | Air Quality Standards ($\mu g/m^3$) | | | | | limitation (day/year) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | EU | US | JAPAN | CHINA | WHO | EU | US | JAPAN | CHINA |
| SO2 (annual) | | 80 | | 60 | | | | | |
| SO2 (daily) | 125 | 365 | 105 | 150 | 125(20) | <4 | <1 | <1 | |
| SO2 (1-hr) | | | 262 | 500 | 500 | | | | |
| NO2 (annual) | 40 | 100 | | 80 | 40 | | <1 | <1 | |
| NO2 (daily) | | | 113 | 120 | | | | | |
| NO2 (1-hr) | 200 | | | 240 | 200 | <20 | | | |
| PM10 (annual) | | ? | | 100 | 70(20) | | | | |
| PM10 (daily) | 50 | 150 | 100 | 150 | 150(50) | <35 | <1 | <1 | |
| PM10 (1-hr) | | | 200 | | | | | | |
| PM2.5 (annual) | | 15 | | | 35(10) | | <1 | <1 | |
| PM2.5 (daily) | | 35 | | | 75(25) | | | | |
| O3 (8-hr) | 120 | 157 | | | 160(100) | <26 | <1 | <1 | |
| O3 (1-hr) | | 235 | 118 | 160 | | | | | |
| CO* (daily) | | | | 4,000 | | | | | |
| CO* (8-hr) | 10,000 | 10,000 | 11,000 | 10,000 | | | <1 | <1 | |
| CO* (1-hr) | | 40,000 | 23,000 | | | | <1 | <1 | |

- City monitoring site


**Automatic Station (site/DOAS)**

- Public Services:  TV/Broadcast

- Public Services:  Internet

人民网>>环保>>环保专题>>环境公报>>空气质量日报

## 7月14日重点城市空气质量日报

中国环境监测总站提供

2006年07月14日15:34　【字号 大 中 小】【留言】【环保论坛】【打印】【关闭】

| 城市名称 | 污染指数 | 首要污染物 | 空气质量级别 | 空气质量状况 |
|---|---|---|---|---|
| 北京 | 78 | 可吸入颗粒物 | II | 良 |
| 天津 | 87 | 可吸入颗粒物 | II | 良 |
| 石家庄 | 95 | 可吸入颗粒物 | II | 良 |
| 秦皇岛 | 56 | 可吸入颗粒物 | II | 良 |
| 太原 | 111 | 可吸入颗粒物 | III1 | 轻微污染 |
| 呼和浩特 | 42 | -- | I | 优 |
| 沈阳 | 77 | 可吸入颗粒物 | II | 良 |
| 大连 | 63 | 可吸入颗粒物 | II | 良 |
| 长春 | 58 | 可吸入颗粒物 | II | 良 |
| 哈尔滨 | 55 | 可吸入颗粒物 | II | 良 |
| 上海 | 35 | -- | I | 优 |
| 南京 | 56 | 可吸入颗粒物 | II | 良 |
| 苏州 | 41 | -- | I | 优 |
| 南通 | 27 | -- | I | 优 |
| 连云港 | 54 | 可吸入颗粒物 | II | 良 |
| 杭州 | 40 | -- | I | 优 |
| 宁波 | 32 | -- | I | 优 |
| 温州 | 26 | -- | I | 优 |
| 合肥 | 52 | 可吸入颗粒物 | II | 良 |
| 福州 | 21 | -- | I | 优 |

