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Research on the Role of Green Technology in Climate Diplomacy

Pant Suyogya Nath

School of Political Science and Public Administration, Wuhan University, Wuhan, China
Email: nathumpangte@qq.com

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Abstract

Research on the role of green technology in climate diplomacy can provide a technical foundation for cooperation among countries and promote the realization of global emission reduction goals. By sharing and transferring green technologies, countries can strengthen trust and form closer cooperative relationships. Innovation in green technology contributes to economic growth and creates new opportunities for sustainable development. This not only plays a key role in addressing climate change but also enhances energy security and improves resource utilization efficiency, thereby reducing dependence on traditional energy sources. This thesis uses qualitative analysis to explain the role of green technology in climate diplomacy. It first analyzes the mechanism of China's green technology in climate diplomacy through three aspects: technological competitiveness and innovation capability, economic transformation and industrial structure adjustment, and environmental governance capability and international image. Then, it analyzes the issues and reasons for China's green technology in climate diplomacy through three aspects: technology transfer and intellectual property protection, international discourse power of green technology standards, and coordination of green technology diplomacy with geopolitical conflicts. The results of the qualitative analysis show that China faces multiple challenges and reasons in using green technology in climate diplomacy. In terms of technology transfer, there is a conflict between intellectual property protection and the need for global sustainable development, and the strengthening of enterprise innovation capabilities has led to an increase in intellectual property demands. In international cooperation, countries need to coordinate within complex interest distribution mechanisms to demonstrate the image of a responsible major power and enhance technological competitiveness. The international discourse power of green technology standards also faces competition from standards of European and American countries, requiring the resolution of standard compatibility issues, promotion of the complex internationalization process

of multilateral mechanisms, and response to geopolitical factors. Geopolitical tensions affect technological cooperation, and countries need to find a balance between safeguarding their own interests and fulfilling global responsibilities, exploring new cooperation opportunities in green technology diplomacy to reduce strategic suspicion. Based on the results of empirical analysis, this thesis proposes some targeted countermeasures: strengthening international cooperation and dialogue, enhancing the influence of technological standards, and balancing intellectual property rights with technological openness.

Keywords

Green Technology, Climate Diplomacy, Intellectual Property Protection, Environmental Governance Capability

1. Introduction

China's rapid development in the field of green technology has provided strong support for its global climate diplomacy efforts. As one of the world's largest greenhouse gas emitters, China actively participates in international climate negotiations and fulfills its commitments through technological innovation and policy initiatives. According to data from the International Energy Agency, China has ranked first globally in renewable energy investment for several consecutive years. In 2022, the country's total installed renewable energy capacity exceeded 1.2 billion kilowatts, with China leading the world in installed capacity for hydropower, wind power, solar power, and biomass power generation. China is actively working to mitigate the impacts of climate change through the vigorous development of green technology[1]. China's green technology innovation is not limited to the renewable energy sector. In the electric vehicle market, China's growth is also significant, with its electric vehicle sales accounting for about 50% of the global total in 2023[2]. This development has not only reduced dependence on fossil fuels but has also provided a Chinese solution for the establishment of global green technology standards. The Chinese government, through policy support and financial investment, has promoted the research, development, and application of green technologies. According to data from China's National Bureau of Statistics, China's fiscal expenditure in the areas of environmental protection and energy conservation and emission reduction reached approximately 1.2 trillion yuan in 2021[3]. "These investments have not only pro-

[1]Government of the People's Republic of China: https://www.gov.cn/xinwen/2023-01/28/content_5738881.htm

[2]Californlia-china climate institute: https://ccci.berkeley.edu/sites/default/files/09_Accelerating%2520the%2520ZEV%2520Market%2520in%2520the%2520U.S.%2520and%2520China_Mandarin.pdf

[3]Ministry of Ecology and Environment of the People's Republic of China: https://www.mee.gov.cn/ywgz/kjycw/bmyjsgl/202103/P020210325540254424943.pdf

moted the advancement of domestic green technology but have also strengthened China's voice in climate diplomacy. At the United Nations Climate Change Conference held in 2021, China pledged to achieve carbon neutrality by 2060 and to promote the construction of global green infrastructure through the "Belt and Road Initiative".

China's development in green technology has also gained widespread attention and recognition from the international community. A report from the International Renewable Energy Agency points out that China ranks at the forefront in global patent applications for photovoltaic and wind energy technologies, demonstrating its leading position in technological innovation[4]. This technological advantage enables China to offer more competitive solutions in climate cooperation with other countries, thus securing a favorable position in international negotiations. The rapid development of China's green technology not only provides momentum for its domestic sustainable development but also plays an increasingly important role in global climate governance. With continuous technological innovation and ongoing policy advancement, China is poised to continue leading trends in the global green technology sector and exert greater influence in climate diplomacy.

