

Potential Analysis on Carrying out Forest Carbon-sink Trade in China

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Abstract: The greenhouse effect is the major cause of global warming, while carbon dioxide is the main component of greenhouse gases. The Kyoto Protocol, which aims at limiting greenhouse gas emissions and protecting the ecological safety, allows developed countries to invest and carry on forest carbon-sink trade in developing countries. After Copenhagen meeting China has the necessity of forest carbon-sink trade from which China could benefit according to the theory of comparative advantage. To improve the potential of forest carbon-sink trade, China should plant forest on a big scale to increase forest coverage and strengthen forest management. On this basis, China has to reduce the cost of forest carbon-sink in order to enhance its trade potential.

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Key words: Forest carbon-sink, Trade potential, Comparative advantage

1. INTRODUCTION

At present, China has become the largest country of the world's carbon dioxide emissions, which caused great harm in China's ecological environment. Meanwhile, the international community calls upon States to control carbon dioxide emissions, protect the ecological environment exert pressure on the China's implementation of reduce carbon dioxide emissions. But China which is among the industrialized can not through the way of reduce energy consumption and sacrifice the speed of economic development to control carbon dioxide emissions. Therefore, develop the trade of forest carbon sinks become the inevitable choice of China to control carbon dioxide emissions. China has great potential to carry out forest carbon trade, so before carrying out forest carbon trade we should analyse its necessity and possibility, also its specific methods of enhance the forest carbon potential.

2. THE NECESSITY OF CARRYING OUT FOREST CARBON SINK IN CHINA

2.1 China Is Confronted With Arduous Task of Reducing Emissions

China, Kyoto Protocol's signatory, makes a commitment to reduce carbon dioxide emissions by 40% -45% per unit of GDP compared with 2005 at the United Nations Climate Change Conference in Copenhagen in 2009. It requires China to achieve 4% emissions reduction program per unit of GDP every year. This commitment is a great challenge, because China is in the extensive economic growth mode. It is necessary to achieve industrial upgrading so that China can achieve emission reductions on the premise of maintaining stable and rapid economic growth. The implementation of forest carbon-sink trade brings in foreign advanced technology and capital which are

beneficial to China's industrial upgrading. Therefore, the study of Chinese trade potential in forest carbon-sink is of great importance for fulfilling the emission reduction task and commitments.

2.2 The Economic Benefits of Forest Carbon-Sink Trade

Reducing carbon dioxide emissions and increasing carbon-sink absorption are two ways to solve the problem of global warming. On one hand, reducing emissions directly, means cutting down energy consumption. But this approach goes against the national economic development. On the other hand, China could improve energy efficiency through technology development. But China does not have the technology research and development capability so far. The trading of forest carbon-sink is a relatively effective way through forest planting and other measures to increase the absorption of atmospheric carbon dioxide to reduce atmospheric concentrations of greenhouse gases. Some studies have shown, the amount of carbon dioxide absorption by forestation and reforestation is much greater than other methods.

Since 2003, China's economy has entered a new period of a high-speed economic development. As the scale of industrial and real estate expand rapidly, energy consumption, especially oil consumption, increase sharply. Trade in forest carbon sink project could expand space of Chinese carbon emissions and economic development. China carries out the forest carbon-sink trade, as a platform to obtain foreign advanced technology and capital. It not only opens up new financing channels for the green business, but also establishes forest ecological benefits of the new market-oriented mechanism. It makes forestry construction develop faster and better, plays an important role in the

national economy, and makes for sustainable development of national economy.

2.3 The Ecological Benefits of Forest Carbon-Sink Trade

Forest planting create an abundant storage and extends carbon-sink resources, while green plants are the backbone of the ecological balance. Plants can produce organic matter and oxygen by photosynthesis, using carbon dioxide in the environment, purify the air pollutants to fresh air. They are of great significance to the ecological environment protection. Meanwhile, green plants have many aspects of long and comprehensive results, such as absorbing carbon dioxide, producing oxygen, absorbing harmful gases, dust adsorption, sterilization, improving the micro-climate, monitoring shock, noise and air pollution. Carry out forest carbon-sink trade promotes Chinese forestry ecological construction and maintain forestry and socio-economic sustainable development by means of forestation and expansion of forest areas, improving land use patterns, increasing the existing forest area, and expanding forest and woodland coverage rate.

