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# Market-based Rural Rejuvenation and Transformation Methods: Application and Lessons of Carbon Market and Trading Certificates

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**Abstract:** This article explores the important role of market-oriented methods in environmental protection and resource utilization, with the theme of market-oriented rural revitalization and transformation methods: the application and inspiration of carbon markets and trading certificates. The article first introduces the background and specific implementation methods of market-oriented environmental protection strategies including the establishment of a carbon market; the Implementation of the trading certificate system; the clarification of market goals and policy support; the establishment a comprehensive market trading mechanism; the introduction of market entities and financial institutions; the Introduction of market entities and financial institutions; the strengthen of scientific and technological innovation and training; the establishment of a linkage mechanism for interest; and the Monitoring and evaluation of market effects. This paper analyzes also the application of carbon markets and trading certificates in rural revitalization, and finally summarizes the inspiration of these market-oriented methods in rural revitalization.

**Keywords:** Market orientation; rural revitalization; carbon market; transaction certificate; environmental protection and resource utilization.

## 1. Research: The application and lesson of the carbon market and trading certificates

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In recent years, market-oriented methods have achieved significant results in environmental protection and resource utilization, such as carbon markets and trading certificates, providing useful references for implementing rural revitalization strategies. This viewpoint was proposed by Stavins, R. N. in a 1998 study. [Stavins, R. N.1998]

Specifically, market-oriented environmental protection strategies establish market mechanisms to make polluters and resource users pay the price for their own actions. For example, the establishment of a carbon market requires companies that emit carbon dioxide to purchase carbon emission rights, thereby stimulating companies to reduce emissions and achieve environmental protection goals. Similarly, the transaction certificate system also encourages enterprises to improve resource utilization efficiency and reduce waste through market mechanisms.

These market-oriented methods have achieved significant results in environmental protection and resource utilization, providing useful references for China's implementation of rural revitalization strategy. In the process of rural revitalization, we can also draw on these market-oriented methods to stimulate rural vitality, promote environmental protection and resource utilization, and achieve the goal of rural revitalization through market mechanisms. The following is the application and lesson of the carbon market and trading certificates in rural rejuvenation:

#### 1.1 Establish a carbon market

The rural revitalization strategy needs to clarify market goals, such as increasing farmers' income and optimizing the agricultural industrial structure. In order to achieve these goals, the government should formulate corresponding policies and measures to guide the healthy and sustainable development of the rural economy.

Firstly, the government should increase investment in agriculture, improve agricultural production efficiency and agricultural product quality. It can be achieved through promoting modern agricultural technology, providing agricultural training, and establishing an agricultural technology support system.

Secondly, the government should support the optimization of agricultural industrial structure, encourage the development of characteristic and green agricultural products, and promote the integration and development of rural industries. This helps to increase farmers' income and enhance the level of rural economic development. In addition, the government also needs to improve rural infrastructure construction and improve the living standards of rural residents. This includes strengthening the construction of rural roads, water conservancy, communication and other infrastructure, improving the living conditions and public service levels of rural residents.

Finally, the government should strengthen the protection of rural ecological environment and improve the quality of rural ecological environment. This can be achieved through measures such as implementing comprehensive improvement of rural environment, increasing ecological compensation efforts, and carrying out publicity and education on rural ecological protection.

In short, by clarifying market goals and formulating corresponding policies and measures, the government can effectively promote the implementation of rural revitalization strategies,

achieve an increase in farmers' income, and optimize the agricultural industrial structure. [Goulder, L. H., & Parry, I. W., 2008]

### 1.2 Implementation of the trading certificate system

The government establishes an environmental protection certificate, water use certificate and other transaction certificates to encourage enterprises to invest in environmental protection projects and use water resources reasonably. Enterprises can achieve emission reduction targets by purchasing certificates, and at the same time get government rewards and support. Specifically, the government formulates relevant policies and regulations to provide legal protection for the establishment and operation of the carbon market.

At the same time, the government also needs to establish specialized funds to provide financial support for the construction of the carbon market. In addition, the government can also encourage enterprises to participate in carbon trading by providing tax incentives and other measures.

