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Driving Factors and Feasibility Analysis: China&Mongolia Collaboration on Climate Change under the Belt and Road Initiative Framework

Pin Zuo[1], Zolboo Dashnyam[2] and Ping Jiang[3,4]*

[1]School of International Relations and Public Affairs, Shanghai International Studies University, Shanghai, CHINA
[2]Mongolia's Institute of International Affairs Research Center, Mongolian Academy of Sciences, Ulaanbaatar, MONGOLIA
[3]Department of Environmental Science and Engineering, Fudan University, Shanghai, CHINA
[4]Fudan Tyndall Centre, Fudan University, Shanghai, CHINA
[*]- jiangping@fudan.edu.cn

Abstract: *The Belt and Road Initiative (BRI) offers great opportunities for China and Mongolia to collaborate on tackling climate change. However, few studies have focused on China–Mongolia collaboration on climate change under the BRI's sustainable development framework; in particular, studies have neglected the factors and feasibility of collaboration. Focusing on China and Mongolia, this study first discusses the evolution of legislation in China and Mongolia in the context of dealing with climate change and then explores the factors that influence China–Mongolia collaboration on climate change mitigation from the perspectives of climate environmental governance and energy development at the domestic level. Subsequently, the paper analyzes the Paris Agreement to identify international factors that can influence climate change cooperation between the two countries. Finally, based on the results of this analysis, this paper identifies geopolitical relations, the energy supply, technology and investment, and the demand for a transition to sustainable development as the main driving forces for China and Mongolia to collaborate on climate change mitigation under the BRI. Finally, the paper concludes that collaboration between the two countries is highly feasible.*

Keywords: *Sustainable development, the Belt and Road Initiative, climate change, China; Mongolia*

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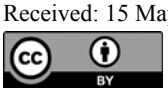

ORCID: https://orcid.org/0000-0003-3140-879x

1. Introduction

Climate change is one of the greatest global challenges of the 21st century, and it has huge implications for the world. As two neighboring countries in Asia, China and Mongolia are active participants in dealing with climate change; however, there are great social-economic and development differences between the two countries. As the world's second-largest economy and a major carbon emitter, China has gradually taken the leading role in global climate governance, assuming increasing responsibility for tackling climate change (Yu, 2016). As a typical developing country, Mongolia ranks low in socio-economic development in the world (The World Bank, 2021), and the country wants to protect its interests by engaging in global climate governance and using international resources to advance its transition to a low-carbon economy. China launched the Belt and Road Initiative (BRI) in 2013 with the goals of promoting sustainable development by enhancing low-carbon sustainability, strengthening transnational collaboration on tackling climate change, and advancing environmental and biodiversity protection. The BRI provides great opportunities for collaboration between China and Mongolia in the field of climate governance.

For the Belt and Road Initiative, many studies have been carried out from the political, economic and cultural aspects (Pradhan and Mohanty, 2021; Muhammadi et al., 2022; Jones, 2020). But there are not many existing studies have focused on collaboration for tackling climate change in the context of the BRI. Some of these studies have assessed the feasibility of China collaborating with other countries belonging to the BRI on climate governance. Zhang et al. (2021) has shown that since 2015, China has emerged as an active leader in global climate change negotiations, and that it has the capability to support developing countries in global climate cooperation. Moreover, Xue and Weng (2018) states that countries' various needs and interests have been addressed by the BRI. The BRI has provided countries with great opportunities for promoting sustainable development. Feng and Kang (2019) identified the degrees of interconnectedness and coordinated development under the sustainable development goals (SDGs) in China and some countries belonging to the BRI, and they pointed out that in the process of achieving SDGs, BRI countries can benefit from China's financial and technological support. However, most past studies have focused on promoting sustainable development and green grows under the collaborative framework of the BRI. Wang et al. (2023) identify he challenges and implications of green development through reviewing the documents of BRI since 2013 and analysing the changes of environmental policies in the BRI. Yu et al. (2021) states that in order to promote cooperation on energy and sustainable development between China and BRI countries, it is necessary to explore and create more opportunities for promoting collaboration on energy development using an innovative cooperation mechanism. Liu (2014) believe that climate change and environmental problems are regional and complicated and must be addressed

using a cooperation mechanism between BRI countries to ensure that low-carbon sustainable development is achieved. Zhang and Xie (2021) has mentioned that the potential impacts of climate change on ecological systems and human society will be very significant in the BRI region, and they urged that immediate action must be taken to avoid the worst effects of climate change and promote green growth in the region. In addition, some scholars have focused on collaboration between China and Mongolia under the BRI framework. Sachurina (2020) analyzed the driving forces behind and obstacles to China–Mongolia cooperation from the perspectives of geography, politics, the economy, and ecology, and they believe that cooperation between the two countries has great potential.

Hua (2015) has pointed out that the BRI and the "Grassland Road" plan proposed by Mongolia in 2014 cover a wide range of interests shared by both countries. Such national interests shared by both countries have the potential to strengthen cooperation on climate governance and provide a useful template for similar cooperation between China and other BRI countries. However, few studies have assessed the driving factors behind and feasibility of China–Mongolia collaboration on tackling climate change under the framework of sustainable development of the BRI.

