

Protection of Suburb Green Space: Contradiction of Protection and Use

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Abstract

This paper preliminary discussed the important function and faced problems of suburb green space during the process of urban development. As well as it points out the contradiction of protection and making use of. In this paper it takes the green space system planning in Wuxi as an example. Through introducing the classification, distribution, arrangement principles, overall arrangement tactics and concrete protective measures of suburb green space in Wuxi, the paper also puts forward the correct disposal principles for the relationship between protection and making use of toward the suburb green space to realize “both-win” of them.

Key Words : Suburb Green Space, Protection and Use

I. DEFINITION OF THE SUBURBS AND SUBURB GREEN SPACE

The Suburbs is an important part of the urban region, a transient belt between the urban area and vast countryside and also is an area where the urban function and rural function permeate each other and the development of social economy is special and very animate. The suburb green space refers to the area which lies inside the suburbs and is well covered by plants. Its main functions are ameliorating the ecology, protecting the environment, beautifying the landscape and providing the recreational space. It mainly includes some suburban parks such as forest park, arboretum and zoo, special type parks and vocational parks etc. shelter belts, large-scaled nurseries and other green space such as scenic forest land, marshy view and mud flat view etc.

Nowadays, both the urban population and buildings have a high density in our country. It's impossible for the old city to obtain abundant green space in the urban area. So it is very necessary and quite practical to attach important to and strengthen the construction and protection of the suburb green space.

II. FUNCTION OF THE SUBURB GREEN SPACE

The suburbs is an enormous ecological protective shelter and air conditioner to city. With the rapid advancement of the urbanization process of our country, the suburbs has suffered city-nibbled and assimilative threat in on one hand and another the development of modern city needs urgently protecting and developing the nearest “nature” from citizens to satisfy the leisure demands of them.

1. Ecological Efficiency of the Suburb Green Space

1) Purifying the Environment and Offering Fresh Air

Through the planned and constructed forest, meadow and wetland ecosystem surround the urban area, the suburb green space can absorb the pollutant such as CO₂, SO₂, NO_x, etc. and play the role of reducing the dust. The suburb green space can purify the air pollutant discharged by the city and play an important role in improving the urban environment. Suburb green space also take the function of "oxygen bar" at the same time, making urban air get fresh blood constantly.

2) Recovery of the Degenerative Ecosystem

The suburbs transition region surrounded urban area is often the districts where the protection to ecological environment is worse. In these districts, the forest, meadow and wetland were usually destroyed much seriously. The construction of the suburb green space can promote the recovery of the degenerative ecosystem, reduce the bare land and help to controll the urban dust and sand.

3) Construct the Green Ecological Network of the City and Enrich the Variety of Species

During the construction of the suburb green space, it can form the pattern of "corridor-host-patch" through the suburban parks, shelter belts, large-scaled nurseries and structure the green corridors and temporary habitat. Thus can form a green dynamic view structural system which is natural, various, high-efficient and has certain maintained ability with the street green space, public park, green buffer and attached green space in the urban area. This can increase the connection degree of the open space and every habitat spot, reduce obstruction that the urban

living beings survive, move and distribute and provide more habitats and more convenient habitat spaces for living beings. The variety and complexity cause the stability. Through structuring the complicated green space styles to form the network, it can offer the suitable habitats for beneficial insects and amphibian.

2. Offer the Nursery Stock for City Afforestation

As the intension of used land in urban constructed area, we can build up some large-scaled production green spaces in the suburbs. One can offer a large amount of nursery stock for afforestation in the urban area; another can make the nurseries as suburban parks opened to the public to absorb the citizens to go there for amusement and recreation.

3. Function of Amusement and Recreation

Compared with the green space in urban area, the recreational function of the suburb green space much embodies in the enlargement of their recreational space, extension of time for amusement and the increasing of recreational projects and facilities. The large number of suburban parks, special type parks and vocational parks etc. in the suburb green space are all good recreational and leisure places to the public and the urbanite are able to get sufficient relaxation and rest there.

