

## Grasp the Historical Opportunity of Ecological Civilization and Write a new Chapter in Rural Vitalization Based on the background of industry 4.0

—In the view of investigation and research of seven villages in Hunan, Jiangxi, Hubei, Guangdong, Shandong, Jiangsu

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### Abstract

*Since the 18th National Congress of the Communist Party of China, our country has attached great importance to the construction of ecological civilization and promote socialism with Chinese characteristics into a new era of ecological civilization that pursues green production methods and lifestyles. The historical opportunity of ecological civilization enables the rural areas to realize endogenous development with unique ecological advantages as the starting point. On the basis of being close to nature, conforming to nature, and protecting nature, green development leads rural revitalization, develops ecological economy, and realizes harmonization of economic benefits, social benefits and ecological benefits, allowing the beautiful picture of "Beautiful China" to be painted on the field of hope in the rural areas, thus writing a new chapter in the rural vitalization in the new era based on the background of industry 4.0.*

**Keywords:** Ecological civilization, rural revitalization, green development, industry 4.0

Based on the questionnaire data collected in the survey of seven typical villages in eastern, central and western villages conducted by the research team from 2019 to 2020, and the current status and trends of rural ecological civilization construction, this article confirms that rural vitalization should be green development, explores the connection point between the wave of the ecological civilization era and the rural revitalization strategy, then proposes the path and measures to lead the rural revitalization with green development in the new era and build a beautiful countryside [1].

After a century of vicissitudes, the Communist Party of China has never forgotten its responsibility of "strengthening and rejuvenating agriculture". Since the 18th National Congress of the Communist Party of China, the Central Committee of the Communist Party has insisted on "Solving issues related to agriculture, rural areas and villagers" is the top priority for the Communist Party of China (CPC) [2]. At the 2020 Central Rural Work Conference, General Secretary Xi emphasized that "If the nation is to be rejuvenated, the village must be rejuvenated." The most important way to achieve rural rejuvenation is to find a key in development suitable for agriculture, rural areas, and villagers. And good eco-environment is the biggest advantage and most precious resource of the countryside. It can be said that taking the ecological advantage of the village as the starting point is a key path to promote the internal development of the village in the new era and realize the rural revitalization. The fundamental attribute of the countryside is to be close to nature. From production to life, without green development, the rural areas will lose its true color. Rural vitalization should be guided by green development, firmly grasp the historical opportunities of the new era of ecological civilization, take the construction of beautiful villages as the overall starting point for the promotion of rural revitalization strategies, form green development methods and lifestyles, pursue a civilized development path that ensures increased levels of production, better living standards, and a sound ecology, bring about a model for modernization whereby beautiful Countryside construction in harmony with growth in rural income [3,4].

Based on the questionnaire data collected in the survey of seven typical villages in Hunan, Jiangxi, Hubei, Guangdong, Shandong, Jiangsu conducted by the author's research team during holiday from 2019 to 2020, and

the current status and trends of rural ecological civilization construction, this article confirms that rural revitalization should be green development, explores the connection point between the wave of the ecological civilization era and the rural revitalization strategy, then proposes the path and measures to lead the rural revitalization with green development in the new era and build a beautiful countryside [5].

## I. Leading the Strategic Docking Point of Leading Rural Vitalization with Green Development

1.1 The fundamental focus of leading rural vitalization with green development is to make agriculture a promising industry and enhance the enthusiasm and creativity of villagers

