Research on Rural Revitalization Planning from the Perspective of Ecological Capitalization: Taking Nuanshui Township as an Example

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Abstract
Balancing environmental protection and economic growth while promoting rural revitalization and coordinated urban-rural development is a crucial issue in China. With ecological capitalization as the starting point, this research proposes a rural revitalization planning model that is led by ecological principles, supported by population, industry, and land, and complemented by culture, based on the analytical framework of "ecological resources - ecological assets - ecological capital." Taking Nuanshui Township in Inner Mongolia as a typical case, the goal is to transform it into a comprehensive national forest park in the coal mining region of western Inner Mongolia and northern Shaanxi, exhibiting Chinese-style modernization, ecological, and geological characteristics. This approach provides valuable insights for exploring the promotion of rural revitalization through ecological capitalization.

Keywords
Ecological capitalization; Rural revitalization; Nuanshui Township; Sustainable development

1. Introduction

Against the backdrop of the long-term urban-rural dual system oriented towards urban growth, the issue of rural decline has become increasingly prominent. Coordinating urban-rural relations through rural revitalization to achieve Chinese-style modernization has become an important issue in China today. China's rural revitalization strategy points out that achieving rural revitalization requires efforts in five major aspects: industrial revitalization, talent revitalization, cultural revitalization, ecological revitalization, and organizational revitalization. Based on this, ecological construction leading rural revitalization, especially using "ecological value realization" as an incentive measure for ecological protection to guide rural revitalization, is attracting increasing attention from institutions and scholars. However, research on driving rural revitalization through the realization of ecological resources' value is still in the stage of fragmented prospects and assumptions, overlooking its potential as a sustainable, universal, and proactive force for driving urban-rural integration. This study systematically elaborates the basic logic of ecological capitalization driving rural revitalization, constructs an analytical framework based on the evolutionary process of "ecological resources - ecological assets - ecological capital," and proposes planning response strategies. Using Nuanshui Township as a typical case for empirical analysis, it attempts to avoid the resource curse phenomenon and mitigate the externalities of ecological resources. The aim is to provide possible pathways for protecting the ecological environment and realizing the economic value of ecological resources, and to provide references and support for exploring the path of rural revitalization under the theory of ecological capitalization.

2. The connotation and logic of ecological capitalization

2.1 The Conceptual Connotation of Ecological Capitalization

The concept of ecological capitalization has gained certain consensus in the academic community. Relevant research believes that ecological capitalization is a way to realize the value of ecological resources, which refers to the process of transforming ecological resources with scarcity and profitability into ecological assets through ecological confirmation, and then into ecological capital through the ecological market. Its value is mainly reflected in improving the efficiency of ecological resource allocation to mitigate ecological crises caused by rough

exploitation and utilization. Among them, ecological resources not only refer to natural resources but also include corresponding social resources, which are the combination of various natural and artificial elements with ecological carrying capacity and ecological service functions. Ecological assets refer to scarce ecological resources with clear ownership that can bring benefits to the owner under certain economic and technological conditions. Ecological capital is an ecological asset that can generate future cash flows, possessing three attributes: usefulness, appreciation, and tradability.

2.2 The Inner Logic of Ecological Capitalization

Based on the above concepts, the inherent evolutionary logic of ecological capitalization can be broadly divided into two stages: the capitalization of ecological resources and the capitalization of ecological assets. In the capitalization of ecological resources stage, first, we need to understand the natural attributes of ecological resources, identify ecological production factors that can be used for production, and determine their existence value. Second, given the scarcity of ecological resources, the primary task of capitalizing ecological resources is to clarify the ownership of property rights, thereby confirming the use value of ecological resources, and converting them into ecological assets through valuation. In the capitalization of ecological assets stage, first, we need to invest in production factors such as ecological technology to transform ecological assets into active ecological capital and confirm their factor value. Then, we need to transform ecological capital into ecological services and ecological products, and realize the monetization of ecological services through market operations to demonstrate their exchange value. Finally, part of the ecological benefits will be used in various forms for ecological construction, ecological resource protection, etc., forming a circular and sustainable utilization of value-added ecological resources.

