

Distribution Characteristics of Informal Green Space and Its Extension of perspective into Green Infrastructure

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1. introduction

The issues of Green Infrastructure (GI) and urban natural disasters are being addressed around the world, not only in North America and Europe, where the discussion first began, but throughout Asia. GI is a planned network strategically between natural and semi-natural areas, along with environmental factors designed for overall ecosystem services. A well-connected network provides positive benefits for quality of life and biodiversity and can receive ecosystem services such as reduction of disaster risk, water purification, air quality, recreational space, and climate change mitigation and adaptation. GI is a widely applicable element that can effectively respond to the various damage caused by climate change. Examples include efficient use of water resources, water restoration, protection of plant species susceptible to disasters, implementation of water conservation measures, reduction of heat island phenomena. In the case of the U.S. and Europe, a network of natural or semi-natural spaces with multidisciplinary functions is defined with the aim of restoring the functions of the ecosystem, and the policy is to utilize the combined spatial plan of domestic or countries. However, in recent years, the decline of cities has increased and limitations have been considered to create new urban green space as GI. Accordingly, the interest in informal green space such as vacant lots, street verges, water verges, and brownfields is increasing as an open space that is abandoned or overlooked in interstices in a city. In particular, interest is growing in strategies to enhance the urban environment and the vitality of residents by converting the value of vacant properties in urban areas to GI. Therefore, this study aims to examine the potential of informal green space as GI, and to suggests a connection with natural disaster prevention.

2. method

Since informal green spaces do not have an officially documented database, fieldwork on the site should be involved to derive the implications of this study. Therefore, in this study, Ichikawa City was analyzed as a study site, and informal green space and urban structures were analyzed using the spatial information collected from the field and the official open data sources. The sampling strategy used in this study was to set a square sample site of 50 meters at the intersection of a grid 500m and collect site information in focusing on the sample site. The total number of sample sites set up is 229 and the total area is about 1% of the entire city area.

3. results

Informal green space was found on 106 sample sites out of 229 sample sites in this study area. The total area of collected informal green space is 26,458 m² and consists of 229 patches. The total area of the informal green space found accounts for about 4.62% of the entire sample sites area, with an average area of about 115 m². Informal green space was distributed 123 patches and 67.6 m² mean size in residential areas, 15 patches and 48 m² mean size in commercial area, 16 patches and 230 m² mean size in industrial area, and 75 patches and 183 m² mean size in the urbanization control area. In the residential and commercial area, where are population density, informal green spaces are frequently distributed with a small scale. On the other hand, the informal green space of the urbanization control area with low population density and high elderly density is relatively large scale compared to residential and commercial area.

4. discussion and conclusion

Informal green space is a secondary green space created by human activities. Therefore, the distribution characteristics of informal green space differ according to the land use patterns that are related to human activities. Given the accessibility according to the distribution characteristics of informal green space and the linkage with the surrounding natural environment, a supplementary system of urban green infrastructure can be proposed.

Keywords: vacant land, urban green space, green infrastructure policy , Asia