

# Research on the Eco-Bank Model Promoting the Realization of Wetland Ecological Product Value in Anhui Province

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**Abstract:** Wetlands are vital natural ecosystems. To promote their sustainable development, Anhui Province has adopted measures such as issuing carbon tickets and establishing cross-regional ecological compensation mechanisms in the process of realizing the value of wetland ecological products, achieving certain progress. However, challenges such as fragmentation, difficulties in value realization, and financing constraints persist. Drawing on successful domestic and international experiences with the eco-bank model, this study proposes integrating fragmented wetlands through a resource property rights transfer model, unlocking pathways for monetizing ecological services via an ecological rights trading model, addressing financing challenges through a green financial services model, and synergizing industry and ecology with a composite operation model. These approaches aim to accelerate the realization of wetland ecological product value, offering practical insights for advancing wetland ecological conservation and high-quality development in Anhui Province.

**Keywords:** Realization of ecological product value; Eco-bank model; Wetlands; Anhui Province.

## 1. Introduction

Wetlands represent crucial natural ecosystems and form an integral part of the natural ecological space. According to the Third National Land Survey, the total wetland area in Anhui Province covers 1.6037 million hectares, accounting for 2.85% of China's total wetland area. By the end of 2022, the province had designated 1 wetland of international importance, 59 wetlands of provincial importance, and 517 ordinary wetlands. It also established 18 wetland nature reserves at or above the provincial level and 57 wetland parks. The wetland protection rate in the province has reached 51.8%. The Anhui Provincial Forestry Bureau has formulated the Anhui Wetland Protection Plan (2022-2030), which will implement a total wetland area control system, improve the hierarchical wetland management system, carry out wetland conservation and restoration projects, and establish pathways for realizing the ecological value of wetlands [1]. Therefore, this study aims to explore the mechanisms and pathways through which the eco-bank model can facilitate the realization of the value of wetland ecological products in Anhui Province. By focusing on wetland resource conservation and development through resource capitalization, this research seeks to provide practical insights for promoting wetland ecological protection and high-quality development in Anhui Province.

## 2. Literature Review

Research on the value realization of ecological products primarily focuses on its mechanisms and pathways, with earlier and more comprehensive studies conducted internationally. Robert L. Deal et al. (2012) proposed establishing ecological service markets and adopting market-based approaches to enhance the utilization efficiency of forest resources [2]. José R. Soto (2016) identified forest carbon sequestration as an effective market-driven mechanism for realizing the ecological value of forest assets

[3]. SCB (2018) and SELVAGV (2020) investigated the realization of ecological value in forest resource assets from a policy perspective [4-5]. The eco-bank model has also been extensively applied abroad, with the U.S. Wetland Mitigation Banking being the most representative example. Additionally, initiatives such as the Soil Bank (Land Conservation Reserve Program), Water Banks (water rights trading), and Forest Banks (carbon sequestration trading) have been implemented in the United States [6].

Research on the value realization of ecological products in China started relatively late but has developed rapidly and expanded its scope extensively. Gao Xiaolong et al. (2020) and Wang Xiahui et al. (2020) summarized various models for realizing the value of ecological products [7-8]. China's "Eco-Bank" model draws inspiration from the experience of the U.S. Wetland Mitigation Banking in the 20th century. After the establishment of China's first "Eco-Bank" in the 2018 \*Nanping Eco-Bank Pilot Program\*, research on eco-banks has increased annually, focusing primarily on their models, operational mechanisms, and effectiveness. Cui Li et al. (2019) studied the Nanping Eco-Bank in Fujian Province and proposed an "Eco-Bank" model that combines government guidance with corporate leadership to marketize the value of ecological products [9]. Zhang Wenming (2020) identified key challenges in realizing the value of ecological products and summarized the operational procedures of the Forest Eco-Bank [10]. Zhou Jiangmei et al. (2020), Qiu Shaojun et al. (2021), and Zhang Linbo et al. (2023) focused more on exploring ways to improve the existing "Eco-Bank" model, offering suggestions for enhancement from different perspectives [11-13].

