

Research on the Construction of an International Carbon Trading Market based on the "Belt and Road" Initiative

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Abstract

In 2021, extreme weather events caused by global warming will occur frequently, bringing huge disasters to people. Therefore, it is imperative to maintain climate security and promote industrial development, energy conservation and carbon reduction. Relying on the existing carbon trading mechanism in the world, this paper studies the four dimensions of strengths, weaknesses, opportunities and threats that affect the establishment of the international carbon trading market through the SWOT analysis of China's carbon trading strategy management in the international carbon trading market based on the "Belt and Road" initiative. It is concluded that the construction path of the international carbon trading market based on the "Belt and Road" initiative should adhere to the premise of fully understanding the principle of the carbon trading market, actively learn from the carbon trading system at home and abroad, and make a reasonable analysis of the object and scope of carbon trading. Scientifically formulate the distribution method of carbon trading volume. Through a reasonable analysis of the differences among countries along the route, overall planning is carried out, and finally a new international carbon trading scheme tailored to national conditions is formulated. In this process, China will play an exemplary leading role in the construction of carbon trading in the "Belt and Road", and provide strong momentum for the construction of the international carbon trading market.

Keywords

Green Belt and Road; International Carbon Trading; Carbon Trading in China; SWOT; Green Finance.

1. Introduction

In 2021, millions of people around the world will be hit double whammy by extreme weather caused by global warming and the COVID-19 pandemic. These changes have had a profound impact on economic and social development. Therefore, energy saving and carbon reduction are necessary measures in line with the international and domestic development trends. From the policy-driven perspective, many countries around the world promote the realization of "carbon neutrality" through the promulgation of policies or legislation. The European Union reached a provisional agreement on the European Climate Law on April 21, 2021, and the commitment to achieve carbon neutrality by 2050 will be written into law. The United States rejoined the Paris Agreement in February 2021 and committed to be carbon neutral by 2050, while the INTERNATIONAL Monetary Fund put its economy on a greener path by investing in green and resilient public infrastructure. China has also set two goals of "peaking carbon emissions" by 2030 and "carbon neutral" by 2060, which will be integrated into the overall layout of ecological progress. The establishment of the dual carbon target is conducive to implementing the concept of harmonious coexistence between man and nature, unswervingly taking the road of high-quality development that gives priority to ecology, green and low-carbon, and safeguarding global climate security.

The Goal of the Belt and Road Initiative is to build a community of shared interests, shared future and shared responsibilities featuring political mutual trust, economic integration and cultural inclusiveness, where high-quality production capacity can be shared, investment projects can be discussed, infrastructure can be built, and outcomes of cooperation can be shared. Countries along the Belt and Road will share the dividends of China's reform and development as well as its development experience and lessons, and establish stable and friendly partnerships. Under the vision of carbon neutrality, countries along the Belt and Road are undergoing the largest green and low-carbon transformation in history, with a transition in energy investment structure and an increasing demand for cooperation on green production capacity, green capital and green trade. This brings new challenges and major opportunities for the establishment of an international carbon market.

The innovation and marginal contribution of this paper are as follows:

- (1) Analyze the correlation between the Belt and Road Initiative and carbon trading from the perspective of principle, and put forward the theoretical basis for the Belt and Road Initiative to promote carbon neutrality.
- (2) The SWOT model is used to investigate the strengths, weaknesses, opportunities and threats of the strategic management of China's carbon trading in the belt and Road Initiative, and analyze the feasibility of establishing an international carbon market.
- (3) The construction path of the international carbon trading market of the "Belt and Road" initiative should adhere to the existing carbon trading mechanism, make overall planning in countries along the belt and Road, allocate carbon trading volume scientifically and rationally and formulate strategies tailored to national conditions, give play to The leading role of China in the construction of the carbon trading of the "Belt and Road" initiative, and promote the construction of the international carbon market.

2. Theoretical Basis

Carbon emission right is the right to emit greenhouse gases into the atmosphere by means of legal system for the purpose of survival and development. Carbon emission trading (hereinafter referred to as carbon trading) has increasingly become an important mechanism to promote environmental protection by using market economy. The research on the existing international carbon trading mechanism and the existing achievements will provide reference for the construction of the international carbon trading market based on the "Belt and Road" initiative.

