

The Historical Practice and Value Analysis of Lin Zexu's Agricultural Governance in Jiangsu

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Abstract: This paper examines the historical practice and significance of Lin Zexu's agricultural governance model in Jiangsu during the Qing Dynasty. Lin Zexu's reforms, including water conservancy projects, grain reserves, disaster relief efforts, farmland protection, and agricultural innovation, played a crucial role in improving agricultural productivity and resilience to natural disasters. His promotion of early rice cultivation, the district farming method, and the introduction of the dragon-tail waterwheel not only addressed the pressing agricultural challenges of the time but also left a lasting legacy in Qing Dynasty agricultural policy. Lin Zexu's governance offers valuable insights into ancient agricultural management and continues to inform modern agricultural development.

1. Introduction

Lin Zexu's agricultural governance model in Jiangsu was based on local realities, focusing on water conservancy construction, grain reserves and disaster relief, farmland protection, and technological innovation. He improved agricultural productivity and disaster resilience through measures such as dredging rivers, building embankments, promoting early rice planting, and introducing the district farming method. In collaboration with others, he also drove agricultural technological innovations. These measures not only addressed the agricultural crises of the time but also provided valuable experience for local governance in the Qing Dynasty. This paper will explore the historical significance of Lin Zexu's agricultural governance and its far-reaching impact on later generations.

2. Analysis of the Agricultural Governance Model

2.1 Water Conservancy and Agriculture Integration

The Jiangsu region is known for its dense water network, with numerous rivers, lakes, and frequent floods, which have long been a major factor affecting local agricultural production. Lin Zexu deeply understood that "water conservancy is the foundation of agriculture."^[1] During his tenure as the Jiangsu Inspector and in subsequent roles, he implemented a series of effective water conservancy measures to lay the foundation for the sustainable development of agricultural production. In the third year of the Daoguang reign (1823), when Lin Zexu first took office, Jiangsu

faced a large-scale flood, with several counties along the Yangtze River and Taihu Lake suffering severe damage^[2]. In the face of this water disaster, Lin Zexu proposed and implemented an emergency water management plan aimed at mitigating the floods to protect agricultural production and ensure food security.

Lin Zexu's water management plan not only addressed the disaster at hand but also considered the geographical and hydrological conditions, adopting various specific measures, including dredging rivers, constructing embankments, and building flood control facilities. Among these, dredging rivers became the most critical task. He paid special attention to the management of key waterways such as the Baiqiao River, Wusong River, and Huangpu River, designing dredging solutions that met actual needs. For instance, in the case of the Baiqiao River, Lin Zexu cleared the accumulated silt and expanded the river's capacity, effectively improving the flow regulation function and reducing the flooding of farmland caused by water disasters. In the fourth year of the Daoguang reign (1824), his "Clear Water Long River" plan achieved significant results^[3], alleviating the pressure of the disaster and improving the efficiency of the agricultural irrigation system.

Moreover, Lin Zexu placed great emphasis on the regulation function of the river. In the case of the Liuhu River, he designed sluices to regulate water levels, ensuring that farmland could receive sufficient water during dry seasons and preventing floods from submerging farmland during flood periods. The construction of these sluices enabled the river's water flow to be adjusted according to need, ensuring agricultural irrigation while effectively preventing flood damage to farmland. This approach greatly enhanced the disaster resilience of water conservancy facilities and ensured the long-term sustainability of agricultural production.

Additionally, Lin Zexu paid attention to the effective use of funds during the flood management process. He adopted a model of cooperation between the government and private donations, gaining the support of the public. This approach not only alleviated the financial burden on the local government but also increased public participation in the governance process, creating a favorable situation for cooperation between officials and the people. In a time of social unrest and financial shortages, Lin Zexu's water conservancy governance model provided valuable experience for the agricultural development of Jiangsu.

Through Lin Zexu's water conservancy management, Jiangsu's agricultural production capacity was effectively safeguarded. The improvement of water conservancy facilities not only addressed the threat of floods but also enhanced irrigation efficiency and strengthened agriculture's ability to withstand disasters, laying a solid foundation for the recovery and development of agriculture in Jiangsu.