3. Construction of Rural Revitalization Planning Model from the Perspective of Ecological Capitalization

To achieve the revitalization and development of various rural areas, it is necessary to adapt to local conditions and select development paths that are in line with the characteristics of each village based on the actual development situation of different townships and villages. For example, agricultural townships should prioritize agricultural development, while industrial townships should focus on developing township industries. Therefore, rural revitalization led by ecological capitalization is obviously more suitable for townships that have rich ecological resources and are more suitable for focusing on ecological construction. Against this backdrop, planning to support the promotion of rural revitalization driven by ecological capitalization needs to focus on considering various entities for achieving rural revitalization, value-added models, and the overall framework and implementation path for planning to realize the promotion of rural revitalization driven by ecological capitalization.

3.1 Various Entities Promoting Rural Revitalization through Ecological Capitalization

The main entities driving rural revitalization through ecological capitalization can be divided into three categories. The first category is the owners of ecological resource property rights. Generally speaking, the village collective owns the ownership of ecological resources, while individual villagers enjoy the right to use, manage, and operate these resources. Only when the property rights of the collective and individuals are clearly defined and their boundaries established can the enthusiasm of property right owners be mobilized, the liquidity of ecological resources be improved, and thus the capitalization of ecological resources be promoted.

The second category of entities is market operators. Market operators can be enterprises in related industries or individuals engaged in relevant industries. These entities possess sufficient funds, channels, and mature technological systems for utilizing ecological resources. They can

effectively tap into the value of ecological resources, put them into market operations, and thereby promote the capitalization of ecological assets.
The third category of entities is the grassroots government. The grassroots government plays a crucial role in coordinating market operators and property right owners. On one hand, it can effectively reduce communication costs between the two parties. On the other hand, it is familiar with the legal and management requirements of the region, and can play a significant role in promoting the capitalization of ecological resources and ecological assets.

3.2 The planning model of promoting rural revitalization through state capitalization

To fully operationalize ecological capitalization and maximize the inherent value of ecological resources to promote rural revitalization, effective guidance must be achieved through rural revitalization planning. The rural revitalization strategy points out that achieving rural revitalization requires efforts in five major areas: industrial revitalization, talent revitalization, cultural revitalization, ecological revitalization, and organizational revitalization. Therefore, the process of guiding rural revitalization with ecology cannot be separated from industrial development, talent support, cultural support, and organizational security. Furthermore, spatial resources, as crucial resources for industrial development and rural construction, are also significant supports for rural revitalization.
Based on the above analysis, to lead with ecological capitalization and formulate rural revitalization strategies through planning to support rural revitalization, it is necessary to build a rural revitalization planning implementation framework from five dimensions: ecology, industry, land, population, and culture. As previously mentioned, rural revitalization driven by ecological capitalization should form an "ecology + N" development model led by "greening the countryside," making ecological construction and ecological dividend realization the primary task of planning to promote rural revitalization. Planning needs to take ecology as the guide, comprehensively activate ecological vitality across the entire township, and lay the foundation for achieving common prosperity. On the basis of implementing ecological construction, based on subsequent development needs, it is necessary to simultaneously promote industrial revitalization, optimize land use and population structure, and propose paths and measures for ecological industry development, land use, talent introduction, and management. Finally, by activating cultural resources, further vitality can be injected into the ecological and industrial elements of rural revitalization, enhancing its attractiveness and influence.

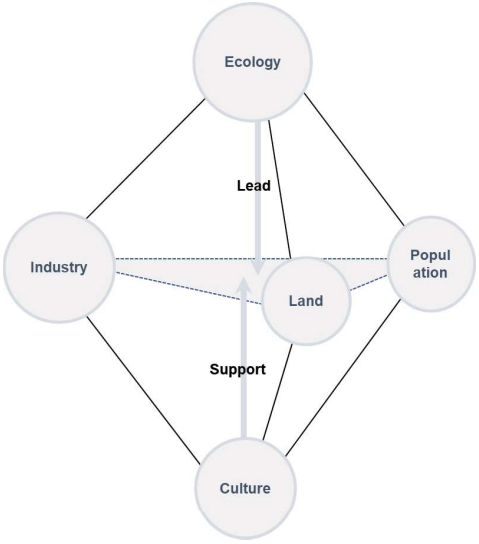


Figure 1: The "diamond" model of ecological capitalization driving rural revitalization planning

3.3 The planned action path for promoting rural revitalization through ecological capitalization

Overall, taking rural life, production, and ecological spaces as entry points, this study aims to provide guidance on the development strategies and paths for rural revitalization. Regarding the development of rural life, production, and ecological spaces, this study proposes the principles of total optimization and comprehensive planning. Total optimization involves enhancing the capacity of ecological spaces, activating the stock of production spaces, and controlling the increment of living spaces. Comprehensive planning prioritizes improving the pattern of ecological spaces, scientifically adjusting the layout of production spaces, and precisely planning the final layout of living spaces.