In summary, domestic research on the pathways and mechanisms for realizing the value of ecological products still requires further deepening and innovation. The scalability of existing models for realizing the value of ecological products remains limited, and given the significant variations in ecological resources across different regions in China, it is

necessary to conduct research and practice on the applicability analysis of these models based on regional characteristics. Most studies on the eco-bank model focus on comparative analyses between the Nanping Eco-Bank and the U.S. Wetland Mitigation Banking, primarily examining their design principles, organizational structures, and transaction mechanisms. However, there is a lack of research analyzing the internal operational mechanisms of eco-banks within the context of China's national conditions. Moreover, studies on China's "eco-bank" model predominantly concentrate on the "Forest Eco-Bank," with insufficient attention paid to ecological resources such as wetlands. In light of this, this paper aims to draw on the successful domestic experience of the eco-bank model to study the implementation pathways of the wetland eco-bank model in Anhui Province, thereby offering valuable insights for the synergistic development of ecology and the economy in Anhui.

### **3. Current Status of Wetland Ecological Product Value Realization in Anhui Province**

The ecological products of wetlands in Anhui Province span three core domains: material supply, ecological regulation, and cultural services. Driven by institutional innovation to realize the value of ecological products, these wetlands are characterized by "diverse types, prominent functions, and multiple values."

#### **3.1. Material Supply Products**

##### **3.1.1. Branded Development of Ecological Agricultural Products**

Around the Bengbu Sanchabe National Wetland Park, distinctive brands such as "Sanchabe" ecological rice and "Sanchabe Lotus Root" have been established. "Sanchabe" ecological rice is cultivated using organic fertilizers, with an annual output of 25,000 kilograms, and is sold as far as Beijing and Shanghai. "Sanchabe Lotus Root" has been certified as a National Geographical Indication product and is highly popular both within and outside the province. In the coal mining subsidence area of Huaibei Duji District, crab farming has been developed, forming the unique brand "Hanlou Crab," with a yield of 150 kilograms per mu and an annual output value exceeding 1 million yuan.

##### **3.1.2. Specialized Aquatic Farming**

The province's wetland area dedicated to aquatic farming exceeds 23,000 mu, with a total aquatic product output of 11,500 tons. In the coal mining subsidence area of Huainan Panji, an ecological restoration model of "lotus-root and soft-shelled turtle co-culture" has been implemented, increasing income by 3,000 yuan per mu. The Shengjin Lake Reserve has undertaken aquatic vegetation restoration, planting over 20,000 mu of Gordon nuts and water caltrops, which not only provides food for migratory birds but also yields an annual harvest of approximately 500 tons of Gordon nuts.

#### **3.2. Ecological Regulation Products**

##### **3.2.1. Outstanding Flood Control and Storage Capacity**

The ten wetlands surrounding Chaohu Lake have a total flood storage capacity of 109 million cubic meters. Among them, the Shibalianwei Ecological Wetland Flood Storage Area can lower the water level of the Nanfei River by 20 cm and that of Chaohu Lake by 14 cm. During the main flood season of 2024, it successfully mitigated multiple rounds of

heavy rainfall, ensuring the safety of Hefei City. Additionally, wetlands in the Huai River floodplain can temporarily store floodwater during the rainy season, reducing peak flood flow by 15%–20%.

##### **3.2.2. Significant Water Purification Effects**

The Chaohu Lake wetlands purify over 1.4 million cubic meters of water daily. After passing through the wetlands, the water quality of inflowing rivers such as the Nanfei River and the Pai River improves from inferior Grade V to Grade III. The overall water quality of Chaohu Lake remains stable at Grade IV, and the area of cyanobacterial blooms has shrunk to the smallest in a decade. The Chishan Lake National Wetland Park utilizes its "water forest" to purify water, achieving removal rates of 30% for total nitrogen (TN) and 40% for total phosphorus (TP).

#### **3.3. Cultural Service Products**

##### **3.3.1. Thriving Ecotourism Industry**

The wetlands in Anhui Province receive over 5 million tourists annually, generating tourism revenue exceeding 1 billion yuan. Chishan Lake National Wetland Park attracts 100,000 visitors per year, with an income of over 10 million yuan. The ten wetlands around Chaohu Lake form a "Golden Tourism Route," drawing more than 2 million tourists from the Yangtze River Delta annually. In 2024, the Jiaogang Lake Wetland Scenic Area welcomed 1.92 million visitors, achieving a comprehensive revenue of 820 million yuan and establishing a seasonal tourism brand featuring "spring lotus viewing and winter hot spring experiences."