2. Literature Review

The importance of green technology in global climate diplomacy is becoming increasingly prominent. As the challenges posed by climate change continue to escalate, countries are viewing green technology as a key means to address climate issues. Zhiznin et al. (2023) point out that hydrogen energy, as an important green technology, plays a crucial role in global green transition, not only in Russia but also widely applied globally. This indicates that green technology plays an important role in promoting cooperation and exchange between countries. Desai (2021) explores the importance of water agreements in the era of climate change, especially in water resource management in the Indus River Basin. This transnational cooperation emphasizes the application of green technology in water resource management, such as remote sensing technology and data analysis, which are crucial in supporting the scientific basis for diplomatic negotiations. Roston (2021) concludes from the early history of climate diplomacy that the application of green technology has provided new communication bridges for countries. These bridges promote cooperation among countries on climate issues not only at the technological level but also at the policy and strategic levels.

Hristova and Chankova (2020) believe that climate diplomacy is becoming an increasingly important diplomatic challenge, and the progress of green technology provides technical support for countries to put forward more constructive opinions in international negotiations. Ohta's (2020) research further points out that Japan actively promotes the development of green technology in interna-

[4]IEA: https://www.iea.org/reports/renewables-2022

tional politics in the fields of environment and energy resources to enhance its international influence.

In the Arctic region, Dyck (2024) emphasizes the importance of green technology in addressing climate change and maintaining ecological balance, especially in the face of an uncertain future for the Arctic Council, these technologies provide new possibilities for international cooperation. In the EU, Ruse and Pubule (2022) discuss the role of green innovation in promoting the EU Green New Deal, highlighting the boundaries and challenges of scientific innovation in policymaking. This scientific innovation is not limited to technology but also includes policy and institutional innovation, providing new perspectives for the application of green technology in climate diplomacy. Rees et al. (2022) demonstrate how the application of remote sensing technology in northern Russia promotes scientific diplomacy, advancing regional ecological protection and sustainable development through transnational cooperation and scientific data sharing. Rudgard and Tetley (2023) point out that the UK's wavering on green policies has impacted its climate legacy, showing the importance of stable green technology policies for a country's reputation in international climate diplomacy. Seijo (2021) focuses on the application of "hard diplomacy" in climate issues, believing that the progress of green technology provides countries with stronger arguments at the negotiating table.

In the United States, Dlouhy (2022) mentions that the Biden administration sent several senior officials to participate in climate negotiations, indicating the US's efforts to strengthen international cooperation using green technology. Coleman (2021) points out that US envoy Kerry questioned the ambiguity of China's 2060 climate commitment, showing the role of green technology in verifying and monitoring international commitments. Yaqoob (2022) explores the challenges in climate change governance in South Asia, where green technology provides technical support for international cooperation in the region, especially in renewable energy and disaster management.

Green technology plays multiple roles in global climate diplomacy, not only promoting technological innovation but also providing new platforms for communication between countries. Through green technology, countries can more effectively address the challenges brought by climate change and demonstrate their responsibility and capabilities on the international stage. As green technology continues to advance and its applications expand, it will play a greater role in international climate governance.

3. Analysis of the Mechanism of China's Green Technology in Climate Diplomacy

The development of China's green technology cannot directly impact climate diplomacy. Analyzing the effect of China's green technology on climate diplomacy requires examining the intermediary factors between the two. This article will elucidate the mechanism by which China's green technology influences climate

diplomacy through three aspects: technological competitiveness and innovation capability, economic transformation and industrial structure adjustment, and environmental governance capability and international image. This approach can better utilize green technology to promote climate diplomacy.

3.1. Technological Competitiveness and Innovation Capability

In today's globalized context, the development of green technology is not only an important driving force for a country's economic growth but also a key factor in its position on the international climate political stage. The level of green technology directly affects a country's status and voice in international climate negotiations. Countries with advanced green technologies can propose feasible solutions in negotiations, thereby enhancing their influence and leadership in the international community. Such countries can not only guide the direction of negotiations but also strengthen relationships with other countries through technical assistance and cooperation.

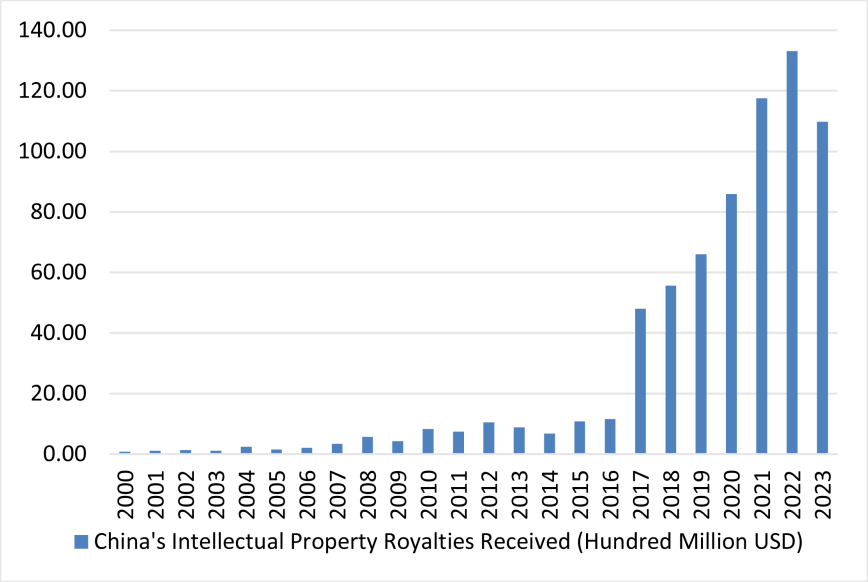
Innovation capability is the core driving force for translating scientific and technological achievements into actual emission reduction effects. If a country can successfully transform innovation into specific emission reduction measures, it can not only fulfill its climate commitments but also enhance its credibility in the international community. This enhanced credibility makes other countries more willing to adopt its suggestions and cooperate with it when formulating climate policies. The expansion of this influence is not only reflected in the climate field but can also radiate to other international affairs.

