



# **The Grand Canal of China (Zhejiang Section)**

## **Integrated Conservation of the Historic Cities in Heritage Area**

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China Academy of Urban Planning and Design



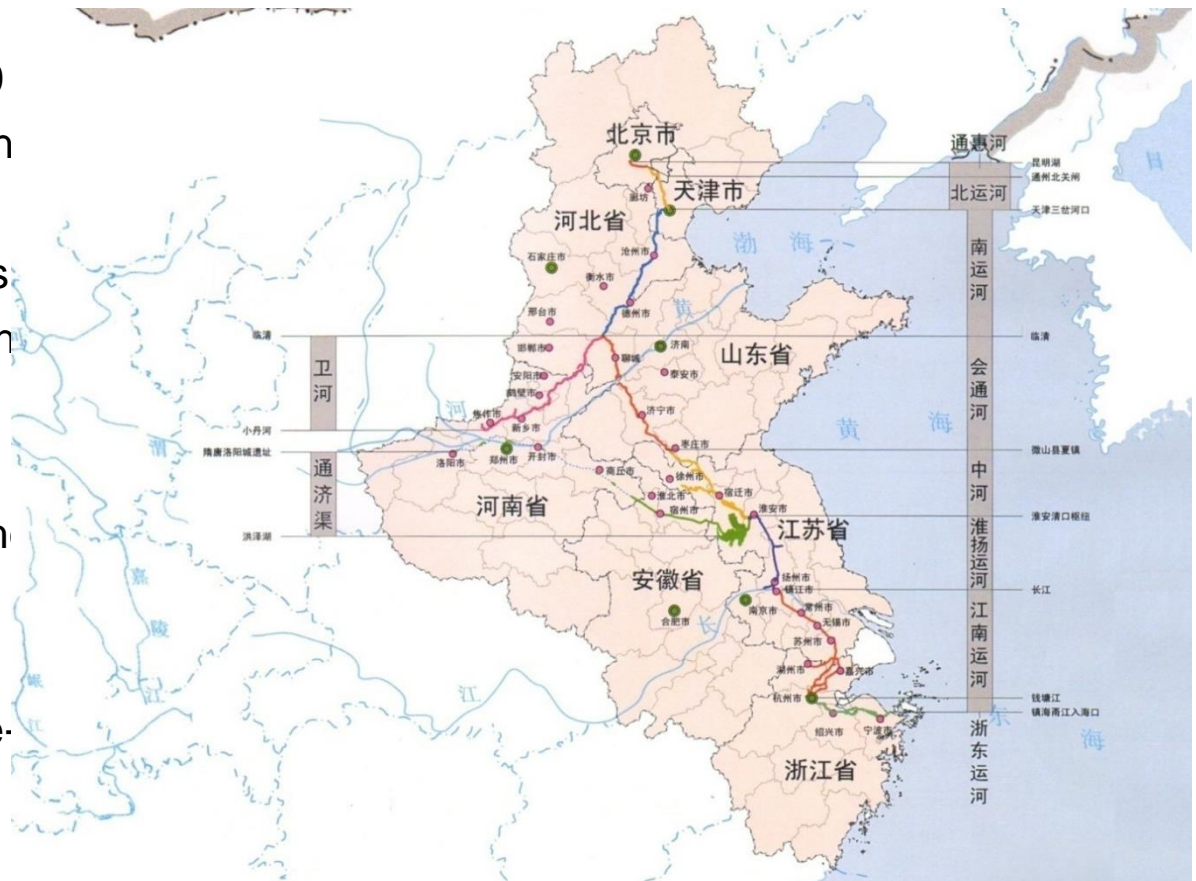
# Outline

- 1. Characteristics of the Grand Canal of China**
- 2. Conservation Exploration Based on the Planning Practice of the Grand Canal Historic Cities**
- 3. Theoretical Approaches of Integrated Conservation Management for Historic Cities**

# The Grand Canal: A Stretching Artificial Canal which Represents the History of Chinese Civilization

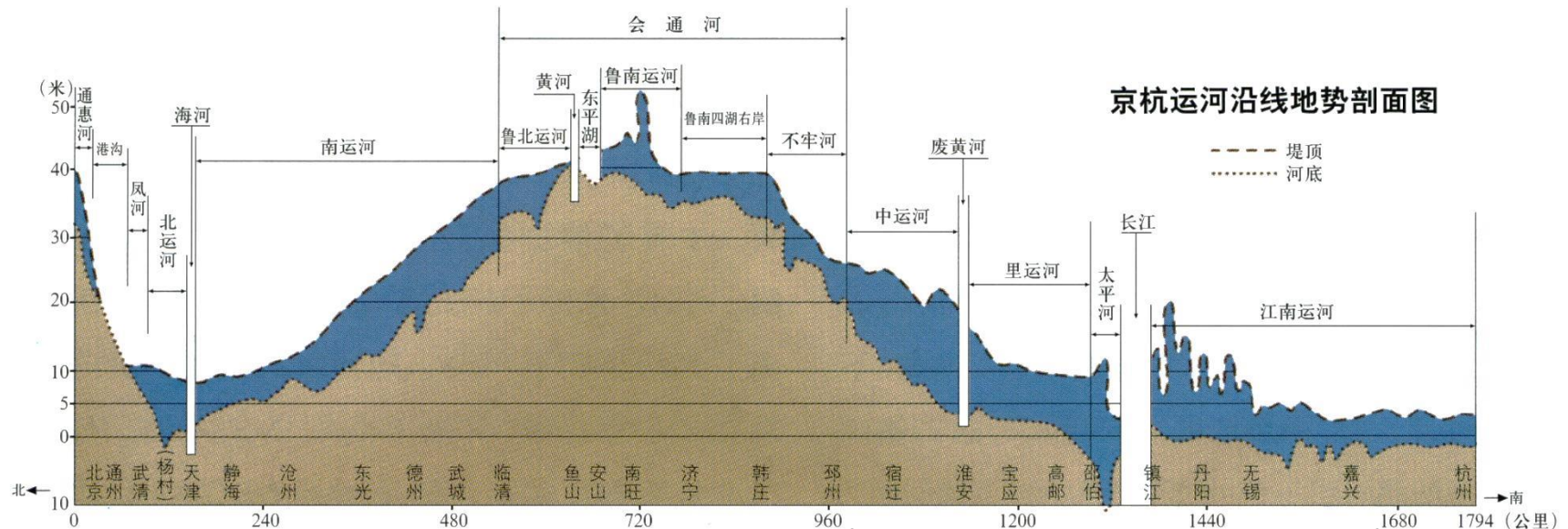
- **Long history, large scale**, achievement of ancient Chinese technology, the economic artery, cultural bond, living heritage

- Long lasting for over 2000 years, exist through farmin cultivation, three major systems and ten branches
- the longest artificial river in the world
- The largest and most extensive project during th period of agricultural civilization
- 8 provinces, 35 prefecture-level cities



# The Grand Canal: A Stretching Artificial Canal which Represents the History of Chinese Civilization

- Long history, large scale, **achievement of ancient Chinese technology**, the economic artery, cultural bond, living heritage
  - 5 river systems, taking measures against Taihu pollution



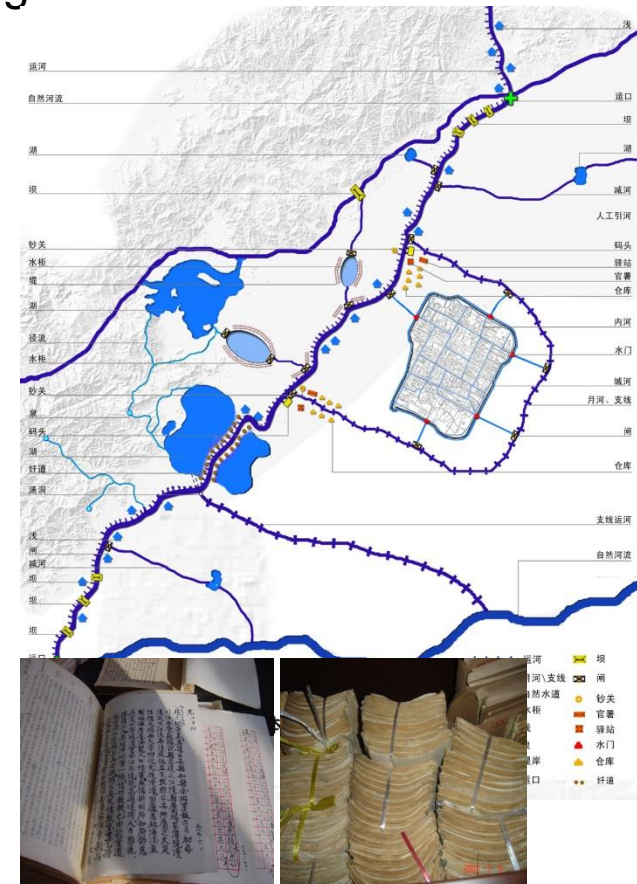
- First landing segment: 33 meters above sea level from Beijing to Tianjin; First uplift: Tianjin to Chuanhuang, 41 meters above sea level
- The second landing segment: from the Yellow River to the Yangtze River, the elevation difference is more than 45 meters; the second uplift segment: passing through the Yangtze River to the north of Danyang, with a height difference of more than 23 meters.
- The third landing segment: from Danyang in the north to Chongde, Wuxi, with a height difference of more than 15 meters; from the third uplift: from Chongde to Hangzhou, the elevation is 2-6 meters.



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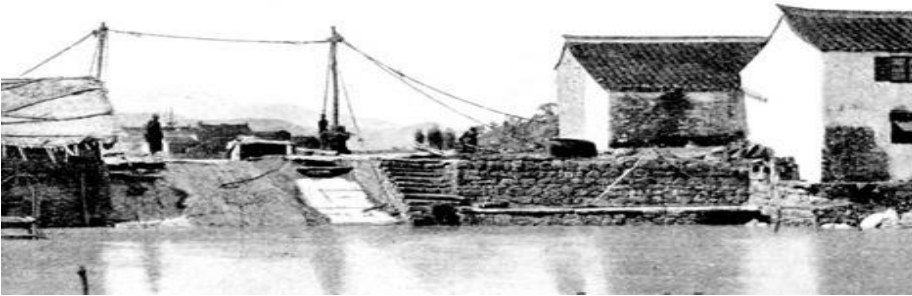
- Long history, large scale, **achievement of ancient Chinese technology**, the economic artery, cultural bond, living heritage
  - waterway engineering, water source engineering, engineering management and affiliated facilities; management rules

工程类别	工程构成
水道工程	河道：主河道、支线河道（城河、月河）
	河道航深控制工程：闸、坝
	河道水量节制工程堤防、减河（含闸、坝）、涵洞
	运口：坝、闸、堤防、码头
水源工程	水柜（蓄供水系统）、引水渠
管理设施	浅、堡、水志桩、提水机械、过坝绞关
附属建筑	交通设施（桥梁、纤道、船与船厂）
	工程管理建筑及设施（衙署、浅、堡、铺）
	运输管理建筑及设施（衙署、漕仓、驿站）
	水宗教建筑（龙王庙、大王庙、功臣庙、水兽）



