

## ORIGINAL RESEARCH ARTICLE

# Recognition of livable ecological city in China

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### ABSTRACT

Eco city and livable city are urban development strategies formulated by people in pursuit of higher quality of life after foreign social and economic development reaches a certain stage. They are also important development strategies for China and other developing countries to correct the disadvantages caused by the rapid development of urbanization in time and realize urban transformation. As we all know, China's urbanization process has a great influence on the world in the 21st century. As one of the important strategies affecting the healthy and sustainable development of urbanization, the theory and practice process of eco livable city will become a typical model with Chinese characteristics.

**Keywords:** Chinese characteristics; ecology; livable; new recognition

## 1. Introduction

### 1.1. Garden city, green city and forest city are ecologically livable cities

When eco city was introduced into China, many domestic experts and scholars made this concept synonymous, which is a common problem in the current society. And mistakenly believe that garden city, health city, forest city and green city are ecological cities. Simply pursue the beautification of the natural environment, and simply improve the environment and increase greening with the goal of building a garden city and a hygienic city in rainy cities in southern China, large areas of lawns are planted for greening image. In the northern cities with dry climate and little annual precipitation, there is no condition for large-scale tree planting. In order

to achieve immediate results, many trees are planted.

### 1.2. Pseudo ecological city for investment promotion or political achievements

At present, there is no lack of such phenomenon in urban construction. Without knowing it, industrial cities or commercial cities in the traditional sense have become cities that developers are keen to invest in, and loudly shout the slogan of "ecological livable". Ecological and livable represent a fashionable concept of eager for quick success and instant benefit and catching up with the trend. It is a doctrine implemented by politicians to show their political achievements. Little is known about the connotation of ecology and livability, and less attention is paid to the concept of circular economy.

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### **1.3. An “ecological city” built on money and technology**

Masdar, with a total cost of US \$32 billion, is known as the world’s first zero emission city. Abu Dhab eco city, which started construction in May 2008, is an integral part of Masdar plan, with a total investment of 22 billion US dollars. The city is full of rich people’s pride, unreachable dreams and worship of high technology. At the same time, in China, the investment in Suzhou eco city is 25 billion. Beijing Zhongfen eco city is 150 billion, and Tianjin Zhongxin eco city will ensure a total investment of 17 billion in 2010, which is obviously contrary to the purpose of eco city construction.

At present, the distortion and confusion of the concepts of “ecology” and “livable” in society have led to people’s fuzzy value judgment of ecologically livable cities. It is urgent to rectify the connotation of China’s eco livable city and restore the original face of eco livable city.

## **2. Necessity and influence of research on ecological livable cities with Chinese characteristics**

As we all know, the concepts of “ecological city” and “livable city” first came into being in economically developed western cities. This is because the pursuit of ecology and livability is not only affected by the deterioration of living environment in real life and the lack of urban humanistic care, but also based on a certain social and economic environment. China lags behind western developed countries in the process of industrialization and has different conceptual understanding and needs for ecological livability.

Reviewing the selection and practice of ecological and livable cities in China in recent years, is it worth reflecting on what kind of cities can be called “ecological and livable cities”? Can China’s special urbanization background bring about the construction of ecological and livable cities with

“Chinese characteristics”? Secondly, China’s urbanization process is facing special challenges in terms of land distribution, registered residence system, resource and energy utilization. Has the current social and economic development stage reached the construction standard of building an ecological and livable city?

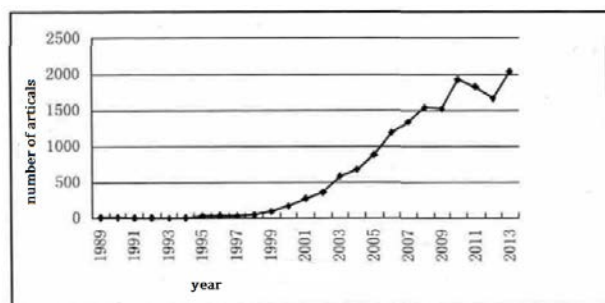
Therefore, establishing a clear framework and our own characteristic theoretical system for the planning and construction of ecologically livable cities with Chinese characteristics is of great significance for China, as a developing country, to strive to get rid of the shackles of western theories and take the road of independent innovation under the complex international background.

## **3. Local environment of ecological livable city construction**

### **3.1. Research on ecology and livability is rising day by day**

The concept of domestic ecological city was first put forward by Huang Guangyu in his article “Garden City, green heart city and ecological city” in 1992<sup>[1]</sup>. Over the next 20 years, papers on eco city research emerged one after another, showing a rapid upward trend (**Figure 1**). The 1990s was a very critical incubation period, while 1994 a very critical turning point. In 1994, following the adoption of Agenda 21 by the United Nations Conference on environment and development in 1992, China promulgated China’s Agenda 21-white paper on China’s population, environment and development in the 21st century, which is a socio-economic development strategy based on China’s specific national conditions and environment, and undoubtedly created a very important political environment for the construction of China’s eco city.

