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On Social Development and Natural Environment Protection Method Research

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Abstract: The coordinated development(CD) of environment and economy is the key to the sustainable development of society. With the constant acceleration of economic development(ED), urbanization and industrialization in various cities, as well as the increase of population and unreasonable use of resources in recent decades, a series of environmental and economic problems have been brought to the healthy development of society. Therefore, this paper focuses on the analysis of the methods of social development(SD) and natural environment(NE) protection, discusses the relevant theories of the relationship between ED and NE and their mutual coordination, and analyzes the benefits of the mutual coordination between ED and environmental protection(EP); By building a coupling relationship model between SD and NE protection, this paper analyzes the analysis of SD and NE protection based on the industrial development and NE protection in Area M, and then puts forward countermeasures for the coordination between SD and NE protection, which is of great significance for the harmonious development of nature and society.

1. Introduction

SD cannot be separated from the development of industry, which is likely to lead to air pollution and damage the atmospheric environment. From the current development situation, the common problem in the process of SD and urbanization is that human beings attach too much importance to economic and industrial development, while the attention to the atmospheric environment is obviously insufficient, which leads to the destruction of the atmospheric environment in pursuit of social and ED. With the deepening of urbanization, the atmospheric environment has deteriorated. In fact, there is no contradiction between urbanization and the atmospheric environment. The CD between the two can be achieved. The CD between the two is also conducive to the long-term advancement of urbanization. In order to achieve the coordination between the two, we need to further increase the protection of the self heating environment in the process of SD. We must not

sacrifice the NE for social and ED.

In the research on SD and NE protection methods, many researchers at home and abroad have analyzed this. Mihalis empirical analysis and research shows that not all regions' fitting curves of economic indicators and environmental indicators are inverted U-shaped, mainly because whether "environmental carrying threshold" exists in the fitting, that is, some environmental pollution indicators are irreversible, and after a long period of accumulation, the impact on the environment reaches the carrying threshold, resulting in a devastating situation [1]. Domestic scholars started relatively late in the study of the relationship between environment and economy. Guangze Yang selected 12 environmental indicators, including the discharge of industrial three wastes and their comprehensive utilization rate, urban greening, and 12 economic indicators, including per capita GDP and per capita industrial and agricultural output value, to build an evaluation system for the CD of economy and environment [2].

In the environmental and economic system, environmental resources become a kind of property owned by the collective, because it can provide the material resources needed by human beings. When people use it, they should also prevent its depreciation characteristics and try to extend its "life". The benign interaction between economy and environment is also objective. This paper focuses on analyzing the coordination relationship between ED and NE protection. By building a comprehensive evaluation(CE) index of industrial development and EP and a CC degree model, it proposes countermeasures for SD and NE protection, which play an important role in China's sustainable development [3, 4].

2. Theoretical Analysis on SD and NE Protection

2.1. Relevant Theories on the Relationship between ED and NE

The promotion and restriction of ED on the environment. The environment provides energy resources for ED, and human beings will also discharge wastes to the nature in their production and life. However, with the further development of the economy, human beings begin to pay attention to environmental problems, and will increase the cost of environmental governance, and use high-tech to control environmental pollution [5]. Therefore, the implementation of EP projects should be based on economy. In recent years, developed countries have paid more and more attention to EP, and have made some achievements. The environment has improved, while the environmental quality of developing countries has not improved or even declined. In a word, a large part of the reason for this result is the lack of investment in EP projects. In the national budget, the proportion of EP funds is also an important factor affecting ED [6, 7].

2.1.1. Connotation of Coordination between ED and EP

Through the analysis of the concept of coordination, we can find that coordination is not a simple reconciliation, nor a stagnant state, but a necessary condition for development. Equilibrium means that in the system, different elements are equally important, and the cooperation between the elements is equal in terms of quantity. For example, the economy and the environment should maintain the same growth rate [8].

