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## Reflections on Promoting the Reform of the National Park-Based Natural Protected Area System (Postprint)

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**Date:** 2023-03-19T00:00:00+00:00

### Abstract

China has established a diverse and functionally comprehensive system of natural protected areas that has played an important role in conserving critical natural ecosystems and biodiversity. However, for a long time, China's protected areas have essentially implemented a "rescue-style protection" strategy, focusing on expanding the number and area of protected areas while neglecting improvements in management quality and capacity. The construction and management of protected areas have failed to keep pace with the accelerated advancement of ecological civilization construction in the new era. The report of the 19th National Congress of the Communist Party of China proposed establishing a natural protected area system with national parks as the mainstay, presenting an urgent demand for promoting reform of China's natural protected area system. Based on an analysis of a series of problems currently facing China's natural protected area system—including lack of top-level design, an imperfect legal system, insufficient multi-stakeholder participation, funding shortages, unclear land tenure, prominent conflicts between conservation and development, and weak management capacity—this study proposes recommendations for promoting top-level design, systematic planning, and legislative arrangements for the natural protected area system; improving the property rights system of protected areas; establishing a protected area governance system to achieve multi-stakeholder governance; expanding the spatial governance scope of protected areas; promoting coordinated development between protected areas and their surrounding regions; and establishing a mechanism for realizing the value of ecological products in protected areas.

## Full Text

### Policy & Management Research

#### Strategic Approach on Promoting Reform of China's Natural Protected Areas System with National Parks as Backbone

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**Received:** December 6, 2018

**Funding:** This research was supported by the Strategic Priority Research Program (Category A) of the Chinese Academy of Sciences (XDA20020303), the Major Project of CAS Think Tank Strategy Pilot (Y7X0561601), and the Science and Technology Service Network Initiative (STS Plan) of the Chinese Academy of Sciences (KFJ-STZ-ZDTP-010-03).

**DOI:** 10.16418/j.issn.1000-3045.2018.12.007

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## Abstract

China has formed a natural protected areas system with various types and functions, which has played an important role in protecting important natural ecosystems and biodiversity. However, for a long time, China basically implemented a “rescue” conservation strategy, focused on protected area expansion, and ignored the improvement of management quality and ability. The construction and management of protected area cannot keep China's pace of promoting ecological civilization construction. The report of the 19th National Congress of the Communist Party of China proposes to establish a natural protected areas system with national parks as the main backbone, which poses urgent demands on promoting the revolution of the natural protected areas system in China. Firstly, this study deeply analyzed a series of outstanding problems facing China's natural protected areas system, which included the lack of top-level design and system planning, weak legal system, insufficient multi-participation, shortage of funds, unclear land ownership, fierce conflict between

conservation and development, weak management capacity, etc. On this basis, the study proposes to promote a systematic reform of China's natural protected areas system. First, promote the top-level design, system planning, and legislative arrangements on the natural protected areas system. Second, improve the property right system of protected areas. Third, build governance system and promote multi-governing of protected areas. Then, expand the scope of space governance of protected areas, and facilitate coordinated development between protected areas and surrounding areas. Finally, establish a mechanism for realizing the value of ecological products in and around protected areas.

**Keywords:** national park, natural protected areas, governance system, reform

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## Introduction

Natural protected areas are specific geographic regions clearly defined, designated, invested in, and managed through legal or other effective means to achieve long-term conservation of natural resources, associated ecosystem services, and cultural values[1]. After more than 60 years of development, China's natural protected areas have grown from scratch and expanded in scale, forming a diverse and functionally comprehensive system that plays a crucial role in protecting the country's natural ecosystems and biodiversity. This has contributed to ecological improvement in some regions, slowed the trends of ecosystem degradation and rapid biodiversity decline, and facilitated the gradual recovery of wild populations of some rare and endangered species[2,3].

