

# The Internal Logic, Realistic Constraints and Practical Approaches of Empowering Rural Green Development with New Quality Productive Forces

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**Abstract:** New quality productive forces serve as a crucial pillar for the green development of agriculture and rural areas. New quality productive forces provide robust support for rural green development, while the concept of rural green development injects strong momentum into the advancement of new quality productive forces. The two are highly aligned and mutually reinforcing at the level of new development philosophy. Currently, rural areas face issues such as backward agricultural production methods, challenging rural ecological environment governance, and insufficient green development awareness among farmers, which hinder the effectiveness of new quality productive forces. In light of this, to promote rural green development through new quality productive forces, it is urgently necessary to coordinate production, living, and ecological aspects — including accelerating the green transformation of agricultural production methods, strengthening rural ecological environment protection and governance, and enhancing the publicity and guidance of farmers' ecological awareness — to better drive coordinated economic and social development in rural areas and contribute to agricultural and rural modernization.

**Keywords:** new quality productive forces; rural green development; rural revitalization; ecological civilization

## 1. Introduction

Since July 2023, during inspections in Sichuan, Zhejiang, and other regions, President Xi proposed the concept of new quality productive forces, emphasizing that "we should integrate scientific and technological innovation resources, lead the development of strategic emerging industries and future industries, and accelerate the formation of new quality productive forces." [1] In January 2024, he further pointed out that new quality productive forces are inherently green, rooted in high-quality development and forged through the integration of technological innovation and production upgrade.

Against the backdrop of the "dual carbon" goals and Beautiful China initiative, rural green transformation has become urgent. Nevertheless, rural green development in China is hampered by various difficulties concerning agriculture, rural areas and farmers. It is an essential part of Chinese-style modernization and ecological civilization construction.

Currently, most studies focus on rural revitalization and agricultural modernization, while research on applying new quality productive forces to drive rural green development is insufficient. Hence, exploring its working logic, challenges and solutions carries great significance for addressing rural issues, building pleasant villages and realizing harmony between humanity and nature. [2]

## 2. The Internal Logic of New Quality Productive Forces Empowering Rural Green Development

New quality productive forces driving rural green development is a concept with rich connotations, encompassing both the mutual interaction between the two and their high degree of alignment.

### 2.1 New Quality Productive Forces Provide Strong Momentum for Rural Green Development

China's agricultural and rural modernization is inseparable from rural green development. However, Chinese-style agricultural and rural modernization still faces practical challenges such as "blockages" in agricultural industrial transformation, an "unformed" pattern of rural collaborative governance, and "simplistic" green development concepts among farmers, with many theoretical explorations and institutional construction dilemmas in rural green transformation awaiting resolution.

New quality productive forces promote green development through scientific and technological innovation, empowering rural green development via the transformation and upgrading of technology, energy, and industries. By leveraging emerging technologies such as the Internet and core green agricultural technologies, they guide the transformation of traditional

industries; by adjusting energy structures and developing new energy materials, they achieve green production chains; and by relying on innovation to cultivate emerging industries, they spawn diversified value models and drive rural transformation and upgrading. New quality productive forces focus on promoting the comprehensive improvement of agricultural new quality productive forces, rural social development, and farmers' living standards through digital, intelligent, and green approaches.

## **2.2 Rural Green Development Concepts Provide Strong Support for the Development of New Quality Productive Forces**

With the acceleration of industrialization, the footprint of industrial development has continuously extended into rural areas, exposing them to increasingly severe pollution problems, and the conflict between industrialization and the ecological environment has gradually become prominent. In the context of the new era, the economic and social development model relying on resource consumption and environmental destruction is no longer sustainable, especially for rural areas whose development speed was already sluggish, making the situation even more dire. The task of rural areas to shift to green development methods is urgent. Green development aims to minimize environmental pollution through green and low-carbon technological innovation and industrial green transformation, promote a green transformation of the rural development path, and achieve coordinated economic, social, and environmental development.

Therefore, under the guidance of the green development concept, new quality productive forces can promote the transformation and upgrading of production methods. With the help of innovative technologies, the shift in development methods can make resource utilization more efficient and rational, thereby reducing the pressure of economic and social development on the natural ecological environment.

## **2.3 The Synergy and Coordination between New Quality Productive Forces and Rural Green Development**

President Xi emphasized that "the concept of green development should be integrated into all aspects and the entire process of economic and social development." [3] New quality productive forces are highly consistent with green development, laying a solid foundation for the latter's advancement.

Driven by technological innovation, new quality productive forces boost rural green development. They balance resource, environment and rural industries. Advancing technological innovation helps realize all-round, coordinated and sustainable progress in agriculture and rural areas, turning potential productive forces into real strengths for green growth. Guided by the green development concept, such productive forces prioritize efficient and clean resource utilization instead of excessive consumption. They raise resource efficiency, cut pollution and achieve green production. [4] More than mere technological combination, new quality productive forces represent a productivity revolution centered on harmony between humanity and nature. They power green production, lifestyles and ecology across rural areas.

