

## To Protect and Utilize Suburban Green Space and To Expand Green Ecological Space at Urban Periphery

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### Abstract

Suburban green space is an important component part of urban ecological system, the third largest space between urban center and peripheral countryside. Because of the specific regional location of the suburban green space, it differs from the green space in the center of the city in the respects of construction and planning. Anyhow, it has the features of less investment, quicker efficiency, free and easy management and good ecological effects. The writer of this paper holds that urban ecological construction should be planned rationally and laid out in an overall way under the prerequisite of making full use of and protecting local species so as to further extend the green ecological space at urban periphery, to create dense green surroundings, and to explore a way for ecological construction to develop in a scientific, effective and healthy way.

*Key Words : Suburban Green Space, Protect And Utilize, Ecological Construction*

Suburban areas are the places for direct material and energy exchanges with urban extensive use of land for construction. On the one hand, the natural hills and mountains, water areas and agricultural fields provide for the city the space of circulation of atmosphere, water and living things as well as for the city dwellers the activity space of suburban outing. On the other, due to the fact that the suburban areas are closely adjacent to the direct and concentrated social economical activities of cities, they are also the areas easily suffering from ecological damage. Therefore, it is necessary to pay special attention to the arrangement, rational utilization and protection of suburban green spaces in the scheme of green space system.

Meanwhile, the rapid development of economy, the ever expansion of city scale, the every-increasing land

use for real estate and commerce are greatly reducing the scope of land use for urban landscaping. The original scale of the old city area, particularly in some place near the center of the city, is far from enough to meet the demands and needs for people's work and life. All this has limited and restricted the expansion and implementation of the urban green space construction and ecological construction to a certain extent. Furthermore, the further radiation and extension of the city scale towards the outside have shortened the distance between the suburbs and the city area, resulting the rapid development of urban traffic just like the radiation lines radiated from the city center. Therefore, in line with the requirements of the general urban planning, it is of great realistic significance to build up the third largest green and ecological space in cooperation with lively market

operation and scientific management mode to achieve the supplement and expansion of urban green space by rationally using the suburban land between the city and country and by combining them into the ecological construction of the whole city.

## **I. REALISTIC SIGNIFICANCE**

### **1. The Construction of Urban Green Space is An Important Measure to Improve the Quality of Urban Ecological Environments, to Increase Urban Green Space Area and to Further Promote the Ecological Construction Both in the City and in the Country**

The suburban areas are usually far away from the city center at a rather remote area. Anyhow, with the extension and expansion of city scale, town planning and its supporting scheme are being gradually completed. In addition, urban land has greater potentiality for development. Therefore, on the basis of the principles of scientific and rational planning, a part of the land can be included into the suburban green space, including full utilization and rational protection of the existing land used for natural vegetation habitat so that one stone can kill two birds.

Urban ecological construction is a systems engineering, closely related to urban municipal construction and its supporting engineering construction. With the urban traffic extending and expanding towards the surrounding towns and suburbs, it also creates favorable conditions for the green space construction in the suburbs. To be more exact, the landscaping of suburban roads, to a certain extent, increases the area of suburban green space and expands the constructional scale as well as the space for developing

ecological green.

The green space in the suburban areas has the feature of more locations and more extensive space. Under the situation of more and more saturation of green space in central urban areas, the green space in the suburban areas can make up the insufficiency of green space areas and maintain effectively a certain volume of green space growth. From this viewpoint, it can be seen that the green space in the suburban areas will promote the process of the ecological construction in the urban area so that the aim of improving the environmental quality of the urban areas can also be achieved.