## Current Status of China's Natural Protected Areas System

China's first nature reserve (Dinghushan in Guangdong) was established in 1956. During the "Ninth Five-Year Plan" period, the country's nature reserves experienced a new round of rapid growth. This momentum stemmed from several factors: the entry into force of the Convention on Biological Diversity at the end of 1993 and the State Council's promulgation of the Regulations of the People's Republic of China on Nature Reserves in 1994, alongside the adoption of sustainable development as a national strategy; and the acceleration of ecological construction and environmental protection efforts following the catastrophic Yangtze River floods and severe sandstorms in 1998, which launched major ecological programs such as natural forest protection and grain-for-green, while local governments also established new nature reserves and protected areas through wildlife and habitat conservation projects, leading to synchronized rapid growth in both the number and area of nature reserves.

By the end of 2017, China had established 2,750 nature reserves at various levels (including 463 national-level reserves), 3,505 forest parks (including 881 national-level parks), 916 wetland parks, and various other types of protected areas such as scenic areas and geological parks. Terrestrial protected areas cover more than

18% of the country's land area, already achieving the 17% target proposed by the UN Convention on Biological Diversity for 2020. China ranks among the world's top countries in terms of both the number and area of protected areas. However, since the "Eleventh Five-Year Plan" period, particularly after 2010, the growth of nature reserves has entered a low ebb. Moreover, compared with the rapid expansion of protected areas in the past, there remains a considerable gap in protection quality and efficiency. A series of prominent issues currently facing the governance system of natural protected areas constitute the primary reasons for suboptimal conservation outcomes.

## Outstanding Problems Facing the System

### Lack of Top-Level Design and Systematic Planning

For a long time, management responsibilities for natural protected areas have been dispersed across different departments, creating a fragmented, multi-headed management system that lacks scientific and systematic top-level design and holistic planning. Each department has separately planned, designated, and managed various types of protected areas, resulting in numerous problems.

First, overlapping jurisdictions and multi-headed management of various protected areas lead to high costs and low efficiency. For instance, a single wetland ecosystem reserve may involve management departments including forestry and grassland, agriculture and rural affairs, water resources, ecological environment, culture and tourism, making it difficult to avoid buck-passing and shirking of responsibilities. Meanwhile, departmental management based on environmental elements neglects the integrity of protected area ecosystems.

Second, numerous protection gaps exist. Although the percentage of China's land area covered by various natural protected areas exceeds the world average, several factors must be considered: on the one hand, China is one of the world's most biodiverse countries, requiring protection of a large land area; on the other hand, the unreasonable spatial scope of existing protected areas has resulted in many natural ecosystems of significant conservation value remaining outside the current protected areas system. According to the "National Nature Reserve Baseline Survey and Evaluation" conducted by the former Ministry of Environmental Protection, by the end of 2014, 48% of China's 3,632 vertebrate species received little or no in-situ protection, and 37% of 315 nationally protected wild plant species were under insufficient protection[4]. The second national wetland resources survey, published in January 2014, showed that the total area of natural wetlands in China was 46.6747 million hectares, a decrease of 3.3762 million hectares compared with the first survey a decade earlier; protected wetlands accounted for only 43.51% of the total wetland area[5].

Third, the structure of the natural protected areas system is unreasonable. Nature reserves account for more than 80% of the total area of all protected areas, forming a system dominated by nature reserves, while other types and protection levels occupy proportionally smaller areas. Nature reserves implement the

strictest protection, but in reality, many contain large populations that make it difficult to balance conservation and development according to local conditions, creating a series of subsequent conservation-development conflicts[6].

Fourth, the spatial scope of many protected areas is unreasonable. From the mid-1980s to the early 21st century, to mitigate the impact of rapid economic development on ecological environments, governments at all levels established numerous nature reserves through “rescue” designation. However, many of these reserves were designated without comprehensive scientific surveys and justification. Some reserves included densely populated towns and villages and low-conservation-value farmland and economic forests within their boundaries, affecting both local residents’ production and living conditions and reserve management. Meanwhile, some ecosystems of important conservation value were not included, affecting ecosystem connectivity and integrity.

Although China has established the National Forestry and Grassland Administration to uniformly manage various natural protected areas, the series of problems caused by long-term multi-headed management cannot be solved in the short term, making it imperative to promote top-level design and holistic planning of the protected areas system.