##### **3.3.2. Well-Developed Science Education System**

Anhui Province has established 23 wetland science education bases at or above the provincial level, hosting over 200 activities annually. The Lixin Xifei River National Wetland Park has set up a science botanical garden with more than 400 species of wetland plants, receiving 5,000 students for research programs each year. Brand events such as Anhui Wetland Day and the International Birdwatching Festival continue to expand their influence, attracting participation from over 100,000 people.

#### **3.4. Biodiversity Conservation Products**

##### **3.4.1. Significant Recovery of Migratory Bird Populations**

Shengjin Lake Wetland attracts over 100,000 migratory birds annually for overwintering. The population of the Oriental White Stork has increased from fewer than 100 individuals in 2011 to over 2,000 in 2024. The Shibalianwei Wetland has seen its bird species diversity grow from 63 to 218, with the number of Tundra Swans doubling for three consecutive years. It also serves as a migratory stopover for the critically endangered Yellow-breasted Bunting.

##### **3.4.2. Achievements in Endangered Species Protection**

Yangtze Finless Porpoises have been observed more frequently in the wetland sections of Anqing and Tongling, with over 300 sightings recorded in 2024. Following the restoration of Chaohu Lake Wetland, the populations of native fish species such as icefish and anchovy have recovered to 70% of their 2015 levels. Through cross-provincial collaborative management, the water quality of Shijiu Lake Wetland has improved from nearly Grade V to Grade III, restoring the scenic beauty of "vast expanses of shimmering blue waves and birds nesting among reed flowers."

## 3.5. Institutional Innovation

### 3.5.1. Cross-Provincial Ecological Compensation Mechanism

In 2012, Anhui Province and Zhejiang Province signed the *\*Xin'an River Basin Water Environment Compensation Agreement\**, piloting an ecological compensation mechanism based on the principle of "those who benefit compensate, those who protect get compensated." Over 13 years, this initiative has created a win-win situation: water quality at the cross-provincial boundary section in the downstream region has consistently met the Class II standard for surface water environmental quality, while the upstream region has received ecological compensation. Since the pilot began, Huangshan City has received a total of 6.8 billion yuan in compensation funds from the central government and the two provinces of Anhui and Zhejiang.

### 3.5.2. Establishing a Judicial Mechanism to Protect and Compensate Ecological Products

Jingde County in Anhui Province has innovatively established a "Prosecution + Carbon Sink Purchase" ecological prosecution mechanism, leveraging the "Chief Forester + Chief Prosecutor" collaborative framework. This initiative fully integrates the concept of carbon sink purchase as an alternative to ecological restoration into judicial practice. Through public hearings and negotiations with involved parties, carbon sink purchase agreements have been reached. Eighty percent of the compensation funds from these purchases will be used for ecological restoration by organizing low-income local villagers to conduct reforestation and greening activities in alternative locations.

### 3.5.3. Wetland Carbon Ticket Trading

Bengbu City in Anhui Province has explored a carbon sink development model of "government leadership + enterprise participation." On June 27, 2025, the city successfully issued its first batch of carbon tickets, raising 25 million yuan. These tickets cover 102,600 mu of Sifang Lake and Longzi Lake wetlands, representing 267,800 tons of carbon reduction over 20 years. This initiative provides an "Anhui experience" for national wetland carbon sink trading.

## 4. Issues in the Realization of Wetland Ecological Product Value in Anhui Province

### 4.1. Diverse but Fragmented Wetland Types

Anhui Province encompasses both natural and human-made wetlands, covering four major subtypes, making it one of the regions with the most complete wetland classification in eastern China. Natural wetlands account for 68.49% of the province's total wetland area, including 296,200 hectares of permanent rivers, 336,600 hectares of lake wetlands, and marsh wetlands concentrated in low-lying areas along the Yangtze and Huai River basins, forming an interconnected network of rivers, lakes, marshes, and swamps. Human-made wetlands make up 31.51% of the total, primarily consisting of 514,100 hectares of reservoirs and ponds, along with approximately 21,000 hectares of wetlands in coal mining subsidence areas—a unique type in Anhui, serving dual ecological regulation and production functions.

The wetlands in Anhui are closely linked to the characteristics of its three major river basins. The Yangtze River Basin is dominated by lake and river wetlands, the Huai River Basin emphasizes floodplain and reservoir wetlands,

while the Xin'an River Basin, with the best water quality, is characterized by river and reservoir wetlands, exhibiting a distribution pattern of "three belts with multiple nodes."