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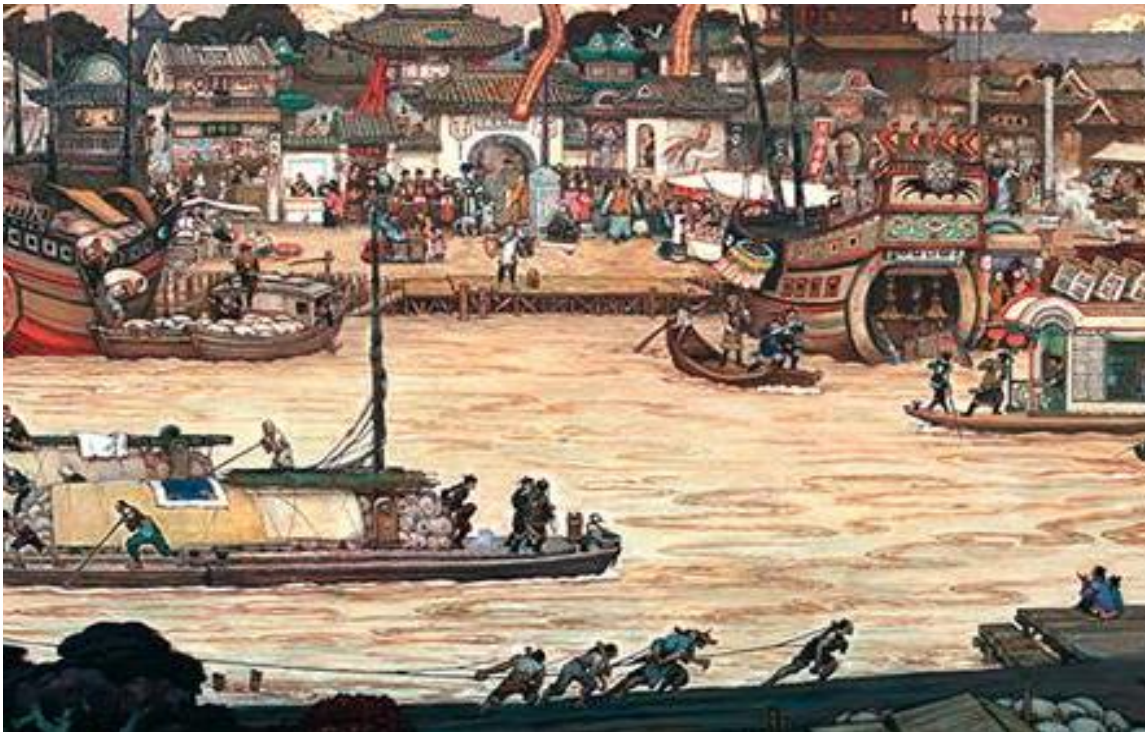
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# The Grand Canal: A Stretching Artificial Canal which Represents the History of Chinese Civilization

- Long history, large scale, achievement of ancient Chinese technology, **the economic artery, cultural bond**, living heritage
- Core Objectives: Ensuring Food Security; Address the Imbalanced Distribution of Natural Resources in China



# The Grand Canal: A Stretching Artificial Canal which Represents the History of Chinese Civilization

- Long history, large scale, achievement of ancient Chinese technology, **the economic artery, cultural bond**, living heritage
  - The Bond between The River Civilization and the Southern Yangtze Area;  
South-North Communication; Global Communication





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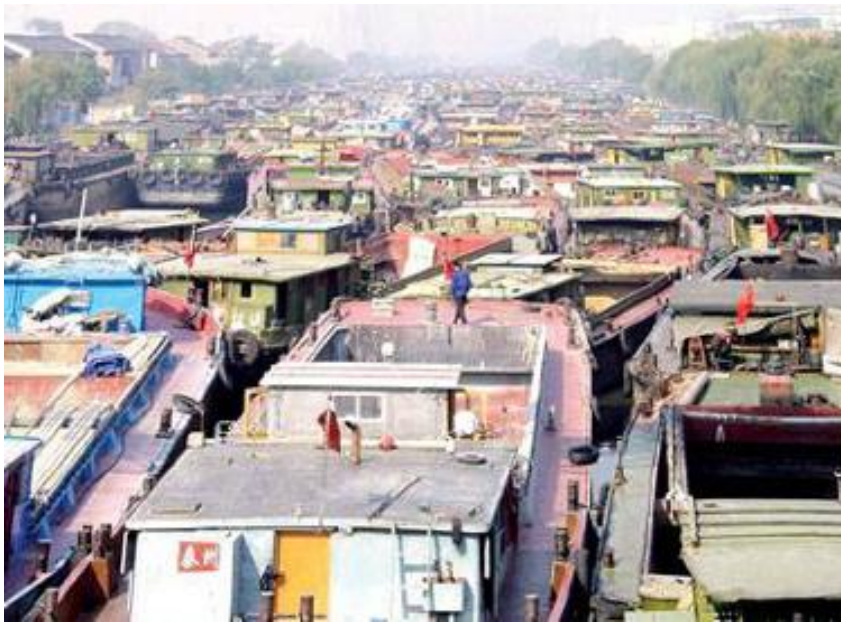
- Long history, large scale, achievement of ancient Chinese technology, the economic artery, cultural bond, **living heritage**
  - Passenger Transport, Freight Transport, Flood Discharge; Irrigation; Water Delivery
  - Annual Volume of Traffic: 100000 Ships, 260 million Tones of Traffic.
  - 85% waterways of the Eastern Route of South-to-North Water Transfer Project are the Grand Canal waterways.





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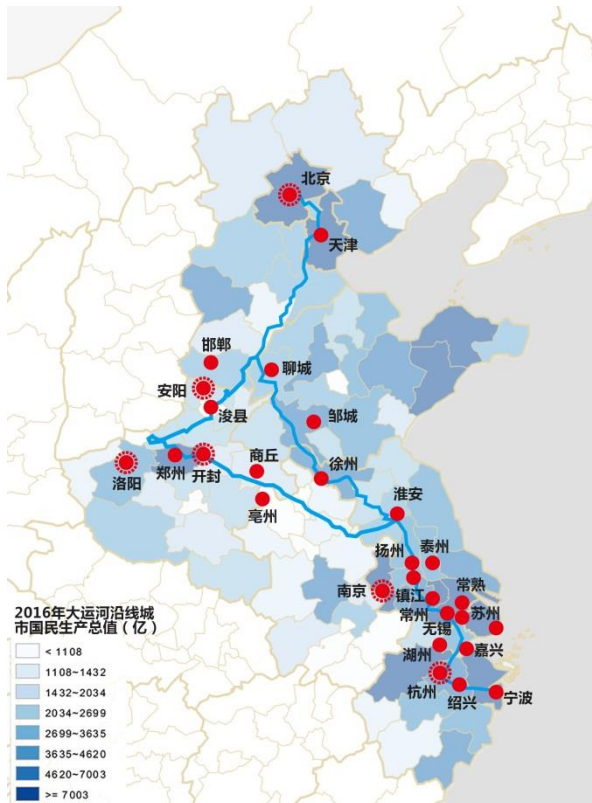
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# The Grand Canal: A Stretching Artificial Canal which Represents the History of Chinese Civilization

- Long history, large scale, achievement of ancient Chinese technology, the economic artery, cultural bond, **living heritage**
- A large number of historic towns, accounting for 44.1% GDP of China. Two important city groups.

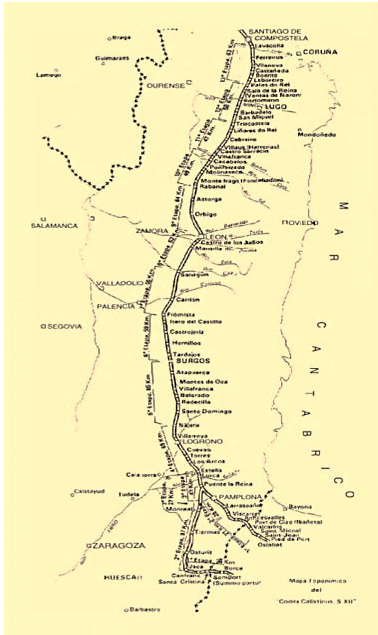


# World Heritage Nomination: A National Mission with Opportunities and Challenges

- **Opportunity:**

At home: Social consensus and policy orientation

International: the formation of a new theory and a new type



- ① In a certain period of time, it is beneficial for the exchange of goods, knowledge and value among the individual, nations, regions and continents.
- ② In certain space and time, it can promote the culture exchanges, which are reflected in tangible and intangible heritage.
- ③ A dynamic system that integrates historical connections and cultural



Timeline of the formation of the concept "Cultural Routes"

1994

第一次提出  
“文化  
线路”的  
概念  
(马德里)

1998

文化线路科  
学委员会  
(CIIC)成立

2002

通过了关  
于“文化  
线路”的  
《马德里  
共识》

2003

在《实施  
指南》中  
加入有关  
文化线路  
的内容

2005

形成了有关《  
文化线路宪章  
(草案)》的  
决议(西安)

2008

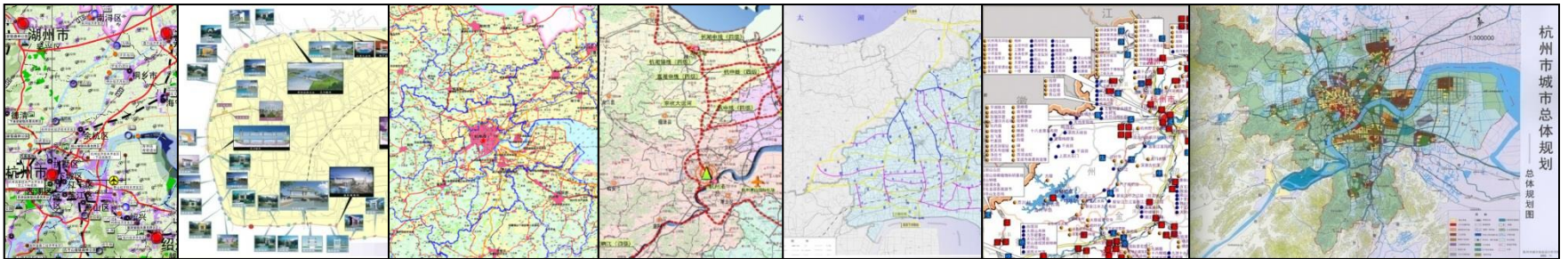
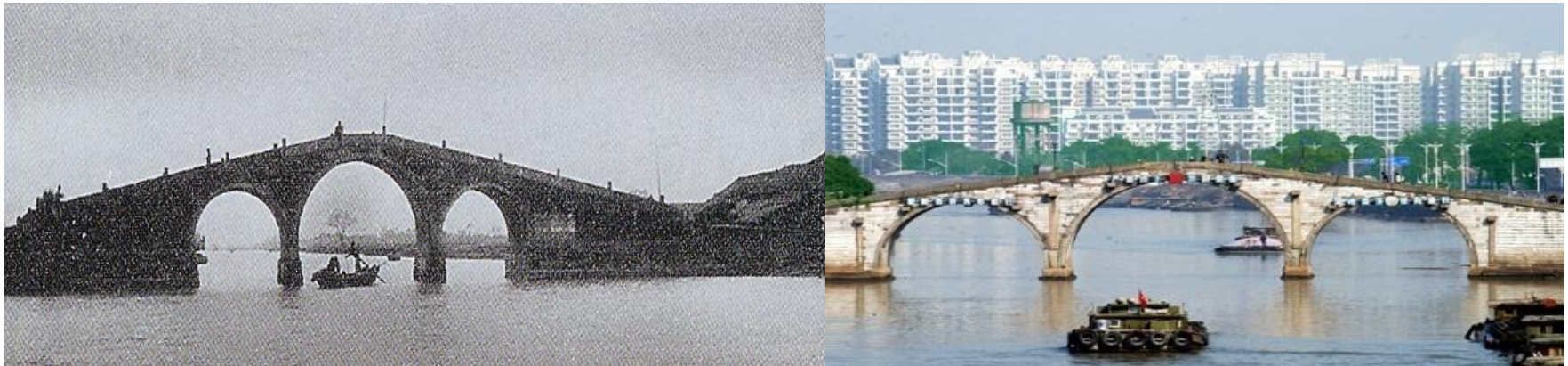
通过了《国  
际古迹遗址  
理事会文化  
线路宪章》



# World Heritage Nomination: A National Mission with Opportunities and Challenges

- **Challenges:**

How to highlight the universal value of the Grand Canal? How to make conservation plan and how to manage it?