2.1.2. Benefit Analysis of Coordination between ED and EP

From the perspective of theoretical analysis, if the cost of an economic activity is higher than the income it can obtain, then the economic activity itself is unreasonable and such economic activity should not exist. The reason why the unreasonable economic activities cause serious damage to

resources and pollution to the environment is that the external economy is transferred to the society, resulting in the overall benefits of economic activities being greater than the overall costs. The final result of this is, on the one hand, to bring excess returns to the dominators of economic activities [9, 10].

In order to realize the mutual unity of the two benefits in the economic environment coordination relationship, the essence is to realize the mutual coordination between the two, that is, to realize the CD between the economy and the environment. First, they have the same goal. The pursuit of ED aims to meet the needs of the general public in terms of material and cultural life; The purpose of EP is to improve the quality of the ecological environment and ultimately improve the production and living conditions of the general public [11, 12]. Therefore, the fundamental interests pursued by economy and environment are consistent, which is also an important basis for promoting the CD of economy and environment.

2.2. SD and NE Protection

2.2.1. Industrial Development

"According to different social division of labor, industry is a collection of economic activities with the same or similar attributes. Social and ED includes industrial development, and takes industrial development as the premise and basis [13]. The division of China's three industries is shown in Table 1.

Table 1. Classification of tertiary industries

Classification of three industries	category
primary industry	Agriculture, forestry, animal husbandry and fishery
the secondary industry	Mining, manufacturing, power, heat, gas and water production and supply, and construction.
the service sector; the tertiary industry	Wholesale and retail, leasing and business services, machinery and equipment repair in manufacturing, etc

2.2.2. Green Development Theory

The connotation of green development: the goal is to achieve economic growth, ecological balance and sustainable development; The principle is to focus on scale, efficiency and fairness; The premise is to control within the limit of ecological environment capacity and the threshold of ecological resource carrying capacity; The core is to improve green productivity, improve human welfare, and ultimately achieve the dynamic balance and harmonious coexistence of human life, social production and ecological environment [14, 15].

The research on green development has been carried out early abroad. Green development emphasizes that the human development model should be transformed from "black" to "green" or even completely. The connotation and experience of green development mainly include three aspects, as shown in Table 2.

Table 2. Connotation and experience of green development

Green development	Phase I	Phase II	Phase III
connotation	From industrial civilization to ecological civilization	Transition from industrial economy to green economy	From industrial society to ecological society
experience	Single target stage of ecological environment system	Target stage of economic environmental system	Target stage of economic environmental social complex system

Human beings reasonably organize and carry out relevant economic activities based on respect for natural laws and analysis of economic laws. In the process of carrying out economic activities, they will take into account the carrying capacity of resources and environment. Therefore, the total amount of economic activities is scientific and appropriate, and the development and utilization of resources are also moderate and reasonable, which has yielded considerable economic benefits [16, 17].

Understand the current situation of CD of China's economy and environment, find out the existing problems, and summarize the successful experience accumulated by other countries in the CD of economy and environment. The ultimate purpose is to provide countermeasures and suggestions for the CD of China's economy and environment, which is of great practical significance for China to achieve CD of economy and environment in the future [18].

3. Model Construction of Coupling Relationship between SD and NE Protection

The coupling relationship should ensure two points: first, to minimize the gap between the integrated industrial development system and the environmental system, and second, to achieve overall development based on the optimal level of the two systems. Therefore, the coupling coordination(CC) model in this paper is based on the dispersion model, and the specific steps are as follows:

3.1. Build a CE Index for Industrial Development and EP

The integrated industrial development and environmental CE index is based on the industrial comprehensive index system and the ecological environment comprehensive index system, and is calculated by using the linear weighted average method. Set the CE indexes of the two systems as U1 and U2 respectively, see Formula (1):

$$\begin{cases} U_1 = \sum_{i=1}^{m} W_i \times X_i \\ U_2 = \sum_{j=1}^{n} Z_j \times Y_j \end{cases} \tag{1}$$

In the formula, U1 is the integrated industrial development CE index, U2 is the environmental CE index, Xi is the ith index in the industrial development CE index system, Yj is the jth index in the environmental CE index system, and Wi and Zj are the weights of each index.