2.1. Mechanism of Carbon Trading Market

Carbon trading is a new type of financial trading system with CO₂ equivalent as trading unit, which can effectively connect emission reduction tasks. The government should allocate the carbon emission right to enterprises in a certain way and in principle, and enterprises will trade their own carbon emission demand according to the national carbon emission standard limit, so as to realize the optimal allocation of resources. When the carbon emission reduction amount obtained by each enterprise in the production process is more than its actual emissions, it is the "surplus" state, and the enterprise can sell the excess part of its quota in the carbon trading market. On the contrary, when it is in a "shortage" state, the enterprise needs to buy its insufficient part in the market. To promote and use this new "commodity", it is necessary to fully recognize the mechanism of carbon trading market, build a perfect market trading mechanism, so as to create favorable conditions for the realization of the "dual carbon" goal, and promote it to the practice of countries along the "One Belt and One Road".

2.2. Research Status at Home and Abroad

The research on carbon emissions abroad started earlier and is relatively mature. Pigou, a British economist, advocated the adoption of taxes and fees to control carbon emissions by

alleviating its externalities. Economist zekos suggested adopting market mechanism to reduce carbon emissions in a laissez faire way. Sorre believes that defining property rights is the key to reducing carbon emissions. In China, scholar Yang Hongqiang believes that in order to occupy a place in international negotiations, China should actively promote and improve China's carbon trading system and build China's carbon trading market. Xiao Zhiming believes that low-cost market transactions are greater than the direct control of the government, and the combination of market mechanism and government control can be adopted.

Foreign research theory and practice has become mature, but China's carbon trading research is relatively scarce. At present, it is urgent to establish a perfect carbon trading mechanism in China's carbon trading market. Therefore, based on China's current development situation, we should actively learn from foreign experience to build a carbon trading mechanism with Chinese characteristics.

2.3. Applicability Analysis of International Carbon Trading Mechanism

From the perspective of the international carbon trading mechanism, the "Kyoto Protocol" has three supplementary "flexible mechanisms" to help countries reduce emissions, including the emission trading mechanism, the joint implementation mechanism and the clean development mechanism (CDM). The trade mechanism is the mechanism by which the enterprise operates the enterprise in accordance with the law of production and operation. The joint mechanism is to develop a plan and improve the projects one by one. The Clean Development Mechanism is to establish relationships with developed countries and obtain financial and technical assistance to reduce carbon emissions. The three mechanisms are in line with the carbon emissions relationship between the Belt and Road Initiative and countries around the world in today's situation. Countries along the Belt and Road can establish reasonable corporate carbon trading and formulate carbon plans in line with their national conditions based on the three mechanisms mentioned in the Kyoto Protocol, with companies as the unit. The CDM mechanism also reflects the carbon trade between countries along the Belt and Road, so that the carbon trade between developing countries and developed countries is correct in line with the history of the times and future development.

From the perspective of carbon trading pricing, price changes in the international carbon trading market are affected by domestic and international supply and demand, economic development, policy making and other internal and external factors. There are two main ways to set the price of carbon trading market: fixed price and floating price. Fixed pricing is to set the price of goods, which is less affected by market fluctuations, and also conducive to settlement. Floating price sets base price and floating rate by the country. For the Belt and Road countries, it is more conducive to the development of carbon market by national macro-control and floating price in the early stage of establishing carbon market mechanism. If laissez-faire, enterprises and their employees lack experience, it is not conducive to the establishment of carbon trading. The international community should establish a unified pricing mechanism to guarantee the voice and international status of developing countries in the carbon mechanism.

From the perspective of market structure, the trading structure of the global carbon market has the following characteristics: First, the transaction volume of the quota market is higher than that of the project market. Second, the EUETS is the largest of the emissions trading systems, with trading volumes and volumes far higher than others. Belt and Road countries can establish carbon market mechanisms that suit their national conditions based on existing carbon market structures. It can not only improve its own carbon market mechanism, but also learn from other countries' carbon experience and get help from the international community. Develop allocation market and EUETS to reduce unnecessary wastage.

