



Local Environmental Legislation Practices in China After the 2015 Amendment to the Legislation Law

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Abstract. Since the 2015 revision of China's "Legislation Law," the number of local legislative bodies vested with legislative powers has significantly increased. Following this expansion, local legislative practices in the environmental sector have achieved notable successes, including the active exploration of People's Congress-led legislative models, a considerable increase in the quantity of local environmental legislation, and moderate innovations in legislative themes. However, despite these achievements, local environmental legislation faces several challenges, including insufficient coordination of legislative content at the same level, high levels of homogeneity in legislative content, and limited support for local legislation on the dual-carbon goals. The three core principles of legislative work in China are law-based legislation, democratic legislation, and scientific legislation. Currently, issues of local environmental legislation violating or conflicting with higher-level laws in the vertical hierarchy have significantly improved. Based on this, this paper proposes that, while ensuring the principle of "law-based legislation," future efforts in local environmental legislation should place greater emphasis on democratic and scientific legislation. Therefore, the optimization of local environmental legislation requires an integration of the following goals and pathways: in democratic legislation, local legislative bodies need to continuously strengthen whole-process people's democracy; in scientific legislation, local legislative bodies should focus on regional environmental collaborative legislation; and lastly, to return to the value of local legislation, local legislative bodies should utilize multiple avenues to ensure that local environmental legislation can contribute experience to national legislation.

Keywords: Legislation Law; Local Legislation; Local Environmental Legislation; Environmental Governance.

1 Introduction

In the new era, the construction of ecological civilization has become one of the core issues of national governance in China. In line with the goals of ecological civilization and green development, it is necessary for China to leverage legislation's guiding, promoting, and safeguarding roles. Local legislation, as an important component of the

socialist rule of law system with Chinese characteristics, possesses distinctive institutional features and practical advantages, playing an irreplaceable role in the processes of reform, opening up, and modernization. To establish a robust legal safeguard for the beautiful China of the new era, strengthening local legislation is of significant practical necessity and institutional legitimacy. The 2015 revision of the "Legislation Law" granted legislative powers to all prefecture-level cities and clearly stated that local legislation can address the field of "environmental protection." This legal amendment provided local authorities with greater flexibility and initiative in addressing environmental issues. As a result, local environmental legislation entered a phase of rapid expansion, offering an important window of observation for understanding the operational logic of China's environmental governance system.

Existing studies generally affirm the positive role of local legislation in environmental governance, with the focus of discussion including: on the one hand, most scholars concentrate on the institutional background and normative significance of the 2015 revision of the "Legislation Law," evaluating the expanded local legislative powers from the perspective of legislative power allocation; on the other hand, an increasing number of studies analyze the institutional innovation paths of local legislation, focusing on typical regions or specific environmental fields. However, the relevant literature still exhibits two main shortcomings: First, research often emphasizes institutional interpretation and normative analysis, with relatively limited systematic reviews and cross-regional comparative evidence on local environmental legislation practices after the 2015 revision, making it difficult to present its operational effects comprehensively; Second, much of the academic attention is directed toward the vertical power and normative relationship between the "central-local" authorities, while relatively less attention is given to the horizontal coordination issues of local legislation within the same level in the field of environmental protection.

Based on these gaps, this paper aims to systematically assess the practice of local environmental legislation in China, including prefecture-level cities, with the 2015 revision of the "Legislation Law" as an institutional node. The study focuses not only on its institutional contributions but also on identifying challenges in horizontal coordination, text quality, and dual-carbon governance, offering solutions from the perspectives of democratic and scientific legislation.

2 Current Status and Major Achievements of Local Environmental Legislation

Since the 2015 revision of the "Legislation Law," cities with districts in China have generally initiated legislative work focused on environmental protection. Using the environmental elements listed in Article 2 of the "Environmental Protection Law" as the scope of inquiry, from March 15, 2015, when the new "Legislation Law" came into effect, to December 31, 2021, a total of 3,345 legal documents, including local regulations, local government rules, regulations of special economic zones, autonomous regulations, and individual regulations, have been issued by local legislative bodies across

the country concerning environmental protection. The major achievements of local environmental legislation following the 2015 revision of the "Legislation Law" will be discussed in Sections 2.1 to 2.3.

