



# Pingxiang's Achievement in Sustainable Development

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**Deputy Mayor of Pingxiang City**

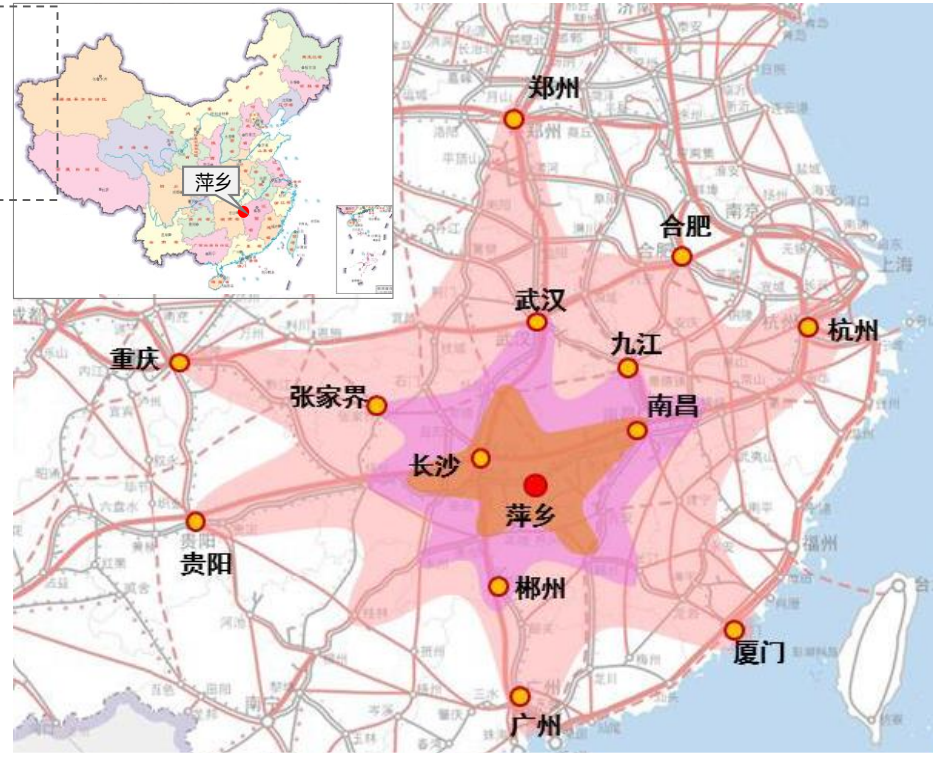
Deqing, Nov.20<sup>th</sup> 2018





West Gate of Jiangxi Province

One of Cradleland' s of modern industry



Hanyeping Co. ,largest coal-iron enterprise in Asia

安源路工慶祝勝利紀念會



Labor Movement in Anyuan Coal Mine



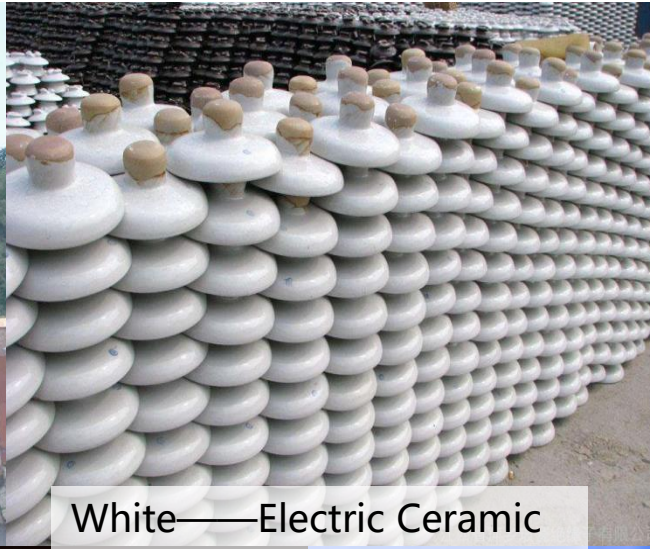
Origin of the Autumn Harvest Uprising



# An important industrial city in Jiangxi Province with the 5 pillar industries



Black—Coal



White—Electric Ceramic



Grey—Cement



Red—Fireworks



Golden—Metallurgy

PART.1

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# Challenges for Urban Sustainable Development

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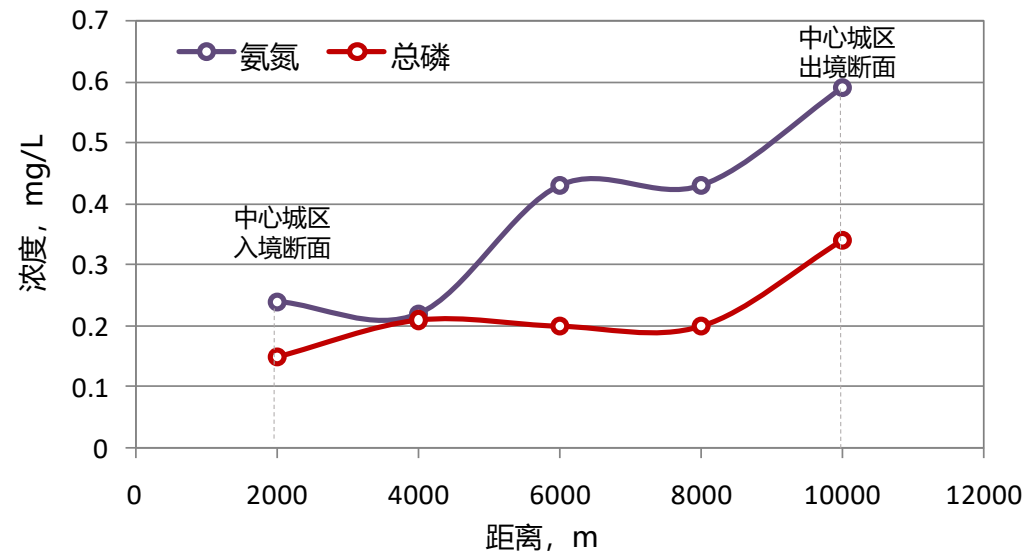
## Frequent Floods and Waterlogging Issue



# Deterioration of Water Environment

## Challenges

When Pingshui River, the mother river of Pingxiang passes through the city, the water quality tends to deteriorate.



