Preservation and Utilization of Suburban Green Lands in the Urbanization Process of Kunming

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Abstract

Suburban green lands play an indispensable role in maintaining normal operation of the urban ecosystem. However, the suburban green lands are also the most fragile and easily disturbed places since they are close to the city edges. The suburban green lands of Kunming city show diversified forms, and it would be difficult to avoid taking part of those green areas in the rapidly expanding urban construction. To better preserve and utilize the suburban green lands of Kunming, it is vitally important to base ourselves on the practical situation of Kunming and take into full consideration the features of urban expansion and suburban green lands, so as to optimize the structures of suburban green lands, scientifically plan and readjust the remaining suburban green lands, and enhance the comprehensive efficiency of the daily dwindling suburban green lands in protecting and regulating the ecosystem, beautifying the environment and outputting economic benefits. Suburban green lands in some specialized areas must be put under strict protection.

Key Words : Suburban Green Lands, Urbanization, Preservation, Utilization

Natural environment is the foundation, resources and environmental basis for developing urban construction. As the political, economic and cultural centers of the humans, cities have been constructed through efforts of decades, centuries or even millennniums, during which people altered the natural landscape by partially or even entirely removing the natural vegetation to make room for countless houses and related facilities. In their activities to construct cities and change the natural environment, humans interacted with the surrounding areas to build up specialized urban ecosystems, which feature artificial ones that are highly dependent on the exterior environment. To maintain normal operation of socialized life in the urban areas, the urban ecosystem has to exchange with the ambient natural environment in terms of materials, energy and information. The continuing urban construction and the highly exterior-dependent urban ecosystem have caused instability of the urban landscape, and this is more easily seen in the marginal areas of cities.

I. RELATIONS BETWEEN SUBURBAN GREEN LANDS AND CITIES

Sandwiched between cities, or between the urban and rural areas, suburban green lands takes the forms of production-oriented green lands (farms, seedling nurseries, gardens or orchards), protective green lands or green lands for other purposes, all of which are component parts of the urban landscape thanks for

their rich natural elements. Cities coexist with the suburban green lands in an inseparable integrity, while they exert influences on one another. As the closest linkage between the cities and the natural environment, suburban green lands not only partly provide city dwellers with daily-use materials and places to get in touch with the nature, give the cities fresh air and furnish habitat for the suburban fauna and flora whose species and number are daily decreasing, but also play an irreplaceable and vitally important role in maintaining the normal operation of the urban ecosystem. As the marginal areas of cities, however, the suburban green lands are also the most fragile places that are easily disturbed by interferences. The continuing urban expansion can only be materialized by consuming large quantities of lands, and lands in the close suburbs have become the immediate victims. Urban expansion has drastically altered the suburban green lands in terms of forms, quantity and functions, while the vegetation and biological species of the suburban green lands are decreasing, and some functions of the suburban green lands have changed or even totally lost. On the contrary, changes of the suburban green lands may exert impacts on the urban environment, and make it more difficult to regulate and improve. The sustainable development of a city depends not only on suitable lands for construction, but also on satisfactory environmental quality. The surrounding natural environment not only provides the city with backup lands for urban construction, but also the ecological cushion for improving the environmental quality of city dwellers. This is even more important today when rapid urban expansion has caused a series of environmental problems, and the natural environment is showing increasingly more precious value. Therefore, it is necessary to vigorously and scientifically protect and fully utilize the suburban green lands in the process of urbanization, bring their comprehensive functions into fuller play, seek for coordinate and synchronized development of suburban green lands and that of the cities, and cultivate excellent ecological environment in the surrounding areas of cities, so as to maintain normal operation of the urban ecosystem.

II. GENERAL SITUATION OF SUBURBAN GREEN LANDS OF KUNMING

Kunming is located in the northern end of the Dianchi Lake Basin. The city's terrain is high in the north and low in the south, and the average elevation is 1,892.2 meters. The city is surrounded on three sides by mountains, namely, the Huma Mountain in the east, the Changchong Mountain in the north and the Western Hills in the west, and the southern end of the city stretches into the Dianchi Lake, thus showing the ideal natural environment of rearing on the mountains and facing the lake. Owing to such natural conditions, the forms and functions of suburban green lands of Kunming show evident regional features. In terms of topography, the suburban green lands of Kunming could be classified into those of the basins and uplands. Facing the Dianchi Lake, the southern part of the city shows features of the flat basin areas, and has been developed into production-oriented farmlands, flowerbeds, seedling nurseries and orchards. About 80% of the tree seedling- and flower-producing enterprises of Kunming are gathered in that area, and large quantity of vegetables, agricultural and non-staple products, landscaping tree seedlings and flowers are produced there. For instance, the well-known Dounan Flower Production Base is located right in that part of the city. Surrounded by mountains, the east, west and north parts of Kunming show features of upland

