Public Parks

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Public parks are a part of the public spaces of a city. Cities are rediscovering the potential of urban parks to advance environmental sustainability and enhance its social amenities.

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1. Introduction

Urban public parks provide important benefits especially in highly congested cities. Public parks provide opportunities for community residents to relax in a natural environment, socialize, engage in physical activity and other leisure pursuits, that bring together people and help develop a sense of community [1][2][3][4]. Moreover, public parks are vital in supporting biodiversity and promoting important ecosystems in urban areas that improve a city's physical environment overall [5][6][7][8][9]. At the same time, public parks help to create a sense of place by supporting community activities that improve the quality of life for all who live in the city and especially for communities where the public parks are located [4][10][11]. A fundamental concern therefore for both urban policymakers and urban designers is whether the provision of parks is being efficiently used and meets the needs of the community where it is located.

Urban park studies often ignore the distinctive physical and geographic dimensions and context of these spaces, including their available facilities and amenities, spatial distribution, landscaping, built and socio-economic context, and other physical, social, and environmental characteristics of place [3][4][12]. In fact, the physical features of parks identify the unique character of the district where the public parks are located. They can also define the landscape and townscape structure and identity of settlements [13][14][15]. Moreover, each urban public space has become an indispensable part of residents' lives, playing a positive role in facilitating urban greening, improving public outdoor recreation and education, rebuilding city image, and ensuring sustainable urban development. Public spaces are distinguished by their size, nature elements, recreational activities, and available facilities which are also reflected in the valued characteristics of public parks [16][17][18]. Visual and symbolic features within public parks include unique images of places that communicate unforgettable memories in users [19][20]. The surrounding context of public parks' locations such as building density, land use, and services and facilities correlates with its surrounding environment features [17][21] of urban density, compactness, and mixed use [22][2][4][19][23].

Public parks are classified into many types based on various principles [4][15][18]. There are spatial variables that have been defined and measured, and each city or country has its criteria to classify them. There are generally two methods used in open space categorization, namely typology and classification [24]. While the typology focuses on the type of spaces and includes visual and aesthetic characteristics, shapes, forms, and patterns such as squares, plazas, streets, and parks [25][26], the classification focuses on the use and value of public spaces that represent the character and relationship between public spaces and their surrounding contexts, involving roles, purposes, and the ways they are actually used [19][20][27]. Additionally, the classification method in classifying public parks generally covers three approaches, namely the catchment hierarchy, function, and landscape environmental characteristics [24]. The catchment hierarchy refers to users of public parks that are influenced by the geographical area being serviced, size, level of public park uses, and significance [28][29]. The function refers to the roles of the public parks that are influenced by actual usage and activities such as recreation, sport, and nature [30][31]. Lastly, the landscape environment characteristics refer to shapes, forms, and contexts of public parks that are influenced by the size, presence of facilities, and availability activities [32][33][34].

From the above, it can be concluded that the quality of public park systems is influenced by a range of factors including both internal park attributes and external factors that influence a user's behavior in selecting an urban park. In the case of the external factors, it is the surrounding context of the public park's location and urban configuration that have been associated with the influence of proximity and attractiveness of urban public parks. Moreover, many scholars [4][17] have focused on the physical surroundings of public parks' locations such as landscape environment, building density, building

use, land use, and natural elements, whereas the internal factors refer to the characteristics and elements of public parks such as the important scenic, historic, and natural elements of the parks. Most researchers have focused on the user, level of use, size of users, role of users, design elements, recreation facilities, and visual quality of park scenes, rather than the context of social and spatial disparity of urban park services [30][32][33].

2. A Multi-Dimensional Clustering Applied to Classify the Typology of Urban Public Parks in Bangkok Metropolitan Area, Thailand

A method of multi-dimensional clustering can be applied to classify the typology of urban public parks along with the external and internal factors that influence the usage of the city public parks. The classification of public parks is based primarily on the similarity of the parks' spatial context and physical characteristics sorted out into six clusters in total: historical parks, community parks, forest parks, artificial parks, creative parks, and appreciated parks.

To illustrate this, all kinds of parks have a statistically significant relationship with the physical and social contexts in the particular surrounding areas. The most common park type in Bangkok is the community park. The defining characteristics of these parks are that they are small and located in the least densely populated neighborhoods. The combination of single-family dwellings and low-rise residential occupancies was unexpected but may be explained by the absence of other land uses around these parks and the overall dominance of low-density developments and single-family homes in Bangkok. According to the Green Bangkok 2030 policy, which defined increase in the green spaces to 10 square meters per person, these parks may be under pressure of overuse problems for their high park congestion. Most of these parks were community parks, which were located in a suburban area of Bangkok. Their service areas were relatively small, which means high demands of park were needed by nearby residents. Therefore, Bangkok's policy makers could take measures to release the pressure on these kinds of parks, such as building small community parks within their service areas.

Furthermore, herein found two important aspects for understanding urban public park development. These are (i) the spatial issue, which is a physical environmental characteristic of the parks in the research area that varies depending on the level of urbanization and urban structure development level. It can be said that parks that are located in the area of high urbanization or the inner zone are provided with convenient public mass transportation and designed to support the park usage or activities. They have a greater variety of uses than the public parks that are located in the middle and outer zones of Bangkok. On the other hand, the parks that are located in a low urbanization area usually have a larger size than the downtown parks as well as a more natural composition than the central parks perhaps with the exception of the huge Lumphini Park which was allocated in the time of Rama V. (ii) The second aspect is the issue of methodology that integrates the outer factors within a radius of 400 m of the park location with the inner factors or the data of park usage and physical composition to understand the park characteristics in its spatial context. The public functions of parks should be better considered in the design process to meet the increasingly diverse needs of the people. If a public park is designed to serve a diverse range of citizens, multiple functions and attractive themes are needed to broaden its appeal to users. People are willing to visit more distant parks for special features such as historical value, cultural themes, or natural landscapes [35][36][37]. Therefore, the results from each park analysis will be useful for decision making, park planning and management in urban areas.

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