Specifically, for ecological spaces, continuous ecological management should be implemented to enhance their capacity, ensuring that the area of ecological spaces only increases and does not decrease, and that the types of spaces within the ecological protection red line remain unchanged. Meanwhile, four types of ecological spaces should be categorized based on actual conditions: conservation-oriented, integrated, cultivation-oriented, and restoration-oriented. Targeted measures should be formulated to increase the quantity and quality of different types of ecological spaces. For production spaces, abandoned farmland should be optimized and activated, and three agricultural production zones should be planned. Combining the results of dual evaluations, scattered and inefficient production spaces should be relocated to agricultural production zones or merged with large-scale and high-efficiency production areas through land reallocation, achieving the scale and systematization of production spaces. Scattered farmland that is not suitable for relocation can be converted to forests, while permanent basic farmland remains unchanged. For living spaces, a living space system should be precisely constructed for three types of people: those residing in the countryside, those living outside, and those returning to the countryside. Once the planning is determined, it should remain unchanged in principle. For returning villagers and tourists, characteristic stations should be planned and constructed in a scattered manner within the rural area, taking into account environmental conditions. Residents in the countryside and immigrants living outside should be concentrated

in existing settlements. Additionally, certain supporting facilities should be added based on the planned population.

In terms of ecological revitalization, corresponding governance objectives, frameworks, and implementation paths should be proposed, with a focus on implementing key ecological governance projects. For industrial revitalization, a comprehensive industrial system should be established, providing guidance on the development direction of key industries and planning for the introduction and further development of key industrial projects. In terms of land use, land use structures should be rationally regulated to ensure space for rural revitalization, and corresponding land management measures should be proposed to improve land use efficiency throughout the township. For population revitalization, predictions should be made on the size of various populations in the township, and guidance should be provided on the future development direction of different groups. In terms of cultural revitalization, strategies for the protection, inheritance, and utilization of historical and regional cultures, as well as approaches for promoting rural civilization, should be proposed. Finally, in terms of rural governance, corresponding governance strategies should be proposed for both ecological immigrants and rural residents, and innovative ideas should be put forward for the cultivation and construction of new-type collective economic organizations and social organizations.

4. Analysis of typical cases of rural revitalization from the perspective of ecological capitalization

4.1 The Development Background of Rural Revitalization in Nuanshui Township

Located in the west of Zhungeer Banner, Inner Mongolia Autonomous Region, China, and in the center of the Mengxi-Shaanbei coal mining area, which is an important coal source in China, Nuanshui Township is a typical resource-based region. Nuanshui Township belongs to severely exposed area of arsenic sandstone, a special geological structure that is one of the main factors leading to soil erosion and flood disasters in the Yellow River in China. Due to long-term coal mining and its special geological structure, Nuanshui Township has become an important area in China for promoting rural revitalization through ecological governance. Since 2009, Nuanshui Township has been designated by the Chinese government as a pilot township for the construction of an ecological natural restoration zone. By the end of 2021, the township's ecological afforestation area had reached 700,000 mu (about 46,667 hectares), with vegetation coverage exceeding 85%. However, while Nuanshui Township has achieved certain results in ecological governance, the spillover effect of ecological restoration dividends is not significant. The underdeveloped basic situation of the township has not been fundamentally changed, and some prominent issues such as the separation of people and production, as well as the separation of people and land, have not yet been resolved. How to activate the value of ecological resources to promote rural revitalization and economic development has become the main issue facing the township.

