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Retraction

Retracted: Analysis on the Coupling Relationship between Natural Resource Loss and Environmental Pollution Cost Accounting in Chongqing

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] F. Chen and Z. Zhao, "Analysis on the Coupling Relationship between Natural Resource Loss and Environmental Pollution Cost Accounting in Chongqing," *Journal of Sensors*, vol. 2022, Article ID 5223502, 11 pages, 2022.

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Research Article

Analysis on the Coupling Relationship between Natural Resource Loss and Environmental Pollution Cost Accounting in Chongqing

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Natural resource loss and environmental pollution are the focus of attention at present. Based on the analysis of the coupling relationship between natural resource loss and environmental pollution cost accounting in Chongqing, this paper makes a comprehensive analysis of the accounting results. First of all, we should define the loss of natural resources and set the direction of research and development, establish the ecosystem data model, calculate the environmental pollution cost, and display the calculation results. The results show that (1) air pollution is the focus of environmental pollution. On the premise of ensuring production quality, control the number of emissions from production and reprocess the emissions. (2) In the process of paying attention to water and soil resources, detect and protect water resources and soil, and calculate the ecological value of water resources and soil. Pay attention to the benefits between water and soil and transform and optimize the ecological value system of natural resources.

1. Introduction

In a special sense, any natural resources on the earth can be exhausted. If they are willing to maintain them or do not prevent their self-regeneration, they may eventually be destroyed [1]. Global Macroeconometric Model E3MG is the current global energy technology substitution model. It has the characteristics of dynamic logistics technology transformation and induced technological change. It features the use and consumption of natural resources in 20 regions around the world. Continuous technology transformation and decarbonization are driven by carbon price [2]. We were asked to talk about the Roma club model we have been studying. After forming a bad view of the model, we decided to discuss it only in an initial part, and that was written in a controversial way. Those who have a lot to do with the debate on world dynamics will understand why we think it is necessary to express ourselves in a more appropriate way than we usually think [3].

Considering intergenerational equity, reconsider the optimal pricing and use of natural resources. Suppose that in a just economy, each generation chooses a plan to maximize its own effectiveness, subject to the constraint that the plan should not be exploitative; that is, each generation will not use its earlier time point to future generations. Research shows that if the production cost of alternative energy (such as solar energy) is high enough relative to the stock of naturally stored energy, the constraint of justice will lead to low initial energy utilization, but later higher [4]. Well-designed regulation can curb politically driven inefficiency, but it can also exacerbate distortions if politicians control regulators. We studied the impact of strengthening India's transmission regulatory structure on groundwater exploitation, in which electricity is the key input, and we found evidence of politicians' regulation. The guidance of our model is conducive to national candidates, who have greater motivation and ability to choose regulators. Using politicians from national and regional political parties competing for parliamentary seats under 1996-2000 from India, we show that authorized regulators have expanded distortions in groundwater exploitation. There are six years of nationally representative groundwater data. We estimate that in the highly competitive constituencies won by national political party candidates, regulatory capture has led to an additional 2.75 meters drop in groundwater level.

