



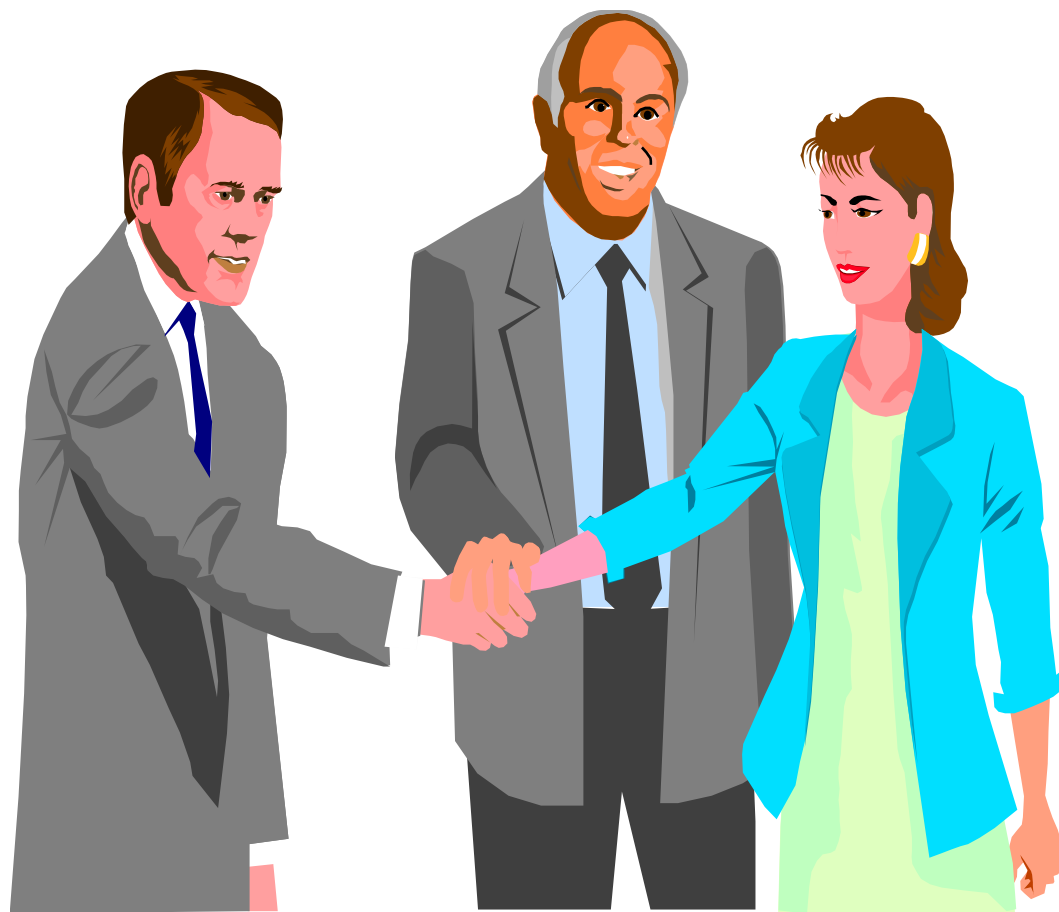
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# 各位好！

Hello everyone!



# 生态城市建设与 人居环境的生态化

——以浙江省杭州市为例

Eco-city Construction and Ecological Habitat Environment Creation

----- Take Hangzhou, Zhejiang Province for Example

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# 生态城市建设与人居环境的生态化

——以浙江省杭州市为例

Eco-city Construction and Ecological Habitat Environment Creation  
----- Take Hangzhou, Zhejiang Province for Example

## 1 人居环境问题及其对策措施

Part1 Habitat Environment Issues and the Countermeasures

## 2 生态城市与人居环境的创建

Part2 Construction of Eco-Cities and Ecological Habitat Environment

# 1 人居环境问题及其对策措施

## Part1 Habitat Environment Issues and the Countermeasures

- **问题 (Issue)** — 社会经济发展使人居环境日渐恶化。
- **症结 (Key point)** — 人类太过贪婪？
- **措施 (Countermeasures)** — 怎样应对？是束手无策？不可调和？还是前途光明？悲观派与乐观派的争论。



# 问题一 社会经济发展使人居环境日渐恶化

**Issue: Socio-economic development has worsened our habitat environment**

## 从生物圈二号实验失败说起

**Start from the failure of Experimental Plan for Biosphere No. 2**

## 影响人居环境的全球性问题

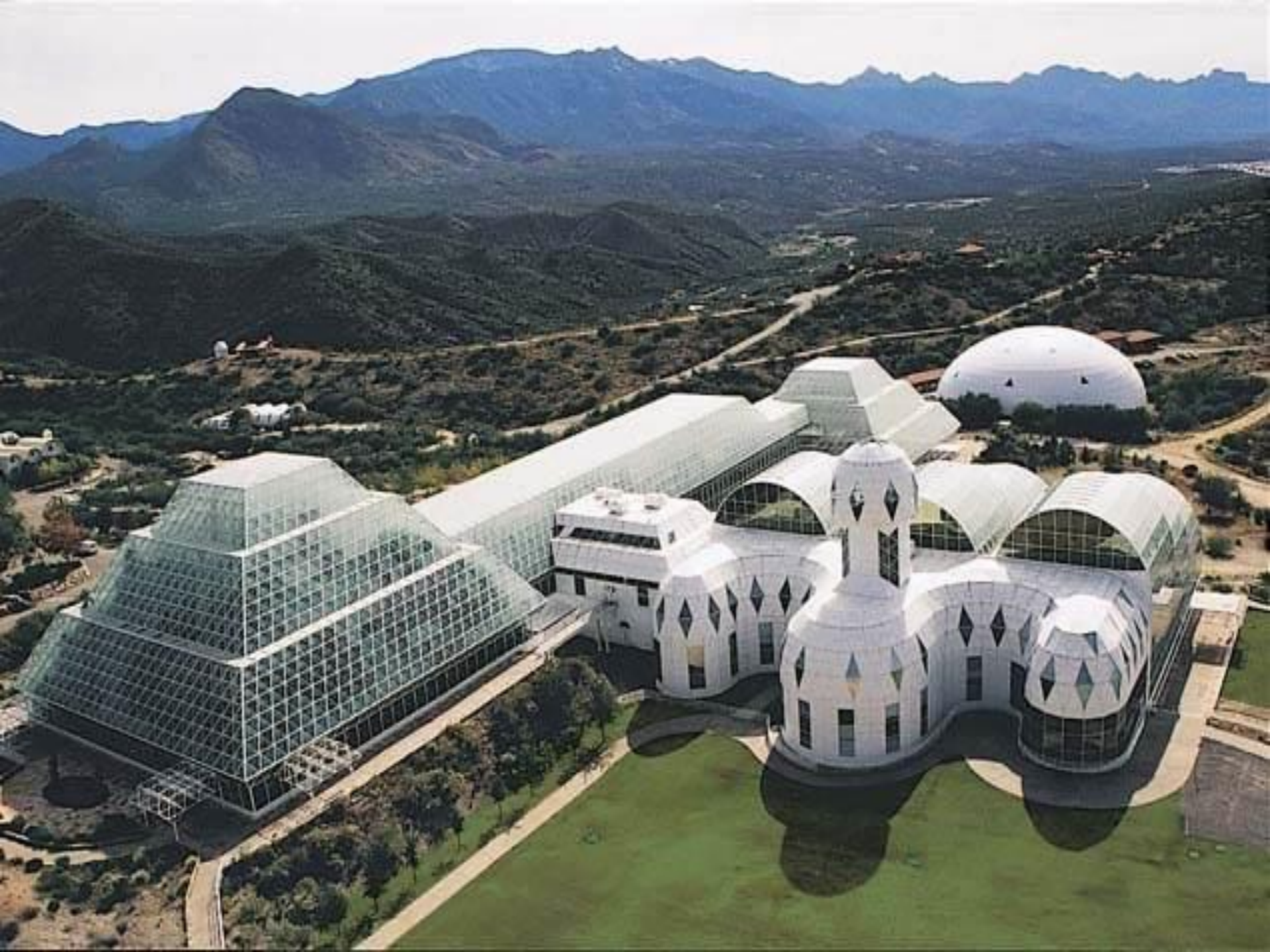
**Global issues that affect our habitat environment**

# 从生物圈2号实验的失败说起

## Start from the failure of Experimental Plan for Biosphere No. 2

- 一方面，在空间十分有限的地球，人口在持续增加，生态环境在恶化。另一方面，资源的开发利用强度在增强，其中的不可再生资源（如石油、煤、天然气、矿藏）总有一天要用完，用完以后怎么办？
- 科学家把人类休养生息的地球称为“生物圈1号”。为了试验人类离开地球能否生存，美国从1984年起，花了2亿美元，在亚利桑那州建造了几乎密闭的“生物圈2号”实验基地。到1994年，宣告10余年的试验失败。
- “生物圈2号实验的失败”，再次告诉我们，地球乃是人类唯一的家园，无法再造，我们更应保护它。

The failure of experimental plan for biosphere No. 2 warned us that we have only one earth which cannot be reconstructed and we should protect our only home.





