

Reconstructing the Legal System of Climate Governance to Achieving China's "Dual Carbon" Goal: Canada's References for China

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Abstract: Against the backdrop of the profound transformation of global climate governance, China faces serious legal challenges in realizing the "dual-carbon" goal. The existing legal framework for climate governance is characterized by significant fragmentation, with relevant laws and regulations dispersed among individual pieces of legislation such as environmental protection and air pollution prevention and control, lacking a systematic top-level design. There are serious deficiencies in law enforcement and regulation, and the dual-track operation of policy and law has led to a lack of coordination among all levels of government on carbon emission reduction pathways, unclear powers and responsibilities of the main body of carbon emission trading regulation, and significant differences in local implementation. This study analyzes the structural deficiencies of China's legal framework for climate governance from the systemic perspective of the legal system, and draws on the experience of multi-level governance in developed countries such as the EU and the US, to propose a path for reconstructing the climate legal system with Chinese characteristics, so as to ensure that climate governance is steadily pushed forward on a standardized track through legal means. It also establishes a multi-level governance mechanism, which not only provides practical guidance for the construction of China's climate law system, but also provides theoretical reference for other developing countries to explore the legal path of climate governance. China's exploration of these pathways, informed by Canada's multi-level governance and legal innovations, could serve as a valuable reference for other developing countries. By balancing economic growth and environmental sustainability through legal means, China can provide a model for addressing the unique challenges of climate governance in large, complex jurisdictions.

1 Introduction

The intensification of global climate change poses a serious challenge to national legal systems and governance models. With the full implementation of the Paris Agreement and the introduction of the "dual-carbon" goal, China's climate governance

has entered a completely new phase. However, the limitations of China's existing legal framework are becoming more and more obvious under the impetus of the development trend of international climate governance at multiple levels: the laws related to climate governance are still characterized by fragmentation and insufficient systematization(Chen,H,2023); there is a lack of coordination between the legislation and law enforcement mechanisms; and the social participation in the field of climate lawsuits is limited, and the judicial safeguards are yet to be perfected. These problems not only affect the realization of national carbon peak and carbon neutrality goals, but also restrict China's voice and influence in global climate governance.

International experience shows that a multi-level legal system is a key tool for effectively addressing climate change. The European Union (EU) coordinates member states' policies and promotes regional cooperation through climate legislation, while the United States (US) uses litigation as the core mechanism to push companies and governments to fulfill their environmental responsibilities. These practices provide important lessons for building China's multi-level climate governance legal system. However, how to localize these experiences to adapt to China's legal culture and governance needs remains a core issue that needs to be addressed.

Canada provides valuable insights into addressing these issues. As a federal country, Canada operates under a multi-level governance framework that emphasizes coordination between federal, provincial, and municipal governments in climate governance. The Pan-Canadian Framework on Clean Growth and Climate Change (2016) serves as a comprehensive national strategy, aligning federal goals with provincial and territorial initiatives to reduce greenhouse gas emissions, foster clean energy innovation, and adapt to climate change. This framework could inspire China to develop a systematic, top-level design for its climate governance laws. Canada's Greenhouse Gas Pollution Pricing Act (GGPPA) provides a model for integrating carbon pricing mechanisms into a unified legal framework. By establishing a clear federal standard while allowing provinces to implement their own systems (such as carbon taxes or cap-and-trade programs), the GGPPA achieves a balance between national coherence and regional flexibility. In contrast, China's carbon emission trading scheme (ETS) faces coordination issues due to unclear regulatory responsibilities and uneven local implementation. Drawing from Canada, China could benefit from a legal framework that delineates clear roles for national and local governments while establishing enforceable standards for all regions. Canada emphasizes the enforceability of climate laws through robust regulatory mechanisms. For instance, the Canadian Environmental Protection Act, 1999 (CEPA) enables the federal government to regulate greenhouse gases as toxic substances, ensuring compliance through mandatory reporting, penalties, and independent oversight. China could adopt similar legal mechanisms to address enforcement deficiencies, creating clearer legal obligations for emitters and stronger penalties for non-compliance. Canada incorporates public participation and transparency into its climate governance framework. The Impact Assessment Act (2019) mandates comprehensive assessments of projects' environmental and climate impacts, ensuring that decisions are informed by scientific evidence and public input. China's legal reforms could incorporate such participatory mechanisms, empowering citizens and stakeholders to contribute to decision-making and hold authorities accountable. To address the structural deficiencies in its legal framework, China could draw from Canada's approach to multi-level governance. The federal-provincial coordination evident in Canada's climate policies ensures alignment of national and local priorities, reducing duplication and conflict. For example, Canada's Net-Zero Emissions Accountability Act (2021) establishes interim emissions reduction targets, requires annual progress reports, and creates an independent advisory body to guide the government. These mechanisms ensure that climate governance operates on a standardized and transparent track.