2.1 Local Exploration of Legislation Led by the People's Congress

Among the aforementioned data, local regulations account for 2,363 documents, representing 70.64%; local government rules account for 768 documents, representing 22.96%; special economic zone regulations account for 44 documents, representing 1.32%; and autonomous regulations and individual regulations account for 170 documents, representing 5.08%. Since local regulations, special economic zone regulations, autonomous regulations, and individual regulations are all formulated by the People's Congress, these three types of legislation together make up 77.04% of the total. At least in terms of quantity, local environmental legislation reflects the leadership of the local People's Congress. The People's Congress system is the fundamental political system in China that ensures the people are the masters of the country and serves as the main channel for democratic legislation throughout the process [1]. Local environmental legislation led by the People's Congress aligns with the interests of the people.

From the operational perspective, local governments are continuously exploring new democratic methods of People's Congress-led legislation. One approach is the legislative contact point system, which includes major laws, plans, decisions, and projects, along with democratic decision-making processes such as (online) public consultations, expert seminars, hearings, dialogues, evaluations, and discussions. These processes serve as part of the grassroots direct democracy and operate as a form of "participatory democracy" [2]. Another approach is the use of party-based consultations as the leading form of "consultative democracy,"^[2] which innovates the mode of democratic consultation through the participation of the Chinese People's Political Consultative Conference in local legislation.

2.2 The Substantial Growth of Local Environmental Legislation

The quantity of local environmental legislation has been consistently increasing. This indicates that the scope of local environmental legislation is expanding, and more behaviors are being regulated and constrained by local environmental laws. Specifically, the number of local government rules, special economic zone regulations, autonomous regulations, and individual regulations shows a steady upward trend, with gradual increases. In contrast to these categories, local regulations exhibit distinct characteristics: First, in 2018, there was a significant "explosive" growth in the number of local regulations. The inclusion of "ecological civilization" in the Constitution in 2018 undoubtedly encouraged local governments to strengthen their legislative efforts in ecological civilization. Second, the period of active local formulation of local regulations is evident. Even when excluding the "explosive" growth of 2018, the number of local regulations continues to rise, with more than 400 regulations issued annually since 2019, showing consistent year-on-year increases. This reflects the growing enthusiasm of lo-

cal governments in environmental legislation. In terms of local environmental governance, the situation of having "no laws to rely on" has essentially ended. At least in terms of quantity, we can clearly see the legislative contributions made by local governments. Of course, while the quantity of legislation is considerable, it is not our ultimate goal. Moving forward, the focus must shift to addressing the quality of the legislation.

2.3 Moderate Innovation in Local Environmental Legislation Themes

Local environmental legislation has closely aligned with regional realities and effectively expanded the scope of legal coverage, as shown in Table 1. Local authorities have pursued differentiated legislative efforts targeting the traditional environmental elements listed in the "Environmental Protection Law." For instance, coastal regions have focused their legislation on marine environmental protection, while legislation in grassland areas emphasizes the preservation of grassland ecosystems. In addition, several regions have introduced legislative measures to protect emerging environmental elements.