In guiding enterprises to participate in carbon trading, the government can enhance their awareness and willingness to participate in the carbon market by conducting promotional and training activities. At the same time, the government can also establish a carbon emission trading platform to provide convenient trading services for enterprises.

By establishing a carbon market, market mechanisms can be fully utilized to promote independent emission reduction by enterprises, providing strong support for the achievement of China's green development goals. [Fischer, C., & Newell, R. G., 2008]

### 1.3 Clarify market goals and policy support

The rural revitalization strategy needs to clarify market goals, such as increasing farmers' income and optimizing the agricultural industrial structure. In order to achieve these goals, the government should formulate corresponding policies and measures to guide the healthy and sustainable development of the rural economy.

1.3.1 The government should increase investment in agriculture, improve agricultural production efficiency and agricultural product quality. This can be achieved through promoting modern agricultural technology, providing agricultural training, and establishing an agricultural technology support system.

1.3.2 The government should support the optimization of agricultural industrial structure, encourage the development of characteristic and green agricultural products, and promote the integration and development of rural industries. This helps to increase farmers' income and enhance the level of rural economic development.

1.3.3 The government also needs to improve rural infrastructure construction and improve the living standards of rural residents. This includes strengthening the construction of rural roads, water conservancy, communication and other infrastructure, improving the living conditions and public service levels of rural residents.

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In short, by clarifying market goals and formulating corresponding policies and measures, the government can effectively promote the implementation of rural revitalization strategies, achieve an increase in farmers' income, and optimize the agricultural industrial structure. [Zhang, 2019]

#### 1.4 Establish a comprehensive market trading mechanism

Rural revitalization is of great significance for establishing a sound market trading mechanism, which includes trading platforms, trading rules, regulatory agencies, and other aspects. This measure helps to ensure market fairness, impartiality, and openness, thereby enhancing the confidence of market participants. (Li Si, Li Xue, Ouyang Yang, 2021).

The improvement of market trading mechanisms plays a crucial role in the process of rural revitalization. A sound market trading mechanism should include the following aspects:

1.4.1. Trading Platform: In order to promote fair trading between the supply and demand sides of agricultural products, a fair, just, and open trading platform should be established. Such a platform can not only improve the efficiency of agricultural product circulation, but also provide more trading opportunities for farmers.

1.4.2. Trading Rules: In order to ensure fairness and impartiality in market transactions, it is necessary to establish a clear set of trading rules, including agricultural product quality standards, trading processes, price formation mechanisms, etc.

1.4.3. Regulatory authorities: Establish specialized regulatory agencies to supervise and manage market transactions, in order to prevent illegal behavior and ensure market fairness and justice.

1.4.4. Laws and regulations: Improve relevant laws and regulations to provide legal protection for market operation.

By establishing such a market trading mechanism, it helps to enhance the confidence of market participants, stimulate their enthusiasm, further promote rural economic development, and achieve the goal of rural revitalization.

#### 1.5 Introduce market entities and financial institutions

The government can improve market vitality and capital utilization efficiency by introducing market entities and financial institutions. For example, in the carbon market, companies can achieve emission reduction goals by purchasing carbon emission rights, while financial institutions can provide services such as carbon emissions trading and carbon asset management [Ellerman, A. D., & Montero, J. P., 2007].

Introducing market entities and financial institutions can help promote market development and optimize resource allocation, specifically manifested in the following aspects:

1.5.1. Introducing market entities: By introducing various types of market entities, market competitiveness can be improved and market vitality can be stimulated. For example, in the carbon market, enterprises, as market entities, can achieve their own emission reduction goals by purchasing carbon emission rights, thereby promoting the development of the entire market.

1.5.2. Introducing financial institutions: Financial institutions can provide various financial services to the market, such as carbon emissions trading, carbon asset management, etc.

These services can help market participants better manage and utilize carbon assets, and improve capital utilization efficiency.

1.5.3. Policy support: The government needs to provide corresponding policy support for market entities and financial institutions, such as formulating carbon emission trading regulations, establishing carbon emission trading markets, etc., to create a good development environment for market entities and financial institutions.

By introducing market entities and financial institutions, the government can improve market vitality and capital utilization efficiency, thereby promoting the healthy development of the market economy.