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重点城市空气质量日报——日期：2006-07-14

共有86个城市！（本页有30个城市，共3页）

第 (1) (2) (3) 页 后一页

| 城市 | 日期 | 污染指数 | 首要污染物 | 空气质量级别 | 空气质量状况 |
|---|---|---|---|---|---|
| 北京 | 2006-07-14 | 78 | 可吸入颗粒物 | II | 良 |
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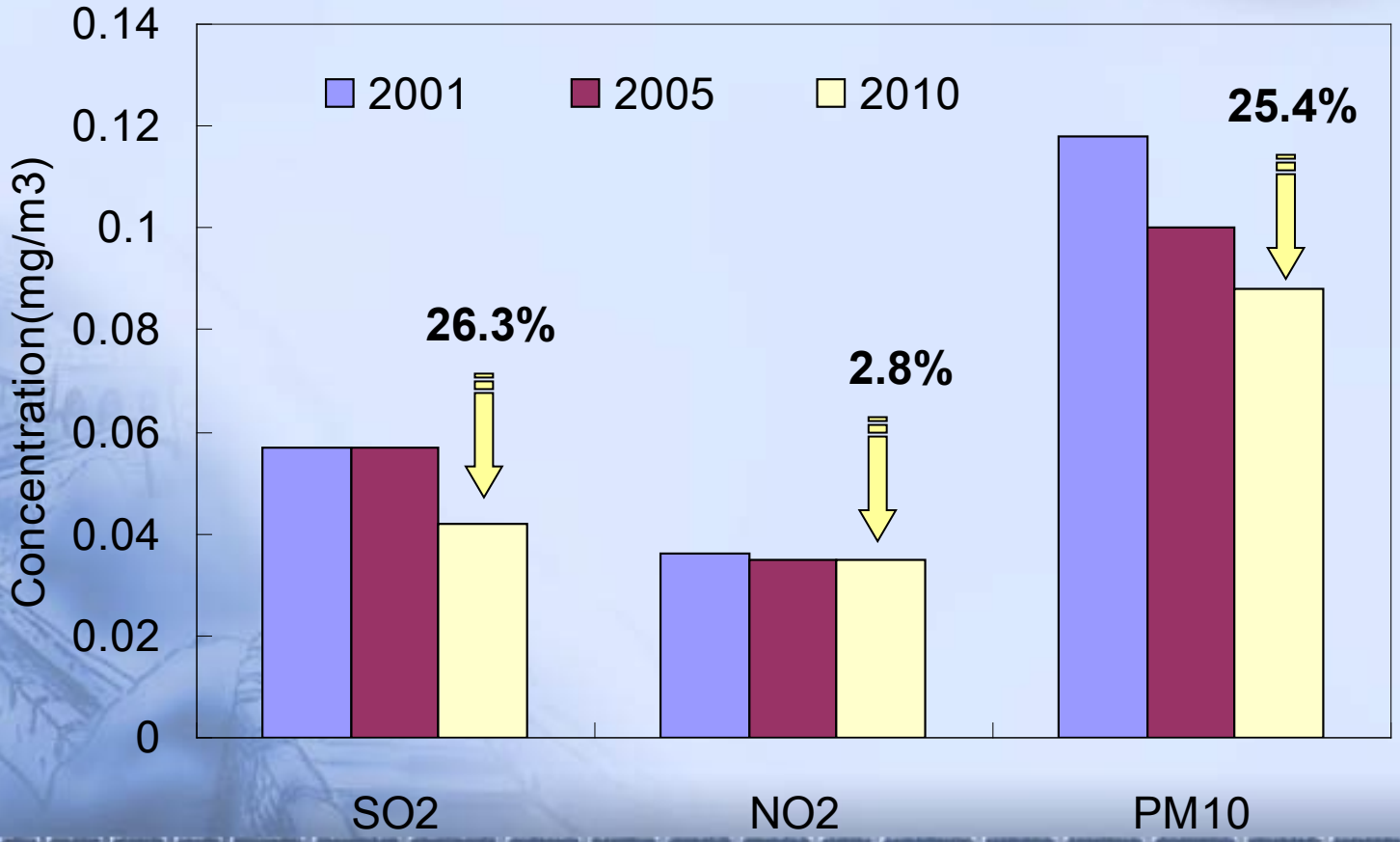
| 秦皇岛 | 2006-07-14 | 56 | 可吸入颗粒物 | II | 良 |
| 太原 | 2006-07-14 | 111 | 可吸入颗粒物 | III1 | 轻微污染 |
| 大同 | 2006-07-14 | 65 | 可吸入颗粒物 | II | 良 |
| 阳泉 | 2006-07-14 | 104 | 可吸入颗粒物 | III1 | 轻微污染 |
| 长治 | 2006-07-14 | 85 | 可吸入颗粒物 | II | 良 |
| 呼和浩特 | 2006-07-14 | 42 | -- | I | 优 |
| 赤峰 | 2006-07-14 | 76 | 可吸入颗粒物 | II | 良 |

- Annual Report
  - “Public Report for State of Environmental Quality of China” by MEP