The short-term cost of highly competitive geographical constituencies is about 18% reduction in agricultural production [5]. Based on the environmental governance cost method, the environmental pollution cost of Chongqing from 2008 to 2015 is estimated and analyzed [6]. In order to correctly calculate the social and economic development efficiency of Guanzhong area in Shaanxi Province in recent 10 years, an environmental cost accounting system composed of environmental degradation value, environmental protection expenditure, and natural disaster compensation is established. The results show that GDP increased in 2010, but the cost of environmental pollution increased by 17%. The past two years have shown that the environmental pollution in Guanzhong area is serious, the level of social and economic development and environmental benefits are low, and the environmental situation needs to be improved [7]. Managing and controlling the environmental costs of contaminated sites can be a cumbersome task, followed by a frustrating accounting attempt to identify, track, compile, audit, estimate, or forecast these expenses. How can you be sure that the money you spend is reasonable and habitual? Where is the statistical analysis comparing the cost of cleaning up contaminated facilities? What are the monetary and regulatory responsibilities associated with this work? How will the name of pollution affect the value of property and adjacent properties? In fact, these are just a few questions raised by the company manager when it comes to the cleaning of large Superfund sites or simple leaking underground storage tanks. As the process progresses slowly, the costs associated with clean-up activities increase exponentially. However, with an environmental cost management plan, companies can control and manage costs while increasing profits [8]. Environmental pollution cost is a measure of the damage to the environment caused by land development projects. It should be an important part of enterprise decision-making. The so-called ecological resources and environmental cost refers to the environmental and economic losses caused by human activities, which includes degradation cost and governance cost. Firstly, we use the market value method to establish the cost equation of water, energy, and land environmental degradation. In addition, we use principal component analysis to select two main factors affecting the cost of environmental control: the level of environmental pollution and the level of enterprise environmental management. We use entropy weight method and analytic hierarchy process to normalize the management level and then establish the project pollution control cost accounting equation. The enterprise environmental pollution cost accounting system is conducive to the accurate accounting of the environmental pollution cost of land development projects. Reasonable control of environmental pollution is conducive to the sustainable development of economy and society [9]. The accounting model of ecosystem management is established to collect the specific data of environmental ecology and biology. And use MATLAB software to complete the construction of cost audit model. In the comparative price audit experiment focusing on January, we choose the experiment of traditional management cost audit mode and the construction of small- and medium-sized enterprise cooperation cost audit mode. From January to June, the cost of ecological environment pollution is calculated from the cost of soil management, water management, and air management, and the results are compared with the actual cost [10]. The relationship between metropolitan scale expansion and land use intensity is a hot topic in Chinese Mainland in recent years. Although many scholars have discussed this topic from a theoretical perspective, unfortunately, there is a lack of empirical research in this area. In view of this, this study mainly makes an empirical investigation on Chinese cities. Firstly, the urban land use intensity coefficient is analyzed and established around the main components, and then, the results are verified by structural equation. The results show that urban land use intensity has both positive and negative effects on urban scale. In particular, the agglomeration effect of land and capital is positive, and the substitution effect between them is negative. The results of this study especially solve the coupling relationship between urban size and land use intensity in Chinese Mainland. The results show that when the level of nonland factors increases, the urban land use intensity will increase [11]. The entropy method is used to analyze and finally put forward corresponding suggestions for the problems existing in the current development model. Chongqing's economic development and ecological environment have been significantly improved from 2001 to 2010, showing a stable upward trend. In 2010, it was in a state of coordinated development, and the governance of ecosystem obviously lagged behind the economic development. In addition, there are differences in the development of each subsystem, that is, economic level development and economic efficiency [12]. In order to study the coupling relationship between the flow and pyrolysis of regenerative cooling advanced aeroengine microchannel endothermic hydrocarbon fuel, the characteristic time is defined to describe the time scale of flow and pyrolysis reaction in the pyrolysis reaction flow field. Damkohler number (DA) is used to quantitatively describe the relationship and coupling degree of flow and pyrolysis reaction in microchannel in terms of characteristic time. A one-dimensional model is established to describe the coupling relationship between flow and pyrolysis reaction, which is verified by experimental data. The simulation and experimental results show that DA can quantitatively describe the relationship and coupling degree between flow and pyrolysis reaction. According to the distribution of Da and chemical heat sink, the flow field can be divided into three areas: frozen flow, nonequilibrium flow, and equilibrium flow. Each region shows different coupling characteristics of flow and pyrolysis reaction, resulting in different distribution of chemical heat sink. Especially between the nonequilibrium region and the equilibrium region, the release rate of chemical heat sink is the largest. And the change of flow rate has no effect on the maximum release rate of chemical heat sink [13]. Because the query intention is not accurate, web database users often use a limited number of keywords that are not directly related to their accurate query to search information. Semantically similar keyword queries are challenging but help specify the intent of such queries and provide more relevant answers. By extracting the semantic relationship between keywords and keyword queries, this paper proposes a new keyword query method, which generates idiom semantic approximate answers by identifying a set of keyword queries related to a given keyword query from the query history. In order to capture the semantic relationship between keywords, a semantic coupling relationship analysis model is introduced to model the coupling within and between keywords. Based on the coupling relationship between keywords, the semantic similarity of different keyword queries is measured by semantic matrix [14]. The oil chamber of hydrostatic table of modern heavy-duty CNC machine tool is designed under the condition that the working load acts on the oil chamber equally. However, when the workpiece leaves the rotation center of the worktable, the working load acts on the oil hole unevenly, and the performance indexes of the oil hole such as force, oil film thickness, hydraulic damping, and rated flow are different. Based on the eccentric working load, the coupling relationship between oil holes is analyzed, and the expression and relative bar graph are given. In order to achieve the processing quality and prevent the complete wear of the machine tool, it is best to adjust an oil bag so that the oil film thickness of all oil bags is the same. While adjusting an oil bag, the oil bags are coupled with each other, and the performance indexes change synchronously [15].

2. Natural Resource Loss and Environmental Pollution Cost Accounting

2.1. Natural Resource Loss and Environmental Pollution Cost Accounting Definition of Natural Resource Loss. To calculate the loss of ecological environment and natural resources, we must first clarify what is loss, that is, the definition of loss. The definition of loss is the actual value of asset value at different times. Generally, ordinary assets in reality become depreciation, while those used for environment and natural resources become loss. In addition, there are two different descriptions of natural loss, one is economic damage, and the other is physical loss.

First, let us talk about what is physical loss. Physical loss is defined as the decline of the ability and services provided by the original assets for products. Take natural resources and ecological environment as examples, such as mineral resources, water resources, soil resources, vegetation resources, or fresh air. Economic loss refers to the decline of the stock value of the original assets, which is defined as the change of the value of assets over time. The difference between the two concepts is that physical loss may lead to economic loss, but economic loss does not necessarily need physical loss, because economic loss is the product of price and quantity and because economic loss is the product of asset price and quantity. For example, the manufacturing capacity of a manufacturing plant's production machines has not changed, but the products it produces are no longer popular and used by the public, so the value of the products will be devalued, resulting in the devaluation of the value of the machines and the devaluation of the economy. This example can also be associated with the asset stock of natural resources and environment. If an ecological park, if the tourism activities of the ecological park increase, it will inevitably lead to the decline of the environmental quality of the tourist attractions of the ecological park. As the number of tourists increases, the value of these activities may not decrease, but increase. Therefore, the asset value provided by environmental resource assets and natural resource assets will lead to economic depreciation or economic appreciation. Whether environmental and natural resource assets or assets in a general sense, their physical changes have nothing to do with economic losses.

2.2. Depletion of Natural Resources and Sustainable Development. The concept of loss is closely related to the concept of sustainability, and loss plays a very important role in the concept of income, especially in the sense of sustainable income. PEZ collated the literature on sustainability in the World Bank report. It can be roughly divided into three categories: one is economic sustainability, the other is environmental sustainability, and the third is to maintain environmental sustainability without reducing economic level (or maintain sustained economic growth without reducing environmental quality). However, some people confuse the above three concepts. They either believe that environmental sustainability is a necessary condition for economic sustainability, or on the contrary, they believe that only economic sustainable development can promote environmental sustainability. Different concepts reflect different people's views on different environmental and economic priorities. These different concepts of sustainability are closely related to the two concepts of loss: those who support extreme environmental sustainability advocate actions to reduce or even avoid physical losses in the environment and those who support economic sustainability advocate certain actions to reduce or avoid economic losses of environmental assets. To apply the above concepts to accounting, we must understand the relationship between income and loss.

