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## Developments and Trends in the Construction of China's Ecological Civilization Institutional System: Postprint

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### Abstract

Since the 18th National Congress of the Communist Party of China, China's ecological civilization construction has undergone historic, transformative, and comprehensive changes from theory to practice, with the development of the ecological civilization institutional system playing a crucial role in this process. This article utilizes ecological civilization system reform documents issued by central relevant ministries and commissions since 2012 and related research literature to analyze the formation and evolutionary characteristics of China's ecological civilization construction institutional system, examine the development trajectory of representative innovative institutions, and forecast the direction for further deepening ecological civilization system reform. The results indicate that, from a policy dimension perspective, ecological civilization institutions can be categorized into four major domains: green development, environmental governance, ecological protection, and comprehensive categories. Among these, green development institutional documents are the most numerous; from a policy authority perspective, issuing entities are primarily at the central level and involve joint issuance by multiple ministries, exhibiting strong comprehensive characteristics. Most innovative ecological civilization institutions have undergone a development process of "exploration—pilot testing—summarization and promotion," with different institutions being closely interconnected and mutually supportive, constituting an ecological civilization institutional system with distinctive Chinese characteristics. Through systematic review, the anticipated direction for China's future deepening of ecological civilization system reform includes: strengthening legal and regulatory safeguards, enhancing efficient coordination among institutions, improving green and low-carbon development policies, and strengthening evaluation and research on Beautiful China ecological civilization institutions.

## Full Text

### Progress and Prospects of China' s Ecological Civilization System Construction

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#### Abstract

Since the 18th National Congress of the Communist Party of China, the construction of Ecological Civilization (EC) in China has undergone historic, transitional, and comprehensive changes from theory to practice. The construction of the institutional system has played a critical role in this process. Based on relevant central government documents on EC system reform and related research literature issued since 2012, this study analyzes the formation and evolution characteristics of China' s EC construction institutional system, examines the development process of representative innovative institutions, and forecasts the direction of further deepening EC system reform. The results show that from a policy dimension, EC institutions can be categorized into four domains: green development, environmental governance, ecological protection, and comprehensive policies, with green development policies being the most numerous. From the perspective of policy authority, issuing bodies are primarily at the central level or involve multiple ministries, demonstrating strong comprehensiveness. Most innovative EC institutions have undergone a development process of "exploration—pilot testing—summarization and promotion," with different institutions being closely interconnected and mutually supportive, forming an EC institutional system with distinctive Chinese characteristics. Through systematic review, the anticipated future direction for deepening China' s EC system reform includes: strengthening legal and regulatory guarantees, enhancing efficient coordination among institutions, improving green and low-carbon development policies, and strengthening evaluation and research on EC institutions for Beautiful China.

**Keywords:** ecological civilization, Beautiful China, green development, institutional system, system reform

# 1. Progress of Ecological Civilization Institutional System Construction

## 1.1 The Construction Process Has Undergone Three Stages

Overall, since the 18th Party Congress, China's EC institutional system construction has experienced three distinct stages. The first stage, the incubation period (2012–2015), involved the Central Financial and Economic Affairs Leading Group Office, jointly with the Ministry of Land and Resources, Ministry of Environmental Protection, and other departments, conducting research on relevant institutions for source prevention, strict process management, and consequence accountability, and beginning to draft the overall EC system reform plan. During this period, relevant ministries actively implemented the spirit of the 18th Party Congress, adding content on resource conservation, pollution prevention, and ecological restoration to their documents. The National Development and Reform Commission and Ministry of Environmental Protection also launched EC pilot programs. Statistics on EC-related documents issued at the central and ministerial levels from 2012 to 2022 show that in 2013–2014, the total number of relevant documents issued exceeded 20 each year, slightly higher than in 2012 [Figure 1: see original paper].

The second stage, the rapid advancement period (2015–2018), began with the release of two programmatic documents: the *Opinions of the Central Committee of the Communist Party of China and the State Council on Accelerating the Advancement of Ecological Civilization Construction* (hereinafter referred to as the *Opinions*) and the *Overall Plan for Ecological Civilization System Reform* (hereinafter referred to as the *Overall Plan*). On March 24, 2015, the Political Bureau of the CPC Central Committee reviewed and approved the *Opinions*. On September 11, 2015, the Political Bureau approved the *Overall Plan*. Following the release of these two documents, relevant departments implemented and refined the eight institutions specified in the *Overall Plan*. Statistics show that from 2015 to 2017, the number of documents issued significantly exceeded those in 2012–2014, peaking in 2016 at nearly 60 documents [Figure 1: see original paper].