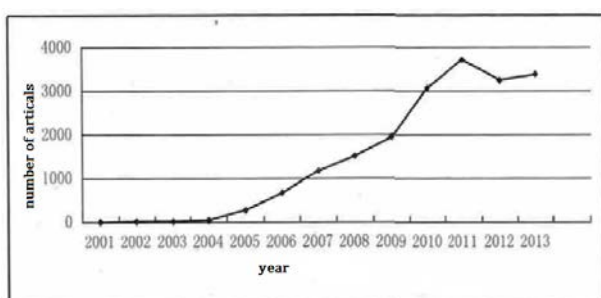
Since entering the 21st century, with the rapid development of China’s urbanization process, the research on eco city has also shown a vigorous development trend. Especially from 2000 to 2007,



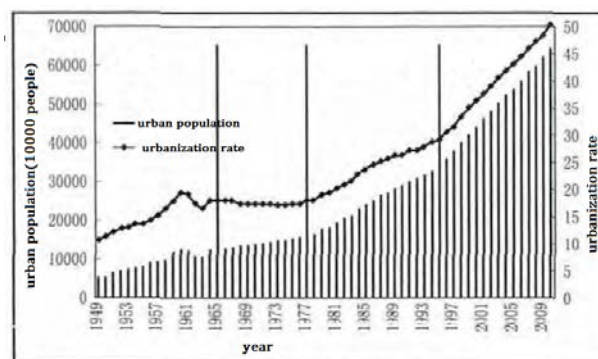
**Figure 1.** Changes in the number of research papers on “eco city”.

the research on eco city has maintained a relatively stable state. In 2007, after the 17th National Congress of the Communist Party of China put forward the development requirements of “building ecological civilization” for the first time, the research on Ecological City showed a prosperous situation again. Since the 18th National Congress of the Communist Party of China clearly proposed to “vigorously promote the construction of ecological civilization and reverse the deterioration of ecological environment” in November 2012, the research on eco city has shown a momentum of rapid progress. It can be seen that the development process of China’s eco city research is closely related to the development process of urbanization and the reform of national economic system.

Domestic research on livable cities is rising with the rapid construction of China’s urbanization in the middle and late 1990s. In 1997, since Wu Liangyong creatively put forward the theoretical system of “human settlements and environment science”<sup>[2]</sup>, the relevant research on livable cities has become richer and richer, and the theory of domestic livable cities has begun to develop rapidly (**Figure 2**).



**Figure 2.** Changes in the number of research papers on “livable city”.



**Figure 3.** Development process of urbanization in China from 1949 to 2009.

Since entering the 21st century, with the acceleration of China’s urbanization process, the research on the construction of livable cities has also increased day by day. From 2003 to 2010, the research on livable cities in China has been developing rapidly. This is especially characterized by the rapid development of the city (**Figure 3**)<sup>[3]</sup>.

The simple economic oriented development model in the early stage of industrialization has had a negative impact on the urban environment. At the same time, policy makers have also devoted more energy to the research on urban housing and ecological protection. The landmark event during this period was that in January 2005, the State Council adopted the Beijing urban master plan (2004–2020), which positioned the urban function of Beijing as “national capital, century city, famous cultural city and livable city”. “Livable city” is proposed for the first time in China as a strategic goal of urban development. Since then, many other cities have launched the construction goal of striving for “livable city”.

### 3.2. Chinese traditional “livable” and “ecological” culture with a long history

It is generally believed that the theory of ecological and livable environment was first put forward by western scholars in the 1950s<sup>[4]</sup>. However, from the perspective of China’s historical and cultural development history, the rudiments of the theory of ecological and livable environment have emerged as early as the Western Zhou Dynasty with images and the eight trigrams tell with feelings. The

hardness and softness live together, and good and bad luck can be seen” (book of changes copulations), which produced the theory of living place conducive to human survival and development-Feng Shui (Figure 4). Ancient Chinese geomantic omen is the main theoretical basis for human beings to pursue an ideal and livable ecological environment. Joseph Needham once commented on Chinese geomantic omen. Although it has a certain superstitious color, it has to be said that Chinese geomantic omen has certain aesthetic value. Beautiful villages, pleasant farmhouses and vast fields are everywhere in China<sup>[5]</sup>.

