



Research Article

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## A case study of ecological urbanization: Current situation and green development in China--Hefei as example

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### ABSTRACT

*With the rapid economic development of Hefei, large consumption of resources and ecological footprint will affect the ecological environment of Hefei. This paper analyzed current situation of Hefei green urbanization, we find that processing volume of sewage treatment plant, cleaning area, the amount of processing of living garbage, per capita park the green area, green coverage area in 2012 have precedence over other cities in Anhui. Based on comprehensive analyzing of low carbon economy, industry characteristics and development strategies, finally, we put forward policy suggestions for the development of low carbon economy of Hefei. According to the requirements of improving "green degrees", "low carbon", "cycle", we should optimize the industrial structure. Government and society should increase the investment in low carbon fund financing which advocating low carbon office concept and low carbon way of life.*

**Keywords:** Ecological Urbanization; Green Development; low carbon

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### INTRODUCTIONS

With the development of the global economy, the simple pursuit of economic interests of the development has been proved not suitable for sustainable development idea. Green ecological development theory is becoming more and more attention. Green urban development issues which related to the sustainable and healthy development of the human is an important problem of China and the world which green trend is the trend of the times in the future.

Today, more than half of the world's population lives in cities. This percentage will be increased to 80% in 2030. Currently, the world's urban population increase of 250000 a day on average. Population growth and migration, the change of employment, the influence of cultural trend, and the differences between urban and rural areas accelerate the evolution process, and has brought economic, social and environmental problems seriously. "City diseases" such as damage to the environment of production and consumption patterns, the traffic, the waste land, water and air pollution, for the random factors such as waste and destruction of natural resources restricts the human health and sustainable development.

The developing mode of traditional industrial city seriously affects the human's physical and mental health and the sustainable development of economy, urban theory now need to find a more suitable for human survival and development pattern. How to improve the protection of urban ecological environment the city? Concept of green city is put forward, and gradually developed into the world within the scope of a strong "green trend".

So far, the green city is not a recognized in the true sense, and is clear the definition of a concept. In general, the green city in a broad sense, is based on human relations to nature a deeper cognition on the basis of new concept, is set up in accordance with the principle of ecological society, economy and nature coordination development of new social relations, is the effective use of environmental resources to realize the sustainable development of the new production and way of life. In a narrow sense, is carried out in accordance with the ecology principle of urban design, set up efficient, harmonious, healthy and sustainable development of human settlement environment. Green

city has become a human development inevitable trend, that green is to guide people into a new era of green civilization.

## 2 Current Situation of Hefei Green urbanization

### 2.1 Hefei introduction

Hefei which is Anhui province is located in the central between the Yangtze river and Huaihe river, and at the shore of Chaohu lake. Hefei is an old city with 2000 years of history, which is the world's science and technology city union members at the same time. Combined with China's reform and opening up, economic and social development is more than double-digit GDP growth for 10 years in Hefei.

### 2.2 Green ecological urbanization development of Hefei

Table 1 Data of Anhui green ecological urbanization development

city	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
Hefei	31211	98.7	86.35	5419	92.03	92.03	100	49.42	15288	13125	3533	11.5
huaiBei	4091	97.36	89.59	715	19.5	19.5	100	8.8	3953	4054	1229	14.5
bozhou	2793	96.92	88.81	920	10.42	10.42	100	3.21	1842	1280	330	10.29
suzhou	2911	94.21	77.01	902	18	18	100	5.92	3261	2151	531	10.69
bengbu	10523	98.45	90.17	1048	29.2	29.2	100	8.64	5055	3767	789	8.87
Fuyang	4669	88.28	88.28	814	25.01	23.33	93.28	4.82	3784	3568	730	9.6
huainan	5957	97.86	75.5	1444	31.61	28.92	91.49	9.6	4549	4026	1250	11.75
cuzhou	3949	92.4	89.57	1097	11.85	11.85	100	7.71	4363	3784	508	13.86
liuan	2751	88.96	85.65	720	18.32	18.31	99.95	11.16	2926	2699	827	14.41
maanshan	10575	93.6	84.91	1000	19.08	18.32	96.02	11.99	5639	5355	1032	15.83
wuhu	11522	91.9	88	2017	34.4	32.68	95	49	5925	5735	1560	13.56
xuancheng	1363	83.76	81.37	805	9.84	9.84	100	2.03	3679	3203	371	11.49
tongling	4162	80.77	80.77	987	12.88	12.88	100	4.16	3173	4928	611	14.03
chizhou	1695	90.26	90.26	702	11.69	11.68	99.91	3.38	1699	1369	518	17.1
anqing	5989	95.83	90.47	1277	38.3	25.66	67	6.22	10965	2950	589	9.08
huangshan	2578	89.76	89.76	452	10.21	10.21	100	5.15	13691	12786	494	14.66
tongcheng	582	81.42	79.51	230	7			2.69	695	552	140	8.64
tianchang	1247	98.99	98.99	420	5.48	5.48	100	3.6	1246	1158	212	12.57
mingguang	1168	91.25	91.25	200	10.02			1.5	95	103	57	3.77
jieshou	920	93.54	92.09	180	9.02	6.4	70.95	1.33	1182	229	79	4.41
ningguo	1053	92.13	92.13	315	7.2	7.2	100	0.33	1076	902	191	11.09
chaohu	1927	84.95	84.95	565	11	11	100	6.8	1866	1868	360	12.2

