China's Emerging Ecosystem Law: From Characteristics to Implementation Research

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Abstract

As China continues to enhance its ecological civilization, emerging ecosystem laws have arisen. This paper aims to explore the characteristics of China's emerging ecosystem laws as well as their practical application and challenges. The research focuses on two main backgrounds of these laws - the ecological civilization ideology that led to their emergence, and their legislative phases. This study primarily revolves around the legal characteristics and implementation challenges of the emerging ecosystem laws, recognizing the considerable innovation in legislating for large-scale ecosystems in China. The main challenge lies in the need for novel administrative and judicial coordination mechanisms across administrative regions and the detailed implementation of specific rules and regulations. By comparing these ecosystem laws to the legislation and governance of five representative large river basins in the United States, the research concludes that China's emerging ecosystem laws are not fundamentally different from the watershed management laws and governance in the US. However, there is innovation in laws regarding other ecosystem types, such as the Qinghai-Tibet Plateau. The key focus should be on coordinating current cross-administrative regional governance and judicial collaboration and innovating large-scale environmental regulatory measures to enhance the effectiveness of such laws in China.

Keywords: ecosystem law; cross-administrative regional coordination; ecosystem management; watershed management.

Table of Contents

Introduction

Since 2020, the development of environmental law in China has undergone a significant transformation, shifting from fragmented legislation focused on individual environmental elements to a holistic legislative model based on ecosystem management. The amendment of the Environmental Protection Law of the People's Republic of China in 2014 and the enactment of the Soil Pollution Prevention and Control Law marked the first phase of reform in environmental resource law. This phase

emphasized categorical legislation for pollution control of water, air, and oceans, but had limitations in achieving comprehensive ecosystem protection. Post-2020, China has entered a new legislative phase centered on ecosystem management. The enactment of the Yangtze River Protection Law (2021), Yellow River Protection Law (2022), Black Soil Protection Law (2022), and Qinghai-Tibet Plateau Protection Law (2023) has enabled integrated regulation of economic and social development, as well as ecological protection for different ecosystems and specific regions. These laws not only transform the traditional models of environmental pollution control and natural resource management in China but also emphasize the maintenance of healthily functioning ecosystem services—"the benefits people obtain from ecosystems"—delineated by the Millennium Ecosystem Assessment (MEA) into four categories: provisioning, regulating, supporting, and cultural.[1]

However, these emerging laws face numerous challenges in practice due to their extensive jurisdiction, multi-provincial divisions, and complex regulatory objectives. Investigating how to effectively transition these laws from legislation to implementation is of significant practical importance. This paper aims to provide theoretical support and practical approaches for ecosystem management and cross-jurisdictional collaborative governance by examining the formation, development, characteristics, and challenges of these laws.

China's Ecological Environment Code is currently being drafted for the first time, with the first draft released in May this year. The draft integrates the ecosystem-focused legislation discussed in this article into Section III, "Ecological Protection." Although the draft incorporates some of the core concepts of emerging ecosystem laws into the new Code, the various separate ecosystem watershed and regional laws recently enacted by the National People's Congress discussed in this article will still exist independently of the new Code. Therefore, even if China's new Ecological Environment Code is currently estimated to be enacted as early as 2026, the substantive content of our current discussion will remain unchanged.

I. Origins and Legal Characteristics of Emerging Ecosystem Laws in China

A. *A. Origins of the Laws*

The foundation of China's emerging ecosystem laws lies in Xi Jinping's Thought on Ecological Civilization, which centers on harmonious coexistence between humans and nature, advocating for the conservation of natural resources, restoration of ecological environments, and promotion of sustainable development. The Thought, within the context of Chinese politics, has facilitated the formation of a series of laws

1. Millennium Ecosystem Assessment, Ecosystems and Human Well-Being: Synthesis, at v (2005).

and policies, positioning ecological protection as a national strategy and spurring continuous innovation in the legal framework for environmental protection.

