

Suggestions for Establishing Local Pilot Zones for National Ecological Civilization Experimental Areas in Jiangsu

Wang Zhenlu

Country Office of Humanities and Social Sciences, Nanjing Forestry University, Nanjing, Jiangsu, 210037, China
njfwzl@njfu.edu.cn

Abstract: The article analyzes Jiangsu's advantages and foundational strengths in ecological civilization construction, including its rich natural resources, strong economic capacity, and notable achievements. It also identifies key issues and challenges encountered during the establishment process, such as the prominent conflict between ecological protection and economic development, and the inadequate environmental governance infrastructure in certain areas. Based on these findings, the study proposes several strategies and recommendations, including the promotion of green industry development, enhancement of ecological protection and restoration efforts, strengthening of environmental protection infrastructure, advancement of technological innovation, guidance of public participation, reinforcement of regional cooperation and collaboration, and improvement of the policy and regulatory framework.

Keywords: ecological civilization pilot zones; green development; ecological protection

1. Introduction

Ecological civilization construction is a fundamental strategy crucial to the sustainable development of the Chinese nation. Since the 18th National Congress of the Communist Party of China, the Central Committee, has placed great emphasis on ecological civilization, considering it an essential strategic task for achieving sustainable development. To accelerate ecological civilization construction, the state has successively issued a series of documents and reform proposals, comprehensively and systematically deploying ecological civilization initiatives in terms of objectives, tasks, and institutional guarantees. The Fifth Plenary Session of the 18th Central Committee further proposed the establishment of unified national ecological civilization experimental zones to promote comprehensive trials of ecological civilization system reforms and standardize various pilot demonstrations, thereby exploring pathways and accumulating experiences for refining the ecological civilization institutional system. This decision marks a new phase in China's ecological civilization construction.^[1]

In 2016, the General Office of the Central Committee and the State Council issued the "Opinions on Establishing Unified National Ecological Civilization Experimental Zones," subsequently initiating pilot zone construction in the provinces of Fujian, Jiangxi, Guizhou, and Hainan, thereby contributing to four models for national ecological civilization development. As one of China's most economically dynamic and regionally representative provinces, Jiangsu bears the responsibility and obligation to explore new development paths and models in this wave of ecological civilization construction. Therefore, Jiangsu should fully leverage its resource advantages, enhance its ecological civilization construction mechanisms, and establish local pilot zones for national ecological civilization experimental areas. This initiative aims to improve local environmental quality, give full play to the spatial spillover benefits^[2], provide a demonstrative model for national ecological civilization efforts, and enhance China's influence and discourse power in global environmental governance.

2. The Value and Significance of Jiangsu Establishing Local Pilot Zones for National Ecological Civilization Experimental Areas

2.1. Promoting Transformation of Economic Development Models

As Jiangsu's economy rapidly develops, it faces challenges such as resource scarcity and

environmental pollution. Establishing local pilot zones for national ecological civilization experimental areas can facilitate the transition of Jiangsu's economic development model from the traditional "high input, high consumption, high pollution" approach to a "low consumption, low pollution, high efficiency" ecological civilization model. Through ecological civilization construction, Jiangsu can promote industrial structure optimization, energy structure adjustment, and the development of green industries, achieving sustainable economic development. This requires Jiangsu to minimize its environmental impact while pursuing economic growth and realizing green development.

2.2. Enhancing Ecological Protection and Restoration

The core of ecological civilization construction is the protection of the ecological environment and the promotion of ecological restoration. Jiangsu possesses abundant natural resources and a favorable ecological environment; however, rapid economic development has also placed pressure on these ecosystems. Creating local pilot zones for national ecological civilization experimental areas can strengthen ecological protection efforts, enhance ecological restoration initiatives, and advance ecological civilization demonstration projects, ultimately improving the ecological environment. This, in turn, can elevate the quality of life for residents and ensure the safety and stability of the ecological environment.

2.3. Increasing Regional Competitiveness

Regional competitiveness is a key factor in economic development. Ecological civilization construction is not only a future trend but also a crucial area of international competition. By establishing local pilot zones for experimental areas of national ecological civilization, Jiangsu can enhance its regional brand image and visibility, attracting more investment and talent, and thereby strengthening its competitiveness. Moreover, ecological civilization construction can foster technological innovation and the promotion of green technologies, driving industrial upgrades and transformations, which in turn improve the quality and efficiency of economic development.