### **Incomplete Legal System and Insufficient Legal Safeguards**

The legal system is incomplete, and legal safeguards for protected area construction and management are inadequate. First, legislative positioning is unclear. Key concepts such as “natural ecosystem areas” in the Environmental Protection Law of the People’s Republic of China and “relevant natural protection areas” in the Wildlife Protection Law of the People’s Republic of China lack clear legal connotations and boundaries, resulting in ambiguous legislative positioning for different natural protected areas and seriously undermining the effectiveness of the legal system and institutional synergy.

Second, the existing legal hierarchy is insufficient. As typical natural protected area types, nature reserves and scenic areas are currently managed primarily through two administrative regulations and individual rules, making it difficult to provide systematic protection from a higher legal hierarchy. In reality, problems such as illegal mining and unregulated hydropower development in various protected areas have been repeatedly prohibited but continue to occur. Moreover, administrative regulations and rules establishing forest parks, geological parks, and wetland parks lack clear legal authorization.

Third, legislative supply is inadequate. China is currently conducting national park system pilot programs, but the legal foundation for safeguarding the national park system reform is clearly insufficient. Some reform measures are constrained by existing laws, regulations, and administrative authorizations, making effective implementation difficult. For example, certain provisions in the Regulations of the People’s Republic of China on Nature Reserves regarding nature reserve management impose restrictions on systematically integrating

various protected areas within pilot zones. Important institutional designs such as natural resource property rights and territorial spatial use control have not yet received strong support from laws and regulations such as the Property Law of the People's Republic of China, the Land Administration Law of the People's Republic of China, and the Interim Regulations on Real Estate Registration, constraining protected area construction and management based on these foundations.

### **Government Dominance and Insufficient Multi-Party Participation**

In most cases, the government occupies a dominant position in the construction and management of natural protected areas in China, with inadequate participation from society and the market. This is mainly manifested in three aspects. First, the lack of specific public and stakeholder participation mechanisms. For example, the designation and boundary delimitation of some protected areas are driven by the central government with insufficient involvement of local governments, communities, and relevant enterprises, leading to conflicts. Protected areas often adopt closed management measures, leaving the public without rights to information, participation, and supervision, and their interests are not safeguarded. Second, the absence of institutional arrangements for conservation agreements and public-private partnerships (PPP) makes it difficult for social forces to engage. Third, the lack of incentive and guarantee systems to encourage participation by non-profit organizations. Non-profit organizations face numerous difficulties in participating in protected area construction and management. Compared with countries such as the United States and Australia where non-profit organizations play important roles in protected area construction and management, their role in China remains very limited.

This government-dominated governance model has played an important role in the “rescue” protection of important natural ecosystems in China. However, it faces problems such as high management costs, isolation between protected area management and surrounding communities, significant conflicts, failure to safeguard stakeholder interests, and consequently low conservation and management effectiveness, making it difficult to meet the demands of modernizing China's natural protected areas governance system and capacity in the new era.

### **Funding Shortages and Lack of Diversified Investment Mechanisms**

The absence of a diversified funding mechanism has resulted in severe funding shortages. National-level nature reserves constitute the core of China's ecosystem and biodiversity conservation, relating to national ecological security and public welfare, and should have a funding guarantee mechanism primarily based on central government investment. However, the Regulations of the People's Republic of China on Nature Reserves, promulgated in 1994 and revised in 2017, stipulate that “funds required for managing nature reserves shall be arranged by the local people's governments at or above the county level where the nature reserves are located. The state provides appropriate financial subsidies for

the management of national-level nature reserves.” Protected areas of significant conservation value are generally located in economically underdeveloped regions that struggle to obtain adequate local financial support.

In recent years, central government investment in nature reserves has increased substantially. According to research statistics, in 2014, special funds invested by Chinese governments at all levels in nature reserves reached 6.014 billion yuan, with average investment of about 4,000 yuan per square kilometer for reserves at various levels. This still lags far behind developed countries’ average annual investment of over 2,100 US dollars per square kilometer in nature reserves, and funding shortages will remain a long-term problem for China’s protected areas. The public donation mechanism for protected areas is not yet sound, lacking necessary legal and institutional safeguards. In 2013, for example, total donations from organizations and individuals to Chinese nature reserves were only about 12 million yuan[7]. In recent years, public donations for natural protected areas have not increased significantly, and basically no social capital has been invested in protected area construction and management.