In areas such as the carbon market, this approach has achieved significant results, helping to achieve the goals of environmental protection and sustainable development. [Ellerman, A. D., & Montero, J. P., 2007]

#### 1.6 Strengthen scientific and technological innovation and training

Rural revitalization requires strengthening technological innovation and talent training, improving farmers' technological literacy and market awareness. The government can establish special funds to support agricultural technological innovation achievements.

At the same time, it will also strengthen farmers' training and improve their awareness and application ability of marketization [Development and Reform Commission, 2018].

In order to achieve rural revitalization and improve the competitiveness of the agricultural industry, the Chinese government has actively taken measures to strengthen scientific and technological innovation and talent cultivation, improve farmers' scientific and technological quality and market awareness. The specific measures are as follows:

1.6.1. Strengthen scientific and technological innovation: The government has established a special fund to support agricultural scientific and technological innovation achievements and encourage agricultural scientific and technological research and application.

Through technological innovation, improve agricultural production efficiency, optimize agricultural industrial structure, and promote green and sustainable development of agriculture.

1.6.2. Improving the technological literacy of farmers: The government strengthens technological training for farmers to improve their technological literacy and application abilities.

By organizing various agricultural technology training courses, farmers can master advanced agricultural production technology and management knowledge, and improve agricultural production efficiency.

1.6.3. Improve farmers' market awareness: The government strengthens the cultivation of farmers' market awareness, enabling them to better understand the laws of market economy and improve their ability to respond in market competition.

In addition, the government should also assist farmers in establishing various types of professional farmers' cooperatives, improve their organizational level, and help them better participate in market competition.

1.6.4. Strengthen policy support: The government has formulated a series of policies to support agricultural technology innovation and farmer training. For example, increasing

support for agricultural technology research and development investment, improving farmers' training system, providing preferential policies such as financial loans and agricultural insurance to farmers, and creating an environment conducive to agricultural development.

By strengthening technological innovation and talent cultivation, improving farmers' technological literacy and market awareness, China's rural revitalization will achieve more significant results and help achieve agricultural and rural modernization. [Development and Reform Commission, 2018]

#### 1.7 Establish a linkage mechanism for interest

Rural revitalization needs to establish a mechanism of interest linkage, closely connecting farmers, enterprises, and the government. For example, in the transaction certificate system, the government can encourage enterprises to invest in environmental protection projects by issuing environmental protection certificates to enterprises; Enterprises can achieve emission reduction targets by purchasing environmental protection certificates, while also receiving government rewards and support [Liang Wenbin and Meng Fanlong, 2017].

In order to achieve rural revitalization, the government needs to take measures to establish interest linkage mechanisms and promote cooperation between farmers, enterprises, and the government, including the following aspects:

1.7.1. Policy guidance: The government formulates relevant policies to guide enterprises and farmers to participate in rural revitalization.

For example, the government can set environmental protection goals, encourage enterprises to invest in environmental protection projects, and provide certain policy support to enterprises by issuing environmental protection certificates.

1.7.2. Establish a transaction certificate system: The government establishes a transaction certificate system to enable enterprises and farmers to form a mutually beneficial and win-win cooperative relationship in achieving environmental protection project investment and emission reduction goals. Enterprises achieve emission reduction goals by purchasing environmental protection certificates, while also receiving government rewards and support; Farmers can benefit from participating in environmental protection projects.

1.7.3. Improve the benefit distribution mechanism: The government improves the benefit distribution mechanism to ensure that farmers, enterprises, and the government can all obtain reasonable benefits in the process of rural revitalization.

For example, the government can establish special funds to support rural revitalization projects, while formulating corresponding fund allocation plans to ensure that farmers and enterprises can share policy dividends.

1.7.4. Strengthen supervision and evaluation: The government strengthens the supervision and evaluation of rural revitalization projects to ensure the smooth implementation of projects and the achievement of goals.

For example, the government can supervise the investment, construction, operation, and other aspects of environmental protection projects to ensure their environmental protection effectiveness; At the same time, the government can evaluate the effectiveness of rural revitalization projects in order to adjust policy measures in a timely manner.