Water quality deterioration process of Pingshui River 2015





# Degradation of Ecological Functions

## Challenges

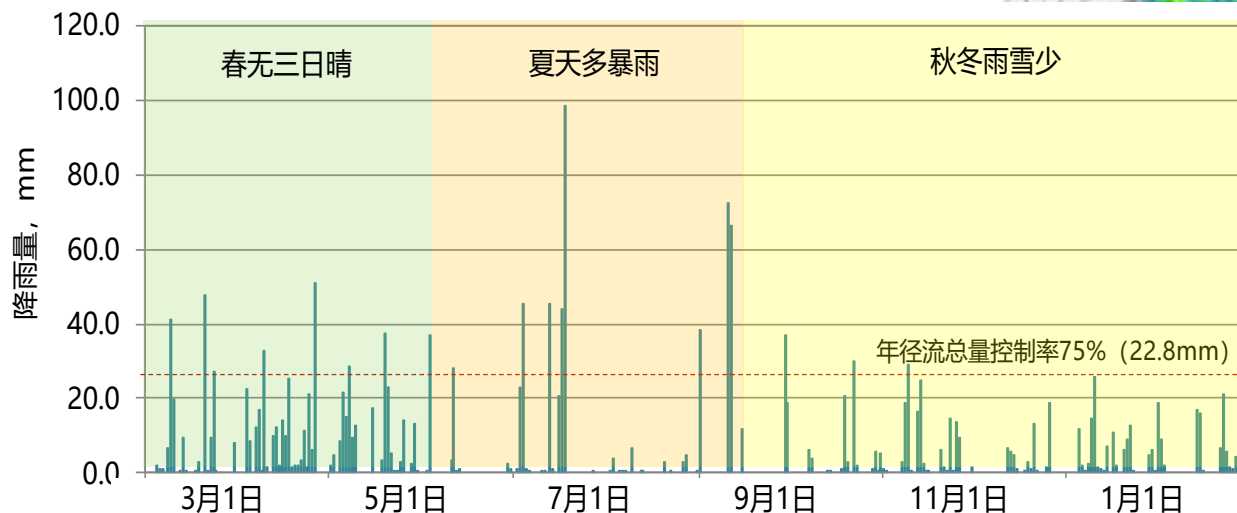
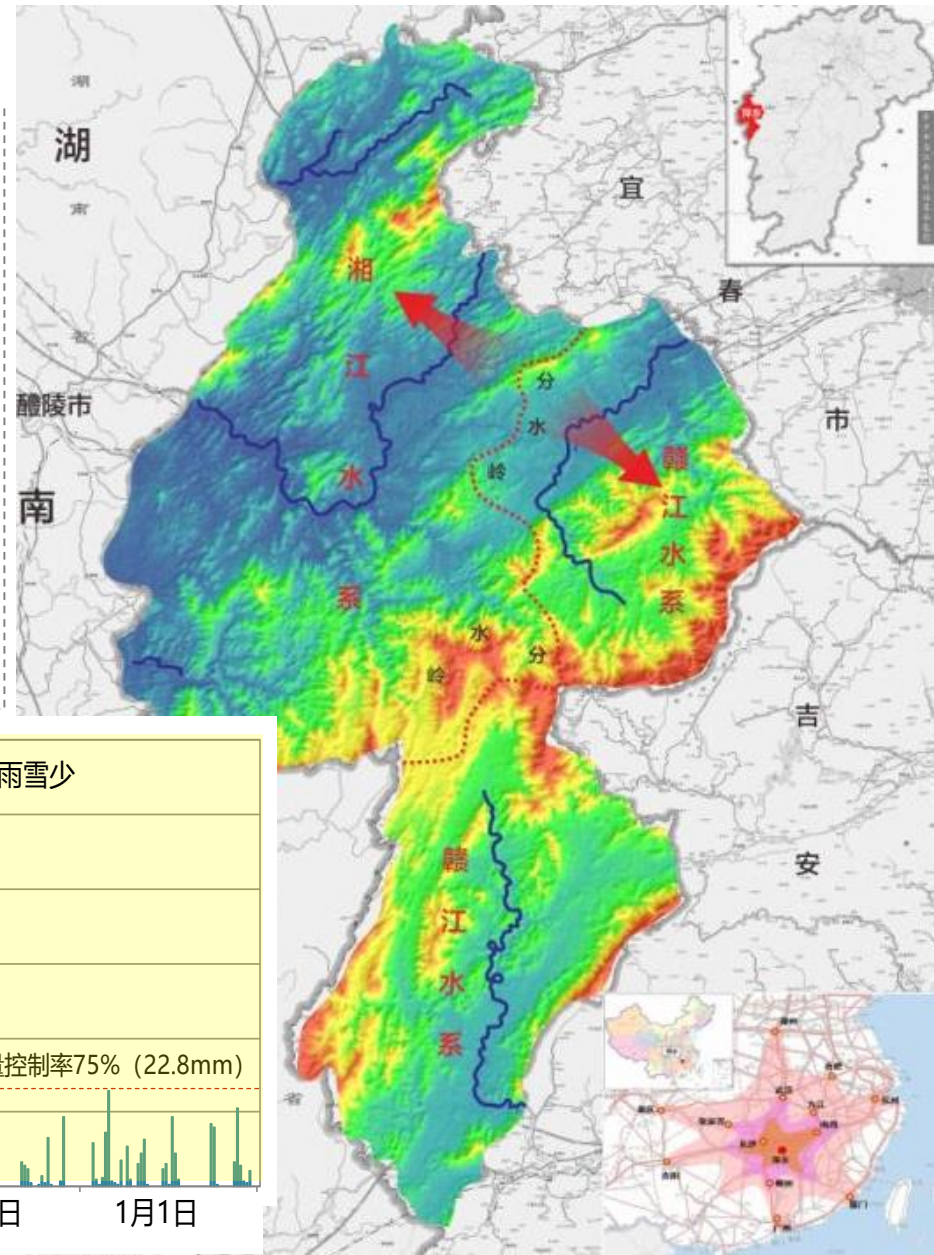
- Buildings crowds in the riverside, and some rivers are narrowed due to occupation, reclamation and sedimentation.
- Besides, there is **no green belt** on the shore, the ecological environment is extremely fragile.



## Challenges

## Engineering Water Shortage

- Pingxiang has abundant rainfall (1600mm/a), but mainly concentrated in April to June.
- In the mean while, sitting in the Hunan and Jiangxi watershed, the city lacks guest water resources.
- Neither obtain water nor keep it, thus drought occurs in dry season and waterlogging occurs in rainy season.





## Natural Resources Depletion

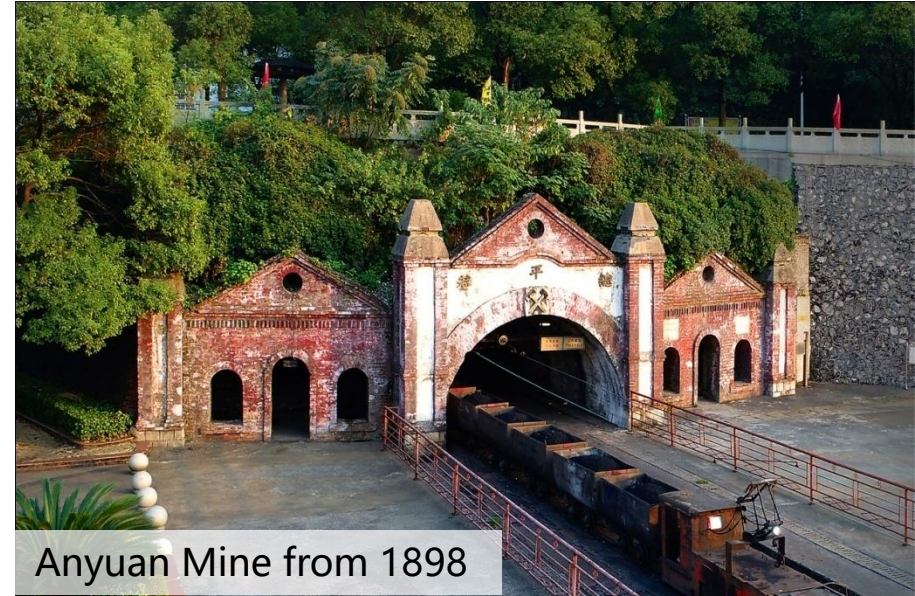
one of the first 12 resource exhausted cities in China.

Dual pressure of resource exhaustion and de-capacity.

