



Study on the Five-color Harmony and Resonance Theory of Livable Ecosystem Construction

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Abstract

Ecological industry, resource guarantee, environment ecological safety and ecological control are key parts which should be emphasized in the construction of livable eco-city. To more visual and lively express this idea, we endow every key part bright color and put forward the five-color harmony and resonance theory of livable ecosystem construction based on that.

Keywords: Eco-city, Livable ecosystem, Harmony and resonance theory

1. Introduction

In the 21st century, human society is facing increasingly serious problems such as global population quick increase, resource deficiency, climate depravation and eco-environment crisis, and “environment and development” has further become into the time topic that all human beings notice. As the main type of living environment, city has been developed fully, and the urban population has occupied 50% of total world population, and the GNP created by the urban population has achieved 90%, and the consumed assistant energy by the urban population has also achieved 90%. When city brings human society civilization and advancement, it also brings a series of urban problems because of highly concentration of matter and energy, dense human activities, large environment change and brittle zoology. Therefore, the ecological construction and livable inhabitancy of city has become very urgent. In this article, we endow the key parts of the livable ecosystem construction bright colors and put forward the five-color harmony and resonance theory of livable ecosystem construction based on that.

2. Connotations of “five-color”

Ecological industry, resource guarantee, environment ecological safety and ecological control are key parts which should be emphasized in the construction of livable eco-city. To more visual and lively express this idea we endow every key part bright color, i.e. golden, yellow, blue, green and red.

2.1 Golden ecological industrial development

The development of ecological industry makes for the maturity of economical conditions for eco-city, in other words, to develop ecological industry is to strengthen the economic power of livable eco-city construction and tamp the base of livable eco-city construction. Because the gold is always the symbol of money and value, so we adopt golden color to represent the display of economic strength for livable eco-city.

2.2 Yellow resource macroscopical guarantee

The success of livable eco-city construction is decided by whether the natural resource that people depend on can be guaranteed continually. At present, when China economy is developing very quickly, because the mode of economic development is extensive, water, earth, biology, mine and many natural resources are largely wasted, and the natural resources in some places are close to dry up. The yellow color is the alarm color, and here it represents natural guarantee to awake people’s alert to resource deficiency and excessive consumption and promote the sustainable utilization of resources.

2.3 Blue environment support

The environment system composed by water, atmosphere, voice and solid waste is one important subsystem that livable

eco-city involves ecosystem, which has important support function for the construction of livable eco-city. The water environment and the atmosphere environment are important contents of the environment system, and people always use the blue color to describe the qualities of atmosphere and water. The blue color can represent the environment support, which can better denote the good function of environment support in the construction of livable eco-city.

2.4 Green natural ecological safety

The dynamic balance of natural ecosystem is the important base of livable eco-city. Whether the structure of ecosystem is reasonable, and whether the function of ecosystem can be normally exert, are one of main indexes to measure whether the construction of livable eco-city is successful. The vegetation is one important composing in the natural ecosystem, and its most colors are green, so we use the green color to represent the natural ecological safety.

2.5 Red ecological control

The ecosystem has the function of self-adjustment, and when it is disturbed by the exterior of the system in certain range, it can implement some adjustments of part structures and functions to sustain the balance of whole system. When the interference from exterior is over large and exceeds the ability of self-adjustment, the system will lose balance and blow up finally. In the process of livable eco-city construction, the proper artificial control to regional society, economy and environment according to natural rule, economic rule and social rule can better sustain the whole balance of ecosystem. Because this control process has certain compulsion to some extent, so we choose the red color to represent the ecological control.

3. The theory of harmony and resonance

Five colors are the core and key of livable eco-city construction, and because five colors are not isolated, so various colors have direct or indirect associations, which are shown in Figure 1. Only exactly grasping the strengths of five colors and harmonizing the relationships among five colors, can exert the functions of five colors to the largest extents and make them form resultant force, i.e. realize the resonance of five colors and achieve the highest ambit of the livable eco-city construction.