Most wetland patches in the province are smaller than 100 hectares, with only a few, such as Chaohu Lake and Shengjin Lake, covering contiguous areas exceeding 10,000 hectares. Additionally, "ecological corridors" such as river tributaries and marsh belts between wetlands have been degraded, disrupting the continuity of migratory bird pathways and aquatic organism migration routes.

## 4.2. Challenges in Realizing Ecological Value

### 4.2.1. Lack of Unified Standards for Value Quantification

Ecological services provided by wetlands, such as water purification and biodiversity conservation, are difficult to accurately quantify. For instance, there is no standardized methodology for calculating the ecological value of species like the Hooded Crane or the economic benefits of flood regulation by wetlands. This absence of uniform accounting methods hinders the pricing of ecological products.

### 4.2.2. Imperfect Market-Based Trading Systems

Carbon sink trading is still in its early stages. While Bengbu has issued the first batch of wetland carbon tickets, key wetlands such as those in the Chaohu Lake basin and Shengjin Lake have not yet conducted large-scale carbon sink trading. Moreover, methods for measuring carbon sinks and trading rules have not been standardized across the province.

Ecotourism offerings are highly homogenized, with most wetland tourism focusing on generic activities like birdwatching and flower appreciation, lacking immersive experiences. For example, Shengjin Lake and Caizi Lake offer similar tourism products, making it difficult to build distinctive brand value.

Eco-label certification is underdeveloped. Wetland agricultural products like "Chaohu Wetland Rice" and "Sanchahe Lotus Root" have limited coverage under eco-label certifications, resulting in low market recognition and restricted premium potential.

### 4.2.3. Insufficient Financial Tools and Participation

Funding channels are limited. Wetland restoration and industrial development rely heavily on government financing, with minimal participation from private capital. For instance, 80% of wetland restoration funding in northern Anhui's coal mining subsidence areas comes from government grants.

Local communities surrounding wetlands predominantly engage in traditional agriculture, with low participation in ecological management or tourism services. For example, only around 200 households near Shengjin Lake are involved in migratory bird protection, earning an average annual income increase of just 12,000 yuan per person. There is a lack of long-term, stable benefit-sharing mechanisms.

## 5. The Practice of Ecological Banking Model in China

The "Eco-Bank" is fundamentally an ecological resource management platform that adopts the commercial banking principle of "decentralized input, centralized output." Its primary objective is to utilize market-based mechanisms to establish a conversion pathway from "resources → assets → capital," thereby facilitating the realization of the value of ecological products.

## 5.1. Categorization of Eco-Bank Models

Based on operational logic, Eco-Bank models can be classified into the following four types:

### 5.1.1. Resource Property Rights Transfer Model

**Core Mechanism:** Acquiring and aggregating fragmented resource property rights through methods such as leasing, trusteeship, or shareholding, consolidating them into high-quality asset portfolios, and subsequently realizing their monetary value through property rights transfer or use as collateral.

**Key Feature:** Clarification of property rights ownership (e.g., forest rights, water rights), enabling stakeholders like farmers to receive dividends based on their contributed property rights.

**Representative Case:** The "One Platform per Village, One Share per Household" model implemented in Nanping.

### 5.1.2. Ecological Rights Trading Model

**Core Mechanism:** Quantifying the ecological service functions (e.g., carbon sequestration, water quality improvement, wetland conservation) into tradable rights or credits, and establishing market-oriented trading platforms for their exchange.

**Key Feature:** Focuses on trading the "flow value" of ecosystem services, exemplified by instruments like carbon sink certificates or wetland conservation credits.

**Representative Cases:** Forestry carbon sink trading in Beijing's Mentougou District and the wetland mitigation banking credit system in the United States.

### 5.1.3. Green Financial Services Model

**Core Mechanism:** Using ecological assets as collateral to develop financial products such as green credit, ecological funds, and carbon sink insurance, thereby leveraging and attracting private capital.

**Key Feature:** Emphasizes enhancing financial support and empowerment for ecological assets.

**Representative Cases:** The "Forest Rights Mortgage + Forest Buyout" scheme in Zixi County, Jiangxi Province, and the wetland carbon ticket pledge loans in Bengbu City.

### 5.1.4. Composite Operation Model

**Core Mechanism:** Integrates multiple logics—property rights transfer, rights trading, and industrial development—covering the entire value chain from "acquisition and storage → integration → development → trading."

**Key Feature:** Pursues multiple objectives simultaneously, including ecological protection, economic development, and improvement of local livelihoods.