Table 1. New Thematic Classifications of Local Environmental Legislation

Category	Legislative Tendency		Examples
Elements	New natural elements	Protect	<ol style="list-style-type: none"> 1. Regulations on the Protection of the Lychee Industry in Guangdong Province 2. Regulations on the Promotion of the Goji Berry Industry in Ningxia Hui Autonomous Region 3. Regulations on the Protection and Development of Jasmine Flowers in Hengzhou, Nanning
	New non-natural elements	Control	<ol style="list-style-type: none"> 1. Regulations on the Environmental Protection of the Electromagnetic Wave Quiet Zone of the 500-meter Aperture Spherical Radio Telescope in Qiannan Bouyei and Miao Autonomous Prefecture 2. Regulations on the Prevention and Control of Agricultural Plastic Film Pollution in Ulanqab City 3. Regulations on the Management of Plastic Shopping Bags in Lhasa
Behaviour	Positive protected behavior	Encourage	<ol style="list-style-type: none"> 1. Regulations on the Automatic Monitoring of Pollution Sources in Zibo City 2. Regulations on the Protection of Reforestation Results in Yan'an City 3. Regulations on Quarry Restoration in Suzhou City
	Negative destructive behavior	Control	<ol style="list-style-type: none"> 1. Regulations on the Management of Outdoor Fires in Shaoguan City 2. Regulations on the Complete Ban of Wild Animal Consumption in Shenzhen Special Economic Zone 3. Administrative Measures for the Prohibition of Fireworks and Firecrackers in the Urban Area of Dazhou City

For example, in the domain of natural elements, Guangdong has enacted the "Guangdong Province Lychee Industry Protection Regulations," which address the protection of forest lands and genetic resources. Regarding non-natural elements, the "Regulations on Environmental Protection of the 500-meter Aperture Spherical Radio Telescope Electromagnetic Quiet Zone in Qiannan Buyei and Miao Autonomous Prefecture" were established to regulate electromagnetic environments. Furthermore, local legislation has shifted towards regulating specific behaviors, such as encouraging and safeguarding positive actions like ecological restoration, while strictly prohibiting negative activities like environmental destruction.

3 Main Challenges Facing Local Environmental Legislation

Local environmental legislation in China has achieved considerable success and showcases many positive aspects. However, it also faces several shortcomings. These deficiencies are primarily reflected in the following three areas:

3.1 Insufficient Coordination in the Content of Legislation at the Same Level

Following the "Qilian Mountain legislative leniency" incident, the vertical review and rectification of local legislation have significantly increased, effectively reducing issues of legality [3]. However, the problem of insufficient coordination in legislative content across the same administrative level remains prominent. A typical issue is the inconsistency in legal liabilities. Taking the legal responsibilities for dust pollution control in "ready-mixed concrete production units" as an example, the inconsistencies can be illustrated as follows:

First, there is inconsistency regarding the existence of regulations. Not all prefecture-level cities in Guangdong Province have established legal responsibilities for dust pollution control in "ready-mixed concrete production units," with some localities lacking legislative provisions in this regard.

Second, there is inconsistency regarding the severity of penalties. The correlation between the level of economic development and the amount of fines is disproportionate. For example, although Foshan and Huizhou rank higher than Chaozhou in terms of both GDP [4] and per capita disposable income [5], the fines in Chaozhou are higher than in the former two cities. The minimum fine in Chaozhou is at least 30,000 RMB higher, while the maximum fine discrepancy reaches as much as 100,000 RMB.

Moreover, the setting of administrative fines across different regions lacks consideration of the overall and wide-ranging nature of the natural environment [6]. In practice, there are significant differences in the legal liability standards for common violations, such as dust control and vehicle emissions. Even within the same province or neighboring cities, there are notable disparities in the minimum and maximum fine limits. These discrepancies may lead to regulatory arbitrage and "conflict of rules," and also have substantial implications for the principles of equality and fairness.

The root cause of this issue lies in the mismatch between jurisdictional boundaries and the spatial scope of environmental issues [7]. Local regulations often fail to cover

the actual space in which pollution diffuses and ecosystems interact. As a result, strict or lenient regulations in individual cities are unlikely to produce systematic governance effects on cross-boundary environmental problems, thereby weakening the overall efficacy of local legislation.

To avoid the potential for overgeneralization based on a single provision, this study further compares the legal responsibilities outlined in the Regulations of Jieyang City on Dust Pollution Control and the Regulations of Chaozhou City on Dust Pollution Control, aiming to observe the differences in penalty provisions for the same legislative subject within the same environmental region. Even though the neighboring cities of Chaozhou and Jieyang are located in the same environmental zone and have comparable levels of economic development, substantial differences still exist in their respective penalty provisions for dust pollution control. Overall, the environmental administrative liabilities for violators in Chaozhou are more severe than those in Jieyang.

