

Research Article

Green Development Evaluation of Tai'an Based on Entropy Method

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In order to realize the harmonious development between human beings and nature, we must adopt the environment-friendly production and consumption mode based on the carrying capacity of the environment, with less pollution and low loss of industrial structure and sustainable development of green industry to pursue the coordinated, comprehensive, and sustainable development of economy, society, and environment. Based on the analysis of the economic, resource, and environmental data of Tai'an, Tai'an made significant achievements in promoting the green development of the city. It shows that the measures of promoting green development to drive economic and social development in Tai'an City have achieved certain results. The paper used the entropy method to calculate the comprehensive evaluation index of the green development in Tai'an to measure the developments of "Green Tai'an" comprehensively and has analyzed the progress of the construction in recent years and put forward some relevant suggestions in view of the existing problems.

1. Introduction

Environmental protection and green development in the 21st century have become the most important issues for human development. Green development is a mode of economic growth and social development aiming at efficiency, harmony, and sustainability (Wang). From the perspective of economy, how to promote economic development and at the same time enhance social benefits and reduce environmental pollution has become the core issue of sustainable development. As the theme of green and sustainable development, the first International Conference on Economic Management and Green Development in 2018 will discuss issues and research hotspots in the fields related to social sciences such as smart city, low-carbon economy, supply chain management, culture and education, and public management in green and sustainable development. Many countries have formulated green development strategies and policies, such as resource conservation and green and low-carbon development, in order to realize the coor-

ordinated development of economy, society, and environment [1, 2].

The fifth Plenary Session of the 18th CPC Central Committee put forward the concept of green development as one of the five development concepts in the 13th Five-Year Plan and beyond [3, 4]. On the surface, green development is to ensure that the ecological environment is green, the mode of production is clean, and the economy and the natural environment are highly coordinated. From the perspective of connotation, green development is a new development mode that takes environmental protection as an important pillar to achieve sustainable development under the constraints of ecological environment capacity and resource carrying capacity [5, 6].

The report clearly pointed out that the party's 19th, we are going to the construction of modernization is the modernization of harmonious coexistence between man and nature [7], both to create more material wealth and spiritual wealth to meet people's increasing need of a better life [8, 9] and to provide more high quality ecological products to

meet people's increasing need beautiful ecological environment [10, 11].

Green development brings us a new concept of development, which emphasizes the conservation of natural ecology and the sustainable use of resources [12, 13], and takes ecological and environmental carrying capacity into consideration on promoting economic and social development. At the same time, the development goal is to achieve sustainable development in economy, society, and environment, and the theme and approach of development are to achieve "green" and "ecological" economic activities [14, 15]. In recent years, through a series of policies and measures, such as industrial transformation and upgrading, pollution prevention, and control, Tai'an has been steadily improving, and the ecological environment has been effectively protected. It is of great significance to comprehensively evaluate the effect of economic and social development and natural ecological protection in Tai'an and to construct a green development evaluation index system to comprehensively measure the development of "green Tai'an."

2. Situation Analysis

2.1. Economic Development Analysis. The economic development of Tai'an is rapid; GDP increased by 15.6 percent from 230.431 billion in 2011 to 266.36 billion in 2019 (based on data from the fourth economic census, the growth rate was not calculated because of the recalculation in 2018) (see Figures 1–3). Industrial transformation and upgrading power are strong, and a large number of new industries and modern services are booming, and relatively backward traditional industries are gradually replaced by advanced tertiary industries in Tai'an. Agricultural production has steady progress in Tai'an. Among the total annual output values of agriculture, forestry, animal husbandry, and fishery are as follows: 374.08, 406.58, 452.62, 471.41, 494.30, 515.28, 523.29, and 548.78 from 2011 to 2018 (unit: billions).