**城市：钢筋水泥森林？**

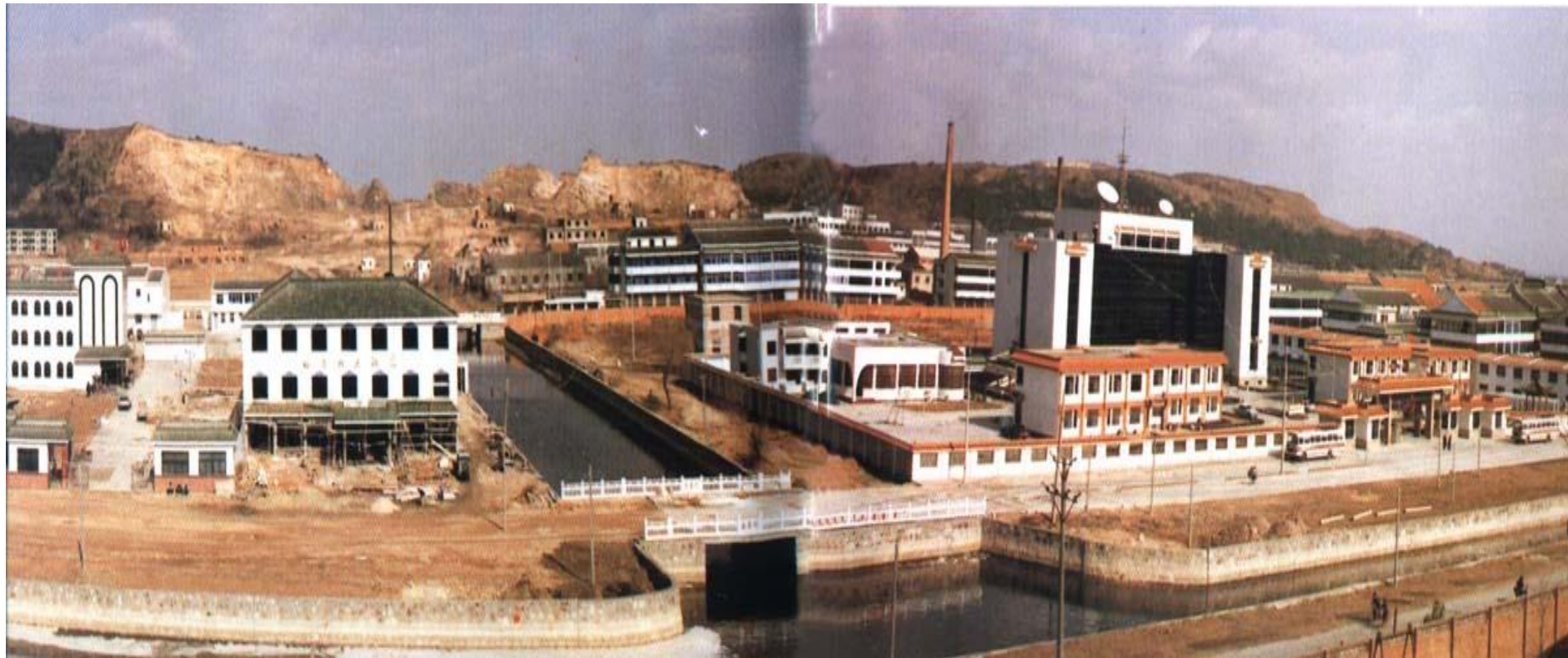
**“摊大饼”的扩展方式？越大越好？**

**Cities: Endless Construction and Unlimited Sprawl**

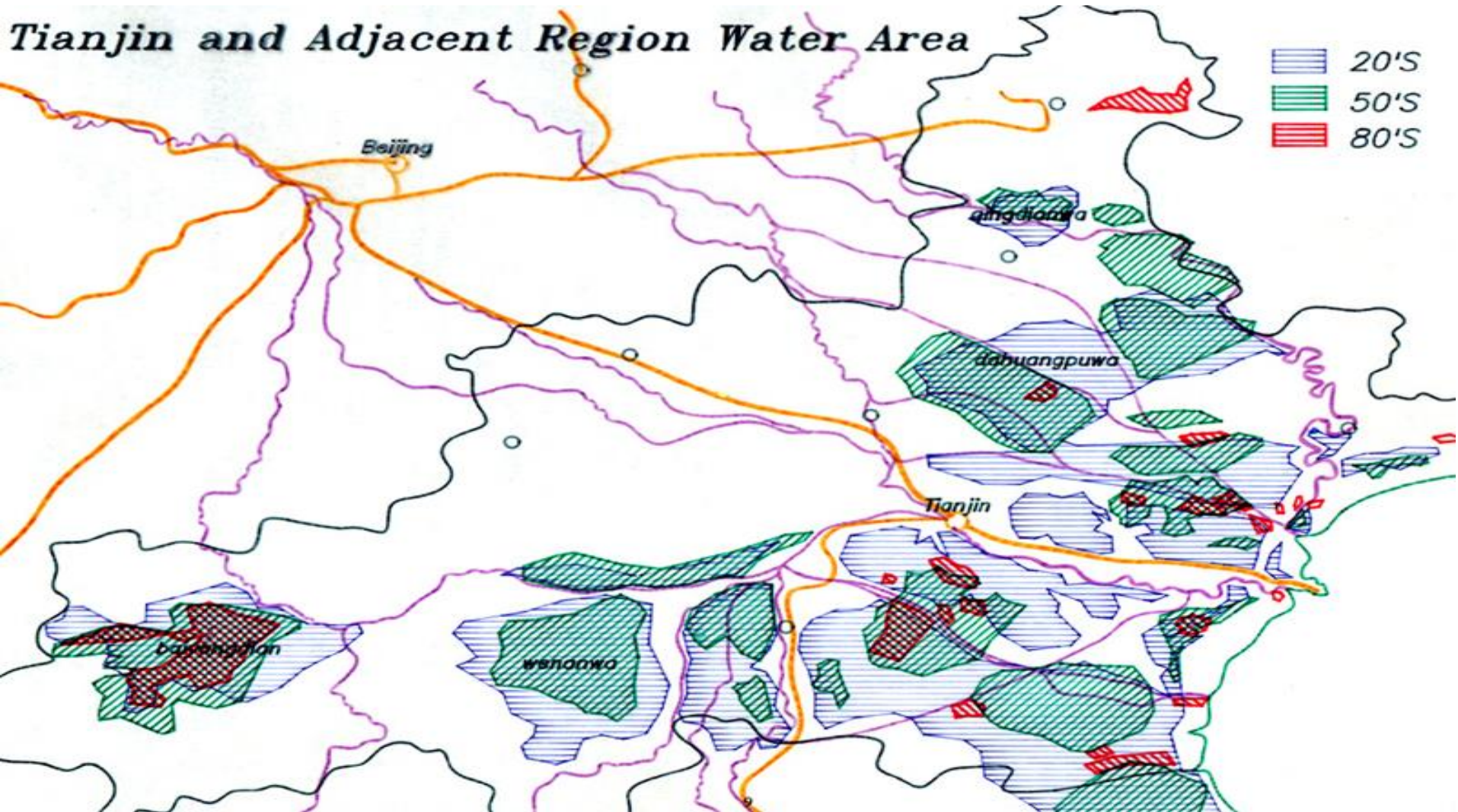


# 经济富裕与生态贫穷： 经济发展的代价必然是生态破坏？

We are rich in economy but poor in ecology. Is economic development doomed to cause the ecological damage?