4.2 The Current Status of Rural Revitalization Development in Nuanshui Township

In 2009, the "Pilot Implementation Plan for the Promotion of Ecological Natural Restoration Area Construction in Nuanshui Township" was issued, requiring farmers who meet the conditions and are willing to relocate in the prohibited and restricted development zones of the township to do so in groups of entire communes or natural villages, adhering to a one-time planning and three-year relocation schedule, which meant withdrawing from agricultural and animal husbandry production in the same year and basically relocating the population within three years. Since the implementation of the ecological migration policy, the overall ecological condition of Nuanshui Township has improved significantly, and some ecological industries such as apricot and apple have been developed, initially realizing the transformation from lucid

waters and lush mountains to invaluable assets. In terms of ecological construction achievements, by 2010, the township had basically completed the ecological migration of the entire township, completed ecological afforestation of 208,054 mu (about 13,870 hectares), and achieved an ecological construction area of 256,300 mu (about 17,087 hectares). With the migration of villagers from various villages, comprehensive ecological improvement projects, including the treatment of arsenic sandstone, have gradually been implemented in full. By the end of 2021, the treatment of arsenic sandstone in Nuanshui Township had achieved remarkable results, with a significant increase in the vegetation coverage index (Figure 2-2-1). There were also significant improvements in agricultural product output and villager income levels, with the annual collective income of the village reaching 18,000 Yuan, per capita cultivated land area reaching 0.64 hectares per person, and the total output of economic crops reaching 7,549.9 tons. In addition to the treatment of arsenic sandstone, the township has also actively carried out ecological construction work such as soil and water conservation and returning farmland to forests, and established ecological governance platforms such as the Ordos City Soil and Water Conservation Science and Technology Demonstration Park.

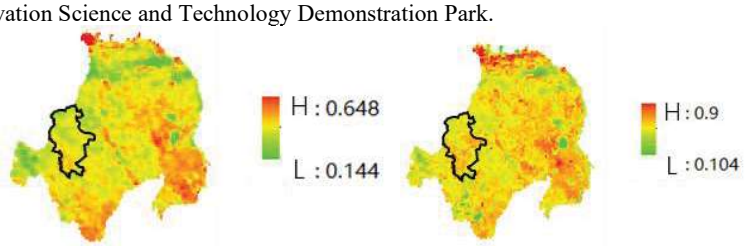


Figure 2: Vegetation Coverage Index of Nuanshui Township (Left: 2010; Right: 2021)
Data Source: Resource and Environmental Research Center of the Chinese Academy of Sciences

“Lucid waters and lush mountains are invaluable assets." The ecological construction efforts in Nuanshui Township have also generated a certain ecological dividend spillover effect, promoting rural revitalization and advancing common prosperity to a certain extent. Specifically, first, during the process of arsenic sandstone management, some arsenic sandstone resources have been fully utilized. On one hand, they have been used to develop seabuckthorn-related industries, and on the other hand, some areas have been transformed into arsenic sandstone geological parks, laying a foundation for the development of tourism in the township. Second, with the advancement of ecological restoration and returning farmland to forests, some green industries, including apricot, apple, forage, and traditional Chinese medicinal herbs, have developed effectively, providing new avenues for villagers to increase their income. Third, after the implementation of ecological migration, some homesteads and farmland have been converted into public welfare forests, and villagers can receive corresponding subsidies for public welfare forests.

However, even though the ecological construction in Nuanshui Township has promoted the pace of rural revitalization to a certain extent, there are still issues such as the monotony of tree species, small growth and yield of forest trees, and the lack of an ecological system and related industries relying on forest planting. Moreover, the ecological restoration in the township still relies primarily on natural recovery. Against this backdrop, how to improve the conversion rate of ecological construction achievements into "invaluable assets," how to promote the ecological development of Nuanshui Township from natural recovery to more proactive ecological cultivation, and further stimulate the ecological vitality and enhance the ecological value of the entire township, are the core issues that urgently need to be addressed for the future ecological revitalization of Nuanshui Township.

4.3 The Development Strategy for Rural Revitalization in Nuanshui Township

Since the implementation of the ecological migration policy, the ecological resources in Nuanshui Township have been in a state of "natural growth" without scientific and orderly management. On one hand, the township's ecological service value does not hold an advantage at the county level, and on the other hand, the value of the township's “lucid waters and lush mountains" has not been fully realized, resulting in insufficient ecological dividends. Additionally, Nuanshui Township is located at an important node for migratory birds and the Silk Road trade route, as well as the intersection of the northern and northwestern paths of sandstorms, making it an essential ecological "landing point" in the region.

To address the issues left behind by ecological migration, actively implement the "Two Mountains Theory," and fully leverage the ecological advantages of Nuanshui Township, it is necessary to actively guide and organize public participation in ecological construction. From the perspective of ecological capitalization and based on the analytical framework of "ecological resources - ecological assets - ecological capital," this plan proposes the development strategy for Nuanshui Township's Eco 2.0. This is both an inevitable choice for the current stage of development in Nuanshui Township and a necessary requirement for its development pattern.