3.2. Coordination Model

Build the coordination degree model of the two systems of M regional integrated industrial development and environment:

$$C = \sqrt{\frac{U_1 \times U_2}{(U_1 + U_2)^2}} \tag{2}$$

Among them, the value of coordination degree C represents the coordination degree of M regional integration industry and environmental development, U1 represents the CE index of industrial development, and U2 represents the CE index of environment. The value range of coordination degree C is 0-1. The greater the C value of the coordination degree, the higher the CD degree between the industrial development and the environment. See Table 3 for the specific classification standard of coordination degree C value.

Table 3. Specific classification standard of coordination degree C value

Coordination degree C value	Coordination level
C=0	There is no coordination between industrial development and environment, and they are in a state of disorderly development
0<C<0.3	The industrial development and environment are in the formation stage of CD, and the coordination level is low
0.3<C<0.5	Industrial development and environment are in the antagonistic phase of CD, and the level of coordination is average
0.5<C<0.8	The industrial development and environment are in the running in period of CD, with a high level of coordination
0.8<C<1	The industrial development and environment are in the mature stage of CD, and the coordination level is extremely high
C=1	The industrial development and the environment have reached the ideal state of mutual coordination

When the co scheduling C=0, it means that the degree of coordination is minimum, and there is no connection between industrial development and environmental systems; C=1 is the ideal state of the CD of the two systems, with the greatest degree of coordination, indicating that the industrial development and environmental systems have reached the ideal state of mutual coordination.

3.3. CC Model

The calculation of the CC degree between industrial development and EP is shown in Formula 3:

$$D = \sqrt{C \times T}, T = \alpha U_1 + \beta U_2 \tag{3}$$

Where, D is the CC, reflecting the CC degree between M regional integrated industrial development and EP systems; C is the degree of coordination, reflecting the synchronization of development and evolution between the two systems; T is the comprehensive coordination index of industry and EP, which reflects the overall benefit or level of M regional integrated industrial

development and EP; U1 and U2 respectively represent the CE index of industrial development and environment. When the values of U1 and U2 are measured, the size and undetermined coefficient of T α、β The value of is very important because the industrial development of M regional integration is as important as EP α=β= 0.5。

The value of CC D also varies from 0 to 1. According to the size relationship between U1 and U2, each subcategory can be divided into two situations respectively. If U1 ＞ U2, it is the lagging type of EP; If U1 ＜ U2, it is the type of lagging industrial development; If U1=U2, it is the synchronous type of industrial development and EP.

4. Research on the Methods of SD and NE Protection

4.1. Experimental Design Analysis

This paper takes the ED and NE protection of Zone M as the research object. In the indicator system of the integrated industrial development system and the EP indicator system of Zone M, such as total industrial output value, net value of fixed assets, number of industrial enterprises, total profits and taxes, per capita industrial wastewater, exhaust gas, sulfur dioxide, smoke and dust emissions, per capita industrial solid waste production, comprehensive utilization rate of industrial solid waste Industrial solid waste disposal amount and industrial dust removal amount.

In recent ten years, the coordination degree between M regional integration industry and EP is generally in the antagonistic period of CD. As shown in Table 4 and Figure 1, the four major industries of wine, beverage and refined tea manufacturing, textile industry, textile clothing, shoes and hats manufacturing, wood processing and wood, bamboo, rattan, palm and grass products are coordinated with EP.