Therefore, in order to fill this gap in the literature, this study focuses on China and Mongolia, and, for the first time, explores the evolution of legislation in China and Mongolia in the context of climate change mitigation and the influence of domestic and international factors on climate governance collaboration between these two countries. Subsequently, this paper analyzes the specific attitudes and driving factors related to China–Mongolia collaboration on climate governance under the BRI framework. Finally, this study assesses the feasibility of China–Mongolia collaboration on tackling climate change. The study results provide valuable reference information not only for facilitating effective China–Mongolia collaboration on climate change but also for enabling similar collaboration on climate and environmental governance between China and other BRI countries.

2. Method

2.1 Research area

Both China and Mongolia are important developing countries in Asia and facing challenges of climate change and environmental degradation in line with the promotion of sustainable development goals. China is the biggest emitter of greenhouse gas (GHG) emissions and Mongolia is one of countries with the highest per capita carbon emissions in the world. Two countries have common interests in dealing with climate change and environmental issues mainly due to their special geographical relationship, resource complementarity, and common objectives of sustainable development. The BRI has provided an opportunity for both China and Mongolia to make collaboration in tackling climate change.

The study selected these two countries as case studies to explore the driving factors behind and feasibility of China–Mongolia collaboration on dealing with climate change (Figure 1). The study also can provide references and examples for BRI countries at different stages of development, especially facing challenges of climate change, so as to promote collaborations under the sustainable development framework of the BRI.

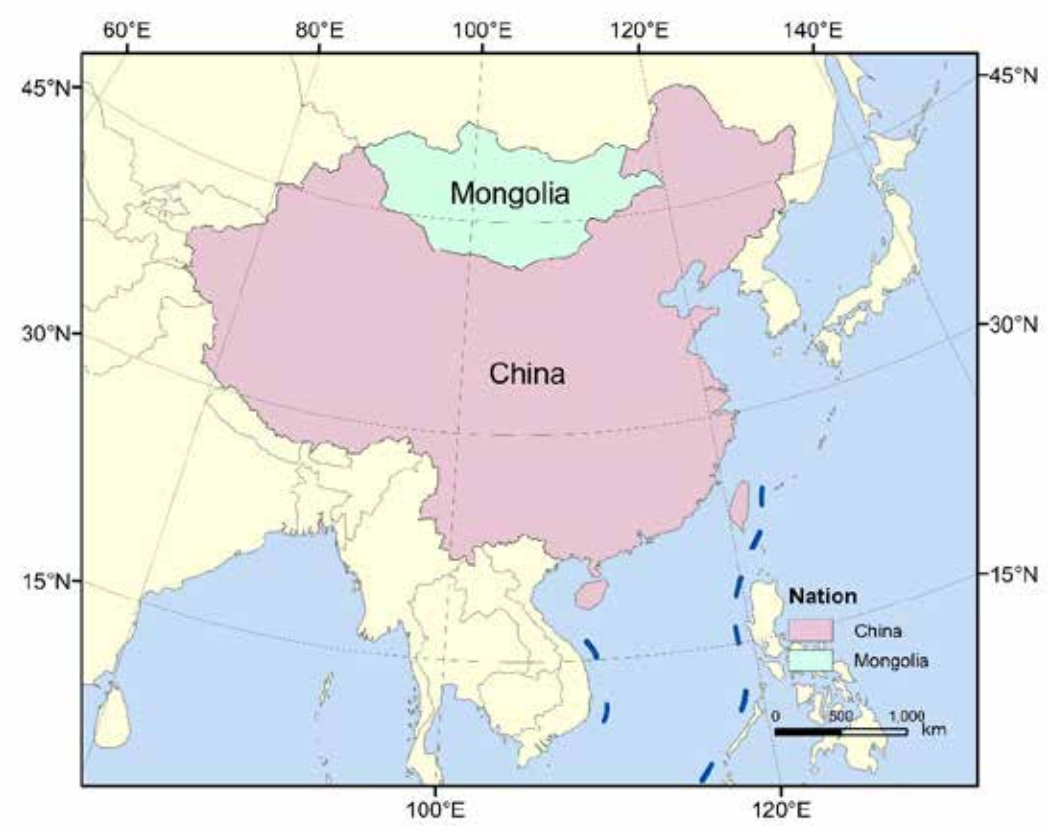

Fig. 1 Research area

2.2 Data Collection Method

There are two main objectives of study, they are (1) identifying the driving factors behind China-Mongolia collaboration of dealing with climate change under the BRI framework, and (2) assessing the feasibility of this kind of collaboration under the BRI framework. Firstly, in order to identify the motivations and driving factors behind the collaboration, the analysis put the focus on the development of legislation in China and Mongolia in the context of dealing with climate change and the influence of domestic and international factors on climate governance collaboration between two countries. The related data utilized for implementing the analysis mainly include climate change and environmental protection policies, bilateral and

multilateral climate and environmental agreements, relevant speeches of leaders of two countries, and related reports (e.g. research reports and consulting reports).