2.2. Resource and Environmental Development. The comprehensive utilization of resources in Tai'an has achieved certain results. The total amount of comprehensive utilization of industrial solid waste is nearly 10 million tons per year, and the proportion is over 95%. The average concentration of sulphur dioxide, nitrogen oxides, respirable particulate, and fine particulate matter in 2019 is 18, 36, 102, and 51 in Tai'an (unit: $\mu\text{g}/\text{m}^3$). In recent years, the government of Tai'an has carried out the prevention and control of air pollution in an all-round way and has completed the stoppage and green renovation of 2820 coal-fired boilers and 53 coal-fired units of the low-emission transformation work. Besides, Tai'an has vigorously promoted the use of gasoline and diesel in transport vehicles and dealt with substandard yellow standard vehicles. At the same time, it forced the closure of "three high and two low" enterprises without meeting the standards of energy conservation and emission reduction to create a good environment for the construction of "Green Tai'an."

3. Data and Methods

3.1. Principles of Index Selection

3.1.1. Principle of Coordination. The definition of green development involves two dimensions: green and development. Green evaluation mainly includes a series of indicators such as resource and energy consumption, natural environment protection, and sustainable development of natural ecology. Development evaluation mainly measures the economic level of a Tai'an, and green development is to fully reflect the organic combination of the green and the development. Therefore, when selecting indicators according to the principle of coordination, consideration should be given to the carrying capacity level of natural environment, greening level of regional economic development, and government's investment in green development.

3.1.2. Principle of Scientific. To select Tai'an green development evaluation index, the characteristics of Tai'an green development must be fully grasped, and the corresponding index system should be established under the guidance of scientific principles. Therefore, it is necessary to combine the development law of natural science and select the indexes scientifically and rigorously, so as to lay a good foundation for the follow-up objective and real evaluation.

3.1.3. Principle of Systemic. The construction of Tai'an green development index system needs to consider many factors, and the selected index should fully reflect the typical characteristics of Tai'an green development in politics, economy, culture, and ecological environment. Therefore, indicators must be selected from various factors involved in Tai'an green development to form a systematic index system for comprehensive evaluation.

3.1.4. Principle of Feasibility. In the selection of indicators, attention should be paid to the validity, authenticity, and objectivity of data obtained. Most of the data of these indicators can be consulted in the Tai'an statistical yearbook, and the data related to these indicators can also be consulted in the Tai'an government work report.

3.1.5. Principle of Dynamic. The principle of dynamics refers to that the dynamic change process of Tai'an green development should be fully grasped in the selection of indicators. Under the guidance of this principle, the selection of Tai'an green development evaluation index must comprehensively analyze the dynamic change characteristics of green development and collect relevant data in recent years for continuous dynamic analysis.

3.1.6. Principle of Representativeness. The principle of representativeness means that key representative indicators must be selected to highlight the comprehensive characteristics of Tai'an's economic and social development and changes in the selection of indicators.

3.2. Ideas of the Index System. In order to comprehensively measure the green development degree of Tai'an, we would build a complete index system, including the following