From the perspective of financial derivatives, at present, the carbon trading market has become the most promising commodity trading market in the world. Its characteristics of financial

derivatives have become a hedging tool for countries along the Belt and Road. With the establishment of carbon trading mechanism, carbon emission has become a new measurement tool.

3. Strategic Management SWOT Analysis of China's Carbon Trading under the Belt and Road Initiative

In order to promote the development of the international carbon market under the Belt and Road initiative, it is necessary to analyze the advantages, disadvantages, opportunities and threats of the carbon trading market promoted by China, so as to investigate the influencing factors of the international carbon trading.

3.1. Strengths

3.1.1. Good International Policy Environment

By the end of 2018, China had signed 170 governmental cooperation documents with 122 countries and 29 international organizations along the Belt and Road, and implemented a series of major cooperation projects. In recent years, Trade between China and countries along the Belt and Road has become increasingly close, with the total volume of imports and exports increasing. Cross-border e-commerce and other new forms and models of trade are developing rapidly. The Silk Road e-commerce has integrated more and more markets of countries along the routes. The Policy foundation of the Belt and Road initiative is conducive to the establishment of an international carbon trading market.

3.1.2. International Customs Clearance Facilitation

A well-developed transportation network is the premise and guarantee for the smooth development of the "Belt and Road" economic and trade cooperation. The development of transportation infrastructure varies among countries along the "Belt and Road". With the innovative development of China's high-speed rail technology, my country has enough technology to support the improvement of transportation infrastructure. It takes 45 days and two weeks for Chinese goods to be transported to Europe by sea and the Trans-Siberian Railway, respectively, but can be reached within 10 days by the new Silk Road. Create the "China-Europe Railway Express" brand and lay a solid foundation for carbon trading cooperation among countries along the route.

3.1.3. China's Pilot Belt and Road Carbon Trading Scheme is Making Steady Progress

Since 2008, the state has continuously promoted carbon trading pilot projects, and gradually launched carbon emission trading pilot projects in Beijing, Tianjin, Shanghai, Chongqing, Guangdong, Hubei and Shenzhen. On December 19, 2017, the National Development and Reform Commission (NDRC) officially announced the launch of a national carbon emissions trading system. The national unified carbon market is now in operation and is expected to surpass the European Union's emissions Trading System (EUETS) to become the world's largest carbon market. At present, Tianjin, Beijing, Shanghai and Shenzhen have set up carbon emission rights exchanges, and established an international trading platform to promote energy conservation and emission reduction through market-oriented means and financial innovation. Proposed to tianjin emissions exchange in 2020 as "area along the" green color development in the field of high-end international think-tank platform for the exchange and cooperation and enrich the varieties of carbon trading carbon market in Beijing, not only including SHEA and CCER, include forestry carbon sequestration projects and deals with the characteristic of city products, etc., to stimulate the participation subject more diversified, Make the market more motivated. Shenzhen launched as the first domestic carbon market, put forward the concept of "green belt" all the way, for the first time by means of carbon trading cooperation, active introduction of southeast Asia, South Asia countries under the CDM project

of certified emission reductions, voluntary emissions reductions, one each for domestic and overseas expansion scale of carbon trading, promote "area All the way "of carbon market development work.

3.1.4. China's Green "Belt and Road" is Integrated into Top-level Design

Building a green Belt and Road is an important part of the top-level design of the Belt and Road. In 2017, the Ministry of Environmental Protection and other four departments jointly issued the Guiding Opinions on Promoting the Green Belt and Road Construction, which clearly emphasized the construction of a green platform, the implementation of green ideas and the completion of pragmatic and efficient ecological and environmental cooperation and exchange system. In 2019, China will again emphasize the importance of green development, and promote green infrastructure, green investment and green finance. The Green Belt and Road initiative has been integrated into the national development strategy and has been going international, which is conducive to providing policy support for carbon trading of the "Belt and Road initiative".

3.1.5. China's Carbon Trading Financial and Development System has been Constantly Improved

China is constantly exploring carbon planning, promoting the development of carbon options and carbon futures towards the international direction, and putting forward the concept of long-term capital. The continuous growth of green bond issuance shows that green finance is a new driving force supporting economic growth and industrial development. China's carbon reduction policy is becoming perfect, covering a wide range, and there are carbon tax, carbon label and other related forms, as well as carbon footprint inventory, a large number of training of energy conservation and emission reduction carbon experts and people to carry out carbon measurement. We will continue to promote the implementation of new energy-related policies and regulations, and conduct carbon credit rating. China is gradually advancing carbon reduction in all aspects, and the products are increasingly abundant, laying a systematic foundation for the establishment of the carbon trading market of the belt and Road initiative.