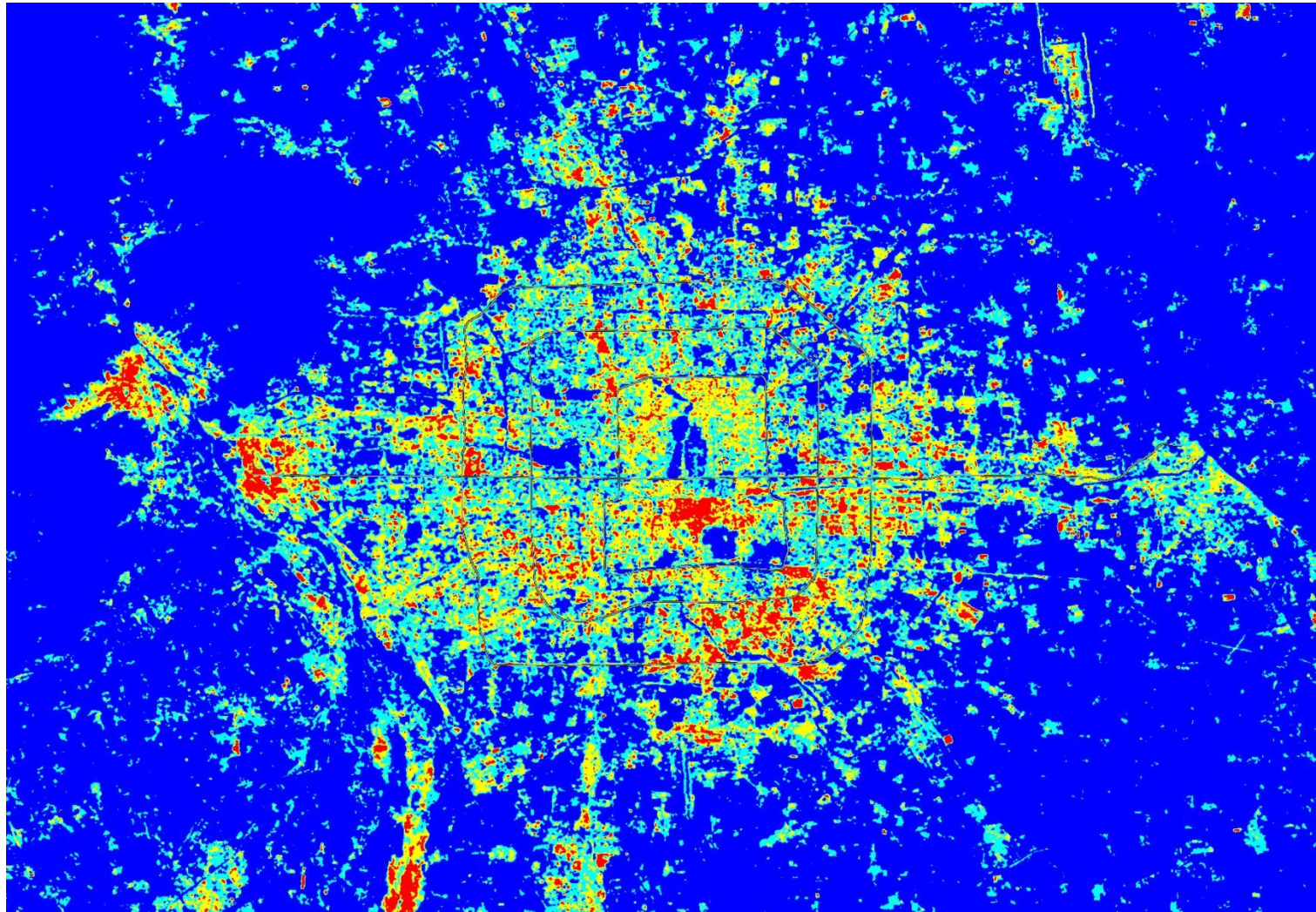


# 天津市湿地的萎缩 (1920s-1980s)



# 北京市区的热岛效应

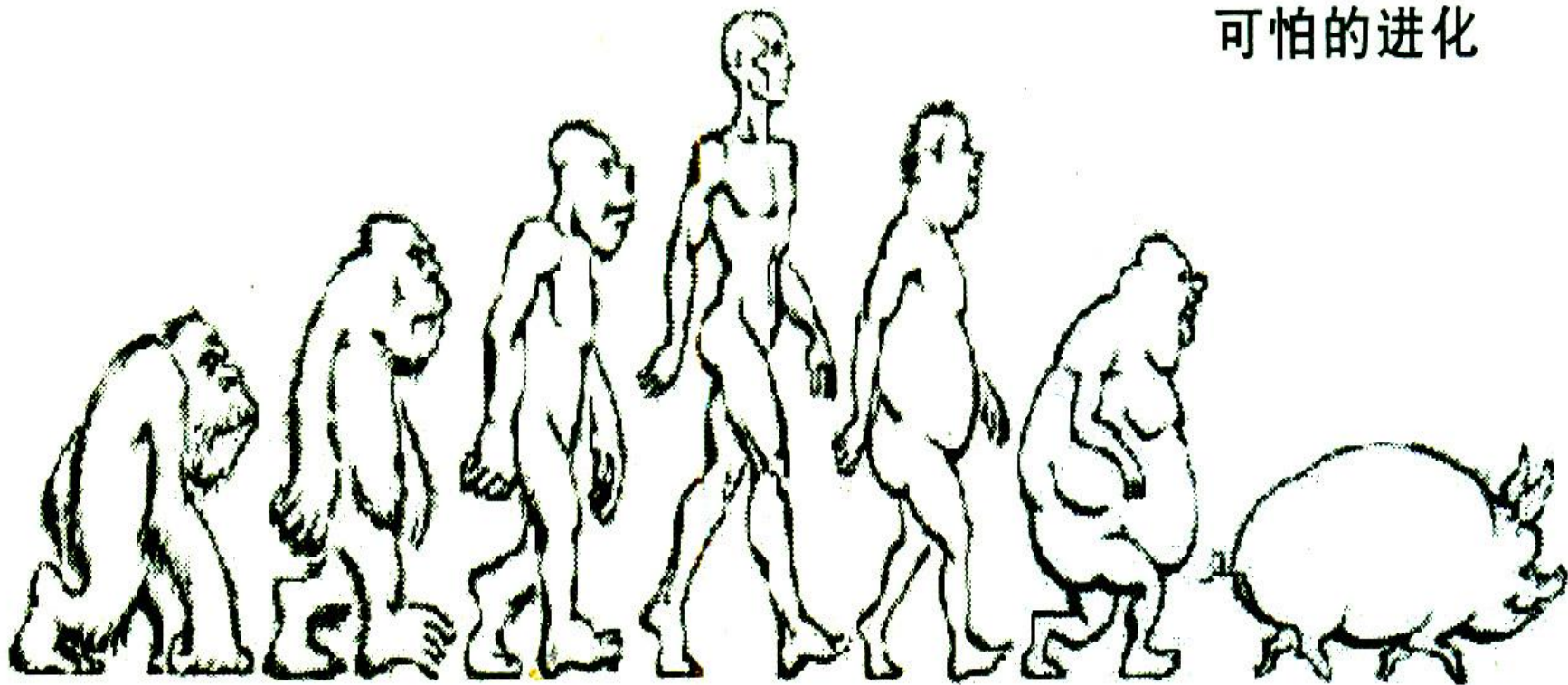
The heat island effect of Beijing



# 可怕的进化

## Terrible evolution

可怕的进化



# 影响人居环境的全球性问题

## Global issues that affect our habitat environment

- 沙漠化(Desertification)
- 臭氧层破坏(Ozonosphere Damage)
- 温室效应(Greenhouse Effect)
- 酸雨(Acid Precipitation)
- 水体富营养化(Eutrophication)
- 环境污染(Pollution)
- 水土流失(Soil Erosion)
- 生物多样性锐减(Biodiversity loss)
- 资源问题(Resource Issues)
- 人口问题(Population Issues)

.....



# 症结—人类太过贪婪？

Key Point: Humans are too greedy.