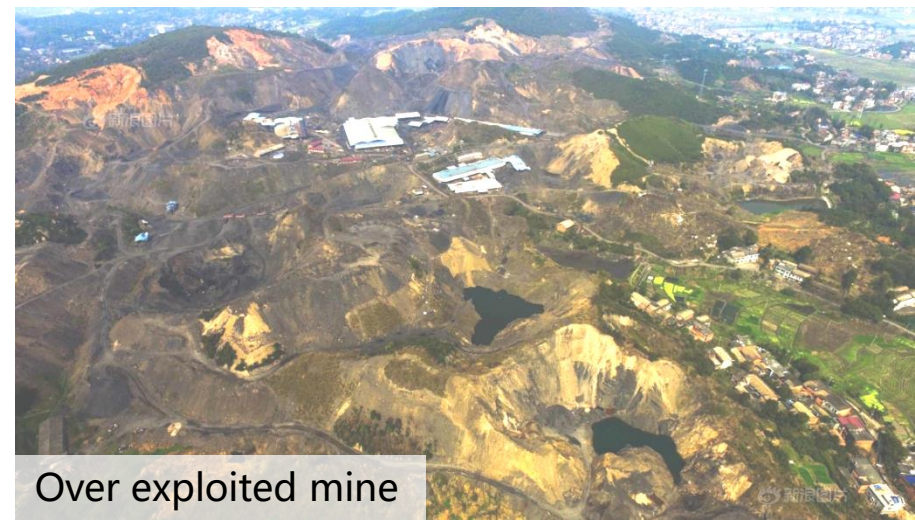
Pingxiang's traditional resource-dependent development path is unsustainable.



Pilot cities of resource exhausted



Anyuan Mine from 1898



Over exploited mine

PART.2

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## Sponge City— Sustainable Development Pathway

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- 2.1 Basic Concept of Sponge City
- 2.2 Significance to Sustainable Development
- 2.3 Path and Method of Construction
- 2.4 Sustainable Development Achievements



## Basic Concept

In 2013, General Secretary Xi Jinping made a clear statement at the Central Conference on Urbanization: "Building sponge cities with functions of natural accumulation, natural infiltration and natural purification."



Natural Accumulation

Natural Infiltration

Natural Purification

Systematic solution to water related problems

Activation of urban development

Promotion of urban construction quality

财 政 部  
住 房 城 乡 建 设 部 文 件  
水 利 部

财建〔2015〕896号

财政部 住房城乡建设部 水利部关于批复  
2015年中央财政支持海绵城市  
建设试点实施计划的通知

河北省、吉林省、江苏省、浙江省、安徽省、厦门市、江西省、  
山东省、湖北省、湖南省、广西壮族自治区、重庆市、贵州省、

List of the first Sponge City Pilot Cities

<b>Pingxiang, Jiangxi</b>	Baicheng, Jilin
Jiaxing, Zhejiang	Hebi, Henan
Chizhou, Anhui	Wuhan, Hubei
Xiamen, Fujian	Changde, Hunan
Zhenjiang, Jiangsu	Chongqing
Jinan, Shandong	Suining, Sichuan
Qian' an, Hebei	Gui' an, Guizhou
Nanning, Guangxi	Xi' an, Shaanxi



## Universal Management

Based on the overlying analysis of the geospatial information, the whole city is designated into 3 districts and controlled by 5 lines.