### **Unclear Land Tenure and Management Difficulties**

The management of natural protected areas in China currently faces severe constraints due to unclear land tenure. The ownership, use rights, management rights, operation rights, and benefit rights of land within various protected areas are chaotic[8]. Many reserves have not obtained collective land use rights in core and buffer zones, rendering them unable to effectively manage natural resources within the protected areas or even to intervene in illegal resource extraction and construction activities[9].

Using Jilin Province’s Xianghai National Nature Reserve as an example, although state-owned land accounts for 72.4% of the total reserve area, contracted operations mean that up to 74.4% of land use rights belong to rural collective economic organizations. Since the reserve management bureau has not obtained management rights, it cannot effectively manage this land, and agricultural, pastoral, and fishery production activities have caused serious damage to this important international wetland ecosystem. Additionally, unclear boundary ranges and land tenure in some protected areas have led to serious encroachment or changes in land status. In some nature reserves, management and operation rights have been contracted to companies or are directly managed by local government agencies, causing the nature reserve administration to lose its primary management position[10].

### **Conservation-Development Conflicts and Lack of Benefit Coordination Mechanisms**

Large numbers of residents live within and around various natural protected areas in China. For example, by the end of 2014, 12.56 million residents were distributed within 1,657 nature reserves with defined boundaries[6]. Protected

areas and their surroundings are often concentrated contiguous areas of poverty-stricken populations in China. Analysis shows that among the 592 nationally designated poverty-stricken counties, 585 (99%) are located within 100 kilometers of protected areas. The establishment of protected areas significantly impacts the livelihoods of residents within and around them. However, protected area policy formulation lacks explicit provisions for safeguarding community rights and interests[11].

Although relevant departments have provided special funds to support some protected areas, funding gaps remain large and sustainability is poor, insufficient to support local socio-economic development and livelihood improvement. Other protected areas mostly rely on local government finances and operational income, making basic operations difficult. This not only makes effective protection challenging but also easily leads to over-exploitation or even conversion of protected areas to development land. Reserve management agencies often serve dual roles as both resource protectors and operators, acting simultaneously as law enforcers and subjects of enforcement, inevitably creating management confusion and increasing pressure on natural resources[12]. Many nature reserves are surrounded by agricultural tourism, tourism, and real estate development projects that can drive local economic growth[13], isolating nature reserves from other natural ecosystems and thereby threatening biodiversity in the reserves. Some protected areas have implemented strict protection measures but lack self-driven innovation development mechanisms and “blood-making” capacity. This has created a development mechanism dependent on “waiting, relying, and demanding,” with insufficient internal reform and development momentum and weak driving effects on surrounding community development. Community residents have not benefited from conservation efforts, safeguarding green mountains and waters without harvesting golden mountains and silver mountains.

### **Weak Management Capacity and Severe Professional Talent Shortage**

Most natural protected areas are located in remote areas, making it difficult to attract professional talent. By the end of 2014, among China’s 428 national-level nature reserves, there were 25,004 management personnel, including 7,229 technical professionals, accounting for only 28.9%—a proportion that is generally low. In 1,029 county-level nature reserves, there were 1,893 management personnel, with merely 484 technical professionals, representing 25.6%[13]. The lack of professional technical talent has become a critical factor constraining the improvement of protected area management quality.

## **Recommendations for Reforming China’s Natural Protected Areas System**

### **Promoting Top-Level Design and Systematic Planning**

Establishing a natural protected areas system with national parks as the backbone faces numerous challenges and must be combined with the optimization

and improvement of the existing system[14,15]. First, it is necessary to comprehensively review the current status of various natural protected areas systems in China, and clarify the relationships among natural protection zones such as national ecological security barriers, important ecological function zones, and ecological conservation red lines, as well as among nature reserves, national parks, scenic areas, forest parks, wetland parks, and geological parks. On this basis, China should establish a natural protected areas classification system that references the International Union for Conservation of Nature (IUCN) protected area categories to facilitate international integration, but more importantly, conforms to China's national conditions and enables effective management adapted to local conditions, maximizing the role of natural protected areas in conserving important natural ecosystems and coordinating human-land relationships.