  - “Annual Report of National Environmental Quality” by

# Part 2 Air quality during the Past 10 Years

- Averaged annual concentrations



# Part 2 Air quality during the Past 10 Years

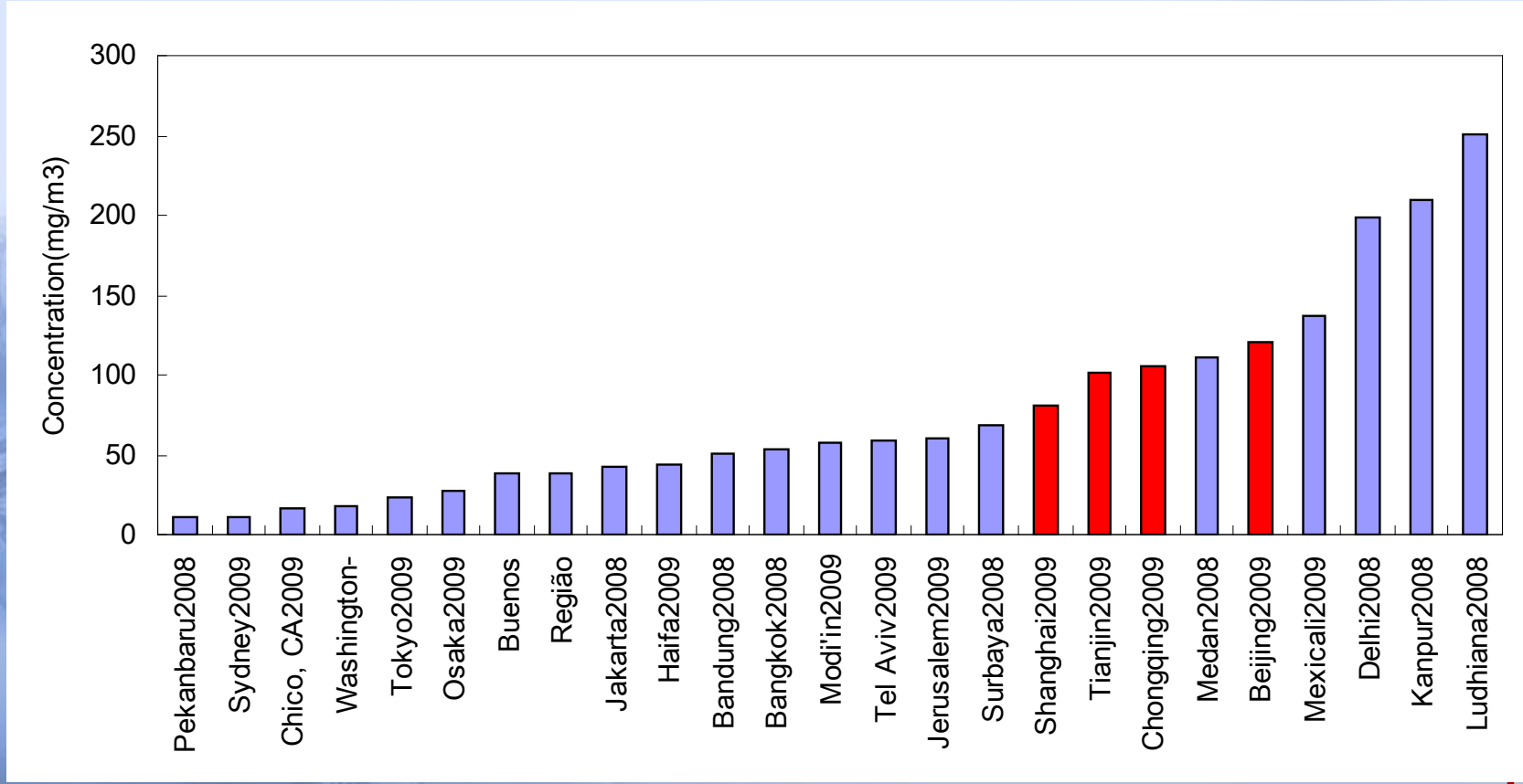
- During the past 10 years, China has made great effort to reduce source emissions for different pollutants
  - Remove of sulfate in waste gas from power plants
  - Improved energy structure of industries
  - Recovery of ecological environments
  - Promote investigation in environmental protection and technologies
  - etc..

