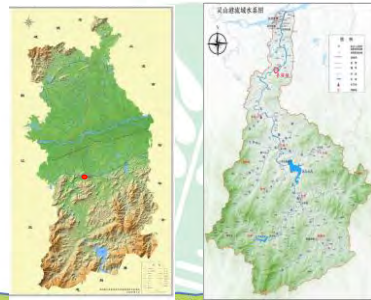


Research on Jiangxiyan Irrigation System

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- 01 Jiangxiyan Irrigation System
- 02 Design specialties of Jiangxiyan
- 03 Management
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History

Ming Danasty

- ✳ Jiangxiyan Irrigation System was constructed from 1330 to 1333 under the supervision of a Mongolian official.
- ✳ The pivotal project of the Jiangxiyan Irrigation System, clearly recorded in the documents of the 16th century, was composed of a barrage (Jiang Weir), an overflow weir (Xi Weir) and a water inlet. Jiangxiyan Irrigation System of the 16th century experienced three times of washouts, and three times of overhauls, and hence acquired a perfect engineering system and a management system which combines government supervision and management by the general public.
- ✳ The annual repair system, established in the Ming Dynasty (1368–1644), was passed on from generation to generation. Moreover, the System was closed on June 1 every year.
- ✳ In 1640, County Magistrate Huang Daping: On every June 1st, he would make personal appearance at the site where the weir was closed. "Once any leakage was found, he would have it closed up". Besides, as he was afraid the diverted water could not reach the highly-positioned water inlet of the village weir, he ordered that the old water inlet be replaced by a new one.

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1. Jiangxiyan Irrigation System

Introduction

- ◆ locate in Jinqiu Basin, west of Zhejiang Province, China.
- ◆ The System is located at the key place where the Lingshangang River, tributary of the Qijiang River, flows from the mountainous area to the plain.
- ◆ Situate in the subtropical moist monsoon climate region, with annual average precipitation totaling 1761.9 mm
- ◆ It was built between 1330 and 1333.
- ◆ Irrigate over 2,333 ha of farmland now



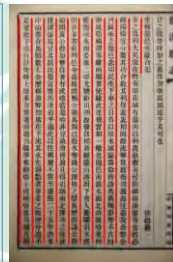
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History

Qing Danasty

- ✳ In 1736, County Magistrate Xu Qiyuan had Jiang Weir and Xi Weir rebuilt, diverting water into the city trench.
- ✳ In 1886, County Magistrate Gao Ying organized local gentry for donation for the construction of Jiangxiyan Irrigation System. Moreover, he was engaged in establishing the Weir Administration, formulating systematic rules and regulations for weir building and a system of fund raising and management and accountability system, and printing and distributing Report of Contributions to Rebuilding the Longyou Jiangxiyan Irrigation System.



Historical Document


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History

1927-2019


- ✦ In 1927, the provincial government presented a plaque to the farmers of the irrigation district. It was inscribed with four Chinese characters—"Benefiting Our Farmers". Management Committee of the Jiangxiyan Irrigation System was established which had over 20 members.
- ✦ In 1932, the Committee formulated and issued Management Regulations of Jiangxiyan Irrigation System.
- ✦ In October 1935, Cooperative of Farm Irrigation and Application of Jiangxiyan Irrigation System was established.
- ✦ In 1947, the Management Committee of the Jiangxiyan Irrigation System organized the construction of weir channel sluice project.
- ✦ Since the 1950s, the headwork and the canal system of the Jiangxiyan Irrigation System have experienced several renovations.
- ✦ The latest renovation was completed in 2014.



the Management Committee archives

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Jiang weir Xi weir
Intake gate Scouring sluice

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Irrigation System

The Jiangxiyan Irrigation System is composed of water-diversion headwork, irrigation and drainage canal network and control work.



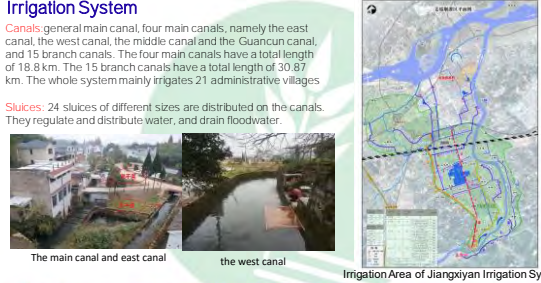
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Irrigation System

Canals: general main canal, four main canals, namely the east canal, the west canal, the middle canal and the Guancun canal, and 15 branch canals. The four main canals have a total length of 18.8 km. The 15 branch canals have a total length of 30.87 km. The whole system mainly irrigates 21 administrative villages

Sluices: 24 sluices of different sizes are distributed on the canals. They regulate and distribute water, and drain floodwater.



The main canal and east canal the west canal Irrigation Area of Jiangxiyan Irrigation System

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Irrigation System

- The water-diversion headwork: Jiang Weir, Xi Weir, Intake gate and scouring sluice.
- Jiang weir: 100 m long, its bed is 32 m wide and 63.2 m high.
- Xi weir: 50 m long and its bed is 30 m wide and 63.1 m high; arc-shaped, diverting water into the main irrigation canal through the intake gate.
- Thanks to the proper design of the elevation of the weir crest, Jiang Weir and Xi Weir regulate and control the water level, and the volume of water diverted. The weirs can guarantee the volume of the water needed for irrigation, whereas the rest of the water, when spilling over the weir crests, runs downward
- Scouring sluice: built between Xi Weir and the intake gate for preventing sludge from accumulating at the river intake.
- Sandbank: was used to build two weirs to divert water.



Jiangxiyan Irrigation System Pivot

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2. Design specialties of Jiangxiyan

- Scientific site selection
- Smart layout
- Reasonable structure
- Exquisite craftsmanship
- Using local materials
- Hydraulic processing and irrigation



Pinewood framework Pebbles
Hydraulic processing and irrigation

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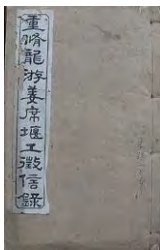
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3. Management

- supervised by the local government and managed by the general public.
- Traditionally, county-level officials, granted with the management power, assigned specific tasks to prestigious local gentry who would later distribute the work of maintenance to farmers benefiting from the irrigation system.
- The annual repair system was established no later than the end of the 16th century, and posts of weir official were also established for handling the matters of annual repair, water management, opening and closing the weir and collecting relevant fees.
- The weir administration was established in the Qing Dynasty (1644–1911). Under the supervision of the prefectural and county governments, the local gentry were specifically responsible for repairing weirs and canals, managing relevant funds, and formulating relevant rules and regulations.
- This management mode is still adopted to this day and has guaranteed the sustainable operation of the System. At present, the System is under the management of the water user association of Longzhou and Donghua neighborhoods which is under the guidance of the County Bureau of Water Resources.



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Report of Contributions to Rebuilding the Longyou Jiangxiyan Irrigation System



the Weir Administration in 19th century



Tablet Inscription about Jiangxiyan management



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4. Conclusion

- The Jiangxiyan Irrigation System has scientific site selection, ingenious layout, sound engineering system and effective management, secure prolonged comprehensive benefits, including agricultural irrigation. It's a model of mountain-river diversion projects constructed in ancient China.



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