Establishing a natural protected areas system with national parks as the backbone means that China's future system will transform from the current nature reserve-dominated structure to one centered on national parks. However, "national parks as the backbone" should not be measured by the area and number of national parks, but should emphasize their national representativeness and systematic, high-quality protection of important natural heritage. Therefore, in the coming period, based on systematic evaluation and according to the functional positioning of national parks and related procedural norms clarified in the Overall Plan for Establishing a National Park System, a number of natural geographic regions with high ecosystem integrity and authenticity and strong national representativeness should be gradually designated or integrated as national parks for strictest protection while fulfilling their public functions such as recreation, education, and science popularization.

While vigorously promoting national park construction, the improvement of other types of protected areas should not be neglected. First, for natural geographic regions with high ecological value but small area or weak national representativeness, nature reserves can be maintained or newly established to achieve strictest protection. Second, for scenic areas, forest parks, grassland parks, wetland parks, and geological parks with relatively low ecological value but high landscape and aesthetic value, it is recommended that they be uniformly managed as national scenic areas (or national ecological recreation areas) while maintaining their original designations, serving as important ecotourism venues for Chinese residents' cycling, hiking, and camping activities while strengthening natural ecosystem protection. Third, for various lower-level protected areas with low ecological value but high landscape and tourism recreation value, they can be uniformly managed as tourist attractions. The classification of natural protected areas involves numerous stakeholders, and specific classification schemes should be determined based on principles conducive to coordinating conservation-development relationships, facilitating diversified funding mechanisms, and enabling convenient management, through in-depth research, strengthened studies, and full coordination with all stakeholders.

After completing natural protected areas classification, China should further

optimize the spatial layout of its protected areas. Based on comprehensive assessments of the distribution, quality, service functions, and biodiversity of major natural ecosystems, systematically integrate overlapping and fragmented protected areas into unified national parks and nature reserves. Important wild animal and plant habitats and ecosystem service value areas not yet under protection should be incorporated into the protected areas system. The revision of national-level nature reserve plans should be promoted to include currently unprotected ecologically important areas surrounding reserves while adjusting key towns, transportation arteries, and important economic development areas with low ecosystem service values out of the strictest protection zones of national-level nature reserves to reduce protection pressure and improve conservation effectiveness.

### **Improving the Legal Framework for Sound Law-Based Governance**

Taking the establishment of the National Forestry and Grassland Administration and the integration of management responsibilities for various natural protected areas as an opportunity, China should establish and improve its legal system for natural protected areas to overcome the “legislative difficulty” dilemma caused by departmental interest disputes. Given that China’s natural protected areas system requires restructuring and lacks mature institutions that can be transformed into legal provisions, while the Overall Plan for Establishing a National Park System has completed top-level design for national parks, clarifying basic principles, main objectives, development concepts, functional positioning, and institutional construction directions, and pilot programs have accumulated rich legislative experience, it is recommended to accelerate the legislative process of the National Park Law to provide legal support for establishing and managing national parks.

Simultaneously, legislation for the Natural Protected Areas Law and revisions of relevant management regulations should be promoted in conjunction with classification and governance system reforms of natural protected areas. It is recommended to adopt a comprehensive framework legislative approach to promote natural protected areas legislation, clarifying basic content such as functional positioning, management systems, funding mechanisms, main institutions, and legal liabilities for various protected areas. Within the framework of the Natural Protected Areas Law, specific management measures should be formulated for different types of natural protected areas based on their characteristics and promulgated in the form of administrative regulations. Local regulations can be formulated when necessary to refine governance measures for specific natural protected areas, building a legal and regulatory system through “one law for each category” and “one law for each area” approaches to achieve sound law-based governance of protected areas. Relevant legal revisions such as the Property Law, Real Estate Registration Interim Regulations, and Land Administration Law of the People’s Republic of China should be promoted. For example, ecological land or protected land categories could be added in the revi-

sion of the Land Administration Law to provide legal basis for natural protected areas natural resource property rights systems.