# Characteristics of the Grand Canal (Zhejiang Section)

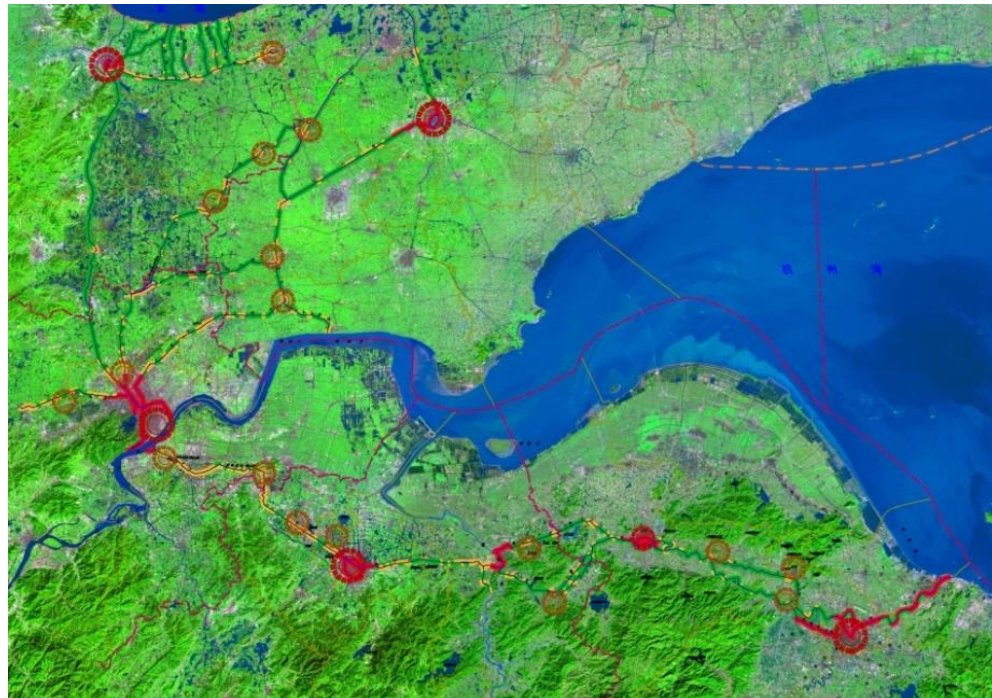
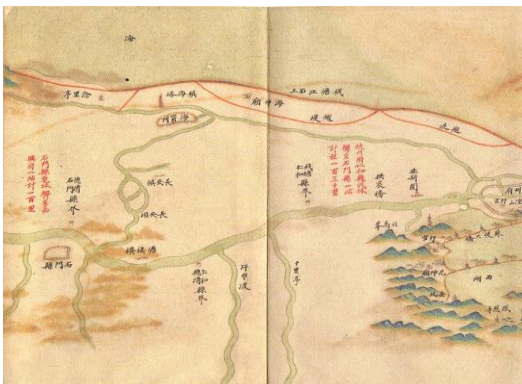
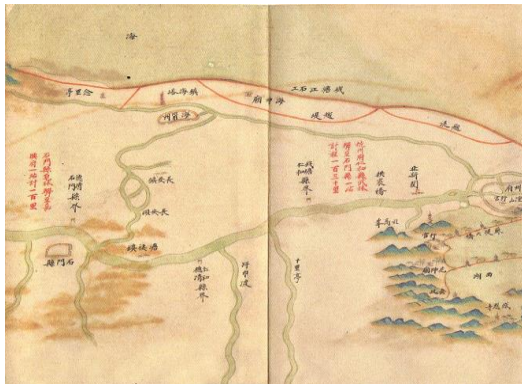
- **The Canal:**

Jiangnan Canal — variegated rivers;

Zhedong Canal — half of which is formed by nature and the other half is formed by manual work.

- **The Heritage Sites:**

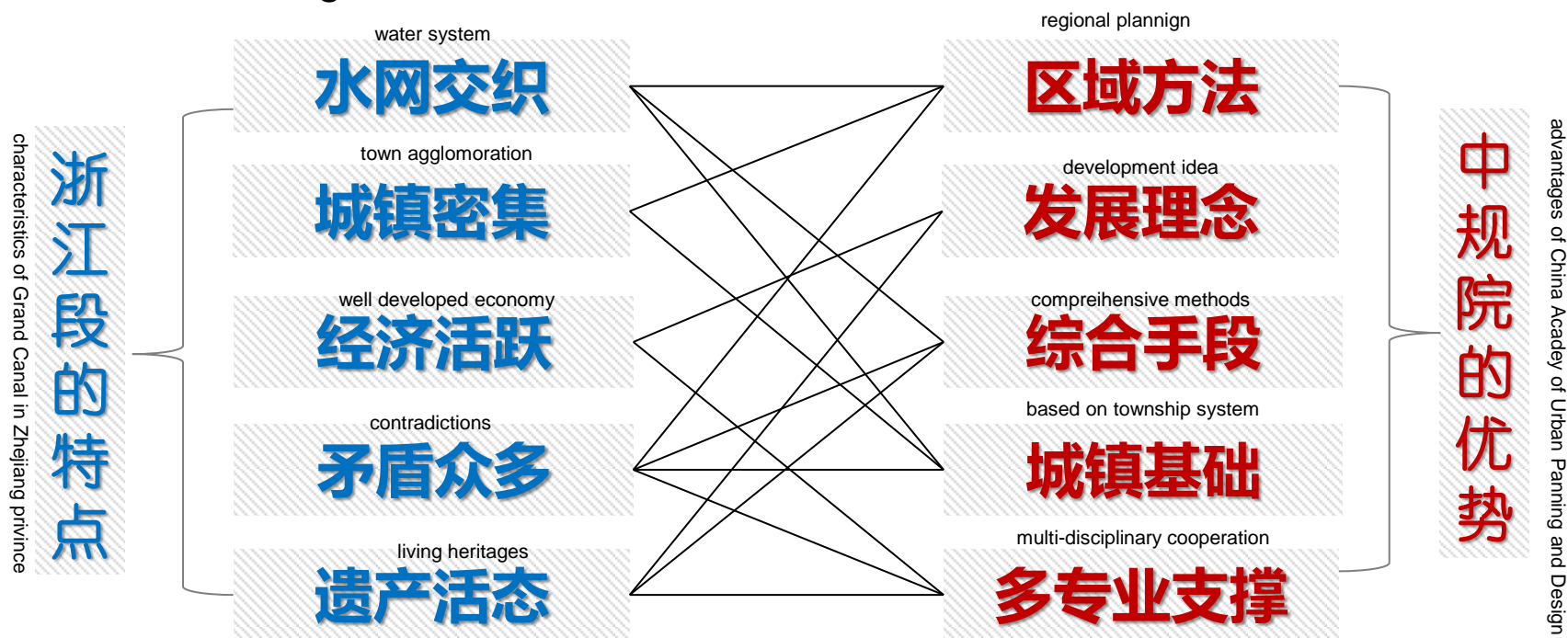
Agricultural and Silk Reeling Regions, Origin of the Grain Transporting, Cultural Highland, Economic Powerhouse.



# Focus on the Planning Framework of Canals and Historic Towns

## Steps:

City-level Planning — The Provincial Planning — The State Planning — Plan for World Heritage Nomination





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# Canals:

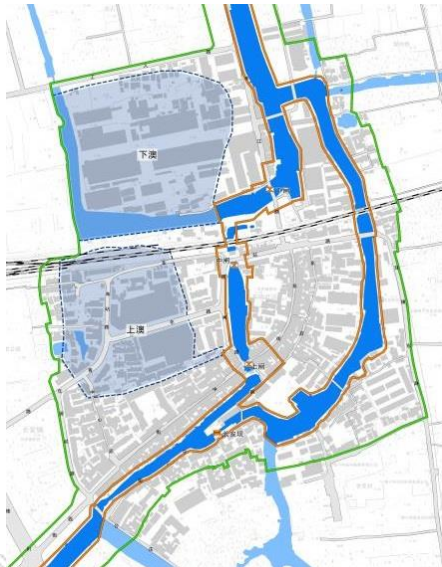
## Deep Involvement of the Conservation under the Objective of World Heritage Nomination

### Before the nomination:

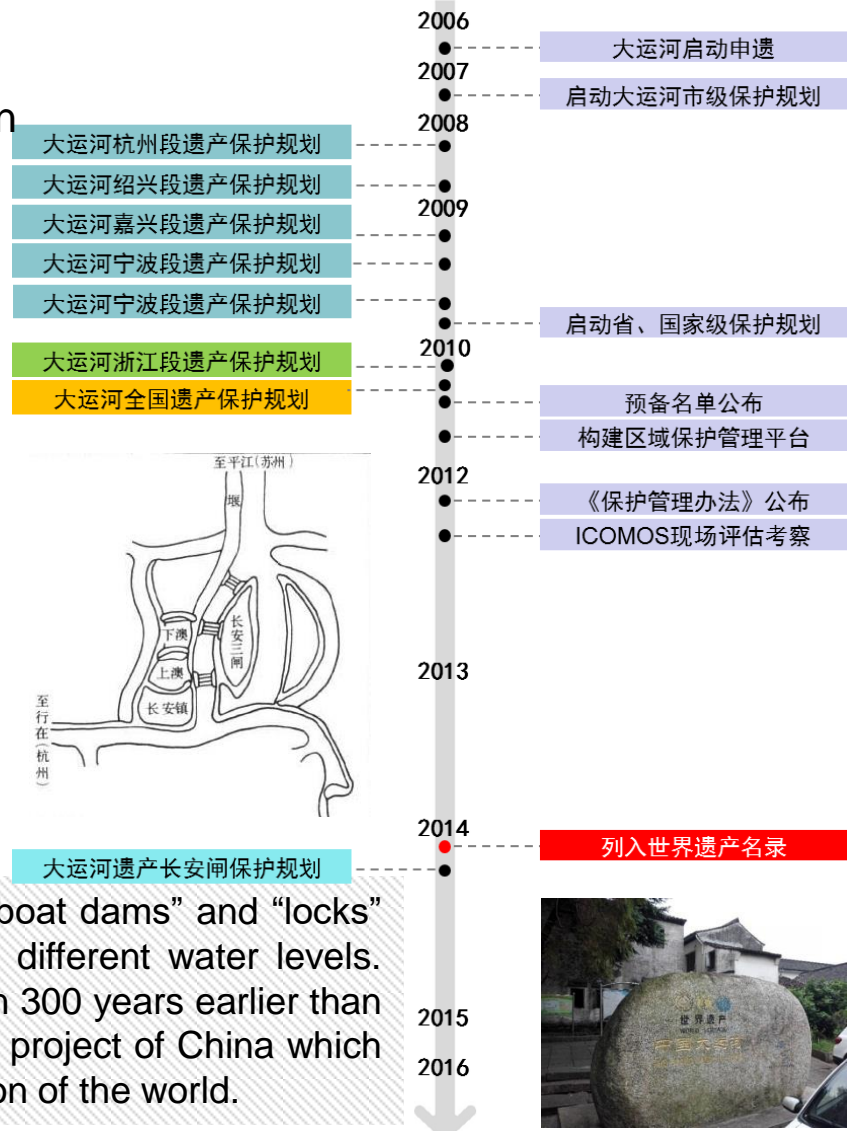
“6+1” Planning Framework, Leading + Participation

### After the nomination:

Chang'an Sluice World Heritage Site



The Grand Canal (Zhejiang Section) firstly used “tugboat dams” and “locks” to manage the shipping function between canals at different water levels. Chang'an Sluice was built in 1068, which is more than 300 years earlier than the earliest similar locks in Europe. It is the landmark project of China which leading the water conservancy and water transportation of the world.