Aligning with the innovative, coordinated, green, open and shared development concepts, new quality productive forces and green development reinforce each other. The former fuels green development while the latter defines its direction. Their integrated application in rural areas drives high-quality development, facilitates Chinese-style modernization, helps build a Beautiful China, realizes harmony between humanity and nature, and contributes to global ecological civilization.

## **3. Realistic Dilemmas of New Quality Productive Forces Empowering Rural Green Development**

In the process of rural green construction, we can already see some preliminary achievements, such as improvements in infrastructure, strengthened environmental protection, and the promotion of green concepts. However, many areas, especially remote and underdeveloped rural areas, still face a series of practical challenges, mainly reflected in agricultural production methods, rural ecological environment, and farmers' ecological awareness.

### **3.1 Backward Agricultural Production Methods**

Scientific and technological innovation, especially digital technology and skilled talent cultivation, lies at the heart of new quality productive forces and underpins rural green development.

Globally, advanced digital agriculture has taken shape in some countries. While the US excels in precision agriculture and Japan leads intensive precision farming, China's digital agriculture started late and develops slowly. Its traditional production modes are hard to upgrade, and core digital agricultural technologies remain relatively backward. Worse still, rural China faces severe challenges: a rapidly aging population and a generally low educational level among rural laborers, resulting in a serious shortage of professional talents.

China's agriculture still relies on the traditional production model featuring high input, heavy pollution and low efficiency. Outdated farming methods restrict the integration of agriculture with tourism, e-commerce and other modern service industries, blocking industrial upgrading, value appreciation and green transformation of agriculture. [5]To conclude, rural China is plagued by weak core agricultural technologies, inadequate high-end technical talents and stalled industrial integration. These hurdles hold back rural green industrialization, ecological progress and sustainable development, becoming the major obstacle for new quality productive forces to boost rural green development.

### **3.2 Difficulties in Rural Ecological Environment Governance**

Ecological environment governance and rural economic sustainable development are interdependent and mutually reinforcing. Currently, China has achieved remarkable results in green village construction. However, ecological environment problems in some rural areas still cannot be ignored and have become shackles restricting rural development.

Farmers, in their urgent pursuit of large economic benefits, overuse chemical fertilizers and pesticides to increase agricultural production, leading to disasters in land, water bodies, and organisms. Many residents do not sort and treat domestic waste and sewage, seriously polluting the surrounding environment of rural areas. Many remote rural areas lack funding for infrastructure construction, and the promotion of green technologies encounters a "last mile" bottleneck. Due to insufficient returns, long construction cycles, high risks, and low returns, it is very difficult to attract social capital investment, affecting the diversification of funding sources. In addition, the institutional construction of ecological villages is also inadequate. On one hand, some areas lack targeted laws, and the implementation of relevant regulations remains superficial; on the other hand, the supervision mechanisms in certain areas are unsound, with problems such as unreasonable structures and overlapping responsibilities.

Within the framework of ecological civilization construction, rural areas need to coordinate ecological protection, economic development, and social stability, scientifically allocate natural resources such as land and water, achieve efficient and context-appropriate resource utilization, and achieve a win-win for economic and ecological benefits. Only through such approaches can rural areas stand firm in the modernization process and achieve a magnificent transformation of green rural development in the new era.

### **3.3 Weak Green Development Awareness among Farmers**

Farmers are core participants in rural green development, yet many fail to fully grasp its connotation due to limited education, and fail to integrate ecological civilization into daily production and life, staying away from local environmental protection.

The inadequate awareness of ecological protection and green ideas among farmers mainly hinders rural green progress. Ideologically, they lack recognition of environmental protection's significance and green thinking. Prioritizing economic gains over ecological benefits amid slow rural economic growth is common. Behaviorally, most farmers lack a sense of duty and refuse to take initiative in environmental governance. Restricted by backward technology, extensive and polluting production modes still prevail in rural areas, blocking balanced economic and ecological growth. These issues worsen environmental damage and create a poor atmosphere for rural green development.

Engels pointed out in *Dialectics of Nature*: "Let us not, however, flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us." [7]Against the background of green and low-carbon development, raising farmers' understanding of green concepts is essential. Only when villagers take active responsibility for environmental governance can we build momentum for rural ecological revitalization. Thus, inspiring farmers' initiative to engage in green development has become an urgent task.

## **4. Practical Pathways of New Quality Productive Forces Empowering Rural Green Development**

President Xi emphasized that "humanity should take nature as its root, respect nature, follow nature, and protect nature." [8]Under the task of new quality productive forces empowering rural green development, it is necessary to accelerate the green transformation of agricultural production methods, strengthen the protection and governance of the rural ecological environment, and enhance the publicity and guidance of farmers' ecological awareness, promoting the harmonious coexistence of production, living, and ecology, with a view to building a new rural landscape where agriculture is stronger, the countryside is more beautiful, and farmers are wealthier.