2.3. Income and Loss of Natural Resources. Income refers to the corresponding reward from work or income from other labor income, such as debt income. But an employee's salary or debt is paid back on a monthly basis. Can we say that the income after the end of the month is zero? Hicks suggested that the focus should not be on income itself, but on the ability of these incomes to generate consumption. Therefore, he believes that the goal of calculating income in practice is to give a person or a team the way of spending power. He means that they will have better spending power than before. Therefore, Hicks believes that income is the amount of consumer goods and services they can control, but the premise is that their consumption will not damage their future consumption ability. Therefore, Hicks income means the significance of sustainable income. The concept of Hicks income applies to national accounts, i.e., net national products or net domestic products. Assets provide a series of products and services in the market and generate value. The reward obtained in a certain period of time is income. First, take V0 as the asset value in the first year and Q1 and Q2 as the value of products and services provided each year, that is, the total income. The calculation process of the model is shown in Figure 1:

3. Natural Resources and Environmental Pollution Accounting Algorithm

The key of pollution cost accounting is environmental value accounting. Pollution cost mainly includes pollution cost and environmental damage cost. Environmental governance cost refers to the current governance cost. Environmental damage cost refers to the actual damage to environmental functions

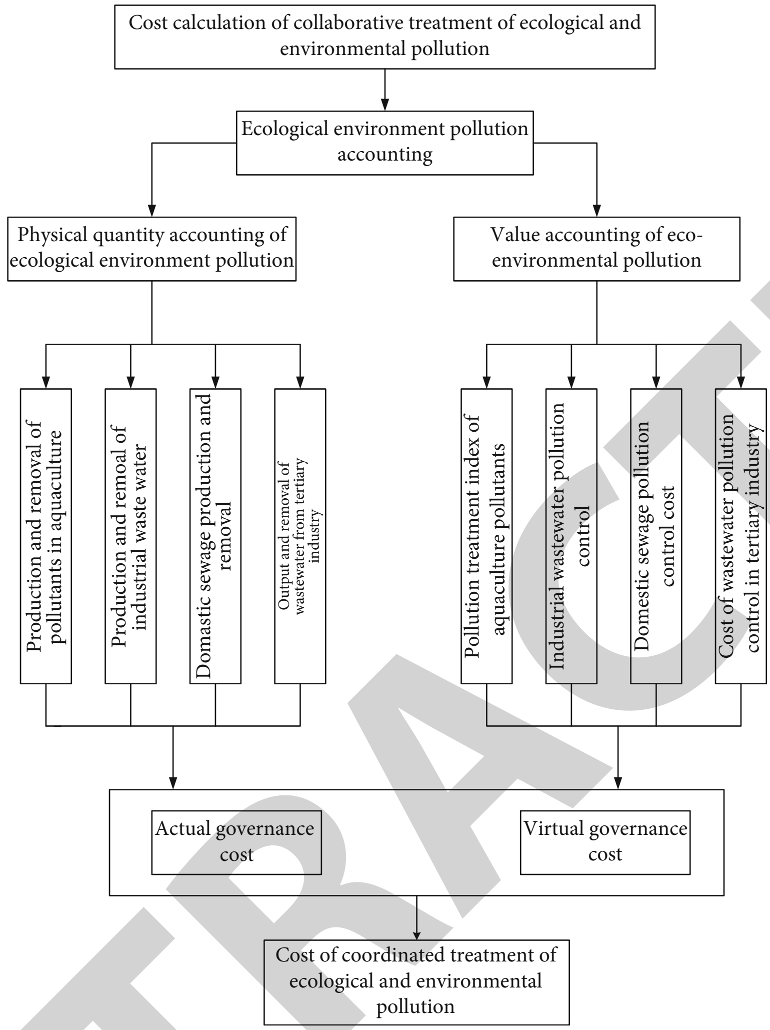

Figure 1: Accounting process of cost accounting model.

caused by pollutants discharged in the process of production and consumption lower than the current treatment level. It is calculated according to the treatment cost method, that is, the treatment cost required to prevent the deterioration of environmental functions. It is assumed that the pollution treatment cost is equal to the damage caused by emission pollution. The accounting methods of environmental treatment in China mainly adopt the quota method of pollutant treatment fee, the standard characteristic method of wastewater calculation, the treatment cost coefficient method, the unit cost analysis method, and the unit cost analysis method adopts the physical quantity of pollutant discharge and treatment and the unit treatment cost of pollutants to calculate the treatment cost, including the depreciation cost of fixed assets, maintenance cost, labor cost, power consumption, and consumption of various materials. The calculation method of environmental pollution can help us calculate the pollution cost of environmental pollution.

3.1. Ecological Environment Pollution Control Standard. After establishing the calculation model, we need to coordinate the treatment and calculate the cost according to the ecological and environmental pollution.

The benefits of pollution control methods are

$$\eta^i = \frac{I_i - E_i}{S_i}\frac{E_i}{I_i}, \quad (1)$$

where ηi represents the treatment cost of pollutants, Ei represents pollutant emission, and Ii represents pollutant removal.

The calculation formula of pollutant cost is

$$\gamma_{\mathrm{i}} = \frac{\eta_i}{\sum_{i=1}^{n}\eta_i} i. \quad (2)$$

It is the calculated cost coefficient γ_{i} obtained from the calculation of certain pollutants, that is, the proportion of waste water in the total treatment cost. The greater its value, the more serious the waste water pollution in a certain area, that is, the greater the importance of treatment.

In formula (2), γ_{i} is the calculated cost coefficient of class I pollutants, that is, the proportion of waste water in the total treatment cost, and η is the treatment benefit of the i -th pollutant.