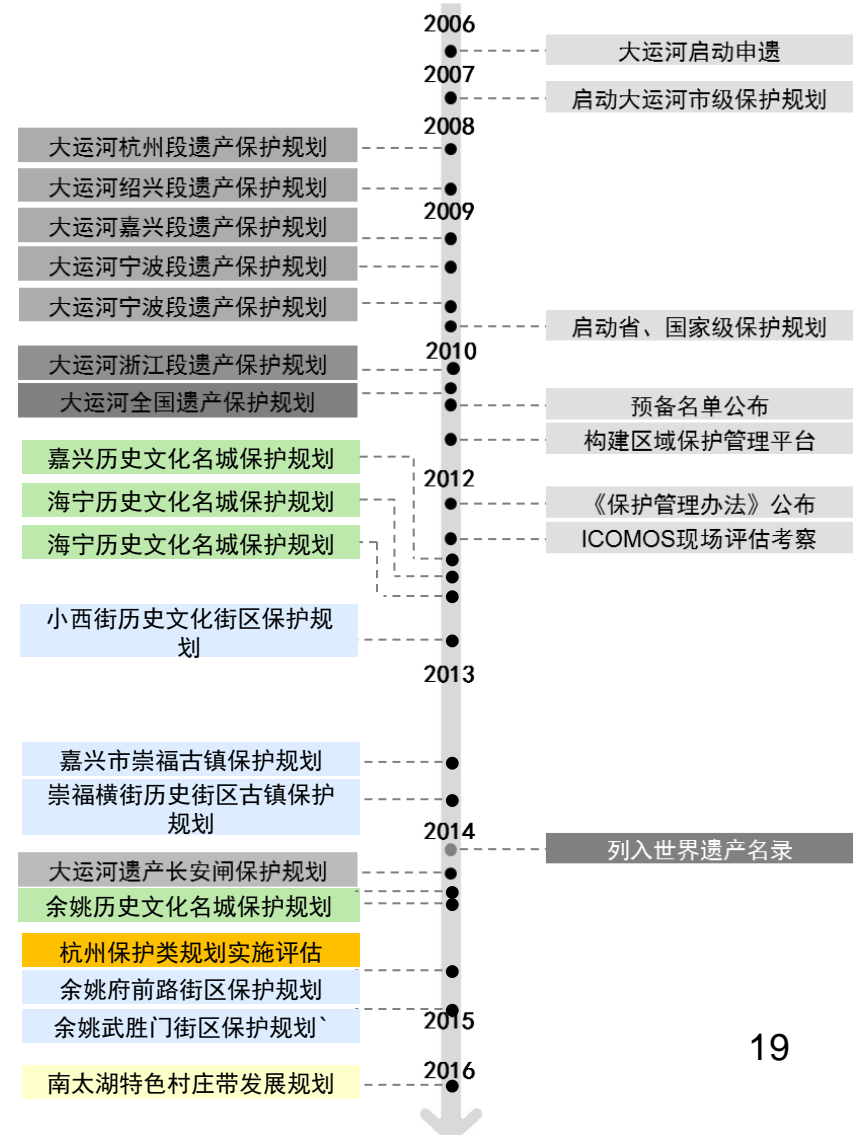
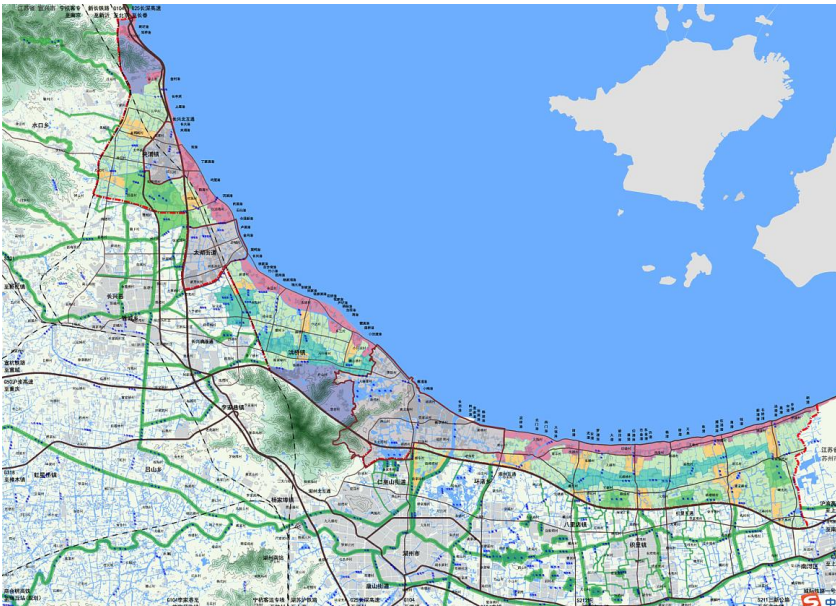
# Settlement: Conservation Exploration based on the Planning Practice of the Grand Canal Historical Cities

## Multi-levels:

Deputy provincial level, Prefecture-level Cities,  
Towns and Villages

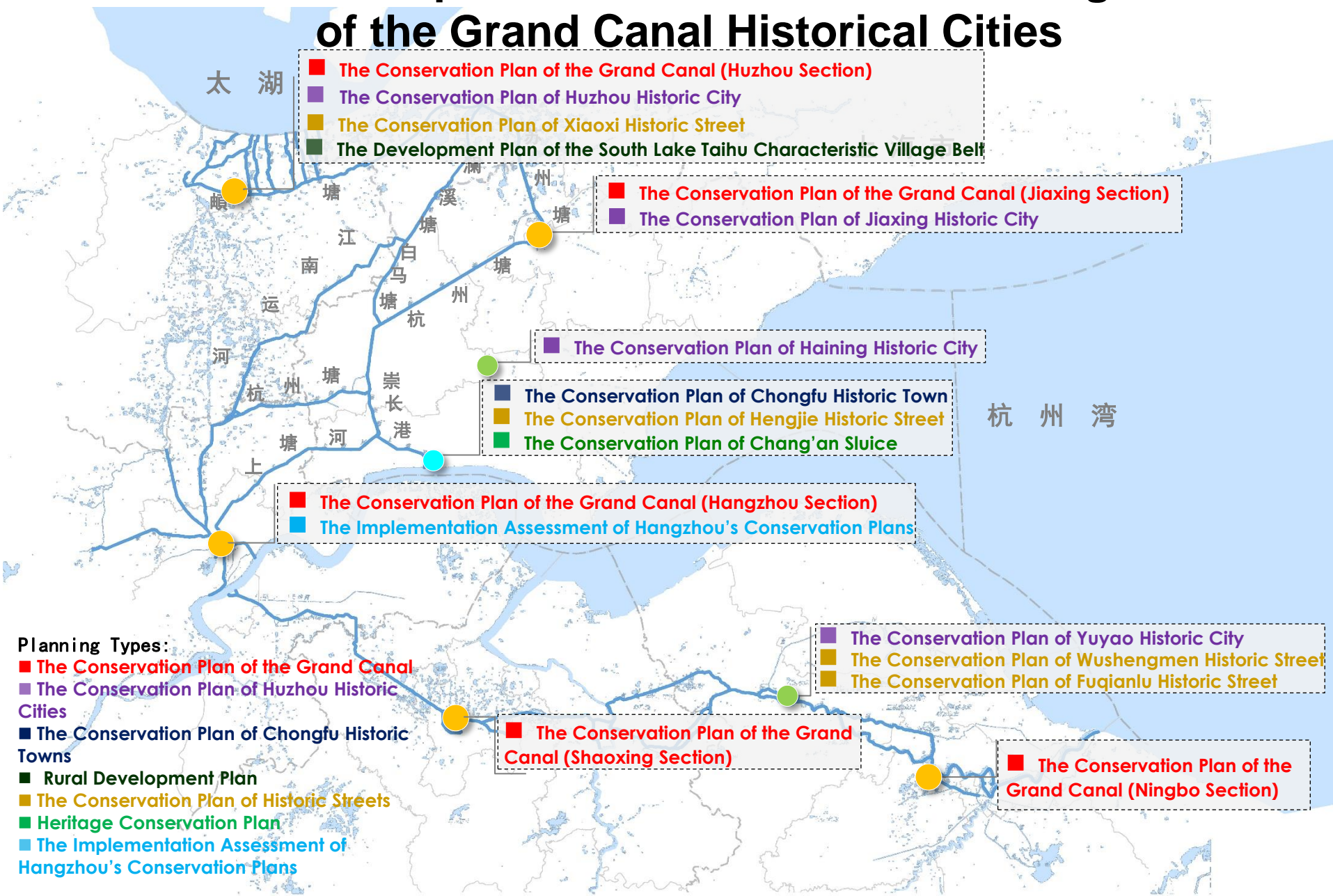
## Multi-types:

Historic Cities Conservation, Historic Streets  
Conservation, Comprehensive Development,  
Implementation Assessment.





# Settlement: Conservation Exploration based on the Planning Practice of the Grand Canal Historical Cities





# Research:

## Surprise brought by the collision between theoretical hotspot and practical problems

- **Theoretical hotspot:** the authenticity and integrity cultural routes and living heritage
- 
- **Practical problems:** the highlight of universal value, heritage environment, sustainable development

### 住房和城乡建设部2016年华夏建设科学技术奖获奖项目名单出炉

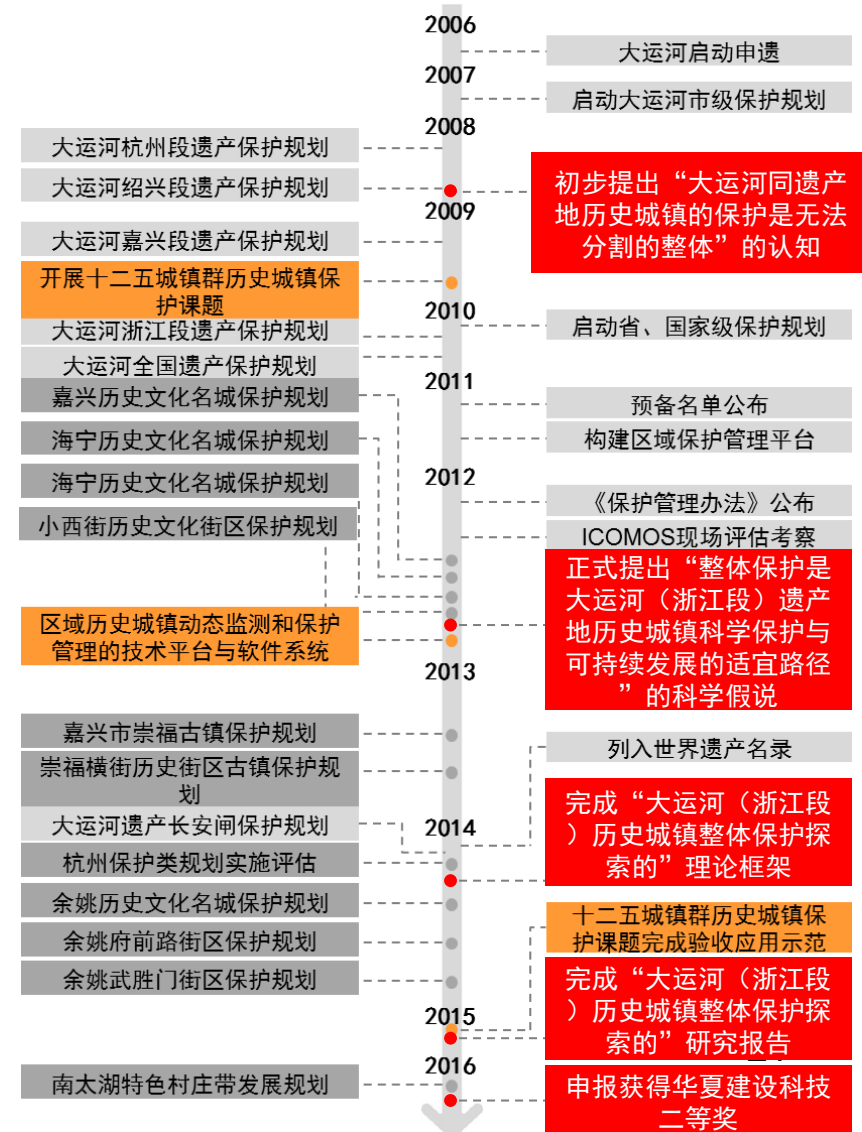
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1月16日，2016年华夏建设科学技术奖评审工作已经结束。通过专业组和评审委员会两级评审，本年度共评出获奖项目124项，其中一等奖11项，二等奖29项，三等奖84项。日前，住房和城乡建设部科技发展促进中心公布住房城乡建设部2016年华夏建设科学技术奖获奖项目名单。

#### 2016年华夏建设科学技术奖获奖项目

		中国建筑科学研究院、上海市建筑科学研究所（集团）有限公司、中国城市科学学会绿色	程志军、韩继红、曾捷、王有为、王清	
11	《绿色建筑评价标准》GB/T50378-2014	建筑与节能专业委员会、中国城市规划设计研究院、清华大学、中国建筑工程总公司、中国建筑材料科学研究总院、中国市政工程华北设计研究总院、深圳市建筑科学研究院有限公司	勤、鹿勤、林波荣、杨建荣、于震平、陈圣、陈立、叶青、徐海云、宋凌	一等
12	大运河（浙江段）遗产地历史城镇整体保护	中国城市规划设计研究院、浙江省文物考古研究所	张兵、张广汉、康新宇、赵中楷、胡敏、杨开、麻冰冰、廖琪、汤芳菲、黄斌、张书恒、边际	二等
13	钢结构全生命周期信息化管理平台研究与	中建钢构有限公司	王宏、戴立先、刘昱、钟荣发、陈振明、夏林印、王剑涛、茹高明、王兆阳、张臣友、宋以儒、王雄	二等