By establishing a mechanism of interest linkage and closely connecting farmers, enterprises, and the government, rural revitalization will achieve more significant results and help achieve agricultural and rural modernization.

#### 1.8 Monitoring and evaluation of market effects

The government needs to establish a sound monitoring and evaluation mechanism, regularly evaluate the implementation effect of market-oriented measures, in order to adjust policies and strategies in a timely manner [Wang Li and Li Xu, 2021]

In order to ensure that market-oriented measures play an effective role in rural revitalization, the government needs to take the following measures:

1.8.1. Develop evaluation indicators: The government formulates a scientific evaluation indicator system that covers various aspects of rural revitalization, such as economic development, social progress, ecological environment, etc., in order to comprehensively evaluate the implementation effect of market-oriented measures.

1.8.2. Establish a regular evaluation mechanism: The government establishes a regular evaluation mechanism to regularly monitor and evaluate the implementation of market-oriented measures, ensuring timely adjustment of policies and strategies.

1.8.3. Conduct on-site investigations: The government organizes relevant departments and professional institutions to regularly conduct on-site investigations, collect first-hand data on rural revitalization, and understand the actual operation of market-oriented measures in rural areas.

1.8.4. Strengthen information disclosure and public participation: The government strengthens information disclosure, timely releases evaluation reports on rural revitalization to society, and improves the public's right to know and participation.

At the same time, the government encourages public participation in the evaluation process of rural revitalization, and widely listens to the opinions and suggestions of farmers, enterprises, and social organizations.

1.8.5. Timely adjustment of policies and strategies: Based on the evaluation results, the government adjusts policies and strategies in a timely manner to adapt to the new situation and needs of rural revitalization.

For ineffective market-oriented measures, the government can adjust or stop implementing them in a timely manner to avoid resource waste.

By establishing a sound monitoring and evaluation mechanism, the government can better grasp the implementation effect of market-oriented measures in rural revitalization, adjust policies and strategies in a timely manner, and provide strong guarantees for rural revitalization.

In short, by drawing on experience in the carbon market and trading certificates, market-oriented methods can play an important role in the implementation of the strategy of rural revitalization and promote the smooth progress of the rural revitalization strategy. [Chen, H., & Zhang, Y., 2021]

## **2. Discussion: Market-based rural rejuvenation and transformation methods in China**

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### 2.1 Clarify market goals and policy support

The rural revitalization and transformation need to clarify market goals, such as improving farmers' income and optimizing the agricultural industry structure. At the same time, the government needs to provide policy support, including formulating relevant laws and regulations, establishing special funds, and providing tax discounts to create a good environment for the implementation of market-oriented means. [Huang, H., & Li, X., 2018] In action research, we can see the important role of market goals and policy support in rural revitalization and the excavation and utilization of resources.

In the process of overall advancement, the government's guidance and promotion role is indispensable. Jia Huiliang, secretary of the town party committee, and Yang Yunqiang, mayor Yang Yunqiang, not only proposed the development direction of the project, but also expressed great importance to the comprehensive and in-depth cooperation with the enterprise. He hoped that the project would be implemented quickly to the implementation of the project. [Zhang, M., & Yang, Y., 2021]

At the same time, enterprises also fully play the role of market entities, actively respond to the government's call, and participate in rural revitalization. In the implementation of the EOD project, Fenglan Group and Zhonggan Group not only deeply tapped the project's culture, location and resources, but also accurately carried out the project positioning, which provided a strong guarantee for the smooth implementation of the project. [Huang, H., & Yang, Y., 2021]

This case shows that in rural rejuvenation, the government, enterprises and farmers should form close cooperative relationships to jointly play their respective advantages in order to truly achieve the goal of rural revitalization. At the same time, the government also needs to provide more policy support, including the formulation of relevant laws and regulations, establishing special funds, and grant tax incentives to create a good environment for the implementation of market-oriented means. [Li, S., 2019]

### 2.2 Establish a comprehensive market trading mechanism

Rural revitalization and transformation need to establish a comprehensive market trading mechanism, including trading platforms, trading rules, and regulatory agencies. This helps to ensure the fairness, justice, and openness of the market, and to improve the confidence of market participants and establishing a complete market trading mechanism is of great significance to rural revitalization. [Ding, H., & Zhang, L., 2018]

As mentioned by Dong Zhiming, the general manager of the Chief Triangle Region of Zhonggan Group, the Si'an project has improved the environment and the population of the region through environmental improvement, which has attracted the industry and population, and realized the overall regional premium value-added, which is a reflection of the market trading mechanism.