The Chinese classical theory of ecological and livable environment is essentially to respect and conform to nature, emphasize the harmonious coexistence between man and nature, and build an ecological and livable living and working environment, so that every resident can live, learn and teach, support the elderly and cure the sick generally speaking. Its theoretical basis is the primitive ecological view of “unity of heaven and man”. Mainly reflected in: First, establish a harmonious symbiotic relationship between human residence and natural ecological resources Xun Kuang, a pre-Qin thinker, advocated respecting the laws of nature, appropriately exploiting natural resources and consciously maintaining the balance of the ecosystem. “When the grass and trees are prosperous and strong, the axe and catty will not enter the mountains and forests; when the turtle, crocodile, turtle and loach are pregnant, the poison will not enter the Ze.” (made by the king) only by “forbidding at the right time” can the people have surplus materials and use<sup>[6]</sup>. Second, the natural, economic, safety and other factors should be taken into consideration in the urban site selection. “Guanzi riding a horse” mentioned that “any capital that establishes a country, not under the mountains, must be above Guangchuan. High is not close to the Fu, but the water is sufficient. Low is not close to the water, but the ditch defense province” is to emphasize that the city should not be close to the high hills upward, so as to ensure sufficient water

source, and not close to the low-lying places downward, so as to save the drainage ditches. Third, urban land should be coordinated with surrounding natural resources, and land and population must be balanced. The book of Shangjun laimin mentions the problem of natural resources and population as follows: “Where there are hundreds of miles, where the mountains are located, where the soups are located, where the valleys and flowing water are located, where the cities and strange places are located, where the bad fields are located, and where the good fields are located, there are 50,000 people living on this food<sup>[7]</sup>.” This is the opinion put forward by Shang Yang, a politician in the Warring States period, on the proportion of land and population. Whether it is scientific or not and in line with reality, it was put forward more than 2,000 years ago, which is already valuable. Fourth, a simple concept of urban-rural integration. In the founding plan of the ancient *Zhou Li*, the development of the city was based on the countryside, which was organized and promoted each other.

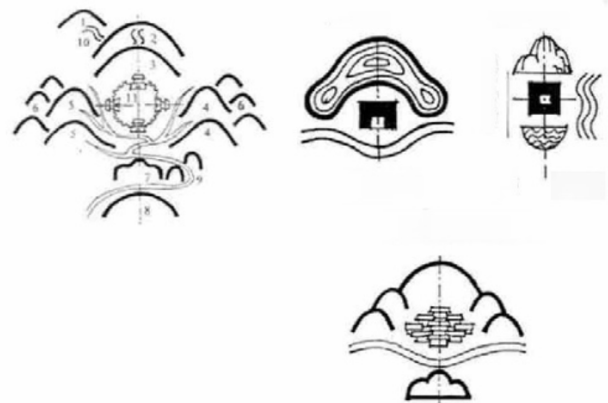


Figure 4. Optimal site selection based on geomancy view.

### 3.3. Background of “two oriented society” with Chinese characteristics

In March 2005, General Secretary Hu Jintao stressed the need to “innovate the system and mechanism of population, resources and environment work, and strive to build a resource-saving and environment-friendly society” at the central population, resources and environment work

conference. In the proposal of the party's 11th Five Year Plan in the same year, it was proposed for the first time to take "building a resource-saving and environment-friendly society" as the basic national policy. In fact, "resource conservation" is to realize the balanced development of social and economic benefits, and environmental friendliness is to realize the harmonious unity between man and man, man and nature. The implementation of the national policy of "livable city" is the basic, which is the symbol of the positive implementation of the national concept of "ecological development". The report of the 17th CPC National Congress proposed that building a resource-saving and environment-friendly society must be placed in the prominent position of the development strategy of industrialization and modernization and implemented in every household. In March 2011, the outline of the 12th Five Year Plan once again put the construction of a resource-saving and environment-friendly society in the primary position of transforming the mode of economic growth, so as to coordinate social and economic development with environmental carrying capacity and population development capacity, and take the road of sustainable development. Although it is not aimed at an ecologically livable city, it is an important content that can not be ignored in the construction of an ecologically livable city. It can be said that China has very clear guiding principles on the policy of livable cities.

In short, on the basis of a deep understanding of the concept and essence of "livable city", China's classical livable culture is penetrated into it, and the two basic national policies of resource conservation and environmental friendliness are deeply implemented. It is not necessary to be hampered by the western theory of livable city construction, so as to form our own characteristic theoretical system.

## 4. Challenges of China's urbanization characteristics to the construction of ecologically livable cities

### 4.1. The contradiction between population

### and resources is prominent

As we all known, China has a vast land area and a large population, but the per capita natural resources and energy are very scarce: China is rich in mineral resources, but the per capita share is only 58% of the world's per capita. The reserves of natural resources are large, but the per capita resources are far less than the proportion of the world per capita level (**Table 1**), which determines the construction of livable cities in China. Due to its special resource and environmental background, it is impossible to copy the Western models and theories.