A leading technological position can significantly promote international cooperation and technology transfer. Technologically advanced countries can help other countries improve their green technology levels by exporting technology and experience. This technology transfer not only contributes to the realization of global emission reduction goals but also enhances the diplomatic influence of the exporting country. Through technological cooperation, a country can establish a broad international cooperation network and increase its voice in global climate policy-making.

China's intellectual property royalties received can, to some extent, reflect China's technological and innovation capabilities in the science and technology industry. The development of China's intellectual property royalties received from 2000 to 2023 is shown in the following **Figure 1**.

From **Figure 1** below, we can see that China has made significant progress in the field of intellectual property in recent years, especially with a notable increase in royalties received. From $80 million in 2000 to $10.977 billion in 2023, this growth reflects China's importance in the global intellectual property market. Particularly after 2017, there was a substantial increase in royalties, from $4.803 billion in 2017 to $11.756 billion in 2021, and reaching $13.307 billion in 2022. This growth reflects China's continuous strengthening in technological innovation and intellectual property protection, as well as its increased competi-

tiveness in the international market. These data indicate that China is actively promoting the development of intellectual property, contributing more to the global economy.



Data Resource: World Bank.
World Bank: https://data.worldbank.org/indicator/BM.GSR.ROYL.CD?locations=CN

Figure 1. Overview of the development of China's intellectual property royalty payments from 2000 to 2023.

The development of green technology enhances a country's climate diplomacy position by improving international competitiveness, thereby influencing global climate policy formulation. In this process, technological competitiveness and innovation capability are indispensable intermediary mechanisms. Countries should increase investment in green technology and promote the practical application of innovative achievements to occupy an advantageous position in global climate governance. In this way, countries can not only achieve sustainable economic development but also play a greater role in formulating global climate policies, promoting more efficient and equitable global climate governance goals.

3.2. Economic Transformation and Industrial Structure Adjustment

The application of green technology plays a crucial role in promoting low-carbon economic transformation, providing a replicable development model for global sustainable development. Through in-depth research and extensive application of green technology, countries can achieve energy structure adjustment and industrial structure optimization, significantly reducing carbon emissions. This not only promotes domestic green economic transformation but also provides successful examples for other countries, demonstrating how to minimize environmental impact while maintaining economic growth.

The development of emerging green industries provides new opportunities for international cooperation, becoming an important force in promoting economic diplomacy. As green industries continue to grow, cooperation between countries in technology, capital, and markets is becoming increasingly close. This cooperation not only helps optimize resource allocation but also promotes the development of the global green economy through technological exchange and innovation. In this process, countries can enhance their overall ability to address climate change through joint research and development and technology sharing.

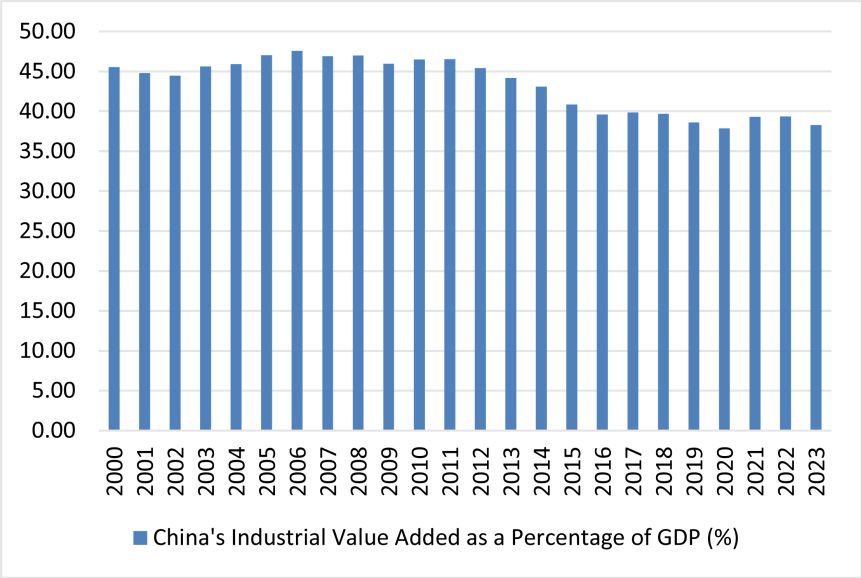
The application of green technology promotes continuous optimization of industrial structure, enhancing the resilience of the economy to climate change. This resilience is reflected in multiple aspects: on the one hand, it improves the economic system's ability to withstand climate change shocks; on the other hand, it enhances a country's confidence and persuasiveness in international climate negotiations. By demonstrating its successful experiences in green economic transformation, a country can enhance its influence in international climate policy-making, thus guiding the direction of global climate governance.