4. Function of Aesthetics Education

Besides recreational function, the social functions that the suburb green space offers also include aesthetics educational function. Such as it offers people the museum alive which will educate and wake up the public that it is so important keeping the harmonious relation between the mankind and nature.

III. THE RELATIONSHIP BETWEEN THE SUBURB GREEN SPACE AND THE CITY AS WELL AS THE FACED PROBLEMS

1. Process of Suburbanization -Transformation from Green Space of Urban Area to the Suburb Green Space

With the development of city, the increasing of urban population and enlargement of the scale of city region, the public parks of the centre district of city is nibbled gradually because of its frail competition. Limited by some factors, such as the price of space etc, the large-scaled public parks begin to shift to the suburbs. The suburb green space is becoming the main recreational place which has the most direct and closest relationship with the citizens.

2. Continuity-- the Continuity in Space and Ecology

One side the extension of green space from centre of city to the suburbs is based on the extension of urban space and region while another is based on the process of the development of economy and process of suburbanization. The suburbs and the urban area still keep the continuity on the space and they combine together. Meanwhile, they also have the continuity on ecology. The appearance of the suburb green space make the ecological efficiency of the green space develop progressively from small-scale and partial to extensive and whole. That is to say the function of the suburb green space is the ecological protective shelter.

3. The Problems Faced By Suburb Green

Space -- Contradiction of Protection and Making Use of

1) The Ecological Environment is Facing Huge Threat

Accompanying with the constant exploitation and utilizing of the suburban land, people's blindfold pursuit to the economic benefits, more people's having set foot in it and the intervention of a large quantity of artificial facilities have made the suburb green space's ecological environment suffered great destruction. Some destruction even went beyond the limit of the ecological environment and had made the ecological environment threatened.

2) The Expansion and Spread of Urban Used Land Occupied the Suburb Green Space

With the incessant increasing of suburbanization, people and the industry of city begun to move from urban center district to the suburbs. They have expropriated and trenched on large-areal land in the suburbs to make it lose much farmland and green space. Meanwhile, the case appeared that much recreation and food-service facilities begun to increase in most suburban parks. Some phenomenon even occurred that felt the forest and damaged the meadow to build the facilities. The parks' rates of green space and nature declined widely.

3) It Should Be in Harmony Between the Protection of the Suburb Green Space and Tourism Exploration and Construction.

Originally the aim of tourism development in the suburb green space is utilizing its own abundant scenery resources to raise fund so as to launch the ecological protection much better. But if it were operated improperly, introducing into the fund would mean the forfeiture of some power. So instead of saying what the suburb green space faces is a rare

opportunity for development at present to a certain meaning, it would be better to say it is confronted with the unprecedented challenge for existence-how to seek the balance between tourism development and ecological protection.

The protection of the suburb green space has already been imperative. But as the back garden of the city, the tourism development toward to the suburb green space is also an inevitable trend. How to alleviate the contradiction on earth and realize "both-win" between them needs establishing a series of controlling protective policies, taking certain technological measures to enable controlling the tourism development of the suburb green space within the ecological limit to make the suburb green space develop under the prerequisite of its self-development and self-renewal. It can not only make the suburb green space develop well and exert its amusement function much better, but also can get better protection by the fund that would be obtained through tourism development. Thus can make them accelerate each other and develop together.

IV. CONSTRUCTION AND PROTECTION OF THE SUBURB GREEN SPACE IN THE GREEN SPACE SYSTEM PLANNING OF WUXI

Now we will take the green space system planning of Wuxi as an example to discuss its suburb green space's construction and protection.

1. The layout Principles of the Suburb Green Space's Construction in Wuxi

- (1) Make accordance with the plan for land of the suburbs;

- (2) Regard the incorporation of urban and rural area as the pattern and set up the ecological network of the urban green space system.