3.2 High Homogeneity in the Content of Legislation

While local environmental legislation in China has expanded in terms of quantity, the issue of content homogeneity remains prominent. To more objectively and comprehensively assess the degree of homogeneity in local environmental legislation, the author applies text clustering algorithms and the term frequency-inverse document frequency (TF-IDF) method to analyze local environmental legislative texts. As the issue of redundant local legislation compared to central legislation is not particularly significant in China [8], the analysis primarily focuses on local legislative texts without including a comparison to central legislation.

Specifically, the approach used in this paper is as follows: First, Kmeans++ clustering algorithm [9] is applied to the titles of collected local environmental legislative texts for text clustering analysis. The Kmeans++ algorithm divides the given dataset into K clusters by calculating the Euclidean distance between each text. By setting different values for K, it was found that the six keywords—"prevention and control," "air," "pollution," "dust," "motor vehicles," and "emissions"—are always grouped into the same cluster. The significance of clustering is to organize the observed content into categories and group similar items together [10]. As a result, these six terms have high similarity and correlation, and thus belong to the same environmental protection domain. After processing, it was found that among all titles, 391 samples contained two of the above keywords, and 233 samples included three or more of these keywords. To ensure greater thematic consistency, the author selected all 233 samples containing three or more keywords for mutual comparison and used cosine similarity to calculate the similarity between two legal texts. Cosine similarity measures the cosine of the angle between two vectors in vector space. By calculating the distance between the feature vectors of two texts, the similarity between them can be determined. Typically, the higher the cosine similarity, the more similar the two texts are. For easier observation, after excluding the "one text, three parties" collaborative legislation, the author selected the top 10 most similar pieces of legislation for analysis, as shown in Table 2.

Table 2. Top Ten Local Environmental Legislation by Similarity Ranking

Rank	Regulation	Compared Regulation	Similarity
Top-1	Jiangmen City Dust Pollution Prevention and Control Management Measures	Jiangmen City Dust Pollution Prevention and Control Regulations	0.823
Top-2	Bayingol Mongol Autonomous Prefecture Air Pollution Prevention and Control Measures	Gannan Tibetan Autonomous Prefecture, Gansu Province Air Pollution Prevention and Control Regulations	0.714
Top-3	Anhui Province Motor Vehicle Exhaust Pollution Prevention and Control Measures	Jiangsu Province Motor Vehicle Exhaust Pollution Prevention and Control Regulations	0.703
Top-4	Weinan City Construction Site Dust Pollution Prevention and Control Regulations	Wuwei City Construction Site Dust Pollution Prevention and Control Management Measures	0.690
Top-5	Shandong Province Motor Vehicle Exhaust Pollution Prevention and Control Regulations	Yinchuan City Motor Vehicle Exhaust Pollution Prevention and Control Regulations	0.675
Top-6	Shandong Province Motor Vehicle Exhaust Pollution Prevention and Control Regulations	Qiqihar City Motor Vehicle Exhaust Pollution Prevention and Control Regulations	0.670
Top-7	Hunan Province Air Pollution Prevention and Control Regulations	Gannan Tibetan Autonomous Prefecture, Gansu Province Air Pollution Prevention and Control Regulations	0.667
Top-8	Taiyuan City Motor Vehicle and Non-Road Mobile Machinery Exhaust Pollution Prevention and Control Measures	Xining City Motor Vehicle and Non-Road Mobile Machinery Exhaust Pollution Prevention and Control Management Measures	0.663
Top-9	Shandong Province Motor Vehicle Exhaust Pollution Prevention and Control Regulations	Qingdao City Motor Vehicle Exhaust Pollution Prevention and Control Regulations	0.662
Top-10	Shandong Province Motor Vehicle Exhaust Pollution Prevention and Control Regulations	Jiangsu Province Motor Vehicle Exhaust Pollution Prevention and Control Regulations	0.660

Through observation, it can be noted that: first, the issue of homogeneity is "widespread." As shown in the table above, the legislation on motor vehicle exhaust pollution control in cities such as Yinchuan, Qiqihar, Qingdao, Kunming, and Jiangsu Province closely resembles the Regulations on Motor Vehicle Exhaust Pollution Control of Shandong Province, with a similarity score exceeding 60%. This indicates that the problem of homogeneity among local legislation is both common and extensive, regardless of geographical location, provincial boundaries, or policy differences.