prohibited



restricted



available

### ● 五线划定全市面积占比



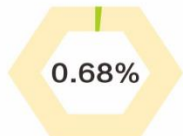
Ecological control



Construction land border



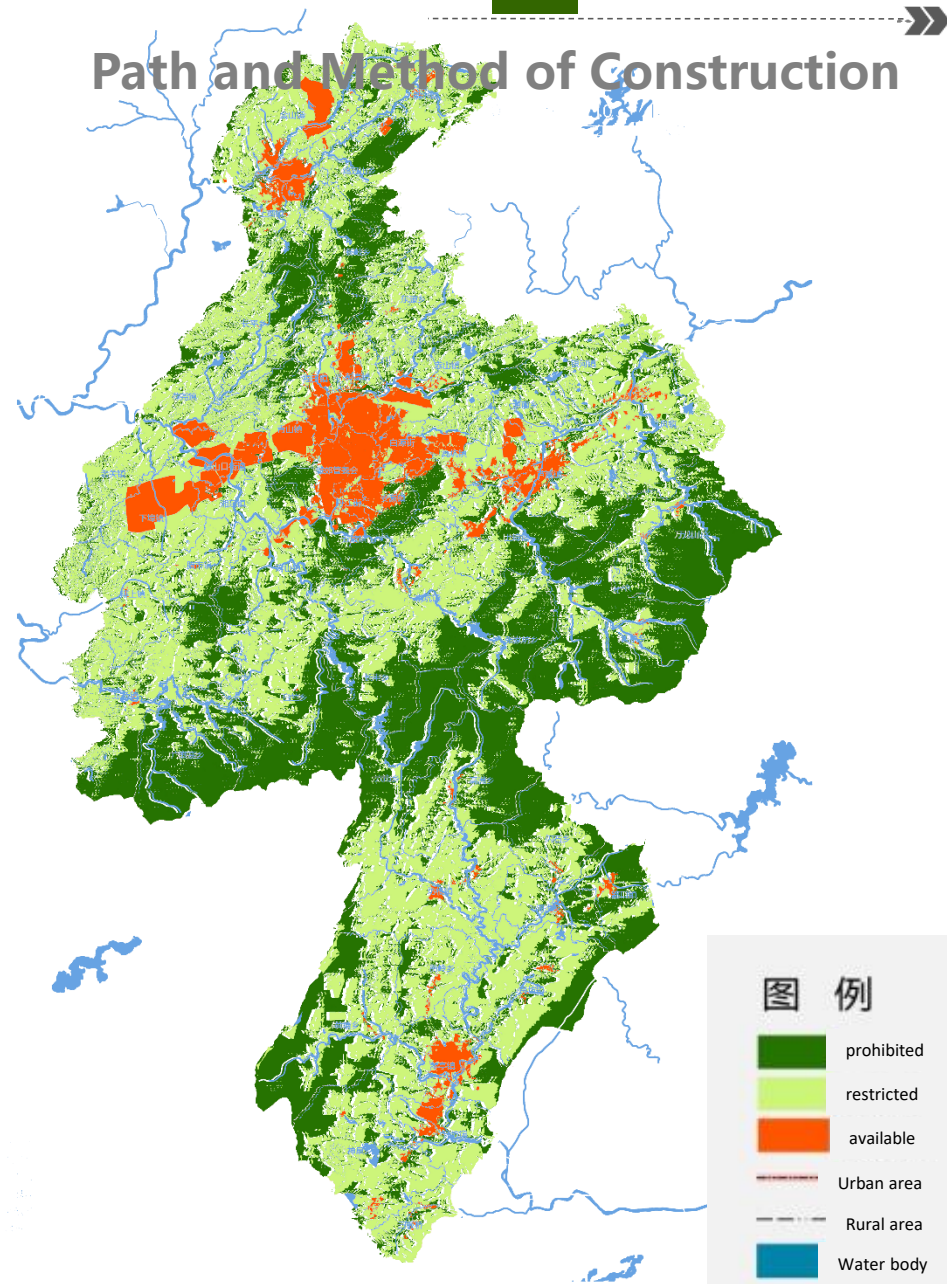
Urban development border



Key project control



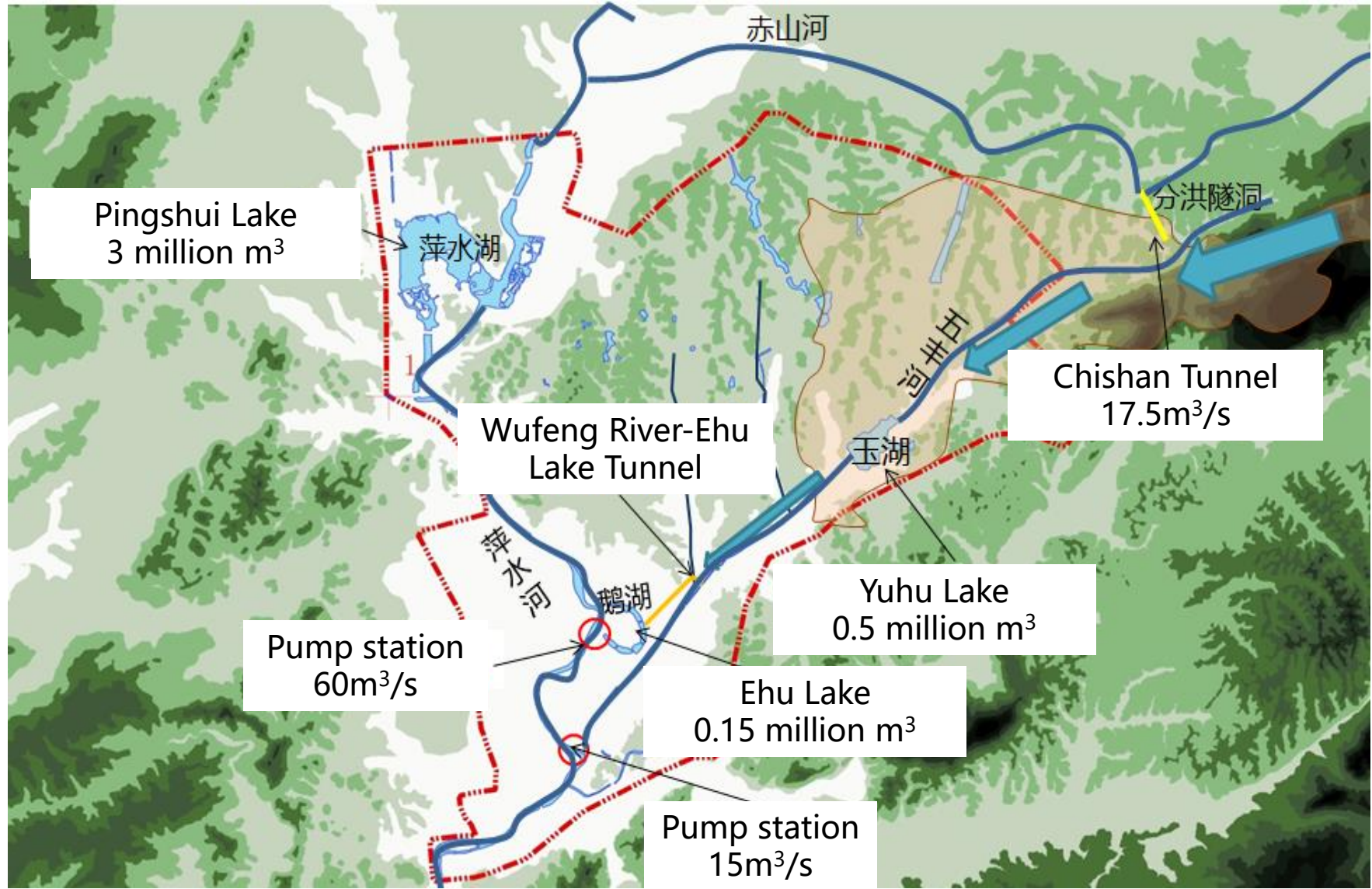
Permanent farmland control



Urban Spatial Control Pattern

## Path and Method

Water storage and drainage system “Dam in the upstream, store in the midstream, discharge in the downstream”





## Water storage and drainage system

In the upstream: Chishan Flood Diversion Tunnel





## Water storage and drainage system

In the midstream: storage and retention Lakes





### Water storage and drainage system

In the downstream: drainage box culverts and pump stations



Ehu Pump Station, 60m<sup>3</sup>/s



Wufenghe-Ehu Box Culvert



Wufenghe PS, 15m<sup>3</sup>/s



Ehu Pump Station, 60m<sup>3</sup>/s



Gongyuanlu Box Culvert

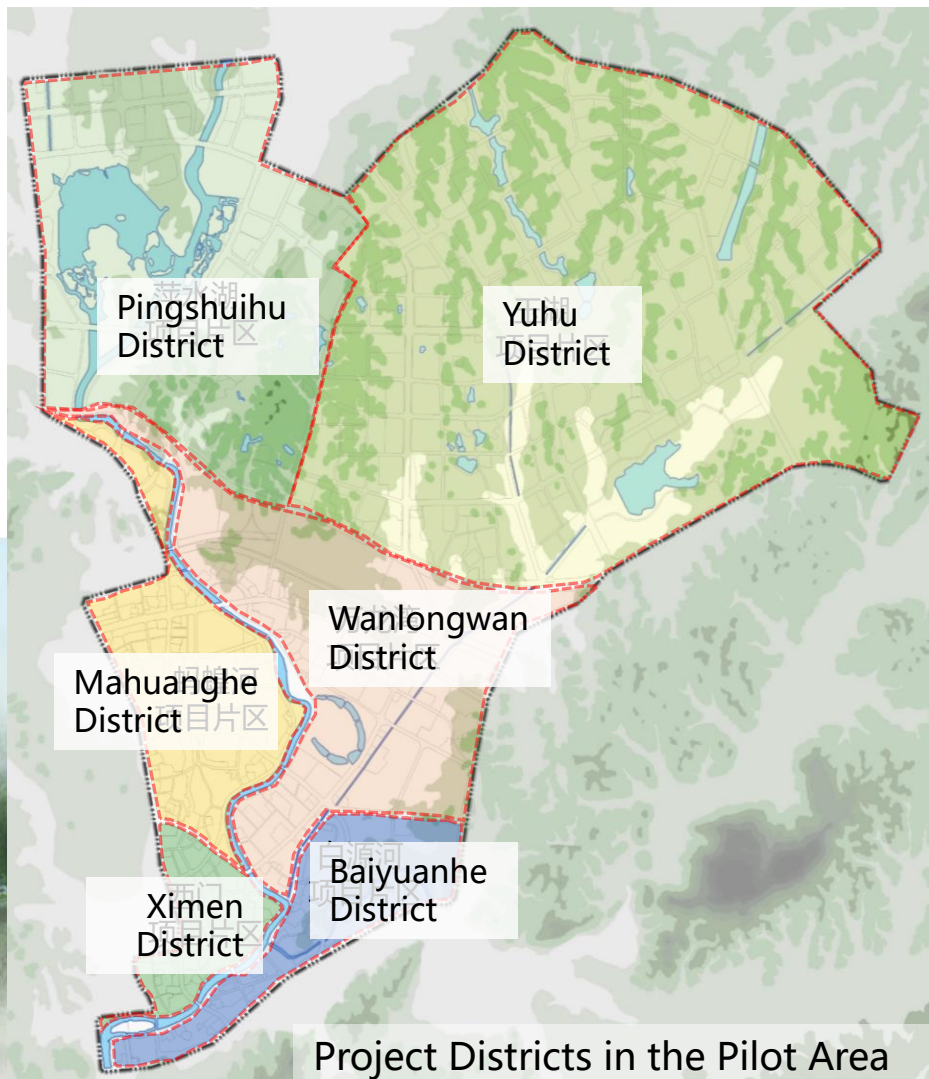


Flood Diversion Sluice



## Path and Method

- Oriented by problems, old town constructions should be carried out in project packages, considering factors such as drainage zoning and engineering conditions.
- Oriented by targets, new district constructions should focus on protecting natural storage space and building city-wide sponge skeleton.