3.1 Cultivating green natural ecological safety

The core content of natural ecological safety construction for livable eco-city is to establish regional ecological safety system frame, recover the continuity of regional ecological process, construct the sight situation of regional ecological safety and promote the sustainable development of social, economic and natural compound ecosystem for the whole city through the identification to the regional sight ecological unit, the maintenance and construction of structure and function, and the protection and construction to the structured ecological control region, ecological channel and ecological nodes. The concrete construction contents generally include following aspects.

(1) The construction of structured ecological control region. The structured ecological control region is the reservation of regional natural ecosystem and the harbor of species, and it has the functions of source and collection for regional ecological circulation. The recognition, identification, protection and construction of structured ecological control region are the base of regional ecosystem construction. According to the area principle, the shape principle, the position principle, the amount principle, the species localization principle and other construction principles, and the structured analysis results of sight space structure source, collection and strategic points for livable eco-city, the layout will combine the actual regional situation and make the structured ecological control region construction project which can accord with the characters of livable eco-city and can be implemented easily.

(2) The construction of ecological channel and nodes. To maintain the stability and healthy of regional ecosystem, we should strengthen ecological associations among various regions, regions and source and collection according to regional natural situation, and this sorts of associated function is accomplished by the ecological channel. According to the area principle, the shape principle, the position principle, the amount principle, the species localization principle and other construction principles, the layout will combine the analysis results of source, collection and strategic points according with the actual regional situation of livable eco-city and make the feasible project of natural ecological channel system construction.

3.2 Constructing yellow resource guarantee

The natural resources are the base to develop social economy, and their using modes and using efficiencies are directly or indirectly associated with the ecological environment. In the process of economic development, the traditional development mode with high investment, high consumption, low benefits and high pollution occupies considerable proportion for a long time, which certainly will induce large numbers of resource waste. To construct livable eco-city, we should systematically analyze the utilization actuality and problems of regional water resource, infield resource, mine resource and other main natural resources to enhance the protective consciousness for important natural resources, advocate the science, economization, high efficiency, circulation and continuance of resource development and utilization, and carefully construct the resource guarantee system. The concrete content generally includes the demand

balance guarantee of water resource, the demand balance guarantee of infield resource, and the reasonable development and protection of mine resource, biology diversity resource.

3.3 Tamping blue environment support

The construction system of livable eco-city is a harmonious, balanced system full of energy, which includes the environmental subsystem, the social subsystem and the economic subsystem. The qualities of atmosphere and water and the disposal of solid waste are basic support conditions to decide whether the urban social economy can quickly and continually develop. In the construction process of livable eco-city, we should strengthen the existing results of environment construction, solve existing environmental problems and eliminate environmental hidden troubles. The concrete construction content includes following aspects.

(1) Improving the environment of atmosphere.

Because of the reasons of history, before the livable eco-city is constructed, the regional function division, industrial distribution, industrial structure and energy structure had many aspects with unreason, and the contribution proportions of the numerous coal-burn equipments, the high letting density, the dust pollution and the automobile-exhaust pollution are continually ascending, the quality of atmosphere environment always doesn't allow optimism, and dust-drop, sulfur dioxide and inhalant grains and other pollution indexes always exceed the standard. To construct livable eco-city, based on analysis of abundant investigation and research, we should implement term-division and region-division control project to every contribution source aiming at main contribution sources of atmosphere pollution and combining the actual situations of regional development. For example, we should fully push the energy structure adjustment and implement clean energy plan, and we should establish centralized heat power supply source with large capacity and high efficiency, and we should expedite the step of desulphurization and dust-ridding and quicken the desulphurization and dust-ridding schedule for the electric plant, and we should fully implement the governance of automobile-exhaust pollution and enhance the automobile-exhaust standard and strict new car admittance system, and we should fully comprehensively govern the construction and ground dust, and the city roads should be washed periodically, and the construction should adopt the wet working mode, and the region and the soft cover and hard cover of the urban and village combined areas should be realized.

(2) Enhancing the quality of water environment.