- “急功近利” 思想驱使

We are anxious to get quick results and instant profits

重视经济而忽视其它，先污染后治理，资源的永续利用受到严重威胁。

- 科学技术是一把双刃剑

Science and technology is a double-edged sword

18世纪产业革命以后，生态环境问题日趋严峻。

**措施—怎样应对？是束手无策？不可调和？还是前途光明？悲观论与乐观派的争论**

**Countermeasures: How should we deal with the current situation? Argument between Pessimists and optimists.**

- **认识方面 Awareness（政府部门、老百姓）**
- **行动方面 Action（应为全民运动）**
- **地区合作 Regional Cooperation（国家内及国家间）**
- **国际援助 International Assistance（发达国家与发展中国家）**
- **经济政策 Economic Policy（政策法规的制定）**



## **2 生态城市与人居环境的创建**

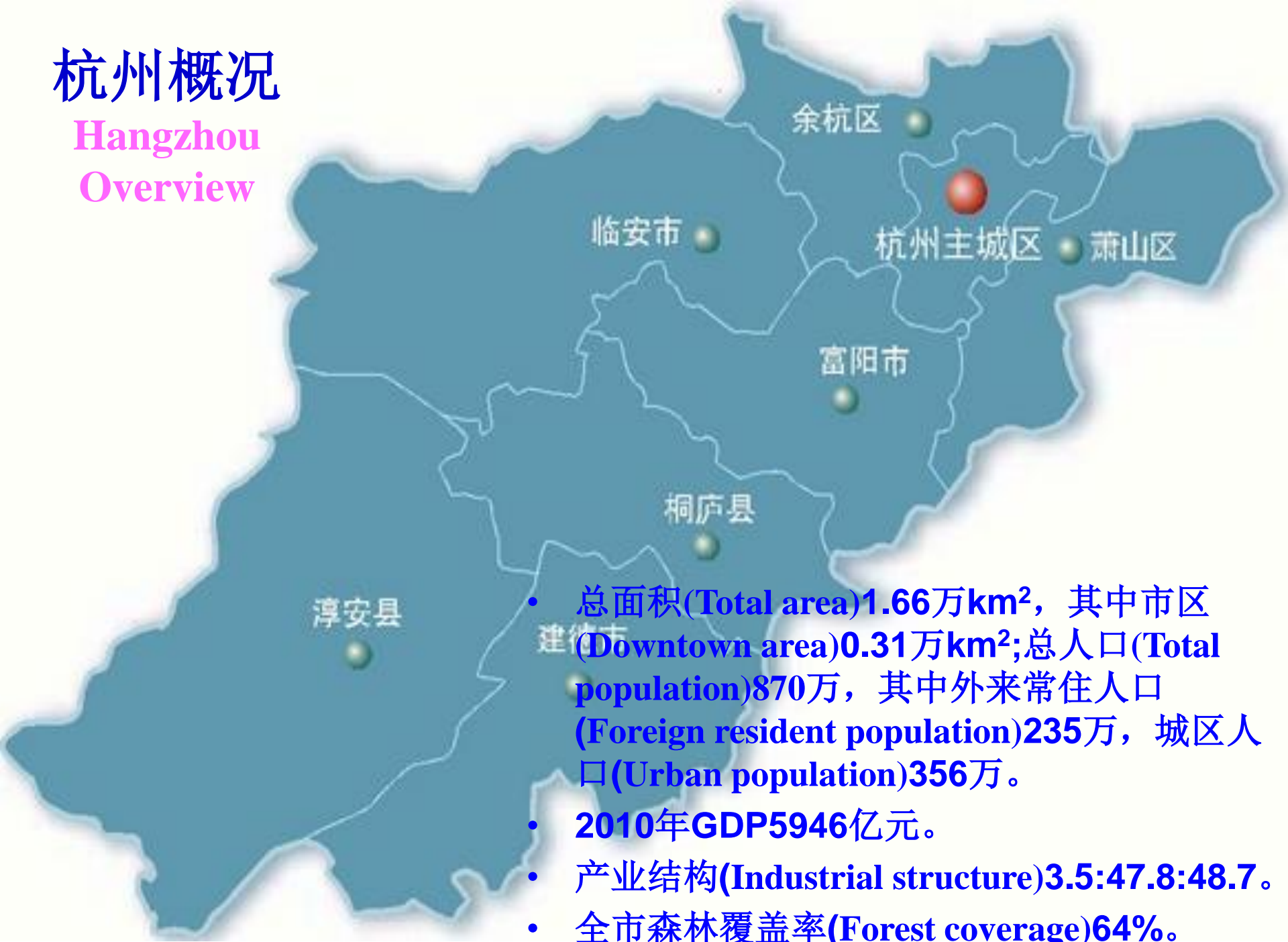
**——以浙江省杭州市为例**

**Part2 Construction of Eco-Cities and Ecological  
Habitat Environment**

**---- Take Hangzhou, Zhejiang Province for Example**

# 杭州概况

## Hangzhou Overview



- 总面积(Total area)1.66万km<sup>2</sup>, 其中市区(Downtown area)0.31万km<sup>2</sup>;总人口(Total population)870万, 其中外来常住人口(Foreign resident population)235万, 城区人口(Urban population)356万。
- 2010年GDP5946亿元。
- 产业结构(Industrial structure)3.5:47.8:48.7。
- 全市森林覆盖率(Forest coverage)64%。





# 杭州的风水格局

## *Feng shui* Pattern of Hangzhou

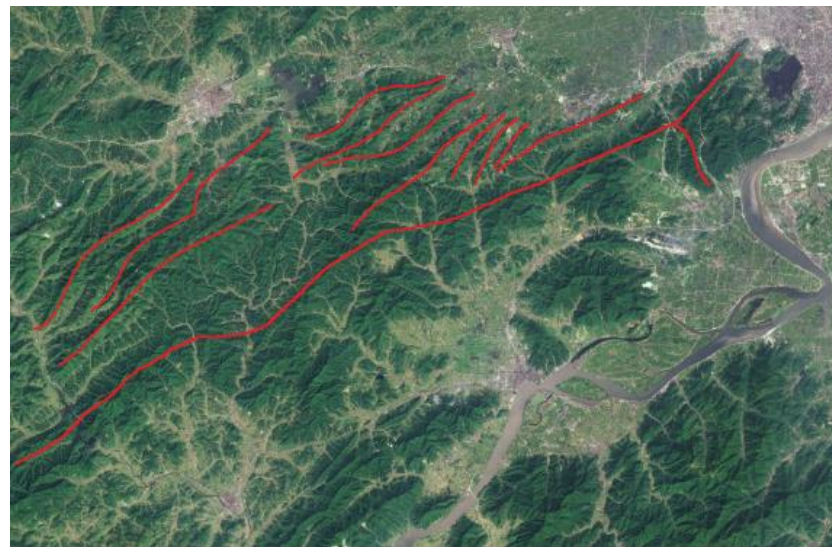
其龙脉的根是昆仑山——武夷山——黄山——天目山——形成两个分支——南高峰和北高峰——然后入城。杭州城的风水，以西溪最佳，凤凰山次之。当时南宋为何选择次之的凤凰山作为皇宫，冠冕堂皇的理由，是为了“东山再起”、“凤凰涅槃”、“浴火重生”、“收复中原”，我们认为是考虑到逃跑的需要，“西溪，且留下”，“留下”之名由此而来。

*Feng shui*, traditional Chinese practice of determining the location of a house, tomb, etc., supposed to have a vital bearing on the fortune of a family, owner, user, etc.

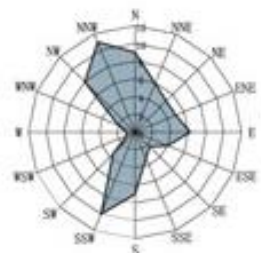
Some studies nowadays have showed that *Feng shui* is a kind of technology, and some part of it can be explained by modern science theory.