The specific path for the Eco 2.0 construction in Nuanshui Township consists of three steps. The first step is to shape the foundation, relying on the existing ecological base to realize the capitalization of ecological resources in Nuanshui Township. Through the cultivation and construction of "three forests" - forests, fruit trees, and gardens, the basic pattern for ecological revitalization in Nuanshui Township will be formed. The second step is to release dividends, relying on Nuanshui Township's "lucid waters and lush mountains" to develop ecological industries and realize the capitalization of ecological resources, such as EOD-related industries, carbon sequestration-related industries, and others. This will transform "lucid waters and lush mountains" into "invaluable assets", allowing villagers to tangibly enjoy the dividends brought by ecological construction. The third step is proactive development, leveraging ecological dividends to attract and organize more villagers and market entities to participate in the construction of "three forests," promoting the ecological development of Nuanshui Township from natural restoration to more proactive ecological cultivation. This will further stimulate the ecological vitality of the entire township and enhance its ecological value. Ultimately, the goal is to transform Nuanshui Township into a national forest park.

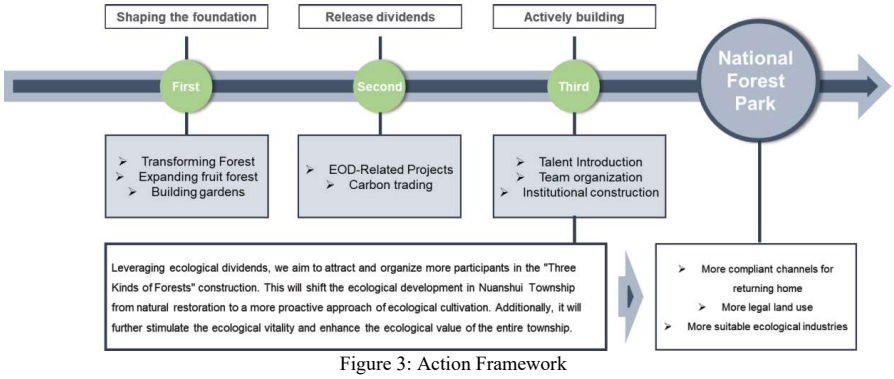


Figure 3: Action Framework

4.4 The Development Path for Rural Revitalization in Nuanshui Township

(1)Shaping the foundation

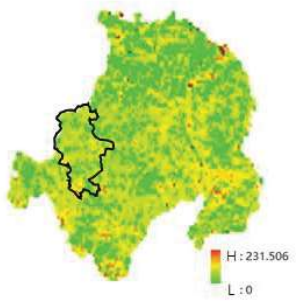
Through the cultivation and development of "forests, fruit forests, and gardens," the plan aims to enhance the integrity and biodiversity of the entire ecosystem in Nuanshui Township, thereby realizing the confirmation of ecological assets in the township and transforming them into ecological capital through valuation.

The scope of forest construction and cultivation covers the entire area of Nuanshui Township, encompassing three specific aspects. Firstly, "converting grassland to forestland" involves transforming natural grazing lands and other grasslands into arbor forests with a canopy density of no less than 0.2 through artificial afforestation. Secondly, "returning farmland to forestland" entails converting scattered and low-yield farmland into arbor forests. Thirdly, "rehabilitating mines and returning them to forestland" means planting trees in available land after mine reclamation. From the perspective of property rights, the village collectives will play a leading role in the management of this type of ecological resource, and relevant land will be collected through land transfer and other means to be consolidated and improved by the village collectives. Based on this, the plan selects six villages with relatively abundant resources in "grassland," "farmland," and "mines" - Deshengxi Village, Hanjiata Village, Kenmuken Village, Changhanbula Village, Geqiugou Village, and Shuiquangou Village - as the starting areas for artificial afforestation projects. Based on this foundation, the plan further categorizes the "forests" into three types: ecological forests, ornamental forests, and interactive forests. Ecological forests are primarily planted with arbor trees that possess water conservation and soil erosion control functions. They are located in the six administrative villages within the artificial afforestation starting areas, focusing primarily on ecological benefits and not participating in the development of the forest tourism system. In the future, they will be used primarily for the development of forest carbon sequestration. Ornamental forests are primarily planted with drought-tolerant and aesthetically pleasing ornamental arbor trees. They are primarily distributed in the four villages of Desheng Youliang, Shuiquangou, Nuanshui, and Yushuhao, often combined with fruit forests and along transit roads. These forests focus primarily on landscape benefits and have the potential to be integrated into the Nuanshui Township's forest tourism system in the future, enhancing the service value of forest tourism and ornamental aspects in Nuanshui. Interactive forests are primarily planted with tall and dense arbor trees, with some ornamental arbor trees interspersed appropriately. They are primarily distributed throughout the Nuanshui Township, combined with gardens, focusing primarily on economic benefits. In the future, they can be incorporated into the Nuanshui Township's forest tourism system, fostering a development pattern of harmonious coexistence between humans and nature.