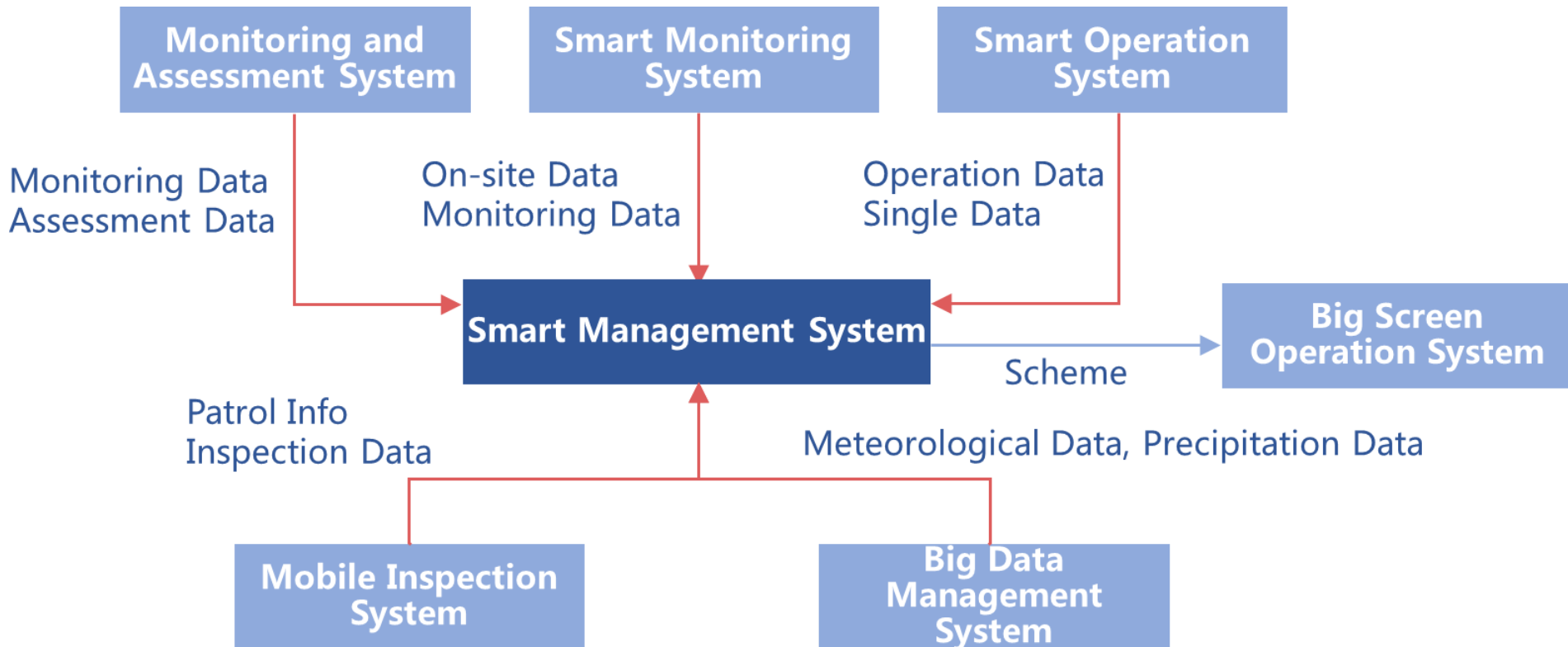
Sponge City planning for New District

Project Districts in the Pilot Area



## Smart Management Platform

### Smart City Facilities Operation and Management Platform



# 1. Optimize drainage, eliminate waterlogging

4

PART.2

## Achievements

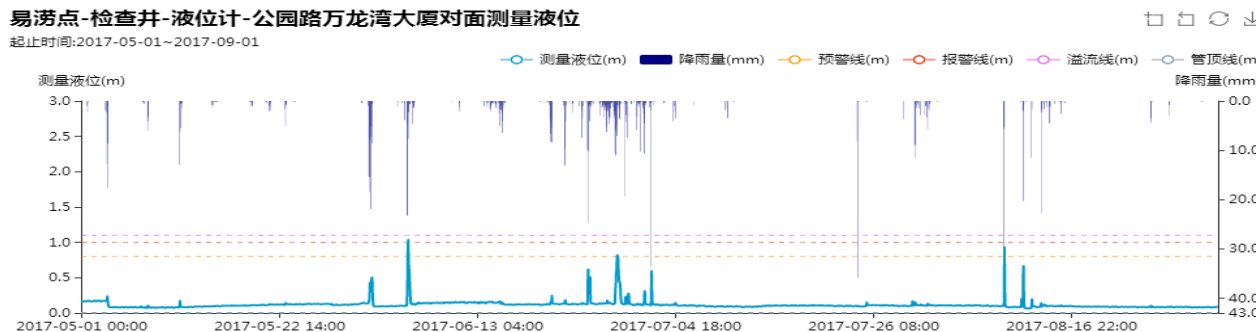
From 2017 till now, no waterlogging event has been reported.



July 8, 2016, severe waterlogging with rainfall of 79.8mm



June 1, 2017, no waterlogging with rainfall of 94.0mm



Liquid level monitoring data from Wanlongwan waterlogging

June 2017, Pingxiang experienced the heaviest rainfall in 18 months. Total rainfall in June is **540.8mm**, **130%** higher than average data.

During this rainy season, all liquid level monitor are free of alarming .



