Analysis on Establishing Urban Cemetery Planning and Compiling System

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Abstract Currently, there are many problems in construction of urban cemetery like improper location, low land utilization, backward greening facilities and imperfect cemetery management, which have greatly affected people's normal production and life. This article discusses the establishment of a sustainable city cemetery planning and compiling system from three levels of "macro-view, medium-view and micro-view" in order to perfect the present cemetery system.

Key words Urban cemetery, Planning and design, Compiling system

1 Introduction

The quickening of urbanization has resulted in the soaring in urban population and worsening of aging problem, which has further increased the demand of city cemetery land. According to statistics, the total population of China has reached 1.36782 billion by the end of 2014, increasing by 710 compared with the figure in the end of 2013. Birth population in 2014 was 16.87 million with the birth rate reaching 12.37 ‰. Dead people were 9.77 million with the mortality rate reaching 7.16‰ and the natural increase rate was 5.21‰. The ratio of male to female was 115:88. Population aged 60 and over has reached 2.1242 billion, accounting for 15.5% in total population. And population aged 65 and over has achieved 1.3755 billion, taking up over 10.1% in total population of China and 25% in world aged population. Besides, it is predicted by the United Nations that the percentage of population aged 65 and over in total population in 2030 and 2050 will be 15.7% and 22.6% respectively. This large land demand aggravates the increasing shortage of urban land resources, therefore scientific and rational city cemetery planning and compiling is of great significance.

2 The status quo of urban cemetery planning and construction

Urban cemetery is the product of modern funeral mode and is indispensable in urban construction. Due to the taboo to death and cemetery in Chinese traditional culture, urban cemetery construction has not been paid enough attention in China. Cemetery development and construction lack the guideline and design of urban master planning, let alone the idea of landscape environment construction.

2.1 Gravel of forested mountain: land competition between dead and living people Fight for "living environment" between dead and living people has been the main problem in cemetery construction in China. Statistics in 2014 show that mortality rate was 7.16‰ and dead people reached 9.77 million, however cremation rate was only 50,6%, which means that 4.83 million dead people were buried into earth. According to researches from professor Zhou Hong in Yunnan University, each dead people buried into earth consumes 5 m^2 while each cremated people consumes 2 m^2 averagely and burial land has reached 34.03 km^2. Free expansion of cemetery not only severely damages ecological environment but also leads to the awkward situation that people may be surrounded by cemetery.

2.2 Conspicuous consumption Cemetery is generally regarded as "the garden after life" and is a huge waste of land resources and economic resources. In 2014, dead people were 9.77 million and per capita cost was 3000 yuan, resulting in total cost of 29.31 billion yuan. Although it is a huge market, it creates huge economic wastes.

2.3 Feudal superstition Funeral reform has achieved great progress and cremation rate has been rising over the past 50 years. Feudal superstition has been gradually diluted with the popularization of modern scientific culture, but the effect still exists. There are superstitious activities again in recent years and many geomantic warlocks make waves to earn money from dead people. Therefore, healthy development of funeral culture plays a significant role in cemetery construction.

2.4 Confusing layout Cemetery construction lacks complete planning system, resulting in scattered land layout. There are cemetery and graves in all villages. Cemetery, cultivated land and residents are mixed together. The lack of effective integration has caused huge land and economic wastes and has been an obstruction to the improvement of social customs as well as the construction of social civilization. Therefore, cemetery planning and rational location are important in cemetery construction.

The above mentioned issues are usually mixed together. Establishing graves according to superstitious activities have undoubtedly wasted land resources and damaged ecological environ-

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ment. Cemetery construction and management should have been paid enough attention.

3 Causes of disordered urban cemetery construction

3.1 Disordered and incomplete urban cemetery planning and compiling system City cemetery in China has long been constructed and managed by the Bureau of Civil Affairs and urban planners usually pay less attention on it. Besides, cemeteries planned by the Bureau of Civil Affairs individually are usually improperly located and unbalanced. A typical case in point is the suburban cemeteries, which are now surrounded with the expansion of the cities, resulting in many problems.

3.2 Severely backward funeral culture and lack of effective guidance Traditional funeral culture in China has long been affected by the feudal thought, which is related to people's worship to the totem and dead people. This kind of thought has then developed into awe to dead people and people even treat their parents ungenerously but bury them generously after their death. People believe in the existence of soul and the karma. They believe that well settled dead people can bless offspring and help them with promotion as well as wealth, therefore they make good arrangements of the funeral. Moreover, driven by profits, some people greatly propaganda the backward funeral value and feudal superstition proliferates. Under this circumstance, traditional funeral culture should be guided to the right direction in urban cemetery planning.