Second, the homogeneity problem is "comprehensive." As illustrated in Table 2, local environmental legislation's homogeneity is not only evident between higher-level

and lower-level laws, but also between local laws at the same administrative level. It is clear that local environmental legislation, across different tiers, suffers from the issue of homogeneity. There is both vertical repetition and horizontal copying.

Third, the similarity between local regulations on the same subject and local government regulations is relatively high. The search conducted during this study revealed that some localities had already enacted local laws for environmental protection, yet earlier local government regulations on the same environmental issues had not been repealed. As a result, both local regulations and local government rules exist simultaneously to protect the same environmental matters. This redundancy wastes legislative resources and significantly increases the degree of homogeneity in legislation.

3.3 Limited Support for Local Legislation on the Dual Carbon Targets

The introduction of the dual carbon goals (carbon peaking and carbon neutrality) reflects China's proactive commitment to addressing global climate change [11]. These goals have become a key focus in China's environmental legislation. However, the current local legal framework concerning carbon neutrality remains underdeveloped.

First, there is a limited number of local regulations specifically targeting carbon neutrality. At present, most regulations at the local level remain at the policy stage, with a tendency for legislative lag [12].

Second, existing local legislation related to low-carbon development needs further improvement. Current local regulations on dual carbon goals are primarily confined to command-and-control measures concerning energy and resource usage. They have yet to be sufficiently integrated with market-based mechanisms such as carbon trading and carbon finance.

Third, some local legislations, enacted a long time ago, have not effectively aligned with the dual carbon goals. For instance, certain local legislation on meteorological management, which was issued in the 1980s and 1990s, has not been updated and still leaves room for improvement. Similarly, some legislation on circular economy, enacted in the early 2000s, does not reflect the dual carbon goals and remains at a general, non-operational level.

4 Future Prospects of Local Environmental Legislation

The three core principles of legislative work in China are law-based legislation, scientific legislation, and democratic legislation. As mentioned earlier, the issue of local environmental legislation violating or conflicting with higher-level laws has significantly improved. Therefore, with law-based legislation ensured, future efforts in local environmental legislation should place more emphasis on democratic and scientific legislation. Based on this, the optimization of local ecological and environmental legislation in China can be integrated through the following goals and pathways:

4.1 Democratic Legislation: Continuously Strengthening Whole-Process People's Democracy at the Local Level

Some scholars have argued that China has developed the concept of "whole-process people's democracy" through practical innovation and theoretical refinement. This framework encompasses four operational forms: responsive democracy, participatory democracy, consultative democracy, and supervisory democracy [2]. As noted earlier, local environmental legislation has made notable progress in participatory and consultative democracy, and these achievements should be maintained. At the same time, greater efforts are needed to develop responsive democracy and supervisory democracy.

Responsive democracy first requires legislative bodies to accurately identify public needs and provide active responses based on them. In China, channels for public participation in legislation have been steadily expanded, offering legislative bodies effective feedback mechanisms. However, the core of responsive democracy lies not merely in "soliciting opinions" but in establishing a stable mechanism that encompasses demand identification, institutional response, and outcome feedback. Therefore, local legislative bodies in China should strengthen responsive democracy by promptly identifying issues in legislative content during the drafting stage and making targeted revisions to provisions through deliberation and feedback processes. This approach would help reduce inconsistencies in legislation at the same administrative level and avoid mechanical imitation.