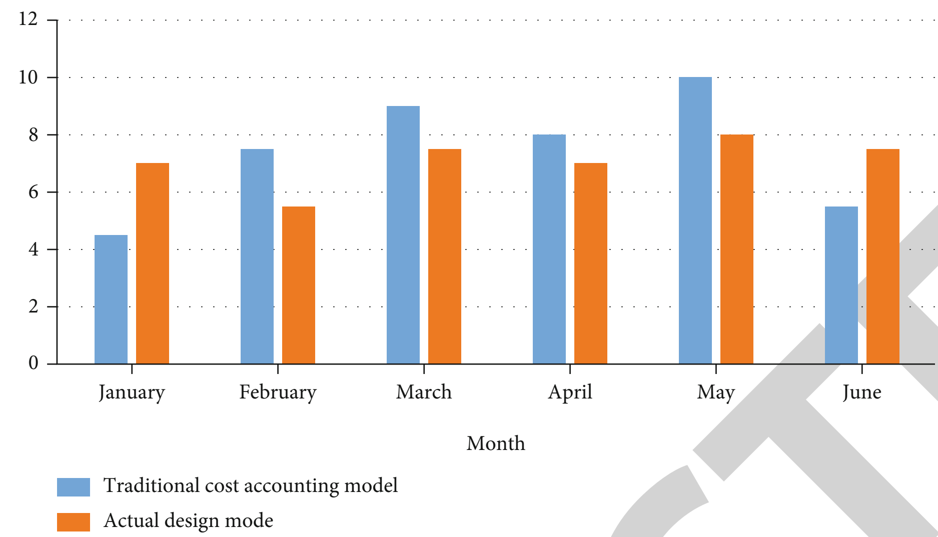

Figure 2: Comparison of land governance cost accounting results.

Calculate the unit treatment cost of the i-th pollutant, and the formula is

$$C_i = \frac{C_i \cdot \gamma_i}{M_i}, \tag{3}$$

where C_i is the accounting cost of major pollutants. By combining the above formulas, the pollution control cost can be calculated.

3.2. Agricultural Environmental Cost Calculation. From the characteristics of water pollution and natural agricultural economic development in Chongqing, the crops mainly focus on rice, corn, and sweet potato. By calculating the output of crops, taking the market price of various crops every year as the shadow price, the agricultural environment cost caused by water pollution irrigation is calculated through the shadow price calculation method:

$$M_{\text{Pagriculture}} = \sum_{i=1}^{n} \partial P_i S_i Q_i. \tag{4}$$

$M_{\text{Pagriculture}}$ is the cost of ecological damage to the environment, which is the product of the area of the polluted crop irrigation area and the treatment cost of transforming the polluted area into natural irrigation area. When its value is larger, it means that the pollution of the local crop irrigation canal is more serious.

In formula (4), P_i is the price of a crop; S_i is the specific planting area of a crop; Q_i is the unit area planted for a crop; ∂ is the proportion of polluted areas that do not meet the requirements of crop irrigation.

The shadow price calculation method is used to explore the minimum damage caused by water pollution to human health. The operating cost of water supply generated by various water supply companies in Chongqing is the cost of creating a healthy environment for adults.

Shadow engineering method, also known as alternative engineering method, is a method of engineering substitution; that is, in order to estimate a very lost project with impossible direct results, the implementation effect of fake and real projects is similar, and the economic loss of special evaluation items is replaced by the construction cost of the project. Shadow engineering method is a special form of restoration cost. After a certain link is polluted or broken, it is a method to manually build a project to replace the original environmental function and use the cost of building the project to estimate the economic loss caused by environmental pollution or damage.

$$M_P = QC. \tag{5}$$

Through the shadow engineering method, if the sewage treatment cost of the whole city in a certain year is the environmental cost of the damage to the ecological environment caused by water resources pollution:

$$M_{\text{Pliving}} = Q' C'. \tag{6}$$

The calculation formula of total environmental cost is as follows:

$$M_P = M_{\text{Pagriculture}} + M_{\text{Ppeople}} + M_{\text{Pliving}}. \tag{7}$$

3.3. Economic Loss Analysis of Water Environment Pollution. The economic loss of water pollution belongs to the category of ecological economy. In principle, this is the economic tax in the process of energy emission of pollutants in the ecological environment. This natural eco economic development phenomenon is like the source-level correlation in Linderman ecosystem and echoes with the linear relationship between adjacent nutrient source levels described in Linderman. This also means that water resources and environmental pollutants that do not enter the ecosystem. The economic loss of water resources and environmental pollutants entering the ecosystem is the economic manifestation of pollutants in the water

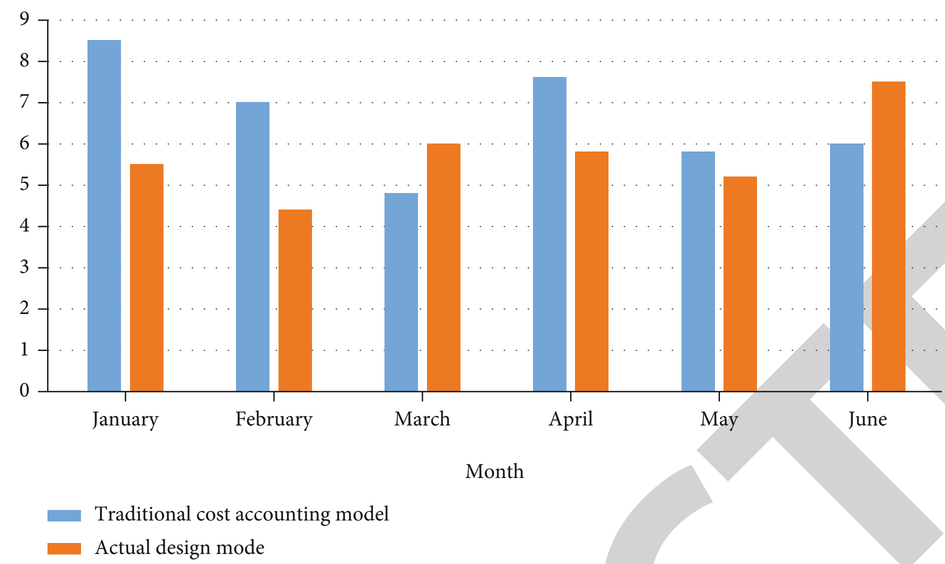

Figure 3: Comparison of water source treatment cost results.