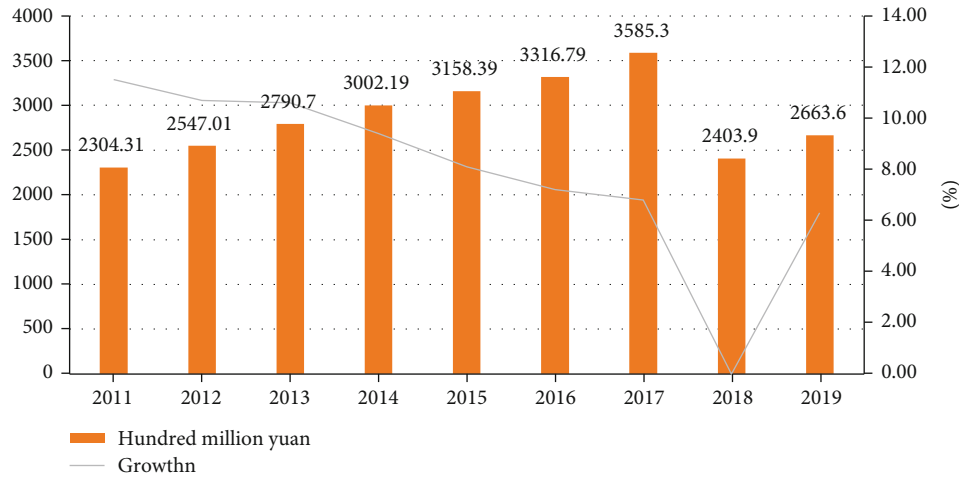


FIGURE 1: GDP and growth rate of Tai'an from 2011 to 2019.

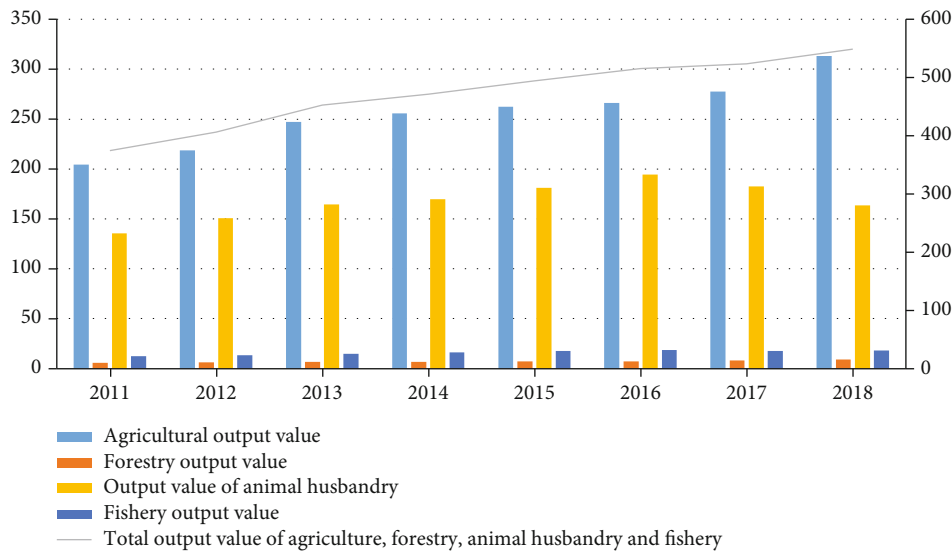


FIGURE 2: Total value of agriculture, forestry, animal husbandry, and fishery in Tai'an from 2011 to 2018.

indicators such as the efficiency of green development, the carrying capacity of green development, and the improvement of green development, so as to achieve the effect of comprehensive evaluation of economic and social development and the bearing capacity of natural environment and ecological protection of Tai'an.

Second, the characteristics of Tai'an green development are combined in the index selection process, such as adding Tai'an proportion of tertiary industry, Tai'an green area per capita, and Tai'an public transport per 10,000 people, to lay a foundation for more effective evaluation of Tai'an green development.

Third, the influence of Tai'an government on Tai'an green development should be enhanced. The promotion of green development cannot be achieved without the guidance and help of Tai'an government. In the selection process, the index of Tai'an government support for green development should be added, such as the proportion of individual expenditure on natural ecological protection in the total fiscal expenditure.

Fourth is the accessibility, accuracy, and objectivity of relevant data. All the data are from the published yearbook and official data released by the government departments of Tai'an.

3.3. *Selection of Indicators.* According to the availability of index data, the evaluation index system of green development in Tai'an has selected 21 indexes (Table 1).

3.4. *Data Processing.* Because the units of different indexes are different, the indexes cannot be compared and calculated directly. In order to ensure the accuracy of analysis results, it is necessary to standardize the original data. In this paper, the minimum-maximum standardization method is selected to standardize the data.