# 1. Optimize drainage, eliminate waterlogging

4

PART.2

## Achievements



2016, before



June 2016, before



2017, after

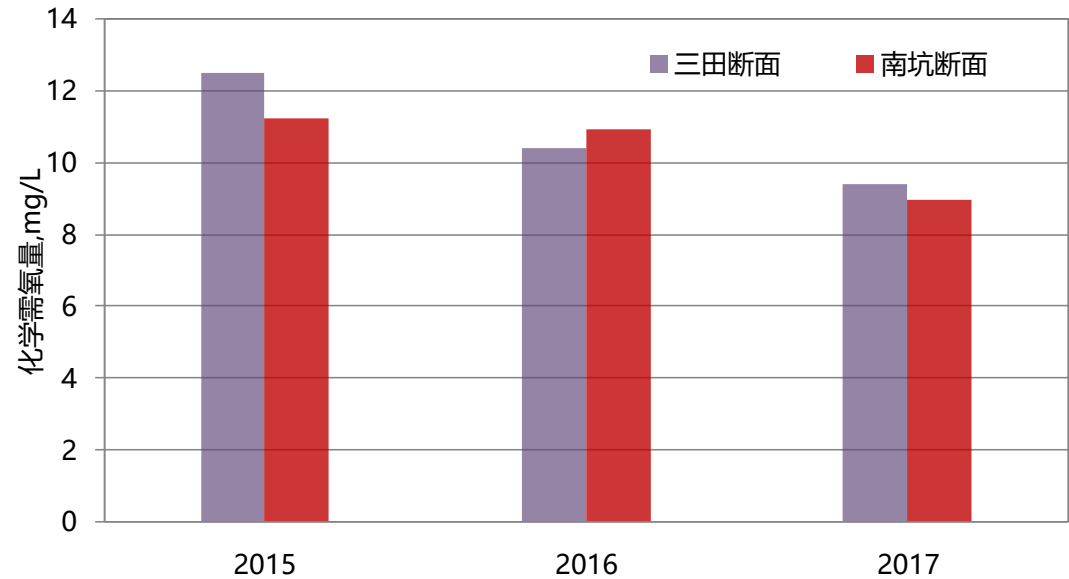


July 2018, after



## 2. Create Sponge City, rebuild healthy ecosystem

Urban water environment  
has been steadily improved



Before : lots of sewage outfalls distributed along the Wufeng River



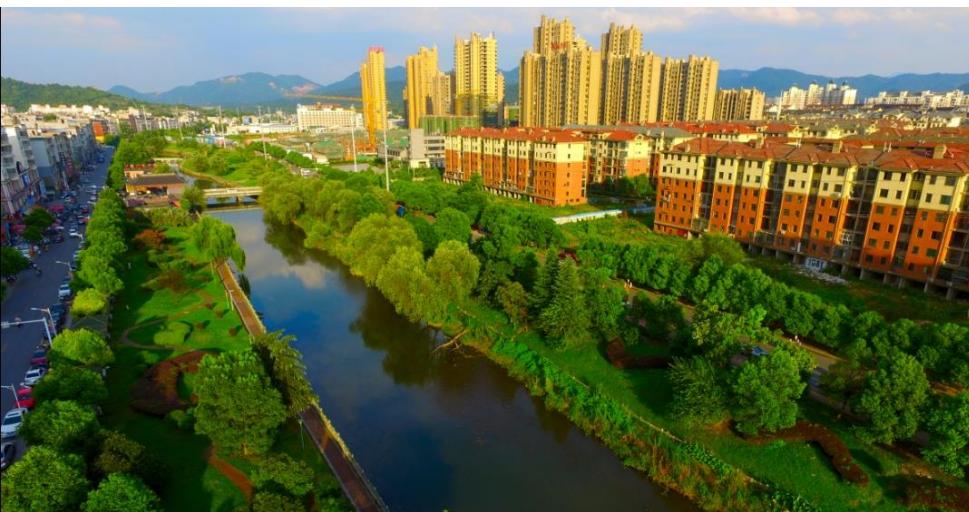
After: all sewage outfall were controlled and reformed



## 2. Create Sponge City, rebuild healthy ecosystem

### Achievements

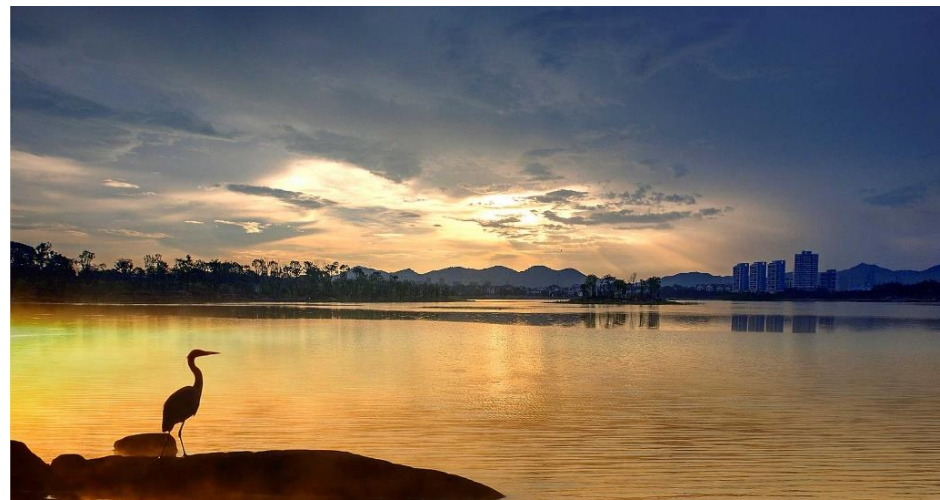
Water ecology of rivers and lakes has improved greatly



Baiyuan River after ecological transformation



Abundant aquatic plant communities



Biodiversity is significantly increased



## 2. Create Sponge City, rebuild healthy ecosystem

### Metamorphosis of industrial and mining city

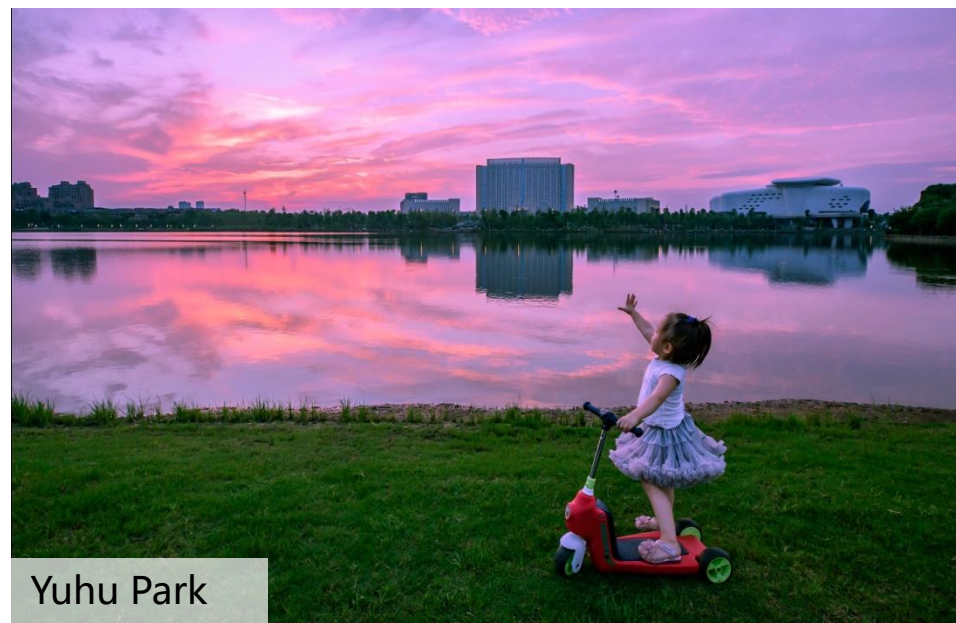
Pingxiang upgraded the public infrastructure and urban environment comprehensively. A group of high-quality parks were built, the city image and living environment were improved significantly.



Huoshen Square



City Greenway



Yuhu Park



## 2. Create Sponge City, rebuild healthy ecosystem

## Achievements



Dongsheng Kindergarten



Jindiancheng Housing Estate



Binhu West Road



Jinluofeng Park



# 3. Accelerate industrial transformation, activate urban development

## Achievements

### 萍乡市人民政府文件

萍府发〔2017〕8号

#### 萍乡市人民政府关于印发《萍乡市海绵产业 发展规划》的通知

各县（区）人民政府，市政府各部门：

《萍乡市海绵产业规划》已经市政府常务会审议通过，现印发给你们，请结合各自实际，认真贯彻执行。



（此件主动公开）

### 萍乡市人民政府文件

萍府发〔2017〕9号

#### 萍乡市人民政府关于组建江西海绵城市 建设发展投资集团公司的通知

市国有资产监督管理委员会：

经市政府常务会议审议，同意组建江西海绵城市建设发展投资集团公司。请抓紧落实，在2018年2月底前，完成集团公司组建工作。



### 江西海绵城市建设发展投资集团

赣西建筑规划  
勘察设计院

萍乡海绵智慧  
城市建设基金

萍乡市建筑工程  
开发有限公司

江西安源路桥  
集团有限公司

萍乡市规划  
勘察设计院

萍乡市建筑  
设计院

萍乡市水利  
设计院

萍乡市建筑  
工程公司

鼎鑫置业公司

"Pingxiang Sponge Industry  
Development Planning"

"Jiangxi Sponge City  
Construction and develop-  
ment Investment Group  
Company".