Based on a comparative law perspective, this article focuses on the construction and optimization of China's climate governance legal system, and explores how to promote the realization of China's "dual-carbon" goal and the deepening of international climate cooperation through the synergy of a systematic legal framework and a multi-level governance model at the three levels of legislation, law enforcement and justice. The article will focus on the following two issues: first, how to identify and remedy the core shortcomings of China's legal framework for climate governance; and second, the specific design of the multi-level legal system and its coordination mechanism at the national, provincial and local levels.

Through these discussions, this article aims to provide theoretical support and practical paths for the construction of China's climate governance legal system, and at the same time contribute to Chinese programs for other developing

countries' legal innovation in global climate governance.

2 Legal Trends and Implications for Global Climate Governance

Global climate governance is undergoing a profound transformation from unilateral action to multilateral cooperation and from the national level to a multilevel governance system. The Paris Agreement has established legally binding temperature-control targets and a mechanism for autonomous national contributions, providing a framework guide for the global response to climate change. Against this backdrop, countries are building a legal framework for climate governance and a multilevel legal governance system, coordinating the emission reduction and adaptation actions of national, regional and local governments through legal means, and promoting the systematic implementation of climate policies.

2.1 Experience with legal frameworks for climate governance

Countries have adopted a combination of mitigation and adaptation strategies in their climate change legislation. Mitigation measures consist mainly of reducing greenhouse gas emissions through legal means with a view to achieving global climate goals. These measures typically require companies to adopt stricter controls on carbon emissions and promote a societal transition to a low-carbon economy. (Klein, R. J., 2005) Adaptive measures, meanwhile, focus on increasing the climate resilience of infrastructure and societies to cope with the inevitable impacts of climate change, in the form of strict regulation of corporate responsibility, investment decisions, and transnational environmental impacts. (Setzer, J., & Vanhala, L. C., 2019) Australia and European countries are at the forefront in this regard. Australia's legal framework has begun to incorporate climate change risk management more broadly, requiring companies to fully consider climate risks during the project approval process. (Peel, J., & Osofsky, H. M., 2015) Similarly, European countries have strengthened their legal response to climate change. The EU has adopted a Climate Law that explicitly sets a legal obligation to achieve carbon neutrality by 2050, meaning that member states will not only have to significantly reduce greenhouse gas emissions, but also accelerate the transition to renewable energy. (Dupont, C., & Oberthür, S., 2012) Similar legislation has been seen in the United Kingdom, Germany and France, where specific climate targets have been set in law and their realization ensured through mandatory measures. (Delbeke, J., & Vis, P., 2019)

2.2 Experience with climate multilevel governance

The practice of the European Union in multi-level governance is particularly typical. Through the EU Climate Act, the EU has clearly defined the legal target of achieving carbon neutrality by 2050, requiring member States to formulate and implement their national emission reduction policies in accordance with a unified legal framework. Through a series of policy coordination and legislative integration, the EU has successfully realized synergy among member states. (Jordan, A., 2019) This synergy is not only reflected at the national level in each member state, but also extends to the transnational regional and local levels. The EU's climate adaptation policy encompasses joint actions from national governments to transnational regions (e.g., the Mediterranean region), and further extends to local municipal climate adaptation programs. Through this multi-level policy framework, the EU has not only responded effectively to the challenge of climate change, but also played a leading role in promoting cooperation and resource sharing among member states and regions. In addition, the trend of multilateralization in global climate governance has been further strengthened through international cooperation. (Tian, D., Zheng, W., 2020) Multilateral agreements, represented by the Paris Agreement, provide a basis for cooperation among countries, while regional initiatives provide more specific guidance for climate change response measures in specific regions. The African Climate Change Adaptation Initiative (ACCAI) is an example of regional cooperation to enhance the capacity of African countries to respond to climate change, particularly in the areas of climate change adaptation and climate resilience. (UNDP, 2021)

Climate governance in the United States is also characterized by multiple layers. Federal government policies often regulate greenhouse gas emissions through laws such as the Clean Air Act, while state and local governments have enacted more stringent emission reduction measures based on their own characteristics. For example, through the Global Warming Solutions Act, California has established clear carbon emission targets and a carbon trading market, becoming an important testing ground for climate governance in the United States. This federal-state-local legal interaction has enhanced the

flexibility and adaptability of the United States in climate policy implementation.