Take housing for example. In 2009, the per capita residential area of urban residents in Beijing was 28.82 square meters, while the average "per capita residential construction area of urban residents" in the three world cities was 57.33 square meters, almost half of that in Beijing. Let's talk about the per capita car ownership. In 2009, it was 47.8 cars per 1,000 people in China, while the United States reached this level in 1917, Japan in 1964 and South Korea in 1988. If Beijing residents can meet the same living standards as Ottawa residents, how many areas of housing and roads do more than 20 million permanent residents need to meet the same living conditions? Therefore, the construction of livable cities in China can only proceed from the actual situation, not copy the Western standards and theoretical models, and look for the planning and construction methods of characteristic livable cities suitable for China's national conditions.

**Table 1.** Comparison of per capita resources between China and the world

	China's per capita level	Proportion in world per capita
Land	12 mu	29%
Forest coverage	1.5 mu	16.7%
Water	2,300 m <sup>3</sup>	25%

### 4.2. Regional development is unbalanced and the geographical pattern is significantly different

On the one hand, the construction of an

ecologically livable city is bound to be subject to the social and economic development of the city. Try to compare the income difference between Zhejiang, the most economically developed province in China (from 1995 to 2008, the per capita GDP of Zhejiang Province has always ranked first among all provinces) and Guizhou, the least developed province. In 1995, the per capita GDP of Zhejiang Province was 4.46 times that of Guizhou Province. By 2004, this figure had expanded to 5.64 times. Relevant data show that in the United States and Japan, the gap between developed and backward regions is less than twice. In addition, in the economically developed areas along the eastern coast, some cities and towns take the lead in entering the mature stage of urbanization development by virtue of their regional advantages and their own development conditions, while the task of urbanization is still quite arduous in central and western cities, especially in the relatively backward areas in the west.

On the other hand, there are significant regional differences in the spatial distribution of natural resources and energy in China, and there are also huge differences in natural conditions such as topography, landform, climate, hydrology and so on. The construction of cities must rely on natural ecological conditions. Therefore, the difference of regional natural ecological environment determines that the construction of livable cities can not follow each other, but choose their own standards under different development conditions.

### **4.3. Prominent economic contradictions and poverty**

In March 2013, according to the statistics of relevant departments, China has ranked first among the world's major countries in goods trade. According to the data released by the International Monetary Fund (IMF). On June 30 of the same year, China's foreign exchange reserves have almost increased vertically since 2000, and reached the world peak in 2013, surpassing Japan as the largest holder of global foreign exchange reserves. But at

the same time, the per capita GDP of Chinese Mainland is US \$6,747, and the world average is US \$10,486, ranking 81st in the world, only one sixth of that of Japan.

At the same time, China's poverty problem is still very prominent, which is mainly reflected in two aspects. First, there are a large number of poor people in China. According to China's standards, at the end of 2013, more than 82 million people in China have not been lifted out of poverty. According to international standards, there are more than 200 million people. On the other hand, the degree of poverty is deep, which is not only reflected in the low wage level. Some concentrated poor areas are still struggling with basic living security, and there are many difficulties in eating, clothing, housing, transportation, education and medical treatment.

### **4.4. Urban ecological risks have intensified and environmental problems have become prominent**

In recent years, some areas of China have been seriously affected by natural disasters, and repeated disasters in some areas, especially regional extreme rainstorms, periodic severe drought, high-frequency typhoon landing and large-scale snow disasters, have had a serious impact on China's social and economic development and people's property safety.

On the other hand, the city is facing the most serious environmental problem so far. According to the data released by China Environmental Analysis in January 2013, 7 of the 10 most polluted cities in the world are Chinese cities. Less than 5 of the 500 cities in China can meet the air quality standards set by the World Health Organization. The fact that most cities in northern China suffered from haze in the winter of 2013 is enough to illustrate the problem.

### **4.5. Weak public awareness and serious waste of resources**

People's consumption behavior and values also

directly or indirectly affect the flow of urban material and energy. In 2010, according to the relevant data of the business blue book issued by the Chinese Academy of Social Sciences, the total consumption of luxury goods in China reached US \$9.4 billion in 2010, surpassing the United States for the first time and becoming the largest luxury consumption country after Japan. At the same time, the phenomenon of domestic waste besieging the city is becoming more and more intense. A city photographer once spent a year and a half visiting hundreds of large and small garbage dumps around Beijing, taking photos and recording the location of garbage dumps on a map. The result has to be amazing: the seemingly magnificent city of Beijing has already been surrounded by garbage unknowingly.