2. Suburb Green Spaces' Tactics of Overall Arrangement in Wuxi

The arrangement of suburb green space in Wuxi should regard the ecology theory as guidelines to arrange large-scaled annular green space around the fringe of city. By fully utilizing the suburbs' abundant landform of large-scaled deserted mountains, hills and watercourse, we will plan and construct the sheltered forest and suburban parks such as forest park, special type park, recreational space and vocational park etc. to form the multi-levels and large-scaled green rings in the city perimeter. In addition, we should utilize the both sides of the radioactive roads, railways, rivers and high-voltage corridors in the suburbs to build extensive zonal green spaces: plan the Tenneco green space whose form is from wide to narrow deepened from the suburbs to the centre of city along the main rivers and highways and also can set up the Tenneco green space in parallel to the direction of summer wind at the same time. The zonal green space and Tenneco green space incorporate various kinds of green spaces in and out of the city to form the organic network of the urban green space system. Thus can not merely beautify the urban appearance and offer the recreational places, the more important function is that it can play a role of "ventilating and leading the way". Through this it will bring the nature into city, import the fresh air produced by the suburb green space to the city so that it can improve the environmental quality in the urban area.

3. Distribution of the Suburb Green Space in Wuxi

As there isn't any explicit standard in the classi-

fication of the suburb green space, in the green space system planning of Wuxi we devided the suburb green space into five styles: public park, green buffer, nursery, attached green space and other green space according to 《Urban Afforestation Statute》, 《Classification of Urban Used Land and Standard of Planned Constructed Land》(GBJ137-90)and the outcomes of congeneric urban green space system planning(see Table).

4. Protective Measures of the Suburb Green Space in Wuxi

1) Guidelines

(1) Insist on carrying out the principle of "first protecting, second developing" on the premise of guaranteeing sustainable development:

(2) Insist on the "both-win" principle of protecting and developing:

2) Concrete Protective Measures

(1) Set up perfect protected egulations for the suburb green space

So far, it hasn't a set of complete protected statute about the protection and management of the suburb

green space yet at the domestic. That has made it no laws to abide by in the afforestation management work and caused certain blindness and lacking strategic guidance. So setting up the statute for the protection and management of the suburb green space in Wuxi can well instruct the construction of the suburb green space and make it develop in the direction of benign cycle. We should utilize resources rationally on the premise of insisting on protecting ecological environment well.

2) Carry on the systematic construction of the suburb green space

Nowadays, Urban green space system planning is often limited to the planning of all kinds of green space in urban constructed area and ignore suburb green space. There is also not a relevant evaluated target system. So we should bring the suburb green space into the planning of urban green space system to make it in accordance with urban planning. Thus we can arrange it overall and rationally and expect carrying on better protection to it.

3) Strengthen the construction and protection of urban forest in the suburbs

Table. The classification of Wuxi suburb green space

Styles	Main Contained Content
Public Park	Huishan National Forest Park, Yangshan Provincial Forest Park , Houshan Forest Park and Doushan Forest Park, Meiling Arboretum, Wuxi Zoo, Taibo Park , Li Park , Yuantouzhu Park, Europe City, Natural Landscape Movie & TV Base, Tang City, the National Tourism Vacation District of Tai Lake in Wuxi
Green Buffer	the isolated greenbelt between Suzhou and Wuxi , the isolated greenbelt between Jiangyin and Wuxi , the isolated greenbelt between Changzhou and Wuxi: shelter belts along the main rivers, roads, railways and high-voltage corridors: ecological forest belt along Tai Lake with the width of 200 meters
Nursery	the new nursery of Xicheng, the nursery of Shengan Road, the An town nursery
Attached Green Space	It mainly refers to the green space inside the used land of industry, residence, road and public installation in the suburbs.
Other Green Space	the scenic forest land around Mashan,18 bays and Dafu scenic spot and the low mountains and hills in the east

In the urban green space system planning of Wuxi, we fully utilized the isolated greenbelt between cities of Suzhou, Jiangyin and Yixing, forests for water supply conservation, forest network in farmland, shelter belts of rivers, railways, highways and high-voltage corridors to intensify the construction and protection of urban defended forest. Meanwhile it should also protect the natural forest and protophyte in the city district and city periphery.