# Part 2 Air quality during the Past 10 Years

- In 2001, there are many cities under high level of SO2: cities in Shanxi,Guizhou province
- In 2005, areas under high level of SO2 decreased to some extent
- In 2010, only a few scattered cities in Guizhou,Hebei and Shandong province did not attained the national standard

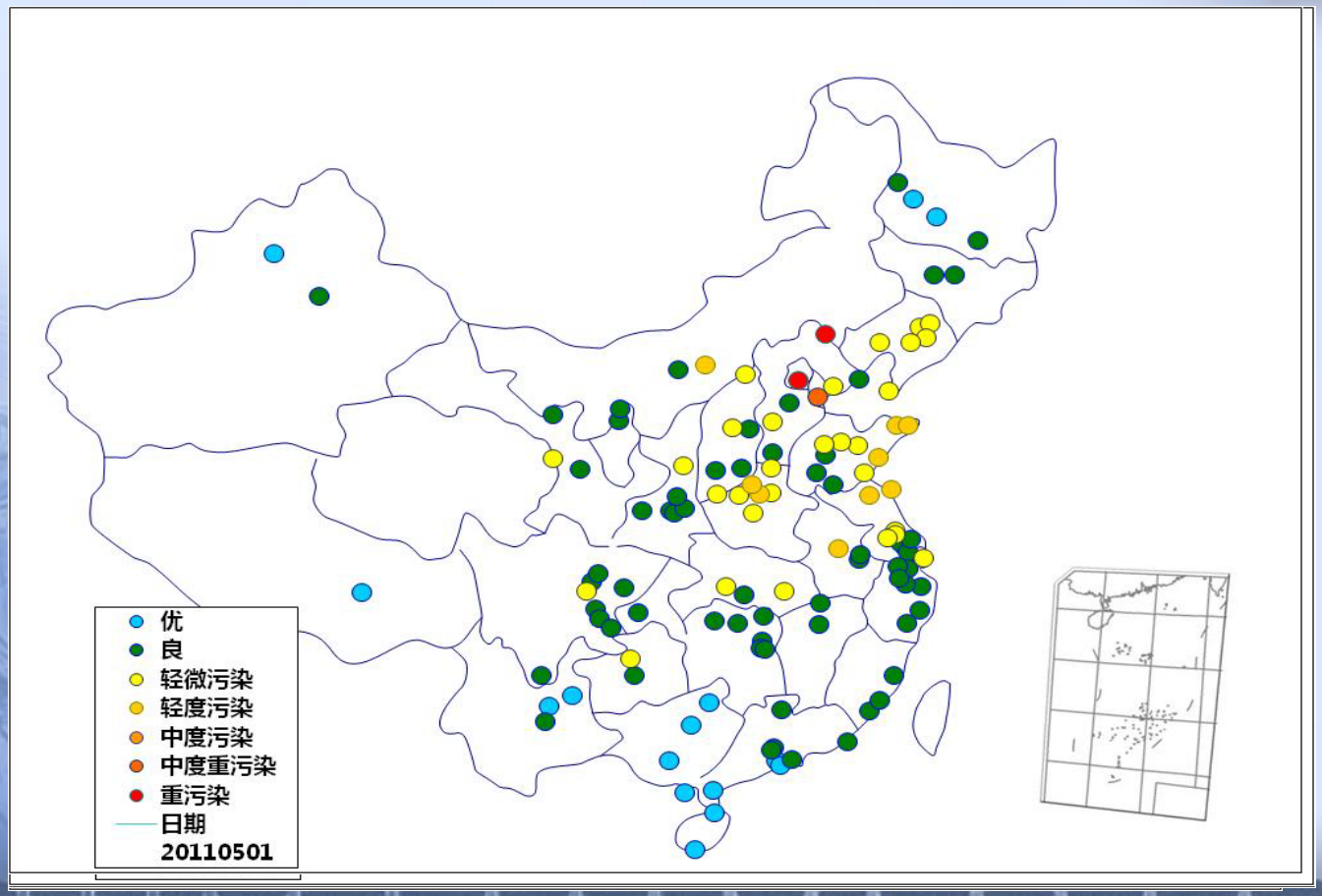
# Part 2 Air quality during the Past 10 Years

- Averaged annual concentrations(PM10)