Despite the successes achieved by China's traditional pollution control and natural resource protection legal system between 2013 and 2020, issues such as legal fragmentation and inadequate cross-departmental and cross-regional cooperation hindered effective responses to complex ecological challenges. The goal of the new ecosystem laws is to establish a concrete framework for ecological protection, enhancing management based on ecosystem boundaries rather than administrative divisions. This aims to achieve complementary coexistence between humans and nature from an integrated ecosystem perspective.

B. *Legal Characteristics*

1. Legislation for the Protection of Large-Scale Ecosystems

China has taken an innovative approach in ecosystem protection legislation by enacting specific laws for the Yangtze and Yellow Rivers, the two largest rivers in China. Additionally, an increasing number of unique and fragile ecosystems, such as specific types of land and high-altitude ecosystems, have been formally legislated by the National People's Congress. These laws not only enhance the protection of these ecosystems but also introduce numerous regulatory innovations, including cross-regional ecological compensation mechanisms to coordinate ecological interests across different regions. These innovative regulatory methods provide a robust legal foundation for ecological protection.

2. Significant Transitional Phase in Chinese Environmental Law

China's drafted Ecological and Environmental Code elevates ecological protection to the same legislative status as pollution control, and sets up a separate, large third "Section" to discuss ecological protection. The draft Code thus represents a strategic shift in China's environmental legislation from pollution prevention to ecosystem protection. Chinese environmental law has undergone a crucial transition from traditional pollution control approaches to holistic ecosystem protection. For instance, these recent laws not only focus on pollution prevention, but also emphasize the overall protection of ecosystems. Through measures such as establishing ecological redlines and enhancing watershed ecological restoration, the laws are heavily focused on improving the ecological robustness of watersheds and ecosystems. Emphasizing the holistic protection of ecosystem functions is the primary goal of these laws.[2]

2. *See* Zhonghua Renmin Gongheguo Changjiang Baohu Fa (中华人民共和国长江保护法) [Yangtze River Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 26, 2020, effective Mar. 1, 2021), art. 1; Zhonghua Renmin Gongheguo Huanghe Baohu Fa (中华人民共和国黄河保护法) [Yellow River Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Oct. 30, 2022, effective

3. Expansion in the Field of Chinese Biodiversity Law

China's legal system for biodiversity protection has shown continuous expansion and enhancement. According to the three tiers of biodiversity protection outlined by the United Nations Convention on Biological Diversity – the protection of ecosystems, species, and genetic diversity[3] – it is evident that these ecosystem laws fall within the macroscopic domain of China's biodiversity protection.

4. Ensuring Comprehensive Ecosystem Management

Comprehensive management is a key feature of China's ecosystem legal system. For example, the Qinghai-Tibet Plateau Law demonstrates the concept of comprehensive ecosystem management by establishing preventive measures,[4] protection mechanisms,[5] restoration efforts,[6] and sustainable development.[7] Similarly, other newly enacted ecosystem protection laws reflect this approach, ensuring a holistic and integrated management system.

II. Implementation Challenges of Emerging Ecosystem Laws in the Chinese Context

A. *Key Content of Emerging Ecosystem Laws in China*

The enactment of the Yangtze River Protection Law (2021), Yellow River Protection Law (2022), Black Soil Protection Law (2022), and Qinghai-Tibet Plateau Protection Law (2023) reflects the distinct characteristics of different ecosystems. Even the Yangtze and Yellow Rivers, as the two largest rivers in China, exhibit different governance features due to their unique watershed ecological characteristics. To clearly present the legal differences across these four diverse ecosystems, the key legal

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Apr. 1, 2023), art. 1; Zhonghua Renmin Gongheguo Hei Tudi Baohu Fa (中华人民共和国黑土地保护法) [Black Soil Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., June 24, 2022, effective Aug. 1, 2022), art. 1; Zhonghua Renmin Gongheguo Qingzang Gaoyuan Shegtai Baohu Fa (中华人民共和国青藏高原生态保护法) [Qinghai-Tibet Plateau Ecological Protection Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Apr. 26, 2023, effective Sept. 1, 2023), art. 1.