The third stage, the comprehensive implementation period (2018–2022), was marked by institutional reforms of relevant State Council ministries and large-scale demonstration zone construction. In 2018, to meet the needs of EC construction in the new era, the State Council reorganized the Ministry of Natural Resources and Ministry of Ecology and Environment, essentially clarifying the environmental governance management system and eliminating the drawbacks of fragmented management. Concurrently, pilot trials of some institutions entered their final phase and gradually began nationwide promotion after summarizing pilot experiences. By 2022, the Ministry of Ecology and Environment had designated 470 national EC demonstration counties/cities across six batches and 187 “Lucid Waters and Lush Mountains are Invaluable Assets” practice innovation bases across six batches. Statistics show that after 2019, the number

of relevant documents increased dramatically, from fewer than 20 in 2019 to over 150 in 2022, with notable increases in documents addressing regional and comprehensive ecological and environmental protection issues such as rural environmental governance, Yangtze River and Yellow River basin protection, and ecological conservation of the Qinghai-Tibet Plateau [Figure 1: see original paper].

### **1.2 The Institutional System Has Achieved Comprehensive Coverage of Ecological Environment and Green Development**

Statistics on EC system reform policy documents issued by the CPC Central Committee, the State Council, and relevant central ministries from January 2012 to September 2022 show over 550 relevant documents. These documents cover all aspects of EC system reform and can be categorized into four types according to domain: green development, environmental governance, ecological protection, and comprehensive policies. From the retrieved documents, over the more than ten-year period, policies on green development, environmental governance, ecological protection, and comprehensive policies accounted for 33%, 25%, 24%, and 18% respectively [Figure 2: see original paper].

The statistics indicate that EC institutional documents are primarily issued at the central level or through multi-ministerial joint efforts [Figure 3: see original paper]. Central-level institutions number approximately 136 (24.5%), covering all aspects of EC institutions, demonstrating high-level attention to overall institutional design. Multi-ministerial joint documents total 158 (28.5%), concentrated in green development (39.9%) and ecological protection (31.6%), involving more than five ministries and reflecting inter-agency collaboration and coordination. The remainder are individual measures issued by ministries to implement central strategic deployments, such as central environmental protection inspections and pollution supervision by the Ministry of Ecology and Environment, natural resource investigation and conservation by the Ministry of Natural Resources, and regional green development and resource conservation coordination by the National Development and Reform Commission.

### **1.3 The Institutional System Construction Features Central and Multi-Ministerial Coordination**

The formulation and implementation of EC institutions depend on a sound regulatory system, with effective central agencies providing strong guarantees for EC institutional system construction. Since 2012, central agencies have undergone two major adjustments for constructing and operating the EC institutional system. In 2018, China reformed its ecological environment regulatory agencies, establishing the Ministry of Natural Resources and Ministry of Ecology and Environment. With clearer departmental responsibilities, the specific regulatory systems and ownership responsibilities for spatial planning, resource investigation and utilization, ecological protection, and environmental governance became more explicit, further improving policy implementation efficiency. In 2023,

based on EC institutional implementation effectiveness, the Ministry of Ecology and Environment established the Ecological and Environmental Protection Inspection Coordination Bureau and removed the Atmospheric Environment Management Bureau sign for the Beijing-Tianjin-Hebei region and surrounding areas. These timely central institutional adjustments have provided important conditions for continuing to deepen EC system reform.

## 2. Innovation and Development of Representative Ecological Civilization Institutions

According to the *Overall Plan*, the EC institutional system specifically includes eight components: natural resource asset property rights, territorial space development and protection, spatial planning systems, total resource management and comprehensive conservation, paid resource use and ecological compensation, environmental governance systems, environmental governance and ecological protection market systems, and EC performance evaluation and accountability systems. Comparing issued institutional documents with corresponding research literature reveals that many institutions represent innovations from scratch, notably in natural resource property rights, environmental damage compensation, national parks, ecological protection red lines, ecological compensation, and accountability systems [Figure 4: see original paper]. Most institutional innovations have undergone the process of “exploration—pilot testing—summarization and promotion.”