Then, the study evaluated the feasibility of China-Mongolia collaboration under the BRI framework from three aspects: the feasibility of technology, the feasibility of investment, and the feasibility of policy. The data needed to support the technology and investment feasibility analysis include reports, such as energy, financial and technical cooperations reports. The data needed to the policy feasibility analysis include climate change, environmental protection, energy and sustainable development polices.

The related data sources utilized in this study mainly include various climate change policies enacted by China and Mongolia, reports by the Asian Development Bank, open data from the World Bank, and open data from the International Energy Agency and International Renewable Energy Agency. The qualitative data adopted for this analysis is mainly from 1990 to the present.

2.3 Analysis Method

This study adopts qualitative analysis as its primary methodology. To analyze the driving factors behind and feasibility of China–Mongolia collaboration on dealing with climate change under the sustainable development framework of the BRI, this study first discusses the development and characteristics of legislation in China and Mongolia in the context of countering climate change. Next, the study explores the geopolitical relationship, the complementarity of energy supply and technology transfer, and the demand for sustainable development in both countries, all of which have important impacts on China–Mongolia collaboration on climate governance at the national level. This study evaluates the roles of China and Mongolia on the international stage in dealing with climate change. The study also analyzes each country's motivations for participating in global climate governance and discusses the impact of the Paris Agreement on climate governance cooperation between the two countries. Finally, based on these analysis and discussion, the driving factors to the China–Mongolia collaboration on dealing with climate change under the sustainable development frame-work of the BRI are identified. Furthermore, the feasibility of China–Mongolia collabo-ration on tackling climate change under the BRI framework is explored in terms of aspects of technology, investment and policy. The framework of the study is shown in Figure 2.

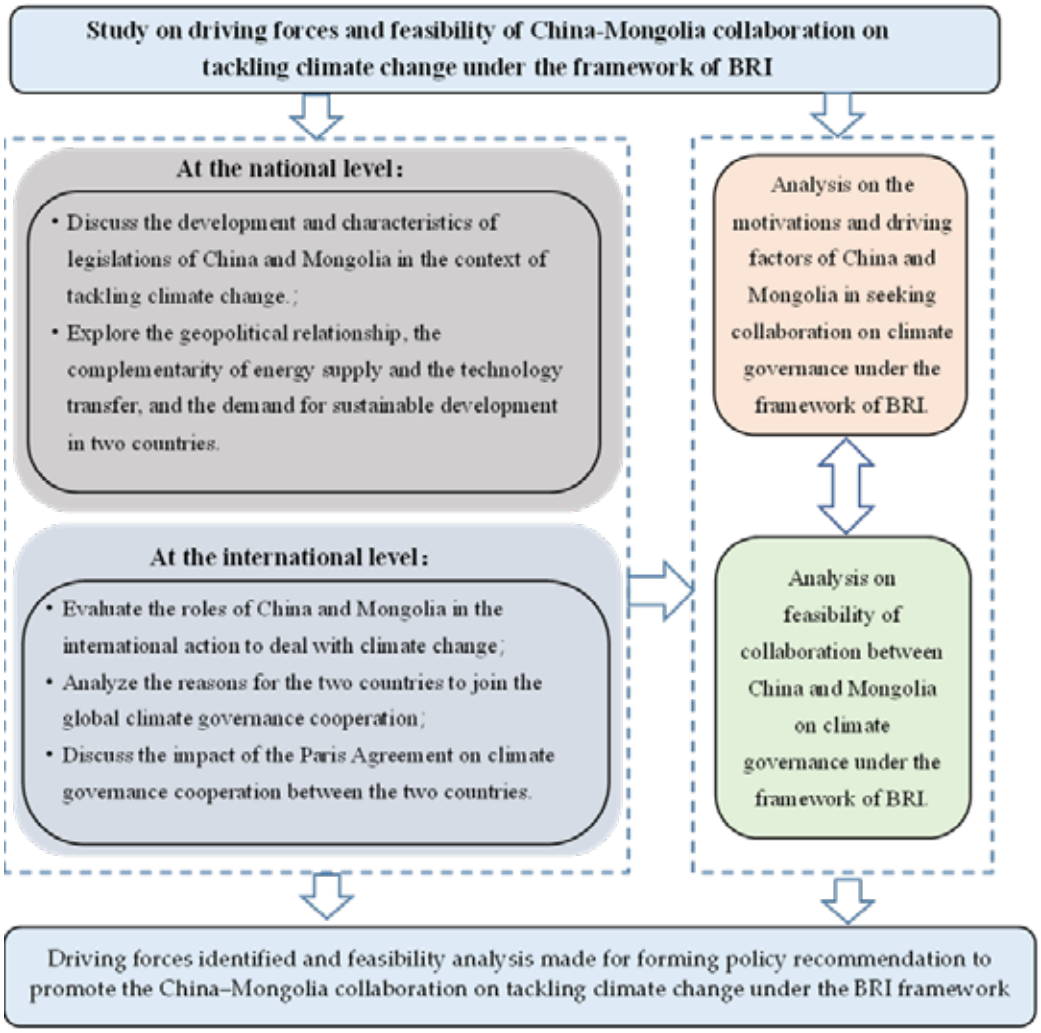

Fig. 2 Framework of study

3. Results and Discussion

3.1. Development of Legislation on Climate Change Mitigation in China and Mongolia

The development of Chinese legislation on climate change can be divided into three stages.

