Abstract: Through an analysis of the historical evolution of the urban green space system in Japan, this study summarizes its emergence and development and the characteristics of the planning system. We conclude that disaster prevention is a key component of green space planning in Japan, with small parks as the primary park size, relatively well-developed regulations relating to green space, and the design of green spaces that optimize the potential for reconstruction after a disaster.

Key-Words: Japan, Green space, Planning, Evolution, Characteristics

1 Introduction
Green space is an important component of urban ecosystems and recreation opportunities and has great significance in the construction of a safe, livable, and ecologically friendly city [1]. The urban green space system in Japan arose during the transformation from feudal to modern cities and is an important element of modern urban architecture, making a major contribution to the style of the urban environment and the leisure activities of urban residents. Through historical evolution analysis, this study describes the characteristics of green space planning and development in Japan and the influence of green space development in other countries.

2 Early park system planning
Under the feudal system, Japanese cities lacked public green space. In the late Edo period when the social concepts of capitalism and civil rights were growing in popularity, Japan entered the final development stage of its feudal society. The leisure activities of the people became more common and more diverse, leading to the construction of a variety of private amusement parks. With the gradual degradation of the feudal system, the nobility began to construct amusement parks for public entertainment and, over time, opened their private gardens to the public.

In 1866, as the number of foreigners living in Japan increased, the British Ambassador requested that the Japanese government construct special amusement parks for foreigners. Later, foreigners residing in the city of Kobe, the only trading port in the Kansai region, established leisure facilities, including Ghana-cho Park, Marine Park, and Monzen Machi Park. In Yokohama and Sapporo, other public amusement parks were constructed, including Yamate Park and Yokohama Park. These public amusement parks were the predecessors of Japanese city parks.

Fig. 1 The change in the number of city parks in Japan during the late 19th century

After the Meiji Restoration, the Japanese government drew heavily on the experience of the developed countries of Europe and the United States regarding the political, economic, and infrastructure systems of capitalist countries, including their park systems. In 1873, Bulletin No. 16 of the Dajokan Office (the highest national government agency before 1885) is considered to have been the starting point of the modern urban park system in Japan. In response to this bulletin, Tokyo, Osaka, Kyoto, and other areas developed parks. By 1887, 83 city parks had been built in Japan. Fig.1 shows the change in
the number of city parks in Japan during the late 19th century.

Beginning with the establishment of the Meiji government, a restoration policy was implemented to apply the techniques and technology adopted from developed Western countries. Due to the development of its industrial economy, the population of Japan was concentrated in cities. The population and industrial scale of Tokyo had grown rapidly, such that the original urban architecture could no longer adapt to increasing economic development. High population density resulted in traffic congestion and poor living conditions. Most of the buildings were constructed of wood and subject to destruction by fire. After a fire in 1872, the Ginza Street area in the city center was redeveloped using bricks to improve its fire resistance. With this step, the urban renewal of Tokyo had begun.

The "Revised Plan for the Tokyo Metropolitan Area," published in 1889, is the first example of Japanese urban planning and also represents the first example of park planning. According to this plan, 49 parks covering 330 hectares were planned in Tokyo, and they were expected to improve public health, enhance disaster prevention, and reduce traffic congestion. However, the plan was not fully realized, and only 4 small parks were eventually built, including Water Valley Park, Hakusan Park, and Hibiya Park.

With the rise of modern industrial development in Japan, industries and the population were concentrated not only in Tokyo but in other major cities; Osaka, Nagoya, Kobe, Yokohama, and Kyoto also dramatically increased in scale. In accordance with city systems in Western countries, there was a call for a unified city plan, planned industrial and residential development, and the transformation of urban architecture. Under these conditions, the "Revised Plan for the Tokyo Metropolitan Area" was extended to other cities. As a result, park planning commenced in major cities nationwide.

3 Disaster prevention in park system planning
In September 1923, the Kanto region of Japan experienced a major earthquake, and even Tokyo suffered major damage. In the aftermath of the earthquake, it was clear that green spaces, such as Ueno Park, had effectively blocked the spread of fire. As a result, the role of parks in disaster prevention began to attract attention.

In the post-disaster reconstruction planning of Tokyo, a large number of small parks and safe areas were established in residential areas. Interconnected by wide streets and parks, the first disaster prevention park system in Japan was formed. Fifty-two small parks were located in areas adjacent to elementary schools in the affected areas, which served not only as areas of general public recreation but also as playgrounds for elementary schools, to address the problem of inadequate school space. These playgrounds could also be used as shelters in the case of disasters. After the major earthquake in Kanto, the diverse functions of parks as urban green spaces were developed, and the various values of small parks to a city were discovered, contributing substantially to the history of park planning in Japan.

4 The emergence and development of green space system planning
In 1924, an engineer at the Japanese Ministry of Internal Affairs translated the German "Grünnflächen" as "green space," referring to land covered with green plants or dominated by natural features, such as agriculture, forestland, and water areas. In July of the same year, "Urban Public
"Opinion" explained the relationship between urban parks and green space, i.e., "the urban park is part of the green space." Since then, as the idea of garden cities spread, the concept of green space gradually became more common.