In the context of global climate governance, the development of green technology is not only a manifestation of a country's endogenous drive but also a source of its external influence. By promoting green economic transformation, countries can provide examples of sustainable development and enhance their persuasiveness in climate diplomacy. This not only helps improve a country's international reputation but also promotes the achievement of global climate goals. Countries should continue to increase investment in green technology and promote the development of related industries to play a greater role on the international stage. In this way, countries can work together to address global climate change challenges and achieve a win-win situation for both economy and environment.

China's industrial value as a proportion of the total economy can reflect changes in China's economic structure. The development of China's industrial added value as a percentage of GDP from 2000 to 2023 is shown in the following Figure 2.

From Figure 2 below, we can see that the proportion of industrial-added value in China's GDP has undergone significant changes over the past few decades. Starting from 45.54% in 2000, this proportion reached a peak of 47.02% in 2005, demonstrating the strong driving force of industry for economic growth at that time. However, with the adjustment of economic structure and the rapid development of the service industry, this proportion gradually decreased, falling to 40.84% in 2015. In recent years, this proportion has tended to stabilize, with 39.33% in 2022 and 38.28% in 2023. This trend reflects China's economic transition from traditional industrial-driven to a more diversified and sustainable development, marking the optimization and upgrading of the economic structure.

Green technology, as the core engine driving green economic transformation, has not only injected new vitality into domestic economic development but also



Data Resource: World Bank.
World Bank: https://data.worldbank.org/indicator/BM.GSR.ROYL.CD?locations=CN

Figure 2. Overview of the share of China's industrial value added in GDP from 2000 to 2023.

enhanced the country's persuasiveness in international climate diplomacy by providing examples of sustainable development. Countries should further strengthen the application and promotion of green technology, pushing global economic development towards a greener, low-carbon, and more sustainable direction. This is not only a necessity for addressing climate change but also an inevitable path to achieving global sustainable development. Through this process, countries can occupy more advantageous positions in international climate policy-making, promoting more efficient and equitable global climate governance.

3.3. Environmental Governance Capability and International Image

Green technology plays a crucial role in modern environmental governance, profoundly impacting a country's status in international climate affairs. The application of green technology can significantly improve a country's environmental governance level, enabling substantial progress in addressing pollution and reducing carbon emissions. This progress not only improves the health of domestic ecosystems but also demonstrates the country's determination and capability in environmental protection, thereby enhancing its credibility in international environmental affairs. When a country demonstrates strong environmental governance capabilities, it can not only occupy a more advantageous position in international negotiations but also establish a responsible international image, winning trust and support from more countries.

Through successful cases of green technology application, a country can demonstrate its positive contribution to global climate governance. This contri-

bution is reflected not only in technological innovation and breakthroughs but also in support and participation in global environmental protection efforts. By showcasing its achievements in the field of green technology and contributions to global climate goals, a country can significantly improve its international image. This positive international image not only helps enhance the country's soft power but also allows it to gain more voice and influence on the international stage.

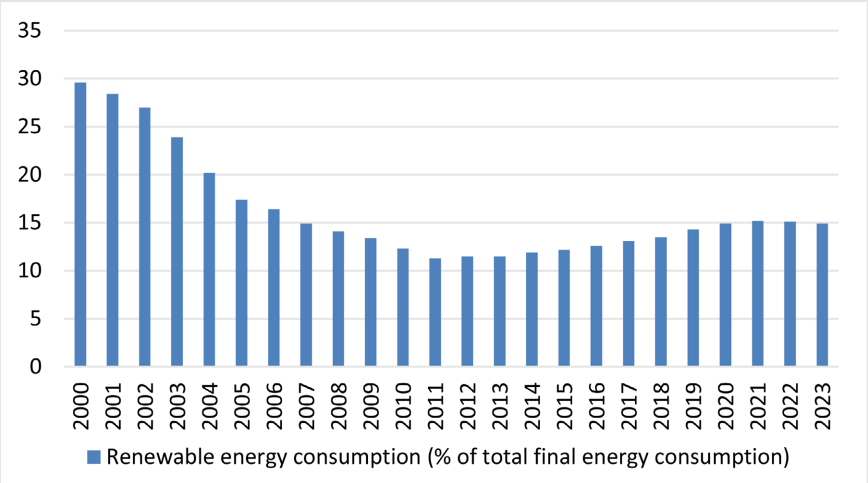
The environmental governance experience brought by green technology lays a solid foundation for international cooperation. In the process of sharing these experiences with other countries, it can promote the in-depth development of multilateral climate diplomacy. By providing technical support, experience sharing, and cooperative projects, a country can strengthen connections with other countries, forming mutually beneficial cooperative relationships. This cooperation not only helps jointly address the challenges of global climate change but also promotes the common progress of the international community in environmental governance.