3.5. *Determination of Index Weights.* For the allocation of evaluation index weight, it is determined according to the

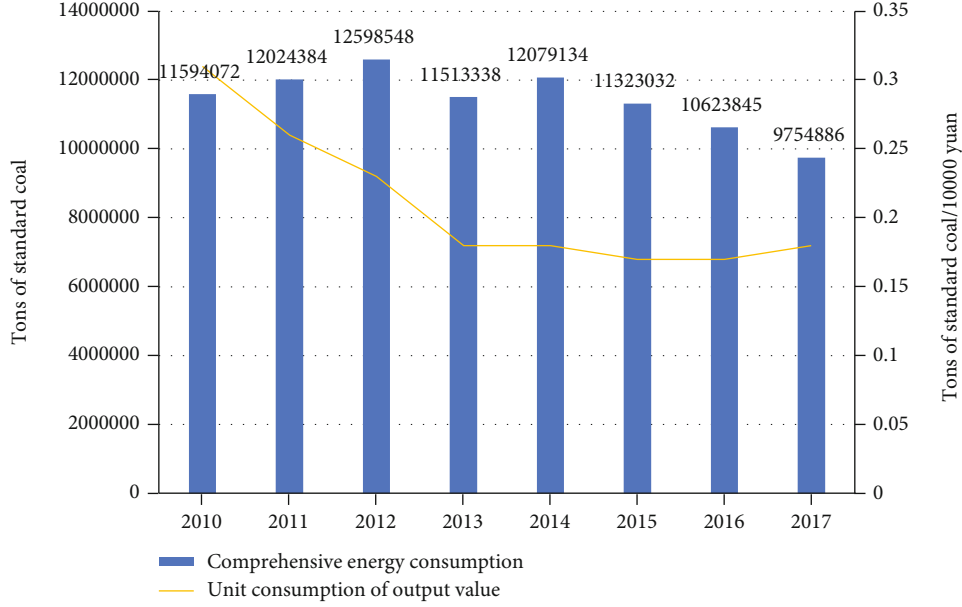


FIGURE 3: 10,000 yuan industrial output value of unit consumption from 2010 to 2017 in Tai'an.

difference of index calculated by entropy method. The concrete steps are as follows.

Step 1. Determine the original index value. Suppose there are m indicators, n annual samples, x_{ij} ($i = 1, 2, \dots, n$) year, and j ($j = 1, 2, \dots, m$) raw data values.

Step 2. For data standardization, positive index (numerical number is the higher and the better) of the minimum value standardization formula is as follows [16]:

$$X'_{ij} = \frac{X_{ij} - \min(X_{1j}, X_{2j}, \dots, X_{nj})}{\max(X_{1j}, X_{2j}, \dots, X_{nj}) - \min(X_{1j}, X_{2j}, \dots, X_{nj})}. \quad (1)$$

Reverse index (numerical number is the smaller and the better) of the maximal value standardization formula is as follows:

$$X'_{ij} = \frac{\max(X_{1j}, X_{2j}, \dots, X_{nj}) - X_{ij}}{\max(X_{1j}, X_{2j}, \dots, X_{nj}) - \min(X_{1j}, X_{2j}, \dots, X_{nj})}, \quad (2)$$

where X'_{ij} is the standardized values, $\max X_j$ is the maximum for j index, and $\min X_j$ is the minimum for j index.

Step 3. Calculate the proportion of year i under index j in the indicator P_{ij} .

$$P_{ij} = \frac{X'_{ij}}{\sum_{i=1}^n X'_{ij}} \quad (i = 1, 2, 3 \dots, n; j = 1, 2, 3 \dots, m). \quad (3)$$

Step 4. Calculate the entropy e_j of j index

$$e_j = -k \sum_{i=1}^n P_{ij} \ln(P_{ij}). \quad (4)$$

$$k > 0, k = 1/\ln(n), e_j \geq 0.$$

Step 5. Calculate the difference coefficient of the j index.

For g_j , the calculation formula is as follows:

$$g_j = 1 - e_j. \quad (5)$$

The bigger difference coefficient of an indicator is, the more information it provides. The greater effect it takes, the greater weight it should be given.