Table 4. Four industries and EP CC

	2010	2011	2012	2013	2014		2015
Wine, beverage and refined tea manufacturing	0.348	0.339	0.342	0.340	0.341		0.335
textile industry	0.338	0.329	0.332	0.339	0.340		0.332
Shoe and hat manufacturing	0.327	0.328	0.331	0.337	0.334		0.330
Wood processing products industry	0.345	0.326	0.343	0.335	0.338		0.331

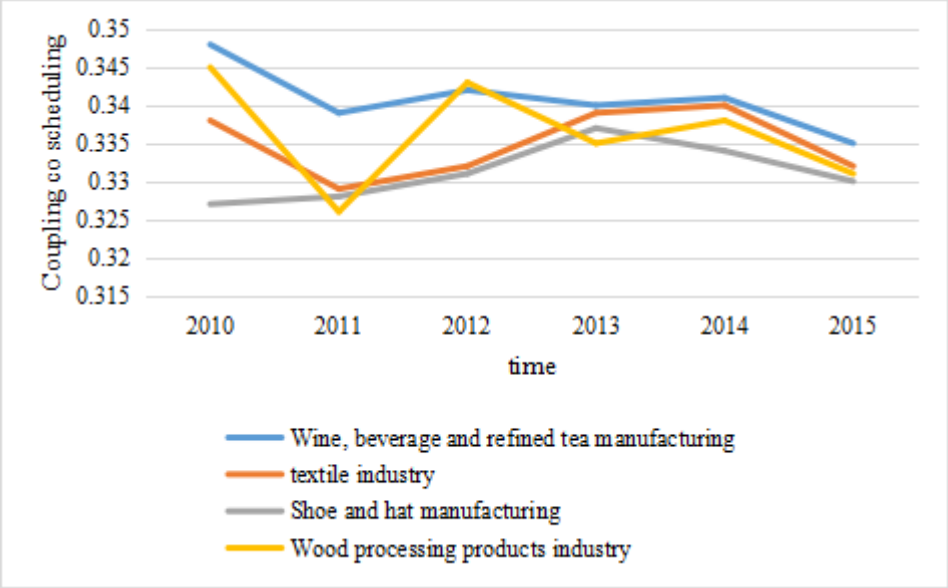

Figure 1. Manufacturing and EP CC scheduling

It can be seen from the above chart analysis that the coordination degree of industrial development and EP coupling in Zone M has shown a trend of steep decline and rapid increase in 2010, and then tends to be gentle. In 2001, the coupling and coordination degree of the five major industries were all below 0.33, and they were on the verge of moderate contradiction development. Only the leather, fur, feather (down) and its products industry had a high degree of coupling and coordination compared with other industries from 2010 to 2012; It can be seen from the CC degree D of M regional integrated industrial development and EP that the CC degree of the 31 industrial industries selected in this paper is mainly between 0.32-0.4, which belongs to the category of slightly misadjusted development with a high degree of imbalance, and the coupling degree is still very low. Since the reform and opening up, China's economy has developed rapidly, especially in the past decade. With the reform entering the deep-water area, the two systems of industrial development and EP have been out of balance. People have realized that the deterioration of the ecological environment hinders the industrial development in the process of industrial development.

4.2. Countermeasures for Coordination between SD and NE Protection

4.2.1. Implement the Responsibility System and Accountability System for Environmental Objectives

Further strengthen the administrative supervision of EP. The EP department and the discipline inspection department shall jointly supervise the implementation of EP by each department. Once illegal personnel and behaviors are found, they shall be strictly handled. In order to achieve real results, we should establish the veto power in EP. As long as there is a major environmental pollution accident during the tenure of officials, or the environmental quality declines during their tenure, the people are very dissatisfied with environmental issues. In any case, officials should be held accountable, and such officials should not be promoted.

4.2.2. Adjust Social and ED Policies and Promote CD of Economic Environment

(1) Further deepen the reform of the economic system

First, implement the strategy of comparative advantage. China should vigorously develop

labor-intensive industries, which can not only ease the pressure on economic growth and employment, but also meet the requirements of EP, because labor-intensive industries generally produce less pollution. The capital intensive enterprises are mostly state-owned large and medium-sized enterprises, and the pollution behavior of these enterprises is more serious.