The water environment quality is always the hotspot that people pay attention to. The construction of livable eco-city should analyze the distribution, pollution species and quality, exhaust direction, exhaust mode and exhaust intensity of industrial, agricultural and living pollution sources influencing regional water environment quality, establish corresponding measures aiming at the control of main pollutions, and put forward comprehensive governance measures with region-division and stage-division to various pollution sources which may induce the pollution of water environment (including surface water and groundwater). In the construction process of livable eco-city, the sewage centralized governance is the effective measure to enhance the quality of water environment. For example, we should expedite the construction of pipe network, and we should strengthen the governance power to living sewage, and the city should strengthen the living sewage pipe network construction and perforation and the villages and towns should expand the cover area of centralized disposal to living sewage, and we should continue to implement dredging project and improve the water flow, increase the capability of river water environment and improve the quality of regional water environment.

(3) Controlling the pollution of voice.

At present, because the situation that the catering industry is mixed with residential areas is at large, so the voice pollution of service industry exists. At the same time, the urban construction needs large numbers of construction, and the yawp of construction is still one pollution source in a long term. With the development of urban road and the increase of vehicle quality, the traffic yawp pollution is ascending, and we must adopt measures to strictly control it. The construction of livable eco-city should combine with the regional road layout and reconstruction, and control the traffic yawp pollution through strengthening traffic management and establishing forest sound insulation belt. We should seriously strengthen the environmental management to industry, commerce and recreation grounds, control the industrial and social yawps and protect residential area, school and hospital.

(4) Preventing the pollution of solid waste.

The construction of livable eco-city should enhance the using efficiency of energy sources through clean production, reduce the production of solid waste, establish the comprehensive using and development system of solid waste, enhance the comprehensive using rate of solid waste and make the comprehensive utilization of solid waste develop better, implement the using and safe disposal to past years' industrial storage solid wastes, further enhance the level of resource and harmless of solid waste, realize the order development of solid waste industrialization through whole process control management, avoid and reduce the environmental pollution and destroying to regional ecosystem because of the imperfect exhaust, utilization and disposal of solid waste, and establish the solid waste disposal system

which harmonizes with the regional economic and social development.

3.4 Developing golden ecological industry

The ecological industry is the stay point to implement the strategy of circular economy, and whether the ecological industry can be established and whether the structure is reasonable will largely influence the healthy development of social economy. The construction of livable eco-city should advocate developing circular economy, social development and ecological environment protection to achieve the harmonious ambit that develops in the protection and protects in the development, and fully develop the ecological industry. The concrete content should include following aspects.

(1) Developing ecological agriculture.

The development of ecological agriculture is to realize ecological agricultural production. In the construction process of livable eco-city, we should mainly consider the prevention of fertilizer pollution, pesticide pollution and farming film pollution and the breeding pollution of domestic animals and birds. To prevent the pollution of fertilizer, we should reasonably, properly use fertilizer, reasonably use microelement fertilizer and broadly extend the use of organic fertilizer and the application of ground-measured fertilization technology. To prevent the pesticide pollution, we should reasonably use existing pesticides, actively develop environmental protection pesticide such as biology pesticide, actively develop the comprehensive prevention to farming plant diseases and insect pests, and implement the safe use of pesticide. To prevent the farming film pollution, we should expedite the recycle of farming films and extend the application of dissolvable farming films. To prevent the breeding pollution of domestic animals and birds, we should actively push the scale breeding, reasonably divide breeding forbidden area, carry out the animals and birds dejection resource project and control the breeding pollution of domestic animals and birds. The prevent the pollution of pesticide, we should adjust measures to local conditions to develop green agriculture and organic agriculture which take the green foodstuff, organic foodstuff and other agricultural products with high additive values as the aim, and improve reducing pollution and increasing efficiency for the agriculture.

(2) Developing ecological industry.