2.4. Advancing Social Development

Ecological civilization construction is closely linked to social development, encompassing economic and environmental dimensions. By establishing local pilot zones for experimental areas of national ecological civilization, Jiangsu can promote the progress of social civilization and harmonious development. This initiative can enhance the cultural literacy and environmental awareness of the populace, support the growth of social welfare initiatives, and advance social equity and sustainability. Additionally, ecological civilization construction can improve the quality of life and well-being of the residents.

2.5. Providing Experiential References for Other Regions

Jiangsu's establishment of local pilot zones for national ecological civilization experimental areas serves as an important model and guide for advancing ecological civilization construction nationwide. By creating these experimental zones, Jiangsu can explore a development model for ecological civilization that suits its unique context, offering valuable references for other regions across the country and promoting more significant achievements in national ecological civilization efforts. Furthermore, these experimental zones can act as windows for international exchange and cooperation, providing platforms and opportunities for collaboration between China and other nations.

3. Advantages and Foundations for Jiangsu to Establish Local Pilot Zones for National Ecological Civilization Experimental Areas

As one of the fastest-developing and economically robust provinces in China, Jiangsu possesses numerous favorable conditions and foundational advantages for ecological civilization construction, primarily reflected in the following aspects:

First, Jiangsu has unique natural resources and a rich ecological environment. Located in the Yangtze River Delta, Jiangsu is the province with the longest Yangtze River coastline in the country, hosting 4,124 recorded species, which accounts for 59.7% of the total species in the province (latest data indicates that the number of species in Jiangsu has increased to 6,903, up by 857 species since 2021). Additionally, the

province has extensive coastal areas with abundant marine resources. Jiangsu also has the largest proportion of water area in the country, with numerous rivers and lakes. There are over 2,900 rivers and nearly 300 lakes, along with more than 1,100 reservoirs; among these, Taihu Lake and Hongze Lake are the third and fourth largest freshwater lakes in China, respectively. Furthermore, Jiangsu boasts large areas of forests, wetlands, and other natural ecosystems, with a forest coverage rate of 24% and a natural wetland protection rate of 64.3%. The wetland area exceeds 3 million hectares, representing about one-quarter of the province's total land area, with the highest wetland rate among all provinces and the sixth-largest absolute area nationwide. These conditions provide Jiangsu with exceptional advantages for ecological civilization construction, allowing the province to better utilize its natural resources, improve resource efficiency, and reduce environmental burdens.^[3]

Second, Jiangsu has a strong economic foundation, characterized by robust economic strength, industrial capability, and innovation capacity. The province ranks among the top in the country for both total economic output and per capita income. Jiangsu also features a well-developed modern industrial system, particularly focused on high-end manufacturing, modern services, and high-tech industries. Data from 2021 indicates that the output value of strategic emerging industries and high-tech industries accounted for 39.8% and 47.5% of the total industrial output, respectively. The revenue of high-tech service industries increased by 18.1% year-on-year, contributing 32% to the growth of the province's service sector. Investment in high-tech industries grew by 21.6%, exceeding the overall investment growth rate by 15.8 percentage points. The digital empowerment of industries is also strong, with the added value of digital product manufacturing in the industrial sector increasing by 19.7% compared to the previous year, surpassing the overall industrial growth rate of 6.9 percentage points. Additionally, revenue from internet-related services in the service sector increased by 27.5% year-on-year. These factors provide a solid economic foundation and industrial support for ecological civilization construction, facilitating innovative development and promoting industrial upgrades.

Third, Jiangsu has achieved significant results and experiences in ecological civilization construction:

(1) The quality of the ecological environment has continuously improved. Jiangsu has made sustained progress in air quality, water quality, and soil conditions, reaching historically optimal environmental standards. In 2022, the proportion of days with good air quality reached 83.9%, an increase of 1.3 percentage points from the previous year; the average PM2.5 concentration decreased to 30 micrograms per cubic meter, representing a 9.7% reduction year-on-year. The proportion of surface water quality at national monitoring points rated as Grade III or better reached 92.8%, an increase of 3.6 percentage points compared to the previous year.

(2) The ecological spatial pattern has gradually been optimized. Jiangsu has made proactive efforts in ecological protection and restoration, leading to a gradual optimization of the ecological spatial structure. In recent years, the province has vigorously constructed ecological projects, establishing a total of 67 ecological safety buffer zones covering approximately 3,230 hectares. By the end of 2022, the natural wetland protection rate had reached 61.9%, and the proportion of ecological shorelines was 54.4%.