2.2 Grain Reserves and Disaster Relief

In the face of floods and droughts, Lin Zexu consistently prioritized ensuring food security as a core emergency measure. He focused on grain reserves and disaster relief to meet the basic needs of disaster victims while effectively restoring agricultural production. As a major agricultural province, Jiangsu frequently suffered from floods and droughts, which severely affected farmland cultivation and food production, causing widespread hardship among the population. With his profound governance philosophy, Lin Zexu implemented a series of flexible and effective measures to address the complex social and natural disasters of the time, aiming to alleviate the plight of the people.

In terms of grain reserves, Lin Zexu placed great importance on the management and diversification of grain storage. He recognized that grain reserves were not only essential for emergency responses but also the foundation for disaster prevention and social stability. During his

tenure in Jiangsu, Lin Zexu personally guided and inspected the management of grain warehouses, ensuring adequate supplies and proper storage to prevent spoilage or waste. In the lead-up to the large-scale flood in Jiangsu in the third year of the Daoguang reign (1823), Lin Zexu began preparations for grain reserves and urged local officials to promptly report grain stocks to ensure rapid allocation after the disaster^[4]. Lin Zexu particularly emphasized that, in times of disaster, grain should be distributed to affected areas as quickly as possible to prevent social panic and larger-scale livelihood crises caused by food shortages.

To ensure stable food supply in disaster-stricken areas, Lin Zexu implemented a series of effective disaster relief measures. He was particularly flexible in his approach, adjusting his actions according to the situation. For example, he actively encouraged local gentry and wealthy merchants to donate grain, relaxed tax policies, and incentivized rice merchants to enter the disaster areas by exempting them from customs duties. This measure ensured that grain from other regions could smoothly enter the Jiangsu market, alleviating local food supply pressures. Historical records show that Lin Zexu encouraged rice merchants from Sichuan, Hubei, and other regions to come to Jiangsu, exempting them from duties and coordinating with local officials to prevent excessive price hikes and hoarding by unscrupulous traders. These measures ensured stable grain prices in disaster areas, meeting the basic needs of victims and preventing significant fluctuations in the grain market in Jiangsu.

Furthermore, Lin Zexu's disaster relief efforts not only focused on distributing supplies but also emphasized the importance of self-help for the disaster victims. After the floods, many people lost their homes and farmland, making it difficult for them to survive. Lin Zexu advocated for "self-reliance,"^[5] encouraging the victims to return home, rebuild their homes, and resume production. Through extensive mobilization, he organized disaster victims to participate in reclaiming farmland, replanting vegetables, and other self-help activities, thus recovering agricultural production while alleviating the economic pressures on the victims. According to historical records, Lin Zexu instructed local officials to quickly organize disaster victims to participate in water conservancy projects and farmland restoration, ensuring the early recovery of agricultural production and facilitating post-disaster economic recovery.

Lin Zexu's grain reserves and disaster relief efforts demonstrated his deep concern for the people's livelihoods and his outstanding governance ability. Through meticulous grain management, effective disaster relief policies, and self-help measures for the victims, Lin Zexu achieved remarkable results in safeguarding livelihoods and restoring agricultural production.

2.3 Farmland Protection and Production Recovery

Farmland protection and production recovery were key components of Lin Zexu's agricultural governance, particularly in the context of severe floods and droughts in Jiangsu. Timely restoration of farmland became essential for agricultural recovery. Lin Zexu understood that merely ensuring food supply was not sufficient to address the restoration of agricultural production after a disaster; effective farmland protection and restoration measures were necessary to ensure the sustainable development of agriculture.

In the post-disaster recovery process, Lin Zexu adopted a series of effective measures, with the most notable being the encouragement of rapid sowing and the replanting of vegetables and other crops^[6]. He emphasized the need to make use of the winter months for supplementary planting, ensuring soil fertility and making full use of available land. After the disaster, much of the farmland in Jiangsu was flooded, and crops were almost completely destroyed, forcing many farmers to leave their homes. To prevent long-term idleness of farmland, Lin Zexu organized and encouraged farmers to return to their homes and resume cultivation. He paid particular attention to the

replanting of food and vegetables, promoting the planting of cold-resistant vegetables and other short-term crops after the flood. This not only provided urgently needed food for disaster victims but also prevented soil degradation caused by prolonged fallow periods.

At the same time, Lin Zexu attached great importance to the repair and protection of water conservancy facilities. In the process of farmland recovery, the clearing of water channels and strengthening of dikes became central tasks. Lin Zexu understood that ensuring the effective operation of water conservancy facilities was crucial to preventing future flood damage to farmland and ensuring the smooth operation of irrigation systems. He actively organized the repair of irrigation channels, reinforced dikes, and used technical methods to prevent further silting of the rivers. These repairs and reinforcements significantly accelerated the recovery of agriculture in Jiangsu, allowing many paddy fields to be re-irrigated and ensuring the smooth planting of crops.

