


中国中部、武汉市的经济发展和环境保护

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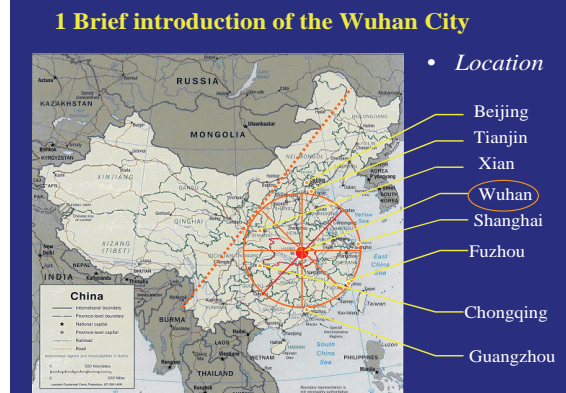
- 以位于中国经济地理中心的武汉市为例，对中国中部的环境和生态情况进行汇报。
- 武汉市的地表水比较丰富，长江和汉水两大河在武汉汇总，而且武汉有很多湖泊，还有两大河的支流流经。
- 过去5年里，武汉的经济取得了较好的发展。幻灯片显示了武汉1999年到2002年第一产业、第二产业、第三产业的变化。
- 在环境保护方面，武汉市的大部分地表水达到国家三级标准（稍有污染），超标的是氮和磷的污染。
- 废水方面，工业废水逐渐减少，生活废水渐渐增多。工业废水基本上达到了90%左右的处理基准实现比例。
- 工业废水和城市废水体现的主要污染问题是：氮、COD、铬。
- 大气质量从1999年左右平均浓度开始下降。主要污染物是浮游物、颗粒物、二氧化硫、二氧化氮。
- 在武汉，对噪音基本上进行了限制。但是现在的交通噪音和建设噪音逐渐严重。
- 固体废弃物的主要处理方法是填埋。用于环境保护发面的资金不断增加，城市植树和森林面积切实增加。
- 联合国开发计划支援下的武汉可持续发展计划（Sustainable Wuhan Project）于1997年5月实施之后的一年里，比较成功。正如幻灯片所示，该计划分准备阶段、计划阶段、实施阶段三个阶段按顺序展开，主要讨论了以下六个优先的环境问题，即：地表水污染、城市固体废弃物的管理、污染的控制、汽车尾气污染、城市生态系的建设、经济发展的调整及生产力的配置。
- 城市生态环境相关的问题是：急剧的人口增加、低水平的市民意识、长期城市规划的欠缺、基础设施不足、自然环境保护等。
- 从以上努力的结果中我们看出武汉市的城市生态环境中出现了向可持续发展方向的改善、实施了如幻灯片所示的几个提案。武汉市可能成为中国中部的充满绿色的环境保护示范城市。



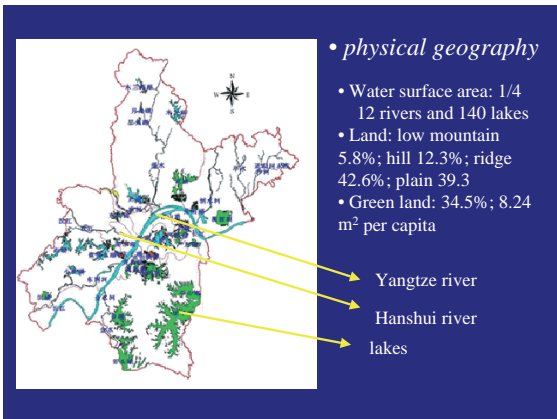
Economic Development and Eco-environment Protection in the Central China- the Case of Wuhan City

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1 Brief introduction of the Wuhan City



- Location
- Beijing
- Tianjin
- Xian
- Wuhan
- Shanghai
- Fuzhou
- Chongqing
- Guangzhou



- physical geography
- Water surface area: 1/4
12 rivers and 140 lakes
- Land: low mountain 5.8%; hill 12.3%; ridge 42.6%; plain 39.3
- Green land: 34.5%; 8.24 m² per capita
- Yangtze river
- Hanshui river
- lakes

- History and culture
- history over 3500 years;
- birthplace of Chu culture
- many historic sites