On the other hand, many members of society have a weak concept of energy conservation. Especially in public places, people completely ignore water and electricity conservation. They think it is a public matter and has nothing to do with themselves. The whole society has formed such a bad atmosphere: Saving water and electricity at home, haggling over every ounce, extravagant and wasteful in public places.

## **5. Main problems in the construction of ecological and livable cities**

### **5.1. Urban security issues are prominent, and residents lack a sense of security**

In 2011, Xiaokang magazine and Tsinghua University conducted a survey on the sense of safety in 34 provinces and cities across the country, which showed that the safety problems related to food, public security, transportation, medical treatment and environment can most cause Chinese people's concern at present. The survey shows that among all safety problems, social problems affecting health, such as urban smog, melamine, environmental protection of infant toy materials and so on, are the most worrying to the public. The survey shows that

more than 80% of the respondents expressed concern about food safety. The second is social events related to personal safety, such as sexual harassment, burglary, robbery, etc according to the survey, less than 50% of people said they were "very safe" or "relatively safe" about the city's public security situation. At the same time, due to the frequent traffic accidents in recent years, people are increasingly worried about traffic safety. Relevant data show that in the late 1980s, the annual death toll of traffic accidents exceeded 50,000 for the first time. After more than ten years, excluding Hong Kong, Macao and Taiwan, China has always ranked first in the world.

### **5.2. Urban cultural fault, spatial memory disappears**

The city we live in should be full of characteristics and humanistic atmosphere, and the vision of urban space should be one that can not only recall people's good life in childhood, but also full of expectations for the future, which is the intersection of ancient and modern times. However, the current urban construction seems to run counter to this goal. Excessive commercial development has cut off the historical context of the city, squeezed out the cultural space of the city, and finally led to the disappearance of urban memory. The book "city Chronicle" written by Wang Jun, a reporter of Xinhua news agency, has witnessed the great changes in Beijing for more than 50 years. It is understood that many readers reported that this is a death file about old Beijing, so this book is also called "city sacrifice".

### **5.3. The urban landscape is similar and the construction is lack of innovation**

The longer the history of a city is, the more prosperous the culture is, and the more distinct it is reflected in the style of the city. Today, the regional culture and national culture of urban space are gradually disappearing, replaced by stereotyped venues, exhibition centers, CBD, financial and commercial streets and other typical buildings of

globalization. KFC, Carrefour, McDonald's and stylized international hotels seem to be the blueprints for the production of modern urban space. Fast food-style consumer culture prevails and has become the mainstream culture in large and medium-sized cities in my country, while the real elite culture has retreated in "798" in an old-fashioned industrial production house. The superficial understanding of urban culture, the great success of urban construction and the disregard of the needs of citizens have finally caused the strange phenomenon of modern cities.

## **6. Theoretical starting point of China's ecological and livable city construction**

### **6.1. The idea of "people-oriented"**

People oriented refers to thinking and solving problems from the standpoint of all mankind. The "people-oriented" here refers to not only people living in the contemporary era, but also predecessors and future generations. Using the excellent development concept and construction practice of predecessors, the goal is to meet the material and spiritual needs of contemporary people and promote the comprehensive and coordinated development of natural social economy. The most important thing is to meet the needs of future generations.

In the macro sense, people-oriented not only realizes the harmonious coexistence between man and nature, but also realizes the harmony between man and man, man and society<sup>[8]</sup>. This is the highest and most basic requirement for the construction of an ecologically livable city, which reflects the ideal and ultimate goal of the planning and construction of an ecologically livable city.

In urban construction, people-oriented should serve different groups, and take into account the needs of urban vulnerable groups, reflect the understanding and care for people everywhere. The most important thing is to make the achievements of

development and construction benefit everyone.

### **6.2. Positive thought of the unity of heaven and man**

"Unity of heaven and man" has been one of the important thoughts of ancient Chinese philosophy since ancient times. The basic theory it expresses is that man is the product of nature and should be integrated with nature. Ji Xianlin's interpretation of the unity of heaven and man is: the so-called heaven is nature. Man includes both human beings living in nature and human practical activities in social life. Integration is mutual adaptation and integration. Zhuangzi Dasheng said, "heaven and earth are the parents of all things." It shows the corresponding relationship between man, heaven and nature.

