

A Theoretical Analysis on the Connotation of Land Ecological Civilization

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Abstract. The study reveals the relationship between ecological civilization and land use and management. Ecological civilization requires the correct understanding and respect for the characteristics of land in land use and management. Ecological civilization has become an important measure of land resources utilization and management level.

Introduction

Ecological crisis is a global problem, which is reflected not only in the frequent occurrence of natural disasters, but also the shortage of resources, food security issues, as well as the sharp decline in biodiversity. It is necessary and urgent to promote the construction of ecological civilization in china. The harmony between man and land is the core of ecological civilization construction. The definition of land, in a narrow sense, covers the land and its vegetation, rocks, surface water, and so on. An International Framework for Evaluating Sustainable Land Management released by Food and Agriculture Organization of the United Nations in 1997, gave a definition of land, including climate, topography, soil, hydrology, and human activities of the past and present results[1]. To some extent, land is equivalent to nature.

Due to the impact of human activities on landscape structure and ecological, land is facing pressure increasingly. Land use and management level, has been greatly influenced the realization of sustainable use of land, which is a fundamental problem related to the success of the construction of ecological civilization [2].

Relations between Ecological Civilization and Land Ethics

Land is an important carrier to meet the needs of human production and life. In ancient times, China has the theory of "all things from the earth". Mencius, a famous man in the Warring States period of China, in his discussions about country, believed that the three most important keys for the feudal princes are land, people and government. Western economics holds that land is the mother of wealth. Land is not only the basic substance of agricultural production, but also an important material basis for the development of industry and the whole national economy. However, people tend to focus only on the economic and social attributes of land, but ignore or ignore the fact that land is a changing ecosystem. Ecological civilization is a profound reflection on traditional industrial civilization, taking the advantage of nature as well as respecting the rights of nature. It

provides guidance for human to develop harmoniously with nature by establishing a reasonable way of production and consumption, which requires neither completely succumbing to nature nor blindly overcautious conquering nature. The goal of ecological civilization is access to nature permanently with the least damage and the minimum cost.

Ancient Chinese advocated unity of man and nature, taking but not exhausting, accordance with the universe, expressing an idea of human coherent with nature and simple resources ethic[3]. Land ethics is how to deal with the relationships between human and land, the development of human civilization and the growth of animals and plants. The fact that man is a member of a biological group has been confirmed by the realization of ecological history. Human beings should return to nature as part of the natural community, in which each member should be equal and respect each other to form a harmonious whole. Land ethics is to change the role of human beings as a conqueror into an equal member of the community with others. It implies respect to each member, including respect for the community itself in the process of land exploitation and utilization. Aldo Leopold asserted that land ethic would not prevent slaughter and management of these resources, but it announced the other members would continue to exist with their right, or continue to exist by the right of nature in some aspects at least [3].

Therefore, land ethics and ecological civilization make a consensus in the harmonious coexistence of man and nature, with respecting nature and reasonable access to natural resources.

Ecological Requirements for Land Use and Management

In 1987, WCED released the report *Our Common Future*, which examined the crisis of land ecology based on a global perspective, putting forward the concept of sustainable development for the first time. The essence of ecological civilization is a sustainable development, as well as harmonious coexistence between human and nature. People should admit that nature works by its own character. Human activities should abide by the laws of nature, and be restricted natural affordable range. Otherwise both human being and nature will suffer great losses [4]. Consequently people need respect three characteristics in land use and management.

Firstly, land area is limited, which means that land area cannot increase indefinitely. There is equilibrium for the various types of land. And each type of land should be limited in a reasonable proportion to keep the equilibrium. Besides, the material capacity of land cannot go beyond its bound. In time dimension, it's the most important to keep persistence for a dynamic system [5]. Ecosystem will approach an equilibrium point by self-regulation without human intervention. But this regulation ability is restricted, which is called ecological threshold in academic circles [6]. The dynamic system will lose the ability to automatically adjust, and cannot keep persistent and balanced if external pressures exceed ecological threshold. The excessive use of amount or capacity of land will lead to an imbalance in the ecosystem.

Secondly, the location of land is fixed. In a long time of evolution process, the characteristics of land are different by latitude and geographical location, which is in harmony with the local climate. This difference meets various material needs of human beings, creating a wide range of species. Although humans can make some changes by taking advantage of the technology, adjusting ecological factors such as soil, temperature, humidity, cultivating non-native species, it demand to spend a lot of cost and overcome many limitations. Human cannot make a transformation of nature in accordance with their wishes. On the contrary, human activities are more likely to make it worse than natural self-regulation. The fixed position of land shows that once a certain area of the ecological environment has been irreversibly damaged, it is impossible to accomplish the equivalent ecological compensation or replacement from another place.