The lessons of insufficient economic development and improper economic development in rural construction in the past have warned people that rural areas do not have their own advantages in developing industrial economy, and rural rejuvenation should no longer follow traditional path of vitalize rural areas by developing industry. The ecological advantage of the rural areas is not only the economic wealth of the rural areas, but also the unique advantages of the rural areas' economic development. At this stage, the ecological value of agriculture is prominent. Agriculture not only provides traditional agricultural products, but also plays an important role in providing green energy, conserving biodiversity, protecting resources and environment, and developing tourism and leisure services. Rural ecological vitalization should be based on people's pursuit of green, circular, low-carbon life and health demands, rely on the ecological advantages and natural resources that are difficult to find and replace in urban areas, take the road of transformation with rural characteristics, and vigorously develop ecological agriculture and ecological industry and ecological service industry, give priority to ecological benefits to realize the ecological transformation, ecological development, and ecological vitalization of the rural economy. The core connotation of General Secretary Xi's ecological civilization thought is the idea that "Lucid Waters and Lush Mountains Are Invaluable Assets", which means that lucid waters and lush mountains inherently contain economic wealth and economic value, to be specific in the local practice, it shows that rural social production is no longer the dual opposition of ecological and economic benefits, but "ecological is economic, ecological benefits can be transformed into economic benefits". In other words, as people's demand for high-quality ecological products continues to increase, improving rural ecological benefits means economic benefits will continue to increase, too.

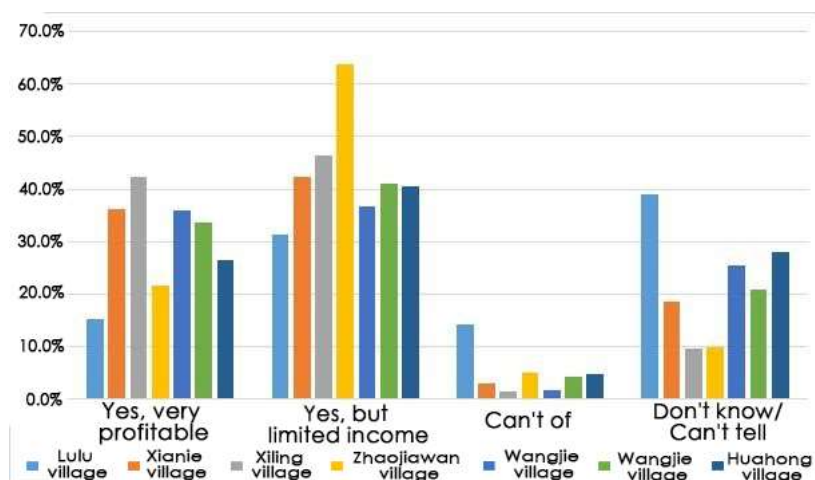


Figure 1: Questionnaire survey on whether the construction of beautiful countryside can achieve wealth (%)

And rural ecological industries can bring considerable economic benefits to villagers. Green products and organic products can meet people's ecological needs for food because of their green, environmental, healthy and hygienic ecological value. Placing lucid waters and lush mountains in the modern market economy system, guided by the concept of giving priority to ecological benefits, operate ecological agriculture, ecological industry and ecological service industry on rural natural assets, focusing on shaping agricultural experience, sightseeing, leisure and health care, and elderly care with multiple functions such as services, the lucid waters and lush mountains of the countryside can be changed from "assets" to "capital". This ecologically beneficial "capital" can bring economically beneficial "funds" to villagers. In the survey, when asked "Can you get rich by building a beautiful rural environment (such as farmhouses, organic food, etc.)?" (Figure 1), most of the villagers in the seven villages hold an positive attitude, and a relatively small proportion of migrant workers oppose to this idea. Even in the Lulu Village, which is in the rural Western part of China, only 15% of the villagers deny that ecological constriction can make them rich.

1.2 The key to leading rural revitalization with green development is to make rural areas a desirable home and enhance villagers' sense of gain, satisfaction and happiness

Rural life naturally matches the rhythm of nature. It advocates de-monetized, low-carbon lifestyle instead of high consumption. This is a sustainable lifestyle that is close to nature and conducive to ecology, life and health. In the new era of ecological civilization, the tranquil life in the countryside has a simple, unpretentious and leisurely beauty, which attracts urban people, who strive to find their own peaceful space outside the reinforced concrete and find a feeling of return to the basics in the depths of their hearts. So rustic style is very popular among urban people. At present, people's growing needs for a better life, especially the growing need for a better ecological life, and the attachment for "home land, local accent, nostalgia, and love for hometown", the yearning and pursuit for tranquil, harmonious, and beautiful green waters and mountains offer rare opportunities and favorable conditions for the construction and development of the countryside.