Price awarded by MOHURD



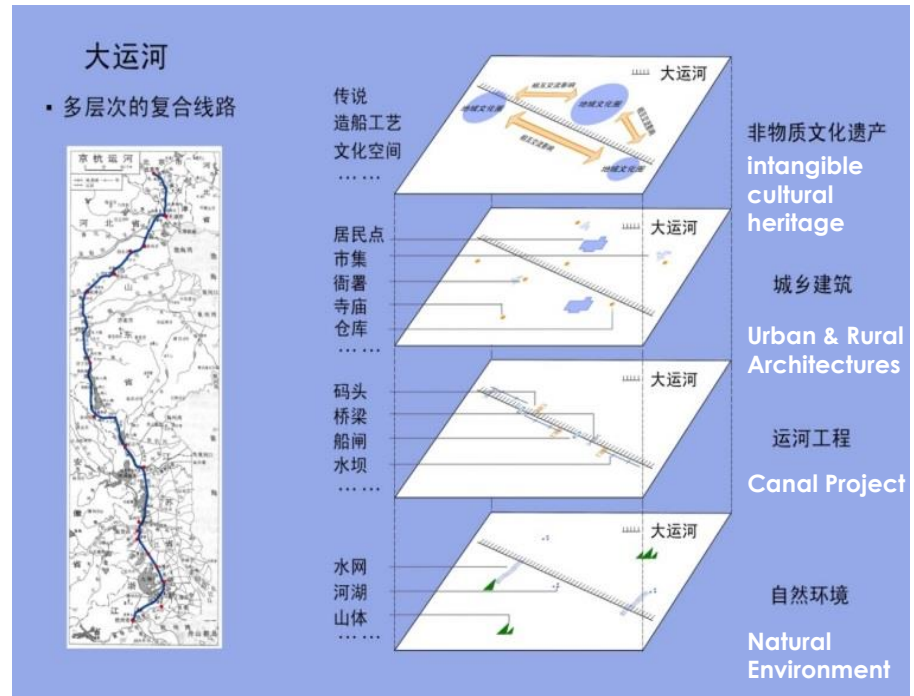
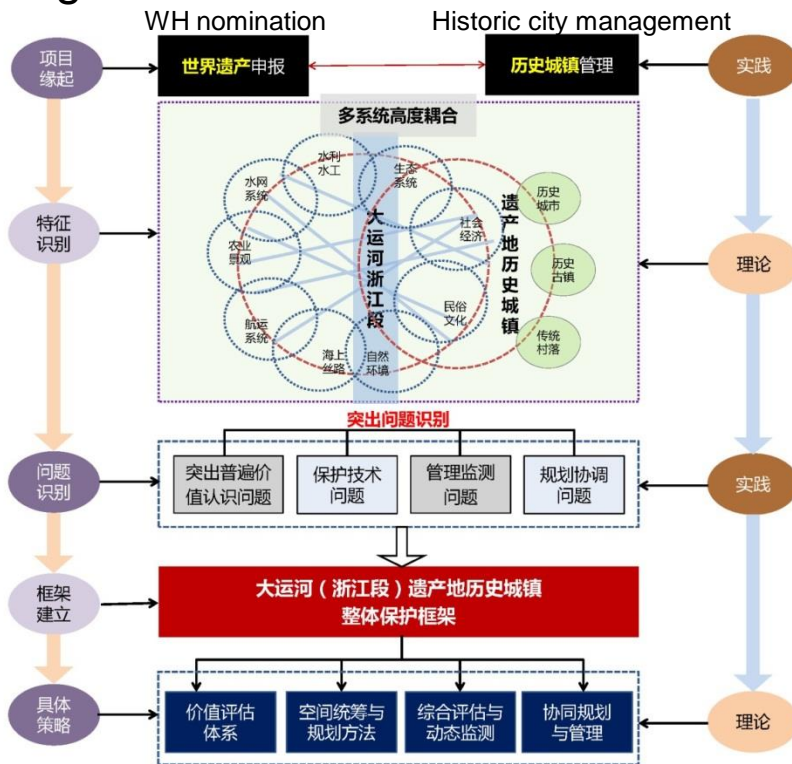


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# Achievement 1: The Method of Evaluating the Historical Cultural Value

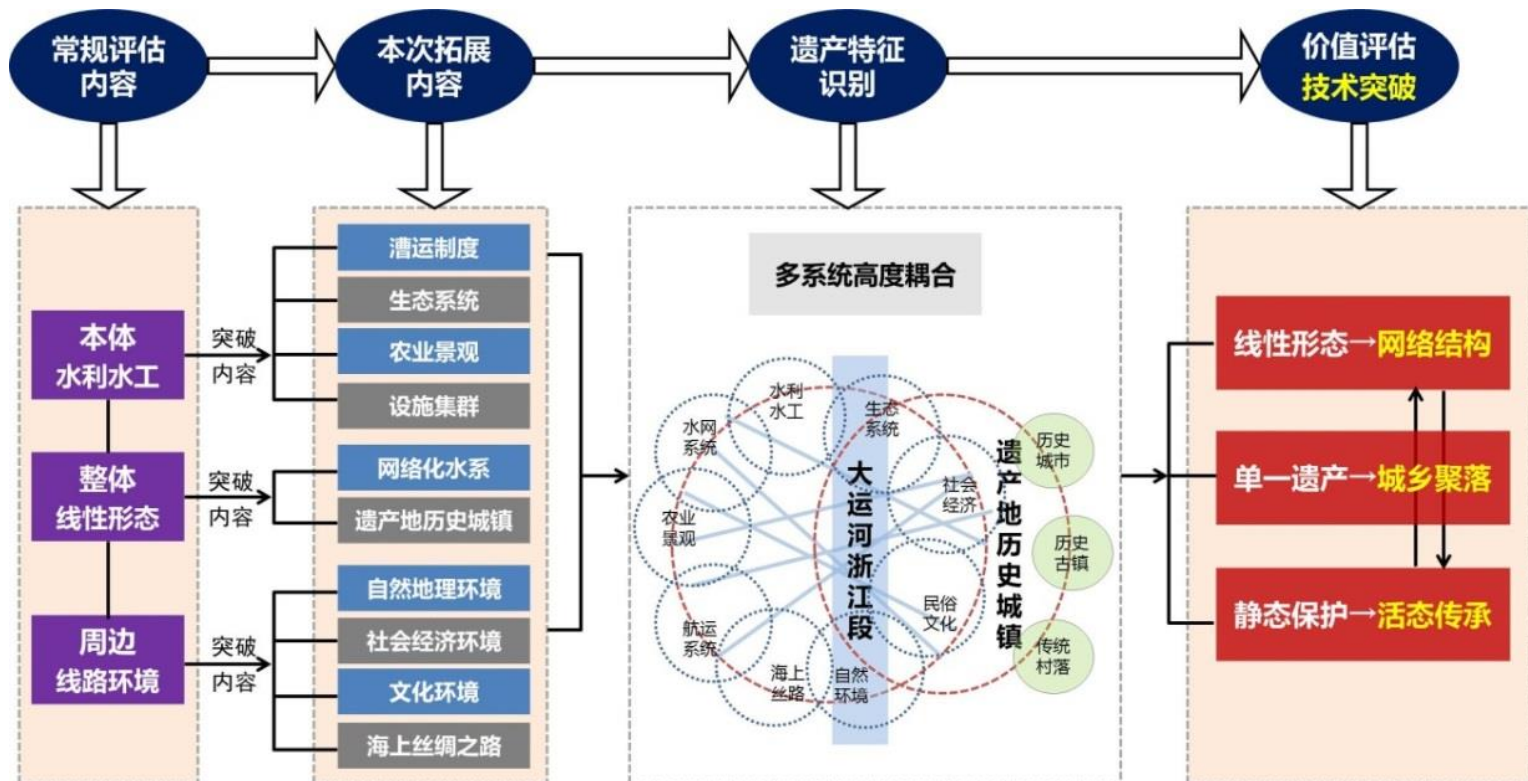
Identifying: **Highly coupled relationship** between the Grand Canal and regional Historic Towns.





# Achievement 1: The Method of Evaluating the Historical Cultural Value

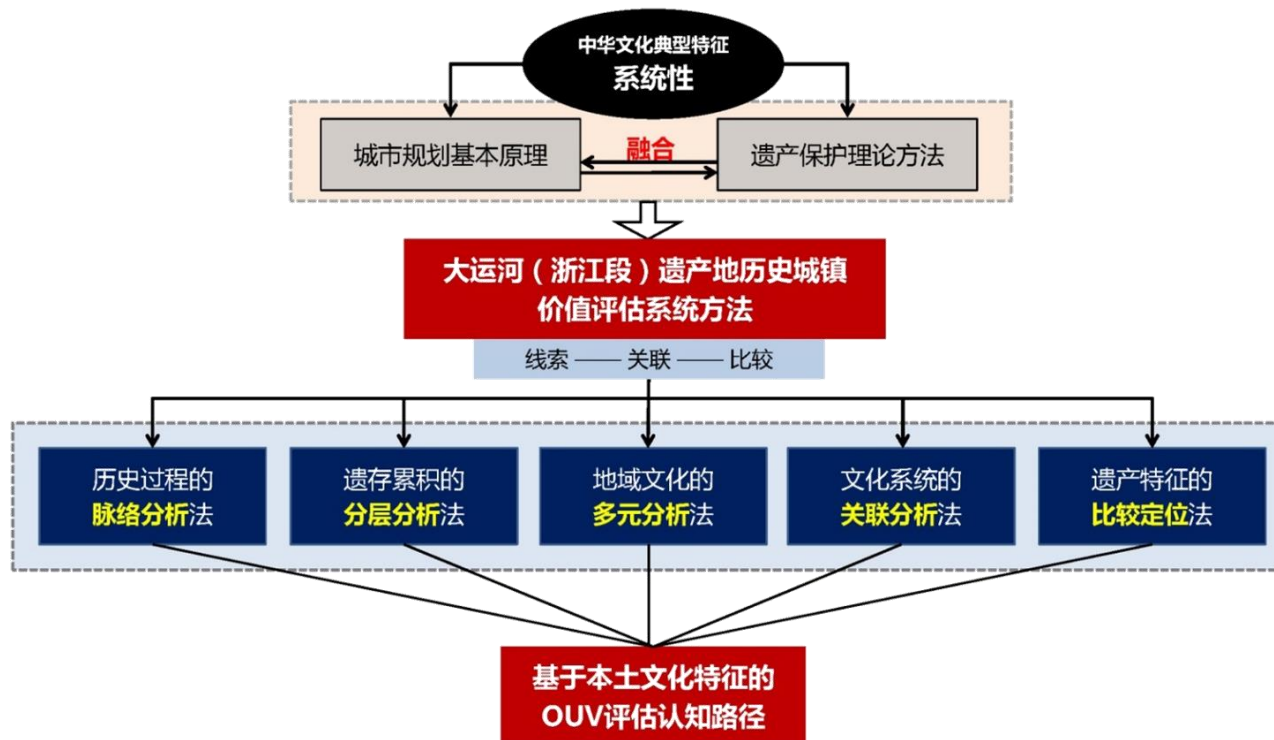
**Inference:** Based on the identifying of “the multi-system and highly coupled giant dynamic heritage”, we finally conclude the characteristic of the Grand Canal as “network structure, urban-rural settlement, live transmission”.