The above experience shows that multilevel governance has become a major trend in global climate governance. The realization of cross-level and cross-regional policy synergies through legal means has helped to improve the systemic and effective nature of climate governance and provided institutional safeguards for addressing global climate change.

From this, it can be concluded that the development of international climate governance and climate litigation provides valuable experience and inspiration for China. First, the construction of a multi-level governance system is the key to enhancing the effectiveness of climate governance. China can learn from the experience of the European Union and the United States to establish a coordination mechanism from national to local, from legislation to law enforcement, to ensure the systematic and consistent nature of climate policies. The systematic optimization of the legal system is an inevitable requirement for addressing the challenges of global climate governance. China should speed up the formulation of the Climate Change Response Law, add climate governance provisions to the environmental code, and clarify the legal responsibilities of governments, enterprises and social organizations at all levels, so as to provide a solid legal foundation for the realization of the “dual-carbon” goal.

3 Analysis of the Current Situation and Problems of China's Climate Governance System

With the introduction of the “dual-carbon” goal, China has embraced unprecedented opportunities for development in the area of climate governance. However, in order to achieve the ambitious goals of carbon peaking and carbon neutrality, the existing legal framework has revealed many deficiencies in terms of structure, coordination and systematization. (Tan, B., 2017) These problems are mainly manifested in the fragmentation of the legal system, the systematic inadequacy of enforcement and regulation, and the lack of legal support for climate litigation. These shortcomings not only affect the effective implementation of climate policies, but also weaken the support of the law for climate governance.

3.1 Status of China's climate governance legal system

China's current legal framework for climate governance exhibits a clear and pronounced fragmentation. The legal foundations for addressing climate change are dispersed across various standalone laws and administrative regulations, such as the Environmental Protection Law, the Air Pollution Prevention and Control Law, the Renewable Energy Law, and the Energy Conservation Law. (Lü, Z., Wang, G., 2016) Notably, the absence of a comprehensive and unified Climate Change Response Law undermines the effectiveness of this fragmented system. This decentralized legal architecture struggles to provide cohesive and systematic legal support when tackling the inherently cross-sectoral and multi-departmental challenges posed by climate change.

The mismatch between legislative goals and implementation pathways is a prominent issue. For instance, the Air Pollution Prevention and Control Law primarily focuses on controlling pollutant emissions, but offers relatively limited provisions for reducing greenhouse gas emissions. This narrow focus weakens its ability to fully support the national carbon neutrality strategy. Additionally, significant legal gaps exist in areas such as climate change adaptation and climate risk management, leaving these critical dimensions underregulated. These deficiencies exacerbate the problem of fragmentation, impeding a coordinated and comprehensive response to climate change.

As a result, the lack of unified legislation and the piecemeal nature of current regulations hinder the development of an integrated framework capable of addressing China's long-term climate objectives, including carbon neutrality and sustainable development. Filling these legislative gaps and aligning execution pathways with overarching policy goals are essential steps toward building a robust and effective climate governance system.

3.2 Fragmented Authority and Policy Misalignment: Structural Challenges in China's Multi-Level Governance System

Firstly, in China's climate governance, while a multi-tiered governance system encompassing national, provincial, and local levels has preliminarily taken shape, a lack of coherence within the legal framework remains a prominent issue restricting governance effectiveness. This lack of coherence manifests primarily as a dual-track system of policy and law, which leads to a lack of coordination and systematic execution among various levels of government, thereby hindering the effective advancement of the "dual carbon" (carbon peaking and carbon neutrality) goals. Currently, China's climate governance

operates within a dual-track system of policy and law. (Cao, M., 2023.) The central government has issued a series of policy documents, such as the Opinions on Carbon Peaking and Carbon Neutrality and the Action Plan for Carbon Peaking Before 2030. These policies provide strategic guidance but lack legal enforceability.