3.2. Weaknesses

3.2.1. Legal System and Standards are not Unified and Mutually Recognized

At present, belt and Road countries have not developed a scientific and unified risk assessment standard for green finance. The coordination of relevant policies is not strong, the work of strategic deployment is not detailed enough, and the degree of matching of relevant policies is insufficient. Local governments attach too much importance to the development of local economy in a short period of time, and the implementation of green finance is also greatly reduced. Quite a number of financial institutions in this area of business when the lack of rules and regulations to rely on. It is difficult to accurately judge whether enterprises meet the requirements of green finance, which brings difficulties to the development of specific business activities of banks.

3.2.2. Differences among Countries Along the Route

- Economic difference.

The Belt and Road Initiative involves more than 60 countries and 29 international organizations. The countries along the route have problems such as imperfect market economic systems and immature cross-border investment cooperation mechanisms. The differences in economic development among countries lead to the complexity of carbon trading cooperation. The economic growth rate, per capita GDP, and industrial competitiveness of countries along the route vary greatly, and the different degrees of industrialization determine the complexity of carbon trading quotas and demand formulation.

- Differences in clean energy support policies and industry standards.
Since the production cost of clean energy is still higher than that of traditional electricity, countries have different levels of support for clean energy. The laws and regulations, price subsidies, and industry management standards for the clean energy industry in the countries along the “Belt and Road” are quite different from those in China.
- Greenhouse gas emissions vary by country.
The mastery of the GHG emission characteristics and emission reduction positions of countries along the “Belt and Road” is an important reference for the formulation of relevant policies of the “Belt and Road” Green Development Alliance. We select GHG emissions, emission sources, characteristics and types as indicators for analysis. Greenhouse gas emissions in countries along the “Belt and Road” are large and continue to grow, and energy consumption is the main source of emissions. The development of energy-saving production or clean energy will greatly affect the emission reduction efforts along the route; the countries along the route have high total emissions and high per capita emissions. Emissions are separated in space. These two types of countries are the potential and key areas for realizing green economic development along the route. They should and must undertake the task of reducing greenhouse gas emissions significantly in the future: in addition to CO₂, the countries along the “Belt and Road” have more CH₄ emissions than the world. The average level needs to be focused on; most of the countries along the route take the energy industry sector as the main emission source, but agricultural emissions, land use and forest vegetation changes also constitute the main emission sources in countries such as Afghanistan. The demand for carbon trading is also different for different countries in terms of GHG emissions.
- cultural difference.
The establishment of the ancient Silk Road is not only because of the geographical connection between my country and other countries, but also because of the cultural similarity of Asian countries. The formation of the ancient Silk Road has played a role in promoting the circulation of goods and the development of trade. . However, there are still differences between China and countries along the route in terms of political models, religious beliefs, ways of thinking, values, and cultural contexts, which lead to conflicts in the process of economic and trade cooperation. Central Asian countries mainly believe in Islam, while European countries mainly believe in Christianity. my country and other Asian countries tend to have an Eastern way of thinking, while countries located in Europe tend to prefer a Western way of thinking. These are all important factors affecting the carbon trading of the “Belt and Road”.

3.3. Threats

3.3.1. Environmental Vulnerability Risks

The resources and environment of the Silk Road Economic Belt are complex and diverse, and the ecosystem is fragile. The regions along the Silk Road Economic Belt face various major resources and environment risks and challenges of sustainable development. Central Asia, cis (except Central Asia) and West Asia are rich in oil and natural gas reserves. Renewable energy development accounts for a relatively low proportion in the energy structure. At the same time, there are many resource and environmental problems such as land salinization in economic development, and relatively backward infrastructure leads to low resource utilization efficiency. Different countries have different levels of ecological development and environmental problems to solve, which leads to the same needs for green development and adds to the complexity of promoting green Belt and Road development.