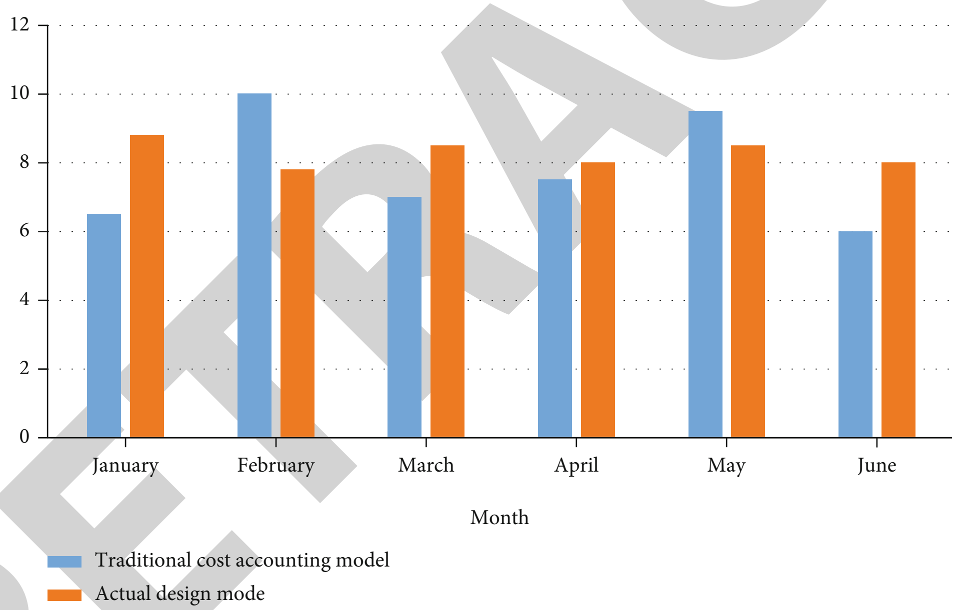

Figure 4: Comparison of atmospheric treatment cost results.

resource environment in the process of adjacent energy digestion, which conforms to the linear energy relationship between adjacent ecological environments. The expression is

$$M_E = K \times M_P, \quad (8)$$

where K is the economic loss coefficient of water pollution in the economic analysis of water pollution. The greater its value, the greater the severity of water pollution, and the more it is necessary to analyze and calculate the value of water resources.

The value K is calculated as follows:

$$K = \frac{M_E}{M_P}. \quad (9)$$

3.4. Comparison of Evaluation Methods of Environmental and Natural Resource Loss. The value of an asset depends not only on its value at any time but also on all future values. When economic loss is defined as the change of asset value over time, it is necessary to estimate the future variables. In theory, it can be overcome by some methods. In practice, we use the market price of existing assets to reflect the value of assets. The depreciation date of assets in a general sense can be measured by the observed changes in market prices. However, future price changes will affect the calculation of depreciation. In practice, some simple methods are often used to deal with the depreciation of ordinary assets. For example, linear depreciation is one of the most commonly used methods. It is much more difficult to calculate the loss

Table 1: Physical quantity statistics of industrial air pollution in Chongqing.

Project		2008	2009	2010	2011	2012	2013	2014	2015
SO_2	Production	10222.76	99116.03	133163	201383.2	335225.36	236133.4	26179.28	300811.48
	Removal	58106.76	4826.41	79163.4	102173.22	234656.8	145518.7	158479.92	206112.85
	Emissions	52116	50989.89	53546.4	99210.055	100568.56	90614.7	110699.36	94698.63
NO_X	Production	24988.69	26898.49	44245.5	80463.649	85591.77	79477.3	94205.49	88947.38
	Removal amount	2889.17	2832.65	2381.98	1862.608	6415.32	9366.81	26433.49	19515.43
	Emissions	22099.52	24065.84	41863.6	78601.041	79176.45	7010.49	67672	69431.95
Particulate matter	Production	525566.8	632263.4	191998	1181227.8	1631288.8	1597575	1981611.92	2080893.93
	Removal amount	491790.6	598353.7	1572488	1131272.5	15789944	1544949	1913256.44	116240.63
	Emissions	33776.2	33909.79	47510.04	49955.376	52294.37	52626.09	68355.48	84653.31

Unit: t.

Table 2: Statistics of industrial waste gas treatment in Chongqing.

Project	2008	2009	2010	2011	2012	2013	2014	2015
Operation cost of industrial waste gas treatment facilities	24050.3	23796.9	32957.1	6123.2	61232.2	77800.4	94039.7	91943.8
Operation cost desulfurization facilities	13132.5	12921.1	13805.8	9127.9	33916.8	34114.9	44497.3	53922.2
Operation cost of denitration facilities	—	—	—	1388.3	2148	9237.6	12181.9	16527.7
Operation cost of dust removal facilities	—	—	—	16396.6	25160	17300.4	18023.2	17428

Table 3: Physical quantity statistics of urban domestic waste gas in Chongqing.

Project		2008	2009	2010	2011	2012	2013	2014	2015
SO_2	Removal amount	1251	1224	1285	3198.4	3199	3199	3195	3820
NO_X	Removal amount	177	186	335	558	599	599	558	753
Particulate matter	Removal amount	878	882	1235	548.38	1771	1771	1769	2115

Unit: t.

of environmental protection goods without price market transaction. In theory and practice, there are three common methods to evaluate the loss of environment and resources: repetition method or net rent method, elasticity method, and present value method.