Existing legal norms for climate governance are scattered across standalone laws, such as the Environmental Protection Law and the Air Pollution Prevention and Control Law. These laws generally contain principles and macro-level provisions, lacking systematic and operational detail. When formulating local regulations and policies, provincial and municipal governments often rely on central government guidance and administrative regulations, which lack legal binding force. (Hu, F., 2023) This results in local legislation lacking a clear legal basis. During the execution of these policies, local governments tend to make flexible adjustments according to their specific circumstances, and selective enforcement due to local protectionism can also occur. This separation between policy and law means that achieving emissions reduction targets relies on administrative orders rather than legal mandates, making it difficult to establish a long-term, stable governance mechanism.

Secondly, regarding carbon emissions trading, unclear delineation of responsibilities among regulatory bodies complicates enforcement. Carbon trading products are diverse, broad in scope, and cross-sectoral, including carbon spot trading, carbon futures, carbon options, carbon insurance, carbon funds, carbon securities, carbon emission quotas, and carbon credits [9]. These transactions involve multiple regulatory bodies, such as environmental protection departments, energy management departments, financial regulatory authorities, and natural resource management departments. The Administrative Measures for Carbon Emissions Trading (Trial) stipulate that environmental authorities at or above the level of cities with districts are responsible for supervising carbon emissions trading within their jurisdictions [10]. However, in practice, significant differences exist in the identification of regulatory bodies across regions. The table below illustrates this issue:(Table 1) .

Table 1 Regulatory Authorities for Carbon Emissions Trading Across Regions

Region	Regulatory Authority
Beijing	Municipal Development and Reform Commission in conjunction with relevant departments
Shanghai	Municipal Development and Reform Commission in conjunction with relevant departments
Shenzhen	Municipal Development and Reform Commission, Market Supervision Department, Statistics Department
Chongqing	Municipal Financial Office responsible for daily supervision and statistical monitoring
Tianjin	Municipal Ecology and Environment Bureau
Fujian	Provincial Government Department in Charge of Carbon Emissions Trading

Due to the involvement of multiple regulatory bodies with overlapping responsibilities, the enforcement process in carbon emissions trading often suffers from unclear delineation of authority. This ambiguity can result in overlapping enforcement powers and unclear penalty jurisdictions. Each department tends to prioritize its own interests and local objectives during regulatory enforcement, leading to inefficiencies. Consequently, cases of double penalties or multiple penalties for a single violation can occur, while at the same time, some violations may go unchecked. This undermines the integrity and credibility of the carbon market.

Thirdly, significant regional disparities exist, and there is a lack of effective mechanisms for evaluating regulatory performance. Influenced by varying levels of economic development and judicial practices, enforcement standards for carbon emissions trading differ considerably across regions. Enforcement personnel often apply and interpret relevant laws and regulations inconsistently. These discrepancies manifest in areas such as the determination of violations, evidentiary requirements, enforcement procedures, and the protection of the rights of involved parties. As a result, similar cases may receive different penalties. Such inconsistencies in enforcement diminish the efficiency and fairness of carbon market regulation, exacerbating regional disparities in emissions reduction efforts.

4 Program for building a legal system for climate governance in China

Against the backdrop of global climate litigation becoming an increasingly important means of promoting climate governance, the importance of litigation in China's legal framework for addressing climate change is also gradually emerging.(Yu, W., Sun, Z., 2023) While China has made remarkable progress in environmental protection and pollution prevention,

judicial involvement in the area of climate change is still in the exploratory stage. In the face of the increasing complexity of international climate governance and the pressure of domestic climate goals, China urgently needs to construct an autonomous system of legal framework for climate governance to ensure that the country occupies a more favorable position in addressing climate change.

4.1 *Construction of China's Climate Governance Legal System Framework*

Currently, China's legal system for climate governance is fragmented and unable to adequately respond to the increasingly complex challenges of climate change. In order to build a unified, systematic and operational legal framework, there is an urgent need to enact a specialized Climate Change Response Law. This legislation should not only clarify the legal responsibilities and protection of rights related to climate change, but also improve litigation procedures to ensure a smooth path to legal redress. (Chen, H., 2014) This will provide solid legal protection for the climate governance behavior of governments and enterprises, and at the same time provide a legal basis for public participation in climate action, strengthening the degree of participation of all people in climate governance and the foundation of the rule of law. The establishment of this law will ensure that climate governance is steadily advanced on the track of the rule of law and help form unified and standardized national actions.