In ancient times, people had two different views on the relationship between heaven and man. First, emphasize the naturalness of heaven and man like Taoism, which is intended to force people with "promising thoughts" to return to the state of nature. Similar to the "unity of all things" advocated by Zhuangzi, it believes that human practical activities cannot surpass and violate the laws of nature. It can be seen that both Taoism and Zhuangzi ignored the dynamic role of man as the main body in the relationship between heaven and man. The second is the survival concept of "cutting into heaven and earth and complementing heaven and earth", which is advocated in the book of changes, that is, nature provides people with basic living conditions. At the same time, we should "cut into" and "complementing" heaven and earth to better adapt to nature and transform nature<sup>[9]</sup>. In the relationship between heaven and man, more attention should be paid to man's initiative as the cognitive subject, the second view not only reflects man's simple ecological view of respecting nature, but also reflects man's initiative to and transform nature, so as to realize the harmonious coexistence between man and nature.



### 6.3. Broad and profound ethical ecological thought

The ancients regarded ethics as one of the ways to realize the unity of heaven and man, which is the essence of Chinese traditional survival concept. In ancient Chinese philosophy, the survival mode of all things in nature is called “Tao”, and the compliance and respect with nature and the operation law of life is called “Virtue”. Therefore, we should “practice virtue and follow the way” (Zhuangzi · The way of heaven). Mencius expounded the relationship between the way of heaven and the norms of human behavior from another perspective, “those who do their best know their nature, and if they know their nature, they know heaven” (Mencius dedication). The interpretation of morality in ancient Chinese philosophy is honesty and fraternity. The way to realize morality is to extend morality and benevolence to all things in the world. “The Tao of benevolence is the heart of the creatures of heaven and earth, that is, things exist” (Zhu Xi’s theory of benevolence). In Laozi’s opinion, morality is actually a style and mentality of being strict with oneself. This kind of moral culture embodies the bright colors of selflessness and self-restraint everywhere. With the transformation of society with moral culture and the core of public service, harmony, humility and indisputability, the traditional Chinese concept of survival can always maintain vitality.

The historian Arnold Joseph Toynbee once praised Cheng Yi, a neo Confucianism and educationist in the Northern Song Dynasty, for his moral concept of “benevolence is the unity of heaven and earth, and all things are self-contained”<sup>[10]</sup>. Inspired by this, he believes that there must be some ultimate spirit in the universe, and this spirit is love, love for all things in heaven and earth. And this kind of love is the most important way of human self salvation. Russell also appealed nearly a century ago that the modern world especially needs the virtue culture in Chinese traditional philosophy.

### 6.4. The idea of seeking common ground while reserving differences

The geographical environment and climate environment of each country or city are different, and there are great differences in folk customs and traditional habits. It is this difference that makes the relationship of complementary cooperation or competition between regions, countries or cities maintain passion and people are full of creativity. The cultural ecological view of inclusiveness and seeking common ground while reserving differences expressed in the Confucian document “book of rites monarchy” has a very important reference significance for contemporary cultural environment problems. For example, all resident materials must be made differently due to the cold, warm, dry and humid world, and the vast valleys and rivers. People’s livelihood in the meantime is different. The hardness and softness are different, the speed is different, the five flavors are different, the equipment is different, and the clothes are different. We have an objective and peaceful attitude towards the different work and life styles of various regions and nationalities due to different historical and cultural backgrounds. Only by truly respecting “the people’s livelihood is different from the customs” and “everyone has a safe residence, a harmonious taste, different clothes, utilization, and equipment”<sup>[11]</sup>, can the symbiosis and common prosperity of society be realized.

Reflected in the construction and evaluation of ecologically livable cities, we can neither impose the standards of foreign residents for ecology and livability on the construction of domestic cities, nor generalize the ecological livability of domestic cities with a set of rigid index system regardless of the differences of domestic regional economy, society and ecological environment.

## 7. Connotation of China’s ecological livable city theory

### 7.1. Economic and ecological harmony

In order to realize the sustainable development of cities, a harmonious ecological economy is expressed as an economic development model of

caring for resources and treating the earth well, integrating cleaner production, comprehensive utilization of resources, ecological design and sustainable consumption, advocating an economic model of harmonious development with the environment, and forming economic activities into a feedback process of “resources-products-renewable resources”. Make full use of resources and energy in this cycle system<sup>[12]</sup>. At the technical level, the organic balance of the environment can be realized on the basis of resource ecology through cleaner production, comprehensive utilization of waste and harmless treatment of waste. At the social level, economic ecology advocates green and moderate consumption and advocates the concept of resource conservation, so as to achieve harmony between people, between people and society and between people and nature.