Thirdly, land is different in quality. Land quality depends on the difference of geographical location and socio-economic conditions. Geographical location determines the features of land elements (such as soil, climate, hydrology, topography, vegetation, rock). Human exerts its influence on these features. The difference in structure, function quality of land is final results by the combined actions. Ecological system has strict requirements on the quality of the land, but it isn't constant as conditions keep changing.

A typical example is soil carbon content which is one of the favorites indexes used to assess the degradation of land quality. Due to improper land use, about 60% of carbon in soil and vegetation has been lost world widely since 19th century[7], which made a sharp decline in production in 1/4 land of the world in the past 25 years, as well as the ability to provide ecosystem services[8]. Unreasonable land use decisions may deteriorate land quality as a result of unsustainable. Scientific decisions for land use should suit its measures to local conditions and attach great importance to land quality conservation.

Development of the Realization of Land Ecological Civilization

It's not only the achievement of material wealth, but also the degree of harmony with nature that reflects the ability and level of human use of land resources. Generally, land resource management transferred from quantity management to quality and ecology protection in advanced countries and regions. Ecosystem management is the trend of land management currently requiring more advanced approaches.

On the one hand, ecological civilization is a kind of high-level cognition form of human being constructed in the long-term development of economic society. The idea of land resource utilization and management is a crucial factor for it, which is one of the most important components of people's values. Different ideas represent different levels of awareness of nature, and are manifested by human decisions and activities. Land means too much to human as it carries almost all achievements of people, a source of life and energy. Resource values are unique, showing in different forms in different stages in human society history. Inexhaustible exploitation, unlimited use, and supply without payments, are viewpoints and ideas of human [9]. In the agriculture civilization time, the development and utilization of nature is partial and surficial, with no reform and radical change of nature. Though nature kept balance, mostly due to disability of destructiveness, the cognition of nature is in a low level and passive. So it is not the ideal realm to be praised and pursued. At the stage of the industrial civilization time, social productivity had a qualitative leap. The concept of nature transferred from *using* to *conquering*. The thought of *man is the master of nature* occupied a dominant position, acting as uncontrolled consumption of natural resources, leading to a great deal of ecological crisis, such as the deterioration of environment, the desertification of land, the shortage of resources, the extinction of species, and so on. Later 20th Century, man started a new self-examination of the relationship between nature and its own after suffering a lot of experience of severe tests from ecocatastrophe. The idea to construct a new harmonious relation with nature becomes more and more popular in the development of land use and management.

On the other hand, ecological civilization emphasizes the mutual respect and harmonious development between man and nature, which is an important reference for the examination of land use and management. The level of ecological civilization construction is the embodiment reflecting how man deals with nature in space, the advantages and disadvantages in land use and management processes and results. Therefore, man should access objectively whether it will cause damage to the

sustainability of land in the choice of making decisions. There are three cases in the use of land. Case one is that human activities are limited in ecology threshold, and ecosystem stays in a state of dynamic equilibrium by self-adjustment. Case two is human activities are beyond ecology threshold, but it can resume the state of balance by using manual techniques, for example mine reclamation with advanced techniques. Case three is human activities are beyond ecology threshold, and ecosystem wouldn't resume its balance from the damage however the self-regulation function of nature or manual techniques, for examples, land desertification and species extinction due to excessive exploitation. It is obvious that the previous two are methods deserving recommendations. Case one is the most respectable way to deal with nature, but it could constrain the development of human civilization. Case two is an advisable way for human probably, which reaches a compromise between protection and development. Case three is a way that is completely disrespectful, whatever to nature or human itself [10]. Therefore the requirements of land ecological civilization for mankind are that behaviors should be controlled within the range of ecology threshold, or accordance to current economic and technological conditions that are able to take the consequences of the decision. And a scientific and reasonable pre-evaluate is necessary in the process.

Conclusions

Land ethics contains ecological civilization. Human activities should respect the characteristics of land. Total land area is limited and various types of land area should be in proper proportion; fixed position means that the ecological structure of a region cannot be copied in another region; quality differences needs the protection of land to keep available. In the process of social civilization development, human beings have obtained material for its survival and living from land, while learning lessons from nature. The relationship between man and nature keep improving and adjusting. Land ecological civilization requires the establishment of scientific decision-making and evaluation mechanism in land use and management.

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