3. COMPARATIVE ADVANTAGE THEORY OF FOREST CARBON SINK TRADE POTENTIAL

Comparative advantage theory mainly refers to Ricardo theory of comparative advantage and the Heckscher - Ohlin factor endowments theory. Theory of comparative advantage refers to a country producing and exporting their products which have comparative advantage and importing products which have comparative disadvantage; while another country vice versa, the two countries can benefit from this trade. Factor endowment theory is that a country should export product on the intensive use of the country's relatively abundant and cheap factors ,while import product on intensive use of the country's relatively scarce and expensive factors. In short, labor-rich countries export labor-intensive goods and imports of capital-intensive goods; On the contrary, capital-rich countries export capital-intensive goods and import labor-intensive goods.

3.1 China Has a Comparative Advantage in Absorbing Carbon-Sink

China is the third largest country in area in the world, of which more than two thirds are mountains. It's difficult to cultivate in these areas. It is suitable for carrying out tree planting and forestry management. At the same time, China's current forest coverage rate is less than 25%. Therefore, vigorous forestation will not cost a lot of money. Most sites have been reclaimed in developed countries in excess of 30% reasonable coverage. American forest cover is 33%. Japanese forest cover rate is 66%. They have to reduce other production and construction sites to make further

development, so forest carbon-sink costs higher. However, developed countries possess abundant capital and advanced science and technology, and it's be propitious to the national environment to output.

3.2 Forest Resources Advantage

The forest carbon-sink project in the basic rules require that only, forestation and reforestation projects after 1990 only can be used in carbon-sink project, and calculate the project's carbon storage capacity from 2000. Since the early eighties of the twentieth century, China has been planting forest on a large-scale, so far have reached 50 million hectares, ranking the first in the world. Meanwhile, according to China's Forestry Development Goals, China will add 36.68 million hectares of forest area by 2010, add 50 million hectares by 2050 and make the total area of forest increase 90 million hectares. On the other hand, the young growth trees account for 70% forest area. The forest savings amount per unit area still have a gap between the international level, China have plenty of growth room for forest reserves, its ability to absorb carbon dioxide increases as the area unit rises. Therefore, the cost of carbon dioxide emissions by absorbing forestation, reforestation in forest carbon-sink trade are is lower than other methods and welcomed by the developed countries.

4. THE POLICY SUGGESTION TO IMPROVE CHINESE TRADE POTENTIAL OF FOREST CARBON SINK

4.1 Carrying out Tree Planting Camp on a Big Scale

In order to carry out forest carbon-sink trade and enhance trade potential, it is necessary to launch planting activities and expand forest area. We should maintain the land in the red line while continue in-depth implementing natural forests protection, returning farmland to forest, constructing key projects, such as, coastal forest construction and the "Three Norths" protection forest system. At present, the best areas for forest carbon-sink trade are southern of Yunnan, northwestern, western and southern of Sichuan, and southern of Chongqing northern of Guizhou, western of Guangxi, southern of Hainan, north, central of China and other regions. At the same time, besides area selection, the tree species selection is also very important. The choice of tree species must adhere to some principles: the matching principle, the stability principle and the feasibility principle, that is., the matching principle refers to that the ecological habits of species and planting must be suited to the site conditions; the stability principle refers to that tree stands should be the formation of long-term stability. The feasibility principle refers to that the planting is beneficial to the economy. Forest carbon-sink trade needs to strengthen plantation and construction of

economic forest, which forest growing season is short. Moreover, they meet the economic development of Chinese wood needs and achieve forest carbon-sink absorption amount effectively.

4.2 Strengthening Forestry Management

There are obvious loopholes against economic development in Chinese forestry management. For example, in some places in recent years, driven by short-term economic interests, one-sided pursuit of economic indicators of growth, large-scale forests have been cut down, making forest cover decreased. At the same time, lack of clarity of forest ownership, forest protection measures may not be implemented. This requires a clear relationship between ownership and property rights system, changes irrational phenomenon in free possession and free use. We should establish efficient mechanisms for resources use and promote resource assets towards work-oriented, market-oriented progress. At the same time, we need to standardize the management of forest rights further, carry out forest right registration certificate actively, clarify clear property rights, establish and improve forest market, promote and standardize the transfer of property rights, protect the interests of forest ownership rights and interests according to law, and make further effort to strengthen forest management, adopt the most stringent measures to protect. We must also build system for occupied forest land and development of examination and approval, and form gradually the new pattern of

forest land of clear positioning purposes, quota management in place, regulatory measures and effective management.

5. CONCLUSION

Using theory of comparative advantage, carrying out forest carbon trading can benefit all parties. China has great potential to carry out forest carbon trade. While through regional and species selection by planting and strengthening forest management efforts and to take measures to enhance forest carbon trade potential, on the one hand which can help to improve our green area, on the other hand it also conducive to the introduction of advanced technology and capital to promote the sustained and healthy development of China's economy.

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