Industrial civilization has created a noisy urban environment and the deteriorating environment, making urban people live in an extremely tense state. While in rural areas is close to nature, close to ecology, and close to green villages, where people work at sunrise and rest at sunset. While approaching nature, embracing nature, and feeling the original ecology of nature, villagers eat food, vegetables, and fruits etc., grow by themselves, enjoying the fruits of their work. Villagers can paint a picture of harmonious coexistence between man and nature in ecological production and life. Surrounded by lucid waters and lush mountains, good ecology, and beautiful environment, villagers feel the closeness and beauty of nature in fresh and enjoy joy and happiness that are beneficial to both physical and mental health. In the several villages surveyed by the author, villagers in east, central and west all expressed the idea of building a beautiful, clean and tidy village as their ideal place to live. As shown in Figure 2, while answering "Do you want to continue to live in this village?", most of the villagers in the seven villages expressed their willingness to continue to live in current village, and a large proportion of them chose the option "Yes, because I live well here". This shows that the villagers love the villages and their hometown, and they feel that life in the rural areas is beautiful.

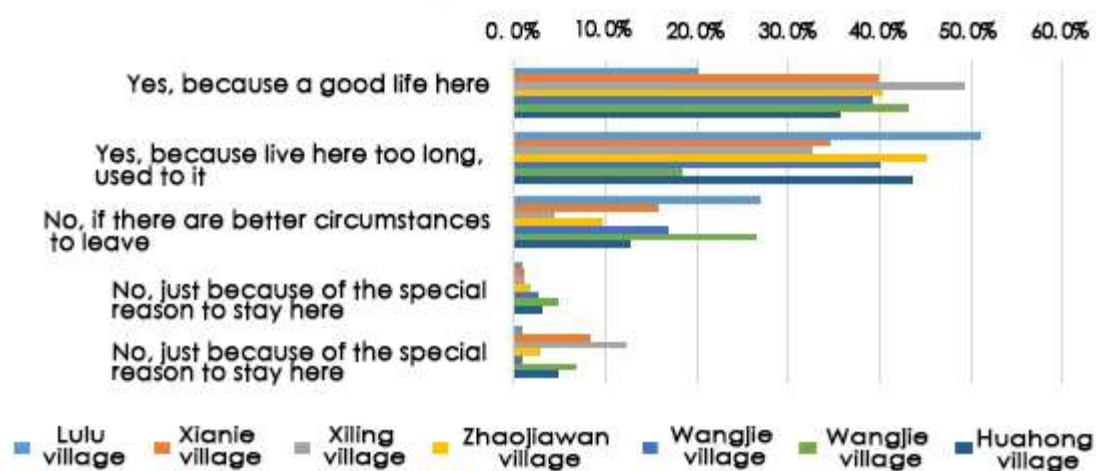


Figure 2:  
Survey and statistics on the changes of the construction of beautiful countryside in improving the residential satisfaction of villagers in seven villages (%)

1.3 The ultimate goal of leading rural vitalization with green development is to make villager an enviable profession and enhance villagers' self-confidence, sense of honor and make them feel proud