The improvement of green technology enhances environmental governance capabilities, improves a country's international environmental image, thereby increasing its influence in climate diplomacy. In this process, countries should continue to increase investment in green technology, promote technological innovation and application, to play a greater role in global climate governance. In this way, countries can not only achieve their own sustainable development goals but also contribute to global climate governance, promoting the international community towards a greener, low-carbon, and more sustainable direction.

China's proportion of new energy consumption in total energy consumption can reflect the improvement of China's environmental governance capability. The development of China's new energy consumption as a percentage of total energy consumption from 2000 to 2023 is shown in the following **Figure 3**.

From **Figure 3** below, we can see that the proportion of global renewable energy consumption in total final energy consumption underwent significant changes from 2000 to 2023. Starting from 29.6% in 2000, this proportion gradually decreased over the next decade, reaching 12.3% in 2010. This trend mainly reflects the dependence on fossil fuels and the challenges brought by technological development. However, from 2011, this proportion began to gradually rise, reaching 14.9% by 2020. Although it slightly increased to 15.2% in 2021, it fell back to 15.1% and 14.9% in 2022 and 2023 respectively. Overall, the changes during this period reflect the increasing global emphasis on renewable energy, but also face many economic and technological challenges.

The development of green technology has played a crucial role in China's climate diplomacy, forming a complex and mutually supportive mechanism through three intermediary factors: technological competitiveness, economic transformation, and environmental governance. Technological competitiveness and innovation capabilities have directly enhanced China's position in international climate



Data Resource: World Bank.
World Bank: https://data.worldbank.org/indicator/BM.GSR.ROYL.CD?locations=CN

Figure 3. Overview of the share of new energy consumption in China's total energy consumption from 2000 to 2023.

negotiations, allowing it to gain an advantage in discourse power and promote the formulation of global climate policies. Economic transformation and industrial structure adjustment have demonstrated China's practical actions in implementing climate commitments, reflecting its firm determination on the path of low-carbon development. This has not only enhanced the sustainability of the domestic economy but also provided a replicable model for other countries. The improvement of environmental governance capabilities and the resulting enhancement of international image have demonstrated China's positive contribution as a responsible major power in global climate governance. Through these three interrelated factors, China's green technology has not only elevated its position in climate diplomacy but also provided innovative ideas and solutions for global climate governance, thus playing a more active and constructive role in international climate cooperation. Analysis of the Mechanism of China's Green Technology in Climate Diplomacy Development Overview is shown in **Table 1** below.

4. Analysis of the Issues of China's Green Technology in Climate Diplomacy

4.1. The Balance between Technology Transfer and Intellectual Property Protection

In the urgent context of global climate change, international cooperation in green technology has become an important way to promote global climate action. This process also highlights the contradiction between technology transfer and intellectual property protection, especially prominent in emerging tech powers like China. Technology transfer is key to achieving global sustainable development, not only promoting the widespread application of green technology

Table 1. Analysis of the mechanism of China's Green technology in climate diplomacy development overview.

Intermediary Factor	Mechanism of Action	Impact
Technological Competitiveness and Innovation Capability	Enhance position and voice in international negotiations Transform technological achievements into emission reduction effects Promote international cooperation and technology transfer	Strengthen international influence and leadership position Increase voice in global climate policy-making
Economic Transformation and Industrial Structure Adjustment	Drive low-carbon transition Provide sustainable development examples Enhance economic resilience	Enhance international reputation Promote economic diplomacy and global cooperation
Environmental Governance Capability and International Image	Improve environmental governance level Demonstrate contribution to global climate governance Promote international cooperation	Enhance international credibility Improve international image

but also fostering technological progress and economic development globally. Chinese green tech companies face significant challenges in intellectual property protection in international cooperation. As China's innovation capabilities in green technology continue to strengthen, these companies' demand for intellectual property protection of their technologies is also growing. Intellectual property protection is not only a necessary means to maintain core competitiveness of enterprises but also an important guarantee to incentivize innovation. In international technological cooperation, how to find a balance between open technology and protecting intellectual property has become a major challenge for China.

The interest distribution mechanisms in international technological cooperation are complex and diverse, involving multiple interests of technology providers and recipients. For China, promoting technology transfer while ensuring fair treatment and reasonable returns for domestic enterprises in the international market has become an important task. International cooperation often requires coordination and compromise of multiple parties' interests, which not only tests the negotiation wisdom of various countries but also poses new requirements for the formulation of international rules. In this context, China needs to skillfully handle the contradiction between technology sharing and protecting its own interests in climate diplomacy to maintain national interests and international image.