Step 6. Calculate the index weight. The formula is as follows:

$$a_j = \frac{g_j}{\sum_{j=1}^m g_j} \quad (1 \leq j \leq m). \quad (6)$$

According to the above calculation, the entropy value, difference coefficient, and weight of the index [17] are obtained as shown in Tables 2–4.

3.6. Calculation of Evaluation Indicators. Calculate the level of green development indicators from 2011 to 2018. The formula is as follows:

$$V_i = \sum_{j=1}^n a_j P_{ij} \quad (i = 1, 2, 3 \dots, n). \quad (7)$$

TABLE 1: Evaluation index system of green development in Tai'an.

	Level indicators	Code	Secondary indicators Indicator name	Unit
	Green development evaluation indicators		X_1	Gross regional product per capita
		X_2	Energy consumption per unit of gross regional product	Tons of standard coal/10000 yuan
		X_3	Gross domestic product so2 emissions per unit area	t/billions
		X_4	Gross domestic product nitrogen oxide emissions per unit area	t/billions
Economic growth and green development efficiency indicators		X_5	Construction land per unit GDP	km ² /billions
		X_6	Proportion of cultivated land area under effective irrigation	%
		X_7	Integrated utilization of industrial solid waste	%
		X_8	Energy consumption of industrial added value per ten thousand yuan	Tons of standard coal/ten thousand yuan
		X_9	Growth rate of tertiary industry	%
		X_{10}	Percentage of forest cover	%
		X_{11}	Water resources per capita	m ³ /per capita
Level of environmental bearing capacity		X_{12}	Fertilizer application per unit cultivated area	t/hectare
		X_{13}	NOx emissions per unit land area	t/km ²
		X_{14}	Emissions so2 per unit land area	t/km ²
		X_{15}	so2 emissions per capita	t/per capita
		X_{16}	Expenditure on environmental protection of share of fiscal expenditure	%
		X_{17}	Science and technology of share of fiscal expenditure	%
Government support and green development		X_{18}	Municipal sewage treatment rate	%
		X_{19}	Municipal solid waste disposal rate	%
		X_{20}	Urban per capita park green area	Hectare/per capita
		X_{21}	Public transport per 10,000 people in the city	Traffic/ten thousand people

TABLE 2: Entropy and coefficient of variation for indicators.

Index	Entropy	Coefficient of variation	Weight	Index	Entropy	Coefficient of variation	Weight
X_1	0.6074	0.3926	0.0458	X_{12}	0.4813	0.5187	0.0604
X_2	0.6262	0.3738	0.0436	X_{13}	0.5466	0.4534	0.0528
X_3	0.6065	0.3935	0.0459	X_{14}	0.5832	0.4168	0.0486
X_4	0.5943	0.4057	0.0473	X_{15}	0.5845	0.4155	0.0484
X_5	0.6328	0.3672	0.0428	X_{16}	0.5514	0.4486	0.0523
X_6	0.5908	0.4092	0.0477	X_{17}	0.5951	0.4049	0.0472
X_7	0.6275	0.3725	0.0434	X_{18}	0.5880	0.4120	0.0480
X_8	0.6258	0.3742	0.0436	X_{19}	0.6392	0.3608	0.0421
X_9	0.5907	0.4093	0.0477	X_{20}	0.5877	0.4123	0.0481
X_{10}	0.6248	0.3752	0.0437	X_{21}	0.5682	0.4318	0.0503
X_{11}	0.5677	0.4323	0.0504				

TABLE 3: Index weights.