### **Reforming the Property Rights System with “Three-Rights” Separation**

To address the complex land tenure issues currently facing the protected areas system, it is recommended to establish a management system that separates ownership, management, and supervision rights (the “three rights”) to solve the problem of unified protected area management (Figure 1 [Figure 1: see original paper]). The ownership of land in various protected areas should be further clarified, with proper registration of rights to protect the legitimate rights and interests of owners and ensure fair enjoyment of ecological and cultural values of protected areas by current and future generations, making them truly public goods.

Management rights can belong to protected area management bureaus (or management committees) established by the government, non-profit organizations, or co-management entities formed by government and non-profit organizations, depending on protected area categories and land ownership. These entities are primarily responsible for planning, standard-setting, and patrol management, transforming from predatory exploitation of natural resources for short-term economic benefits to rational utilization and protection of natural resources for greater public welfare. The Ministry of Natural Resources and the National Forestry and Grassland Administration (National Park Administration) should mainly exercise supervision rights to ensure that state-owned natural resource assets are not lost and ecosystems are not destroyed, supervise the implementation of agreements by protected area management institutions to ensure compliance with use controls, and formulate relevant systems to promote continuous improvement of ecological quality and biodiversity maintenance services.

Core and buffer zone collective lands of national-level nature reserves and national parks with important conservation value should be transferred to state ownership through purchase or exchange to achieve unified ownership and management rights for strictest protection. For other protected areas and experimental zones of national parks and national-level nature reserves, ownership and management rights can be separated, with ownership being either state-owned or collectively owned. For collective land, management rights should be transferred to protected area management institutions through leasing, use right transfer, or easement agreements to implement strict natural resource use controls.

### **Establishing a Modern Governance System for Multi-Party Co-Governance**

Establishing a modern governance system for natural protected areas is essential for achieving better governance and effective implementation of related de-

cisions, requiring full consideration of the interests and concerns of all stakeholders. Drawing on international experience, good governance of regional and watershed public goods should involve constructing a modern governance system that integrates four mechanisms: coordinated decision-making, management execution, scientific consultation and evaluation, and social participation coordination.

The coordinated decision-making mechanism can adopt a board or council system with participation from central government, local governments, communities, industry associations, non-profit organizations, and other stakeholders to protect their decision-making and supervisory rights. The management execution mechanism should be undertaken by the National Forestry and Grassland Administration (National Park Administration) to ensure its management authority over natural protected areas at all levels. The scientific consultation and evaluation mechanism should be executed by an independent scientific committee to provide scientific support for protected area planning, conservation and development strategies, capacity building, and performance evaluation, ensuring scientific construction and management. The social participation coordination mechanism should mainly establish communication and coordination mechanisms between government and society, focusing on the basic demands of stakeholders in natural protected area construction and management and safeguarding their fundamental interests. Governance system construction can be implemented step by step.

Under the unified supervision of the Ministry of Natural Resources and the National Forestry and Grassland Administration, and based on the characteristics of various protected areas, China should draw on international protected area governance experience[16] to explore the establishment of a natural protected areas governance system with government leadership and multi-party participation, incorporating multiple governance models including government governance, public welfare governance, community governance, and co-governance (Table 1 ), to compensate for and alleviate problems such as insufficient capacity, funding shortages, and prominent protected area-community conflicts faced by single government governance.

Government governance should apply to national parks and national-level nature reserves of extremely important conservation value, establishing a funding guarantee mechanism primarily based on financial investment, with construction and management funds uniformly incorporated into the central government budget. Public welfare governance can be applied to protected areas with important conservation value but currently facing protection gaps or weak protection capacity, which can be entrusted to non-profit organizations for protection and management through conservation agreements. Community governance can be applied to small protected areas or protection gap areas with important conservation value and collective land ownership, which can also be entrusted to communities for protection and management through conservation agreements. Co-governance can apply to forest parks, wetland parks, grassland parks, desert

parks, and other protected areas with relatively low conservation value, which can be jointly managed through public-private partnerships.