## 杭州地区来脉示意图



- 整个杭州地区的龙脉自西向东而来，虽然连绵数百公里，但是落脉时较为散漫，主脉不够粗壮，化为十几条细脉，其中一条“界水则止”，落在西湖和钱塘江边，在这里坐落有古杭州城。

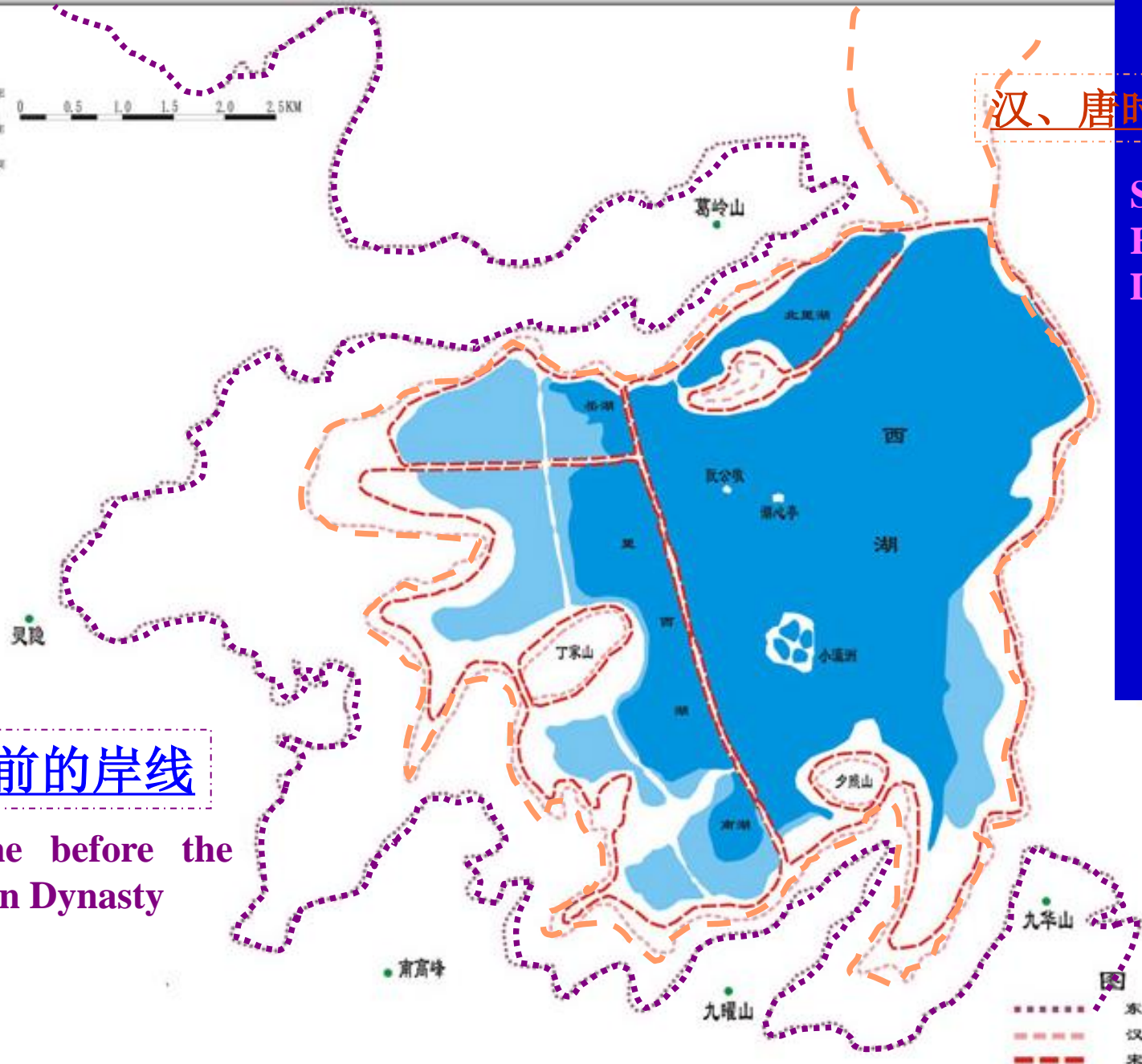


汉、唐时期湖岸线

Shoreline in Han and Tang Dynasty

东汉前的岸线

Shoreline before the East Han Dynasty

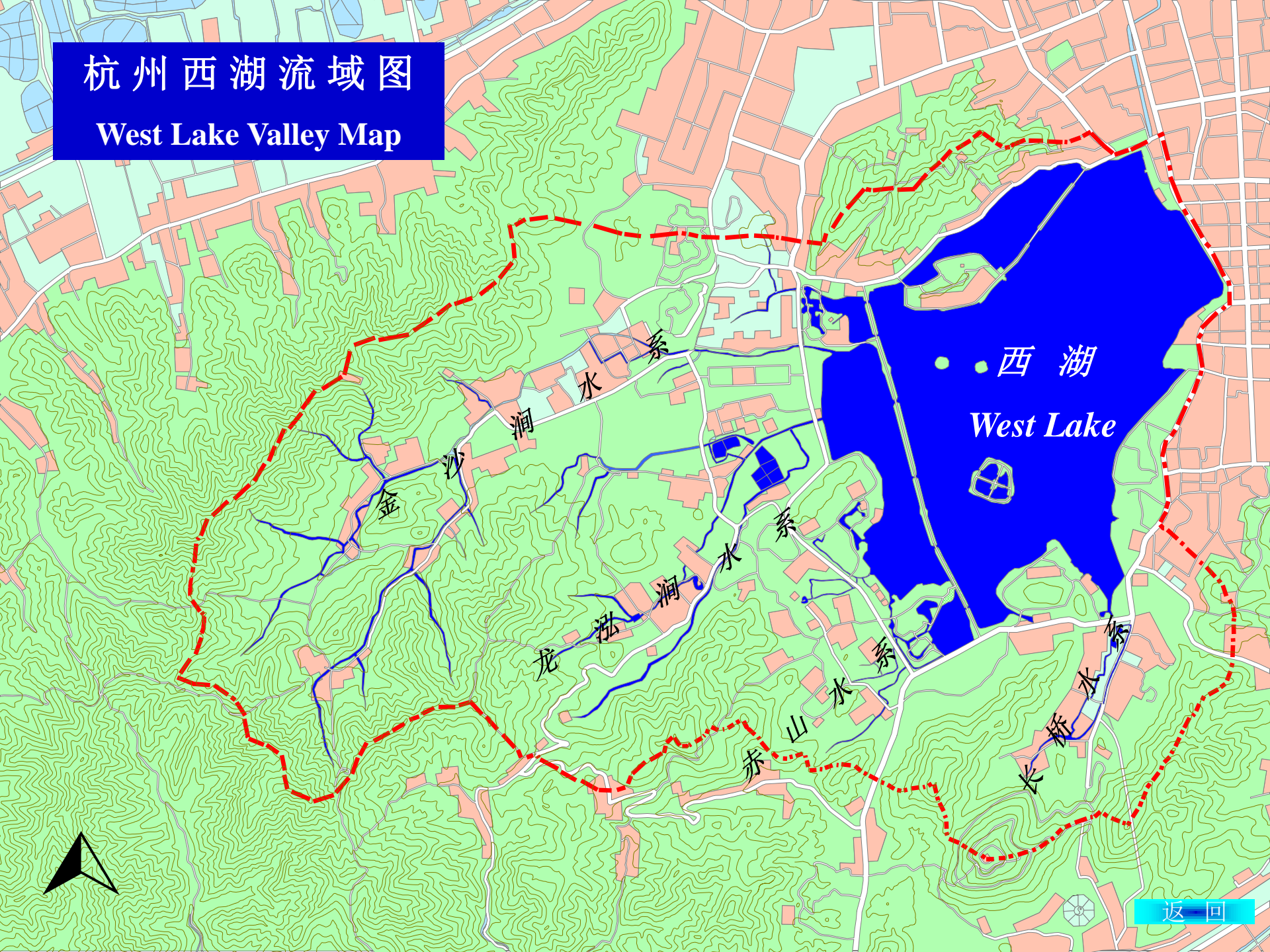


图例

.....	东汉前岸线	海塘
- - - - -	汉、唐代岸线	10.80km <sup>2</sup>
- · - · -	宋、元代岸线	9.30km <sup>2</sup>
▬▬▬▬	明、清代岸线	7.40km <sup>2</sup>
■	现西湖岸线	5.60km <sup>2</sup>

# 杭州西湖流域图

West Lake Valley Map



西湖  
West Lake

返回



不合理的城市建设、旅游开发对当地城市风貌、人文景观的破坏往往是不可逆的，对生态环境的污染后果是严重的。就杭州和苏州两个城市来说，杭州的做法是在老城市上进行破坏性拆迁改造，即基本上是一切推倒重来，原来城市的风貌、肌理、风格，包括运河两岸的建筑、设施基本上已经破坏殆尽。而苏州则是保留老城区，建设新城，使城市能在体现现代的基础上，不失自己的个性、特色。

Irrational urban construction and tourism development will damage the local urban landscape and cultural landscape irreversibly, and will cause serious environmental pollution.