Tower of Yellow Crane



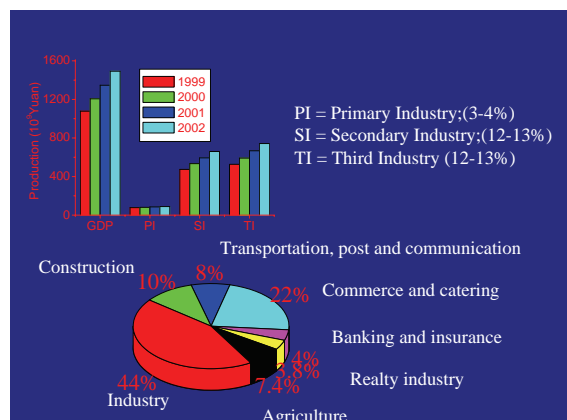
Guaiyuan temple




site of the Revolution of 1911


2 Economic development status

- Wuhan, an important national industrial base, is characterized by her solid industrial foundation and strong comprehensive supporting system.
- The economic development has been greatly improved in the past 5 years.





- Build-up city area: near 250 km²
- pillar industries: automobile industry; communications industry; petrol-chemical industry; high and new tech industry
- convenient traffic
- rate of using tap water 100%
- rate of family gas usage above 90%
- income per capita about 8000 yuan/year

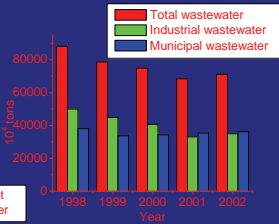
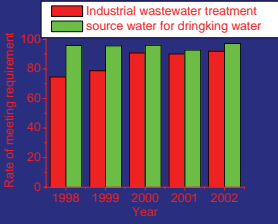


3 Eco-environment Status and Protection

- *Surface water*
 - Water qualities of the main rivers in the Wuhan City have reached the related standards in China
 - Few small rivers exceed the standards in Nitrogen and Phosphate indexes
 - All the lakes in the city have been in eutrophication status
 - The quality of about 97.21% of source water for drinking met the national standards

Wastewater

The volume of wastewater decreased against the increase of GDP

- industrial wastewater treatment increased in the past 5 years
- Source water quality for drinking water has met requirement at a rate above 90%

Wastewater in 2002

the total wastewater discharged was up to 71.190 million tons,

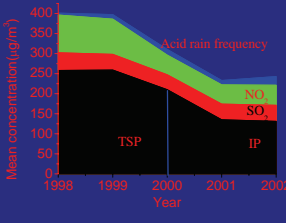
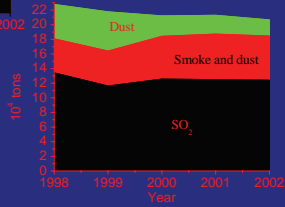
- industrial wastewater 49.13%
- municipal wastewater 50.87%

The main pollutants

- Chromium (VI) (3.01 tons)
- NH₃-N (1731.96 tons)
- COD (55190.69 tons)

Rate of the treated: 92.01%, increasing by 1.82%;
Rate of recycled water: 68.40%.

Air quality

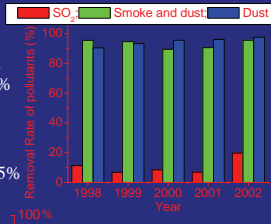
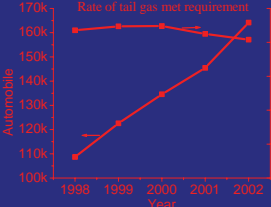



- TSP decreased sharply
- IP (inhalable particles)
- SO₂ increased a little
- NO₂ decreased
- acid rain has been worsen

Industrial exhaust gas

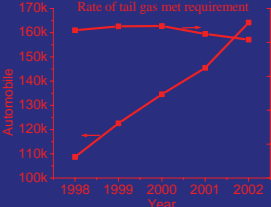
- SO₂ emission has been constant
- Smoke and dust increased
- Dust has been decreased
- Total emission decreased