3.3 Imperfect management system of urban cemetery construction Since funeral business is related to all citizens, it is mainly managed by the Bureau of Civil Affairs. Due to the lack of coordination and supervision from other departments, there are many problems and drawbacks in the allocation, construction, selling and management of cemetery land, which has brought about negative effects, among which the most typical is that people think death is not affordable because of the expensive graves. The solution to these problems requires further perfection of the management system of urban cemetery construction.

4 Countermeasures to the problems in urban cemetery planning

The present problems in urban cemetery construction are improper location, irrational layout, low land utilization, backward greening facilities and imperfect cemetery management.

4.1 Unified layout and rational location of city cemetery from macro view Location and layout of cemeteries in many cities have not taken city development into consideration. With city expansion, urban cemeteries and other constructions are mixed together, which severely disturbs the normal production and life in the cities. Unified cemetery planning and layout can enable cemetery construction to be in harmony with city development. Urban cemetery construction can be integrated into the establishment of urban landscape ecosystem, which can further improve city ecological quality.

4.2 Region division of urban cemetery from medium view and proposing difference development requirements Region division of urban cemetery is necessary since there are differences in natural conditions, economic conditions and cemetery construction among different areas in a city. Urban cemetery can be divided into several typical areas according to measurable indexes like urbanization degree, population density, population structure, industrial structure and economic development and proper planning requirements and measures should be proposed.

4.3 Detailed planning and design of each cemetery from micro view Function division, traffic layout, matching infrastructure and grave design should be finished and relevant management regulations should be formulated.

4.3.1 Function division. According to cemetery functions, the internal areas should be divided and land structure as well as matching facilities should be determined. A whole cemetery can be generally divided into entrance square, funeral service area, loafing area and the main cemetery. Entrance square should be square or round basically and space sequence can be strengthened with axes and proper spatial scale as well as landscape colors, supported by rational streamlines and matching infrastructure. In funeral service area, business, service, management and other functional buildings should be integrated to increase the working efficiency. Loafing area should be rationally segregated from the funeral area with proper transitional process like parks, which can possibly alleviate the solemnities. The main cemetery should be located in the best place to show its core position and its core functional areas should be further divided according to different landforms and modes of funeral, which are supported by internal independent pedestrian system and perfect drainage facilities.

4.3.2 Traffic layout . Road system within the cemetery should be divided into external and internal roads. External roads should be linked with city roads and specific scattering measures should be formulated for the peak of tomb sweeping. Internal roads are mainly to guide people to do all the business about the funeral conveniently. People's specific psychology should be taken into consideration and roads are not supposed to be long and straight.

4.3.3 Matching infrastructure. Matching infrastructure in the cemetery mainly includes water, electricity supply, fire protection and environmental sanitation. Water use involves domestic water consumption by office buildings and service facilities as well as municipal water use for irrigation, fountain and fire protection. Proper water supply modes should be selected according to natural distribution of water and water saving should be considered. Since the demand for electricity in the cemetery is not high, it can be integrated into the unified electricity supply system in the city. Currently, the popular way of sacrifice is burning incense, paper money and fireworks, therefore rational layout of fireproofing facilities is of great importance. Generally speaking, there should be a fire barrier with certain width outside the cemetery and other fire isolating facilities for burning incense, paper money and fireworks inside the cemetery. Besides, fire hydrant and fire pool should al-

so be equipped in case of the fire. Environmental sanitation mainly consists of toilets and garbage collection sites, which should be arranged in the areas with better accessibility.

4.3.4 Building design. Design of the single building mainly focuses on the details. Deep characterization in details can enrich the building image and motivate people's emotion resonance. Construction of cemeteries mainly depends on some building materials with better durability like stone and concrete and supported by other materials with proper textures and colors in order to show the eternity of cemetery buildings. Sometimes, different kinds of artificial lighting can be equipped to increase or decrease the solemnity. Besides, detailed characterization should reflect the features of traditional and modern funeral culture. Architectural oddments and sculptures can be used to show people's worship to totem and dead people. Personalized epitaphs can be designed to display the "epitaph culture" in the new era.

5 Conclusion

With the soaring of urban population and aged population, demand for urban cemeteries is increasing, thus special planning and designing for the cemetery is of great significance. However, the present cemetery planning and designing lack detailed, systematic and scientific design theories, guidelines and principles. The cemetery is a place where people can show their grief to families, therefore the core of the design is to create a spiritual and emotional atmosphere. It is a pity that the planning of most cemeteries do not reflect the importance of spiritual culture, but over emphasize physical forms. Therefore, a urban cemetery compiling system which can guide the healthy development of cemetery construction is in urgent demand.

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(From page 54)

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