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The Ecological Development Path of Rural Revitalization under the Background of Digital Economy

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Abstract: At present, China's rural economy has completed the goal of comprehensive poverty alleviation, the overall development trend is improving, and it is entering a critical period of modernization transformation. However, there are still some rural areas that have great difficulties in the development process. How to make full use of rural ecological resources in the context of the digital economy, stimulate the endogenous power of rural economic development, find a balance between economic and ecological development, and explore the ecology of rural revitalization. Paths, etc. are still issues waiting to be resolved. Taking this as a starting point, this paper uses observation methods, literature research, and other methods to analyze the connotation characteristics and development model of the digital economy, describe the necessity of digital development of the rural economy, build a development bridge between the rural economy and the digital economy, and elaborate on the digital economy. Under the background of the current situation of the development of ecological resources, this paper also expounds the important position of ecological resources in the rural economic system, and takes this as the breakthrough to analyze the use of digital economic technologies such as blockchain in the context of the digital economy to achieve commercialization and marketization of ecological resources. The internal logic and operating mechanism, etc., are put forward to "digitize and value ecological resources" as a new path for the rural economy to break through the development bottleneck.

Keywords: Digital Economy, Rural Revitalization, Digital Assets, Valuing Ecological Resources, Ecological Development Path

1. Introduction

With the in-depth implementation of poverty alleviation policies, China's rural economy has further developed on the basis of comprehensively alleviating poverty and getting rid of absolute poverty. Some villages have relied on their own abundant resources to develop characteristic industries, forming endogenous driving forces, and making full use of the resources of the times to complete economic transformation and upgrading under the development wave of the digital economy. However, in the process of focusing on economic development, the advantages and resources of the countryside may be ignored, and there are problems such as the low utilization rate of ecological resources and the contradiction between ecological protection and economic development. How to

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break through development bottlenecks, make full use of ecological resources in the context of the digital economy, and explore ecological development paths for rural revitalization has become a hot issue.

Most studies believe that the digital economy promotes the process of rural revitalization [1, 2]. Digital technology and the digital economy play an important role in rural planning by accelerating the transformation of rural enterprises and reducing living and transaction costs. For rural revitalization and ecological development, there are also many existing research results. Most scholars also believe that capitalizing ecological resources into the market is conducive to full utilization of resources, and is conducive to breaking through bottlenecks in rural revitalization and further completing development. For example, the rural revitalization and ecological capitalization proposed by Song are interconnected and mutually reinforcing [3]. The implementation of rural revitalization policies is conducive to promoting the process of ecological capitalization; ecological capitalization has also become a driving force for economic development and rural revitalization. However, some studies only focus on the local area, and few documents pointed out the specific development form of the macro market [4, 5]. At the same time, there are currently few comprehensive documents on digital economy and ecological development paths, and few studies have explored ecological development paths and processes that are beneficial to digital economic technologies, such as blockchain, NFT, and other technologies. By analyzing the characteristics of the digital economy and its application in the rural economy and the current situation of rural ecological development, this article proposes a development path for the digitalization and assetization of ecological resources. By elucidating the specific institutional mechanisms, the goal of marketization of ecological resources has been achieved, and while protecting ecological resource, they have been fully developed and utilized to support the process of economic development and rural revitalization.

2. Digital Economy

From the perspective of economics, a digital economy is an economic form in which humans guide and realize the rapid optimal allocation and regeneration of resources and achieve high-quality economic development through the identification, selection, filtering, storage, and use of big data. With the development of the times, in addition to the information and communication technology industry, new business forms such as the sharing economy and platform economy spawned by the digital economy have also begun to be included in the scope of the digital economy [6]. In addition, digital economic activities in traditional industries are also an important part of the digital economy. The focus of the digital economy is the application of digital technology and the impact of digital transformation on the economy, industrial structure, and business model. The original intention of the digital economy is to use technologies such as data networks to better serve the real world based on real-life scenarios.

Data, technology, and talent are the three major elements for the development of the digital economy. Data is the foundation of the digital economy, which refers to the digital information that people collect, store, and process through various channels. In the digital economy, data is widely used in business decision-making, product innovation, market research, and other fields. Technology is the key driving force for the development of the digital economy, including various technical means and tools such as cloud computing, big data, artificial intelligence, and the Internet of Things. These technologies can help companies and individuals collect and analyze data more efficiently, improve the quality of products and services, reduce production and operating costs, and promote innovation and entrepreneurship. Talent is an important guarantee for the success of the digital economy. The digital economy has a large demand for various professional talents with high quality and requires a good interdisciplinary background and comprehensive capabilities. Attracting and

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cultivating talents is one of the important tasks in the development of the digital economy. The three elements are progressive and complementary to each other. Fully understanding the meaning and relationship of the three is the prerequisite for giving full play to the role of the digital economy.

