

# *A Brief Analysis of Ecological Function in Heilongjiang Reclamation Area*

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**Keywords:** Heilongjiang reclamation area, Ecological civilization, Ecological function

**Abstract:** Heilongjiang reclamation area pays great attention to ecological construction in the process of development and construction, after more than 20 years of efforts to gradually form a certain ecological function, this ecological function is reflected in the scale, science and technology and green. Heilongjiang reclamation area should give full play to its ecological function and promote the construction of ecological civilization in Heilongjiang province. The ecological function of Heilongjiang reclamation area is mainly reflected in five aspects, namely, the demonstration function of scale production, the leading role of promoting agriculture by science and technology, the standard function of digital agriculture, the normative function of green agriculture and the aggregation function of urban construction.

## **1. Introduction**

Heilongjiang reclamation area is located in the southern foot of Xiaoxinganling, Songnen Plain and Sanjiang Plain in northeast China. The total land area of the area is 55400 square kilometers, the river is rich in aquatic resources, the forest coverage mountain forest wildlife is numerous, and the land is rich in fertile natural resources. In the process of development and construction, Heilongjiang reclamation area has always paid attention to protecting the natural environment and developing moderately, and has carried out the construction of ecological demonstration area based on ecological agriculture since 1990s. In 2006, Heilongjiang “reclamation area completed the national ecological demonstration area construction task, become the largest regional national ecological demonstration area” [1].

## **2. Ecological Civilization Construction in Heilongjiang Reclamation Area**

After more than 20 years of ecological civilization construction, Heilongjiang Reclamation area has two national ecological bureaus, 53 national ecological fields, 6 provincial ecological bureaus, 107 provincial ecological fields and 81 provincial ecological villages.

## 2.1. The Course of Ecological Construction in Heilongjiang Reclamation Area

The ecological construction of Heilongjiang reclamation area can be divided into three stages.

**Phase I: 1996-2006, initial construction phase.** Since the end of last century, the ecological demonstration area of Heilongjiang reclamation area has been built on the basis of developing ecological agriculture. In 1998, the farm passed the expert group acceptance organized by the former State Environmental Protection Bureau, and the Baoquanling Administration Bureau was approved as a national ecological demonstration area in 2002. By 2006, the construction task of the national ecological demonstration area was completed in Heilongjiang Reclamation District.

**Phase II: 2007-2012, development and construction phase.** At the beginning of this century, the environmental protection movement is rising day by day, the people's awareness of environmental protection is gradually strengthened, and the overall development of economic construction and environmental protection has become a social consensus. In this context, the Heilongjiang Provincial Bureau of Agriculture and Reclamation issued the "work plan to speed up the construction of ecological reclamation areas of the General Bureau of Agriculture and Reclamation", and the assessment of ecological environmental protection objectives was included in the assessment of economic and social development objectives of reclamation areas, and a "environmental protection one vote veto" mechanism was established.

**Phase III: after 2012, the initial stage of ecological function formation.** After 2012, the construction of ecological civilization has become a national strategic task. Ecological consciousness is becoming more popular, Green Water Castle Peak is Jinshan Silver Mountain, Ice and snow is also Jinshan Silver Mountain. 2013, Baoquanling, Jian Sanjiang and Harbin Administration Bureau compiled the ecological civilization construction plan according to the "National Ecological Civilization Construction pilot demonstration Zone Index (Trial Implementation)" issued by the former Ministry of Environmental Protection, To study and formulate the work plan for the construction of ecological civilization and specific measures to promote it. June 2017, Heilongjiang Provincial Bureau of Agriculture and Reclamation promulgated the "13th Five-Year Plan of Ecological Civilization Construction in Heilongjiang Province Reclamation Area (2016-2020)", To carry out the construction of ecological civilization in reclamation areas and the evaluation of environmental protection objectives, delimiting the red line of ecological protection in reclamation areas, and carry out special rectification work on outstanding problems of ecological protection. Promoting green development, Strengthening ecosystem restoration and environmental protection. To promote harmony between man and nature, the ecological function is becoming more and more perfect.

## 2.2. Ecological Status in Heilongjiang Reclamation Area

In 2017, There are 2.917 million hectares of cultivated land in Heilongjiang reclamation area, 18.38% of cultivated land in Heilongjiang Province, However, grain production accounted for 33.6% of Heilongjiang Province; Landed area 9202,000 hectares, It accounts for 4.21% of forest land area in Heilongjiang province. The grassland area is 339,600 hectares, it accounts for 16.46% of grassland area in Heilongjiang province. Over 258,900 hectares, Total water resources 9.759 billion cubic meters; Forest volume 94.5408 million cubic metres, Forest cover 16.8 per cent; 21

nature reserves, Total area of 515,000 hectares, accounting for 9.1% of the total land area of the reclamation area.

Heilongjiang reclamation area attaches great importance to the construction of ecological civilization in the process of agricultural production and economic development. The proportion of environmental protection investment to the GDP in 2017 is 3.5%, which is much higher than the national and Heilongjiang average, and the proportion of protected areas to the land area is 14.5%; the water quality of centralized drinking water sources is up to 98%, and the discharge intensity of major pollutants is  $SO_2$  1.2 kg per 10,000 GDP, 100% utilization of industrial solid waste disposal, The reuse rate of industrial water was 46.5%; The municipal sewage treatment rate is 60%, The harmless disposal rate of municipal solid waste is 80%, Urban greening coverage was 19.2%; The comprehensive utilization rate of straw was 92.2%, 86% urban gas penetration, Unit GDP energy consumption 0.6 tons standard coal per 10,000 GDP per 10,000 yuan" Public satisfaction with the environment reached 95 per cent" [2].

### 2.3. Characteristics of Ecological Function in Heilongjiang Reclamation Area

Heilongjiang reclamation area, as an important commodity grain production base, plays a very important role in national food security, and its ecological function plays an irreplaceable important role in national ecological security. The ecological function of Heilongjiang reclamation area has the following three characteristics.

**The first is the scale of agricultural production.** The cultivated land area of Heilongjiang reclamation area is less than 20% of that of Heilongjiang Province, but the grain output accounts for one third of the province, and the grain survey output reached 45.6 billion catties in 2019, which achieved a bumper harvest for 15 consecutive years. This is closely related to the large-scale production of Heilongjiang reclamation area." Ten thousand mu of land "has become the label of Heilongjiang reclamation area.

**The second is the scientificization of agricultural productions.** In 2017, the area of effective irrigation in Heilongjiang reclamation area reached 1.635 million hectares, of which 411000 hectares of water-saving irrigation area, 431 grain treatment centers, 2713 metal granaries, 85000 large and medium-sized agricultural tractors, 102 aircraft and 1.453 million hectares of aerial work area. In 2018, the comprehensive mechanization level of cultivation and collection of major crops in Heilongjiang Reclamation area reached 99.7%, which is the leader of modern and large agriculture.

**The third is the greening of agricultural production.** In 2017, the planting area of green food crops in Heilongjiang reclamation area reached 2.2 million hectares, accounting for 75.42% of the cultivated area in the reclamation area; 154000 hectares of organic crop certification area accounted for 5.3% of the cultivated area of crops in the reclamation area. In Heilongjiang Reclamation area, 116 enterprises have obtained green food certification, 25 national agricultural standardization demonstration sites and 62 national green food raw materials standardization bases.

### 3. The Paths of Ecological Function in Heilongjiang Reclamation Area

All the land in Heilongjiang reclamation area is located in Heilongjiang Province, with an area of 5.5365 million hectares, accounting for 12.23% of the land area in Heilongjiang Province. In 2017, grain production in Heilongjiang Reclamation Area accounted for 33.6 percent of Heilongjiang

Province, accounting for 3.3 percent of the country. In that year, 19.77 billion kilograms of commodity grain were provided to the country, and the grain commodity rate reached 94.4 percent. In the process of ecological civilization construction, Heilongjiang reclamation area also plays an important role in demonstration and guidance. The ecological function of Heilongjiang reclamation area can be reflected from the following five aspects.

### **3.1. Demonstration Role of Scale Production**

By 2017, after 70 years of development and construction, the Heilongjiang Reclamation area has produced 391.49 billion kilograms of grain, and the total amount of commodity grain sold to the state has reached 322.78 billion kilograms, accounting for 82.45 percent of the grain production. At present, the reclamation area already has 44 billion catties of grain comprehensive production capacity and 40 billion catties of commodity grain security capacity. The yield advantage of grain production in Heilongjiang reclamation area comes from its large-scale production, which makes effective use of cultivated land capacity and reduces waste. An important problem in the process of ecological civilization construction is to solve the problem of resource utilization and reduce the waste rate of resources. Because the resources that nature can give to human beings are limited, in order to better meet the needs of human development, we can only make full use of limited natural resources and take the road of resource-saving and environment-friendly sustainable development. In the field of agricultural production, Heilongjiang Reclamation area has accumulated rich experience in large-scale production, from the early construction of state-owned farms to the later construction of family farms, to the present cooperative construction of agriculture, and constantly exploring effective ways of large-scale production, the ultimate goal is to increase production and income. The large-scale production in Heilongjiang reclamation area can become a demonstration sample of local agricultural production, promote the large-scale agricultural production in Heilongjiang Province, so as to effectively use the existing cultivated land and solve the contradiction between supply and demand of people and land.

### **3.2. The Leading Role of Science and Technology to Promote Agriculture**

Heilongjiang Reclamation Area has always insisted on science and technology in the process of development and construction, Focusing on the role of science and technology in promoting agricultural production, Trying to recruit agricultural technicians early in development, Establishment of agricultural technical schools, Strengthen the rate of technology application in agricultural production. Therefore, Heilongjiang Reclamation Area has always been the representative of China's advanced agricultural productivity, is our country agricultural modernization construction vanguard. Heilongjiang reclamation area pays great attention to agricultural infrastructure construction, At present, four major water conservancy projects, flood control, waterlogging control, irrigation and soil and water conservation, are basically built, Effective irrigation area of 27.84 million mu, accounting for 64% of the total cultivated land area in the reclamation area; reclamation area "ecological high yield standard farmland 21.825 million mu, accounting for 51% of the total cultivated land area. Total power of agricultural machinery 10.451 million kilowatts, each mu of agricultural machinery power 0.24 kilowatts, the rate of agricultural mechanization reached 99.4%" [3]. In Heilongjiang reclamation area, the contribution rate of

science and technology to agricultural production is as high as 68.2%, and the conversion rate of 82% of scientific and technological achievements is in the world leading level. The ultimate determinant of the development of human society is productivity. In the course of the construction of ecological civilization society, we must change the extensive development road which depends on the input of resources, turn to the development road of ecological civilization which is dominated by scientific and technological innovation, and vigorously develop ecological productive forces, which can only be realized through scientific and technological innovation. Heilongjiang reclamation area has been in the forefront of the country in the field of science and technology, and is the representative of agricultural modernization in China. The reclamation area should strengthen the cooperation with the local, export the agricultural science and technology to the local, raise the local agricultural science and technology contribution rate.

### **3.3. The Standard Role of Digital Agriculture**

Heilongjiang reclamation area has 113 farms, the former everlasting wasteland "Beidahuang" has become today's fertile field "Beidahan", the annual grain can be transferred to more than 100 million people a year of rations. In the process of development and construction, the Heilongjiang reclamation area has gradually established a modern agricultural production standard system, and the standardized coverage rate has reached 100%. High-powered wheeled tractors, precision planters, self-propelled variable spraying machines, full-function beet harvesters can be seen everywhere in Heilongjiang reclamation area, large-scale digital agricultural machinery has become a beautiful landscape reclamation area. Now, Beidahuang agricultural production has achieved full mechanization, from land preparation, seedling raising, sowing, management to harvest and other links, have reached the world's leading level. For example, sowing and transplanting seedlings only take 7 to 10 days, harvesting operations in 10 to 15 days to complete, autumn land preparation, ridging operations in 15 to 20 days can be completed. "Digital agriculture is characterized by full coverage of production links, automatic transfer operations, automatic risk avoidance and safety, real-time monitoring of the whole process, precision agriculture is completely unmanned" [4]. In the case of limited space for increasing the area of cultivated land, chemical agriculture has come to an end, and the future development direction of agriculture must be digital agriculture, precision agriculture, standardized management through scientific and technological innovation. Make full use of big data technology to effectively manage all aspects of agricultural production. Heilongjiang Reclamation Area, as the leader of digital agriculture in China, has established a set of modern agricultural production standard system, and has the right to speak in the field of agricultural production industry standards. This voice is a kind of industry leadership, can regulate agricultural production standards. Therefore, Heilongjiang reclamation area needs to develop its own technical advantages in digital agriculture, drive local agricultural production to implement standardized management and production, so as to improve the level of agricultural production in China, provide more, better and better food products, and meet the needs of the people in pursuit of a better life.

### **3.4. The Normative Role of Green Agriculture**

With the improvement of people's living standard, the people's demand for green organic food is increasing, ecological organic green food is widely favored by people, and the added value of

products is also higher. In China, Heilongjiang Reclamation Area took the lead in the construction of green food and pollution-free agricultural products quality traceability project. By the end of 2017, there were 116 green food production enterprises in Heilongjiang Reclamation area, and the monitoring area of green food environment reached 33 million mu. Heilongjiang reclamation area "Beidahuang" brand has become a "green organic" pronoun, deeply loved by consumers at home and abroad. In the 2018 China 500 most valuable brand research report, "Beidahuang" brand value reached 68.275 billion yuan, is the first brand of Chinese agriculture. The green agriculture in Heilongjiang reclamation area has been greatly successful in the market and has accepted the test of the market. Taking the road of green and organic ecological agriculture is the inevitable choice for the future agricultural development and the only way to build an ecological civilization society. Heilongjiang reclamation area should continue to explore the development model of green agriculture, and actively cooperate with the local community to build a green development road, lead more agricultural enterprises and growers, and use ecological organic healthy food to obtain more benefits. Let more and more agricultural producers and operators consciously develop green agriculture and speed up the construction of ecological civilization.

### **3.5. Aggregation Role of Urban Construction**

At the end of 2017, Heilongjiang reclamation area resident population of 1.673 million people, Of which 1.479 million were farmed, The urbanization rate reached 86.2%, Urban noise meets the requirement rate of 98%; Heilongjiang reclamation area has been speeding up the construction of urban residential infrastructure, public facilities, The living conditions and environment of the population are improving, The residential area is 32.3 square meters; town central heating area of 38.7 million square meters, central heating penetration rate of 80%, urban gas penetration was 86 per cent; urban per capita green area of 47.9 square meters, the coverage rate of urban greening is 19.2%. For years, the Heilongjiang reclamation area vigorously develops the urbanization construction and the socialism new countryside construction, the people's standard of living and living conditions are improving, green mountains, green clouds, blue skies, ecological products are the most inclusive well-being of the people. The residential areas of farms in Heilongjiang reclamation area are scattered in the counties and cities of Heilongjiang Province, has played a significant role in the construction of small towns and new rural areas, reclamation areas should be strengthened with local co-construction, using small towns in reclamation areas to radiate small town construction, to speed up the urbanization of counties and cities, forming aggregation, we can use resources efficiently when we live together, recycling garbage, reduce waste.

## **4. Conclusion**

The ecological function of Heilongjiang reclamation area is very greatly in Heilongjiang province and even in the whole country. As the largest regional national ecological construction demonstration area in China, Heilongjiang reclamation area has the responsibility and ability to play a leading role in the process of ecological civilization construction, which is not only the affirmation of the achievements of ecological civilization construction in Heilongjiang reclamation area, but also its ecological responsibility.

## Acknowledgements

"Three horizontal and three vertical" research support plan of Heilongjiang Bayi Agricultural University, "Study on ecological function of Beidahuang from the perspective of life community thought", Project No.RRCPY201916; The Cultivation Project of Heilongjiang Bayi Agricultural University, "Study on the Evaluation System of Ecological Civilization Index in Heilongjiang Reclamation Area", Project No.XRW2016-03.

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