areas, and green lands in those areas are dominated by well-preserved or artificial forests. Showing overall floral characteristics of the Central Yunnan Plateau, the natural vegetation in those areas are mainly consisted of semi-humid evergreen broadleaf forests, subtropical upland coniferous forests and upland bushes and grasses, which fall into 1,086 species and 594 genera of 167 families and make up 56.98% of the gross number of flora species and 78.52% of the wild flora species of the planned Kunming areas. Thanks to the plentiful botanical resources, many wild flora species could be developed and utilized to enrich the local gardening and landscaping plants. Among those flora resources, vegetation in the Western Hills scenic area from the Huating Temple to the Taihua Temple and that near the Bamboo Temple are the best preserved primeval forests in the mountains of Kunming.

III. PRESERVATION AND UTILIZATION OF SUBURBAN GREEN LANDS OF KUNMING

Kunming is not only the political, economic and cultural center of Yunnan Province and one among the first batch of China's noted historical and cultural cities, but also the key central city through which China opens herself to Southeast and South Asia. With the rapid economic development, Kunming is bound to usher in an accelerated urbanization process and the dimension of the city will daily expand. Like other cities, the first problem Kunming encounters is to find the space for development. While the city's ideal natural condition of being surrounded on three sides by mountains and facing the Dianchi Lake on the other have created picturesque scenery, the limited basin area has restricted the city development, and land shortage has imposed serious challenge on the coordinated development of urban construction and suburban green lands. For developing the urban area of Kunming, the only solution is to expand from the downtown area to the outlying areas by taking part of the suburban green lands. To achieve the goal of building Kunming into the most suitable residential city, the only way out is to synchronize urban development and enhancement of city efficiency with scientific and rational protection and utilization of suburban green lands, and dissolve the contradiction between preservation and utilization.

Suburban green lands are important resources of urban life, whereas the daily dwindling space has put arduous tasks on the ecological, beautification and economic functions of the existing suburban green lands. To better preserve and utilize the suburban green lands of Kunming, it is vitally important to base ourselves on the practical situation of the city and take into full account the features of city development and the suburban green lands. The ultimate goal is to optimize the structure of suburban green lands, scientifically plan and readjust the remaining green lands, enhance the comprehensive efficiency of the suburban green lands in terms of ecological protection and regulation, environment beautification and economic output, and strictly preserve the green lands in certain specialized suburban areas. Structurally, the existing suburban green lands of Kunming show unscientific proportions and protective green lands are basically nonexistent, whereas seedling nurseries have only consisted of an inadequate proportion in the production-oriented green lands. Based on such considerations, cultivation of protective green lands and seedling nurseries should be prioritized in the course of urbanization, and those two kinds of green lands could be combined for fuller utilization of the limited land resources and enhancement of the ecological and economic output of the suburban green lands. Kunming could hardly expand in the east, west

and north directions because all of which are quite mountainous, and the only space for urban development lies in the south, in which large areas of suburban green lands could be used. Considering that Kunming is dominated by west-south wind throughout the year, it is vitally important to plan, preserve and newly cultivate green lands in the southwest part of the city, and use them as environmental protection belts and wind guides. In the course of urban expansion, wedge-shape green lands should be cultivated to link up with the exterior natural environment, so as to provide a smooth corridor for exchanges between the urban area and the exterior natural environment. It is equally important to preserve the surrounding upland green lands and enhance their comprehensive efficiency. Strict protective measures must be drafted and enforced for preserving the vegetation of the Western Hills and Bamboo Temple scenic areas, and environment-friendly eco-tourism should be energetically developed. For the upland green areas of the Huma Mountain and Changchong Mountain where artificial forests dominate, aboriginal plants should be used to continuously restore the vegetation, while immediate measures must be taken to restore the ecological environment which had been ruined by land reclamation and quarrying.

To sum up, urban expansion always goes hand in glove with occupation of suburban green lands. Doing a better job to coordinate preservation and utilization of suburban green lands means protecting the ecosystem from which people gain a subsistence, and such efforts will ultimately benefit the sustainable development of cities.

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