- 4) Strengthen the propagation and education to citizens and enable the protected ideas rooted in the hearts of them

In the urban green space system planning of Wuxi, We regarded the work of propagation and education to the ecological and environmental protection of the suburb green space as an important work to grasp, especially stress the environmental consciousness and protection consciousness of the students in primary and middle school to waken and train the consciousness of loving and protecting the nature while as a child. At the same time we also utilized various kinds of media, set up the nature educational centre in the suburban parks and published the posters, brochures to improve and strengthen citizens' protection consciousness.

- 5) Perfect the technical management and study of the suburb green space

In the last few years, using the technology of remote sensing (RS) and the geographical information system (GIS) on the research of carrying on investigation and planning toward the urban and suburb green space has aroused more and more people's attentions. During the whole work of urban green space system planning in Wuxi, we fully utilized the technology of RS and GIS. The development of the remote sensing technology can offer the good information source for the research of

the suburb green space and through the image process system soft ware of RS, people can quickly draw information such as the composition of the varieties of trees, coverage rate, type, space distribution pattern, age distribution and health status etc. Thus can offer reliable technical support for the protection of the suburb green space. At the same time, the development of GIS technology has offered the technological foundation for management of the suburb green space. Using GIS can store, revise and output all kinds of information acquired by computer and set up afforesting information database. Through it can also output a large number of thematic maps of all kinds to make the expression of afforesting information more intuitional and carry on superposed analysis, view pattern analysis and dynamic research with all kinds of other information to improve the suburbs' afforestation and analysis levels further.

- 6) Establish and perfect tourist capacity minor system of the suburb green space

Through establishing perfect tourist capacity minor system, we can monitor and control tourists' number according to time and place to make it not exceed the ecological limit of recreational place and make the suburb green space develop persistently.

- 7) Pay attention to the protection and exploitation of the local trees

During the long natural selection, the local trees has adapt local natural conditions very much. The local trees and animals around compose a steady ecosystem which has strong resistant ability against the plant disease and insect pests to maintain local ecological safety. So during the course of protection to the suburb green space, it is very necessary to pay well attention to the protection and making use of the local trees, exert their areal plant characteristic fully to let more people realize the importance that the local

trees can improve the ecological environment.

- 8) Strengthen the training and education work to the administrative staff in the suburb green space.

Training and educating administrative staff in the suburb green space regularly can make them deeply realize the importance of protecting the suburb green space and take certain controlled measures to promote protection. This can also make the staff serve for the protection work of the suburb green space better, direct and educate the citizens actively and play a good role of a bridge.

V. DEALING WITH THE SUBURB GREEN SPACE'S RELATIONSHIP BETWEEN THE PROTECTION AND MAKING USE OF CORRECTLY

While developing and utilizing, we must establish the consciousness of protection at first and devote more efforts to protection to realize its continuous utilization and sustainable development of social economy. But at the same time, protection is in order to promote the development of tourism and social economy much better so we can't put much emphasis on protection and raise the suburb green space "in the boudoir", "lay aside and neglect it". Otherwise it will make their touristic value and social value unable to exert. We should keep accumulating the protected fund and technology constantly in the course of development and accelerate protection with develop-

ment.

Handling the relationship between the development, utility and protection well need setting about from planning and in a rational order, not developing blindly. So the planning emphasis of the suburb green space still remains "the suburb green space protection planning" and less artificial facilities, much better. Using planning to instruct the development and utility, studying the relationship between the development, utility and protection according to scientific planning strictly are the most effective methods to deal with this kind of relation.

To the most suburb green space in Wuxi, fetching in fund to realize that the resource advantage really transform to the economic advantage to exert its natural ecological and environmentl protection function is the most urgent and crucial thing. This is the luminous prospect of the suburb green space's development too!

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