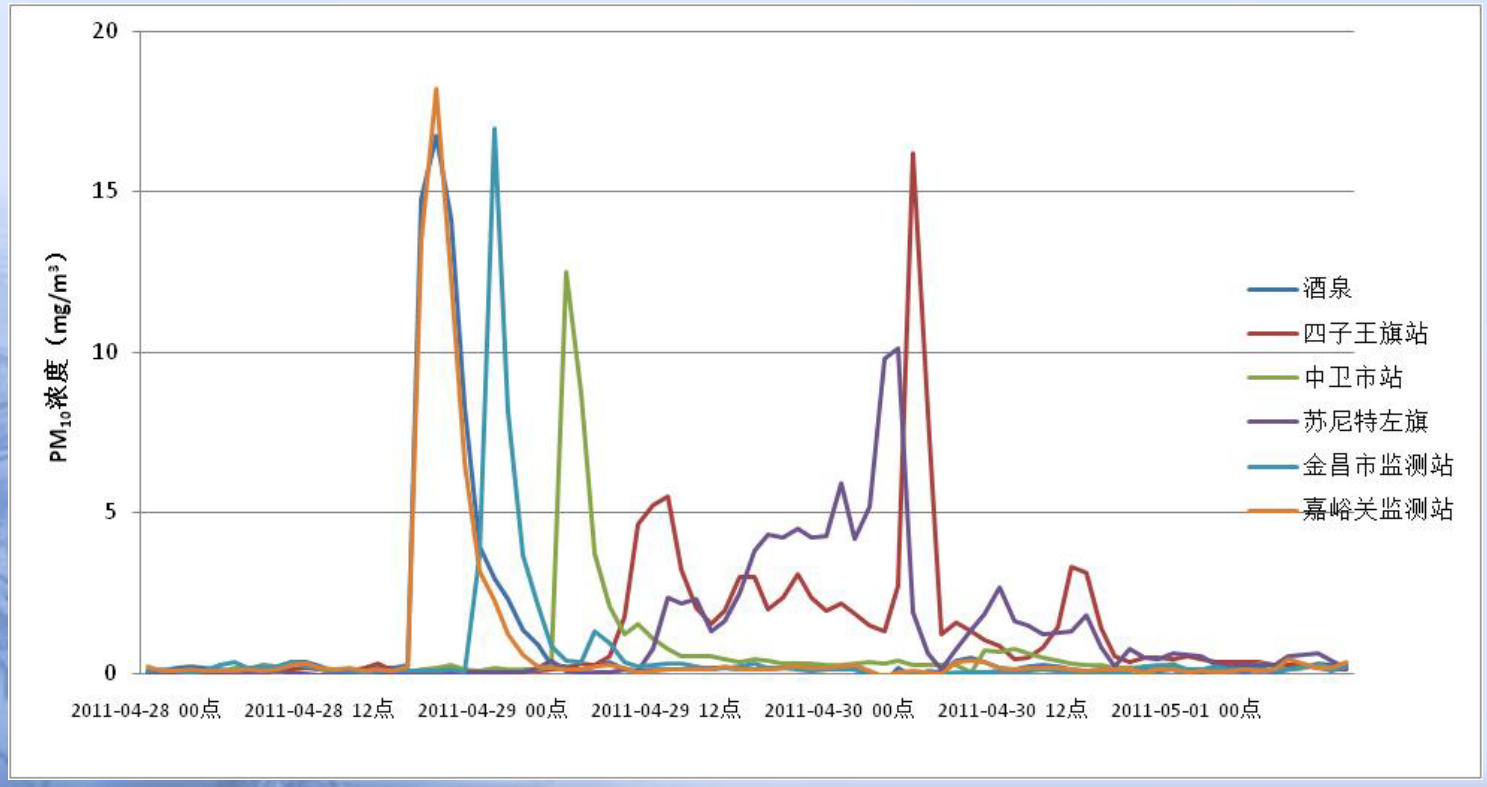
# Part 2 Air quality during the Past 10 Years

- Sandstorm



# Part 2 Air quality during the Past 10 Years

- Sandstorm



# Part 2 Air quality during the Past 10 Years

- **Fog / Haze**
  - **Weather condition as an affecting factor**

**fog + Urban emissions**


**Strong wind + Urban emissions**

# Part 3 Challenges and Future Plan for monitoring

- Expanding monitoring parameters, including ozone , PM2.5, CO, VOCs.
- Setting up national wide QA/QC system for O3
- Application of new ground monitoring technology: size distribution of particulate matters,EC/OC,BC
- Enhance air quality forecasting ability
- Constructing regional background stations and rural stations
- etc.

# Thank you