3.3.2. The Green Competition of Developed Countries in the "Belt and Road" Region

In recent years, global warming and the deterioration of the ecological environment have gradually become serious, and developed countries have increasingly paid attention to their global voice in the field of green development, and have gradually increased their investment in clean energy in the "Belt and Road" region. For example, the EU continues to increase investment in clean energy in countries such as India. The United States has important geographical interests along the "Belt and Road", and the "Belt and Road" initiative and Russia's Eurasian Economic Union strategy are competitive to a certain extent. The game of great powers will obviously increase the complexity of the "Belt and Road" construction. In advancing the Belt and Road Initiative, China must avoid vicious competition with major powers and strive to expand common interests.

3.3.3. Political and Economic Security Threats

Countries there is domestic political instability and interest representation and conflicts between countries, the need to target the country's political system in China and regional security to conduct a comprehensive inspection, "One Belt And One Road along ethnic and religious relationship is complex, which mingled with the religious extremism and international terrorism and transnational drugs and arms smuggling and other security threats. At the same time, there are also certain economic risks. The financial and economic systems of the cooperation partner countries are unstable and fragile, which are manifested by low foreign exchange reserves, high debt ratios, persistent currency depreciation and poor ability to withstand external economic risks.

3.3.4. Carbon Trading Prices Rise

Countries along the "Belt and Road" have different prices due to different energy abundance, so there are differences in carbon pricing. According to price theory, the supply and demand of the market are the basis for determining commodity prices. Although with the development of economy and science and technology, more industrial enterprises will choose clean energy as fuel in the future, but it is difficult to achieve in the short term. And China's enterprises in the economic upward period will also increase the demand for fossil energy, and industrial production produces more carbon dioxide, the demand for carbon emissions by enterprises increases, so in the case of the supply of carbon emissions in China remains unchanged or decreasing, the increase in demand for carbon trading along the "Belt and Road" will lead to short supply, resulting in an increase in carbon trading prices.

4. The Path of Carbon Trading Mechanism Construction under the "Belt and Road" Initiative

The path for the construction of the carbon trading mechanism under the "Belt and Road" initiative should be based on the premise of fully understanding the working principle of the carbon trading market, make overall planning, establish a new carbon trading system, and reasonably analyze the total amount of objects and scope applicable to carbon trading, and scientifically formulate its allocation method, while playing a leading role in China in the international carbon market. Finally, analyze the differences reasonably and formulate strategies according to national conditions.

4.1. Analysis Conclusion

In order to ensure the smooth establishment and operation of the carbon trading mechanism under the "Belt and Road", we should not only scientifically set the total amount of carbon emissions, but also adopt a carbon emission rights distribution method suitable for the development characteristics of China and the countries along the "Belt and Road" to build a An

international carbon trading mechanism based on the Belt and Road that is suitable for multilateral environmental development.

At the same time, most countries along the Belt and Road are developing countries. Under the current background of green and low-carbon development, it is necessary to strengthen unity and cooperation, complement and mutual benefit, jointly promote the implementation and development of the "the Belt and Road" carbon trading mechanism, drive more social employment, and promote the sustained growth of gross national product under the situation of lack or shortage of capacity, technology, and capital, Realize the double dividends of improving environmental quality and promoting economic development.

4.2. Policy Suggestion

4.2.1. Countries Along the "The Belt and Road" Plan as a Whole and Establish a New International Carbon Trading System

The final conclusion of carbon trading requires the market supply and demand sides to reach an agreement together, and the government can adjust the market by using capital repurchases and subsidies to control the carbon emission quota of the entire market, avoid vicious competition, and minimize the losses of enterprises. Under the background of the "Belt and Road", it is necessary for the governments of various countries along the "Belt and Road" to carry out scientific and reasonable overall planning, establish a new and scientific carbon trading system among the countries along the "Belt and Road", promote the liquidity of the carbon trading market through structural effects, technical effects and allocation effects, and at the same time better adjust and optimize the allocation of carbon resources through market price signals, which can not only control the total amount of carbon emissions, but also achieve better carbon emission reduction effects at a lower social cost. Help countries along the Belt and Road to achieve the goal of green and low-carbon development.