The construction of livable eco-city should expedite the step of industrial ecological alteration, take the industrial structure adjustment and the enhancement of project environmental protection threshold as the headstream to govern industrial pollution according to the ideas of industry high-degree and resource intensification, take the development of circular economy as the important measure to improve new industrialization, change the mode of economic increase and enhance the quality of economic development. The construction of livable eco-city should actively adjust the industrial structure, make out, indirect and push the industrial structure of the whole city by the concept of circular economy, fully push the regional industrial structure strategic adjustment, optimize the industrial distribution, and enhance the development centralization degree and unit area investment degree according to the industrial centralization and distribution rationalization. The construction of livable eco-city should strictly implement the evaluation system of construction project environmental influence, take the enhancement of industrial layer as the guidance, enhance the admittance doorsill of pollution enterprises, take the industrial development tendency as the rule, strengthen the selection strength for the projects, implement selecting investments and strictly control the settlement of new pollution resources. The construction of livable eco-city should fully develop circular economy, try to utilize the resources highly effectively and realize the recycle of wastes. Taking the industries such as the electrical power plant, printing and dyeing, paper making and steel as the emphasizes, and fully developing the demonstration of circular economy experimental unit, and depending on the innovation of science and technology and policy guidance, the cycle production of enterprise should be pushed according to the principle of “decrement, recycle, resource”. We should fully develop the construction of ecological industrial parks, reasonably match the products and industries in the park, extend the industrial chains, and try to realize the maximization of comprehensive benefits in the park and the minimum of waste exhaust environmental influence. We should drive the big social cycle, and gradually establish the economic systems such as resource economization type, environmental friendly type, and cycle and utilization type.

(3) Developing ecological tourism.

In the construction of livable eco-city, the ecological tourism should be developed fully to minimize the influence of the tourism industry to the ecological environment to the largest extent. The managements to tourism enterprises, tourism sights and tourism routes should be strengthened. For the tourism enterprises, the environmental management system construction to tourism sights and tourism enterprises should be strengthened. For the layer of sights, the construction of various ecological tourism sights should deeply develop and protect existing tourism sights, which can not only fully utilize the resources of ecological tourism, but maintain the sustainable utilization. For the layer of route design, the independent ecological tourism route construction and the combined ecological tourism route construction should be included. The attraction of tourism route can be increased and the repeat influence of unreasonable route to certain area can be reduced by the optimized combination of tourism resource and the reasonable journey arrangement.

3.5 Red ecological control system

Whether the ecosystem structure of livable eco-city is reasonable and whether its functions can be perfected and exerted normally is decided by the special natural ecological factor, i.e. human being. The construction of livable eco-city should base on a series of factors which have important influences to the ecological environment such as human living demands, survival demand, culture and management, and one truly feasible ecological adjustment system should be constructed on the systematical layer. The concrete contents should include the ecological information adjustment, the establishment of circular society, the construction of ecological residence, the construction of ecological culture, the policy of eco-city construction, the construction of management system and the construction of science and technology support system.

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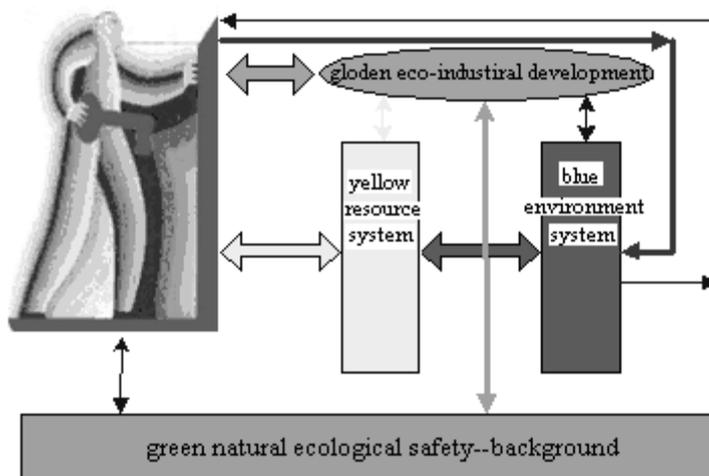


Figure 1. The Sketch Map of Five-color Harmony and Resonance