# Achievement 1:

## The Method of Evaluating the Historical Cultural Value

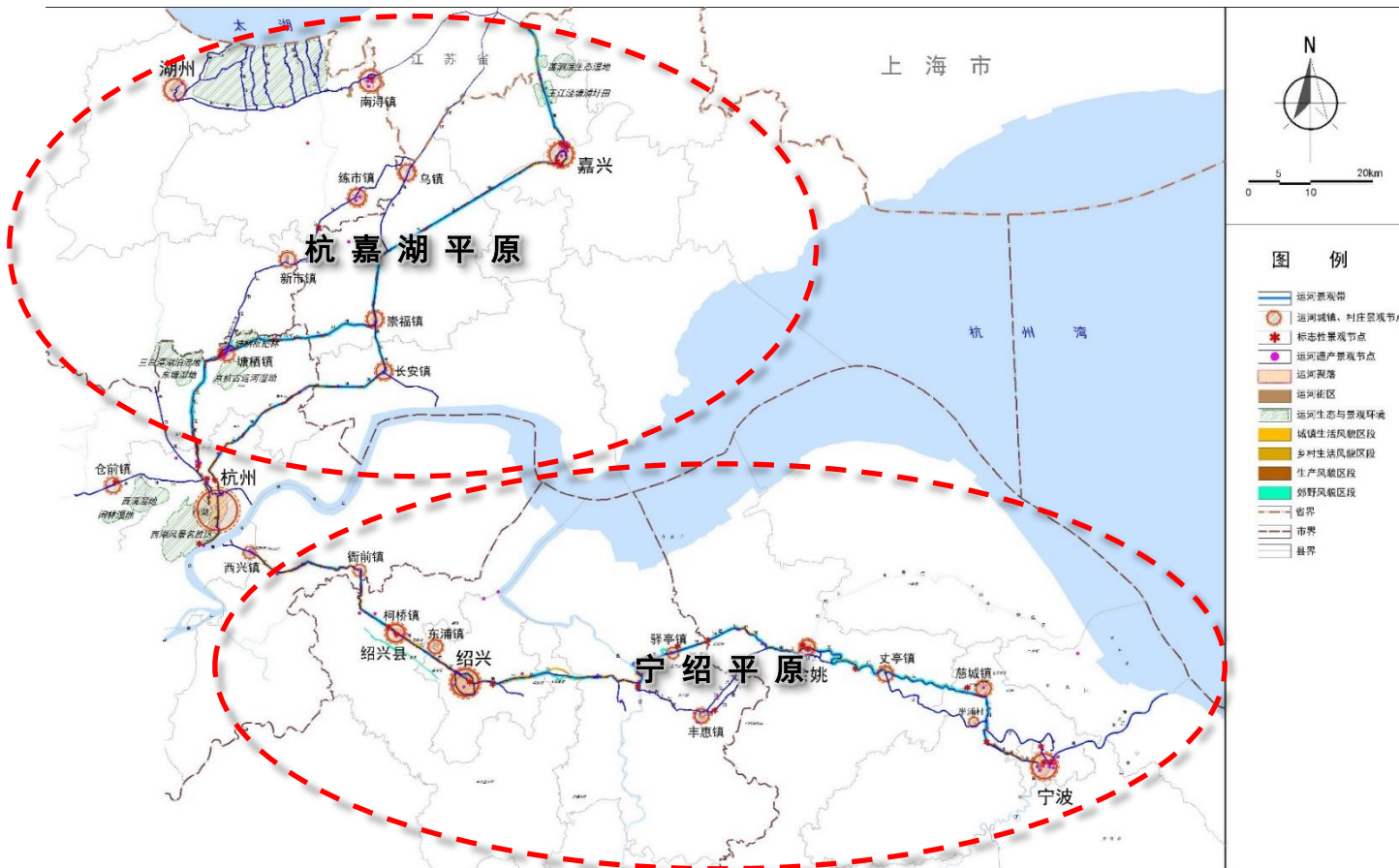
**Method:** Based on the systematic theory and by using the “Clue-Connection-Comparison” evaluation method, we conducted the research from multi-levels such as historical context analysis, stratigraphic analysis of remains, multi-culture and its internal correlation analysis. Finally we concluded the five elements method of heritage value assessment which is aiming at the Grand Canal (Zhejiang Section).



The heritage value assessment approach is based on the analysis of five elements

## Achievement 2: Key Technologies for Regional Integrated Conservation Planning

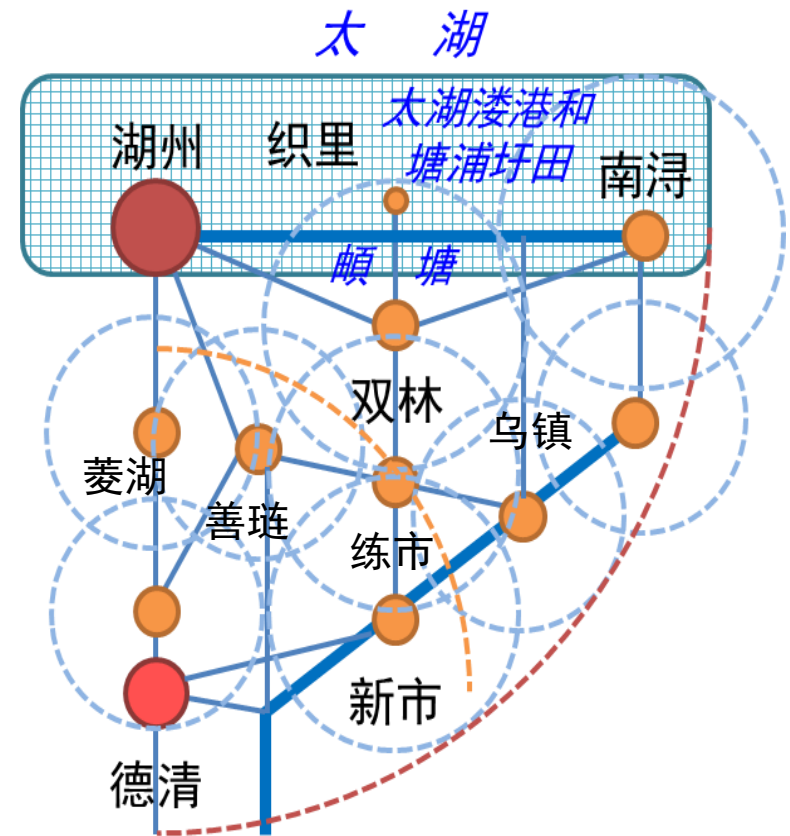
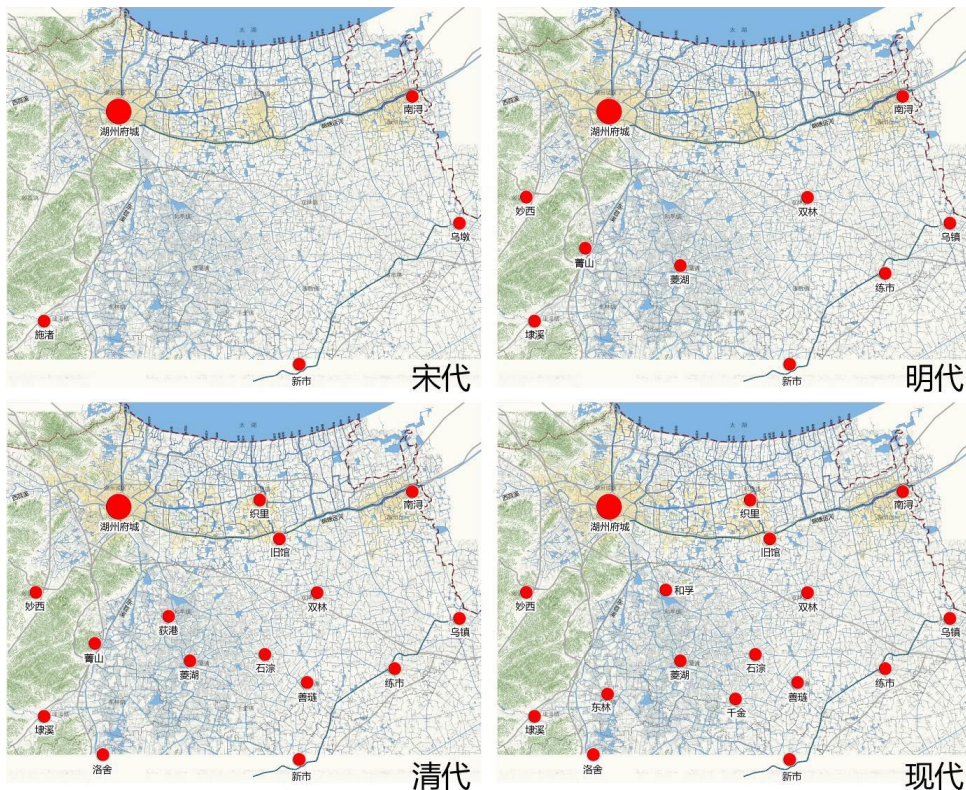
**Identifying:** Regional extent of different spatial levels and overall characteristic identifying.





## Achievement 2:

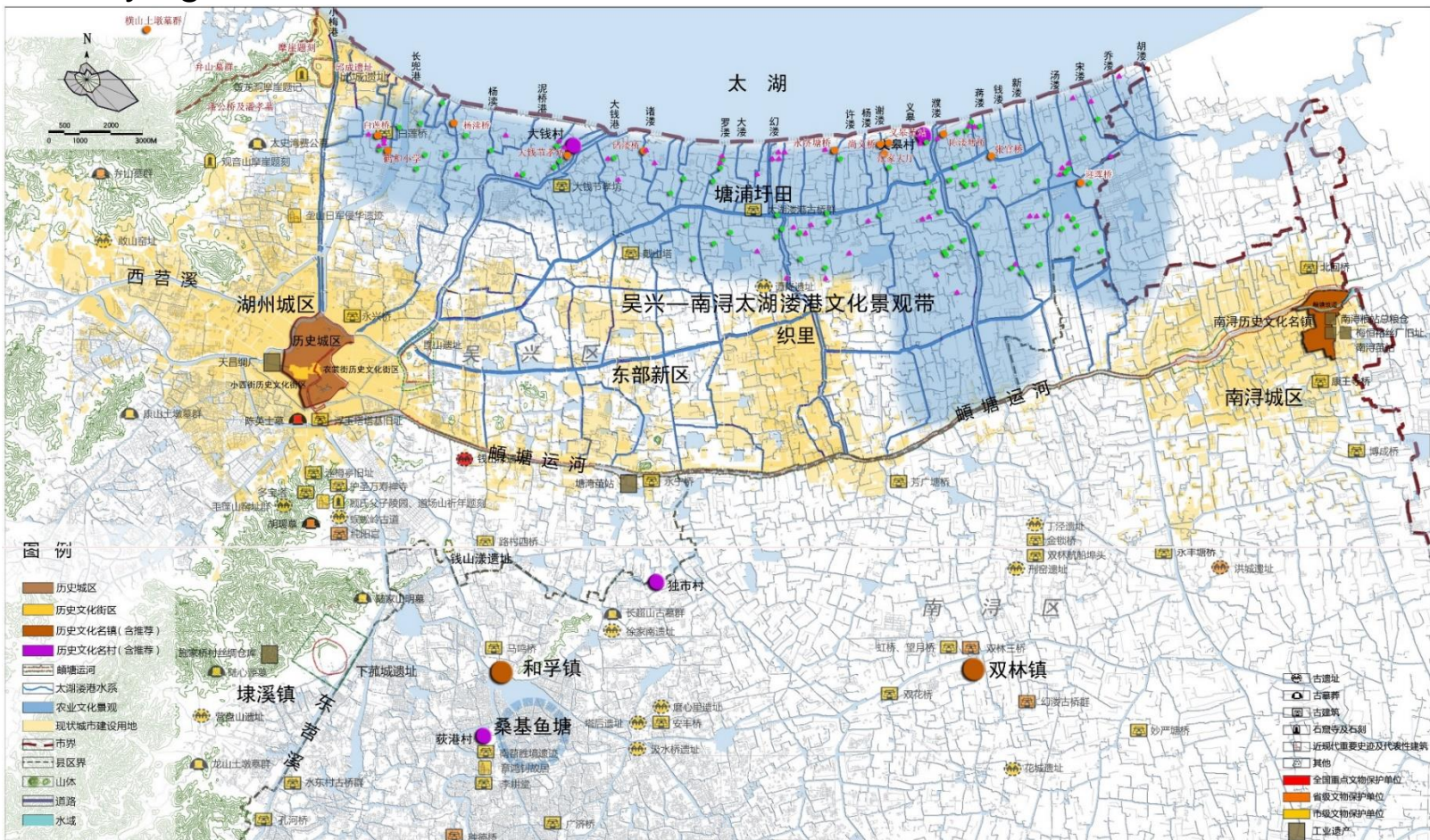
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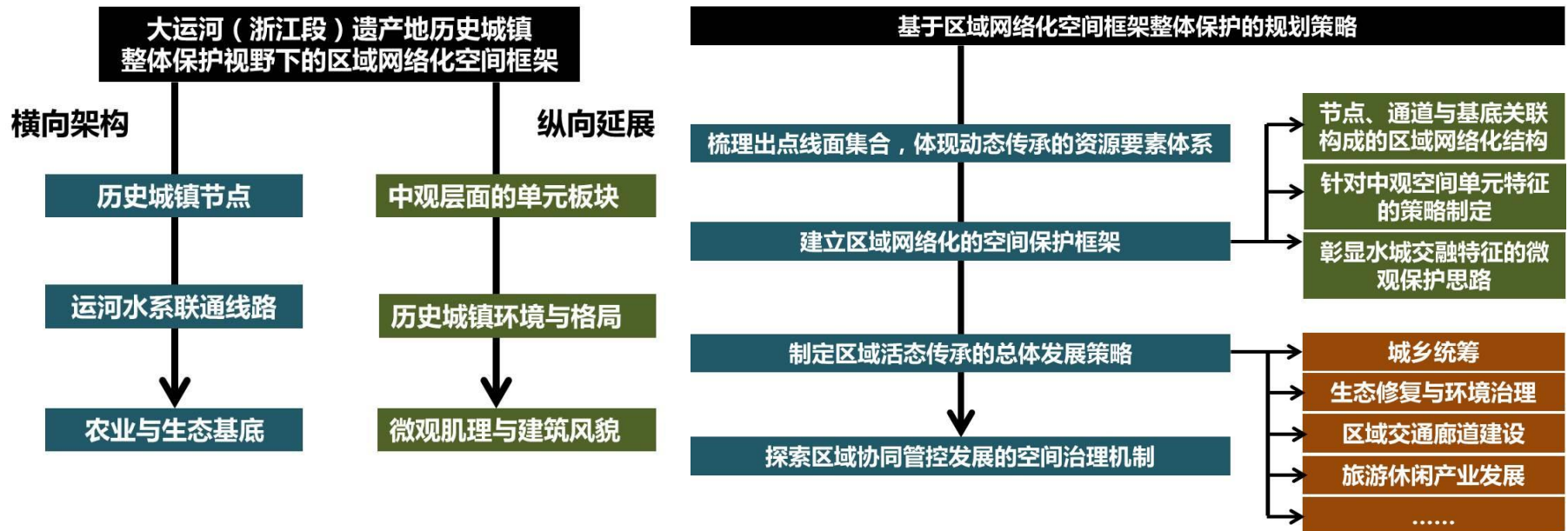
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## Achievement 2: Key Technologies for Regional Integrated Conservation Planning