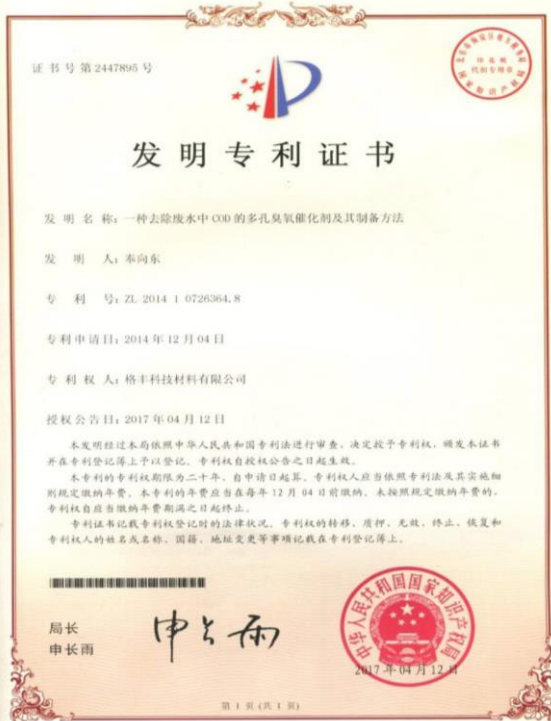


# 3. Accelerate industrial transformation, activate urban development

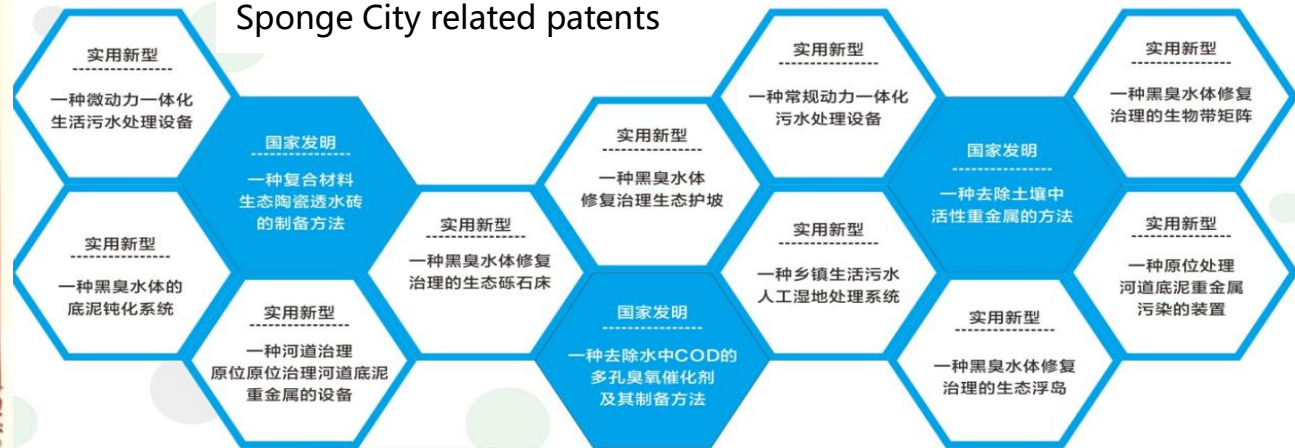
A large number of local traditional ceramic, concrete and other building material enterprises have successfully transformed



Permeable bricks and concrete produced by local factories



## Sponge City related patents





### 3. Accelerate industrial transformation, activate urban development

4

PART.2



## Achievements



Product Line of Ceramic Permeable Brick





## 4.Promote Urban Transformation and high-quality development

Sponge Town began to take shape

first city in China to construct Sponge town



Sponge City Innovative and Venture Base



Wupi Sponge Town

Geographic information technology is integrated into the operation system of spongy city facilities.



Real-time Monitoring

Intelligent Dispatching Simulation

**萍乡海绵城市管控平台**

设施调度 调度方案 雨前 内涝点 排水模型 排水监控 一雨一报 模拟调度

降雨参数: 降雨: 108 (mm), 历时: 24小时, 雨强: 0.3 (0.1-0.9)

气象灾害预警提醒: 萍乡市气象局发布暴雨蓝色预警信息  
发布单位: 萍乡市气象局  
预警类别: 暴雨  
预警级别: 蓝色  
预警时间: 2018年11月02日 13时51分  
应急响应

未来24小时降雨曲线 (mm): 10.06, 4.06, 4.06, 2.59, 5.18, 5.18, 9.7, 4.49, 3.65, 3.65, 3.25, 2.03, 2.03, 1.62, 2.03, 2.03, 2.03, 2.03, 0.00, 0.00, 0.00

实时水位: 13:51:58 玉 湖: 97.09(m), 13:51:58 簕 湖: 88.04(m), 13:51:58 萍水湖: 92.55(m)

泵站工况: 13:51:58 五丰河河口南泵站水闸: [开], 13:51:58 五丰河河口南泵站1号泵: [关], 13:51:58 五丰河河口南泵站2号泵: [关]

蓄水池库容: 13:51:58 建设路调蓄池: 250/5000m³(5%), 13:51:58 山下路调蓄池: 0/13000m³(0%), 13:51:58 江湾巷调蓄池: 0/4000m³(0%)

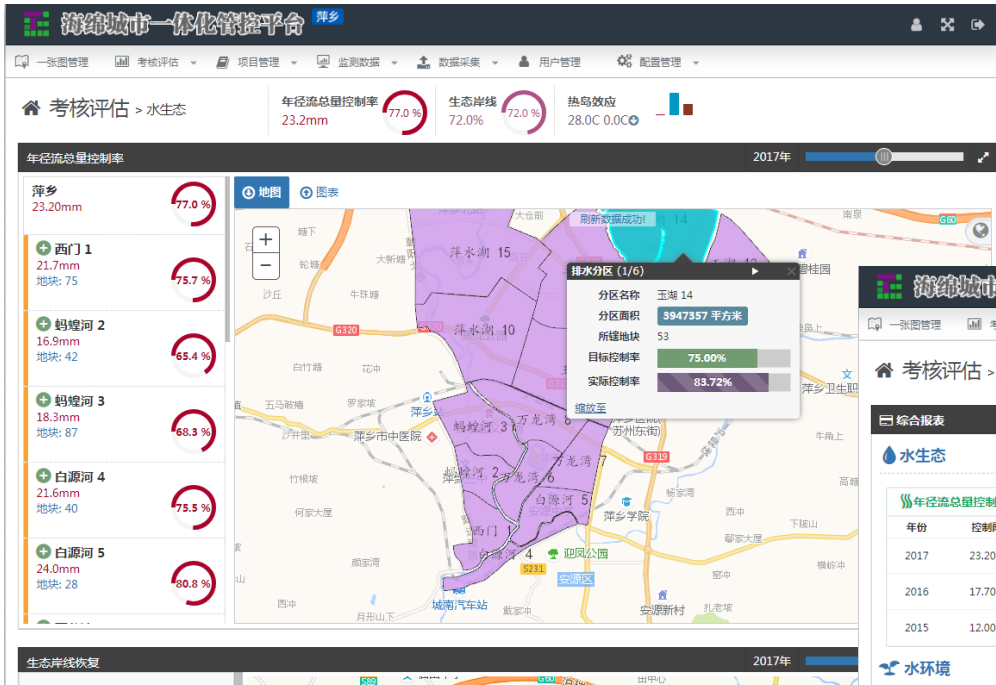
分析结果: 当前降雨量达到108mm, 预计五丰河来水量达到162.972 万m³, 赤山河来水量达到488.916 万m³, 萍水河来水量达到2607.552 万m³, 五丰河洪峰流量43.7m³/s, 赤山河洪峰流量131.1m³/s, 萍水河洪峰流量699.2m³/s, 洪峰到达时间2018-11-03 01:51:55