In terms of specific content, the Climate Change Response Law must comprehensively cover key areas such as greenhouse gas emission reduction, climate adaptation, carbon market management and environmental risk assessment. First, legislation on GHG emissions reduction clarifies goals and responsibilities, requiring governments at all levels to formulate specific emissions reduction plans and conduct regular assessment and monitoring of their implementation. This will ensure that national-level emission reduction targets are implemented layer by layer into the actions of local governments and enterprises, and that implementation is strengthened through legal means to avoid implementation deviations caused by administrative incoherence or local protectionism. Secondly, the management of the carbon market should be regulated by law, and a fair and transparent carbon trading system should be established to effectively promote carbon emission reduction by market-oriented means. The legalization of the carbon market should not only focus on the formulation and implementation of trading rules, but also include the regulation of market operations, penalties for illegal acts and the legal coordination mechanism for the docking of cross-regional carbon markets. (Xu, S., 2023) This will help regulate the market order, avoid market fluctuations caused by information asymmetry or speculative behavior, and guarantee the stable operation of the carbon market. In addition, the legalization of environmental risk assessment is an important means of preventing the negative impacts of climate change. Through legal provisions, the responsibilities and obligations of the government and enterprises in dealing with environmental risks caused by climate change should be clarified, including the formulation and implementation of contingency plans, the conduct of regular risk assessments, and the disclosure of relevant information to the public. Such legislation not only enhances the climate resilience of the country and society, but also provides a legal basis and scientific guidance for responding to extreme weather events, ensuring a rapid and efficient response when disasters occur and reducing social and economic losses. Through a systematic legal framework, the authority and implementation of climate policies have been strengthened, ensuring that climate governance is on the track of the rule of law to achieve long-term and stable advancement.

In order to strengthen the legal system's ability to respond to climate change, existing environmental protection laws and regulations should be revised and improved. First of all, in the environmental code currently under preparation, relevant provisions on climate litigation should be added, and the legal provisions should be revised to establish clearer criteria for determining liability. In particular, legal liability and compensation criteria should be clarified for environmental damages caused by failing to fulfill the obligation to reduce carbon emissions or failing to take appropriate climate adaptation measures. This will not only help promote accurate judgments by the judiciary in relevant cases, but also provide clear legal remedies for victims. To strengthen judicial support, it is recommended that a system of prioritizing climate litigation cases be set up to encourage the judiciary to pay more attention to such cases, and that consideration be given to establishing a tribunal specializing in climate change-related cases in order to resolve complex climate litigation issues more effectively.

Second, legal amendments are needed to strengthen the legal responsibilities of governments and enterprises in addressing climate change. Specifically, provisions requiring governments at all levels to formulate and implement

specific climate action plans should be added to the Ecological Responsibility Section of the Environmental Code, and the implementation of these plans should be included in annual environmental reports as an important element of the government's environmental performance assessment. (Zhang, Y., Li, M., & Wu, J., 2021) At the same time, it should be clearly stipulated that the government must regularly publicize greenhouse gas emissions data and establish an accountability mechanism for local government officials who fail to reach their emissions reduction targets, so as to ensure that the responsibility for emissions reduction is strictly enforced. For enterprises, the pollution control section of the Environmental Code should add mandatory requirements for enterprises to control carbon emissions, and stipulate that enterprises need to report their carbon emissions data on a regular basis. For enterprises that fail to comply with the emission reduction requirements, more severe penalties should be established, including but not limited to high fines, restrictions on the scale of production, and orders to shut down and reorganize. Consideration should also be given to integrating the Circular Economy Promotion Law with climate change response by requiring enterprises to minimize their carbon footprints in the production process, promoting efficient use of resources and low-carbon development.