The first stage encompasses the 1990s, and during this period, China gradually shifted its focus to global climate governance. In 1990, The Environmental Protection Committee of The State Council of China issued the country's first document with legal enforcement mechanisms: "China's Principled Position on Global Environmental Issues" (The State Council of China, 2010). This document included several important principles, such as (1) giving equal weight to environmental and economic

development in terms of promoting sustainable development; (2) adhering to the principle of "common but differentiated responsibilities" in global climate change negotiations; and (3) addressing the rights and interests of developing countries and strengthening their roles in dealing with global environmental problems. After the United Nations Conference on Environment and Development was held in 1992, the Chinese central government issued "China's Agenda 21—White Paper on Population, Environment, and Development in the 21st Century" in March 1994 (The State Council Information Office of China, 2000). This paper announced China's overall strategy of sustainable development, which is based on the specific national conditions of the population as well as environmental and social-economic development.

In 2003, during the second stage of legislation, an important policy titled "China's Program of Action for Sustainable Development in the Early 21st Century" (The State Council of China, 2003) was issued. This policy further supported China's sustainable development. Moreover, "China's National Program to Climate Change" was issued in 2007, and it was the first national program designed to tackle climate change. It was also the first policy to address developing countries' contribution to climate change (The Central Government of China, 2007). In accordance with this policy, China carried out low-carbon initiatives in several pilot cities and provinces to explore possibilities for low-carbon development. In November 2009, China announced clear national targets for cutting greenhouse gas (GHG) emissions for the first time. This was a milestone in China's plan to tackle climate change as a part of national strategic development (The State Council of China, 2009). From 2009–2012, China made important contributions to South–South cooperation at the United Nations Climate Change Conference in Copenhagen in 2009 and in Doha in 2012.

Since 2012, which marks the beginning of the third stage, China gradually began emerging as a leader and has been actively participating in international initiatives to counter climate change. In particular, since the BRI was put forward in 2013, China has continuously promoted bilateral and multilateral collaboration on the issues of environmental protection, biodiversity conservation, and climate change mitigation. China has actively participated in the activities of the "The 2030 Agenda for Sustainable Development" and the Paris Agreement. China has described its role as "actively guiding international cooperation on climate change to become an important participant, contributor, and leader in the construction of a global ecological civilization." (Cong and Wang, 2021). In 2013, China issued its first National Climate Change Adaptation Strategy. In March 2021, China formally announced the goal of achieving carbon dioxide peaking by 2030 and carbon neutrality by 2060 (Xi, 2021). China also put forward an action plan for achieving the goals of the Paris Agreement (The Central Government of China, 2021). In June 2022, China issued the National Strategy for Adaptation to Climate Change 2035 (The Central Government of China, 2022), which laid out an overall plan with clear objectives for climate adaptation

from 2022 to 2035.

Mongolia's resource-dependent economic development model has placed enormous pressure on the country's environmental governance. Facing the impacts of climate change and environmental deterioration, Mongolia has enacted a series of policies in recent years to facilitate the transformation of its resource-dependent economy into a green, low-carbon economy. Some significant and representative policies are presented below.

In 2011, Mongolia issued the National Action Plan of Climate Change to ensure ecological and environmental protection. With the goal of promoting green growth, this plan was designed to adapt to climate change, mitigate its effects, reduce GHG emissions, and enhance energy efficiency (The Central Government of China, 2011).

In 2012, the Mongolian Parliament passed the Air Quality Law to strengthen environmental governance for tackling climate change and reducing ecological damage at the national level (The Mongolian Parliament, 2012).

In 2014, with the support of the Ministry of Environmental Protection and the Ministry of Tourism, the Mongolian Parliament approved the National Green Development Policy, which emphasized the effective use of natural resources, the reduction of GHG emissions, and the promotion of clean consumption and production through the development of science and technology (The Mongolian Parliament, 2014).

In 2016, the Mongolian Parliament approved Mongolia's Sustainable Development Vision 2030, which aimed to improve the effectiveness of policy implementation within the framework of SDGs. One chapter of the Sustainable Development Vision 2030 discusses climate change and presents a plan for enhancing the country's capacity to systematically deal with climate change, reduce meteorological and natural disaster risks, and adopt low-carbon technologies to reduce carbon dioxide emissions from production and consumption processes. More importantly, it established the national target of cutting GHG emissions by 22.7% by 2030 (The Mongolian Parliament, 2016).

At the Glasgow Global Climate Summit in 2021, Mongolia announced that it would change its national GHG emission reduction target to 27.2% and introduce advanced technologies and green investment (The Government of Mongolia, 2021).