### **2. The Construction of Green Space in The Suburban Areas Enriches The Peripheral-green Space of the City, Playing The Role of Supporting Service to Radiation and Expansion towards All Directions from the Central Urban Area**

This point is prominently expressed in the road landscaping and shelter-forest construction in suburban areas. On the one hand, with the rational planning and flexible operation mode, the purpose of greening can be achieved. On the other hand, the greening can functionally play the roles of ecological protection and improve ecological environments. With the expansion of this kind suburban green space, a screen, a green protection wall can be formed for the city to significantly reduce the sand blown by the wind and natural disasters like hailstones. There are many negative examples in this respect. Some areas paid no attention to continuity and development of forest-belt construction and destroyed the existing suburban green shelter-forests were destroyed, resulting in huge economic losses to the state and people.

### 3. Green Space Construction in the Suburbs Can Bring about the Development of the Local Regional Economy and Other Industries in the Country

There are various ways, not merely afforestation, for green space construction in the suburbs. In the process of implementation, green space construction must be combined with local regional environments and follow the requirements of the general planning of the town. Under such a prerequisite, the construction carried out in a directional and effective mode can play leading and guiding roles. With the formation of greening scale and peculiarity greening scenery, the regional environmental features can be enhanced. With the deposition of a certain period of time, greater planning effects can be formed. It will also bring about good opportunities for other industries, such as the tertiary industry of agriculture, forestry and animal husbandry, the industry of real estate and tourism. It is in conformity with the development rules of market economy. In converse, the development of economy in the local country will promote the sustainable development of the green space in suburban areas and form a trend of urban ecological construction in a virtuous circle.

### 4. The Green Space Construction in the Suburbs Can Further Promote the Cultivation Work of Local Country Saplings

Further cultivation work of local country saplings embodies the stability of species and diversify of ecological system. At the same time, the structural quality of plant habitat can be improved, which embodies the special feature of regional vegetation scenery. The construction of suburban green space is carried out on the basis of giving full protection and

utilizing rationally the existing plant habitats. Local plants are the main component part of regional vegetation habitats. The plants used for greening should fully make the regional features of the city prominent. Local tree species should be taken as the dominant ones in cooperation with actively introducing the excellent garden plants appropriate for growing in the locality so as to make the species diversified and the garden sceneries plentiful. Diversity of species is the foundation of diversified living things and hereditary diversity is included in species diversity. Species is basic unit that composes ecological system and diversity of species is of great influence to the functional features of ecological system. The relative stability of plant habitants in urban green space system is based on the diversity of living things. Lack of diversified living things will lead to the occurrence and spread of plant diseases and insect pests, and even to the destructive disasters of garden plants. It can be seen that diversity of living things affects greatly the balance of the ecological system of the entire green space. The stability of habitants, the diversity of ecological system, the diversity of sceneries and the realization of appropriate locations and appropriate trees should all be based on the diversity of plant species.

## II. EXISTING PROBLEMS

### 1. Lack of General Planning Consciousness and Sole Target of Greening

The construction of suburban green space, whether in the respect of general layout, landscape designing or selection of tree species, all ignores the relationship with urban culture and art, citizens' relaxation, medical health and healthcare prevention and protection. Meanwhile, the obstruction of different ad-

ministrative management often leads to the negligence and destruction of the matured suburban vegetation system during the urban planning and construction. Lack of the target for long-term development of utilizing and protecting the existing vegetation results in man-made destruction of some vegetation habitats or some vegetation habitats were occupied for other uses. They were not well protected or utilized.

## 2. The Issue of Demolition and Movement in the Process of Green Space Construction is Particularly Prominent

There are residential areas in most of green space areas. Due to the facts that town dwellers live rather separately and are affected by ideas left over years, the issue of demolition and movement in the process of implementing green space construction is particularly prominent. So far as the present situation is concerned, the difficulties in demolition and movement are gradually turning for the better, which shows that their consciousness and old ideas are also changing.

## 3. Funds are Timely Allocated and Construction Process is Affected

Due to the larger funds invested during the earlier stage of construction, it often happens that during the construction process in some places destruction occurs at the time of making investment and construction. As a result, the process of green space construction at the suburbs is affected and the negative influence directly brought about is repeated construction and waste of funds.