The digital economy helps modernize agriculture, improve farmers' living standards, and improve the overall level of rural society. Specifically, the digital economy helps rural revitalization from two aspects: data elements and digital technology. As a new factor of productivity, data can be integrated with traditional production factors to form digital labor, digital capital, digital technology, etc., thereby opening up the entire process of agricultural production, management, and sales, and mapping it to the rural economy to give birth to new industries and new industries. Business formats and new models; digital technology can have an empowering effect on labor and capital, and provide fast and efficient information acquisition and dissemination means for agricultural production, market transactions, social governance and public services, and economic development. It helps realize scientific rural production, visualizes rural governance, and intelligent daily life and services, and assists in the transformation and upgrading of the rural economy [1].

3. Current Status of Rural Ecological Development

The digital economy provides new development opportunities and paths for rural areas through innovation and technological application. The extensive application of digital technology can promote the overall development of rural areas. The application of digital technology can significantly improve agricultural productivity, narrow the gap between urban and rural areas, alleviate the "digital divide", reduce the information gap between urban and rural areas, open up trade circulation links, reduce transaction costs, broaden the path of agricultural development, and improve the overall level of rural society. It plays an irreplaceable role in the process of rural economic development [2, 6]. Based on rural resources, this paper explains in detail the ecological development path of rural revitalization under the background of the digital economy, in order to discuss the new direction of rural economic development.

After the victory in the fight against poverty, the living environment and ecological environment in rural areas have been improved, and farmers' lives have become more comfortable. As early as when the "Two Mountains Theory" was proposed, the importance of ecological resources and ecological protection had been emphasized, and due to social and policy pressure, governments at all levels also pay attention to the protection of ecological resources in the process of economic development. But nowadays, many rural areas are afraid to develop and leave ecological resources idle in order to protect ecological resources. This is not conducive to rural revitalization and development. Most villages have more conservation projects than development projects. At present, most rural areas have conservative attitudes toward ecological resources, or it is difficult to balance the relationship between economic benefits, ecological pollution, and ecological protection, and they are in a bottleneck period of development. Based on this, this study explores the reasonable development methods of ecological resources entering the market to generate profits and provides new ideas for rural revitalization.

4. Rural Ecological Development Path

4.1. Capitalization of Ecological Resources

First, the connotation of ecological resources must be clarified. The ecological resources discussed in this article refer to natural resources and ecological elements that have important ecological functions, environmental values, and market values in natural ecosystems. They play an important role in maintaining ecological balance and supporting biodiversity. To bring ecological resources into the market economic system, the first step is to complete the capitalization of ecological resources, that is,

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evaluate the value of ecological resources, clarify property rights, formulate management plans, continue operations, etc., so that ecological resources essentially become a commodity and are useful Value and use value can be freely exchanged.

Ecological assets refer to the various services and resources provided by ecological resources, and emphasize the importance of these services to the health, economy, and social well-being of human society. Ecological assets have dual attributes of public products and private products. To digitize ecological assets and successfully introduce them into the market mechanism, it is necessary to fully understand their characteristics and values [7]. Ecological assets mainly include two aspects of value to human society. On the one hand, there is the economic value. First, ecological assets can provide various resources, such as water resources, etc., which have direct economic value to the industry. Second, ecological assets, such as tourism resources, are an important economic source for rural areas. Third, the ecosystem services provided by ecological assets can save social costs. For example, wetlands and forests help prevent flooding, reducing flood damage to urban infrastructure and thus saving the cost of repairs and restoration. Another aspect is environmental value. Ecological assets are of great value in maintaining ecological balance and biodiversity, regulating climate, improving water and air quality, and maintaining soil fertility. However, ecological assets pay more attention to economic attributes, emphasizing the use value of ecological resources and the economic benefits that ecological assets can provide for human production activities. At the same time, in addition to the particularity of ecological resources, ecological assets also have general attributes of assets, such as tradability and market value.

At the same time, a major feature of the assetization of ecological resources is the appreciation of ecological assets. Assets are value-added, so their expected returns can be predicted, and their returns will be higher than other capital products that attract social investment in general financial markets. In other words, the expected financial value-added of ecological assets is higher than that of traditional financial commodities.

4.2. Digitalization of Ecological Assets

The digitization of ecological assets is to use digital economic technology such as blockchain to put ecological assets on the market as a digital asset with ecological resources as its content. The digitization of ecological assets is to use digital economic technology such as blockchain to put ecological assets on the market as a digital asset with ecological resources as its content. Its operating mode is logically the same as the operating mode of digital assets in the entire blockchain and can be understood from two perspectives: vertical and horizontal operating modes.

4.2.1. Vertical Digital Asset Blockchain Operating Model

The vertical digital asset blockchain operating model mainly refers to the three links of digital asset uploading, transaction, and blockchain smart contract support. First of all, the uploading of digital assets refers to asset owners uploading their assets to the blockchain and making declarations as required. The blockchain system verifies the information, records it after verification, and completes the confirmation of digital assets. The blockchain extracts the unique characteristics of ecological assets through calculation and uses them as the unique identifier of the ecological assets. It adds a timestamp to the extracted data so that data operations and asset transactions can be queried and tracked, making it easier to clarify and trace property rights. And the next step is trading. After the supply side and demand side of ecological assets reach an agreement, a transaction is initiated on the digital asset blockchain, and the demand side provides transaction fees. The blockchain system verifies the transaction. After verification, the transaction information is recorded, the ecological

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asset ownership, use rights, and other information are updated according to the request, and the entire chain is accounted for.