Second, establish the value of resources and environment and straighten out the price relationship. Influenced by various factors, there is a price distortion phenomenon of "low raw materials and priceless resources" in China to some extent. A reasonable resource price should cover three costs, namely resource development cost, environmental impact cost and resource cost. Realizing the rationalization of resource prices will lead to an increase in the cost of economic and SD in the short term, and will improve the ability to sustain development in the long term, which is also conducive to the realization of social equity.

Third, accelerate the reform of state-owned enterprises. As the priority development strategy of heavy industry has not been completely changed, some large state-owned enterprises still have to implement the strategic tasks of the government. In order to survive in the market, the state has to protect these enterprises from the protection of energy, raw materials and funds. Once the reform of state-owned enterprises is successful, it is unnecessary for the state to continue to maintain low interest rates and low prices of major primary products in order to protect state-owned enterprises, and the current situation of price distortion can be changed, and the comparative advantage strategy can be successfully implemented.

(2) Accelerate economic restructuring

It is imperative to continue to promote further ED. However, if we continue to promote ED according to the current model, the ecological environment may be unbearable. Therefore, in order to achieve sustainable ED, it is necessary to reduce the employment of the secondary industry in the economy from the perspective of system programs. The establishment of a sound system can change this problem to a large extent. Fourth, increase investment in science and technology, so that the ability of science and technology to serve ED can be improved, and can also drive the improvement of production efficiency.

(3) Rely on scientific and technological innovation to strengthen NE protection

First, use environmental policies to guide technological innovation. Green technological innovation is generated by the stimulation and incentive of environmental policies. The relevant environmental policies stimulate the demand for technological innovation, thus providing a new development field or new development direction for technological innovation.

Second, the EP habits of Chinese citizens are mainly self serving, and the demand for green products has not yet formed a strong green market. Therefore, guiding citizens' green consumption is an important part of the government's environmental publicity in the future.

Third, improve EP regulations and strengthen law enforcement. The formulation of EP laws and regulations can become an external force to force enterprises to innovate in EP technology. The legislation and enforcement of EP can have a direct impact on the R&D and use of enterprise environmental technology.

Fourth, establish supporting policies and mechanisms for environmental science and technology research and its industrialization. Strengthen technical and economic evaluation, pay attention to the use of high-tech achievements, and carry out follow-up research on the built pollution prevention facilities to screen practical technologies suitable for China's national conditions. Specifically, when formulating the overall national scientific research plan, the research on environmental pollution prevention technology should be included; Encourage relevant scientific research institutions to cooperate with enterprises to jointly research and develop technologies with strong practicability according to the current market demand; Establish technology information market and supply and demand information network of environmental technology; Cultivate excellent environmental

technology promotion and transformation talents; Strengthen the contact with foreign scientific research institutions and introduce some environment-friendly technologies into China.

Fifth, develop EP industry and promote EP. We will encourage people to actively participate in this process, and encourage enterprises with multiple ownership to enter the business development field of the EP industry. We should further supervise and manage the EP market, break the existing situation of local protection and industrial protection, promote fair competition among enterprises, and enable the EP industry to develop in a positive and healthy market environment.

5. Conclusion

Environment and natural resources, as assets with dual attributes of resource provider and waste acceptor, provide indispensable help and services for human beings. Human life is inseparable from the environment; Human life and material base can not be separated from the environment; The environment provides a place for waste consumption; The environment satisfies the visual and spiritual enjoyment of human beings and provides inspiration for human artistic creation. In a word, the environment can not only provide services for human beings, but also serve as a basic material for human use, providing an important guarantee for ED. By analyzing the harmonious relationship between SD and NE protection, this paper puts forward the strategy of CD. However, there is a lack of analysis of the NE on urban ED. We should strengthen the protection of the environment, that is, increase the protection of biodiversity, so as to ensure the sustainable development of the economy. The methods of SD and NE protection need to be further studied.

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Conflict of Interest

The author states that this article has no conflict of interest.

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