The definition and standardization of natural resource property rights represent an important prerequisite for EC institutional system reform and implementation. In 2013, the *Decision of the Central Committee of the Communist Party of China on Some Major Issues Concerning Comprehensively Deepening Reform* (hereinafter referred to as the *Decision*) specified the need to “improve the natural resource asset property rights system and use control system,” subsequently attracting high domestic and international attention, particularly regarding property rights changes for land and mineral resources involving multiple stakeholders. The natural resource property rights system includes ownership and other property rights (mainly rights transactions). Through pilot exploration, the determination of natural resource ownership has been basically completed, with registration processes established for water flows, forests, and other natural resources. However, due to the inherent contradictions of natural resources as public goods, fiscal resource competition, and legacy institutions, complete establishment of the natural resource property rights system still requires time and empirical research [8-12].

The ecological environment damage compensation system serves as a punitive mechanism for ex post correction of environmental negative externalities by damaging parties. Before 2015, China’s environmental damage compensation system suffered from legislative gaps, unclear claims, and incomplete fund management, often creating dilemmas where “enterprises pollute, the public suffers, and the government pays.” After the 2015 reform document, scholars began fo-

ocusing on damage compensation policies. Following pilot implementation (2015–2017) and nationwide trial (2018–2020), China has preliminarily established a damage compensation system with clear responsibilities, technical specifications, adequate compensation, and effective restoration.

National parks and ecological protection red lines are important institutions proposed to strengthen ecosystem spatial control, representing landmark innovations in EC institutional construction. The national park system aims to establish a nature conservation system with national parks as the main component. The concept of national parks first officially appeared in the 2013 *Decision*, after which research literature began focusing on independent studies of China’s national park construction. Following pilot programs from 2015–2020, China officially established its first batch of national parks in 2021, including Sanjiangyuan, Northeast China Tiger and Leopard, and Giant Panda, basically establishing a hierarchical unified management mechanism, gradually improving relevant laws, and initially improving community livelihoods (e.g., combining poverty alleviation with the Sanjiangyuan pilot) [14–16], forming a national park system with Chinese characteristics. The ecological protection red line represents an important institutional innovation for implementing ecological protection from the source. Although first proposed in official documents in 2011, research only emerged after its reiteration in the 2013 *Decision*. Today, the ecological protection red line has become both the bottom line for maintaining China’s ecological security and a key measure for sustainable environmental improvement, as well as an important basis for implementing territorial spatial planning [17].

The ecological compensation mechanism is based on externality theory in economics, proposing that beneficiaries should compensate for ecological externalities, representing an important economic instrument for balancing ecological protection and economic development. Ecological compensation institutions in China began relatively early, with research clearly policy-driven [19]. Although relevant laws or regulations involving positive externality subsidies or key ecological function zone transfer payment mechanisms existed before 2013, nationwide promotion only began after the 2013 *Decision*. The 2015 *Overall Plan* and *Opinions* have since served as the general framework and guide for China’s ecological compensation mechanism. To date, ecological compensation systems have been basically established in key areas such as forests, grasslands, wetlands, deserts, oceans, water flows, and cultivated land, forming a government-led, enterprise- and society-participating model while gradually exploring market-based operation models.

The accountability system, particularly the lifelong accountability system for leading cadres, prevents unscientific performance concepts in some local governments and rectifies phenomena of downplaying or abandoning environmental protection and over-exploiting resources [21,22], representing a comprehensive dimension of EC institutional construction. The 2013 *Decision* proposed establishing a lifelong accountability system for ecological environment damage

nationwide. In 2014, ecological environment indicators were added to performance assessments for leading cadres in poverty-stricken areas, followed by systems such as departure audits and environmental inspections. Although establishment of the accountability system progressed relatively slowly, central ecological and environmental protection inspections have demonstrated significant environmental effects [23,24], exposing and reducing problems such as formalistic environmental target responsibility systems, backward environmental infrastructure, and inadequate local government supervision, becoming an important guarantee system for China's environmental governance.

The EC institutional system is formed through the interaction of different institutions across multiple domains. Green development, environmental governance, and ecological protection institutions are interdependent, with corresponding EC institutions nested and integrated. For example, the EC accountability system runs through resource property rights, ecological environment damage compensation, ecological protection red lines, and ecological compensation systems, while the national park system requires coordination with ecological red lines, resource property rights, and ecological compensation systems. Different institutions are closely linked and mutually supportive, aiming to achieve an ecological and environmental problem-solving approach of "strict prevention at the source, strict management during the process, and severe punishment of consequences." The EC institutional system composed of these eight reform components forms a system with clear property rights, multi-stakeholder participation, parallel incentives and constraints, and complete integration, ultimately forming an EC institutional system with Chinese characteristics.