3.4.1. Net Rent Method. The net rent method is used when the environment and resources are limited and the ecological environment is nonrenewable. Under some assumptions, the net rent method repeatedly derives observable initial reports and natural resource losses, so the net rent method simplifies the pressure of calculating estimates. A limited and nonrenewable natural resource has a certain market price. For example, the value of polluted natural water resources can be calculated by the indirect loss of water resources, resulting in the reduction of income brought by crop production. The value of a limited natural resource and environmental asset is the sum of the value of the products and services of the natural resource and environment in each year in the future:

$$PV_0 = \frac{R_1}{1+r} + \frac{R_2}{(1+r)^2} + K + \frac{R_T}{(1+r)^2} = \sum_{t=1}^{T} \frac{R_t}{(1+r)^2}. \quad (10)$$

In formula (10), it is the value of assets and services in a certain year, t is the service life of assets, and R is the market interest rate.

Further assume that it increases with the market interest rate, that is,

$$R_t = R_1 (1+r)^{t-1} \cdots\cdots\cdots\cdots\cdots\cdots. \quad (11)$$

On the premise of perfect market competition and the pursuit of profit maximization and free access, the return rate of capital market is the same in theory. However, in reality, due to the incomplete publicity of resources and market, this assumption will have some problems. These assumptions have produced quite attractive results:

$$PV_0 = \frac{R_1}{1+r} + \frac{R_2}{(1+r)^2} + K + \frac{R_T}{(1+r)^{\mathrm{T}}} = \frac{R_1}{1+r} + \frac{R_1(1+r)}{(1+r)^2} + K + \frac{R_1(1+r)^{T-1}}{(1+r)^{\mathrm{T}}} = \sum_{i=1}^{T} \frac{R_1(1+r)^{t-1}}{(1+r)^t} = \sum_{i=1}^{T} \frac{R_1}{(1+r)} = T\frac{R_1}{(1+r)}. \quad (12)$$

Table 4: Calculation results of waste gas simulation treatment cost in Chongqing.

Project		2008	2009	2010	2011	2012	2013	2014	2015
Virtual governance cost	SO_2	282.7	328.0	223.3	291.1	460.6	748.6	897.8	1000.18
	NO_X	132.6	143.0	249.6	415.7	187.3	551.2	257.2	637.0
	Particulate matter	15.8	13.2	16.6	7.68	24.8	19.5	15.9	19.0

Table 5: Calculation results of atmospheric environmental pollution in Chongqing.

Project	2008	2009	2010	2011	2012	2013	2014	2015
Actual governance cost	24137.1	24006.7	328877.8	26912.2	61224.8	60652.9	74702.4	87869.9
Virtual governance cost	29281.5	32587.3	41460.0	68999.8	42515.4	42515.4	64089.5	85899.8
Total	52418.6	56594.0	74337.8	95912.6	103740.2	103740.2	13879.9	173767.7

Then, the present value of assets in the next period is

$$PV_0 = \frac{R_2}{1+r} + \frac{R_3}{(1+r)^2} + K + \frac{R_T}{(1+r)^{T\text{-}1}} = \frac{R_1(1+r)}{1+r} + \frac{R_1(1+r)^2}{(1+r)^2} + K + \frac{R_1(1+r)^{T-1}}{(1+r)^{T\text{-}1}} = \sum_{t=2}^{T} \frac{R_1(1+r)^{t-1}}{(1+r)^{t-1}} = (T-1)R_1. \quad (13)$$

3.4.2. El Serafy Law. From the actual use situation, the net rent method is indeed relatively simple and can be used by a large number of users. However, the net rent method is related to the real growth rate of RT equal to the interest rate, and the net rent method uses different hypothesis theories for the calculation target. The net rent method divides the total income of self-owned assets into two parts, one is the actual income, and the other is the income generated by the use of energy intensive assets. The net rent method itself believes that as long as it is sustainable, we should invest more energy-intensive income in a limited time. In the future, we can create more sustainable income through investment, and these investments are our real income. According to the mathematical formula, R is the interest level, r is the annual total income, which can be set as a constant, and X is the annual actual income; then, the present value of the balanced actual income is

$$V_0 = \sum t = 1\infty R(1+r) = X_r. \quad (14)$$

The actual present value of annual income r within the limited exploitation life of resources is

$$W_0 = \sum t = 1\infty R(1+r) = R_r(1 - 1(1+r)T). \quad (15)$$

Assuming the above two are equal, the actual benefit X is

$$X = R - R(1+r)T. \quad (16)$$

3.4.3. Net Present Value Method. The sum of product value and service value generated by natural resources and ecological environment in the coming years is as follows:

$$PV_0 = R_{11} + R_2(1+r)2 + K + R_T(1+r)T = \sum t = 1TR_t(1+r). \quad (17)$$

If the basic discount rate does not change, one year later, the sum of the value of natural resource assets and the present value of the value generated by the first phase environment is

$$PV_1 = R_{21} + r + R_3(1+r)2 + K + R_T(1+r)T - 1 = \sum t = 2TR_t(1+r)t - 1. \quad (18)$$

All RT from the second year to a certain year is discounted to the first year and summarized, so that the economic depreciation between period 0 and 1 is

$$D_1 = PV_0 - PV_1 = \sum_{t=1}^{T} \frac{R_t}{(1+r)^t} - \sum_{t=2}^{T} \frac{R_t}{(1+r)^{t-1}}. \quad (19)$$

4. Loss of Natural Resources and Cost of Environmental Pollution in Chongqing

In order to verify and explore the effectiveness of the designed cost accounting model in the collaborative treatment of ecological and environmental pollution in Chongqing, comparative experiments are needed. Randomly select a natural area, and use the traditional environmental pollution control cost accounting model and the designed cost accounting model to calculate the cost of land resource treatment, water resource treatment, and air treatment in this area. The comparison results are as follows:

4.1. Comparison of Calculation Results of Soil Treatment Cost. In this experiment, the traditional cost model is used to calculate the land treatment cost in different months in the experimental area, and the cost model is designed. The cost of land remediation in the pilot area is calculated according to the actual cost of land remediation. The results are shown in Figure 2:

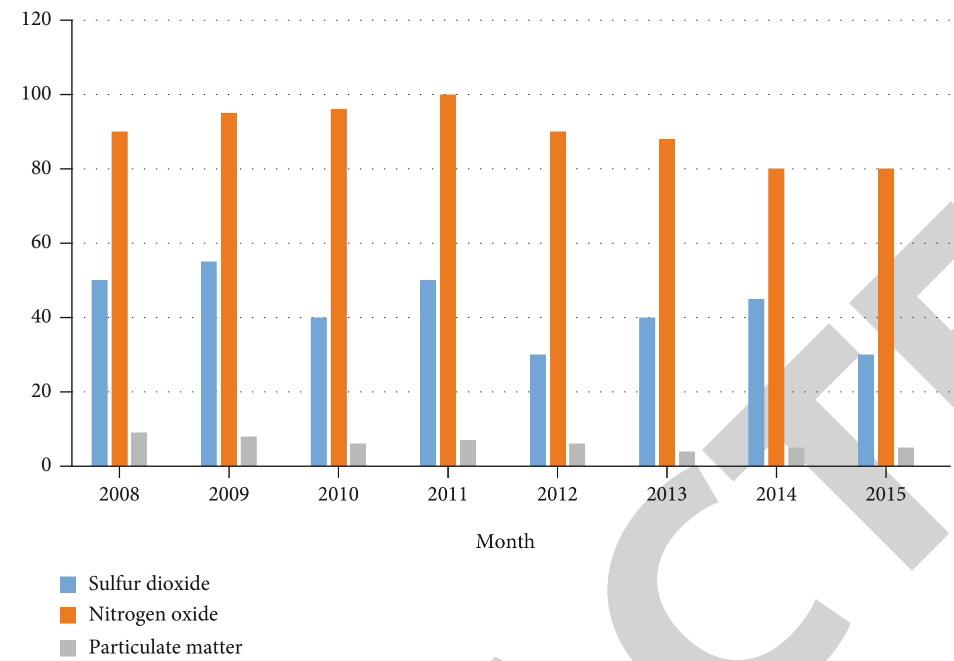

Figure 5: Percentage of emissions and emissions of various accounting objects in Chongqing.

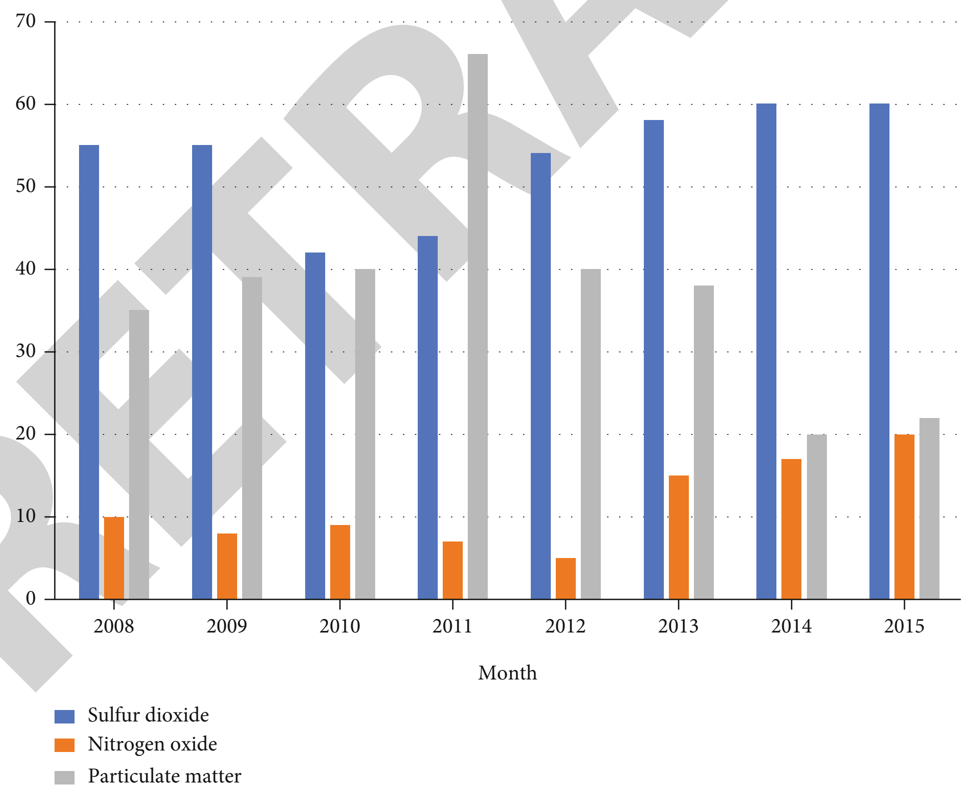

Figure 6: Proportion of actual governance cost of each accounting object in Chongqing.

4.2. Comparison of Calculation Results of Water Source Treatment Cost. Comparison of water source treatment cost results is shown in Figure 3.