30年一遇设计	萍水湖	玉湖	簕湖
调节库容	314万m³	50万m³	15万m³
报警水位	>95.63m	>98.5m	>90m
操作水位	92-95.63m	96.6m-98.5m	87.5m-90.4m
非汛期	正常水位93m	正常水位98m	89.5m
汛期	水位降至92m	水位降至96.5m	水位降至87.5m

现方案	萍水湖	玉湖	簕湖
调节库容	314万m³	50万m³	15万m³
报警水位	>95.63m	>98.5m	>90m
操作水位	92-95.63m	96.6m-98.5m	87.5m-90.4m
非汛期	正常水位93m	正常水位98m	89.5m
汛期	水位降至93	水位降至98.5	水位降至88

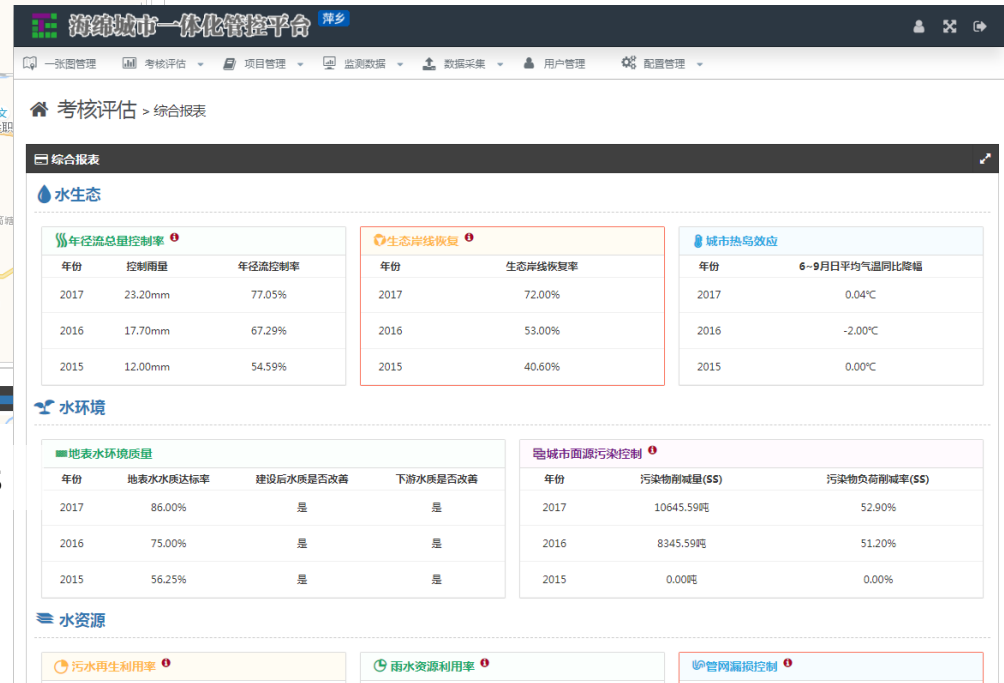


Geographic information technology is integrated into the operation system of spongy city facilities.



Performance Evaluation on Drainage Divisions

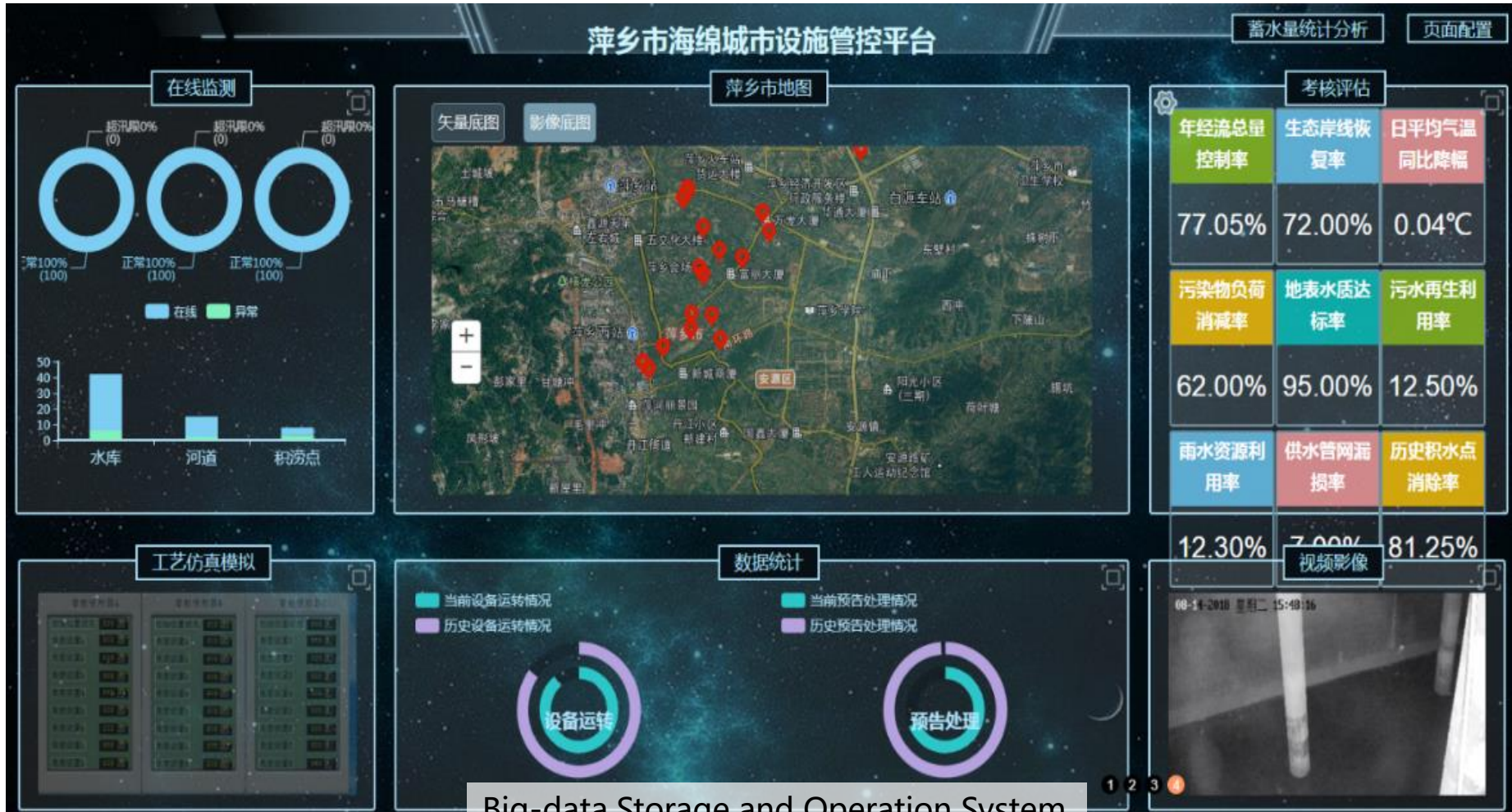
Performance Evaluation on Whole Pilot Area



Performance Evaluation on Whole Pilot Area

## Sustainable Development Achievements

Geographic information technology is integrated into the operation system of spongy city facilities



Big-data Storage and Operation System





*Thank you!*

PING XIANG



Welcome to beautiful Pingxiang!



**Sponge city construction makes Pingxiang Better**

**Spatial geoinformation makes Sponge city smarter**