**Representative Case:** \*\* The Nanping Eco-Bank, which encompasses activities such as forest acquisition and storage, carbon sink trading, and cultural tourism development.

## 5.2. Common Operational Processes and Core Mechanisms of Eco-Bank Models

### 5.2.1. Standardized Operational Process

Resource Inventory & Rights Confirmation → Centralized Acquisition & Integration → Asset Valuation → Market-Based Trading/Industrial Development → Revenue Distribution & Reinvestment (into communities/ecosystem).

### 5.2.2. Unified Core Mechanisms

#### (1) Property Rights Confirmation Mechanism

Clarifying resource ownership through unified registration systems, such as integrated natural resource management using a "single map" platform.

#### (2) Value Assessment Mechanism

Employing professional accounting methodologies (e.g., carbon sink measurement, ecosystem service value accounting) combined with market-based pricing principles.

#### (3) Risk Prevention and Control Mechanism

Implementing safeguards like performance bonds, ecological insurance, and cross-departmental supervision teams to mitigate operational risks within the Eco-Bank framework.

#### (4) Benefit-Sharing Mechanism

Distributing dividends to farmers proportional to their share of contributed property rights, while village collectives retain a portion of the revenues for ongoing ecological management and protection.

## 6. The realization path of wetland ecological product value in Anhui Province based on the ecological banking model

Drawing on the practical experience of the eco-bank model in China and addressing the characteristics of Anhui Province's wetlands—"fragmentation, difficulties in value realization, and financing challenges"—the following pathways can be adopted to promote the realization of their ecological product value:

### 6.1. Integrating Fragmented Wetlands through the "Resource Property Rights Transfer Model"

Clear property rights and centralized storage are the foundation for the transformation of ecological resources. Anhui Province can learn from the "Forest Eco-Bank" model in Shunchang, Fujian Province, to integrate fragmented wetland areas through "leasing + trusteeship + shareholding."

#### 6.1.1. Prioritize Rights Confirmation and Registration

Relying on Anhui Province's wetland resource survey data, utilize "remote sensing + field surveys" to complete property rights confirmation for key wetlands such as the Chaohu Lake basin, Shengjin Lake, and coal mining subsidence areas [14]. Clearly define wetland ownership (state/collective) and use rights (surrounding farmers/enterprises), and issue "Wetland Rights Certificates" to resolve the issue of "indistinct property rights hindering transactions."

#### 6.1.2. Centralized Storage and Quality Enhancement

Establish a provincial-level eco-bank platform under the auspices of the Anhui Provincial Forestry Group to centrally acquire and store decentralized wetland resources. For lakefront mudflats contracted by farmers, adopt a "guaranteed base rent + dividends" model for transfer. For abandoned industrial and mining wetlands in Huainan and Huaibei, use "government buyouts + ecological restoration" to transform them into high-quality asset packages, forming a "contiguous wetland resource pool" to avoid the fragmentation of ecological functions caused by piecemeal development.

#### 6.1.3. Property Rights Transfer for Value Realization

Connect the integrated wetland resources to market entities through "management rights leasing" and "conservation easement transactions." For example, lease the management rights of the Chaohu Peninsula Wetland to professional cultural tourism enterprises for developing ecological research and education programs. Drawing on Nanping's "one household, one share" benefit-sharing mechanism, rental

income can be proportionally fed back to farmers and village collectives [15].

## **6.2. Unblocking the "Monetization Pathway for Ecological Services" through the "Ecological Rights Trading Model"**

The quantification and market-based trading of ecological rights are crucial for realizing the value of ecological products. Drawing on the trading logic of Anji's bamboo forest carbon sinks and Beijing Mentougou's forestry carbon sinks, Anhui can adopt the "Ecological Rights Trading Model" to quantify the core ecological service functions of wetlands and monetize them through market transactions.

### **6.2.1. Carbon Sink Rights Trading**

Expand on the pilot experience of Bengbu's wetland carbon tickets. For wetlands like Chaohu Lake and Shengjin Lake, apply the "Wetland Carbon Sink Methodology" [16] to quantify the carbon sequestration of wetland plants like reeds and calamus into tradable carbon sink certificates. Connect these to the national carbon market and the voluntary carbon purchase demands of enterprises in the Yangtze River Delta, for instance, by encouraging companies like SAIC and Conch to purchase wetland carbon sinks to offset their emissions.