Finally, in view of the increased environmental risks that may be brought about by climate change, an emergency response and recovery mechanism can be introduced into relevant laws and regulations, such as the Pollution Control Title of the Environmental Code. That is, it should be clearly stated in the law that in the event of major environmental pollution caused by extreme weather events triggered by climate change, the government should immediately activate the emergency response plan and stipulate the specific legal responsibilities and measures for post-disaster restoration, so as to ensure that the environment can be restored to a sustainable state in the shortest possible time. On the basis of the above amendments to the relevant laws, it will be conducive to the construction of a more sound legal framework to ensure that the response to climate change can be efficiently promoted under the protection of the law.

4.2 *China's Climate Governance Multi-Level Governance System Articulation*

In the process of promoting the "dual-carbon" goal in China, the articulation of a multi-level governance system is an extremely complex and critical legal governance proposition. The root of this problem lies in how to build a legal governance framework with organic linkages, clear responsibilities and consistent incentives among the four levels of government: national, provincial, municipal and county.

The primary challenge lies in the systematic inadequacy of legal authorization and responsibility allocation. Currently, China's climate governance laws show obvious "fragmentation" characteristics, with unclear boundaries of responsibilities and non-uniform assessment mechanisms for carbon emission reduction targets at all levels of government. For example, there are significant differences in the understanding and implementation of emission reduction targets in certain provinces and cities, making it difficult to effectively implement the overall strategy formulated at the national level. For this reason, the construction of a legal framework for the articulation of multi-level governance needs to be systematically promoted in the following dimensions:

First, the specific responsibilities of all levels of government in carbon emission reduction must be clearly defined at the legal level. This means that the authorities and obligations of the governments at the national, provincial, municipal and county levels in terms of emission reduction target-setting, technological innovation, capital investment, and supervision and implementation should be precisely delineated through legislation. The national level will be responsible for top-level design and overall targets, provincial governments will be responsible for regional policy making, and city and county levels will focus on concrete implementation and micro-execution. (Liu, H., Chen, X., & Zhang, Y., 2022) Establishing a vertical coordination mechanism is a key step in strengthening the articulation of a multilevel governance system. The central government should set up a high-level coordinating body dedicated to coordinating national climate governance, with the authority to set unified guidelines and oversee implementation at all levels of government. This body should not only be able to connect governments at different administrative levels, but also be able to cross the barriers between sectors and facilitate information sharing and resource integration. Second, it is crucial to establish a fiscal incentive mechanism based on carbon emission reduction performance. The effectiveness of carbon emission reduction can be directly linked to the allocation of fiscal funds by designing a differentiated fiscal transfer system. Additional financial incentives can be given to regions that have exceeded their emission reduction tasks; for regions that have not accomplished their goals, the financial transfer

payments will be deducted accordingly. This mechanism can not only stimulate the enthusiasm of local governments to reduce emissions, but also form a bottom-up innovation drive. Once again, the construction of a unified technical standard for carbon emissions monitoring and accounting is a technical guarantee for the convergence of multi-level governance. It is suggested that the national level should take the lead in formulating nationally unified carbon emission calculation methods, monitoring technical specifications and data reporting templates. Through the establishment of a national carbon emission information platform, real-time sharing and dynamic updating of data at all levels of government can be realized, so as to eliminate governance barriers at the technical level..

4.3 *Design of a flexible coordination system for China's climate governance system*

Flexible coordination of law implementation is an extremely critical institutional design aspect of a multilevel governance system, the core of which lies in resolving structural contradictions that may arise in the implementation of rigid laws through flexible mechanisms. The first and foremost task is to construct a policy framework that is both universal and flexible. It should clearly stipulate the differentiated implementation strategies for different regions and stages of development in the path of carbon emission reduction, and at the same time provide a set of standardized policy docking processes and communication norms. For example, for economically developed regions with relatively backward industrial structures, the guidelines can provide more detailed paths for technological transformation and industrial upgrading; while for regions with relatively fragile ecological environments, more stringent emission reduction constraints and support mechanisms should be provided. (Li, H., & Zhao, Y., 2020) The key to the establishment of a cross-regional and cross-level policy docking mechanism lies in the establishment of a flexible and institutionalized communication platform. This platform is not just a formal regular meeting, but should also have substantive policy coordination and resource integration functions. A diversified and multi-level communication mechanism needs to be constructed. It can be designed as a three-level linkage model:(1)an annual carbon reduction strategy conference at the national level, led by the highest level of national leadership, to comprehensively review the annual progress of emission reduction;(2) regional quarterly coordination meetings, focusing on inter-regional policy coordination and resource sharing;(3)a monthly communication mechanism at the local and municipal levels to address issues and frictions in specific implementation in a timely manner.