3. United Nations Convention on Biological Diversity, art. 2, June 5, 1992, 1760 U.N.T.S. 79, https://www.cbd.int/doc/legal/cbd-en.pdf [https://perma.cc/A9XA-RJ7U].

4. Zhonghua Renmin Gongheguo Qingzang Gaoyuan Shegtai Baohu Fa (中华人民共和国青藏高原生态保护法) [Qinghai-Tibet Plateau Ecological Protection Law of the People's Republic of China] (enacted by the Standing Comm. Nat'l People's Cong., Apr. 26, 2023, effective Sept. 1, 2023). Reflected by the ecological red line system, environmental impact assessment system, etc., *see* arts. 12, 13, 20, and 38 of the law.

5. *Id.* For example, the biodiversity protection system is covered in arts. 11, 15, 26 and 29 of the Law; the water resources protection system is covered in arts. 22 and 41 of the Law.

6. *Id.* at Chapter III.

7. *Id.* at art. 1.

characteristics of the laws are illustrated and compared under the themes of regulatory mechanisms, primary systems, and legal objectives.[8]

TABLE 1. EMERGING ECOSYSTEM LAWS IN CHINA

Laws/Policies	Issuing Authority	Management System	Legislative Goals	Management Measures and Features
Law of the People's Republic of China on the Protection of the Yangtze River	National People's Congress	National river basin coordination mechanism, with division of responsibilities between State Council departments and provincial governments, local governments and river chiefs implementing specific tasks	Ecological protection, pollution prevention, resource utilization	Includes measures for water pollution prevention, water resource protection, and water ecological restoration; emphasizes cross-province collaboration and information sharing
Law of the People's Republic of China on the Protection of the Yellow River	National People's Congress	National coordination mechanism for the Yellow River Basin; Yellow River management and ecological environment regulatory agencies provide support, with implementation by provincial and local governments, coordinated through an interprovincial river and lake chief meeting system	Ecological protection, water resource management, flood control	Covers flood control, irrigation, and comprehensive water resource utilization; focuses on integrated river basin management and cross-province coordination
Law of the People's Republic of China on the Ecological Protection of the Qinghai-Tibet Plateau	National People's Congress	National Qinghai-Tibet Plateau ecological protection coordination mechanism, local governments implementing specific tasks, emphasizing cross-region and cross-department collaboration	Ecological protection, ecological risk prevention, promoting sustainable development	Implements major ecological protection and restoration projects; strengthens ecological environment monitoring and information sharing
Law of the People's Republic of China on the Protection of Black Soil	National People's Congress	Equal collaboration among provinces, led by the Ministry of Agriculture and Rural Affairs	Protecting and restoring black soil resources, ensuring food security	Establishes a black soil protection coordination mechanism; enhances agricultural technology training and scientific support, establishes a cross-regional compensation mechanism

B. *Challenges Faced by Emerging Ecosystem Laws in China*

1. Coordination Challenges Between Government Departments

The implementation of emerging ecosystem laws requires close cooperation among various levels of government and relevant departments. However, under the current administrative management system, departmental interests and division of responsibilities often lead to

8.

coordination difficulties. For instance, the implementation of the Yangtze River Protection Law involves multiple departments, such as water resources, environmental protection, and agriculture, each with different regulatory focuses, making coordination particularly challenging. Cross-regional coordination among governments faces even greater difficulties due to differing provincial interests, conflicts, financial and resource allocation issues, and ineffective coordination mechanisms. The phenomenon is in line with the "Collective Action Theory," which claims that cooperation is hindered by uneven distribution of interests among parties pursuing a common goal.[9] This complex coordination relationship makes it difficult to fully ensure the effective implementation of emerging ecosystem laws.