China is a large agricultural country, and also a country with a large agricultural population. In the past, people mostly saw people "jumping the dragon gate", means abandoning life in rural areas and migrate to the city, but it is rare to see the "phoenix returning to the nest", which means people returning to their hometown and work in villages from cities. Since the 18th National Congress of the Communist Party of China, the advent of a new era of ecological civilization has awakened the sleeping villages and activated their ecological advantages. General Secretary Xi's new era of socialism with Chinese characteristics upholds the "people-centered" concept. In the strategic plan for rural revitalization, the majority of villagers, as the main body of the village, will gradually come to the center of the stage of the new era in combination with the wave of ecological civilization. And lead the development with their ecological production method, lifestyle, and consumption methods. In the concept of

ecological civilization, a new type of professional villager with ecological awareness and ecological quality in the future will be an "occupation", which not only offers social status, dignity, security, and good income, but also means this person is culturalized and have technology and achievement and has entrepreneurship. Villagers will also become pioneers in the development of new agricultural industries and new formats, leaders in the application of new technologies and equipment, and practitioners in the creation of new agricultural business entities.

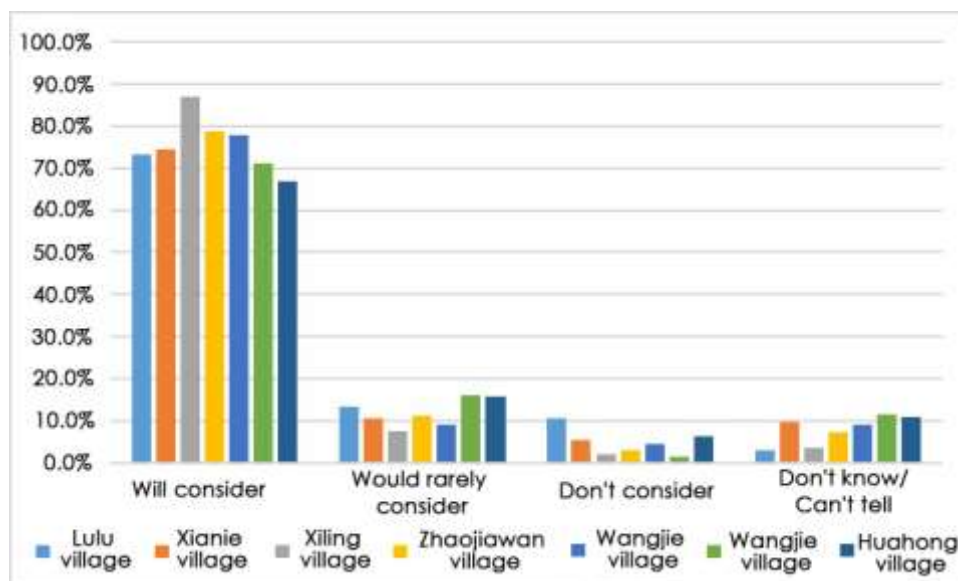


Figure 3: Investigation and statistics of environmental protection factors taken into consideration when villagers engaged in agricultural activities in seven villages (%)

The author conducted a key survey on the ecological awareness of villagers. Answers regarding the question "Do you consider environmental protection, ecology, health and other factors when you are engaged in farming or breeding?", which can show people's ecological awareness, Huahong Village in the east part of China and Xianie Village, Zhaojia Village and Xiling Village in the middle part of China, where less chemical fertilizers and pesticides are used, the vast majority of villagers choose "will consider", while those who choose "no consideration at all" are basically less than 5%. As shown in Figure 3, although most of the villagers in Lulu Village in the west are extensively using chemical fertilizers and pesticides, 73.3% of the villagers still choose the option that they will consider environmental protection. This shows that although the villagers in the western villages are forced to use a large number of industrial products for production due to environmental conditions, the villagers still have the concept of environmental protection in their mind during planting. The essence of the non-ecological planting of the villagers in Rulu Village in western China is that the villagers have a strong ecological consciousness in their minds.

The author further studied the correlation coefficients among all surveyed villager variables (as shown in Table 1) and found that in addition to the relevance of villagers' environmental protection awareness in work attitudes, environmental protection norms and publicity, it also has a positive correlation with education level. The correlation coefficient is 0.272, and they are all significantly correlated at the level of 0.01. This means that the education level of the villagers has a certain impact on their environmental awareness. In the new era, villagers who have been enlightened by ecological civilization education will be more proactive and conscious towards a life of abundance and happiness. The new type of villagers after ecological enlightenment will replace traditional villagers, allowing villagers to earn money and get rich, so that villagers can truly have self-confidence, sense of honor and pride, and play an increasingly important role in the development of modern agriculture.

Table 1: Correlation between environmental protection awareness and education level of villagers

		Environmental awareness	Your education level
The villagers	Pearson correlation	1	.208**
Environmental awareness	Significance (double-tailed)		.000
	The case number	822	812

The villagers education level	Pearson correlation	.208**	1
	Significance (double-tailed)	.000	
	The case number	812	849

\*\* . At level 0.01 (double-tailed), Significant correlation.

## II. Paths and measures to lead rural revitalization with green development

Leading rural revitalization with green development should lead rural economic benefits with rural ecological benefits, transform the rural ecological environment advantages into advantages in ecological agriculture, ecological industry, eco-tourism and other ecological economic sectors, promote the transformation of lucid Waters and lush mountains into fortune and assets, create a beautiful ecological environment for rural development and good material conditions for villagers income increase. To this end, we should focus on the following points:

### 2.1 Persist in sustainable development and promote the upgrading of rural industry

To lead the rural vitalization with green development, we should change traditional rural economic development methods, increase quality of rural industry development, cultivate new drivers of rural development, promote the transformation of rural spatial distribution methods, resource utilization methods, and production management methods, and promote rural development into a spatial optimized, resource conservative, environmental friendly, and ecologically stable development path and promote rural vitalization to be firmly based on ecological economy vitalization. First, formulate a plan for the adjustment and upgrading of rural industrial structure. China, with a vast territory, differs greatly in natural conditions such as water, soil and climate between different regions. Field survey in the seven villages show that the natural environmental endowments of the eastern, central and western villages are even more distinct. It is necessary to adhere to the sustainable development strategy, clarify the ecological function positioning, highlight local characteristics, make a scientific plan for the adjustment and upgrading of rural industrial structure according to local conditions, clarify the development structure of rural ecological agriculture, ecological industry, and ecological service industry, and form a regional layout for the construction of rural ecological characteristics, avoid "swarming" and duplication of construction. Second, vigorously support the rural ecological industry development. Develop a pollution-free, ecological and environmental-friendly and organic food industry, actively cultivate distinctive and high-quality agricultural products brands, strengthen economic strength, and strive to increase villagers' income. Provide tax incentives and subsidies to rural green industries through taxation, finance, price and other policies, encourage enterprises to develop ecological industries, produce ecological products, promote the upgrading of industrial structure, realize the sustainable development of rural economy, and stabilize agriculture by means of financial payment, stable the price of agricultural products and ensures that the interests of villagers are not harmed. Third, increase investment in rural ecological industries. Guide financial companies to participate in rural ecological industry development, use fiscal and financial tools to build an ecological agricultural industrial system, production system, and management system, support and guide the development of rural ecological agriculture, ecological industry and ecological service industry, and improve the innovation and competitiveness of ecological agriculture, ecological industry and ecological service industry, guide the villages to transform " lucid waters and lush mountains " into fortune and assets, and effectively transform rural ecological advantages into economic and social benefits.