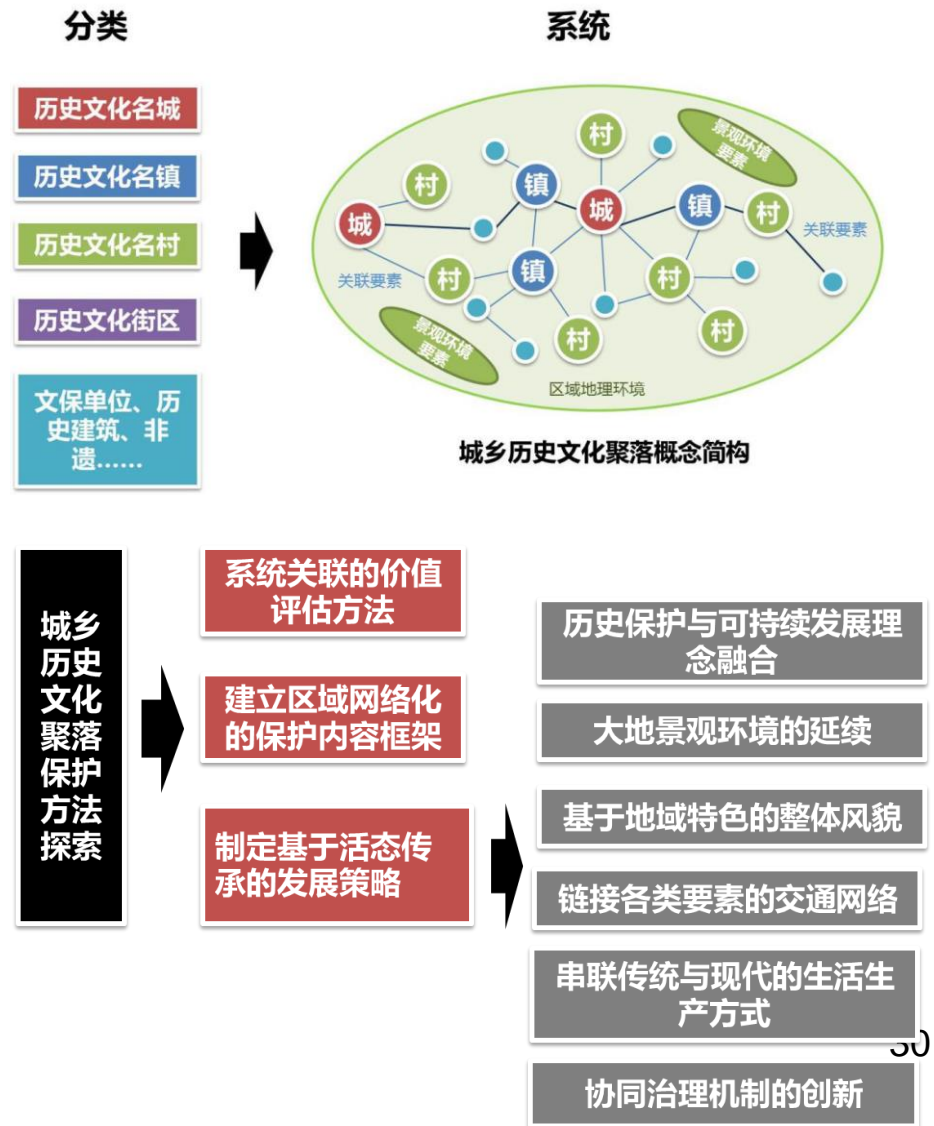
**Construct:** Form the regional historical and cultural resources sorting methods; the integrated conservation framework which includes macro-scale, mid-scale and micro-scale; the living heritage inheritance strategy; the regional spatial management framework for grand scale heritages.





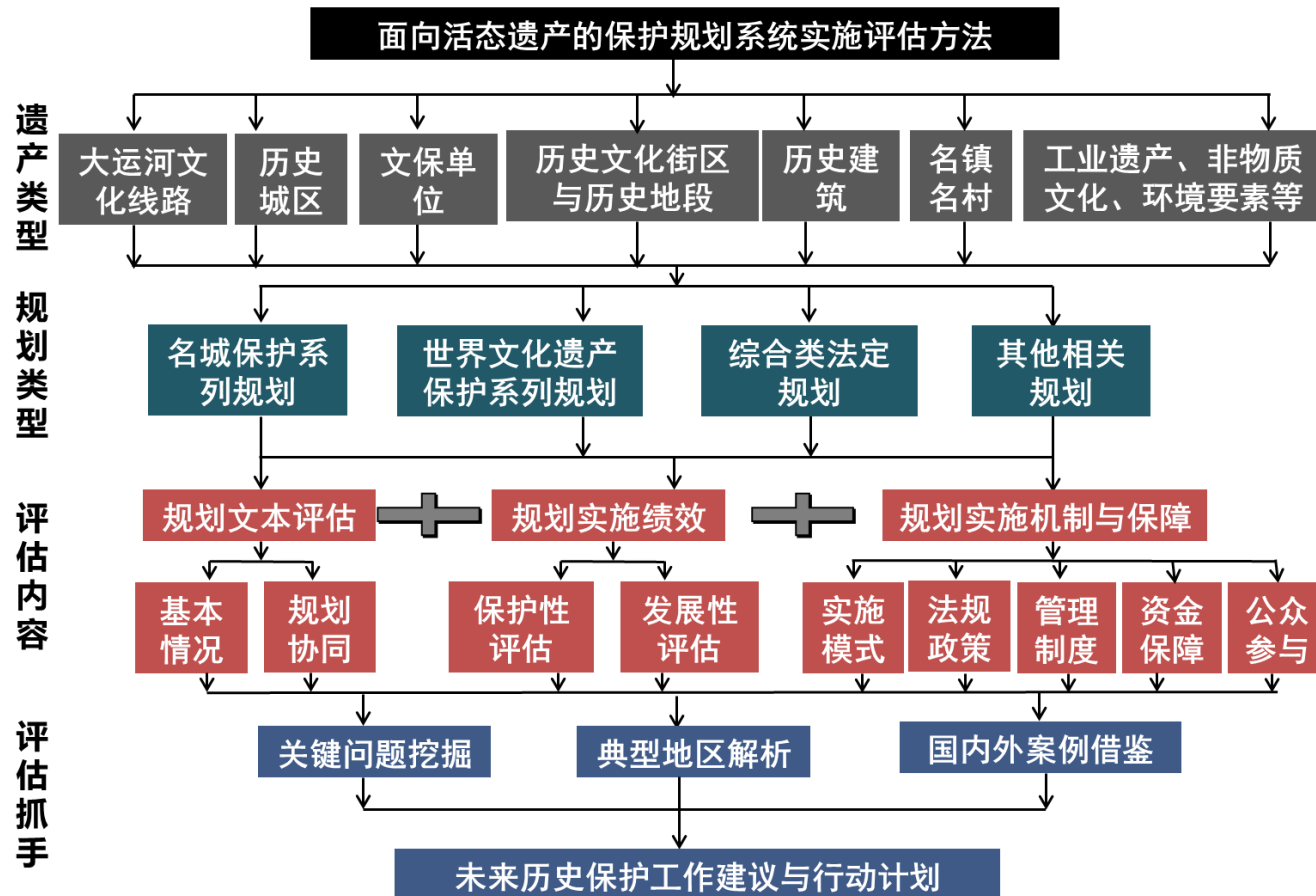
## Achievement 2: Key Technologies for Regional Integrated Conservation Planning

**Theory:** Raising the concept of “**urban & rural historical settlement**”, representing that epistemological methods of cultural heritages has transformed from individual to integration, and conservation methods has transformed from sorted conservation to integrated conservation as well.



# Achievement 3: Regional Integrated Heritage Conservation Management Technology

**Assessment:** Setting up the “**full type & whole-process**” conservation condition assessment methods for historic towns in heritage sites.