### 3. Future Directions for Ecological Civilization Institutional System Construction

At the National Conference on Ecological and Environmental Protection in July 2023, General Secretary Xi Jinping emphasized the need to "accelerate the construction of an EC system, and accelerate the establishment and improvement of an ecological culture system with ecological value concepts as the criterion," stating that "we must strengthen legal guarantees, coordinate the revision of laws and regulations related to the ecological environment and resources, implement the strictest ecological and environmental governance system covering aboveground and underground, land and sea, and regional linkages, fully implement the pollution discharge permit system, improve the natural resource asset management system, and perfect the territorial space use control system. We must improve green and low-carbon development economic policies, strengthening fiscal, tax, financial, and pricing policy support. We must promote better integration of effective markets and capable governments, incorporating resource and environmental factors such as carbon emission rights, energy use rights, water use rights, and pollution discharge rights into the overall market-oriented allocation reform, supporting market transactions such as transfer, trading, mortgage, and equity participation, accelerating the construction

of an environmental credit supervision system, standardizing the environmental governance market, and promoting the healthy development of the environmental protection industry and environmental services.” Based on General Secretary Xi Jinping’s speech and our systematic review of the EC institutional system, future deepening reform of China’s EC institutional system will primarily include four aspects.

### **3.1 Further Strengthening Legal and Regulatory Guarantees**

Construction of comprehensive ecological and environmental laws and regulations and revision of laws in the EC field will be further strengthened to gradually eliminate conflicts among various laws and regulations. Future efforts will also coordinate the content of China’s environmental laws and regulations with international conventions and international law, establishing ecological and environmental laws consistent with international norms to contribute to global environmental governance. Ecological and environmental policies and regulations will become more explicit, ensuring that governments at all levels can regulate ecological protection behaviors through law.

### **3.2 Further Strengthening Efficient Coordination Among Institutions**

Based on existing institutional foundations, efficient coordination among institutions will expand in three directions: comprehensive institutional systems, management approaches, and regional system integration. Comprehensive institutional systems such as the pollution discharge permit system, natural resource asset management system, and territorial space use control system will be gradually improved. Existing ecological construction and environmental governance organizational methods will be further perfected, with greater emphasis on deepening regional coordination, stressing overall national layout and systematic integration to improve governance efficiency. Systematic formulation of ecosystem protection and restoration policies for aboveground and underground, upstream and downstream areas, integrated protection and restoration of mountains, rivers, forests, farmlands, lakes, grasslands, and deserts in watershed ecosystems, and coordinated promotion of regional environmental pollution prevention and joint emission reduction will jointly build an ecological supervision platform system.

### **3.3 Comprehensively Improving Green and Low-Carbon Development Economic Policies and Perfecting Investment and Participation Mechanisms for EC Construction**

Construction of Beautiful China in the new era will shift from a state-investment-dominated model to one led by the government with whole-society participation. While further expanding investment and clarifying expenditure responsibilities at all government levels, China will systematically summarize and promote experiences from EC pilot zones such as Zhejiang and Fujian, including achievements in realizing ecological asset value through collective forest tenure reform,

green finance, carbon emissions trading, ecological compensation, eco-tourism, and geographical indication products. Regional governments will continue to be encouraged to allocate multi-channel, multi-level, and multi-domain funds to attract more social capital to actively participate in ecological construction and environmental governance, establishing effective models for market-based construction, operation, and management.

### 3.4 Strengthening Evaluation and Research on Beautiful China' s EC Institutions

Establishing a systematic and complete institutional system is a long-term process. After the top-level design and framework of the EC institutional system are established, institutional reform and policy formulation are needed to ensure that the country' s fundamental economic, social, and ecological management systems embody EC concepts [25], and that spatial patterns, industrial structures, and production and lifestyle patterns across regions undergo substantive changes. To achieve this transformation, comprehensive interdisciplinary research must continue based on different regional development conditions, focusing on the progress, difficulties, and needs of EC system reform. In the future, the government will likely further advance technological development for the digital governance system of Beautiful China and strengthen evaluation of EC institutional construction effectiveness to systematically and comprehensively unleash the tremendous effectiveness of EC construction policy instruments.

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