Level I indicators	Weight	Secondary indicators	Weight
Economic growth and green development efficiency indicators	0.41	GDP per capita (X_1)	0.0458
		Energy consumption per unit of GDP (X_2)	0.0436
		Gross domestic product so2 emissions per unit area (X_3)	0.0459
		NOx emissions per unit GDP (Jiang 2015) (X_4)	0.0473
		Construction land per unit GDP (X_5)	0.0428
		Proportion of cultivated land area under effective irrigation (X_6)	0.0477
		Integrated utilization of industrial solid waste (X_7)	0.0434
		Energy consumption of industrial added value of 10,000 yuan (X_8)	0.0436
		Growth rate of tertiary industry (X_9)	0.0477
Level of environmental bearing capacity	0.30	Percentage of forest cover (X_{10})	0.0437
		Water resources per capita (X_{11})	0.0504
		Fertilizer application per unit cultivated area (X_{12})	0.0604
		NOx emissions per unit land area [18] (X_{13})	0.0528
		Emissions so2 per unit land area (X_{14})	0.0486
		so2 emissions per capita (X_{15})	0.0484
Government support and green development	0.29	Expenditure on environmental protection of share of fiscal expenditure (X_{16})	0.0523
		Expenditure on science, technology, culture, and health of share of fiscal expenditure [19] (X_{17})	0.0472
		Municipal sewage treatment rate (X_{18})	0.0480
		Municipal solid waste disposal rate (X_{19})	0.0421
		Urban per capita park green area (X_{20})	0.0481
		Public transport per 10,000 people in the city (X_{21})	0.0503

TABLE 4: Comprehensive evaluation of urban green development level.

Year	Economic growth and green development efficiency indicators (weight: 0.41)	Level of environmental bearing capacity (weight: 0.30)	Government support and green development (weight: 0.29)	Comprehensive evaluation of green development
2011	0.0312	0.0187	0.0039	0.0195
2012	0.0329	0.0176	0.0271	0.0266
2013	0.0448	0.0220	0.0304	0.0338
2014	0.0506	0.0261	0.0310	0.0376
2015	0.0593	0.0353	0.0403	0.0466
2016	0.0621	0.0577	0.0556	0.0589
2017	0.0601	0.0536	0.0472	0.0544
2018	0.0667	0.0733	0.0523	0.0645

4. Interpretation of Result

The following can be seen from Tables 5–7.

4.1. Changes in Economic Growth and Green Development Efficiency. During the period 2011–2018, the efficiency of economic growth and green development in Tai’an increased 2.14 times from 0.0312 in 2011 to 0.0667 in 2018. It can be seen that Tai’an has made remarkable achievements in the development of green economy in recent years. From the survey data, we can see that the per capita GDP of Tai’an is increasing from 2011 to 2018, energy

consumption of GDP per unit area is decreasing, the emission of two major pollutants x_3 and x_4 is decreasing, and the construction land per unit area GDP is gradually decreasing [20]. This is mainly because Tai’an has advocated green development to drive economic and social development in the past 10 years, and the proposed low-carbon economy, circular development, energy saving, and emission reduction measures have achieved some results.

4.2. Changes in the Carrying Capacity of Resources and Environment. From 2011 to 2018, the amount of fertilizer applied per unit cultivated land area in Tai’an was

TABLE 5: Data of indicators (2011-2018).

Year	Gross regional product per capita (X_1)	Energy consumption per unit of gross regional product (X_2)	Gross domestic product so2 emissions per unit area (X_3)	Gross domestic product nitrogen oxide emissions per unit area (X_4)	Construction land per unit GDP (X_5)	Proportion of cultivated land area under effective irrigation (X_6)	Integrated utilization of industrial solid waste (X_7)	Energy consumption of industrial added value of 10,000 yuan (X_8)
2011	42327	0.26	33.29586	26.13039	0.104135	0.706691	112.43%	0.26
2012	46735	0.23	27.51490	23.32954	0.096263	0.717214	84.43%	0.23
2013	51012	0.18	21.26878	19.92623	0.092600	0.626613	107.80%	0.18
2014	54653	0.18	15.72131	14.73668	0.089503	0.644235	107.84%	0.18
2015	57374	0.17	13.52939	10.91080	0.089219	0.655580	109.44%	0.17
2016	59878	0.17	5.438998	7.311441	0.092909	0.669968	107.40%	0.17
2017	63433	0.18	3.325518	5.896507	0.089370	0.673969	96.85%	0.18
2018	64714	0.18	5.011598	5.477156	0.090236	0.737795	98.00%	0.17

TABLE 6: Data of indicators (2011-2018).