4.2.2. Scientific and Rational Allocation of Carbon Trading Volume in Countries Along the "Belt and Road"

The rationality of the carbon trading volume allocation mechanism directly affects the efficiency of the carbon trading mechanism. Based on the current development status of carbon emission trading in countries along the "Belt and Road", the single free allocation method has limitations, which will make the fairness of the international carbon trading mechanism lack, we should actively learn from the experience of the European Union, adopt a mixed method of free and paid allocation quotas, and promote countries along the route to achieve the optimal state of resource allocation through carbon trading.

4.2.3. Carbon Trading Partner and Scope Determination

The applicable objects of domestic carbon trading mainly include key emission units determined in accordance with the provisions of the State Council's ecological environment authority and the provincial ecological environment authority. tons of carbon dioxide equivalent. Greenhouse gas emission units that meet the conditions will be included in the national list of key greenhouse gas emission units, and the country will allocate carbon emission quotas and participate in trading.

For carbon trading objects based on the "Belt and Road", other special applicable objects should be considered, such as the carbon implicit in the trade of countries along the Belt and Road. Goods in the process of production, due to the energy consumption and intermediate inputs and produce direct and indirect carbon emissions, consumer can adjust the structure of domestic production by foreign trade and overseas production and distribution, to meet domestic consumption demand and target at the same time, the greenhouse gas emissions caused by environmental pollution transferred to the commodity producer and exporter, It's carbon hidden from trade. The carbon embodied in trade varies greatly among different

countries in terms of import and export trade scale, balance, regional structure and industry direction.

4.2.4. Reasonably Analyze the Differences and Formulate Carbon Trading Plans Tailored to National Conditions

In the face of the political, economic, cultural and ecological differences between countries, we should flexibly adjust based on the general international carbon trading system according to the particularity of different countries, so as to expand the scope of application of the carbon trading mechanism under the "the Belt and Road" initiative. For areas with fragile ecological environment, when carbon trading reaches a certain amount, reduce the allocation of carbon trading, so as to take a certain rest on the ecology and buffer the pressure on the ecology. For economically underdeveloped regions, we can adjust the carbon price, so as to promote the mutual benefit and win-win situation of both parties.

4.2.5. Give Play to China's Exemplary Leading Role in the International Carbon Market

1. Accelerate the construction and promote the development of domestic and other research pilots.

Since 2011, China has set up emission trading pilot projects in shenzhen, Beijing, Guangdong, Shanghai, Tianjin, Hubei and Chongqing. After years of development, despite differences in the pilot trading mode, trading scope and operation mechanism, the seven trading systems have maintained a healthy and stable operation in their respective market systems, and their scale has been constantly expanding, and they have accumulated a series of practical experience. At the same time, the experience of the seven pilot studies can also be extended to other countries such as the belt and Road Initiative, laying an important foundation for the construction of the future carbon trading emissions market.

2. Actively learn from and comprehensively utilize the advantages of domestic and foreign carbon trading systems.

Compared with foreign research, the research on carbon trading in China is generally shallow and started late. Some foreign countries have already had preliminary theoretical basis and practical experience in the research of carbon trading. For example, nsw-ggas in Australia has effectively stabilized the price of carbon emission rights in the market through the carbon tax policy. The management of RGGI in the United States on carbon emission prices and price fluctuations within its system is worth learning.

3. Give full play to China's exemplary role in the construction of carbon trading in the "Belt and Road".

The EU and G20 have made remarkable achievements in the construction of multilateral system. When we analyze these two different models, it is not difficult to find that there are two essential factors in the establishment of a successful multilateral framework system mechanism, namely, strong political influence and perfect legal system framework. In the process of promoting the construction of the the Belt and Road carbon emissions trading right, China can set an example and play an exemplary role like the EU. In the process of promoting the construction of the framework system of carbon trading system, China should develop equally and freely with the carbon emission markets of the countries along the line. Only in this way can the interests be intertwined and the political goals be relatively consistent. Countries along the route should also actively promote the construction of legal systems and documents related to carbon emissions trading rights, and establish corresponding legislative, law enforcement and judicial institutions. Only in this way, when carrying out regional coordination of carbon trading, all countries can reach agreement in various fields, form coordinated laws and norms, and can be observed and implemented in all countries.

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