China's international image and long-term technological competitiveness largely depend on its strategy of technology openness and protection in climate diplomacy. As one of the world's largest greenhouse gas emitters, China also needs to demonstrate the image of a responsible major power in promoting green technology transfer. This not only helps to enhance China's status in the international community but also provides more voice in participating in the formulation of international rules. China needs to balance the relationship between technology openness and protection in climate diplomacy to maximize national interests.

The balance between technology transfer and intellectual property protection involves how China handles the contradiction between technology sharing and protecting its own interests in climate diplomacy. The resolution of this issue not only affects China's international image and long-term technological competitiveness but also has far-reaching implications for the future development of global climate cooperation.

4.2. The Issue of International Discourse Power in Green Technology Standards

The enhancement of China's influence in global green technology standard setting is a complex and multi-faceted issue, involving factors such as market competition, standard compatibility, multilateral mechanisms, and geopolitics. The impact of international green technology standards on market competition is evident. Standards often determine the market access and competitive advantage of technologies, and countries or companies that control standard-setting can dominate the market. Currently, European and American countries are leading in the field of green technology standards, and their standards often become the entry threshold for the international market. For example, European carbon emission standards affect the global automotive industry layout, while U.S. environmental technology patents influence the development direction of renewable energy technologies. In this context, the challenge for Chinese companies is how to maintain their technological innovation advantages while complying with these international standards.

The compatibility issue between Chinese green technology standards and international standards cannot be ignored. Compatibility is not only about technological exchange and cooperation but also relates to the international market acceptance of products. China has made significant progress in some areas, such as in electric vehicles and solar technology, where Chinese standards are gradually gaining international recognition. Due to differences in historical and technological development paths, Chinese standards still differ from international standards in some areas, often leading to additional technical barriers and certification costs for Chinese companies in the export process.

Promoting the internationalization of Chinese standards through multilateral mechanisms is an important strategy to enhance influence. China actively participates in the activities of international standardization organizations, promoting its own standards to become part of international standards through cooperation with other countries. For example, under the framework of the "Belt and Road" initiative, China conducts green technology cooperation with countries along the route, which not only helps to improve the local environmental protection technology level but also provides opportunities for the internationalization of Chinese standards. The international standardization process is complex and time-consuming, involving the balancing and compromise of various countries' interests, and China needs to demonstrate sufficient technologi-

cal strength and diplomatic wisdom in this process.

Geopolitical factors in standard-setting cannot be ignored. Standards are not just a technical issue but also a tool for political and economic competition. The game between major powers around standards often reflects their strategic positioning in the global industrial chain. In recent years, competition between China and the United States in high-tech fields has intensified, with standard-setting becoming an important part of their competition. In the process of enhancing its influence on technological standards, China must carefully address the challenges brought by geopolitics and balance relations with other major powers to ensure greater voice in international standard-setting.

For China to enhance its influence in global green technology standard-setting, it needs to address multiple challenges, including market competition, compatibility, multilateral mechanisms, and geopolitics. Only by making breakthroughs in these aspects can China's green technology occupy a more advantageous position in the international market and play a greater role in the global climate governance system.

4.3. Coordination of Green Technology Diplomacy and Geopolitical Conflicts

In today's complex international relations, advancing green technology cooperation faces numerous geopolitical obstacles. Global geopolitical tensions have made countries more cautious in technological cooperation, especially in areas involving strategic technologies. As a key area for future development, green technology has naturally become a focus of competition among countries. In this context, technological cooperation not only needs to overcome technical barriers but also address the trust deficit between nations. Climate change, as a global challenge, has impacts that are no longer limited to the environmental field but are closely intertwined with traditional security issues. Extreme climate events, resource shortages, and ecological migration exacerbate regional instability, further complicating the environment for international cooperation.

The possibility of easing international relations through green technology diplomacy has also attracted widespread attention. Green technology cooperation provides countries with a common goal, namely addressing climate change, which to some extent can transcend traditional geopolitical differences and become a new opportunity to promote international cooperation. Through cooperation, countries can not only share technological achievements but also enhance mutual trust and understanding. This potential for cooperation is often overshadowed by complex international political situations, and countries need to strike a delicate balance between national interests and global responsibilities in climate diplomacy. National interests drive countries' behavior on the international stage, especially in core areas involving economy and security.

Global responsibility requires countries to demonstrate greater willingness to cooperate and a spirit of commitment in addressing climate change. How to find

a balance between these two is a major challenge facing climate diplomacy. Green technology diplomacy, as an emerging diplomatic means, provides a possible path to alleviate international tensions. By promoting green technology cooperation, countries can to some extent reduce strategic suspicions between each other and form a new model of cooperation. This not only helps to ease current geopolitical conflicts but also provides strong support for global climate governance. Green technology diplomacy in the current international environment is both a challenge and an opportunity. It requires countries to actively assume global responsibilities while safeguarding their own interests, jointly promoting the process of global climate governance.

