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# Circular Economy in New Village Construction

—A Case of Qinhuangdao City, China

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**Abstract** On the strength of the theory of agricultural circular economy, the mutual relation between the development of agricultural circular economy and new village construction is analyzed. The results show that developing agricultural circular economy and constructing new village is the mutual promotion; realizing agricultural circular economy is the main target of new agricultural construction and developing agricultural circular economy is the way of realizing new village construction. The major problems in the development of agricultural circular economy in Qinhuangdao City are pointed out, covering weak ideological foundation of developing agricultural circular economy; inadequate directions from the government and insufficient technical and financial support. The countermeasures on developing agricultural circular economy in new village construction are put forward, including cultivating people's awareness on circular economy; establishing the law and regulation system of agricultural circular economy; intensifying the technical and model innovation of agricultural circular economy and accelerating the marketization pace of agro-products.

**Key words** Three agricultural economy, New village construction, Agricultural circular economy, Qinhuangdao City, China

Since the reform and opening up, the development of Chinese agriculture has achieved marked progress, but the scantiness of resources, ecological damage and environmental protection has become worse and worse and have seriously hampered the sustainable development of agriculture. Circular economy is a new economic development model, which pays attention to agricultural clean production and the multi-grade use of wastes. Circular economy is an important way for solving "three agriculture problems", protecting rural ecological environment and realizing sustainable development of agriculture. In order to improve ecological environment, enhance the quality of farmers' life and promote the rural economic development. Taking Qinhuangdao City as the subject of researching agricultural circular economy and on the basis of the relations between agricultural circular economy and new village construction, the economic and social problems faced by rural areas of Qinhuangdao City in developing agricultural circular economy are pointed out and the countermeasures on developing agricultural circular economy in the process of new village construction are put forward.

## 1 Analysis on developing agricultural circular economy and new village construction

Circular economy is considered as a group concept of the reduction, reuse and resource treatment in the process of production, circulation and consumption and so on<sup>[1]</sup>. Agricultural circular economy applies the ideas of sustainable development and circular economy to agricultural system; insists on the behavior principles of "reduction, reuse and recycle" and the principle of low emission; transfers the linear growth economic system relied on the consumption of agricultural resources to the economic system relied on the circular of ecological agricultural resources to realize the recycle and reuse of material re-

sources. Socialist new village refers to construct the traditional villages into the new type villages which is characterized by "growth of production, affluent life, civilized countryside, cleanliness of village and democratic management", under the socialist system and the demand of new times<sup>[2]</sup>. New village construction not only covers the main measures and policies on solving "three agricultural problems", but also points the way of developing Chinese rural economy.

**1.1 Agricultural circular economy and new village construction are mutually promoted** The development of agricultural circular economy is closely related to the construction of socialist new village. The aim of agricultural circular economy and new village construction is consistent and mutually promoted. Developing circular agriculture can make better use of natural resources, effectively solve the employment problem of farmers, increase farmers' income and accelerate the pace of socialist new village construction. At the same time, the construction of socialist new village is conducive to the good and fast development of circular economy to a large extent. If the circular economy develops so well that the use of fertilizer is omitted, every household uses marsh gas to cook and the industrialization of agriculture are realized, and the achievement distance of constructing new village can be narrowed. Creating favorable education environment and improving the educational level of villagers can also pave way for developing circular economy and are conducive to the smooth progress of circular economy.

**1.2 Realizing agricultural circular economy is the main target of new village construction** Agricultural production is the industry taken by human based on the biological natural reproduction. Agricultural is the basis of thousands of businesses, and China is a granary country with more than 70% of agricultural population, so China must lay stress on the development of agriculture and the development of rural economy. Developing agricultural circular economy is in accordance with the demand of scientific thought of development; the fundamental

realities of dense people and limited land and the relatively scanty resources; it is the major way for further improving the comprehensive production capability of agriculture and increasing farmers' income; it is of great significance in improving rural living environment and constructing socialist new village. China has more than 7 000 years of history and basis for developing agricultural circular economy, so in order to construct socialist new village in a good and fast way, the target of developing agricultural circular economy should be based on. Besides, the relevant laws and regulations should be formulated so as to create a better environment for developing socialist new village construction. Only by realizing agricultural circular economy, the "three agricultural problems" can be solved fundamentally, the sustainable development of Chinese rural areas can be realized and the new village construction can be accomplished.

### **1.3 Developing agricultural circular economy is the way to realize new village construction**

**1.3.1** Developing agricultural circular economy is the inevitable choice for solving agricultural problems and protecting rural environment. Since reform and opening up, the rural economy of Qinhuangdao City has developed rapidly and the living quality of farmers has improved greatly. However, the improper way of agricultural production and living leads to the serious waste of resources and environment pollution, the phenomena of dirty, disorder and bad is serious in rural areas. In order to improve the production and living conditions of farmers and improve the life quality of farmers, the agricultural circular economy should be implemented and the problems of dirty, disorder and bad can be solved fundamentally.

**1.3.2** Developing agricultural circular economy is an important way to adjust agricultural industrial structure, increase farmers' income and realize the well-off society<sup>[3]</sup>. The process of constructing agricultural circular economy is the process of transforming traditional agriculture and continuously developing rural productivity, and the process of abandoning extensive operation model; saving resources; protecting environment; improving quality and improving efficiency. The process reaches an identity to the demand and target of adjusting agricultural industrial structure. Developing agricultural circular economy, implementing intensive management, conducting comprehensive application and development of resources; preventing and handling pollution and applying high technology and transforming traditional industry and so on will all increase and prolong agricultural industrial chain and motivate the adjustment and upgrade of rural industrial chain. Developing agricultural circular economy can not only provide more job opportunities for farmers, but also increase the productivity of rural labors and economic efficiency, and then create new roads for increasing farmers' income, constructing new village and realizing well-off society.

## **2 Major problems in developing agricultural circular economy of Qinhuangdao City**

**2.1 The ideological basis for developing agricultural circular economy is weak** As a result of the framed thought

pattern of traditional agriculture, a large majority of villagers lack the attention of developing circular economy; most areas still apply the traditional extensive way of operation, featuring "resource-products-wastes". The conservative way of thoughts and backward science and technology always restrict the development of rural production. It is known that in many areas of Qinhuangdao City, the economically backward areas in particular, new things are hard to be accepted. At present, a vast majority of farmers can not accept the thought of circular economy. The corn and rice are the major crops in Funing County of Qinhuangdao City, after the autumn harvest, people will treat the straw as fuel and burn them, and then throw the ashes as rubbish. This kind of way not only wastes the resources, but also pollutes the environment. In order to solve the problem, in 2006, the government has ever offered the money to let the villagers to construct marsh gas tank and each household was subsidized 1 000 yuan. But the results are not satisfying, only around 10 households respond to the call and most rural households held the ambivalent attitude, that the policies can not be carried out. Farmers are the producer of agriculture, the demander and user of new production factors, if they can not understand and use the relevant technologies correctly and do not transform the model of economic development, then further development will be invalid.

### **2.2 Directions from government policies are insufficient**

Circular economy is relatively new in China, so the relevant laws and regulations and developmental policies are still imperfect in many aspects. Although in recent years, circular economy has attracted the attentions from various circles of the society, but the developmental speed is relatively slow. For example, there is no unified plan for explaining how to implement and perform circular economy in rural areas and how to manage and guide the development of relevant industries. At least, until now, China lacks the laws and regulations on circular use of resources. Not only in the aspect of protecting environment, the laws and regulations in other aspects are rarely involved. But foreign experience shows that the lasting development of circular economy needs the support of relevant policies, laws and regulations, so China should accelerate the pace of researching on the relevant fields, or else, the rapid development of circular economy will be hindered<sup>[4]</sup>.

### **2.3 The technological and financial support is insufficient**

Developing agricultural circular economy needs the technological and financial support. The technological system and innovation capability determine whether the circular economy can be well realized. But Chinese farmers have relative low educational level and weak self-innovation and technological innovation capability, and in the practice of circular economy, China does not have the technical standard and performance standard. So even though they want to develop circular economy, they do not know how to plan and develop it. Meanwhile, due to the problems existed in the investment system of rural circular economy, for example, in Qinhuangdao City, the enterprises concerning agriculture are hard to get loan, collect fund and get enough money for development, which lead to the

plight that the policies on investing agricultural circular economy can not be put into practice and the development of rural circular economy is restricted.

### 3 Countermeasures on developing agricultural circular economy in new village construction

#### 3.1 Establishing people's awareness on circular economy

The government should strengthen and perfect the compulsory education; provide training for rural labors according to the practical needs of agricultural production; strengthen the educational training on farmers and put the policies into practice; formulate preferential policies and encourage graduates from technical secondary school and postgraduates to work in rural areas. Only by this way can new village get fresh power and the reform of new village can be further promoted. Farmers' educational quality should be further improved so as to satisfy the need of developing agricultural circular economy as soon as possible. There are many higher education schools in Qinhuangdao City and each county has its own vocational training center, so the government can fully make use of the advantages. The government can select 10 to 20 people to train them the theory of agricultural circular economy and the special agricultural technology. By the training, villagers' questions can be answered and the decisions of farmers can find the theoretical basis and the blind behaviors of farmers can be reduced. At the same time, farmers' educational quality can be improved, and the integration of theories and practice directs the research of the professors.

#### 3.2 Establishing the law and regulation system of agricultural circular economy

The government should stipulate the relevant laws of circular economy and intensify the promotion and performance of the laws and regulations. The government should try to make people know the laws and regulations about circular economy; for example, the government can make the advertising boards and hang them on the wall and some other places where people gathered. At the same time, the government should strengthen the intensity of law enforcement and any unit and individual who violates the law will be severely punished. Besides, the response system, which can give convenience to villagers to plead, should be set up, for example, suggestion box and so on. By this way, people's consciousness and initiative can be strengthened to ensure the smooth procedure of constructing agricultural circular economy.

#### 3.3 Strengthening the innovation of technology and model of agricultural circular economy

At present, the agricultural researchers are insufficient in China, especially, the educational degree of personnel involved is low, which greatly restricts the development of rural circular economy, so we should strengthen the cultivation of agricultural science and technology intellects, and increase the input on agricultural science and technology. Currently, the educational quality of farmers can not be improved in short time, but the government can arrange the technicians, students and social practice teams to go to the countryside to provide technique support. People will go to

fields to direct the sowing, fertilizing, weeding and reducing and preventing disasters. In addition, the government can establish the demonstration fields with agricultural circular economy system to let the personnel in the branches to research and innovate in the demonstration fields.

The development of rural economy can not be based on the expenses of environment and follow the old way of pursuing the economic development. It should insist the priority of the ecology and try to develop ecological agriculture and take the way of circular economy<sup>[5]</sup>. Facing the increasing tension of resources, energy and environment in Qinhuangdao City, developing ecological agricultural and taking the pave of circular economy will definitely make a difference. Nowadays, with the rapid growth of economy, we should make new test on the basis of the reality, that is to say, promoting cooperative economy and developing agricultural circular economy, in order to adapt the development of market economy. Developing cooperative economy and agricultural circular economy can overcome the problems of small family scale and separation from the market. "The model of ecological farmland and circular economy" can be established by developing cooperative economy (Fig. 1), so as to achieve the aim of increasing farmers' income, enhancing the quality of living and developing the rural economy of Qinhuangdao City.

The circular economy model of ecological farm showed in Fig. 1 adopts the low exploration, high efficiency and ecological rule to guide the agricultural production behaviors and to realize the clean production of agriculture. Circular economy not only suits the economic growth model of sustainable development thought, but also the advanced model of economic growth, which aims at pursuing optimized economic interests, less resource consumption and lower environmental pollution.

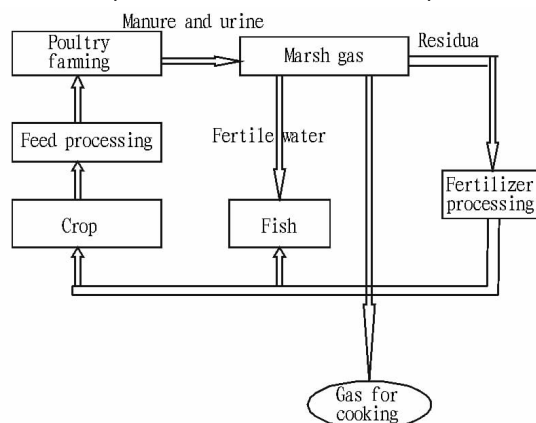


Fig. 1 Circular economy mode of ecological farm

#### 3.4 Accelerating the market pace of production of circular economy

In order to accelerate the market pace of production of circular economy, in the first place, the authentication mechanism of agro-products of circular economy should be established. The products of circular agriculture is produced according to the special quality standard system and the authentication mechanism can improve the trust and transparency of

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ment of rural market economic system, government and rural cooperative financial institution should return to their own positions.

Government should firstly establish and improve the basis and security system of market economy, further enhance its property right and protection system, encourage the development of rural cooperative economy, support the development of cooperative finance, establish information platform of farmers' credit system, consolidate the construction of relevant laws and regulations, and improve the system, legal and information security of market economy. Secondly, means and methods of government intervention should be reformed. Direct intervention in administrative enforcement by government should be changed into indirect intervention by laws, public funds and other means. For instance, evaluation index system for public funds should be changed, taking the effects on the Three Agricultural Problems as the judgment criteria for public funds utilization. Behaviors going against the utilization principles of public funds or causing loss and waste should be given legal sanctions. Thirdly, supervision should be strengthened. Introduction of competition will inevitably bring about new risks. Government should effectively perform its functions in supervision, punish the non-standard pseudo-cooperative economic organizations, and provide protection for the development of rural cooperative economic organizations and rural financial institutions. Fourthly, education and training should be strengthened. Farmers' quality plays a crucial role in constraining the development of cooperative economy and the reform of rural finance. In order to awake the farmers' awareness of property rights and to enhance their ability of self-management, government should offer more education and training for the farmers.

As for the rural cooperative financial organizations, rural credit cooperative should firstly definite the obligations of agricultural support, further clarify the property rights, improve their corporate governance, gradually reduce the support from government, and realize the transformation from mandatory institutional change led by the government into the bottom-up induced institutional change. As for the new rural cooperative finance,

cooperative financial organization at village level with small peasant household as the main body should be reconstructed, so as to further deepen the reform of rural financial system. Facts prove that commercial credit and insurance without the mutual aid of farmers or the cooperative financial organization at village level can not survive in the rural areas. Only when the farmers' mutual-aid organization, which is supported national policy, develops, funds withdrawn can turn back to the rural areas. Besides, based on the rational division and close cooperation with policy or commercial finance, rural cooperative financial organizations should develop the mutual insurance and guarantee business guided by the government, and promote the cooperation between the commercial credit and insurance institutions and the farmers' specialized cooperatives and farmers mutual-aid capital organizations<sup>[5]</sup>.

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circular agricultural products and give the safety guarantee to consumers. In the second place, the market of agricultural products should be further expanded and the plan of the marketing of agricultural products should be strengthened. The large demand of market on ecological agro-products means the huge potential of agricultural products. The government should implement the marketing strategy of famous brand; establish the brand of ecological economy of circular economy; strengthen the promotion of products and accelerate the market pace of agricultural products, so as to better facilitate the development of agricultural circular economy.

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