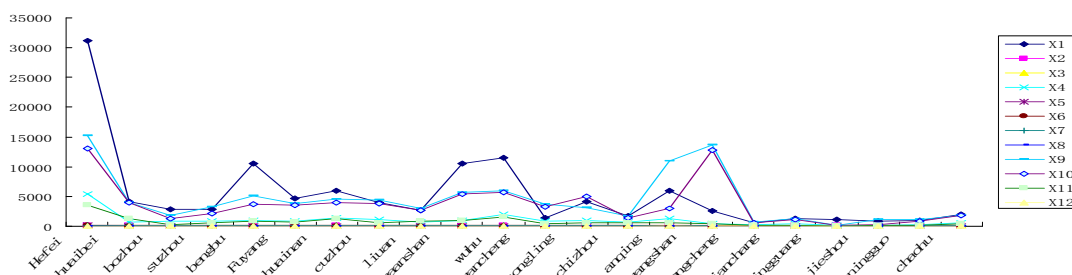


Fig. Trend of Anhui green ecological urbanization development

Data of Hefei green ecological urbanization development include processing volume of sewage treatment plant (million cubic meters)x1, city sewage treatment rate (%) x2, factory centralized treatment rate of city sewage treatment (%) x3, cleaning area (million square meters)x4, the amount of processing of living garbage(million tons)x5, harmless treatment capacity of living garbage (million tons) x6, living garbage harmless treatment rate (%) x7, per capita park the green area (square meter) x8, green coverage area (hectares) x9, green garden area (hectares)x10, park green space area (hectares)x11, per capita park the green area (square meter)x12.From table1 ,we find that processing volume of sewage treatment plant, cleaning area, the amount of processing of living garbage, per capita park the green area, green coverage area in 2012 have precedence over other cities in Anhui. According to Anhui statistical yearbook in 2013, in terms of urban construction land, Hefei city construction areas are 91 square kilometers, including 103.38 square kilometers of residential land, 53.32 square kilometers of land for public facilities, 38 square land of the road in 2012. Its construction of urban infrastructure and public utilities has greatly improved than before, on the bearing and the ability to attract population and industry strengthened, city function zoning is also gradually improved. Business, government affairs area, construction has been a rapid development of high and new industrial district, etc.

In recent years, Hefei adjusted measures to local conditions to carry out the integration of urban and rural comprehensive reform, which the pattern of the linkage between urban and rural areas has formed gradually. The strategy of ecological development in Hefei has built "three areas Wu Dai six garden" skeleton of the ecological system.

### **3. Policy Suggestions for the development of low carbon economy of Hefei**

Based on comprehensive analyzing of low carbon economy in Hefei, industry characteristics and development strategies, Hefei city low carbon economy development policy suggestions are as follows.

#### ***3.1 According to the requirements of improving "green degrees", "low carbon", "cycle", we should optimize the industrial structure***

In the industrial structure, really consume a large amount of energy is a second industrial manufacturing and construction industry, and the third industry energy consumption per unit of output is very limited. The second industry of Hefei is not very rich that we should optimize the industrial structure. The selection of green materials, green procurement, green production, green packaging, green transportation, green warehousing, green distribution, green recycling is very important. Producers will track the whole production line and strengthen the product quality and improve the economic performance, social performance and environmental performance.

#### ***3.2 Government and society should increase the investment in low carbon fund financing***

Government and society should increase the investment in low carbon fund financing to develop new energy and renewable energy, and increase the recycling of resources to strengthen the research and development of new type of car, and increase the proportion of low carbon buildings and carbon dioxide capture and storage to strengthen the construction of forest region, such as technology, effectively control greenhouse gas emissions. At the same time, it also can use the preferential policy incentives, such as tax breaks for businesses and low energy consumption, low emission and research new low-carbon technologies to promote the development of low carbon technology. Through effective recycling of end-of-life products, it can improve the efficiency of the utilization of waste. Through classifying and identifying the origin of raw materials at the procurement stage, identifying the additional information quality of goods which are provided by the RFID tags at the production stage, can realize the intelligent management of products, strengthen the control and tracking of waste recycling, and improve the eco-efficiency of Hefei. On the one hand, the introduction of solar energy photovoltaic industry, on the other hand, its own to strengthen the development and use of natural resources advantage to improve technology. Hefei should improve the city green coverage rate and increase the area of the roof garden.

#### ***3.3 Advocating low carbon office concept and low carbon way of life.***

Low carbon office concept and low carbon way of life for people is an attitude. Hefei should advocate low carbon office concept and low carbon way of life actively, and pay attention to energy saving, fuel-efficient that start from the intravenous drip to reduce carbon dioxide emissions into the life, such as choose more healthy, more natural, more safety, low cost of low carbon way of life, and reduce the use of disposable supplies, and go out choose green transportation, etc. , at the same time the social ecological system of Hefei city still has very large development space. In order to improve the level of ecological Hefei as soon as possible, Hefei will focus on building the ecological environment system

## **CONCLUSION**

Hefei City as a whole is toward the direction of the better ecological development which economic development is growing fast. With the rapid economic development of Hefei city, large consumption of resources and ecological footprint will also affect the ecological environment of Hefei City. Considering with regional actual, Hefei carry out control the total amount of main pollutants, increase protection of the environmental. Hefei should pay attention to the construction of urban infrastructure, ecological community building and ecological culture.

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