(3) The level of green development has continuously improved. Jiangsu has actively explored and practiced initiatives to promote green development and low-carbon transformation. Since 2020, Jiangsu has taken the lead nationwide in launching the "Green Island" construction initiative, based on the concept of "intensive construction and shared pollution control," resulting in the completion of 154 projects that benefit over 30,000 small and medium-sized enterprises. Moreover, multiple mechanisms have been established to help enterprises address pollution control challenges. For example, initiatives such as strengthening "environmental protection loans," expanding "environmental protection guarantees," and implementing the "EOD" model have collectively mobilized financing of 41.3 billion yuan, alleviating issues related to financing for pollution control. In 2022, Jiangsu achieved a 3.7% reduction in energy consumption per ten thousand yuan of regional GDP, and carbon dioxide emissions per ten thousand yuan of regional GDP decreased by 5%.

(4) The capacity for ecological environment governance has been continuously strengthened. Jiangsu has consistently increased investments and efforts in ecological environment governance. In 2022, the annual average water quality at national monitoring points met or exceeded Grade III standards for 91% of the locations, marking a significant milestone by surpassing 90% for the first time, thereby achieving a superior quality level with no locations rated below Grade V. In August 2023, the proportion of excellent water bodies assessed by the state increased by 1.0 percentage points year-on-year, with the water quality of the main stem of the Yangtze River in Jiangsu maintaining a stable Grade II classification, and the concentrations of total phosphorus and total nitrogen in Taihu Lake improving by 14.8% and 15.4%, respectively.

(5) Local policies and regulations concerning the ecological environment have been continually refined. The various levels of government in Jiangsu have consistently prioritized ecological civilization construction, revising and formulating 14 local laws and regulations in the ecological environment sector, such as the "Soil Pollution Prevention and Control Regulations of Jiangsu Province," the "Implementation Plan for Coordinated Reduction of Pollution and Carbon," and the "Measures to Promote Ecological Civilization Education in Jiangsu Province." Over the past three years, a total of 114 local standards have been issued, doubling the total from the previous decade. Additionally, financial policies linked to pollution reduction and carbon emissions have effectively stimulated the internal motivation for pollution control and emission reduction. Plans to incentivize leading enterprises in green development have been developed to encourage corporate green transformations. Initiatives such as "Green Island" construction have also been launched. In summary, Jiangsu has made positive advancements and significant achievements in ecological civilization construction, laying a solid foundation for the establishment of local pilot zones for national ecological civilization experimental areas.

Moreover, Jiangsu has also made significant progress in the promotion of ecological civilization and international cooperation. Governments at various levels in Jiangsu actively conduct ecological civilization awareness and education activities to enhance public environmental protection awareness. For instance, the province has established a base for the study of authoritative Thoughts on Socialism with Chinese Characteristics for a New Era at the Ecological Environment Department, founded the Jiangsu Ecological Civilization Academy, and actively supported the construction of the Yangzhou China Grand Canal Museum. Additionally, it has jointly established the Jiangsu Ecological Environment Science and Education Promotion Base to deepen public understanding and awareness of environmental protection through educational activities. Furthermore, Jiangsu strengthens communication and cooperation with international environmental organizations, drawing on advanced global environmental protection concepts and technologies to continuously improve its ecological civilization construction efforts.

Finally, Jiangsu has a rich cultural atmosphere, high-quality talent, and a solid educational and research foundation. The province is one of China's major educational hubs, housing 168 institutions of higher education (78 undergraduate and 90 vocational), ranking first nationally in both the total number of universities and undergraduate institutions. Among these, 16 are classified as "Double First Class" universities, second only to Beijing. The excellent state of higher education in Jiangsu has produced a substantial pool of professionals for various sectors. This allows Jiangsu to leverage its talent advantages more effectively in ecological civilization construction, driving technological innovation and the application of green technologies.

In summary, Jiangsu has numerous advantages and foundational elements in establishing local pilot zones for national ecological civilization experimental areas, providing strong support for the creation of these zones nationwide.