Year	Growth rate of tertiary industry (X_9)	Percentage of forest cover (X_{10})	Water resources per capita (X_{11})	Fertilizer application per unit cultivated area (X_{12})	NOx emissions per unit land area (X_{13})	Emissions so2 per unit land area (X_{14})	so2 emissions per capita (X_{15})
2011	14.50%	37.80%	463.193	1.766658	7.845916	9.997423	0.014074
2012	11.40%	38.60%	252.6723	1.767118	7.755733	9.147127	0.012842
2013	11.30%	38.90%	266.5086	1.785921	7.266169	7.755733	0.010811
2014	9.10%	39.10%	178.2739	1.800572	5.784592	6.171090	0.008582
2015	9.90%	39.50%	205.5064	1.786148	4.509147	5.591342	0.007749
2016	8.70%	40.00%	333.4871	1.755721	3.169286	2.357640	0.003246
2017	7.30%	39.50%	28.56141	1.719867	2.718372	1.533110	0.002108
2018	6.30%	39.60%	28.61915	1.556972	2.576656	2.357640	0.003245

TABLE 7: Data of indicators (2011-2018).

Year	Expenditure on environmental protection of share of fiscal expenditure (X_{16})	Science and technology of share of fiscal expenditure (X_{17})	Municipal sewage treatment rate (X_{18})	Municipal solid waste disposal rate (X_{19})	Urban per capita park green area (X_{20})	Public transport per 10,000 people in the city (X_{21})
2011	0.016463	0.305016	73.96%	98.68%	0.003580	9.693487
2012	0.027760	0.300014	76.14%	100.00%	0.003662	10.01232
2013	0.021518	0.308963	92.39%	100.00%	0.003743	10.49971
2014	0.021404	0.311256	99.00%	100.00%	0.003774	8.405467
2015	0.024881	0.325407	81.67%	100.00%	0.003757	12.23955
2016	0.022778	0.330119	100%	100.00%	0.004057	13.81506
2017	0.016706	0.322365	99%	100.00%	0.004005	16.68163
2018	0.017686	0.324621	99%	100.00%	0.004069	17.48004

decreasing, the amount of pollution per unit land area in Tai'an was decreasing, and the per capita pollutant emission of Tai'an is also decreasing. There are three main reasons. Firstly, the Tai'an municipal government has made great efforts to establish a sanitary city and to save energy and reduce emissions in recent years. It has comprehensively rectified the water environment and air pollution and actively implemented the energy saving and emission reduction project. Secondly, the high quality development of its economy

improves the bearing capacity of natural environment. Thirdly, people pay more attention to awareness of environmental protection gradually. In short, by 2018, the level of carrying capacity of resources and environment has increased 3.9 times.

4.3. Changes in Government Support and Green Development. During 2011-2018, the proportion of environmental protection expenditure to total financial expenditure

in Tai'an was on the rise. It can be seen that the Tai'an government attaches great importance to the promotion of ecological environmental protection and green development. The promotion level of green development in Tai'an is rising year by year, which indicates that the support of Tai'an municipal government for green development is increasing year by year, and the achievements of building "green Tai'an" are remarkable.

5. Conclusion

From the above analysis, on the whole, we can see that the level of green development in Tai'an is on the rise, and it has made obvious achievements in economic growth and green development efficiency, environmental carrying capacity, and the level of municipal support. However, the water consumption per unit GDP is still high, the per capita water is decreasing, and the air quality is poor. This is also a problem to be solved in the process of promoting urban green development. It is recommended to do a good job in the following aspects to further promote the "Green Tai'an" urban construction.