China faces multiple challenges in the field of green technology at the technical, economic, and political levels, reflecting its complex situation in global climate diplomacy. The balance between technology transfer and intellectual property protection highlights the new challenges China faces as an emerging technological power. In promoting green technology development, China must properly handle the contradiction between technology sharing and innovation protection to promote international cooperation without harming its own interests. The issue of international discourse power in green technology standards shows China's motivation to seek greater influence in the global governance system. By formulating and influencing international standards, China can gain greater competitive advantages in the green technology market. The coordination of green technology diplomacy and geopolitical conflicts reveals the complexity and importance of climate diplomacy in current international relations. China needs to resolve geopolitical conflicts and promote international climate cooperation through active diplomatic strategies in this context. In-depth research on these issues helps to understand the opportunities and challenges China faces in global climate governance, thereby formulating more effective climate diplomacy strategies and enhancing China's positive role in international climate cooperation. Overview of Issues and Reasons for China's Green Technology in Climate Diplomacy is as shown in Table 2 below.

5. Countermeasures for China's Green Technology in Climate Diplomacy

5.1. Strengthening International Cooperation and Dialogue

Strengthening international cooperation and dialogue is one of the key strategies for China to play an active role in green technology climate diplomacy. In the context of globalization, cooperation among countries in the field of green technology can not only promote technological progress but also effectively address the challenges brought by climate change. Establishing transparent communication mechanisms with various countries is particularly important. Through transparent information exchange, countries can share technology development dynamics, policy measures, and cooperation needs, thereby enhancing

Table 2. Overview of issues and reasons for China's green technology in climate diplomacy.

Section	Issue	Reason
Technology Transfer and Intellectual Property Protection	Contradiction between technology transfer and intellectual property protection	Need to promote global sustainable development
	Increased enterprise innovation capability, growing demand for intellectual property	The increased innovation capability of Chinese enterprises has led to the creation of more valuable intellectual property, resulting in a growing demand for stronger protection mechanisms to safeguard these assets and maintain competitive advantages in the global market.
	Complex interest distribution mechanisms in international cooperation	Multi-party interest coordination and negotiation wisdom among countries
International Discourse Power in Green Technology Standards	Balance between national image and technological competitiveness	Demonstrating the image of a responsible major power, enhancing international status
	Impact of international standards on market competition	European and American countries lead in standards, Chinese enterprises need to adapt
	Standard compatibility issues	Differences due to historical and technological development paths
	Complexity of promoting standard internationalization through multilateral mechanisms	Balancing interests of various countries, complex standardization process
Green Technology Diplomacy and Geopolitical Conflicts	Geopolitical factors in standard-setting	Great power game, reflecting strategic positioning in global supply chains
	Geopolitical tensions affecting technological cooperation	Trust deficit in strategic technology areas
	Balance between national interests and global responsibilities	National interests drive behavior, global responsibilities require cooperation

trust and reducing suspicion and misunderstanding in technological cooperation. Transparent communication mechanisms help break down information barriers, enabling countries to better understand each other's technological strengths and needs, and form more targeted cooperation plans. The utilization of multilateral cooperation platforms is also an important means to promote international exchange and cooperation in green technology. China can engage in extensive dialogue and cooperation with other countries and regions by participating in international organizations, summits, and forums. This not only helps promote China's green technology achievements but also learns from and draws on international advanced experiences, promoting domestic technological innovation and industrial upgrading. Through these platforms, China can demonstrate its strength and contribution in the field of green technology on the international stage, enhancing its international influence and voice. Multilateral cooperation platforms can provide a cooperative framework for countries to jointly address climate change, promoting resource sharing and technological collaborative innovation. In this process, China needs to actively play a constructive

role, advocating the concept of win-win cooperation, and participating in global green technology governance with an open and inclusive attitude. International cooperation and dialogue can also ease geopolitical tensions, injecting new momentum into global climate governance. Through green technology cooperation, countries can strengthen mutual trust, reduce suspicion, and promote the formation of new models of international cooperation based on common interests. This not only helps address current climate change challenges but also provides strong support for global sustainable development. Strengthening international cooperation and dialogue is an indispensable strategy for China in green technology climate diplomacy, helping to build a peaceful, stable, and cooperative international environment and achieve global climate governance goals.