3.2 Driving Factors behind China–Mongolia Collaboration on Tackling Climate Change

3.2.1. Driving Factors at the National Level

According to the report titled "Climate Risk Country Profile: Mongolia" issued by the Asian Development Bank in 2021, the average annual temperature in Mongolia increased by more than 2℃ from 1940 to 2015, which is twice the global average increase. Moreover, 76.9% of Mongolia's land area has been in the status of

desertification, partly due to warmer temperatures (The Asian Development Bank, 2021). Extreme weather events (e.g., sandstorms and droughts) occur more frequently, which has negatively affected Mongolia's social-economic development. "Mongolia is one of the countries most affected by global climate change, and the incidence of climate-related natural disasters, especially sandstorms, is on the rise," said Enkhbat, director of the Climate Change Department at the Ministry of Natural Environment and Tourism, Mongolia (Xinhua News Agency, 2021). China and Mongolia share a 4,677 km border and similar ecological and climatic conditions; they also face common environmental challenges, such as land degradation, desertification, and loss of biodiversity. Taking land desertification as an example, two strong sandstorms occurred in China in 2021. Among them, the sandstorm from March 14–16, 2021, was the strongest sandstorm in China in 10 years. The sandstorm mainly originated in Mongolia, and it not only caused casualties but also greatly impacted local economic development and people's lives in Inner Mongolia, China (The Central Meteorological Observatory of China, 2021).

China and Mongolia share common interests regarding environmental and climate governance. First, the development of the energy industry in Mongolia is highly relevant to China. Mongolia is rich in energy resources, and its economic development mainly depends on exporting resources. In recent years, Mongolia's energy exports—especially coal exports—have constituted a large portion of its foreign trade. However, Mongolia's ecologic systems and environment are suffering from the use of old mining technology and infrastructure. Mongolia has attracted foreign investment and introduced new technologies in recent years in an effort to find a balance between rapid economic growth and sustainable development in the energy sector. China also requires a huge energy supply to fuel its rapid economic growth. For instance, China relies heavily on imports of crude oil and coal products After most Australian companies withdrew from the Chinese coal market, Mongolia became a major coal supplier to China, with exports to China accounting for more than 90% of Mongolia's coal exports in recent years (China Coal Resources Network, 2021). Strengthening collaboration on electricity and renewable energy supply has become an important topic in the China–Mongolia strategic partnership since the BRI was formed in 2013. With the implementation of the BRI and the enactment of the Grassland Development Road by Mongolia in November 2014, China and Mongolia have successfully cooperated on several energy projects. For example, the Xibo Aobao Coal and Power Transmission Integration Project, which was approved by the two countries in 2015, is the first phase of the China–Mongolia power grid interconnection project. With following phases project have been completed in recent years, this project has provided significant benefits for two countries. Bilateral collaboration in the field of energy can support Mongolia's economic growth. More importantly, this kind of collaboration can enhance the transformation of the energy industry in both countries by introducing

and upgrading new technologies and investments. In particular, clean energy technology and renewable energy–as a core facet of China–Mongolia collaboration in the energy sector–can be advanced significantly under the BRI.

The China–Mongolia–Russia Economic Corridor is another important program that provides China and Mongolia with opportunities for promoting sustainable development. The China–Mongolia–Russia Economic Corridor (The Belt and Road Forum for International Cooperation, 2021), which was established in 2015, is a multi-party profitable cooperation program formed based on the three countries' unique geographical relations, trade, and resource complementarity under the BRI framework. China and Mongolia's main goals for this program are to promote green transformation; upgrade the level of regional ecological and economic integration; enhance the coordinated regional development of the economy and environment; and jointly deal with climate change in the context of sustainable development. In June 2020, the Ecological Security and Countermeasure Research Project of the China–Mongolia–Russia Economic Corridor was formally initiated. It is funded by the Belt and Road International Alliance of Scientific Organizations, and participants plan to carry out ecological monitoring and a security assessment of the China–Mongolia–Russia Economic Corridor, with the goal of providing a scientific basis for sustainable development and ecological security issues (Alliance of International Science Organizations, 2020). Indeed, the China–Mongolia–Russia Economic Corridor program will successfully demonstrate the benefits of regional economic development and environmentally sustainable development, in turn dispelling some countries' concerns regarding the negative environmental externalities caused by collaboration projects between China and Mongolia. It will also attract more participants to join the China–Mongolia–Russia Economic Corridor program under the framework of the BRI.

To solve environmental problems and mitigate climate change, both China and Mongolia seek to develop bilateral collaboration on environmental and climate governance under the BRI framework. China has the advantages of technology, capital and human resources, and extensive experience in tackling climate change. China can provide technical and financial support to Mongolia in its effort to promote green, low-carbon development domestically. Simultaneously, to meet its own sustainable development needs, Mongolia hopes to benefit from China's advantages in climate governance by pursuing bilateral collaboration on such projects as establishing an early climate warning and monitoring system. Furthermore, both countries share the core interests of dealing with environmental degradation and climate change; these shared interests will continue to push forward China–Mongolia collaboration on environmental and climate governance.