The key to supervisory democracy lies in enhancing social oversight and improving oversight mechanisms. Currently, social supervision in China's legislative process remains relatively weak and lacks clear institutional guidance. Local legislative bodies should attach greater importance to social oversight entities, specify the scope, procedures, and responsible departments for supervision, and strengthen the role of oversight throughout the legislative process. This would not only improve legislative transparency but also impose external constraints on provisions that exhibit obvious homogeneity or are disconnected from local conditions.

4.2 Scientific Legislation: Local Governments Need to Emphasize Regional Environmental Collaborative Legislation

The underlying cause of the lack of coordination within legislation at the same administrative level lies in the structural mismatch between administrative divisions and natural environmental units [13]. Environmental factors such as water basins and atmospheric layers exhibit the holistic characteristics of ecosystems, which means that closed, single-administrative-region legislation cannot effectively address the cross-boundary nature of environmental issues. Regional environmental collaborative legislation is a response to this misalignment, guided by the principles of scientific legislation. By establishing common regulatory objects, basic systems, and core standards based on natural regions and specific environmental elements, different local legislative bodies can coordinate substantive rules while maintaining formal independence. This approach

fundamentally alleviates normative conflicts and institutional fractures between legislation at the same level. Currently, regional collaborative legislation has achieved some success in areas such as air pollution prevention in the Beijing-Tianjin-Hebei region and the protection of the Yangtze River Basin [14,15]. In the future, China should further promote regional environmental collaborative legislation.

4.3 Returning to the Value of Local Legislation: Enabling Local Environmental Legislation to Provide Experience for National Legislation

The significant implication of the expansion and reform of local legislative bodies in the 2015 "Legislation Law" is that it positions local legislation at the forefront of institutional innovation [16]. Therefore, local environmental legislation should not be understood merely as a passive implementation of higher-level laws. Whether in the form of implementing legislation or pioneering legislation, local laws can contribute "verifiable local experience" to the national legal framework. Hence, this paper proposes the following: First, encourage local governments to "take the lead in experimentation" within their legal authority. Local legislation should focus on areas where national systems are not yet sufficiently developed but where local issues are urgent. Particularly in emerging topics such as dual-carbon governance, industrial emission reduction, and energy transformation, local legislative bodies should be encouraged to explore feasible regulations through experimental legislation [17]. Second, when formulating implementing legislation, local governments should focus on "adapting to local conditions rather than simple repetition." Local legislative bodies should avoid mere transplantation of provisions from higher laws or similar legal regulations and instead prioritize the most challenging, detailed, and practical provisions that are essential for local implementation, in order to reduce homogeneity [18]. Third, establish a mechanism for upward feedback of experiences. Through mechanisms such as post-legislative evaluations and enforcement performance assessments, local innovative experiences can be converted into quantifiable evidence and replicable solutions, providing a practical foundation for revising higher laws and forming a positive "local-national" feedback loop.

Overall, the future optimization of local environmental legislation should focus on the integration of democratic legislation, scientific legislation, and local innovation. By further improving whole-process people's democracy, promoting cross-regional collaborative legislation, and encouraging local institutional innovation, local environmental legislation will better meet the needs of ecological civilization construction and provide stronger legal protection for national environmental governance, transitioning from "quantitative expansion" to "governance enhancement."

5 Conclusion

This study provides a comprehensive analysis of local environmental legislation in China after the 2015 amendment to the Legislation Law. It highlights significant achievements, including the expansion of legislative power to prefecture-level cities,

the growth in the quantity of environmental legislation, and moderate innovations in thematic coverage. However, challenges remain, such as insufficient coordination of legislative content at the same administrative level, high homogeneity in legislative texts, and limited support for local legislation on dual-carbon goals. To address these issues, the study advocates for a stronger emphasis on democratic and scientific legislation. This includes enhancing public participation, improving social oversight, and promoting regional collaborative legislation. Moreover, local legislation should focus on providing innovative experiences that can inform national legal frameworks. Future research should further explore the impact of local innovations, particularly in the context of carbon neutrality and regional collaboration, to enhance the effectiveness of environmental governance in China.

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