## Achievement 3: Regional Integrated Heritage Conservation Management Technology

**Indicator: Setting up the Conservation Condition Assessment Indicator System** for historic towns in heritage sites.

标准层	指标层	指标性质	评价形式	要素层	测度
A 层积性	A-1 历史久远度	正向	定量、定性综合	文物保护单位	年代、数量、质量
	A-2 遗存丰富度	正向	定量	历史建筑	年代、数量、质量
	A-3 文化层累积度	正向	定量、定性综合	城址遗存	年代、范围和规模、质量
	A-4 保存质量性	正向	定性综合	地下遗址埋藏区	年代、范围和规模
				历史文化街区	年代、范围和规模
				历史街巷	年代、数量、走向、长度、质量
				线性文化遗产	年代、数量、走向、长度
				其他历史文化要素	年代、数量、规模、质量
B 关联性	B-1 空间关联度	正向	定量、定性综合	历史文化名城	区位、文化性、职能定位
	B-2 文化关联度	正向	定性综合	历史名镇名村	区位、文化性、职能定位
	B-3 功能关联度	正向	定性综合	历史文化街区	区位、文化性、职能定位
				文物保护单位和历史建筑	区位、文化性、类型
				自然生态环境与景观	区位、文化性、类型
				非物质文化遗产	区位、文化性、类型
				场所空间	区位、文化性、类型
				产业	文化性、类型
C 活力性	C-1 生活真实性	正向	定量、定性综合	原住民	数量、收入、就业
	C-2 文化传承度	正向	定量、定性综合	特色产业	年代、数量、质量
	C-2 社会认知度	正向	定性综合	社会保障	数量、质量
	C-2 发展持续性	正向	定量、定性综合	资金运用	数量、质量
				非物质文化遗产	数量、质量



# Achievement 3: Regional Integrated Heritage Conservation Management Technology

**Platform: Build the Dynamic Monitoring System Platform** for historic towns in heritage sites and the Grand Canal.



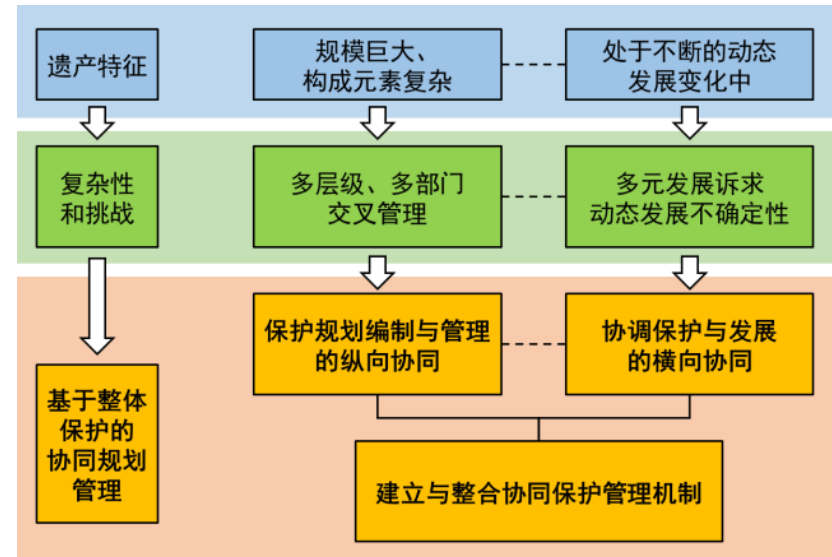
Elements of the Dynamic Monitoring System Platform

Systematic framework and detailed design of platform

# Achievement 3: Regional Integrated Heritage Conservation Management Technology

**Mechanism** : Form the Collaborative Management Method which combines both “**Review - Feedback - Revision - Coordination – Review**” process and “**multi-levels and Multidisciplinary Management Consultation**” system.

遗产类别			涉及的管理部门	其他相关部门
运河水利工程遗产	河道	运河正河、运河支线、自然河道、减河、人工引河、城河、内河	水利局、港航局	市委 宣传部、 发改委、 财政局
	水源	泉、湖泊、水柜、水库	水利局、港航局	
	水利工程设施	闸、坝、堰、堤防、引水涵洞、分水墩	水利局、文物局	
	航运工程设施	船闸、桥梁、码头、运口、纤道	港航局、水利局、文物局	
	古代运河设施和管理机构遗存	河道管理机构、漕运管理机构、钞关、钱铺、仓库、造船厂	港航局、水利局、文物局	
	运河档案文献遗产	运河河工档案、历代运河志、历代漕运志、历代运河古地图	文物局、档案馆	
运河城镇和村落		运河城镇、村落、历史街区	规划、建设局、文物局、旅游局	
其他运河物质文化遗产		古遗址、古墓葬、古建筑、石刻、近现代重要史迹及代表性建筑、其他	文物局	
运河生态与景观环境		湿地、林地、草地、耕地	国土资源局、环保局、林业局	
大运河相关非物质文化遗产			文物局、旅游局	

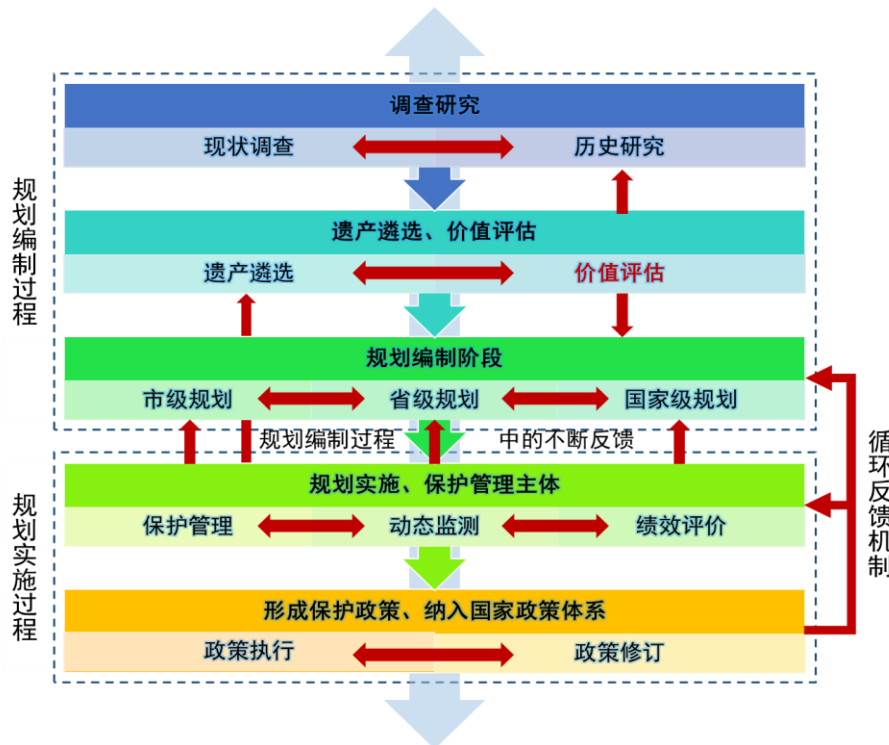


The multi-sectoral conservation management system of the Grand Canal and its heritage sites

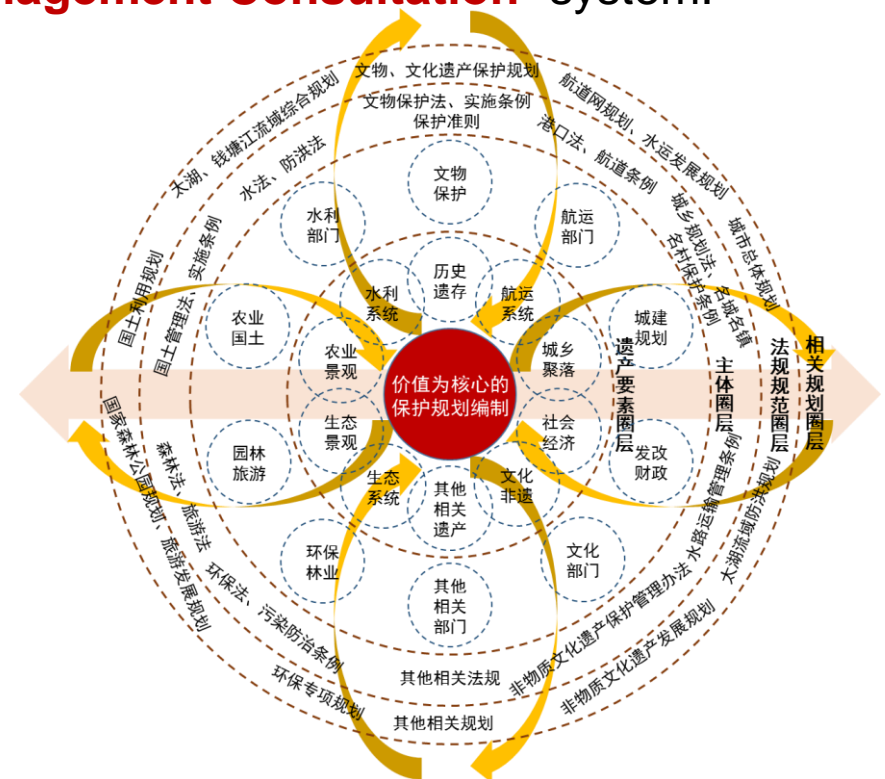
The collaborative planning management framework based on integrated conservation

# Achievement 3: Regional Integrated Heritage Conservation Management Technology

**Mechanism :** Form the Collaborative Management Method which combines both “**Review - Feedback - Revision - Coordination – Review**” process and “**multi-levels and Multidisciplinary Management Consultation**” system.



The vertical coordination between planning formulation and management



The Horizontal coordination between 35 conservation and development

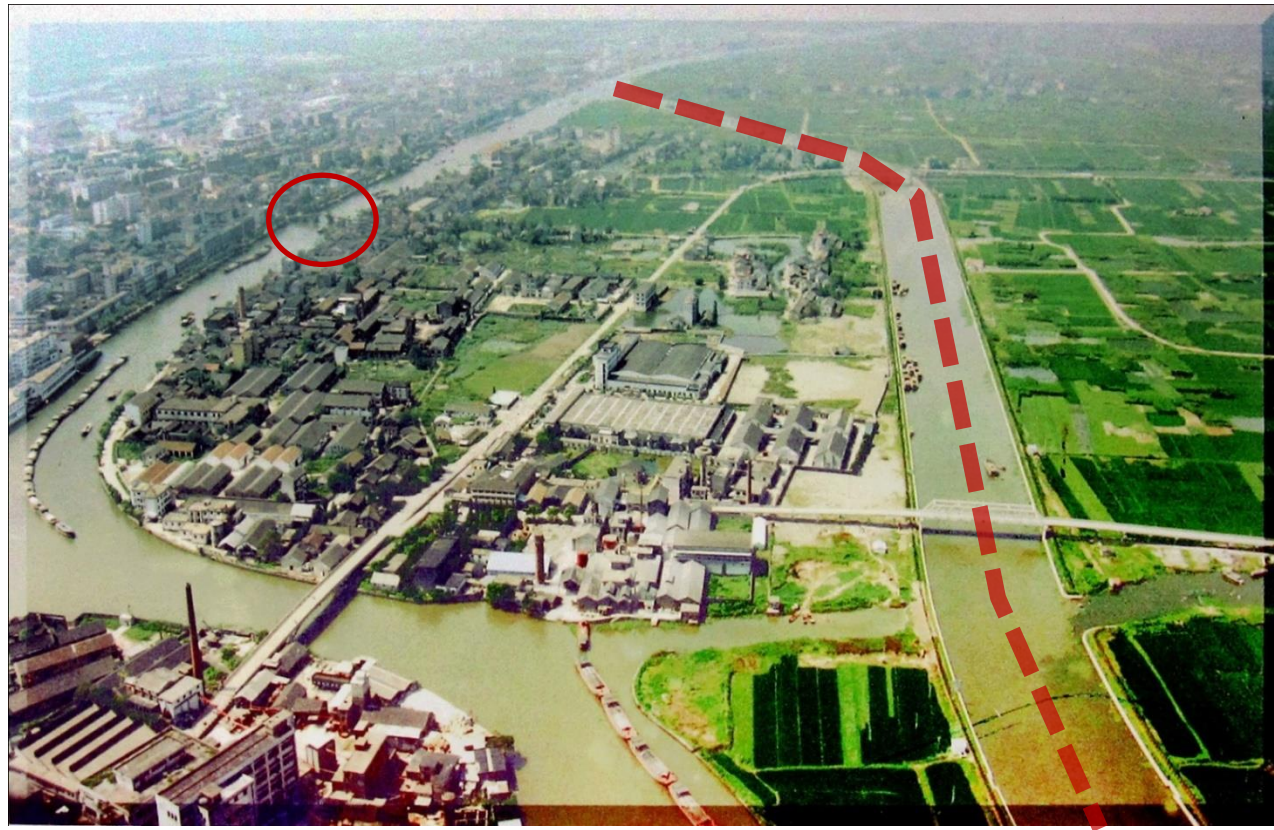


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The conservation method of Guangji Bridge in Tangxi town, Yuhang District:

Excavation of new navigation channel so as to protect ancient bridge



## Conclusion:

To promote the integrated conservation of historic towns, we need to focus on planning practice, theory research and policy making.

- Mutual Promotion, Cyclic Inspection