Compared Hangzhou with Suzhou, Hangzhou chose to renew the city by damage the old one, while Suzhou preferred to save the old city as it was and built the new city beside the old one.



在最近10多年，杭州的城市建设和旅游开发是比较成功的。主要采取了五个措施：一是每年花1亿元左右治理水体（换水和疏浚）。二是自行车租借点。三是在十字路口做非机动车凉棚。四是在公交车站设置喷淋设施（降温和去尘）。五是还湖于民。

In the past decade, Hangzhou has get some achievements in urban construction and tourism development.

Five main measures: First, spend 100 million yuan each year on management of water ( changing the water and dredging ); Second, build bike rental points; Third, set pergolas at the crossroads for non-motorized; Fourth, set up spraying facilities at the bus stop; Fifth, keep the west lake open free to all people.







杭州西湖杨公堤西线建设是充分体现人与自然和谐、天人合一、道法自然的典范，譬如河岸或湖岸的处理：一是用自然浅滩；二是用木桩（有些间以竹编挡土）；三是用叠石。而且在河岸与游步道之间留出一定的空间，为鸟类、鱼类留出栖息空间。

The construction of Yanggongdi shoreline of west lake is fully embody harmony between man and nature , and is a model of Imitation of Nature.

For example, there are three kinds of ecological approaches used to deal with the lakeshore: natural shoal, wooden fence and stones laying. Besides, habitat space for birds and fish has been set aside between the river and the tour trail.











# 杭州的宜居性分析

## Livability analysis of Hangzhou

“上有天堂，下有苏杭”，这是对杭州的最高赞赏。杭州之所以名闻海内外：一是因为有鱼米之乡、丝绸之府、富庶之地之美誉；二是因为有西湖；三是因为有文化；四是因为有文人墨客（尤其是苏轼、白居易等的诗、词、散文等文学作品）的渲染。

杭州拥有世界文化景观遗产、世界历史文化名城、国际风景旅游城市、国际花园城市等多项世界级荣誉。

"A paradise on Earth" , that is the highest appreciation of Hangzhou. Hangzhou has many world-class honors such as the world's cultural landscape heritage, world historical and cultural city , the international tourist city , the International Garden City and so on.

These honors should be attributed to the reputation of “land of plenty” and “silk home”, the West Lake, the culture and the literati (especially Su Shi, Bai Juyi and so on).



杭州有8000年的文明史（跨湖桥文化）、5000年的建城史（良渚文化），五代吴越国和南宋王朝先后定都杭州，被誉为钟灵毓秀之地、“东方文明的曙光”。

西湖作为东南形胜，南宋以来即为人文荟萃之地。西湖之美，始于人工，成于人文。一城山色半城湖。

杭州的景观是山水林相融、城湖景合璧、显山露水，体现三面云山一面城、天际线十分丰富的理想格局。

Hangzhou has a long History of Civilization. In Chinese history there were two dynasties which made Hangzhou the capital. Hangzhou is known as the land of beauty and the "Oriental dawn of civilization".

The beauty of West Lake began in artificial but success in humanities.

Hangzhou is a city in the forest and shows great harmony between city and natural landscape. It represents an ideal pattern of eco-city.



# 吟颂杭州和西湖的诗词非常多，比较典型和有影响的有（基本上都与山水有关）：

The Chinese traditional poems which eulogize the West Lake are countless, and some typical and influential ones are listed as followings (basically related with landscape):

(1) 水光潋滟晴方好，山色空蒙雨亦奇。欲把西湖比西子，淡妆浓抹总相宜。 —【宋】苏轼

(2) 毕竟西湖六月中，风光不与四时同。接天莲叶无穷碧，映日荷花别样红。 —【宋】杨万里

(3) 山外青山楼外楼，西湖歌舞几时休？暖风薰得游人醉，直把杭州作汴州。 —【宋】林升

(4) 江南忆，最忆是杭州。 —【唐】白居易

(5) 未能抛得杭州去，一半勾留是此湖。 —【唐】白居易



(6) 自别钱塘山水后，不多饮酒懒吟诗。欲将此意凭回棹，报与西湖风月知。——【唐】白居易

(7) 天下西湖三十六，就中最美是杭州。——无名氏歌颂杭州的两句诗

(8) 东南形胜，三吴都会，钱塘自古繁华。烟柳画桥，风帘翠幕，参差十万人家。——【宋】柳永

(9) 天下西湖三十又六，惟杭州最著。——【清】陆以恬

(10) 马可·波罗赞誉杭州“是世界上最美丽华贵之天城”。



# 杭州生态城市建设

## Eco-city Construction in Hangzhou

杭州市的生态城市建设主要通过城市生态建设10大工程和农村生态建设1250工程来实现。

城市生态建设10大工程(10 major projects of Urban ecological construction):

(1)西湖及西溪综合保护工程 Comprehensive Protection Project of West Lake and Xixi Wetland

(2)运河及市区河道综合保护工程 Comprehensive Protection Project of Canal and Urban River

(3)庭院改善工程 Garden Improvement Projects

(4)背街小巷整治工程 Renovation Project of Lanes which are Back Street

(5)城市有机更新工程 Urban Organic Renewal Works

(6)市区大气综合整治 Comprehensive Improvement of Urban Air Quality

(7)免费公共自行车工程 Free Public Bike Project

(8)半山北大桥综合整治 Comprehensive Improvement Project of North Bridge in Banshan

(9)饮用水源保护区综合整治 Comprehensive Improvement of Drinking Water Source Protection Areas

(10)城市扩绿工程 Urban Sprawl Green Project

**农村生态建设1250工程是指涉及到12个领域，每个领域有50项示范工程。12个领域包括：**

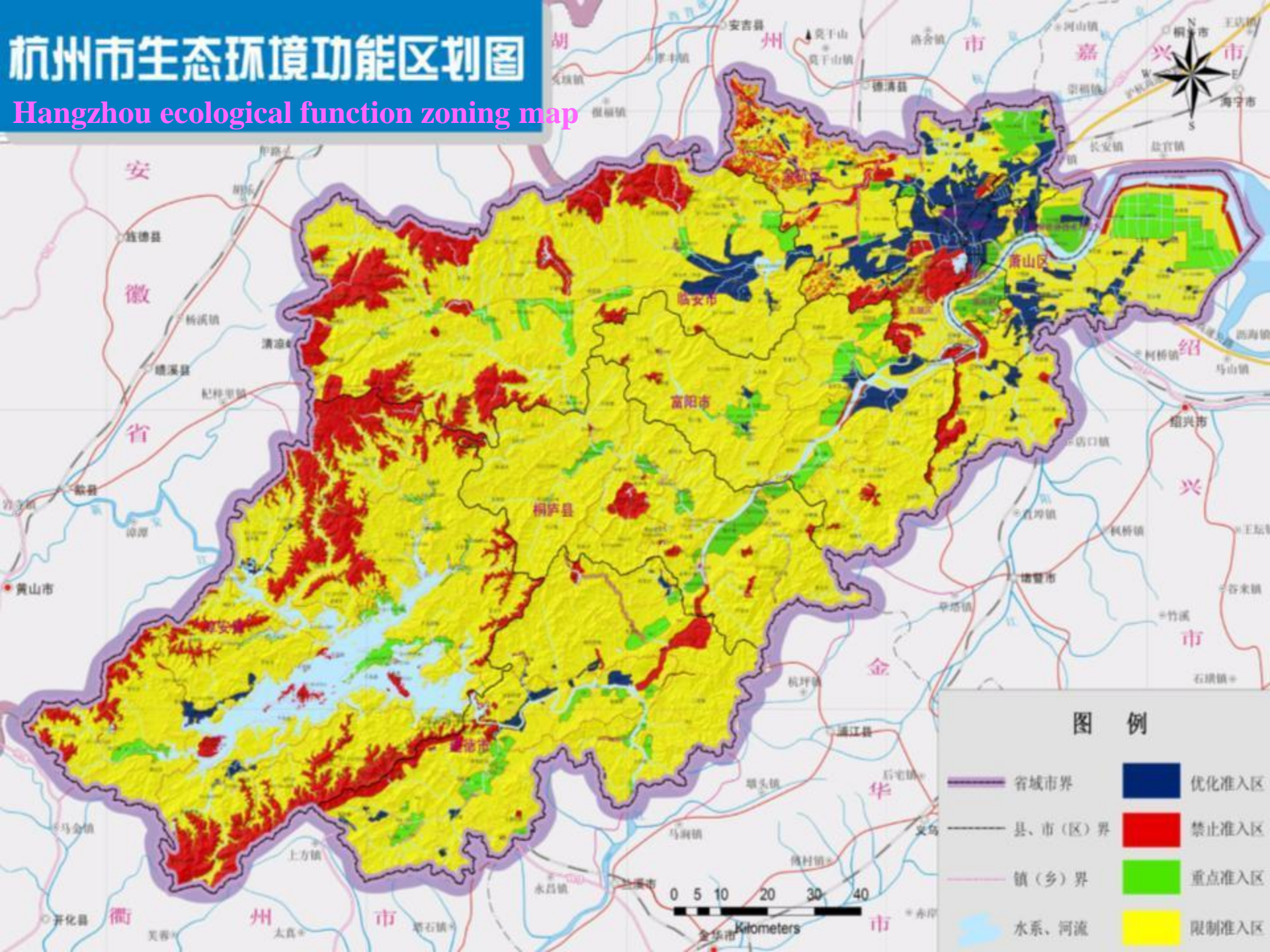
**12-50 Ecological Construction Project in Rural Areas is related to 12 areas, each with 50 demonstration projects. 12 areas include:**