## **7.2. Social and ecological prosperity**

As the place where people live, cities must first meet the principles of comfort, health, safety and convenience. Its meaning can be summarized as having beautiful and tidy natural ecological environment and convenient transportation conditions. Adequate indemnificatory housing and diversified commercial housing for choice. Complete living service facilities. Sound commercial service facilities. Good social security, etc. Secondly, the city is also a space for innovation, and it must present the characteristics of the times of openness, tolerance and competition. The specific manifestations are: the concept of life that actively realizes self-worth, the social fashion that tolerates failure and is willing to try. I am the mainstream culture of the city for everyone, everyone is my city; diverse creative industries and support funds; tolerant entrepreneurial management system, etc. Thirdly, as a place where human beings live together, cities must promote the spirit of integrity, love, tolerance and justice, interpersonal relationships. The Machu Picchu charter at the end of the 20th century pointed out that the creation of pleasant living space is not only in the material environment,

but also to meet people’s needs for urban spirit. Respect and love each other, help each other, tolerate failure and encourage innovation.

## **7.3. Good environment and ecology**

Cities should leave the most beautiful landscape resources to citizens, that is, reflect the characteristics of landscape ecology, inherit urban culture, reflect regional characteristics, rely on the creativity of local citizens, carry out bottom-up landscape transformation, and finally form a distinctive and sustainable urban landscape. Secondly, the city should have an ecological transportation and communication structure. Promote people-oriented land development and transportation convenience to meet the needs of citizens. Build a “wireless city” so that ordinary citizens and urban entrepreneurs can enjoy high wireless internet access in every place of the city, so as to achieve the purpose of “using more information and less energy”. In the utilization of natural resources, the “low impact development mode” is adopted. Based on the natural landscape pattern, the city is gently placed in nature instead of separating nature. Thirdly, start from the most basic cells-buildings and communities, promote green buildings or sustainable buildings, maximize resource conservation, protect the environment, and provide people with comfortable and efficient use of space. Fully promote green buildings in the community, build ecological parking lots and walking paths, pay attention to overall greening, and strive to create the “minimum heat island effect”. Finally, in terms of energy utilization, focus on the construction of a diversified energy system and optimize the energy structure.

# **8. The essence of the theory of building ecological and livable cities in China**

## **8.1. Orderly promotion and classified guidance**

In view of China's special national conditions and the increasingly prominent ecological and environmental problems in urban development, the construction of an ecologically livable city is bound to be a long-term process. At present, there are a series of development phenomena that ignore their own development conditions and drift with the tide in the construction of ecologically livable cities in China, which is worthy of people's vigilance. From the history of urban development, new science and technology always take the lead in more developed cities. As an advanced development concept, "eco livable" city must be the same. Therefore, the construction of ecological and livable cities in China should emphasize that developed regions should take the lead in demonstration and orderly guidance.

At the same time, due to different economic backgrounds and significant differences in geographical conditions in different regions, the development process and stage of urbanization are different. Different development goals should be selected according to the requirements of regional development and the problems in urban construction.

## 8.2. Advocating economy and cultural guidance

On the surface, many difficulties faced by the construction of ecologically livable cities are the bearing capacity of resources and environment, but careful analysis shows that these difficulties are actually closely related to people's lifestyle. Since ancient times, China has been upholding the concept of saving and protecting the ecological environment and governing the country, forming the basic field hunting norms of "not entering the pond with a few baskets", "entering the mountain forest with an axe and a catty in time", "cutting a tree, killing an animal, not in time, not filial piety" and the attitude of respecting natural organisms, and the concept of water and soil utilization and protection of "husband's water and soil play but civil use, water and soil have nothing to play, people lack money, and what to do if they don't die<sup>[13]</sup>. China has had a traditional simple ecological view since ancient

times, and today's society should learn from its ideological essence to guide the society to gradually form a civilized and economical rational consumption mode, which is also an important part of actively implementing the basic national policy of "resource-saving and environment-friendly".

In addition to guiding rational and economical consumption behavior, the shaping of urban culture is also the key to building an ecologically livable city in China. From many excellent urban cases at home and abroad, competitive and successful cities are often those with distinctive characteristics, complete historical context and thick urban culture, which stand out in the world. In the current era of the rise of great powers, China should draw lessons from the process of urban development in the world. Under the background of multiple interweaving of urbanization and industrialization, globalization and regionalization, marketization and informatization, China should pay attention to the shaping of urban cultural characteristics, which is of great significance for cities to take the road of sustainable development and choose a long-term development model.

## 8.3. Ensure safety and integrity

The ancients said "settle down and live", "settle down" means to settle down somewhere, and "settle down" refers to spiritual sustenance. Safety is not only the premise of "life", but also the most basic requirement of livability. In recent years, natural disasters have occurred frequently in China's cities, accompanied by various food safety and traffic safety accidents, which makes people sigh: As the safety problem of people's "comfort" can not be guaranteed, how can we talk about "life", let alone "ecological livability". A safe city can maintain a state of mutual coordination and stability in terms of natural environment, economic society, human health, utilization and supply of resources and energy, and also maintain a high early warning state and active ability to resist risks for unknown disasters and potential sudden factors.