This multi-level and regularized communication mechanism can not only identify and solve problems in policy implementation in a timely manner, but also promote more coordinated actions across regions and sectors on carbon emission reduction pathways. Through flexible coordination, we can inject more flexibility and innovative vitality into multi-level governance while maintaining legal rigidity. Practice shows that carbon emission reduction, a complex systematic project, can never be accomplished by a single administrative order, but requires the establishment of a continuous, open, self-adjusting governance mechanism. Flexible coordination is precisely outside the rigid legal framework, to provide adequate communication, consultation, adjustment of the system space for the pluralistic subjects, and ultimately realize the wholeness and systemic nature of carbon emission reduction governance.

4.4 *Establishment of a national information management platform for carbon monitoring*

Establish a nationwide carbon monitoring information management platform and improve the system of disclosure of carbon emission information Evaluation is a key part of ensuring the effectiveness of carbon emission trading regulation and enforcement, and the effectiveness of evaluation has a direct impact on the effectiveness of enforcement and plays a reverse promotional role. A system for disclosing carbon emission information can help to harmonize local enforcement standards, reduce the cost of environmental information borne by enforcement agencies, and effectively assess the effectiveness of carbon emission trading regulation and enforcement. At present, key emission enterprises and enforcement agencies mainly rely on annual carbon verification reports to assess the status of carbon emissions, and have limited access to carbon emission information, which makes it impossible for them to accurately grasp the dynamics of carbon emission trading in a timely manner. Therefore, it is especially necessary to establish a scientific carbon emission monitoring platform.(Mu, J., Wang, J., & Zhao, M., 2023) By entering information on the intensity and concentration of greenhouse gas emissions, ecosystem carbon sinks and their changes into the national carbon monitoring information management platform, law enforcement agencies will be able to scientifically and accurately grasp the dynamics of carbon emissions trading and the

status of rectification of key emitting enterprises, so as to carry out effective supervision. The establishment of a carbon monitoring information management platform cannot be separated from the support of Internet big data. In order to realize scientific tracking of the carbon emission trajectory of key emitting enterprises and real-time monitoring of carbon emissions across regions, information on carbon emission trading supervision in different regions should be integrated for easy access by governments, enterprises and the public. (Wang, Z., Li, Y., & Han, Q., 2021) At the same time, law enforcement agencies can require key emitting enterprises to equip themselves with safe pollutant emission monitoring systems and carbon emission right trading reporting systems, and directly embed their carbon emission information into the national carbon monitoring information management platform, so as to make it easier for law enforcement agencies to grasp the dynamics of their carbon emissions in a timely manner, and to carry out targeted supervision.

5.1 *Proposed Path for Reconstruction: the References from Canada*

Based on the Canadian experience, China could reconstruct its climate legal system along the following lines:

(1) Systematic Top-Level Design: to establish a comprehensive climate law that integrates existing fragmented regulations, similar to Canada's Pan-Canadian Framework.

(2) Clear Allocation of Roles: to clarify the responsibilities of national and local governments in carbon regulation, following the Canadian model of federal-provincial collaboration.

(3) Carbon Pricing and Regulation: to strengthen the ETS by incorporating enforceable standards and independent oversight, inspired by the GGPPA.

(4) Public and Stakeholder Engagement: to create mechanisms for public participation and independent review to ensure transparency and accountability, drawing on the Impact Assessment Act.

(5) Independent Oversight Bodies: to establish advisory bodies and mandatory reporting mechanisms to monitor progress toward the dual-carbon goal, akin to Canada's Net-Zero Emissions Accountability Act.

5.2 *Contribution to Developing Countries*

China's exploration of these pathways, informed by Canada's multi-level governance and legal innovations, could serve as a valuable reference for other developing countries. By balancing economic growth and environmental sustainability through legal means, China can provide a model for addressing the unique challenges of climate governance in large, complex jurisdictions.

6 **Conclusion**

In conclusion, while China faces significant challenges in its climate governance framework, comparative lessons from Canada offer practical and theoretical guidance. By adopting an integrated, transparent, and enforceable legal structure with a strong multi-level governance mechanism, China can push forward its dual-carbon goals on a standardized and sustainable track.

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