- (1)农村生活污水处理 Rural sewage treatment**
- (2)农村生活垃圾处理 Rural household waste treatment**
- (3)畜禽养殖业污染处置与利用 Livestock and poultry breeding industry pollution disposal and utilization**
- (4)“百村示范、千村整治”工程 "Hundred village demonstration , thousands of village renovation " project**
- (5)下山移民工程 Downhill migration project**
- (6)工农业废弃物综合利用 Industrial and agricultural waste utilization**
- (7)生态农业示范建设 Construction of eco-agriculture demonstration**
- (8)废弃矿山修复 Abandoned mine restoration**
- (9)生态墓地建设与青山白化治理 Eco-cemetery construction and mountain pollution governance**
- (10)河道整治与水生态修复 River Restoration and aquatic ecosystem restoration**
- (11)生态公益林建设 Ecological Forest Construction**
- (12)农村改水改厕工程 Water supply and public sanitary facilities improvement project in rural areas**



# 杭州市生态环境功能区划图

Hangzhou ecological function zoning map

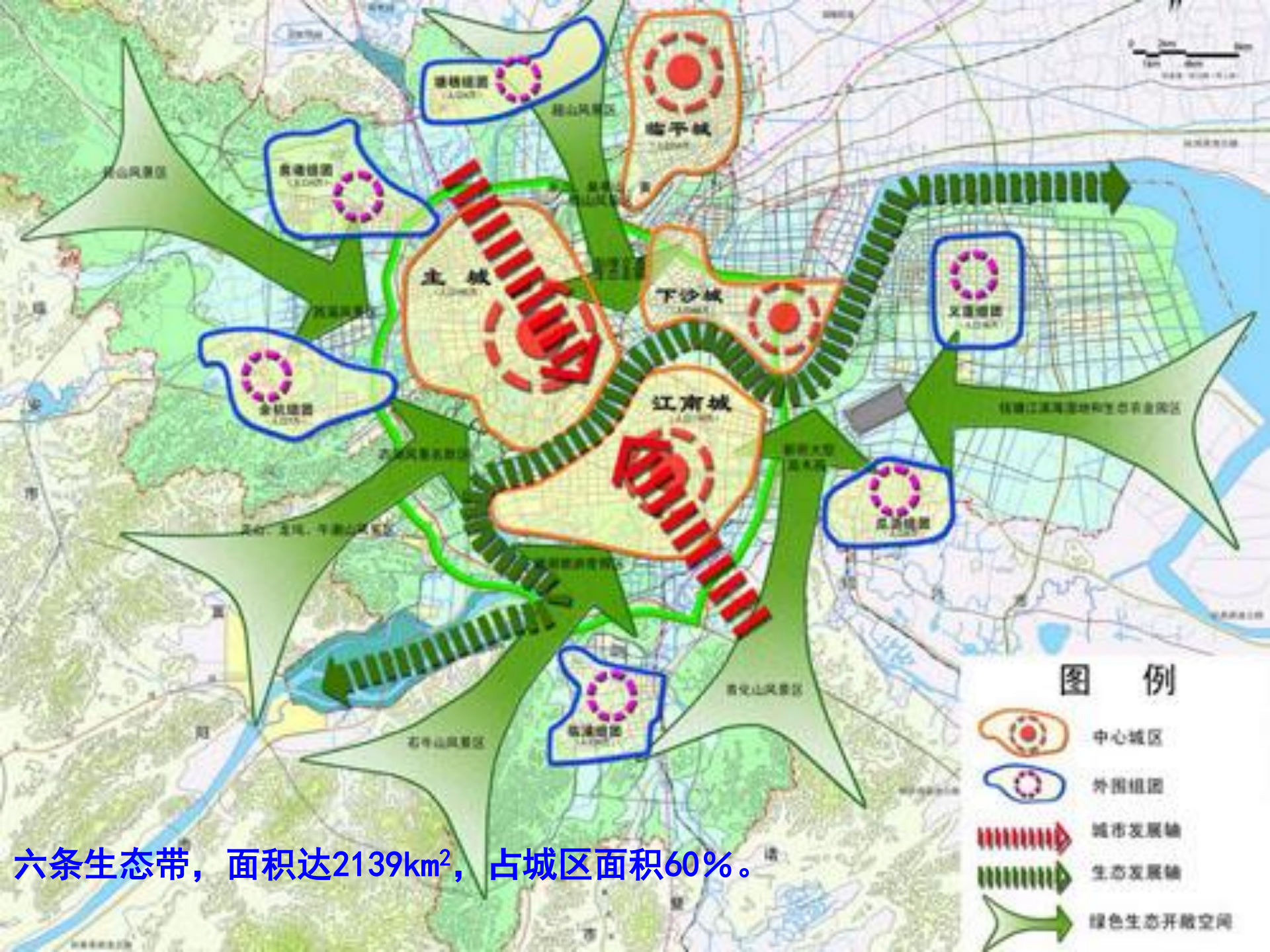


# 杭州市生态环境功能区分区面积及占比

## Hangzhou ecological function area and proportion

用地分区 Land Types	分区个数 (个) Number	面积 (km <sup>2</sup> ) Area	占国土面积比 (% ) proportion
禁止准入区 Prohibit area	129	2551.53	15.1
限制准入区 Restricted area	47	12533.02	74.4
重点准入区 Key area	44	856.11	5.1
优化准入区 Optimize area	61	906.84	5.4





图例

-  中心城区
-  外围组团
-  城市发展轴
-  生态发展轴
-  绿色生态开敞空间

六条生态带，面积达2139km<sup>2</sup>，占城区面积60%。

# 西湖的综合保护工程

# Comprehensive Protection Project of West Lake

## 新西湖一览



2002年以来，杭州围绕“保护西湖、申报世遗”目标，坚持积极保护方针，按照“保护第一、生态优先、传承历史、突出文化、以民为本、为民谋利、整体规划、分步实施”的总体原则，连续10多年实施西湖综合保护工程。大大提升了西湖风景名胜区的文化品位。

Since 2002, around the goal of "protect the West Lake, declare World Heritage", according to the general principle of "protection and ecological priority, historical heritage, highlighting the culture and people-oriented", Hangzhou adhere to actively protection policy and keep implementing the comprehensive Protection Project of West Lake for 10 years. Greatly enhance the cultural taste of West Lake Scenic Area.