4. Issues and Challenges in Jiangsu's Establishment of Local Pilot Zones for National Ecological Civilization Experimental Areas

Jiangsu has consistently placed great emphasis on ecological civilization construction, leveraging its resource advantages to achieve numerous notable accomplishments. However, the work of establishing local pilot zones for national ecological civilization experimental areas still faces various problems and challenges that need to be addressed.

First, there is a prominent conflict between ecological environment protection and economic development. As a major economic province, Jiangsu has seen a reduction in energy consumption per unit of GDP in recent years, yet it still lags behind developed countries. The overall energy consumption remains substantial, especially as modernization accelerates and living standards improve. The energy demand across various sectors—such as industry, construction, transportation, and residential living—will continue to grow rigidly. In many regions of Jiangsu, industrial development and energy consumption are still vital supports for economic growth, and the environmental impacts of these activities cannot be ignored. Balancing economic development while reducing environmental impacts presents a significant challenge for the establishment of local pilot zones for ecological civilization in Jiangsu.

Second, the quality of the ecological environment continues to face significant challenges. Although the overall environmental condition in Jiangsu stabilized in 2022, issues such as the exceedance of certain

pollutants remain. According to the annual evaluation based on the "Ambient Air Quality Standards" (GB 3095-2012), only Lianyungang and Huai'an met the secondary standards for air quality in 2022, while the other 11 cities did not meet the standards. The primary pollutants exceeding limits included fine particulate matter (PM_{2.5}), inhalable particulate matter (PM₁₀), and nitrogen dioxide (NO₂). Regarding noise pollution, while the sound quality in functional areas of the province has improved, road traffic noise remains problematic. In 2022, the average equivalent noise level of daytime road traffic in Jiangsu's cities was 65.6 dB(A), a decrease of 0.3 dB(A) compared to the previous year; however, 8.4% of the road segments still exceeded the daytime secondary limit for road traffic noise intensity.

Third, environmental governance infrastructure is weak in some areas. In certain rural and underdeveloped regions of Jiangsu, the environmental protection infrastructure has not been fully established, leading to more pronounced issues related to environmental protection and monitoring. For instance, many agricultural activities lack proper management and monitoring of the use and discharge of fertilizers, pesticides, and livestock waste. The "2022 Jiangsu Statistical Yearbook" indicates that chemical oxygen demand emissions from agricultural sources (in metric tons) significantly exceed those from industrial and urban domestic sources. A 2020 survey report on the rural living environment in Nanjing revealed that 36.3% of respondents believed that pollution in rural areas was very serious or relatively serious, with the main factors affecting the rural living environment being household waste (44.6%), domestic sewage (35.0%), poor sanitation in public toilets (33.1%), and industrial pollution (31.8%). These findings illustrate that inadequate investment and weak infrastructure in rural areas have led to serious environmental issues, which undoubtedly complicates the establishment of local pilot zones for ecological civilization.

Finally, there is a need to enhance environmental protection awareness. Although the importance of ecological civilization construction has gained widespread recognition, Jiangsu has consciously increased its efforts in publicizing ecological protection in recent years. However, in practice, some regions still exhibit weak environmental protection awareness among enterprises and the public, with insufficient emphasis on environmental issues. For example, according to the fourth environmental protection inspection report in Jiangsu, some enterprises lack strong awareness of environmental protection, leading to inadequate construction of pollution prevention facilities such as oil-contaminated water collection systems. Incidents of open-air painting and welding are not uncommon; oversight of brick and tile enterprises is lax, with superficial compliance regarding kiln regulation, and notable issues with excessive and unregulated emissions of waste gases. Some building material enterprises ignore management regulations in high-pollution zones, continuing to use coal in violation of prohibitions. Therefore, strengthening environmental protection awareness and education to enhance public consciousness about environmental issues is a significant challenge that the establishment of local pilot zones for ecological civilization in Jiangsu must confront.

5. Strategies and recommendations for Jiangsu to establish local pilot zones for the national ecological civilization experiment

Creating local pilot zones for the national ecological civilization experiment in Jiangsu is a long-term and arduous task. In the face of various issues and challenges, governments at all levels, enterprises, and the public need to participate collaboratively and adopt effective measures to comprehensively promote ecological civilization construction.

5.1. Promote the development of green industries

To advance ecological civilization construction, it is crucial to vigorously develop green industries.^[4] Jiangsu should accelerate the adjustment of its industrial structure, and actively promote emerging industries such as energy conservation, environmental protection, and new energy while encouraging enterprises to engage in green production, green consumption, and green trade. Furthermore, the development of tertiary industries such as tourism and services should be actively pursued to achieve a transformation and upgrade of economic growth.