Removal of pollutants

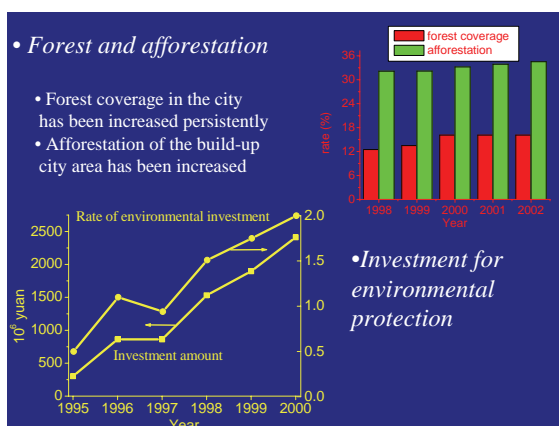
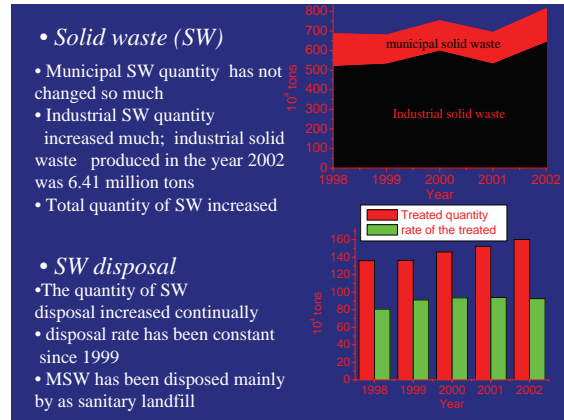
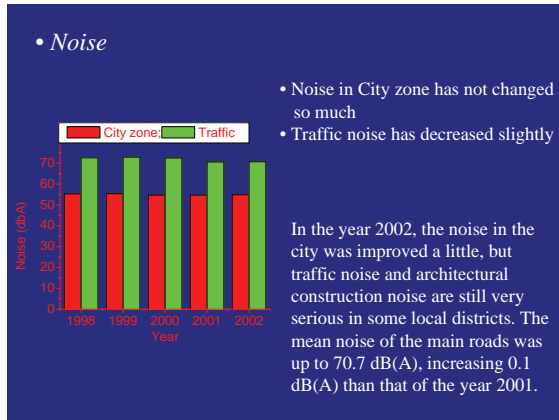



- SO₂ treatment rate has been low; increased only in 2002 up to 20%
- Smoke and dust treatment maintained floating above 90%
- Dust treatment increased continually but slightly above 95%

Automobiles and tail gas



- Automobiles increased greatly
- The rate of tail gas met requirement decreased a little. However more and more automobiles met the tail gas exhaust requirement.



4 Sustainable development of Wuhan City
— an UNDP project

- Sustainable Wuhan Project (SWP) (May 1997 -- June 1998)
- supported by United Nations Development Programme (UNDP)
- executed by China International Center for Economic and Technical Exchanges (CICETE)
- its implementing agency is Wuhan Municipal Government (WMG)
- its cooperation agencies are the United Nations Center for Human Settlements (UNCHS) and United Nations Environmental Programme (UNEP)

• **three phases**

The main activities of

the first phase

- Mobilize the participation of stakeholders
- Update Environmental Profile
- Screen the projects from approved strategies and its action plans
- Establish environmental management information system and GIS

the second phase

- Formulate strategies and its action plans for the identified environmental priority issues
- Organize and implement the demonstration project
- Formulate the environmental management strategies based on Agenda 21
- Compile projects proposal
- Seek international fund and technical assistant; perfect GIS

the third phase

- Implement investment and technique assistant
- Summarize experiences of project implementation
- Replication in the province, national and international level

• **Six environmental priority issues in the way of Wuhan's sustainable development**

- Surface water pollution
- Management on urban solid waste
- Catering pollution
- Automobile exhaust gases pollution
- Urban ecological construction
- Adjust economic development and allocation of productive force.

5 Problems and proposals on the urban eco-environment

- **Problems:**

- Fast population growth
- Low population quality
- City planning: short of looking forward and integrity
- Infrastructure facilities: backward
waster supply, gas supply, traffic and communication
- Protection of the natural environment: ineffective

- **Proposals:**

1. Formulate new overall development planning for the city
2. Control the populations against rapid increasing and improve the qualities of townfolk
3. Strengthen management and govern the city under the line of the laws
4. Integrate treatment of environment pollutions and recycle the waste
5. Develop ecological industrial parks under the guide of industrial ecology
6. Strengthen urban hygiene construction
7. Build the city with hills, waters gardens and forest. Stop filling lakes to get lands and for housing. Improve afforestation level and enhance cultural progress.

- **Outlook**



By the above means, Wuhan's urban eco-environment will be greatly improved in a sustainable way, and Wuhan will become more and more beautiful with lines of green corridors, many green plazas of large area, bright sky and crystal clear water of lakes. It is completely possible to build Wuhan a model city of environmental protection in the central China.

Thank you !