### **6.2.2. Water Quality Improvement Rights Trading**

Target the Xin'an River Basin and the inflowing rivers of Chaohu Lake (Nanfei River, Pai River). Quantify the water purification function of wetlands into "water quality improvement credits." Learning from the "water quality trading" logic of Fujian Guangze's "Water Resource Eco-Bank" [17], downstream beneficiary cities (such as Hangzhou and Nanjing) would pay "water quality compensation funds" to Anhui. These funds would be reinvested into wetland ecological restoration.

### **6.2.3. Biodiversity Conservation Rights Trading**

Drawing on the "credit trading" mechanism of the US Wetland Mitigation Banking, transform functions like "migratory bird habitat protection" in Shengjin Lake and "conservation of Yangtze finless porpoise activity areas" into "ecological conservation credits." Link these to ecological compensation policies. For example, corporate donations used for building bird feeding stations at Shengjin Lake could earn "ecological credit points." These points could be used to offset certain environmental fines or serve as credit enhancement for green loans [18].

## **6.3. Addressing Financing Challenges through the "Green Financial Services Model"**

Innovation in financial instruments is essential for scaling up the Eco-Bank model. Drawing on the experiences of Jiangxi Zixi's "Forest Rights Mortgage + Buyout" and Bengbu's carbon ticket pledge, dedicated wetland financial products can be developed.

### **6.3.1. Wetland Carbon Ticket Pledge Loans**

The provincial-level Eco-Bank platform can provide "carbon ticket pledge loans" to wetland operators (e.g., cooperatives, cultural tourism enterprises). An example is the "Wetland Carbon Sink Loan" offered by the Industrial and Commercial Bank of China (ICBC) Anhui Branch, which uses future carbon sink income rights as collateral. The funds are designated for wetland ecological restoration, thereby lowering the financing threshold.

### **6.3.2. Wetland Ecological Fund**

Following the operational model of Nanping's "Rural Revitalization Fund," an "Anhui Wetland Ecological Fund" could be established in collaboration with financial institutions from the Yangtze River Delta. Funding sources would include government fiscal injections, corporate donations, and revenue from carbon sink trading. The fund would primarily invest in cross-regional collaborative wetland conservation and the management of invasive species [19].

### **6.3.3. Wetland Insurance Products**

Learning from Anji's "Bamboo Forest Carbon Sink Price Index Insurance" model, a "Wetland Ecological Damage Insurance" product could be developed to address risks such as flooding and pollution faced by wetlands. The Eco-Bank would take out a unified insurance policy. If a wetland's carbon sink capacity decreases or its water quality deteriorates due to natural disasters, the insurance payout would be used for restoration [20].

## **6.4. Integrating Industry and Ecology through the "Composite Operation Model"**

The integration of "ecology + industry" is core to the sustainability of the Eco-Bank. Leveraging Anhui's wetland resource endowment and drawing inspiration from Nanping's "forests + cultural tourism + carbon sinks" operational model, industry and ecology can be synergized to enhance the multiple values of wetlands.

### **6.4.1. Wetlands + Eco-Agriculture**

Around Chaohu Lake Wetland and Sanchahe Wetland, promote integrated models like "rice-fishery farming" and "lotus-root and soft-shelled turtle co-culture." The Eco-Bank would provide unified certification for a "Wetland Eco-Agricultural Products" brand. These products would be sold at a premium through channels combining "online e-commerce platforms + offline supermarkets." Profits would be distributed according to a "platform 30% + farmers 70%" model, achieving a dual win of "wetland conservation + increased farmer income."

### **6.4.2. Wetlands + Eco-Tourism**

Integrate resources from the ten wetlands around Chaohu Lake, Shengjin Lake Wetland, Chishan Lake Wetland, and others. The Eco-Bank would partner with travel agencies from the Yangtze River Delta to develop tourism routes focused on "wetland birdwatching" and "lakeside wellness." Following the operational model of Chishan Lake Wetland Park's "water forest + research and education" [21], an "ecological entrance fee" could be charged, with a portion of the revenue dedicated to wetland management and protection.

### **6.4.3. Wetlands + Scientific Research and Education**

Establish "Provincial Wetland Science Education Bases" utilizing wetlands like Chaohu Lake and Taiping Lake. Collaborate with institutions like the Chinese Academy of Sciences and Anhui University to set up "Wetland Ecological Monitoring Stations." Develop wetland-themed research and educational programs, charging service fees to schools and enterprises, while simultaneously generating data to support wetland ecological value assessment.