## 4. Lack of A Set of Scientific and Rational Mode for Constructional Management and Advanced Management Ideas

During the process of constructing the suburban green space, working efficiency must rely on scientific and rational mode for constructional management as well as on advanced and superior management ideas so that effects of twice the results with half the effort can be achieved.

### III. SPECIFIC MEASURES

How can the relationship between the utilization and protection of suburban green space well handled? The construction of suburban green space must make full use of the existing natural ecological basis. Full utilization means protection and enhancement. The basis for full utilization lies, first of all, in protection. As man-made logical environments can't be compared with original ecological environments, effective measures and maximum efforts should be made to protect the natural ecological environments. Enhancement is improvement and perfect on the basis of protection. Ecological effects and mutual share are maintained and enhanced through engineering technical measures. To make full use of natural ecological basis to build up an ecological city is a detailed practice for ecological theory used in urban construction. The target of the development of ecological environments should pay equal attention to prevention and treatment of environmental pollution as well as to the development of ecological protection. By doing so, good ecological circulation system with the integration of city and country can be constructed, environmental quality can be continuously improved, and the sustainable utilization of natural resources can be promoted.

## 1. Combination of Suburban Green Space System with The Planning of Urban Green Space System

As an important peripheral green corridor of the city, suburban green space is an important ecological element of lineal, block and continuous ecological scenery, playing an important role in urban ecological environments. It is also of great importance to the multiplication of living things, to the material and energy exchanges between the plant habitants in the nature as well as to the protection of diversity of living things. Therefore, the construction practice of suburban green space in a programmable, scientific and rational way is carried out under the general framework of the planning of the urban green space system, controlling in general but highlighting local features. It is necessary to have a complete understanding and correct application of ecological principles to change designing ideas and to enhance the species diversity of the plant habitants in the green space of suburban garden. The plant habitants in the garden with diversified species, rational structures and changeable seasonal appearances can be established in accordance with the ecological features of various tree species and by fully using time changes, vertical space and the ecological phase of time changes. In line with the theory of ecological theory, appropriate expansion of green space area and scale is beneficial to enhancing the diversity of species. The perfect combination of suburban green space system with the planning of urban green system can be realized through scientific and rational ways.

## 2. Combination of the Construction of Suburban Green Space with the Development of Regional Agricultural and Forestry Economy

The construction of suburban green space is the unification of social, economical and environmental effects with the economical effect mainly embodying in the productivity of green space. In the respect of

detailed implementation, the economical productive plantation areas can be increased by selecting economical plants, mainly oil-bearing crops and fruit trees, to simulate the production mode of natural agriculture and fruit trees. It is a local experiment of readjusting agricultural structure as well as an exploration of new method to support "green space" with "green space" so that it can develop towards the industrial behavior. Both the industrialization of green space and the role of "raising seedlings" of green space should be emphasized. With the exception of selecting large-scale nursery stocks in necessary areas, nursery stocks with shorter age and easy to adapt themselves to changeable surroundings should be selected in other areas so that preparation can be made for future natural sceneries and export of grown-up seedlings to other regions.

Inside the sphere of the land used for suburban green space construction, nurseries, flower nurseries, lawn nurseries and orchids that can produce plant materials for urban greening can be set up. In combination with the construction of productive plantation areas, bases of species resource can be set up to carry out selection, breeding, reservation and reproduction of improved varieties of plant materials for greening for the purpose of laying a good foundation for spreading and application. The construction quality of the productive plantation areas in a city affects directly the effects of plant sceneries of that city. The detailed measures are displayed in the following aspects:

(1) Combination of special nurseries with nurseries run by masses, readjustment in cooperation with the structure of suburban country industries and encouragement of running nurseries by suburban farmers in an energetic way

(2) Combination of the construction of productive plantation areas with sceneries construction. Con-

struction of productive plantation areas with the appearance of "forest park" and the content of garden. On the basis of ensuring the supply of nursery stocks, nurseries can open to the public to increase economical effects.