Market trading mechanism includes trading platforms, trading rules, regulators, etc. The trading platform provides market participants with a fair, fair and open trading environment; the trading rules clarify the rights and obligations of market participants, and ensure the smooth progress of the transaction; the regulatory agency is responsible for supervising and managing the transaction process to prevent market manipulation and violations of regulations. Operations and other phenomena occur. [Huang, J., & Wu, F., 2016]

In rural rejuvenation, the market trading mechanism can not only promote the effective allocation of resources and improve economic benefits, but also promote environmental protection and sustainable development. For example, through environmental improvement and ecological protection, increase the overall value of the region, attract more industries and population, and achieve regional prosperity and development; Affairs, enlarge environmental value, and achieve sustainable development. [Li, X., & Zhang, X., 2019]

Therefore, in the process of promoting rural revitalization, the government should pay attention to establishing a sound market trading mechanism, providing market participants with a fair, fair and open transaction environment, promoting effective allocation of resources, improving economic benefits, environmental protection and sustainable development. Essence

2.3 Introduce market entities and financial institutions. [Zhang, X., & Li, X., 2019]

Rural revitalization needs to introduce market entities and financial institutions to improve market activity and capital use efficiency. For example, in the carbon market, enterprises can achieve the target of emission reduction by purchasing carbon emissions rights, and financial institutions can provide services such as carbon emissions transactions and carbon asset management. [Lange, A., & Meyer-Lindenberg, A., 2019]

In actual operation, it can attract market entities and financial institutions to participate in rural revitalization through government guidance and policy support. Market entities can provide support from funds, technology, and management to promote the development of rural revitalization; financial institutions can provide services such as loans, investment, insurance, etc., and provide capital guarantee for rural revitalization. [UNDP., 2019]

Highlighting the model of the rural rejuvenation project in Si'an Town, Huzhou City, the government provides support for funds, technology, and management through market entities such as Fenglan Group and China Consulting Group; at the same time, through cooperation with financial institutions, they cooperate with financial institutions Provide services such as loans and investment for the project to ensure the smooth implementation of the project. [Huzhou, 2019]

2.4 Strengthen scientific and technological innovation and training

Rural rejuvenation needs to strengthen scientific and technological innovation and training, and improve farmers' scientific and technological quality and market awareness. The government can set up a special fund to support agricultural scientific and technological innovation and achievements. At the same time, we will strengthen farmers 'training and improve farmers' cognition and application capabilities for marketization. [Li, X., & Zhang, X., 2019]

Scientific and technological innovation and training are of great significance to rural revitalization. Scientific and technological innovation can improve agricultural production efficiency, reduce production costs, improve the quality of agricultural products, and increase farmers' income; training can improve farmers' market awareness and enable them to better use market-oriented means and achieve self-development. [Xu, C., 2017]

In the rural rejuvenation project in Si'an Town, Huzhou City, the government provides scientific and technological innovation and training support for the project by introducing market entities such as Fenglan Group and Zhonggan Group and tie up the transformation of results, strengthening farmers' training, and improving farmers' market awareness and application capabilities. [Huang, J., Zhang, X., & Wang, Y., 2020]

### 2.5 Establish a linkage mechanism for interest

Rural revitalization needs to establish a linkage mechanism for interests and closely linked farmers, enterprises and governments. For example, in the transaction certificate system, the government can encourage enterprises to invest in environmental protection projects by issuing environmental protection certificates to enterprises; enterprises can purchase environmental protection certificates to achieve emission reduction targets, and at the same time obtain government rewards and support. (Wang, H., Gao, L., & Li, L., 2021)