## **7. Guarantee measures**

### **7.1. Improve Regulations and Standards**

Building upon the \*Anhui Province Implementation

Measures of the Wetland Protection Law\*, add a dedicated chapter on the "Wetland Eco-Bank" to clarify the platform's positioning, rules for property rights transfer, and value assessment standards (such as detailed regulations for wetland carbon sink accounting) [22].

## 7.2. Transition from "Scattered Pilots" to "Systematic Operation"

Current initiatives in Anhui are often advanced by different entities within their respective domains. The "Eco-Bank" can serve as a unified operational platform, integrating diverse pathways like carbon sink trading, eco-tourism, and branded agricultural products. This integration will generate synergies and avoid redundant development and internal competition.

### 7.2.1. Establish Cross-Regional Collaboration Mechanisms

For wetlands spanning multiple cities or provinces, such as Chaohu Lake and Shijiu Lake, establish coordination groups based on a "provincial-level coordination with city/county implementation" model [23]. These groups would uniformly set protection targets and allocate compensation funds, preventing fragmented and uncoordinated management.

### 7.2.2. Build a "Benefit-Sharing" Mechanism

This model establishes a fair benefit distribution system through methods like resource shareholding, guaranteed minimum dividends, and job provision. It ensures that original right-holders of wetland resources (e.g., farmers) can continuously share in the benefits derived from ecological value appreciation, achieving a win-win outcome for both ecological conservation and livelihood improvement.

### 7.2.3. Strengthen Big Data Supervision

Develop an "Anhui Wetland Eco-Bank Big Data Platform" to integrate real-time monitoring data on wetland water quality, carbon sink volumes, migratory bird populations, etc. [24]. Publicly disclose information on resource acquisition, transactions, and profit distribution to enhance transparency and facilitate public oversight, thereby addressing issues related to "information asymmetry".

## 8. Conclusion

Wetlands play a critical role in ecological environmental protection. The realization of ecological product value is crucial for promoting the sustainable development of wetlands. Anhui Province has advanced the realization of ecological product value by issuing carbon tickets and establishing cross-regional ecological compensation mechanisms, achieving certain results. However, challenges such as wetland fragmentation and difficulties in monetizing ecological value persist. Drawing on the practical experience of the eco-bank model in China, the following pathways can be adopted to promote the realization of its ecological product value:

### 8.1. Integrate Fragmented Wetlands Through the "Resource Property Rights Transfer Model"

Clear property rights and centralized storage form the foundation for the transformation of ecological resources. Anhui Province can learn from the "Forest Eco-Bank" model in Shunchang, Fujian Province, by integrating fragmented forest land through "leasing + trusteeship + shareholding."

### 8.2. Unblock the "Monetization Pathway for Ecological Services" through the "Ecological Rights Trading Model"

The quantification and market-based trading of ecological rights are key to realizing the value of ecological products. Referring to the trading logic of Anji's bamboo forest carbon sinks and Beijing Mentougou's forestry carbon sinks, the core ecological service functions of wetlands can be quantified and monetized through market transactions using the "Ecological Rights Trading Model".

### 8.3. Address Financing Difficulties Through the "Green Financial Services Model"

Innovation in financial instruments is essential for scaling up the Eco-Bank model. Drawing on the experiences of Jiangxi Zixi's "Forest Rights Mortgage + Buyout" and Bengbu's carbon ticket pledge, dedicated wetland financial products can be developed.

### 8.4. Integrate Industry and Ecology Through the "Composite Operation Model"

The integration of "ecology + industry" is core to the sustainability of the Eco-Bank. Leveraging its wetland resource endowment and referencing Nanping's "forests + cultural tourism + carbon sinks" operational model, Anhui can synergize industry and ecology to enhance the multiple values of wetlands.

The eco-bank model, by "consolidating fragmented resources, quantifying ecological rights, leveraging social capital, and integrating industry and ecology," can specifically address the challenges of "difficult protection, difficult monetization, and difficult financing" of wetlands in Anhui Province. From a practical perspective, priority should be given to pilot projects in key areas such as the Chaohu Lake basin and Shengjin Lake, gradually forming a closed loop of "rights confirmation - storage - trading - development - feedback." This will ultimately achieve the synergistic enhancement of both the ecological and economic value of wetlands, providing an "Anhui model" for wetland conservation in the middle and lower reaches of the Yangtze River.

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