4.3. Comparison of Calculation Results of Atmospheric Treatment Cost. In the experiment, the traditional pollution control cost accounting model and the designed cost accounting model are

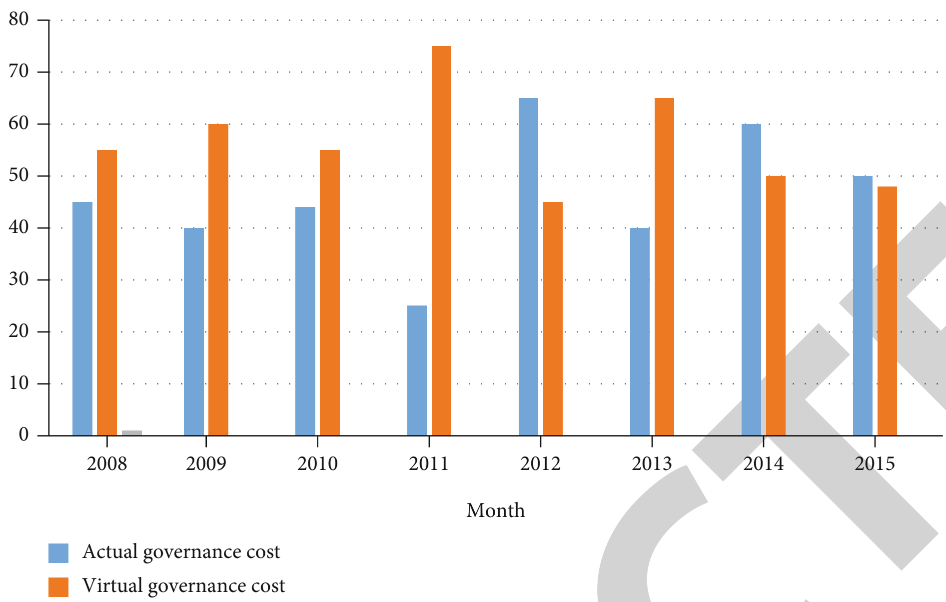

Figure 7: Proportion of actual and virtual atmospheric control costs in Chongqing.

used to calculate the atmospheric control cost of the experimental area in different years. The actual atmospheric control cost is used as the benchmark to calculate the atmospheric control cost of the experimental area. The results are shown in Figure 4:

The results of the proposed calculation model are closer to the actual cost than those of the traditional accounting model. It shows the effectiveness and accuracy of the proposed actual cost accounting model and provides a cost data basis for ecoenvironmental protection, which is more convenient to study the change of ecoenvironmental cost.

To sum up, whether it is land resource treatment cost, water resource treatment cost, or air treatment cost, the results of the proposed calculation model are closer to the actual cost than those of the traditional accounting model. It shows the effectiveness and accuracy of the proposed actual cost accounting model and provides a cost data basis for ecological and environmental protection, which is more convenient to study the changes of social ecological and environmental costs.

4.4. Accounting and Analysis of Air Environmental Pollution in Chongqing. The cost calculation area of atmospheric environmental pollution involves the waste generated by manufacturing industry and urban daily life, including the actual input treatment cost and simulated input treatment cost. The treatment objects are sulfur dioxide, nitrogen oxides, and particulate matter. It is shown in Table 1.

The following is a description of the treatment of industrial waste gas in Chongqing.

The actual input governance cost and simulated governance cost of manufacturing industry are shown in Table 2.

Air pollution cost accounting statistics is shown in Table 3.

Calculation results of waste gas simulation treatment cost in Chongqing are shown in Table 4.

Calculation results of atmospheric environmental pollution in Chongqing are shown in Table 5.

4.5. Cost Analysis of Air Pollution in Chongqing. Changes in the physical quantities of air pollutants will be described below.

Figure 5 shows the calculated percentage of emissions and emissions of air calculation objects in Chongqing from 2008 to 2015. It can be seen from the figure that particulate matter accounts for the smallest proportion of emissions and nitrogen oxides account for the largest proportion. Mineral manufacturing industry, nonmetallic manufacturing industry, electrical production, and automobile manufacturing have become the main sources of nitrogen oxide emissions in Chongqing. Nitrogen oxides are mainly produced from the combustion control technology of nitrogen and oxygen. The flue gas denitration technology after combustion is less used. The relative scarcity of denitration technology leads to less removal rate of nitrogen oxides.

Structure of atmospheric environmental pollution cost is in Figure 6, which shows the proportion of actual and virtual atmospheric governance costs in Chongqing and the proportion of actual and virtual atmospheric governance costs of each accounting object.

As shown in Figure 7, the proportion of the actual treatment cost of air pollution environment in Chongqing is more than 50% in 2012 and 2014. Except that the simulated treatment cost in 2012, 2014, and 2015 is less than the actual treatment cost, the treatment cost in other years is greater than the actual treatment cost, but in general, the simulated treatment cost shows a decline. It can be seen from Figure 4 that the actual input and treatment cost of sulfur dioxide has always been in the primary position, and its proportion in the total input shows a trend of decreasing to increasing. The proportion of the total actual input and treatment cost of nitrogen oxides has always been the lowest, accounting for no more than 15%. The proportion of the actual input cost of particulate matter shows a development trend of increasing first and then decreasing. The proportion of actual input cost of sulfur dioxide in the total is higher than that of particulate matter, and the proportion of simulated input cost of sulfur dioxide in the annual simulated input treatment cost is not low, with the highest proportion reaching 50%. The simulated input cost of nitrogen oxide and the actual input cost are complementary, and the proportion of simulated input cost of nitrogen oxide is higher than 50%. It can be seen that the actual input cost of nitrogen oxides is very high.

5. Conclusion

To sum up, the coupling relationship between natural resource loss and environmental pollution cost accounting was analyzed. In terms of air pollution, we should focus on improving the solution of air pollution, focusing on sulfur dioxide, nitrogen oxides, and particulate matter. At the same time, factories should also pay attention to continuous manufacturing reform, create new production machines, vigorously promote green manufacturing, recycle emissions, and try to avoid environmental pollution caused by improper treatment. In the protection of water and soil resources, the ecological value system of new natural environmental protection shall be designed and evaluated accurately. At the beginning of the design, we should not only pay attention to the protection of water and land resources and calculate the ecological value of water resources and soil but also pay attention to the indirect impact of water resources and soil on the earth's biological climate. In the follow-up research, we should pay more attention to the protection of natural resources. No resources on earth are endless. We should build a concept of sustainable development, protect natural resources from destruction, clean up pollutants, and build a new green city.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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