5.2. Enhancing the Influence of Technical Standards

Enhancing the influence of technical standards is an important strategy for China to achieve greater international voice in green technology climate diplomacy. International standards often determine the market access and competitive advantage of technologies. Actively participating in international standard-setting is a key way for China to enhance its technological influence. By participating in the activities of international standardization organizations, China can propose its own technical solutions and innovative achievements in the standard-setting process, promoting the compatibility of Chinese standards with international standards. This not only helps eliminate technical barriers and reduce export costs but also increases the competitiveness of Chinese enterprises in the international market. Participating in international standard-setting also provides China with a platform to showcase its technological strength, enhancing the country's position in the global green technology field. Conducting regional cooperation through initiatives such as the "Belt and Road" is another important way to expand the influence of Chinese standards. China's cooperation with countries along the "Belt and Road" in green technology standards can not only promote the improvement of environmental protection technology levels in these countries but also provide a solid foundation for the internationalization of Chinese standards. Through these cooperations, China can promote the connection of its own standards with local market demands, accelerating the regionalization process of standards. This cooperation model helps form widespread recognition of Chinese standards internationally, enhancing their applicability and competitiveness in the global market. Regional cooperation can promote the two-way flow of technology and resources, achieving mutual benefits and win-win results, contributing more Chinese wisdom and solutions to global green development. In this process, China needs to fully leverage the synergistic role of government, enterprises, and research institutions, mobilizing resources from all parties to form a good situation for jointly promoting the internationalization of standards. Enhancing the influence of technical standards also helps China occupy a more advantageous position in the international industrial

chain. Standards are not only a tool for technological competition but also an important aspect of economic and political competition. By mastering the discourse power of standards, China can better participate in global economic governance and enhance its position and influence in the international economic order. Enhancing the influence of technical standards is an important strategy in China's green technology climate diplomacy, which not only helps the transformation and upgrading of domestic industries but also provides new momentum for global climate governance and sustainable development. In implementing this strategy, China needs to focus on international cooperation and open innovation, promoting the inclusiveness and universality of standards to achieve fairer and more sustainable global development.

5.3. Balancing Intellectual Property Rights and Technology Openness

Balancing intellectual property rights and technology openness is a key challenge and opportunity for China in green technology climate diplomacy. With China's rapid development in the field of green technology, improving intellectual property protection mechanisms has become particularly important. By establishing and improving domestic and international intellectual property protection mechanisms, China can provide solid legal protection for enterprise innovation, encouraging more enterprises to invest in R&D and innovation. Intellectual property protection can not only maintain the core competitiveness of enterprises but also enhance China's credibility and image in the international market, thereby attracting more international cooperation partners. The improvement of intellectual property protection mechanisms also provides strong support for Chinese enterprises when participating in international technological cooperation, enabling them to actively engage in international cooperation while protecting their own technologies. On the other hand, adopting an open innovation model is an effective way to promote international technology transfer. In the context of globalization, open innovation emphasizes cross-border knowledge sharing and technological collaboration, promoting technological progress through open and cooperative methods. While protecting core technologies, China can engage in joint development of new technologies with international partners through open innovation, sharing innovative achievements and promoting global green technology progress. This model not only helps accelerate technology diffusion and application but also demonstrates China's technological strength and responsibility in international cooperation. Open innovation requires finding a balance between technology protection and sharing, achieving optimal allocation of technological resources through collaborative innovation and platform co-construction. In this process, China can leverage international cooperation platforms to participate in the formulation and promotion of global technology standards, enhancing its influence in the international technology system. Open innovation can also promote the internationali-

zation of domestic enterprises, expanding new markets and business areas through international cooperation. In promoting the balance between intellectual property protection and technology openness, China should fully utilize policy tools, strengthen international intellectual property cooperation, and promote the formation of a fairer and more transparent international intellectual property rules system. It is necessary to strengthen the promotion and education of intellectual property protection, raise the awareness of intellectual property among enterprises and the public, and create a good social atmosphere that respects intellectual property rights. Through these efforts, China can occupy a more advantageous position in global green technology competition and promote international climate cooperation and sustainable development. Balancing intellectual property rights and technology openness is not only a strategic choice for China's green technology climate diplomacy but also an important way to promote global green technology innovation and cooperation.

6. Conclusion

This thesis uses qualitative analysis to elucidate the role of green technology in climate diplomacy. First, it analyzes the mechanism of China's green technology in climate diplomacy through three aspects: technological competitiveness and innovation capability, economic transformation and industrial structure adjustment, and environmental governance capability and international image. Then, it analyzes the issues and reasons for China's green technology in climate diplomacy through three aspects: technology transfer and intellectual property protection, international discourse power in green technology standards, and coordination of green technology diplomacy with geopolitical conflicts.

The results of the qualitative analysis are: China faces multiple challenges and reasons in utilizing green technology in climate diplomacy. In terms of technology transfer, there is a contradiction between intellectual property protection and the need for global sustainable development, with the increasing innovation capability of enterprises leading to growing demand for intellectual property protection. In international cooperation, countries need to coordinate within complex interest distribution mechanisms to demonstrate the image of a responsible major power and enhance technological competitiveness. The international discourse power of green technology standards also faces competition from standards of European and American countries, requiring resolution of standard compatibility issues, promotion of complex internationalization processes through multilateral mechanisms, while addressing geopolitical factors. Geopolitical tensions affect technological cooperation, and countries need to find a balance between safeguarding their own interests and fulfilling global responsibilities, exploring new cooperation opportunities in green technology diplomacy to reduce strategic suspicions.

Based on the results of the empirical analysis, this thesis proposes some targeted countermeasures and suggestions: strengthening international cooperation

and dialogue, enhancing the influence of technical standards, and balancing intellectual property rights with technology openness.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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