3.2.2. Driving Forces at the International Level

As per the Paris Agreement, all countries are committed to formulating and implementing national targets to reduce GHG emissions. Mongolia has committed to reducing GHG emissions by 22.7% by 2030 compared to 1990 levels. In December 2021, Mongolia further announced that it would raise its reduction target to 27.2% and seek to introduce and develop advanced technologies and green investment (The Mongolian Parliament, 2016). In recent years, Mongolia has been attempting to promote its energy transformation to a green and clean energy system through utilizing more renewable energy resources, and the country also sees renewable energy development as a key measure for engaging in global action on mitigating climate change and achieving the targets of cutting GHG emissions under the Paris Agreement. According to the Mongolia Renewables Readiness Assessment issued by the International Renewable Energy Agency (IRENA) (The International Renewable Energy Agency, 2016), Mongolia has about 2.6 TW of renewable energy reserves, and its generational capacity for wind and solar power can reach 15,000 TWH per year, which could cover China's current annual electricity demand. Mongolia has promoted the development of renewable energy for over 10 years. It has incorporated a clear development target for renewable energy into the national development strategy of Mongolia's Concept of Sustainable Development 2030. This development path seeks to increase the proportion of renewables in the total energy supply to 30% by 2030. In addition, Mongolia's use of renewable energy is not limited to its domestic energy supply but also extends to the regional energy supply, including the Asian Super Grid project for exporting clean energy to regional countries, which aims to promote the optimization of the energy industry and the sustainable development of Mongolia.

Mongolia is facing three main difficulties in the development of its renewable energy capacity: (1) Mongolia's energy industry infrastructure is weak, and its technology is outdated. Furthermore, Mongolia has insufficient experience with renewable energy exploitation and utilization. (2) There is a lack of investment both by the government and enterprises in supporting the development of the renewable energy industry. (3) Existing policies and regulations are incomplete, and as a result, Mongolia lacks the capacity to develop renewables. However, collaborating with China in the energy sector under the BRI framework could provide Mongolia with methods for overcoming these three difficulties. First, China currently ranks first in the world in terms of cumulative installed capacity of renewable energy. China has extensive experience in directing overseas energy projects, which is complementary to Mongolia's vast potential in renewable energy development. For example, since the BRI was put forward, Chinese companies have invested in renewable energy projects in BRI countries, creating nearly 12.6 GW of power generation capacity. From 2014–2018, Chinese companies invested in and constructed about 1,709 MW of wind and solar power projects in 64 BRI

countries, demonstrating the ability of the BRI to promote energy development in host countries (Greenpeace, 2019). Second, renewable energy projects can obtain access to abundant financing sources under the BRI framework, including the financial sources of the Export–Import Bank of China, the China Development Bank (CDB), the Asian Infrastructure Investment Bank (AIIB), the Asian Development Bank, and the Silk Road Fund. Third, climate governance is an important part of China–Mongolia strategic collaboration. Both countries have a positive attitude toward bilateral collaboration on energy development. For instance, China and Mongolia have already made a significant progress on building the transnational power supply in coal power projects, which has created a strong foundation for collaboration between the two countries in developing renewable energy projects.

From an international perspective, the Paris Agreement provides not only the most important driving factor for China–Mongolia collaboration on climate governance but also huge potential resources of carbon emissions reduction credits for China. As the international community has gradually recognized China's role as the leader of global climate governance, some scholars have noted that China's status is consistent with "other developed parties" outlined in Article 9 of the Paris Agreement. This reflects the international community's recognition of China's ability to export technology and provide financial assistance to other countries for climate change mitigation and adaptation (Aomin, 2012). In the Paris Agreement, many modifications and updates have been made to the traditional performance mechanisms formed in previous agreements on global action to tackle climate change: this has increased China's responsibilities regarding GHG emission reduction. For instance, China announced the national goals of achieving carbon dioxide peaking by 2030 and carbon neutrality by 2060 in 2020. Moreover, the Paris Agreement also grants China more opportunities and conditions for fulfilling its responsibilities. In particular, Article 6 of the Paris Agreement was just drafted at COP26 at the end of 2021 in Glasgow, aims to catalyze collaboration on global climate governance with a focus on the international carbon market. For countries that find it difficult or costly to reduce their greenhouse gas emissions can purchase carbon-reduction credits from countries that have already cut more emissions than they have promised. According to Article 6 of the Paris Agreement, it means that the emission reduction mechanism under the UN framework (i.e. Clean Development Mechanism) will take on a new look, and the global emission reduction developers (e.g. forest carbon sink developers, green energy solution providers) can benefit more from this. At the same time, climate adaptation projects are also expected to gain certain market share if global climate change gets worse. In this way, Article 6 of the Paris Agreement marks the formal beginning of the implementation phase of new international climate governance collaboration. Article 6 includes three collaborative GHG emissions reduction mechanisms that provide new possibilities for China to fulfill its commitment under the Paris Agreement. These three collaboration mechanisms are (1) the

Collaboration Approach Mechanism of Article 6.2, (2) the Carbon Credit Mechanism of Article 6.4, and (3) the Non-Market Mechanism of Article 6.8. These three mechanisms can provide a new approach for China to fulfill its responsibilities under the Paris Agreement. Among them, Article 6.2 clearly defines Internationally Transferred Mitigation Outcomes (ITMOs) and allows relevant parties to ITMOs to achieve their national mitigation targets. Article 6.4 proposes to establish a new international carbon trading mechanism according to which the designated organizations will manage all parties' carbon emissions reduction credits obtained by implementing project emission reduction projects. These mechanisms would substitute the clean development mechanism. Article 6.8 offers a non-market measure to enable a host country to accept the assistance of technologies and funds from a contracting party with the aim of promoting sustainable development (The United Nations Framework Convention on Climate Change, 2021).