### **Expanding Spatial Governance Beyond Protected Area Boundaries**

To coordinate protected area conservation with surrounding regional development, it is recommended to promote the construction of protected area expansion zones and extend protected area governance to surrounding townships and communities. Drawing on the concept of “affiliated areas” in French national parks[17] and the experience of Chinese social welfare protected areas in establishing expansion zones beyond protected area boundaries[18], areas recommended for inclusion as expansion zones should be designated outside the primarily conservation-focused protected area boundaries based on ecosystem integrity protection needs. Townships and communities within these areas may decide whether to join the expansion zone based on their own willingness (Figure 2 [Figure 2: see original paper]).

After joining the expansion zone, townships and communities must follow the protected area’s ecological protection regulations while enjoying certain support in planning, project construction, and industrial development in terms of funding, technology, and talent. Combining community resource advantages and ecological advantages, characteristic industries should be developed in expansion zones to drive surrounding residents out of poverty, reversing the previous pattern of over-exploitation of protected areas. Improved economic conditions for expansion zone residents help stimulate awareness of giving back to nature. During development, local residents can be hired to participate in protected area public affairs management, cultivating community identity, spiritual belonging, and pride to build harmonious relationships between protected areas and surrounding communities and achieve win-win economic and ecological benefits.

### **Establishing Ecological Product Value Realization and Brand Appreciation Mechanisms**

The reform of China’s natural protected areas system should prioritize establishing coordination mechanisms between conservation and development. It is necessary to determine funding mechanisms and development models based on clearly defined protection levels for various protected areas. Simultaneously, property rights for ecological products such as clean air, clean water sources, and carbon sinks must be clearly defined to protect the rights and interests of property owners, and mechanisms for realizing ecological product value compatible with the functional positioning of various protected areas should be established, enabling residents within and around protected areas to harvest “golden mountains and silver mountains” while safeguarding “green waters and green mountains.”

First, establish fiscal transfer payments, ecological compensation, and government purchase of ecological conservation service systems for different types and

protection levels of protected areas. National-level nature reserves and national parks under strictest protection should receive unified central government financial support, with strengthened fiscal transfer payments and ecological compensation for areas with limited development due to protection. For provincial nature reserves, provincial fiscal-supported ecological compensation systems or inter-regional horizontal ecological compensation systems can be established. For other protected areas and municipal/county-level nature reserves, government purchase of ecological conservation service mechanisms can be considered, with ecological protection funds established at the provincial level to pay protectors based on conservation effectiveness.

Second, make full use of the good ecological environment in protected areas to develop ecological agriculture, eco-tourism, ecological wellness, and ecological services in surrounding areas. To ensure that industries around protected areas conform to their functional positioning without endangering ecosystem health and stability, and that products meet strict quality and green standards, strict industry access, development scale restrictions, and product certification systems must be established. Simultaneously, supportive policies in taxation, subsidies, technology, and talent should be formulated to promote industry development meeting these standards. For example, zero taxation can be applied to ecological products produced within and around protected areas. Additionally, product brand building and business model innovation should be promoted, establishing a unified national product labeling system for various protected areas, such as national park product labels and national-level nature reserve product labels. By granting labels to products that meet protected area functional positioning and quality standards, they can obtain clear value-added benefits and better market prospects, transforming resource and environmental advantages into product quality, price, and sales advantages to realize the conversion of “green waters and green mountains” into “golden mountains and silver mountains.”

Third, explore the establishment of protected area ecological product marketization mechanisms through pilot programs, enabling ecological protectors and ecological product producers to obtain economic benefits through market means to improve their livelihoods. Different from agricultural land that focuses on producing agricultural products and industrial land that focuses on producing industrial products, various natural protected areas focus on producing ecological products. Therefore, they can serve as key pilot areas for exploring ecological product marketization mechanisms. Pilots should explore the establishment of ecological product value accounting, market creation, pricing, and trading mechanisms. Simultaneously, explore the establishment of a financial system supporting ecological product marketization, such as establishing ecological product property rights mortgage, securitization, forward trading, and equity trading systems to activate ecological product markets.

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## Author Biographies

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*Note: Figure translations are in progress. See original paper for figures.*

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