其中，杨公堤景区新增绿地80多万 $m^2$ ，种植乔木1.5万株，灌木18.6万株，竹类6.5万杆，地被13.6万 $m^2$ ，草坪16万 $m^2$ 。





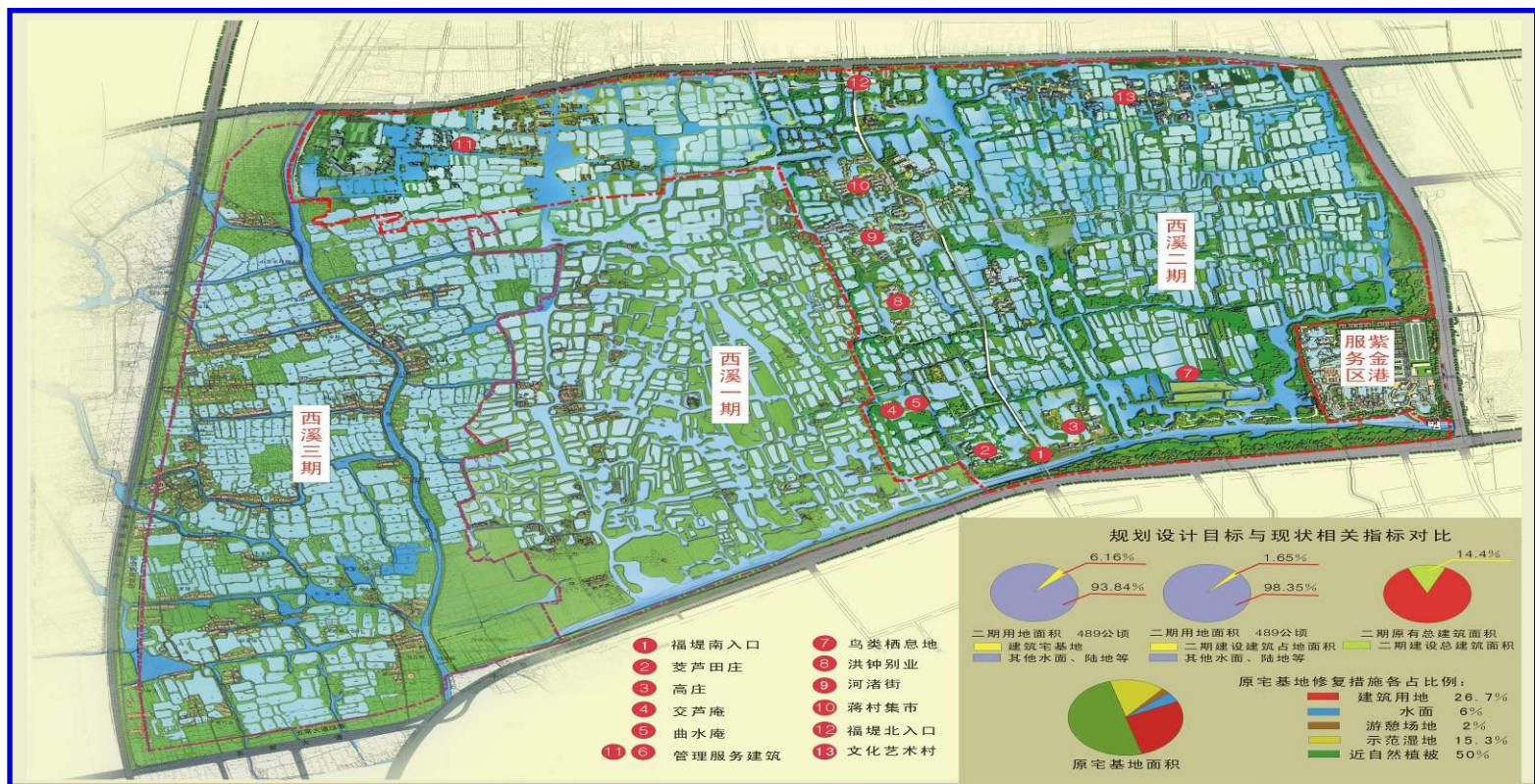




# 西溪湿地的综合保护工程

## Comprehensive Protection Project of Xixi Wetland

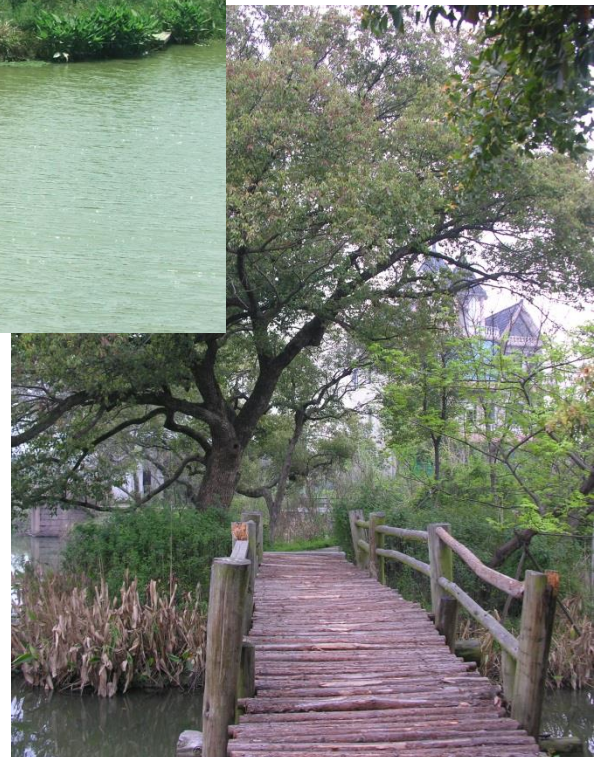
### 西溪湿地分期建设范围图



西溪湿地总面积为11.7平方公里，湿地生态良好、自然景观独特、文化积淀深厚，是一块十分罕见的城中次生湿地。是全国第一个国家级湿地公园。

Xixi Wetland is the first national wetland park in China.





# 运河（杭州段）的综合保护工程

## Comprehensive Protection Project of the Canal ( Hangzhou section )



一期工程2002年启动，2006年国庆节竣工，建成开放“一馆二带二场三园六埠十五桥”系列景观，第一次推出“新运河”。

二期工程规划期限为2007年至2010年，当时估算的总投资为219亿元。2007年国庆前夕，二期工程完成首批项目，建成开放“一廊二带三居四园五河六址七路八桥”系列景观，第二次推出“新运河”。



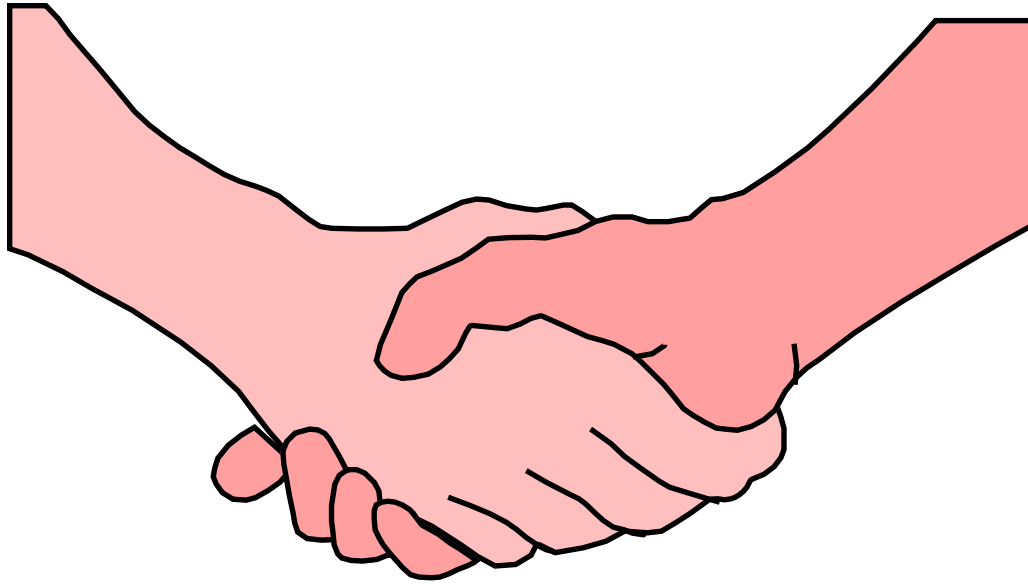
The first part of the project launched in 2002, and finished in 2006. This was the first time to introduce the “New Canal” with the landscape of “one museum, two zones, three parks, six ports and fifteen bridges”.

The second part of the project started from 2007 and planned to be completed in 2010. The total investment was estimated at 21.9 billion yuan. First projects of the second part finished before the national day in 2007, and brought us a new canal again with new landscape.

# 市区河道的综合保护工程

## Comprehensive Protection Project of Urban River





**谢谢各位！**

**Thank you for your attention!**