Accordingly, existing collaboration between China and Mongolia under the BRI framework includes many infrastructure, traditional energy, and renewable energy projects. These projects have considerable potential for achieving energy conservation and emissions reductions. If such a collaborative approach to encouraging technology transfers and investment between the two countries can be properly designed and operated, and also can compliance with regulations of mechanisms under Article 6 of the Paris Agreement, then carbon emissions reduction credits generated by China–Mongolia collaboration projects can be considered in China's action of fulfilling its commitment under the Paris Agreement, which would be an effective way for China not only to achieve sustainable development under the BRI framework but also fulfill its international responsibilities under the Paris Agreement.

3.3 Feasibility of China–Mongolia Collaboration on Tackling Climate Change

3.3.1 Feasibility of Technology

Mongolia possesses rich energy resources, including renewable energy resources. For instance, its proven reserve of coal is about 162 billion tons, and its reserve of oil is about 1.5 billion barrels (The International Energy Agency, 2020). As of 2020, the country's installed power capacity of renewable energy from wind and solar power was 277 MW, accounting for 18.8% of the country's total installed power capacity. Its total installed capacity for renewable energy is far behind the capacity of 2.6 TW calculated by the International Renewable Energy Agency (IRENA), and Mongolia still has considerable potential for future development (The International Energy Agency, 2021; The International Renewable Energy Agency, 2021). However, Mongolia has technical bottlenecks in energy resource exploitation and processing, renewable energy utilization, large-scale power grid construction, and power

transmission. These bottlenecks have not only resulted in a relatively simple economic structure and the insufficient development of renewable energy but have also caused huge environmental problems and negative climate change impacts. Unlike Mongolia, China has strong technical advantages in traditional energy exploitation and processing as well as renewable energy utilization. First, China has a leading international advantage in the technology of coal-fired power generation, which can help Mongolia transition to cleaner energy and more renewables. For example, China has built the world's largest clean coal power supply system, and the thermal efficiency and standard coal consumption of coal-fired units are the best in the world. China's emission control standards for PM, SO2, NOX, and other air pollutants from coal power units are stricter than those in most developed countries (The National Energy Administration, 2019). Second, China has the advantage of exporting its renewable energy technology. Between 2014 and 2018, Chinese companies invested in wind and solar power generation projects with a capacity of 12.04 GW in 64 BRI countries. Chinese renewable technology and equipment have been used in more than 80% of these projects. It is estimated that the potential capacity of the wind and solar power generation projects that China plans to undertake in BRI countries could reach 235.41 GW–706.24 GW by 2030 (Greenpeace, 2021). Third, China has sufficient technology and experience in building power infrastructure, smart grids, and large-scale, long-distance electricity transmission; therefore, China can work with Mongolia to improve renewable energy exploitation, processing, and utilization.

3.3.2 Feasibility of Investment

According to China Investment Tracker, the renewable energy industry became the focus of China's investment in BRI countries from 2013–2020 (Zhu and Yang, 2021). Although China's total investment in BRI countries decreased by 54% from 2019 to 2020, the proportion of investment in renewable energy to total investment increased from 38% in 2019 to 57% in 2020 (Wang, 2021). Several of the financial institutions that supported investment in renewable energy projects are listed below:

First are Chinese policy-based financial institutions, such as the CDB and the Export–Import Bank of China. The CDB supports energy projects in BRI countries through traditional investment. Additionally, the CDB directly invests in clean energy projects in BRI countries through financial firms controlled by the CDB and funds managed by the CDB. As the largest investor, the CDB has supported 13 clean energy power projects in five BRI countries since 2015 (Xu et al., 2019). Another important participant is the Export–Import Bank of China, which provides substantial financing support for environmental protection and renewable energy development projects in BRI countries.

Second are commercial banks, such as the Industrial and Commercial Bank of China (ICBC). The ICBC issued the

world's first Green Belt and Road regular cooperation bond equivalent to $2.15 billion in April 2017. In May 2017, the ICBC established a regular cooperation mechanism among banks in BRI countries. Up to now, the mechanism has attracted more than 80 financial institutions from 45 countries and regions. In November 2017, the ICBC established the Green Bond Framework, which is the first framework to meet current international and domestic green bond standards (The Industrial and Commercial Bank of China, 2017). In June 2018, the London branch of the ICBC issued a bond equivalent to $1.58 billion to support green growth projects, such as green transportation and onshore and offshore wind farm projects in BRI countries (Yuan and Fu, 2019).