2. The Conflict Between Economic Development and Ecological Protection Affecting Long-term Implementation

Local governments often face a dilemma between promoting economic development and protecting the environment. Short-term economic growth brings tax revenue and employment, but long-term ecological degradation causes irreversible damage. This conflict is particularly pronounced in economically underdeveloped regions, where "sustainable development" involves balancing economic growth and environmental protection within the Chinese context. According to the "Governance Theory," it is crucial to establish effective governance mechanisms in multi-level and multi-objective environments. The implementation of emerging ecosystem laws faces long-term challenges, requiring institutional mechanisms and capacity building, incorporation of a comprehensive legal framework, effective regulatory mechanisms, and sufficient resource allocation. Additionally, long-term challenges stem from the complexity, coordination, and cooperation required for ecosystem management across administrative boundaries, as well as the need to integrate multiple objectives.

3. Establishing and Implementing Large-Scale Environmental Systems Across Administrative Boundaries

Emerging ecosystem laws require new institutional measures, such as ecological compensation and environmental impact assessments (EIA), to be coordinated and implemented across large-scale, cross-administrative boundaries. These are all likely new measures that may be taken in response to the regulatory requirements of the new ecological laws. However, this presents significant operational challenges. The design of cross-regional ecological compensation systems must take into consideration differences in levels of economic development and ecological conditions between regions, coordinate interests, and ensure fairness and practicality. The cross-regional application of EIA systems requires

9. Mancur Olson, The Logic of Collective Action: Public Goods and the Theory of Groups 2–3 (Harvard Univ. Press 1965).

unified legal regulations and technical standards but faces challenges due to varying development statuses and environmental carrying capacities. Larger-scale ecological environment regulatory systems require more innovative practices.

4. Integration Challenges with Traditional Natural Resource and Pollution Control Laws

The implementation of emerging ecosystem laws requires integration with traditional natural resource and pollution control laws to achieve comprehensive ecological protection. The legislative intentions and implementational pathways of traditional natural resource and pollution control laws differ from those of emerging ecosystem laws, potentially leading to conflicts and inconsistencies in legal application. During this process, it is challenging to effectively combine emerging ecosystem laws with traditional ones, ensuring consistency and coherence in legal application. Research on legal issues in ecosystem management highlights the complexity of this legal integration due to differing governance concepts and implementation mechanisms.[10]

5. Establishing Cross-Administrative Judicial Coordination Mechanisms

Cross-administrative judicial coordination mechanisms are essential for the implementation of emerging ecosystem laws. However, practical differences exist in judicial practices across regions in China, necessitating the establishment of a unified judicial coordination mechanism to ensure cooperation between upstream and downstream areas. This includes unified judicial channels and procedures to ensure consistency and coherence of laws across different regions. Establishing such a mechanism requires not only improving laws and regulations but also training judicial personnel to enhance their collaboration awareness, professional competence, and legal knowledge.

III. Comparative Study on the Laws and Policies for Large River Basin Management Across Administrative Regions in the United States

The three largest river basins in the United States are the Mississippi River Basin, the Tennessee River Basin, and the Columbia River Basin. Additionally, the Great Lakes and Chesapeake Bay regions are notable for their distinctive cross-administrative basin management. This article draws inspiration from the United States, one of the earliest modern nations to implement interstate basin management, featuring complex and diverse management models and mechanisms.

10. Huiyu Zhao, Shengtai Xitong Guanli Falu Wenti Yanjiu (生态系统管理法律问题研究) [Legal Issues in Ecosystem Management] 2–3 (Shanghai Jiao Tong Univ. Press 2006).

A. *Management characteristics of the three major watersheds in the United States*

In the United States, the Mississippi River Basin, Tennessee River Basin, and Columbia River Basin are managed by different primary agencies, each responsible for distinct aspects of water resource management. The Mississippi River Basin is mainly overseen by the U.S. Army Corps of Engineers through the Mississippi River and Tributaries Project (MR&T), which implements extensive flood control and water resource management measures. The Tennessee River Basin is managed by the Tennessee Valley Authority (TVA), a federal agency responsible for comprehensive resource management, including hydroelectric power, flood control, irrigation, and ecological protection. Dworsky et al. observed in their study that, while the organization of TVA was imitated worldwide, "its organizational framework was not again used in the United States."[11] The Columbia River Basin involves multiple agencies, including the Department of Energy and the U.S. Army Corps of Engineers, and emphasizes international cooperation through the Columbia River Treaty with Canada for joint management and development of basin resources.[12]