In 1932, the city of Tokyo merged with 82 surrounding rural areas to establish the Tokyo government. In October of the same year, a specialized research organization for green space planning, the Tokyo Green Space Planning Council, was formed, which defined and classified "green space." Green space was defined as "the permanent green space alongside residential land, traffic-related land, industrial land, and commercial land." This definition indicates that green space is a land-use type in parallel with other developed land in the urban planning system. In addition, green space was to be permanent; therefore, open space occupying a site of future construction could not be designated as a green space. Compared with previous concepts of freed space, open space, and non-building areas, this definition emphasized the most essential feature of green space: its permanence. This permanence would become the basis of the modern concept of "green space."

This Tokyo Green Space Planning Council developed the first regional green space system plan in Japan, establishing 13,600 hectares as a greenbelt around Tokyo that connected landscapes, greenways, and large parks in the urban area, thereby limiting the continuous expansion of the Tokyo metropolitan area [4].

5 Post-war planning and the construction of a green space system
In 1950, Japan published the "Regulation of Capital Construction" to standardize the construction of buildings in Tokyo. In 1956, the "Reconstruction and Reorganization Act of the Capital Region" was enacted, and the planning area included Tokyo and 7 surrounding counties. In 1958, within the framework of the "Reconstruction and Reorganization Act of the Capital Region," the first plan for the Tokyo metropolitan area was developed.

Influenced by the Greater London Plan, the first Tokyo Metropolitan Plan divided the planning area from inside outward into 3 categories: the built-up zone, the suburban region, and the surrounding area. According to this plan, the suburban region lies 10-15 km from the city center. Development zones were designated in the suburban region, in which the construction of satellite towns was to be focused.

During World War II, most of the urban green parks in Japan were destroyed, and their area was greatly reduced. After a period of post-war turmoil and as the economy recovered, industry and population were concentrated in large cities such as Tokyo, resulting in increasingly serious urban problems. According to the "Reconstruction and Reorganization Act of the Capital Region," the reconstruction plan attempted to control the construction chaos and guide the benign development of urban spatial structures in the Tokyo metropolitan area. The planning and construction of green space in parks were regulated. Under this aegis, the first "Urban Park Act," enacted in 1956, established management and configuration standards for the parks.

After the mid-1950s, due to rapid economic development and urbanization, the old urban planning act was abolished in 1968 and replaced with a newly written "Urban Planning Act." This new act divided the urban planning area into street areas that actively promoted urbanization and adjustment areas that inhibited urbanization; the act also clearly determined that residential areas must set areas aside for parks and schools. In addition, the "Urban Planning Act" set building standards for park green spaces in the various regions.

In 1973, the "Urban Green Space Preservation Act" was enacted with the purpose of protecting open space. This act provided a green space protection system and further strengthened the control and guidance of urban development [5,6].

6 The Japanese green space planning system
The current urban green space planning system in Japan consists of two goal and content plans: the overall green space plan and the essential green space plan. The overall green space plan was prepared by the prefectural governments. With the construction and protection of urban green space and other open space as the main goals, phased construction targets were set, and the green space configuration program and measures and guidelines to achieve these goals were determined, with an emphasis on ensuring the establishment and protection of green spaces in system planning. The essential green space plan was based on the overall green space plan, with further comprehensive consideration of factors such as the greening of public facilities, greening agreements, public participation, and other non-planning policies, including further comprehensive planning, such as...
promoting measures for greening and greening events.

Fig. 3 Green space distribution of Tokyo in 2002

7 Conclusion
During the transformation from feudal to modern cities in Japan, a huge time and monetary cost accompanied the transformation of the land-use. The most intense effects on urban spaces are caused by external forces, including natural disasters and war. Disasters destroy the original architecture of a city, providing opportunities for the generation of new urban spaces. Taking advantage of the opportunities for large-scale redevelopment after the Great Kanto Earthquake and World War II, Tokyo introduced a new green space system plan to lay a strong foundation for the structural optimization of urban land through the establishment of green spaces.

Japan is in an earthquake-prone country. Since the Great Kanto Earthquake, green space system planning has often considered factors relating to disaster prevention. Fire fighting services and disaster warehouses, ambulance bases, and various types of emergency assistance are located in parks, and information services can be provided to disaster victims. To increase accessibility, the parks are as evenly distributed as possible in accordance with the defined service radius.

Small parks are the main components of the urban green space system in Japan. Compared to large parks and special parks, small parks have advantages associated with their small size, wide distribution, and good accessibility, such that they can more easily provide services for nearby residents. In the metropolitan area, which has a high building density and high land prices, the tremendous cost of constructing a large park can increase the financial burden. However, the construction of a large number of small parks can save costs associated with the formation of a high-density green space system.

Green planning regulation is the core of the green space planning system. The main legal bases of urban green space planning and construction in Japan are the "Urban Planning Act," the "Urban Park Act," the "Urban Green Space Preservation Act," and the "Outskirts Green Space Preservation Act." The "Urban Planning Act" provides construction standards for park planning in urbanized areas. The "Urban Park Act" relates to green space within the scope of urban planning; it not only determines the configuration structure, size, facilities, building density, and other technical standards of urban parks but also establishes management and operating mechanisms as well as funding sources. The "Urban Green Space Preservation Act" and the "Outskirts Green Space Preservation Act" are special laws aimed at protecting green space in specific areas and providing special protection to green spaces within the metropolitan area, thereby preventing the unchecked spread of urbanization.

References: