

## LETTER TO THE EDITOR

# The Appropriate Distribution of State-Owned Land Resources from the Perspective of Ecological Philosophy

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Whether land resources can be rationally and effectively utilized is directly related to the sustainable and coordinated development of human society and economy, whether the growing population can be guaranteed adequate food demand, and whether the good environmental quality of human life can be guaranteed. Therefore, this paper studies the rational allocation method of state-owned land resources from the perspective of ecological philosophy. This paper analyses the ways of sustainable land resources allocation, constructs the matter-element model of optimal land resources allocation based on the analysis results, and evaluates the land resources allocation model by selecting evaluation indicators, which provides an effective analysis basis for judging the rationality and scientificity of land resources allocation, and lays a foundation for further research and evaluation.

Ecological Philosophy; State-Owned Land Resources; Rational Distribution; Matter-element Model

## 1 INTRODUCTION

From the perspective of ecological philosophy, this paper studies the rational allocation of state-owned land resources. Focusing on the philosophical idea of the construction of ecological environmental protection system in the construction of ecological civilization in China, through investigating the important ideas of ancient Chinese ecological philosophy, modern western ecological philosophy and Marxist ecological philosophy, it mainly makes a detailed investigation of state-owned land resources, and explores the ideological resources which have guiding or referential significance for the construction of environmental protection system in China (Ma and Zhou 2018).

Ran Zhang, Jing Sun, Hui Fan, Rui Yang published an article in the Journal of Ekoloji (Issue 107, 2019), entitled "Quantitative Method of Agricultural Land Environmental Bearing Capacity under Resource Constraint", which pointed out the environmental carrying capacity of agricultural land (Zhang et al. 2019). It is an important part of environmental carrying capacity under resource constraints and is of great significance for the coordinated development of agricultural regions. The quantitative analysis method of environmental carrying capacity of agricultural land under resource constraints is studied in depth. According to the actual situation of the study area, 22 indicators were selected from three aspects: ecological environment carrying capacity, social carrying capacity and economic carrying capacity, and a quantitative evaluation index system for agricultural land carrying capacity was constructed. The weights of the evaluation indicators are calculated by the mean square error decision method and the coefficient of variation weighting method. The quantitative analysis of the evaluation index of agricultural land environmental carrying capacity under resource constraints was realized. The results show that the

environmental carrying capacity of agricultural land in the study area has been significantly improved in 2011-2018, and the ecological carrying capacity has contributed the most to improving the environmental carrying capacity of agricultural land. The comparison results show that the quantitative analysis results of this method are better than the principal component analysis method (Loiseau et al. 2018). It is a quantitative analysis method for the carrying capacity of agricultural land resources under resource constraints. It has a good quantitative analysis effect, however, the article does not take ecological considerations and does not take into account the sustainable development of land resources.

In view of the existing problems in the above-mentioned article, this paper first discusses the basic theory of land resource allocation and sustainable development from the attributes of land resources and the characteristics and types of land resource allocation, puts forward and defines the meaning of sustainable development of land resource allocation. Based on the background analysis of land resource allocation and sustainable development in China, this paper expounds the reality and urgency of sustainable land resource allocation. This paper comprehensively analyses various factors affecting the allocation of land resources in China, expounds the existing problems and causes in the actual allocation of land resources in China. Through comprehensive analysis and elaboration, it is proposed that building sustainable land resource allocation system in China is the fundamental way to realize sustainable utilization of land resources and national sustainable development, and to establish sustainable land resource allocation system (Chelladurai 2017). On this basis, a matter-element model of land resources allocation for sustainable development is proposed and constructed. In order to measure the rationality of land resources allocation, the evaluation system and evaluation method of sustainable development land resources allocation are put forward and designed, and the index system is constructed, so as to achieve the rational allocation of state-owned land resources from the perspective of ecological philosophy.

## **2 IDEA DESCRIPTION**

### **2.1 Basic theory of land resources allocation and sustainable development**

Land resource is a scarce resource. Compared with other resources, land resource is also a scarce resource in short supply. With the sustainable development of human society, the demand for land resources in various industries and departments is increasing continuously. The limited quantity of land resources and the increasing demand for land constitute a special contradiction in the sustainable use of land resources in China. The purpose of land resource allocation for sustainable development is to realize the sustainable use of land resources and promote the sustainable development of social economy (Wang et al. 2018). Therefore, the allocation of land resources for sustainable development is the material basis and premise of sustainable social and economic development in China. The limited quantity of land resources provides an objective necessity for the sustainable development of land resources allocation. The renewability and sustainability of land resources make the sustainable development of land resources allocation possible. The diversity of land resources use makes the choice of sustainable development of land resources allocation more difficult. Therefore, coordinating the supply and demand of land resources has become an eternal theme of land resources allocation in China.

Through the above elaboration and analysis, this paper puts forward the way of land resources allocation for sustainable development in China - the construction of land resources allocation system for sustainable development. Only by establishing such a system can we guarantee the sustainable development of land resources allocation and achieve the real goal of sustainable development of land resources allocation (Kang et al. 2018). The construction of land resources allocation system for sustainable development in China mainly includes six aspects: the construction of legal guarantee system, the construction of land resources investigation and monitoring system,

the construction of land resources evaluation system, the construction of land resources planning system, the construction of national economic accounting system of land resources and the construction of market operation system of land resources allocation. This paper comprehensively expounds the choice of land resources allocation mode, and systematically explains the energy problem of land resources allocation. It focuses on discussing and constructing the material element model to guide land resources allocation, hoping to provide scientific and applicable ideas and methods for the implementation of sustainable land resources allocation.

**2.2 Land resources allocation model for sustainable development**

According to the extension principle of land resources, this paper reveals the characteristics of land resources and analyses the influencing factors of rational utilization of land resources, which provides a basis for dealing with the incompatible problem of optimal allocation of land resources (Minghai et al. 2018). According to the natural characteristics and socio-economic conditions of land resources, the land resources in the region can be divided into m units and described by n-dimensional matter elements.

$$r_i = \begin{bmatrix} N_1, c_1, v_1 \\ c_2, v_1 \\ \vdots \\ c_n, v_m \end{bmatrix} \tag{1}$$

In the formula,  $i = 1, 2, \dots, m$ ;  $N$  is the name of the land unit;  $c_1, c_2, \dots, c_n$  is the main characteristics of the land unit, such as topography, soil quality, distance from the city, population density;  $v_1, v_2, \dots, v_m$  is the corresponding value of the land unit.

According to formula (1), the classical domain matter element  $B$  of land resource suitability can be obtained.

$$B = \begin{bmatrix} N_i, c_1, P_i \\ c_2, P_j \\ \vdots \\ c_n, P_k \end{bmatrix} \tag{2}$$

In the formula,  $t = 1, 2, 3, 4$ ;  $i$  indicates the suitability grade of land resources, which is suitable, general, barely suitable and unsuitable respectively.

Matter element model of land resource suitability analysis not only describes the suitability of each land unit for various purposes, but also calculates the best use of each land unit, which provides the most basic information and decision-making basis for the optimal allocation of land resources.

**2.3 Selection of evaluation indicators for sustainable development of land resources allocation and establishment of evaluation indicators**

Based on the evaluation system and evaluation method of land resource allocation, this section designs and constructs the evaluation system and evaluation method of land resource allocation for sustainable development in China. The main contents of this section are as follows:

- (I) Introduce the general situation of land resource allocation evaluation for sustainable development in China and abroad.

(2) Define the concept of land resource allocation evaluation for sustainable development, clarify its significance, and point out the evaluation procedure (Liu et al. 2017).

(3) The evaluation index system of land resources allocation for sustainable development in China is constructed, and the selection of evaluation index and evaluation method is discussed and put forward, which provides an effective analysis basis for judging the rationality and scientificity of land resources allocation, and lays a foundation for further research on Evaluation issues.

According to the model of land resource allocation for sustainable development, the evaluation index of land resource allocation is selected. There are two kinds of evaluation index systems for sustainable land allocation because of the different methods of selecting the index.

(1) Participatory approach: A more typical approach is to develop locally available sustainable development indicators developed by some local authorities in the United Kingdom. The main way is to invite local people to discuss and determine indicators. The disadvantage is the lack of evaluation of the overall state of the country or region (Luo 2017).

(2) Indicator system based on land use system analysis and index synthesis: usually the complex system is divided into different components, and the state of the whole system is obtained by analyzing the indicators representing each component (Barbosa et al. 2017).

According to the evaluation index of land resource allocation for sustainable development, the suitability of land resource allocation is divided. Table 1 is the criteria for suitability of land resource allocation.

**Table 1 Suitability classification criteria for land resources allocation**

Suitability situation	Suitable	Generally suitable	Barely suitable	Unsuitable
Scoring standard	80-100	60-80	40-60	0-40

### 3 RESULTS

The main conclusions of this study are as follows:

(1) Land resource allocation is a complex socio-economic ecosystem. It is not only an economic problem, but also a social and ecological problem. Therefore, the allocation of land resources must coordinate and deal with the relationship among economic, social and ecological benefits under the scale of sustainable development, so as to achieve the harmonious integration of land resources allocation and social and economic sustainable development, and realize the sustainable utilization of land resources.

(2) Under the realistic conditions of our country, the scarcity of land resources supply and the selectivity of its use determine the necessity and possibility of balancing the current allocation of land resources and sustainable development. The essence of optimization of land resources allocation in China is to seek the structural effects of land resources allocation system at a county, province, country or larger regional scale, to improve the functional efficiency of land resources utilization, and to meet the requirements of regional socio-economic sustainable development with the greatest comprehensive benefits.

(3) Fairness and efficiency of land resource allocation is a practical problem that needs to be solved in the future. We should not only solve the rational allocation and comprehensive balance of land resources among regions, industries and departments of the national economy, but also solve the bad behavior of land use to maximize economic benefits. The way to combine the two is to perfect and standardize the macro-control means of the government on land resources, to improve the system construction of land market allocation as soon as possible, and to improve the ability of the government to control the allocation of land resources and the efficiency of the market.

### 4 DISCUSSION

For a long time, China's land resources have played an important role in the development of the country, such as the basic carrier and means of production, and made tremendous contributions. But people often use it as a basic resource relentlessly. With the development of economy and the increase of population, the contradiction between man and land is aggravating, the scarcity of land resources is becoming more and more serious, and the harm caused by the unreasonable use of land resources, such as wanton and extensive, has become more and more serious, which has seriously threatened human survival and social development. People gradually realize that the importance of sustainable development and the allocation of land resources for sustainable development are the most basic premise and foundation for sustainable social and economic development in China.

In view of the overall situation of China's land resources allocation and sustainable development, this paper briefly expounds the background and significance of the research in this paper from the aspects of the international environment and influence, national security, the requirements of the sustainable development strategy implemented in China, the outline of the Tenth Five-Year Plan for National Economic and Social Development and the development of the industry, etc. This paper probes into the theoretical framework of land resources allocation, and points out that land resources allocation involves many disciplinary systems, and that land resources allocation is the result of a comprehensive function supported by a series of disciplines. This paper systematically expounds the current situation of land resources allocation research in China and abroad, and points out the direction of land resources allocation research in China.

## 5 CONCLUSION

Since the 21st century, under the strategic theme of global sustainable development, people have increasingly felt that human society will face a change and challenge in how to use land resources rationally. Therefore, the harmony between land resource allocation and sustainable development has become an epoch-making important research topic. From the perspective of ecological philosophy, this paper discusses the allocation of state-owned land resources and sustainable development, which is a new application field of sustainable development theory in land resources management and a new expansion of sustainable development theory. It is hoped that this study can make a contribution to the land and resources management in China, and provide new scientific ideas and methods for the implementation of sustainable land resources allocation.

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