Confucius said, "If a man has no faith, I don't know what he can do." China has a traditional virtue

of honesty and trustworthiness since ancient times. Now, when all kinds of “inside stories” and “dark scenes” in society are gradually exposed, citizens painfully find that the city they used to live in is full of bad behaviors such as counterfeiting, counterfeiting, deception and forgery. As the development direction of the future city, under the special economic and social background of China, the construction of Chinese cities should especially emphasize the basic concept of safety first and integrity, so as to provide a good safety guarantee for urban residents in terms of social security, food, transportation, ecological environment and so on.

#### **8.4. Live in harmony and return to nature**

For thousands of years, in order to realize the ideal of social harmony, our ancestors have been tirelessly exploring, from “the prosperity of everything at home” to “the use of benefits, harmony is precious”, and then to the vision of a harmonious world in which “the world is for the public”, they have always encouraged the Chinese people to strive for the ideal goal of harmony and beauty, equality for all, mutual help and mutual assistance, and accumulated the value orientation and fine tradition of selflessness and fraternity of the Chinese nation.

However, with the development of contemporary society and economy, interpersonal communication has become more and more complex. In primitive agricultural society, self-sufficient life has created simple and simple social relations. Once business has developed, the relationship between people has also undergone subtle changes. In modern times, information exchange on the Internet has replaced people’s face-to-face communication, making it difficult for people to cope with the communication between people in modern society. China’s ecologically livable cities should pay special attention to social harmony, and pay more attention to the humanistic care of cities. As Confucius longed for, “the trip to the great road is also for the public.” Select talents and abilities, uphold faith and cultivate good neighborliness, so that people will not only kiss

their relatives, not only their children, so that the old will end, the strong will be useful, the young will have strong points, the reserved and widowed, the lonely and the sick will be raised. Return to the true and honest interpersonal relationship in ancient times.

#### **8.5. “Growth reduction” development and software reconstruction**

Facing the comprehensive symptoms in the current process of urban development, what we should most reflect on at present is the deep-seated contradictions behind the rapid urban development. And we should actively think about the possibility of “De growth”. “Growth reduction” is not a decline in happiness, nor is it to curb social development, but a “non consumer growth” model within a limited and rational range. It abandons the blind worship of modern cities for hardness, speed and frequency, and makes a soft balance between investment in infrastructure and hardware construction. This model is completely applicable to the future construction of ecological and livable cities in China.

In contemporary China, most social resources are not really transferred to public projects, such as art, family, culture and morality. Therefore, the real meaning of “growth reduction” is to “software rebuilds” these real public projects between different cities and regions. The future of China’s eco livable city, if there is a keyword, it must be “soft, soft, softer<sup>[14]</sup>.” The construction mode of eco livable city should make use of the integration between “hard science” and “soft science”, based on the influence of Chinese historical and cultural traditions, social forms, religions and other factors. While preserving the folk beliefs and folk life system in history, soft development is not to create a “new” mode by losing a lot of historical relics, traditional ecological mode, ecological memory and ecological imagination.

### **9. Conclusions**

The report of the 18th CPC National Congress

pointed out that to promote the suitability of living space and beautiful ecological space, and actively move towards a new era of socialist ecological civilization, the most important way to build ecological civilization is to build an ecological city. It can be said that eco city is also the inevitable trend of urban development. It is the scientific grasp of this historical law that contemporary China continues to promote the construction of ecological civilization and actively explore the beautiful picture of ecological city construction. However, it must also be recognized that the construction of an ecologically livable city is a systematic project involving social, political, economic, cultural and civilization construction. It needs to realize ecological transformation in public awareness, life and production mode, system construction and other aspects, which is bound to determine the long-term nature and complexity of this project. Therefore, the construction of an ecologically livable city must not be eager for success, but should be steadily promoted on the basis of scientifically, reasonably and appropriately handling the balance between economic growth and environmental protection, human development and natural ecological carrying capacity. At the same time, only by realizing that “historical activities are the activities of the masses” and transforming the goal of building an ecologically livable city into a mass practice with the participation of all citizens, can it be achieved through the concerted efforts of the whole society.

I believe that in the future, we can not only build a beautiful China suitable for living, but also build an ecological China with harmonious economy and ecology, prosperous social ecology and good environmental ecology. In the process of constantly exploring the construction of a beautiful picture of an ecological city, we will push the socialist modernization of prosperity, strength, democracy, civilization and harmony to a new climax!

## Conflict of interest

The authors declare no conflict of interest.

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