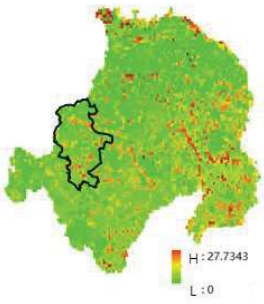
For the unique fruit forest resources in Nuanshui Township, on one hand, the plan proposes to promote the expansion of fruit tree planting areas, specifically by increasing the planting of mixed fruits in villages other than Desheng Youliang, and to moderately develop a courtyard economy. On the other hand, the plan believes that the scenic transformation of fruit forests should be implemented appropriately, meaning to transform the more extensive, profitable, and mature fruit forests into scenic spots, opening them to the public and introducing related tourism and appreciation projects.

In terms of "gardens", the construction and cultivation scope covers the entire area of Nuanshui Township. Specifically, it involves two aspects: first, developing and building small-scale village parks with an area of no more than 20 hectares, relying on the unique resources and endowments of each village. Simultaneously, drought-tolerant shrubs will be planted in every "garden" in a manner that fills in every available space to increase the vegetation coverage and ecological service value. Once completed, the vegetation coverage within each "garden" will reach at least 90%. It is expected that by 2025, a distribution pattern of "one garden per village" will be achieved. Second, the existing park green spaces and tourist landscapes in the central town area of Nuanshui will be renovated and upgraded, and 1-2 new street green spaces will be

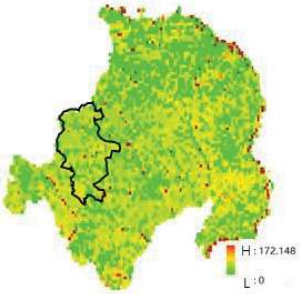
added. Furthermore, leisure stops can be established in conjunction with the "garden" layout to build a comprehensive leisure and recreational system throughout Nuanshui Township, enhancing the overall ecological vitality of the region.



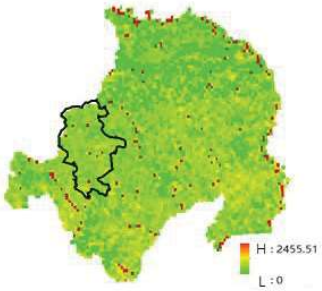
(a): Biodiversity value



(b): Food production value



(c): Purification of environmental value



(d): Total value

Figure 4: Evaluation of the Ecological Asset Value of Nuanshui Township
Data Source: Resource and Environmental Research Center of the Chinese Academy of Sciences

(2) Release dividends

Based on laying a good foundation for the ecological environment, it is necessary to establish corresponding mechanisms to realize the capitalization of ecological assets, thus guiding the transformation of the “lucid waters and lush mountains" in Nuanshui Township into “invaluable assets". To achieve this, this plan introduces the concept of "Two Mountains Bank" and recommends the establishment of a township-level "Two Mountains Bank" in the lead, consisting of five departments: Resource Storage Center, Value Assessment Center, Asset Trading Platform, Asset Operation Center, and Financial Service Center. Through the coordinated operation of these departments, various ecological resources in Nuanshui Township will be "monetized," opening up the transformation channel from "resources to assets, to capital, to funds." In summary, the main role of "Two Mountains Bank" is to provide channels for the transformation of ecological resources into assets and funds, such as green financial services, eco-industrial projects, carbon sequestration trading projects, etc., based on the quantification of the ecological foundation.