#### **4.1 Accelerate the Green Transformation of Agricultural Production Methods to Spawn Rural Green Production**

The innovation, mastery and application of new quality technologies rely heavily on new quality talents. To foster new quality productive forces in rural areas, we need both agricultural technological innovation and high-caliber rural workers with solid technical expertise and a sound grasp of green development ideas.

We should boost technological support and advance integrated rural industrial development. We need to innovate agricultural technologies, make breakthroughs in core technologies for green and low-carbon farming, and apply digital, intelligent and eco-friendly technologies to transform agricultural production. Meanwhile, rural industries must pursue upgrading and technological innovation. By leveraging local resources, culture and ecological strengths to develop featured industries and new agricultural business models, we can drive diversified industrial integration and fuel rural economic growth.

Talent cultivation should be prioritized to elevate rural workers' innovation capabilities. First, targeted training programs, both online and offline, shall be launched to cultivate skilled agricultural talents and integrate green technologies into rural production. Second, closer cooperation between rural areas and universities will advance education reform and foster practical talents for green agriculture. Third, favorable policies including tax benefits, entrepreneurship rewards and research subsidies should be rolled out to attract and retain talents in the countryside, stabilize talent teams and encourage them to contribute to rural development.

#### **4.2 Strengthen the Protection and Governance of the Rural Ecological Environment to Cultivate Rural Green Ecology**

Rural ecological civilization construction is confronted with structural challenges, mainly caused by weak environmental protection, fund shortages and flawed policies. To thoroughly improve rural ecology, targeted measures are proposed as follows.

Advance ecological restoration to foster green development. It is vital to cut excessive use of chemical fertilizers and pesticides, monitor and manage rural soil and water, and develop eco-friendly technologies to restore agricultural ecological cycles. Efforts should also be made to build resource-saving and eco-friendly ecological systems, popularize organic and ecological farming, and optimize energy-saving and eco-related industrial layouts. Besides, integrated protection of mountains, rivers, forests and other natural resources is required. Local featured cultural and tourism industries can be developed to realize balanced ecological protection and economic growth.

Boost financial support and introduce social capital. Governments need to increase fiscal input in rural technological innovation and green infrastructure, and encourage businesses and farmers to invest in renewable energy to drive sound growth of green agriculture. [9]Meanwhile, more channels should be opened to attract social capital. Improved incentive policies will draw enterprises and individuals to offer funds and technologies, ensuring steady financial backing for rural green agriculture.

Optimize top-level design and improve institutional safeguards. Party building and cadres should take the lead in promoting green development ideas and reject formalism. Sound mechanisms for village affairs decision-making and ecological supervision need to be established to engage villagers in environmental governance. Furthermore, tailored rules and regulations shall be formulated to support new productive forces, so as to standardize and legalize rural green development.

#### **4.3 Strengthen the Publicity and Guidance of Farmers' Ecological Awareness to Create Rural Green Living**

"Ecological civilization construction is closely related to everyone, and everyone should be a practitioner and promoter." [10]In the process of building green villages, as the main body of rural green development, villagers' ecological awareness and capabilities directly determine the degree of China's rural development.

Enhance villagers' ecological awareness and give full play to the role of villagers as the main body. On one hand, strengthen the publicity and education of green ecological concepts, leveraging the diverse media and technologies spawned by new quality productive forces such as short video platforms and e-commerce live streaming, to produce and disseminate vivid and interesting content rich in ecological knowledge, such as showcasing cases of dual benefits from green agriculture, allowing farmers to intuitively feel the close connection between ecological protection and their own interests, and improving villagers' understanding and recognition of green development. On the other hand, give full play to the subjective role of villagers by conducting online and offline ecological environmental protection knowledge lectures, inviting experts,

scholars, and agricultural technicians to use new methods such as big data analysis and visual models to explain ecological agriculture principles and the hazards of environmental damage in an accessible way, deepening farmers' understanding of ecological concepts.

Integrate multiple measures for guidance and promote ecological village construction. One aspect is agricultural production. Introduce new equipment and technologies such as smart irrigation and precision fertilization, establish demonstration farmland, and let farmers personally experience how green production methods driven by new quality productive forces can reduce costs and improve yield and quality. The other aspect is daily life. By building green energy demonstration villages and promoting new energy facilities such as solar-powered streetlights and biomass energy stoves, farmers can consciously practice green living in their daily lives, gradually develop green living habits, and help create a rural green lifestyle.

## 5. Conclusion

To sum up, optimizing new quality productive forces to drive rural green development via production upgrading, ecological management, value guidance and institutional support boosts rural green development quality and efficiency. Transforming agricultural production modes fosters green production; ecological protection improves rural ecosystems; raising farmers' environmental awareness shapes green lifestyles. The integration of production, living and ecology helps build thriving agriculture, pleasant countryside and well-off farmers. These approaches remedy rural development weaknesses, satisfy diverse local demands, and advance rural revitalization as well as the construction of a modern, prosperous and harmonious socialist country.

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