In addition, Lin Zexu also paid special attention to the promotion of new farming techniques. During the agricultural recovery process, he engaged in in-depth discussions with local agricultural experts, including Pan Zengyi, to promote the widespread adoption of the "Qu Tian Fa" (field zoning method)^[7]. This farming method, which utilizes rational zoning, crop rotation, and fallow periods, improves land utilization efficiency. Through this method, farmers could avoid over-cultivation, reduce land degradation, and increase land productivity. Additionally, Lin Zexu advocated for the planting of early rice, especially in the aftermath of disasters. Promoting early rice cultivation not only mitigated the impact of disasters on agriculture but also increased the crop yield in one season, providing a more stable food source for farmers.

Lin Zexu's agricultural recovery measures were not only emergency responses to restore agricultural production but also aimed at fundamentally improving agriculture's ability to withstand disasters and ensure sustainability.

2.4 Technological Innovation and Agricultural Technique Promotion

In his agricultural governance in Jiangsu, Lin Zexu actively promoted technological innovation and the spread of agricultural techniques, demonstrating his foresight in agricultural production. His innovative measures, particularly in the reform of water conservancy facilities and farmland cultivation techniques, had a profound impact.

One of the key innovations introduced by Lin Zexu was the Dragon Tail Waterwheel^[8], a typical example of his integration of water conservancy and agriculture. The Dragon Tail Waterwheel is an irrigation tool driven by water power. It solved the problem of low efficiency in traditional manual irrigation, significantly increasing irrigation efficiency and reducing the labor intensity of farmers. Under Lin Zexu's initiative, the Dragon Tail Waterwheel was widely applied in agricultural production across Jiangsu, greatly enhancing the efficiency of water conservancy facilities and ensuring the normal operation of agricultural production after water disasters. Through this innovation, he provided a more stable and efficient water source for agriculture in the Jiangnan region, particularly in areas with challenging irrigation conditions. The introduction of this technology was undoubtedly a significant boost to agricultural productivity.

In addition to innovations in water conservancy facilities, Lin Zexu also actively promoted changes in agricultural planting techniques. Particularly in early rice cultivation, by promoting the cultivation of early rice, he effectively mitigated the risk of traditional late rice being damaged during the flood season. Early rice has a short growing cycle and strong disaster resistance. By promoting this technique, Lin Zexu helped farmers quickly restore agricultural production, increasing food yield and supply capacity in a short period.

Furthermore, Lin Zexu collaborated with local agronomists, including Pan Zengyi, to promote new farming methods such as the "Qu Tian Fa" (field zoning method). These new techniques

optimized land use through rational field planning, preventing over-cultivation and soil degradation, thus enhancing the productivity and long-term sustainability of farmland.

3. Historical Value Analysis

3.1 Enhancing Agricultural Productivity

Lin Zexu significantly enhanced agricultural productivity in Jiangsu through water conservancy projects. By dredging key waterways such as the Baimao River and Liuhu River, he improved irrigation conditions for farmland and reduced the impact of floods on agriculture. At the same time, he emphasized the dual functions of water conservancy infrastructure for both flood prevention and irrigation, ensuring a stable water supply for the farmland. Lin Zexu also made innovations in agricultural techniques, promoting the cultivation of early rice and double-cropping rice, which increased the replanting index and yield per unit area. Additionally, by selecting high-quality rice varieties suited to local climate conditions, he enhanced agricultural resilience to disasters. The introduction of the Dragon Tail Waterwheel significantly increased irrigation efficiency, reduced labor intensity for farmers, and provided sustainable support for agricultural production.

3.2 Constructing a Model for Local Governance

Lin Zexu's agricultural governance provided a successful model for local governance during the Qing Dynasty. He adapted his governance strategies based on local realities, particularly in dredging riverways and promoting early rice cultivation, reflecting the principle of tailoring solutions to local conditions. He also emphasized cooperation between officials and the public, encouraging local gentry to donate funds and grain, supporting water conservancy restoration and agricultural recovery. His concept of “officials must be diligent, and the people must be responsible”^[9] mobilized social forces, effectively alleviated the fiscal pressure on the government, and strengthened public participation, providing valuable experience for local governance.