Specifically, the first step is for the township government to establish a comprehensive information management platform for the confirmation and registration of ecological resources in the township, including the registration and confirmation of ownership, location, and area of ecological resources within the entire area of Nuanshui Township. This requires all village collectives to conduct statistics on the physical quantity accounts of forest, fruit forest, garden, and other ecological-related assets in the village, calculate the township's ecological resource

assets and their changes, and report them to the township level. The township level will then uniformly input the data into the ecological resource information management platform and form a database for each village for future use. The village databases will be managed by the village secretaries, and the township-level management platform will be managed by dedicated personnel.

Next, relying on the Resource Storage Center of the Nuanshui Township's "Two Mountains Bank," various ecological resources included in the management platform will be stored and integrated, which can be further transformed into ecological assets through capital empowerment in the future.

Based on the overall integration of the township's ecological resources, this plan recommends collaborating with relevant professional institutions to develop the "Nuanshui Township Ecological Product and Asset Accounting Methods." With the support of the Value Assessment Center, the Nuanshui Township's GEP (Gross Ecosystem Product) will be calculated according to the relevant accounting methods, giving "value tags" to the green waters and lush mountains, and achieving coordinated growth in GDP and GEP scale. It is expected that by 2025, Nuanshui Township's GEP will reach 65.6 billion Yuan, and by 2035, it will reach 133.9 billion Yuan.

After determining the asset value of Nuanshui Township's ecological resources, it is necessary to "monetize" the asset value through appropriate channels. To this end, this plan recommends utilizing the Asset Operation Center of the "Two Mountains Bank" to release ecological dividends. The Asset Operation Center primarily achieves this by introducing the EOD (Ecological-Oriented Development) model, leveraging forest, fruit forest, and garden resources based on Nuanshui Township's ecological development needs to develop EOD-related industrial projects. Among them, the plan recommends setting the EOD-related project for the forest as the construction of Nuanshui National Forest Park, the EOD-related project for the fruit forest as the Desheng Youliang Village Rural Complex Project and the Shuiquanggou "Apricot Village" Agricultural, Cultural, and Tourism Integration Development Project, and the EOD-related project for the garden as large-scale garden engineering construction projects such as the Mine Park, Pisha Rock Geological Park, and Geqiugou Botanical Garden.

In addition, this plan proposes to build the asset trading platform of “Two Mountains Bank " in Nuanshui Township into a platform primarily used for forestry and agricultural carbon sequestration trading. In the near future, carbon trading pilot projects will be carried out within the township area, and in the long run, it can be promoted to the banner, city, and even the western Inner Mongolia and northern Shaanxi regions. Based on the estimated annual emission reduction of 0.7t per mu (1 mu ≈ 667 m²) and a price of 58 Yuan per ton for afforestation projects, and the estimated annual emission reduction of 0.43t per mu and a price of 10 Yuan per ton for agricultural carbon sequestration projects, it is expected that by 2025, the annual income of forestry carbon sequestration trading in Nuanshui Township can exceed 6 million Yuan, and the annual income of agricultural carbon sequestration trading can exceed 200,000 Yuan. To achieve this, villagers and village collectives need to be guided to declare woodland as carbon sequestration forests and farmland crops as agricultural carbon sequestration trading projects. Among them, for artificial arbor forests with a continuously distributed area of 0.67 hectares or more on villagers' individual land, villagers are encouraged to apply for carbon sequestration forests individually. Otherwise, villagers are encouraged to transfer their woodland to the village collective, and the village collective will apply for carbon sequestration forests uniformly.

The financial service center of “Two Mountains Bank " in Nuanshui Township primarily relies on the aforementioned ecological projects to provide certain economic support to enterprises, cooperatives, individuals, and others within the township. It is recommended that in the near term, it mainly provides GEP (Gross Ecosystem Product) ecological value loan services and carbon account services. The GEP ecological value loan service is a lending business based on

the assessed GEP value, which can effectively activate the economic value and financial attributes of ecological products. Priority can be given to select professional cooperatives and enterprises within Nuanshui Township that urgently need loans to carry out pilot projects. Carbon account services are divided into two categories: enterprise/cooperative carbon account services and villager/village collective carbon account services. The former is mainly aimed at enterprises and cooperatives in the township that conduct carbon trading to enhance their carbon account ratings and credit lines, while the latter allows villagers participating in carbon trading to deposit their carbon reserves into personal carbon accounts, which can be cashed out after trading.