### 2.2 Stay committed to green agriculture and improve the rural ecological environment

Green agriculture is to determine rural economic development based on the carrying capacity of natural resources and the natural environment. At this stage, to promote rural green development, we should make full use of and tap the advantages of rural green ecology to ensure evergreen mountains, lucid waters, and fresh air. First, we should take more care of arable land. Adhere to the warning line of the overall quantity and quality of arable land, protect paddy fields, dry land, irrigated land and vegetable fields, repair and restore soil pollution, and increase the pilot scale of the land rotation and increase fallow system scale in severely ecologically degraded areas to enable the cultivated land to take a rest, promote land water conservation, cultivated area protection and ecological environment improvement. Implement the most stringent water resources management system, coordinate the relationship between economic development and water resources development and utilization, coordinate contradictions in water use, supervise and limit unreasonable development and actions that endanger water sources, and implement total rural irrigation water control and control Quota management, strengthen water-saving in land planting, seedling raising, agronomy, pollution prevention and water-saving, realize the sustainable development and utilization of water resources. Third, regard the prevention and control of agricultural non-point source

pollution as a systematic project. Strictly control the pollutants that have not been properly treated during the agricultural production, strengthen the prevention and control of the pollution of water, soil, air and agricultural products caused by pesticides, chemical fertilizers, agricultural films, and livestock and poultry manures, and achieve water saving by agronomic measures, reduce chemical fertilizers, reduce pesticides volume, realize clean production, resources recycle, livestock and poultry breeding upgrade, pollution reduction and pollution control of aquaculture, and explore the implementation of zero-growth actions for major crops, chemical fertilizers and pesticides, and promote green development of agriculture.

### 2.3 Insist on equal emphasis on development and protection, and develop rural tourism with special characteristics

According to the geographical location, resources, environment, history and culture of certain rural areas, develop the rural characteristic ecological tourism service industry according to local conditions, actively develop tourism products with local characteristics, and develop multi-functional agriculture. It should be noted that the construction of distinctive and culturally-rich rural residential attractions can allow tourists to gain more historical and cultural knowledge, enlighten their minds, cultivate sentiments, and enhance their sense of pleasure and comfort while visiting and viewing. In this regard, localities can package the geographical environment, architectural styles, cultural traditions, folk customs, etc. with strong local characteristics as a whole, and advertise and public by TV, radio and other media and self-media. Internet and other means can also be used to introduce and promote local ecological products and ecological services, or attract investment to develop rural ecological agriculture, ecological tourism, elderly care and other service industries, and strengthen the interaction between ecological product operators and tourists. In the promotion of tourism products such as farmhouses and ecological products such as organic vegetables, we can learn from the practice of Tonbrunn Town in Montreal, Canada, that is, introduce discounted famous products, so that visitors can enjoy the fun of shopping while enjoying the beautiful rural scenery.

### 2.4 Adhere to the talent development strategy and promote the improvement of villagers' quality

Fundamentally speaking, ecological civilization construction must realize the ecologicalization of human beings. Villagers are the main body of rural green development, and cultivating villagers' awareness of ecological civilization is the key to ecological civilization construction. Generally, the majority of villagers in our country have a low level of education, weak modern economic consciousness, and weak ecological consciousness. At present, how to improve the cultural quality of villagers, cultivate their ecological outlook, and make them "ecological people" is not only an urgent problem to be solved, but also the key to allowing villagers to accept their profession and actively participate in the construction of ecological civilization. To this end, on the one hand, it is necessary to gather the strengths of all parties, give full play to their advantages, and strive to build a multi-channel and all-round education system to ensure that villagers' ecological awareness and overall ability are effectively enhanced, so that they can produce and meet the requirements of ecological civilization, and builds a new relationship Life style is devoted to agricultural activities, and truly build a environment that people live in harmony with the natural environment under the concept of being close to nature and conforming to nature. On the other hand, we must vigorously carry out ecological civilization propaganda, actively promote ecological civilization awareness, and strive to change the deep-rooted traditional concepts and thinking patterns of villagers, so that the ecological civilization concept can be established among the majority of villagers, and let the concept and technology of ecological civilization be internalized in villagers' hearts and in the daily actions At the same time, it is necessary to carry out extensive and in-depth activities to create ecological civilization in rural communities, continuously enrich content, activate carriers, and innovate forms, so as to promote the formation of a good atmosphere in the vast rural areas that emphasizes civilization, fosters new styles, loves homeland, and beautify environment.

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