Third are funds and multilateral development finance institutions, such as the Silk Road Fund and the AIIB. In November 2014, China announced a plan to invest 40 billion yuan to establish the Silk Road Fund, mainly focusing on infrastructure and energy development projects (The State Council Information Office, 2014). The AIIB has invested $2.705 billion in 13 energy projects in BRI countries since April 2019, accounting for about 34% of the number of energy projects and the financing amount (Xu et al., 2019). Indeed, sufficient financial resources are available for supporting China–Mongolia renewable energy projects under the BRI framework.

3.3.3 Feasibility of Policy

First, in the Medium- and Long-Term Development Outline of the China–Mongolia Strategic Partnership established by China and Mongolia in 2013, it is clearly stated that collaboration on tackling climate change and energy development are the core focus of the China–Mongolia Strategic Partnership (Xinhua News Agency, 2013). In 2014, China and Mongolia established a comprehensive strategic partnership. Both countries demonstrated a positive attitude toward bilateral collaboration in various fields, including climate and environmental governance. Second, China and Mongolia share similar interests in policy design and implementation, with the goals of promoting sustainable development and creating a stable basis for China–Mongolia collaboration on climate governance. For instance, China has emphasized that climate and environmental governance and green growth are key gorals under the BRI framework. China has also stated that fulfilling its responsibility under the Paris Agreement is a core component of collaboration between China and Mongolia under the BRI framework (The National Development and Reform Commission of China, 2021). In recent years, Mongolia has been promoting sustainable development as part of its national development strategy. It has issued a series of policies to enhance climate and environmental governance by using a green growth approach and prioritizing energy transformation. In April 2022, the prime minister of Mongolia gave a speech at the Mongolian Economic Forum; he pointed out that multilateral collaboration on green finance needed to be strengthened to support climate change mitigation, prevent

environmental degradation, and improve energy conservation. He also stated that more policies will be enacted to encourage international collaboration in the fields of carbon reduction, environmental protection, and renewable energy (The Business Council of Mongolia, 2022).

4. Conclusions and Policy Implications

Although both China and Mongolia are developing countries, they have different reasons for participating in efforts to mitigate climate change due to their own national conditions and development targets. Mongolia and China share common interests in dealing with environmental degradation and climate change mainly due to their special geographical relationship, resource complementarity, and common targets of sustainable development. As a major carbon emitter and a representative of developing countries, China's core focus is promoting green growth in the BRI region in order to address environmental and climate challenges in collaboration with other BRI countries. Mongolia, as an important BRI participant and a typical developing country, hopes to safeguard its interests in regard to tackling climate change, enhancing its energy transformation, and promoting low-carbon sustainable development by utilizing international resources. Considering that China and Mongolia are actively seeking to collaborate on environmental and climate governance, BRI programs provide great opportunities for the two countries to develop their bilateral collaboration for tackling climate change, which is in line with both countries' sustainable development interests. Mongolia can use this collaboration to support its green growth and sustainable development by importing advanced technologies and obtaining green capital from China. The effect of collaboration between the two countries can be further amplified by the Paris Agreement. China and Mongolia are parties to the Paris Agreement, and the two countries need to fulfill their commitments to the international community. With the help of China's technology and investment, Mongolia's energy transformation, renewable energy development, and climate change mitigation and adaptation can be effectively accelerated. For China, collaborating with Mongolia will not only help to promote green development in the BRI region but will also increase China's international recognition in global climate governance. Further, in accordance with the new mechanisms of the Paris Agreement (i.e., Article 6 of the Paris Agreement), collaboration with Mongolia can also provide China with huge potential overseas resources of carbon emissions reduction credits for fulfilling its commitment.

According to the outcomes of study, at present, all the necessary conditions have been met to facilitate collaboration between China and Mongolia to deal with climate change via technology transfers and financial and policy support. In order to promote collaboration, policy recommendations can be provided as follows:

China should further strengthen its policy of supporting green growth projects in the BRI region, improve the

green financial system, guide capital (including the private capital) to the field of sustainable development, and establish a comprehensive green development evaluation system for assessing the results of project implementation.

China should move quickly to negotiate with Mongolia on how to build the mechanism of China–Mongolia collaboration on climate change mitigation and adaption because this is an important preparatory step for implementing Article 6 of the Paris Agreement. China should make every effort to identify overseas resources of emission reduction credits for getting the initiative in fulfilling the commitment of carbon reduction when Article 6 of the Paris Agreement comes into effect. To achieve this goal, carbon credit trading needs to be considered during the process of formulating the relevant collaboration projects.

Additionally, to enhance China's international recognition in the overseas reduction efforts is necessary. For example, international green development evaluation standards should be introduced to China–Mongolia collaboration projects, and a transparent communication and information exchange system with the international community should be built.

Finally, considering the challenges of adaptation are rising rapidly in recent years, both China and Mongolia need to address climate adaption in their long-term collaboration under the framework of BRI. Both countries can enhance the bilateral collaborate in technology research and development, infrastructure construction, investment, and capacity building at national and international levels for achieving goals of climate adaption.

Furthermore, the study offers a new perspective to explore the collaboration on dealing with climate change between specific BRI countries and China under the BRI framework, and provides a basis and support to develop the theory of sustainable development and strength the practical action framework of BRI between China and other countries.

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Declarations

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