(3) Actively building

To actively implement the "Two Mountains Theory," it is necessary to promote Nuanshui Township towards more proactive ecological cultivation and construction. Therefore, the plan proposes to leverage ecological dividends to attract and organize more local, expatriate, and returning Nuanshui residents to participate in ecological cultivation efforts such as afforestation, orchard expansion, and garden construction.

First, we can use new media, offline promotion, and other methods to promote Nuanshui Township's development goals, vision, and ecological dividends to attract public participation in ecological construction. Then, we can recruit relevant personnel through four channels: forest construction, national forest construction, garden construction, and "Two Mountains Bank" experience management.

For forest construction: 1).Organized by the township government, recruit 800-1000 afforestation workers.2).Organized jointly by enterprises and the township government, recruit 150-200 forest park construction and management personnel.3).Organized jointly by enterprises and the township government, recruit 200-300 forest rangers.4)

For orchard construction: 1).Organized by village collectives, recruit 80-100 fruit farmers. 2).Organized jointly by enterprises and village collectives, recruit 50-80 personnel for rural complex construction. 3).Organized jointly by village collectives and villagers, recruit 50-80 returning residents to operate the rural complex.

For garden construction: 1).Organized by village collectives, recruit 40-60 garden construction workers. 2).Organized jointly by enterprises and village collectives, recruit 30-50 garden maintenance personnel.

For "Two Mountains Bank" operation and management: 1).Organized by the township government, recruit 30-50 offline service personnel. 2).Organized jointly by enterprises and the township government, recruit 20-30 online platform development and maintenance personnel. 3).Organized jointly by enterprises and the township government, recruit 30-50 online service personnel.

Table 1: Description of the EOD-Related Projects in Nuanshui Township

	Forests	**Fruit forests**	**Gardens**
EOD-Related Projects	Nuanshui Township National Forest Park Project	Desheng Youliang Rural Complex Project; Shuiquangou Rural-Culture-Tourism Integrated Development Project	Mining park, arsenic sandstone geological park, and other landscape engineering construction projects.
Key Participants	A listed company + township government + villagers	Social capital + township government + village collective + fruit farmers	Social capital + township government + village collective
Source of Revenue	Operating income will be generated from carbon sequestration trading, development and operation of cultural tourism projects,	Operating income from future projects will come from carbon sequestration trading, fruit tree planting and operation, as well as the development and	Operating income mainly consists of the development and operation of cultural tourism projects, as well as the

	as well as the operation of parking lots in future projects.	operation of cultural tourism projects.	operation of supporting facilities.
Ecological Construction	By conducting artificial afforestation, we can further improve the ecological indicators in Nuanshui Township, including plant coverage, forest coverage, species richness, and water source conservation capacity.	By increasing the area of fruit forests, we can enhance the transpiration of the forest, improve the forest coverage rate, and at the same time enhance the ornamental value and tourism development value of ecological resources.	By promoting the diversity of the ecosystem in Nuanshui Township, we can revitalize brownfields and underutilized park green spaces, thereby enhancing the ecological vitality of the entire region.

5. Conclusion and Discussion

This study takes the planning perspective of ecological capitalization as an entry point, integrates the dual needs of ecological protection and economic development, analyzes the basic logic of ecological capitalization driving rural revitalization, and proposes a planning model led by ecology, supported by the revitalization of population, industry, and land, and enhanced by culture. It explores the planning path for rural revitalization from the perspective of ecological capitalization. Based on this, the study uses the case of Nuanshui Township in Inner Mongolia as a typical example, constructs a three-step planning action path from shaping the foundation, releasing dividends, to active construction, based on the analytical framework of "ecological resources - ecological assets - ecological capital" and combined with the needs of various entities in rural revitalization. The study also puts forward targeted planning and guiding measures for Nuanshui Township's characteristic resources such as "forests, orchards, and gardens," as well as an EOD development model centered on the "Two Mountains Bank." It clarifies the entire development system of Nuanshui Township's rural ecological resources from confirmation of ownership rights, to ecological asset valuation, to ecological capital operation, further confirming that the capitalization of ecological resources can bring value-added benefits in terms of ecology, society, and economy. Looking forward, the study will further refine the planning framework and implementation path for rural revitalization from the perspective of ecological capitalization, providing strong support and solid guarantees for supporting rural construction and coordinated urban-rural development.

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