The interest connection mechanism is an important guarantee for rural revitalization. By establishing a linkage mechanism for interests, the interests of farmers, enterprises, and governments can be closely linked to form a joint force for common development. [Chen, J., & Zhang, Y., 2020]

## **3. Conclusion and Suggestions: Market-oriented methods will provide strong support for the smooth implementation of rural revitalization strategies.**

The above is the lesson and inspiration from the market-oriented rural revitalization and transformation method: carbon markets and trading certificates. Through the lessons and inspirations of carbon markets and trading certificates, market-oriented methods can play an important role in the implementation of rural revitalization strategies, promoting the smooth progress of rural revitalization strategies [Wang Li and Li Xu, 2021]

In the process of rural revitalization and transformation, market-oriented methods can draw lessons and inspirations from the practical experience of carbon markets and trading certificates, including the following aspects:

### 3.1 Clarify the goals of market-oriented methods

The government should clarify the goals of market-oriented methods in rural revitalization strategies to ensure that market-oriented methods can effectively promote rural economic development, social progress, and ecological environment protection.

### 3.2 Establishing a sound policy system:

The government needs to formulate relevant policies to guide and standardize the application of market-oriented methods in rural revitalization. For example, the government can formulate carbon emission trading policies to guide enterprises to invest in low-carbon projects and achieve emission reduction goals.

### 3.3 Strengthen regulation and law enforcement

The government should strengthen the supervision and law enforcement of market-oriented methods to ensure that relevant policies and measures can be effectively implemented. For example, the government can strengthen the regulation of carbon markets and trading certificates, prevent market risks, and ensure market fairness.

#### 3.4 Promote diversified participation

The government should encourage various stakeholders such as farmers, enterprises, and social organizations to actively participate in rural revitalization, forming a good pattern of coordinated promotion of rural revitalization by multiple stakeholders such as the government, enterprises, and farmers.

#### 3.5 Emphasis on practice and innovation

In promoting rural revitalization, the government should fully draw on the successful experience of carbon markets and trading certificates, while emphasizing practice and innovation, and exploring market-oriented methods that are in line with rural reality.

By drawing lessons and inspiration from carbon markets and trading certificates, market-oriented methods will play a more important role in rural revitalization and transformation, providing strong support for the smooth implementation of rural revitalization strategies. [Baumol, W. J., & Oates, W. E., 1971]

### **4. Mission and Vision: To assist the coordinated development of rural economy, society, and ecological environment**

Regarding the future development vision, it is necessary to clarify market goals and policy support, establish a sound market trading mechanism, introduce market entities and financial institutions, strengthen technological innovation and talent training, and establish a mechanism for connecting interests. Through the above measures, it will provide strong guarantees for rural revitalization and promote the coordinated development of rural economy, society, and ecological environment (Wang Li and Li Xu, 2021).

In the future rural revitalization and development, the government and relevant departments should take the following specific measures:

4.1 Clear market goals and policy support: The government needs to clarify the goals of market-oriented means in rural revitalization, formulate corresponding policies and measures, and provide strong policy support for the implementation of market-oriented means.

4.2 Establish a sound market trading mechanism: The government should formulate relevant laws and regulations to ensure the fairness, impartiality, and openness of the market trading mechanism, and provide a good trading environment for market entities.

4.3 Introduce market entities and financial institutions: The government should actively guide market entities such as enterprises and cooperatives to participate in rural revitalization projects, introduce financial institutions to provide financial support for rural revitalization, and form a pattern where multiple entities such as the government, enterprises, and farmers jointly promote rural revitalization.

4.4 Strengthen technological innovation and talent training: The government should increase investment in technological innovation, promote advanced technologies and models,

improve farmers' technological quality and production skills, and provide technological support and talent guarantee for rural revitalization.

4.5 Establish a mechanism of interest linkage: The government should promote the adjustment of rural industrial structure, establish a mechanism of interest linkage between farmers, market entities, and financial institutions, so that farmers can obtain more benefits in the process of rural revitalization.

Through the implementation of the above measures, market-oriented means will play a more important role in rural revitalization, assisting in the coordinated development of rural economy, society, and ecological environment, and realizing the beautiful vision of rural revitalization. (Wang, Q., & Zhang, Y. 2019)

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