(3) Construction of nursery stocks for reservation base should be strengthened. A part of productive plantation areas can be arranged in line with local conditions and not included in the land-use balance of urban construction.

(4) By combining production with experimental spread, 5~10% land can be set out from the productive plantation areas to establish "the center for breeding and spreading improved varieties of garden plants" and to plan twig-cutting nursery, seedling nursery and experimental base for naturalizing new species of seedlings so as to gradually realize improved varieties of seedlings used for urban greening, to localize main plant materials and to naturalize the plants imported for spread.

### 3. Combination of Suburban Green-Pace Construction with the Development of Tourism Economy

Due to the difference of regional locations and the difference of regional environments, comprehensive effects of ecological green space should be displayed to the maximum with the landscaping suited the local conditions and with the development appropriate in the construction. The existing resources of the massifs with perfect natural conditions, peripheral supporting facilities and environmental facilities should be made full use of and planned in a scientific and rational way. In the general planning of green space, the development of suburban tourism and sceneries should be combined with man's public relaxation activities and relaxation holidays in an integrated way. The green space should be constructed into forest-park

nature green space - open, natural, with rustic charm and with local humane atmosphere. Other activities such as sightseeing in the country and forest, physical health, ecological bath in the forest, learning of country life, green restaurant, relaxation and angling to attract people from peripheral regions and city center so as to develop suburban sightseeing for weekends and long holidays. Items with strong theme can particularly attract tourists. The following flexible modes can be adopted during the process of operation:

(1) To combine green-space construction with the development of items in an integrated way and to protect and build up suburban green space from the angle of grand green-space system to perfect the ecological entity of urban green-space system and the integrated construction of city and country:

(2) To build scale effects with efforts to bring about the development of other industries in the peripheral areas, to improve the greening status of suburban sceneries, to enrich citizens' outing selections, and to perfect urban relaxation system: and

(3) To construct green space simultaneously with the town construction, to maintain the close links between the suburbs and the established city in roads, water system and green-space system so that the green-space link in the suburbs can be strengthened; and to give consideration to the landscaping construction of the urban infrastructure within the suburban sphere.

### 4. To Adopt Government Guidance, Multi-Channel Financing and Diversified Investment to Ensure the Funds for Suburban Greening Construction

In the respect of financing and investment of the funds for the construction of suburban greening, the

source of funds can come from the following diversified initiatives:

(1) To bring about direct or indirect economic effects through the combination the construction of suburban green space and the development of items:

(2) To finance the funds for green-space construction win a unified way from the construction of larger items and to include the greening into the sphere of item examination and acceptance:

(3) To form a mode of participation in the construction and management of greening by the whole society through the different ways of voluntary "adoption" of green space by enterprises, citizens' participation with different commemorative activities, etc.; and

(4) To construct green space with the investment made by the respective districts (county) as the dominant factor, to finance all the funds needed for maintenance and management by the respective district (county), and to support and mobilize the initiatives of the respective district (county) with the forms of subsidies and rewards by the municipal government.

## 5. To Strengthen the Construction of Urban Ecological Environments and to Create Good Residential Environments Guided by Strategic Ideas of Sustainable Development

A perfect unity of economical, social and environmental effects should be achieved with the planning of urban green-space system so that a coordinated optimization between the intensive development of modern economy and ecological environments can be made and an ecological city with the vitality for sustainable development and with the integration of city and country can be constructed.

In short, in the process of promoting the construction of suburban greening, there are still many realistic issues to be seriously faced with. Urban ecological construction is a long-term and hard job to be proceeded in an orderly way and step by step. Any practice overanxious for quick results or caring only for immediate interests is inappropriate. Only by taking the theory of urban ecological theory as the basis and taking the planning for urban green-space system as the orientation and guide for actions and only on the basis of fully protecting and utilizing suburban green space can a healthy way of development be discovered for expanding the green ecological space in the peripheral area of the city, for improving the urban ecological environments in an all-round way, and for enhancing the quality of people's living environments.

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