5.2. Strengthen ecological protection and restoration

Jiangsu should intensify efforts in ecological protection and restoration to effectively safeguard the natural ecological environment.^[5] This includes enhancing wetland protection, river management, and forest conservation to improve the stability and service functions of ecosystems. Additionally, active

ecological restoration projects should be launched to rehabilitate already damaged environments and improve ecological quality.

5.3. Enhance the construction of environmental protection infrastructure

Environmental protection infrastructure, including wastewater treatment facilities, waste disposal systems, and air pollution control installations, is crucial for safeguarding environmental resources and improving quality. Jiangsu needs to strengthen the construction of such infrastructure, enhancing the capacity and efficiency of environmental facilities to reduce pollutant emissions and improve environmental quality. Moreover, the development of environmental protection infrastructure can stimulate related industries, create job opportunities, and promote sustainable economic development. Therefore, Jiangsu must increase investments in environmental protection infrastructure, improve its construction and management to achieve sustainable economic growth alongside environmental protection.

5.4. Strengthen technological innovation

The construction of ecological civilization requires the support of technological innovation. Jiangsu should enhance investments in environmental protection technology innovation and promote the research and application of green technologies. For instance, technologies such as clean energy, smart grids, and building energy efficiency should be promoted to reduce environmental pollution and energy waste. Additionally, collaborations and exchanges with domestic and international universities and research institutions should be strengthened to introduce and assimilate advanced environmental protection technologies and experiences.

5.5. Guide public participation

The construction of ecological civilization requires the participation of the entire society. The Jiangsu government should enhance ecological civilization publicity and education to raise public awareness, guiding citizens to adopt green consumption concepts and behaviors. Additionally, a robust mechanism for public participation should be established, encouraging involvement in environmental protection activities to increase awareness and engagement.

5.6. Strengthen regional cooperation and collaboration

Ecological civilization construction requires regional cooperation and collaboration. Jiangsu should enhance exchanges and cooperation with neighboring provinces and cities to jointly promote ecological protection and green development along the Yangtze River Economic Belt. Furthermore, cooperation with international organizations and friendly cities should be strengthened to introduce and assimilate advanced international experiences and technologies, aligning Jiangsu's ecological civilization efforts with global standards.

5.7. Improve the policy and regulatory framework

The construction of ecological civilization needs guidance and support from policies and regulations. The Jiangsu government should enact stricter environmental protection laws and standards, while also refining relevant fiscal, tax, financial, and land policies to create a favorable environment for ecological civilization construction. This includes enhancing the institutional framework for ecological civilization, promoting reforms in resource and environmental management systems, and exploring mechanisms such as pollution rights trading and ecological compensation. An effective environmental supervision mechanism should be established, reinforcing oversight of enterprises and industrial parks, strictly penalizing environmental violations, and ensuring robust and authoritative enforcement. Additionally, the assessment and accountability mechanisms for ecological civilization construction should be strengthened, incorporating outcomes into local government performance evaluation systems to ensure effective progress.

In summary, creating local pilot zones for the national ecological civilization experiment in Jiangsu is a systematic project requiring joint efforts from the government, enterprises, and society. Only through comprehensive, systematic, and scientific planning and implementation can Jiangsu achieve more significant results in ecological civilization construction, providing replicable and promotable success

experiences for national ecological civilization efforts.

6. Conclusion

The success of establishing local pilot zones for national ecological civilization experimental areas in Jiangsu Province will have profound implications for ecological civilization development in China and globally. These pilot zones will not only facilitate environmental improvement and economic transformation within Jiangsu but also provide valuable experience and models for other regions. Through this innovative endeavor, Jiangsu is expected to emerge as a leading force in ecological civilization construction on both national and international stages.

Looking forward, Jiangsu Province is poised to play an increasingly significant leadership role in advancing ecological civilization. By continuously optimizing and innovating its ecological civilization strategies, Jiangsu will further enhance its achievements in ecological protection, green development, and public engagement. In this practice, Jiangsu aims to establish a model of harmonious coexistence between humans and nature, realizing substantial improvements in environmental quality while achieving sustainable development across economic, social, and cultural dimensions. This will offer viable pathways and methodologies for global ecological civilization initiatives.

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