3.3 Promoting Agricultural Technological Innovation

Lin Zexu's promotion of agricultural technology greatly advanced agricultural productivity. The introduction of the Dragon Tail Waterwheel and the promotion of the "Qu Tian Fa" (field zoning method) improved irrigation efficiency, optimized land use, reduced soil degradation, and enhanced farmland productivity. Additionally, by experimenting with and promoting early rice varieties, Lin Zexu helped farmers increase rice yields and improve disaster resistance. Lin Zexu's technological innovations not only enhanced agricultural stability but also contributed to the development of Qing Dynasty agricultural technology, laying a foundation for future progress in agricultural techniques.

4. Conclusion

Lin Zexu's agricultural governance model in Jiangsu is celebrated for its systematic and scientific design, showcasing a holistic and pragmatic approach to addressing the challenges of his time. The model emphasized the integration of water conservancy and agriculture, the strategic management of grain reserves and disaster relief, the restoration and sustainable use of farmland, and the promotion of technological innovation. These elements formed a cohesive framework that not only responded effectively to the frequent floods and droughts in Jiangnan but also established a foundation for sustainable agricultural development. Through projects such as dredging the Baimao River and promoting the use of the Dragon Tail Waterwheel, Lin exemplified his dedication to

technological advancement, which significantly improved irrigation efficiency and reduced labor burdens. His introduction of early rice cultivation and the implementation of the Qu Tian method optimized agricultural practices, strengthened the resilience of farming systems, and ensured the long-term stability of agricultural production.

From a historical perspective, Lin Zexu's agricultural governance represents a milestone in Qing Dynasty local administration. His ability to adapt to specific regional challenges, combined with his emphasis on collaboration between officials and the public, set a benchmark for effective governance. Lin's policies demonstrated how local resources, technological advancements, and community participation could be harnessed to achieve both immediate disaster recovery and sustained economic growth. His governance practices not only enriched the practical experience of Qing officials but also provided valuable insights for future generations. By emphasizing adaptability, people-centered strategies, and innovative solutions, Lin Zexu's model offers a template for addressing similar challenges in other historical and geographical contexts.

Looking ahead, Lin Zexu's agricultural governance model transcends its historical role to serve as a source of inspiration for modern agricultural modernization efforts. His approach exemplifies the importance of grounding policy in local realities, prioritizing the well-being of the people, and fostering a culture of innovation to overcome complex challenges. As contemporary agricultural systems grapple with issues such as climate change, resource scarcity, and food security, Lin Zexu's governance philosophy remains profoundly relevant. It highlights the enduring value of pragmatic, inclusive, and forward-thinking governance, urging policymakers to draw from historical lessons to create sustainable solutions for today's pressing issues. Through further exploration and application of Lin's practices, his legacy can continue to inform and shape the future of agricultural development and governance.

References

- [1] Anonymous. *Compilation of Lin Zexu Archives from the Qing Palace*, Vol. 25 [M]. Haixia Literature and Art Publishing House, 2020.
- [2] Tie Yan. Lin Zexu in Jiangsu [J]. *Jiangsu Local Chronicles*, 2024(05):75-78.
- [3] Lu Yuqin. "An Overview of Lin Zexu's Disaster Relief Efforts in Jiangsu" [J]. *Journal of Jiangnan University (Humanities and Social Sciences Edition)*, 2004, 3(2): 51-55.
- [4] Zhou Zhibin. "Lin Zexu's Water Control in Jiangsu" [J]. *Jiangsu Water Conservancy*, 2004(6): 46-48.
- [5] Zou Xiaohua, Dong Guoyan. "Lin Zexu in Jiangsu as Seen in the Late Qing Novel Lin Gong An" [J]. *Lantai Neiwei*, 2021(32): 37-39.
- [6] Zhang Ji, Du Hao. "Lin Zexu's The Situation of Rice Crop Failure Due to Continuous Rain in Jiangsu" [J]. *Calligraphy*, 2022(6): 208.
- [7] Ding Weizhong, Lu Haiming. "Lin Zexu and Nanjing" [J]. *Nanjing History and Local Chronicles*, 1998, (01): 18-20.
- [8] Dong Caishi. *Lin Zexu* [M]. Jiangsu Ancient Books Publishing House, 1984.
- [9] Lin Zexu. *Lin Zexu's Letters* [M]. Jiangsu Ancient Books Publishing House, 1999.