5.1. Optimizing the Industrial Spatial Layout

- (1) *Develop Industrial Green.* Development of eco-industrial parks with emphasis on cleaner production and recycling
- (2) *Develop Ecological Services.* The ecological service industry is developed according to the economic development foundation and resources of different regions in Tai'an
- (3) *Develop Ecologically Intelligent Agriculture.* Actively promote "intelligent agriculture" and ecological characteristics of agriculture

5.2. Improving Resource Efficiency

5.2.1. Promoting Energy Conservation and Emission Reduction

- (1) Build a clean, safe, and diversified energy industry system. Minimize coal pollution and encourage the power industry to focus on hydropower generation, actively promote nuclear power generation, and vigorously promote new energy generation. Promote power, steel, cement, and other industries to adopt clean production technology, reduce energy consumption, and reduce energy consumption [21]
- (2) Promote the prevention and control of air pollution and reduce the discharge of water pollutants and speed up the systematic construction of sewage purification plants in towns and streets

5.2.2. Strengthening Intensive Land Use

- (1) Strengthen the protection of basic farmland. Implement the agricultural cultivated land protection sys-

tem strictly, actively implement the demonstration project of farmland protection, and improve the quality of agricultural cultivated land

- (2) Control construction land strictly. Promote the compound utilization of underground space of industrial land in order to improve the utilization rate of industrial land. For new construction land, we should strictly control and give priority to the construction land for new "green" industrial projects encouraged by the government
- (3) Exploit mineral resources rationally. Pay attention to efficient production and proper disposal of waste, while improving the utilization rate of resources to achieve ecological restoration. Strict control of existing mining and other mining activities. Prohibit to carry out mineral resource development activities strictly in the classified special mining areas
- (4) Strengthen intensive use of resources. For the scarce resources, it is necessary to develop, utilize, and protect them in order to realize the parallel development of urban construction and ecological protection

5.2.3. Strengthening the Control and Protection of Water Resources

- (1) Strictly control water resources. By strictly controlling the total water demand of each industry [6], put an end to excessive water use, promote intelligent agricultural irrigation technology, and improve water use efficiency
- (2) Encourage enterprises to carry out water-saving transformation. Through the improvement of water use and water saving, both industrial water consumption can be greatly reduced, and sewage discharge can be reduced. In particular, waterpower generation, chemical fuel oil, steel, and other industries with large water consumption, we must pay attention to the construction of water-saving facilities
- (3) Protect natural water bodies in rivers and lakes. We will strengthen the protection of such important natural water bodies as the Dawen River, the Dongping Lake, the Tianyi Lake, the Black Dragon Pool, and the Qingyun Lake and put an end to the reduction in the area of natural water bodies and the worsening of ecological conditions
- (4) Strengthen the management of groundwater resources. The exploitation and irrigation of groundwater and surface water should be arranged as a whole, and the degree of exploitation and irrigation of groundwater should be controlled strictly

5.3. *Perfecting the Standard System of Green Certification.* Strictly enforce market access standards and energy-saving design standards for enterprises that consume high amounts of energy and emit high levels of emissions. Strictly enforce

green production standards for enterprises and pollution control standards. Establish standards for water use in the water-using sector and improve the green certification system and carry out energy-saving, water-saving, environmental certification, and environmental management system certification.

5.4. Establishing and Improving Supporting Systems. Strengthen the institutional construction of green Tai'an. The establishment of relevant legal protection system, green assessment and management system, environmental accountability, and reward system is the implementation of urban green development system guarantee. The green development of cities should be promoted by means of legalization, and the act of malicious destruction of the natural ecological environment hindering the green development should be given heavier punishment. Implement financial policies that are linked to the overall benefits of energy conservation and emission reduction, such as the reimbursement of specific emission reduction fees by relevant government departments if an enterprise completes its assigned emission reduction tasks within a certain period of time.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

It is declared by the authors that this article is free of conflict of interest.

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