The primary functions and management foci of these three basins differ significantly. The Mississippi River Basin's main functions include flood control, navigation, and ecological restoration. Management efforts are concentrated on flood prevention, maintaining navigable waterways, and improving water quality and ecological health. This basin is crucial for agriculture, industry, and urban water supply across multiple states. The Tennessee River Basin is managed with an emphasis on comprehensive resource management, particularly excelling in hydroelectric power generation, flood control, and agricultural irrigation. TVA contributes significantly to clean energy supply and environmental protection. The Columbia River Basin's primary function is hydroelectric power generation, achieved through the construction and operation of large hydroelectric projects like the Grand Coulee Dam and Bonneville Dam, which provide substantial clean energy for the region. The basin also achieves integrated water resource management and coordination through the Columbia River Treaty with Canada, ensuring sustainable water use across international borders.[13]

Each basin has unique successful management experiences and characteristics. The Mississippi River Basin effectively controls flood

11. Leonard B. Dworsky, David J. Allee & Ronald M. North, *Water Resources Planning and Management in the United States Federal System: Long Term Assessment and Intergovernmental Issues*, 31 Nat. Res. J. 475, 507 (1991).

12. Columbia River Treaty, U.S.-Can., Jan. 17, 1961, 15 U.S.T. 1555, https://permanent.access.gpo.gov/gpo68848/crt2014–2024review/www.crt2014–2024review.gov/Files/International%20Documents%20ColumbiaRiverTreaty.pdf [https://perma.cc/EG6M-AK4H].

13. *Id.*

disasters and water pollution issues through extensive flood control projects and stringent water quality management, ensuring economic and ecological balance within the basin. It has developed a robust system of levees, dams, and reservoirs that mitigate the impacts of flooding and support navigation and agriculture.[14] TVA utilizes a comprehensive management model to successfully achieve multi-objective management, enhancing water resource utilization efficiency and promoting ecological restoration through scientific research and technological innovation. TVA's approach integrates energy production with environmental stewardship, balancing the need for power generation with that for ecosystem health.[15] The Columbia River Basin excels in integrated water resource management and coordination through international cooperation with Canada. Numerous agencies have successfully constructed and operated numerous hydroelectric projects in this basin that provide substantial clean energy to the region, contributing significantly to the local and national energy grid while maintaining ecological balance through collaborative international efforts.

B. *Great Lakes*

The Great Lakes' cross-basin management is anchored by the Great Lakes Water Quality Agreement (GLWQA) between the United States and Canada. This agreement establishes a binational framework for restoring and protecting the Great Lakes' water quality. The Great Lakes Commission coordinates efforts among the U.S. states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin) and Canadian provinces (Ontario and Quebec). Key objectives include reducing toxic pollutants, restoring wetlands and habitats, improving water quality, and ensuring the sustainable use of water resources. Mechanisms and measures include binational cooperation between the U.S. Environmental Protection Agency (EPA) and Environment and Climate Change Canada (ECCC) to monitor and enforce water quality standards, active participation from U.S. states and Canadian provinces through the Great Lakes-St. Lawrence River Basin Water Resources Council, stakeholder involvement through public consultations and advisory committees, and allocation of financial resources from federal, state, and provincial governments to support cleanup and restoration projects.[16] Through joint governance and stringent environmental regulations, the Great Lakes region has successfully reduced pollutant discharges and improved the

14. Mississippi River Commission, *The Mississippi River and Tributaries Project: Controlling the Project Flood* (2008), https://blog.nature.org/wp-content/uploads/2011/06/Designing-the-Project-Flood-info-paper.pdf [https://perma.cc/P45D-RJ6R].