4.2.2. Horizontal Digital Asset Blockchain Operating Model

The logic of the horizontal interaction model between digital assets, users, and platforms refers to a progressive model in which users are points, content is lines, and platforms are surfaces.

Users are the points, which means that in the blockchain market, users are the basic points and form a spontaneous communication ecosystem through their own network and social value, thereby triggering changes in social network relationships. In the new model, each individual can make free decisions and create independently, find a suitable ecological niche in the new communication value chain, produce and transmit the content and value of ecological assets, and carry out circulation and Consumption, thereby improving the liquidity and use value of the platform.

Content is the thread, which is to strengthen the emotional identification of the community and attract users with content with cultural value and participation value. A common cultural circle can explore how to develop IP based on ecological resources. The use of blockchain can ensure the unique, non-tamperable, and irreplaceable characteristics of works. It can combine local conditions with rural governance and villagers' autonomy to develop community cultural identity and community. The cultural circle not only obtains economic benefits but also enhances emotional resonance and provides spiritual value.

Finally, the platform is for the government and related platforms to provide basic support at the policy and mechanism levels for the assetization and digitization of ecological resources. In recent years, national and local multi-level trading platform systems have gradually taken shape, and with the deepening of the new round of technological revolution, digital technology has played an important enabling role and greatly improved transaction efficiency. For commercial ecological products, in addition to the ecological agricultural products and ecological cultural tourism product sectors developed by national mature e-commerce trading platforms, some regions have established many local ecological product trading platforms based on their own ecological product development situations and local conditions.

4.2.3. Ecological Property Rights Trading Platform

Regarding the trading of ecological resource rights and interests, among the four major ecological property rights (water rights, emission rights, carbon emission rights, and energy use rights) trading platforms in the traditional sense, except for the energy use rights trading platform, which is still in the exploratory stage, other platforms have relatively sound trading mechanism and trading policy guarantee system. In addition, with the deepening of ecological resource rights and interests trading, some places have established professional ecological property rights trading platforms, such as the Southern China Ecological Products Trading Platform, the Shandong Ecological Products Trading Platform (the country's first ecological resources trading platform), etc., but more Regions still choose to integrate the ecological rights trading module into the existing environmental property rights trading platform or rural property rights trading platform [8, 9]. But at the same time, due to the "decentralized" nature of the blockchain, policies and platforms must control the scale and not overly centralize supervision and inhibit the enthusiasm of the main users. The new model has subverted the traditional "planned" bargaining model with the platform as the main body, and is now gradually tilting towards "marketization". The improvement of the status of content creators further activates the micro-value and micro-resources of individuals, reduces the power control and profit extraction of "centralized" platforms in the content circulation link, and continuously stimulates the endogenous

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motivation of creators, but it also puts forward higher requirements for the supervision and operation of platforms.

5. Specific Measures for Ecological Development

First , the government should establish an effective regulatory framework to ensure that ecological resource management policies are implemented, punish violations, and monitor the health of resources [10]. Secondly, for communities, in the process of valuing ecological resources , communities of villagers and users should be encouraged to participate in resource management decisions, and decision-making powers should be delegated to grassroots levels closer to the resources. This not only means that villagers' autonomy has a wider application, but also can adapt to local conditions to ensure that the management and distribution of ecological resources are more in line with the needs and interests of local villages. For users, digital products of ecological resources can not only provide consumers with the value of the goods themselves, but also provide them with additional cultural value. For society, the valuing of digital assets and ecological resources is the direction of rural economy and even national economic development under the guidance of the concept of sustainable development. It can improve the public's understanding of the importance of ecological resources and pay attention to important issues such as rural development and urban-rural balance issue.

6. Conclusion

Through studying existing literature and analyzing the current situation of rural ecological development in the context of the digital economy, this study found that the utilization rate of rural ecological resources in my country is currently low, and there are problems such as idle or excessive and unreasonable development of ecological resources and difficulty in entering the market. Based on this, the development path of valuing and marketizing ecological resources is proposed, and the operating mechanism of using advanced digital economy technology in the context of the digital economy is specifically elaborated to transform ecological resources into ecological products that can enter the market mechanism. Improving the utilization rate of ecological resources indirectly promotes the transformation and upgrading of rural economic development in the context of the digital economy, improves the living standards of rural people and community governance, and explores new ecological paths for rural revitalization.

At the same time, although this study has basically elaborated on the institutional mechanism for valuing ecological resources, it has not conducted in-depth design on specific detailed issues such as clear property rights, reshaping of community governance systems, and trading platforms for ecological products, and needs further research.

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