15. Tennessee Valley Authority Act, 16 U.S.C. §§ 831–831ee (2018).

16. Great Lakes Water Quality Agreement, U.S.-Can., Sept. 7, 2012, 30 U.S.T.S. 1383, https://binational.net/wp-content/uploads/2014/05/1094_Canada-USA-GLWQA-_e.pdf [https://perma.cc/FLB8-KNYH].

overall health of its ecosystems, making it a model for transboundary water resource management.[17]

Although the TVA model, developed during the Great Depression, was conceived as a unique framework to balance energy, ecology, and economy, its implementation often exposed inherent contradictions in achieving a true equilibrium. In *Tennessee Valley Authority v. Hill* (1978), TVA faced litigation over its plan to construct the Tellico Dam, a project that threatened an endangered freshwater fish.[18] This landmark case highlighted the tension between biodiversity conservation and economic development, profoundly influencing the application and interpretation of the U.S. Endangered Species Act.[19]

The case holds valuable lessons for China's environmental judiciary almost half a century later. Over the past four decades of rapid economic growth, China has grappled with frequent conflicts between ecological preservation and economic interests. Since the amendment of the 2014 Environmental Protection Law, known as "the strictest in China's history,"[20] *TVA v. Hill* has provided critical insights for cases like the "Green Peacock Case," a milestone in biodiversity protection litigation.[21] It has significantly shaped China's judicial approach to favor biodiversity conservation, while illustrating the inherent challenges of reconciling competing objectives within development models like TVA's.

C. *Chesapeake Bay*

Chesapeake Bay's cross-basin management is facilitated by the Chesapeake Bay Program, which involves multiple states (Maryland, Virginia, Pennsylvania, Delaware, New York, and West Virginia) and the federal government. The program is a partnership coordinated by the Chesapeake Bay Executive Council, which includes the governors of the participating states, the mayor of the District of Columbia, the chair of the Chesapeake Bay Commission, and the EPA Administrator. Primary goals include reducing nutrient pollution, protecting wetlands and habitats, and managing fishery resources. Mechanisms and measures include interstate cooperation where states collaborate on setting pollution reduction targets and implementing best management practices

17. The United States and Canada Release State of the Great Lakes 2022 Report and the 2022 Progress Report of the Parties Showing Continuing Restoration of the Great Lakes, EPA (July 29, 2022), https://www.epa.gov/newsreleases/united-states-and-canada-release-state-great-lakes-2022-report-and-2022-progress [https://perma.cc/LVK5-U7H9].

18. Tennessee Valley Authority v. Hill, 437 U.S. 153, 153 (1978).

19. *Id.* at 184–85.

20. National People's Congress, China Adopts the 'Strictest Environmental Protection Law in History,' Effective January 1 Next Year, (Apr. 24, 2014), http://www.npc.gov.cn/zgrdw/huiyi/lfzt/hjbhfxzaca/2014–04/25/content_1861232.htm [https://perma.cc/9ZYU-MTS3].

21. Friends of Nature v. China Hydropower Consulting Group Xinfeng Development Co., Case No. Yun 01 Min Chu 161 (Kunming Interm. People's Ct. 2020) (China).

(BMPs), federal support from the EPA which provides technical and financial assistance to states for implementing water quality improvement projects, local implementation through specific restoration projects and community outreach by local governments and organizations, regular monitoring of water quality and habitat conditions with progress reports and adaptive management strategies, and a legislative framework supported by federal and state laws such as the Clean Water Act and state-specific legislation. By implementing rigorous pollution control measures and ecological restoration projects, the water quality and biodiversity of Chesapeake Bay have significantly improved, and its ecosystems are gradually recovering.[22]

Research indicates that while legislation provides a solid foundation for governance, significant shortcomings persist in its practical implementation and performance evaluation. A 2023 report highlights this issue by revealing that, despite four decades of regulatory efforts, water quality improvements in the Chesapeake Bay have fallen short of expectations.[23] The reasons are EPA's failure to enforce accountability and lack of inter-regional coordination.[24] The Chesapeake Bay's four-decade struggle offers valuable lessons for China as it develops emerging ecological watershed legislation. For instance, the challenge of "weak enforcement" is particularly pronounced in China, where local protectionism often leads to policy choices that prioritize economic growth, especially among regional officials.[25]

Moreover, the issue of "insufficient inter-regional coordination" warrants even deeper examination. The Yangtze River Protection Law provides a relevant example, as its primary basin encompasses conditions similar to those in the Chesapeake Bay, including a mix of agricultural activities, mega-cities, and diverse industries. These regions are densely populated, economically dynamic, and present substantial challenges for water quality governance. Effectively addressing the problem of cross-regional coordination is thus essential for advancing environmental governance outcomes in such complex and interdependent systems. There are not many innovations in cross-regional management in the current Yangtze River Protection Law. It is likely similar to the governance effect of the Chesapeake Bay.

22. *The EPA's Chesapeake Bay Program*, Chesapeake Bay Foundation, https://www.cbf.org/about-cbf/locations/washington-dc/legislative-priorities/the-epas-chesapeake-bay-program.html [https://perma.cc/FQ5D-23T7] (last visited Aug. 5, 2024).

23. Jon A. Mueller, *40 Years of Chesapeake Bay Restoration: Where We Failed and How to Change Course*, 54 Env't. L. Rep. 10470, 10470 (2023).

24. *See id.* at 10479–81.

25. Zhao Huiyu & Robert V. Percival, *Comparative Environmental Governance in China and the United States: Federalism in an Era of Globalization*, 6 Transnational Env't L. 531, 545 (2017).

Table 2. Watershed Management Policies and Systems

Watershed	Laws or Policies	Management System	Legislative Goals	Management Measures and Features
Tennessee River	Tennessee Valley Authority Act (1933)	Federal level (Tennessee Valley Authority - TVA)	Ecological protection, economic development	Integrated management covering water resources, electricity supply, flood control, land use, ecological protection, and economic development.
Great Lakes	Great Lakes Water Quality Agreement (1972)	International coordination (Great Lakes Commission)	Water quality protection, ecological restoration	Focuses on international cooperation to protect water quality and restore the Great Lakes ecosystem.
Columbia River	Columbia River Basin Development Act (1943)	Collaboration among multiple federal agencies	Ecological protection, water resource management	Emphasizes hydropower and irrigation, includes restoration measures such as fish ladders and habitat restoration projects.
Chesapeake Bay	Chesapeake Bay Program (1983)	Interstate coordination (Chesapeake Bay Commission)	Ecological restoration, pollution control	Emphasizes multi-state cooperation, implements ecological restoration and pollution control measures.

The management systems examined above are, first and foremost, flexible and diverse. Management of major river basins in the United States vary according to their goals and natural resource endowments. They integrate comprehensive or focused utilization of water resources based on the circumstances of federal agencies and states, even extending to cross-border cooperation with Canada. Secondly, several management agencies were established in response to historical contexts and economic challenges. For example, TVA was created during the Great Depression to provide jobs and stimulate economic recovery through hydroelectric projects. While developing river basins, these management agencies also balance economic and social development. Thirdly, these management experiences indicate that for cross-regional water resource management legislation in the U.S., the effectiveness of results is linked to the comprehensive background of these river basins, including their ecological environment governance model, economy and industry, population, and other factors. Moreover, the U.S. has relatively few standalone laws for ecosystems other than water resource basins, relying more on integrated management and multi-agency cooperation to achieve ecological protection. As another large country, China can appropriately refer to these legislative phenomena in order to meet the substantive needs of cross-regional

governance. Inspiration can also be drawn from the lessons learned over decades, or even longer, of cross-regional watershed management laws and policies in the United States.

IV. Strategies to Enhance the Implementation of Emerging Ecosystem Laws in China

The formation of China's current ecosystem laws is neither incidental nor entirely a natural progression. To some extent, their development reflects an alignment with the concept of ecological civilization advocated within the framework of political authoritarianism, as well as responses to directives from major leadership inspections in specific regions. Such laws are likely to continue emerging in the future and exhibit characteristics of "symbolic legislation." This refers to the political practice of leveraging symbolic language and technical discourse to construct an image of innovation, thereby securing legitimacy and public support, even if these measures fall short of addressing social problems or achieving substantial reforms.[26] Nevertheless, the symbolic political purpose embedded in China's ecosystem laws also holds significant potential to resolve real-world problems under the stringent environmental protection measures of recent years.

To effectively address ecological challenges, the legislative focus should prioritize issues such as interprovincial river basin management, wetland preservation, and transboundary air pollution. In contrast, nonmobile ecosystems—such as the black soil regions or the Qinghai-Tibet Plateau—seem relatively less urgent for legislative intervention, given the limited cross-regional implications involved. Furthermore, it is imperative to embrace region-specific approaches and break through traditional models of cross-regional governance with innovative strategies. While this article draws on certain legal models of watershed governance from the United States, it is essential to recognize that no country's environmental governance is without flaws. Despite its shortcomings, the United States' interregional governance model is commendable for its adaptability to diverse basin conditions and its emphasis on localized administrative regulatory mechanisms. This adaptability underscores a key challenge for China's emerging ecosystem laws—enhancing their practical effectiveness in addressing complex and diverse ecological issues. Here are a few simple strategies to strengthen implementation of China's ecosystem law:

A. *Strengthen Regulatory Construction and Refine the Implementation of Laws*

To ensure the effective implementation of emerging ecosystem laws, the primary task is to establish and improve the legal framework. Currently, China's legal system needs to be updated to adapt to the

26. *See* Murray Edelman, *Constructing the Political Spectacle* 52–55 (1988).

evolving demands of the ecological environment. When drafting laws, it is essential to consider the specific circumstances of the country, drawing on legislative examples such as the Yangtze River Protection Law and the Yellow River Protection Law. This involves formulating targeted and specialized ecosystem protection measures and regulations, as well as policies with clearly defined timelines, delineating legal responsibilities and rights. Given the regional variations in ecological environments and economic development levels, ecosystem protection laws should be tailored to local conditions. For instance, arid regions in the north should focus on water resource management, while humid areas in the south should prioritize wetland and forest protection. Additionally, supporting laws and policies should be developed based on specific situations to enhance legal operability. Furthermore, increasing legal awareness and promoting public participation in ecological protection through enhanced legal education are crucial.

B. *Strengthening Administrative Enforcement Through Enhancing Administrative Efficiency*

The successful implementation of emerging ecosystem laws relies on close cooperation among relevant departments. Establishing and optimizing cross-departmental coordination mechanisms is crucial, with clear delineation of responsibilities and authorities, thus promoting information sharing and resource integration. For example, the Yangtze River Protection Law, in Article 42, mandates the establishment of a national comprehensive management mechanism for the Yangtze River Basin to coordinate departmental efforts. In practice, it is also necessary to address the issue of information silos to fully utilize resource information.

Given China's vast territory and varying levels of ecological environments and economic development, a flexible administrative coordination mechanism is required. For instance, the economically developed eastern coastal regions can increase environmental protection investments, while the western regions require more support and assistance from the central government. Within a unified legal framework, all levels of government and departments should formulate and implement specific ecological protection measures based on actual conditions. Additionally, an independent administrative enforcement supervision agency should be established to oversee and evaluate the enforcement actions of all levels of government and relevant departments, ensuring effective implementation of laws and regulations.

C. *Enhancing Judicial Protection and Strengthening Judicial Remedies*

The judiciary plays a crucial role in the implementation of ecosystem laws. To strengthen judicial support for ecosystem laws, China can make full use of its numerous environmental courts, integrating

cross-regional resources and case handling to ensure the professionalism and fairness of case trials. Ecological litigation is an important means of safeguarding ecosystems, providing judicial avenues to sanction violations of ecological and environmental laws and regulations.