



# The development of different types of parks under the urban planning criteria and measures: Case studies of Samutsakhon Municipality and Banphaeo Municipality in Samut Sakhon Province

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## Abstract

This research article aimed to classify parks and propose guidelines for developing parks based on the criteria, standards and measures of urban planning, which is consistent with the development of all park areas in Samutsakhon Municipality and Banphaeo Sub-district Municipality in Samut Sakhon Province. The research tools used were questionnaires (given to 722 people) and interview forms (two representatives of the municipal offices and two urban planning experts). According to the research findings, Samutsakhon Municipality has many types of parks, including pocket parks, community parks, street parks, and special-purpose parks. Further, there are four park areas with open space for recreation and conservation of environmental quality according to the general planning enforcement announcement. As a result, the radius of service for the parks is able to gratify people in the areas thoroughly based on the standards of the Department of Public Works and Town & Country Planning. For park area development in the future, negative measures and incentive measures should be considered to improve the park area management. In Banphaeo Sub-district Municipality, most of the parks are pocket parks; none exceeds 0.0032 square kilometers in size, which cannot be compared with the standards of the Department of Public Works and Town & Country Planning. Moreover, the type of open space used for recreation and environmental conservation has not been found in the general urban planning enforcement announcement. The development of park areas in the future should take into account negative and incentive measures to increase the size of park areas.

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## Introduction

Parks are important for enhancing the quality of life of people who engage in activities such as walking and exercising (Office of the Education Council, 2005). Because of the essence of parks, both central and local government agencies are aware of the importance of their powers and duties according to the administrative regulations under Bangkok Act B.E. 2528 and Municipality Act B.E. 2496 to establish and maintain the parks (Office of the Education Council, 2005) in response to the said policy. In practice, there should be a focus on promoting public park areas and green areas to be sufficient for the population in each area within the framework of the criteria related to park standards. Samut Sakhon Province is one particular province that plays an important role in the development of the country. In 2019, Samut Sakhon provided a gross product value of 292,277 million baht (Office of the National Economics and Social Development Council, 2021), and was an industrial area home to 6,679 industrial factories (National Statistical Office, 2021). In 2020, the concentration of people was 586,199 according to civil registration (Department of Provincial Administration, 2021). Therefore, the use of land in Samut Sakhon often focuses on building housing and using land for generating income as well as economic growth. The results in cities like Samut Sakhon means facing the problem of decreased use of park lands; this exact same problem occurs in Samutsakhon Municipality and Banphaeo Sub-district Municipality, where the park area size per 1,000 people is less than 16 rai. According to the park criteria and standards of the Office of the National Economic and Social Development Council (Office of the Education Council, 2005), Samutsakhon Municipality would need 2.04 square kilometers more park space by 2027. In Banphaeo Sub-district Municipality, there was an increase in demand for park areas by 0.08 square kilometers (Khongouan & Khamwachirapithak, 2020). For these reasons, it is necessary to prepare guidelines for the development of park areas in each municipality to provide adequate services for the people. This research paper aimed to study the development of parks according to municipal types that meet the criteria, relevant park standards and urban planning measures to be applied in accordance with the development of the parks with a purpose of categorizing parks by municipality. It also proposed guidelines for developing parks that meet the criteria, standards, and measures of urban planning in Samutsakhon Municipality and Banphaeo Sub-district

Municipality. The results of this study could provide guidelines for the development of parks leading to the planning process, policy, and management of park areas that are truly appropriate in each municipality.

## Literature Review

Land use in urban planning can be divided into main categories including housing, public services, open spaces for recreation, and conservation of environmental quality (Phongphoon, 2007). When considering only park types, it was found that there are criteria and standards categorizing the parks of the Department of Environment, Bangkok Metropolitan Administration [BMA] (2016), classifying parks into seven categories. In addition, the criteria and standards for the service of public park areas in the Standards Development Bureau Department of Public Works and Town and Country Planning (2006) focused on sufficient area allocation for the population (Figure 1). This research article used urban planning measures as a tool in order to promote the proper development of park areas. Department of City Planning (2014) compiled four major measures including: (1) Negative Measures, which are used to control private development; (2) Positive Measures, which are the procurement or construction of infrastructure(s) for development; (3) Incentive Measures, which are measures developed from negative measures such as Floor Area Ratio Bonus (FAR Bonus) used to increase private building areas by providing an increase in the ratio of total building area to land area from the regulations to promote public areas or parks, such as footpaths, pockets park (Chotiwatersilp, 2017); and (4) Corrective Measures, which compensate private landowners from the negative and positive effects of such measures.

The measures can be driven concretely by the collaborative use of other important tools and mechanisms in the development of park areas, such as the Town Planning Act B.E. 2562 and the Land Readjustment Act B.E. 2547 in order to allow urban areas to develop the necessary infrastructure(s) for urban planning according to the standards (Land Readjustment Bureau, 2020). In terms of park development, there are factors to consider such as park use behavior (accessibility, attraction, activities in the park), the physical characteristics of the park, and maintenance and improvement of facilities within the park area(s) to be in good condition and ready to use at all times (Prathumthin, Phongkhieo, & Nieamsup, 2021). All these also include park planning and park design,

Type	Size (Rai)	Population (Person)	Service Radius	Type
<b>Playground</b>	20-200 sq wa	500-2,500	rural communities residential communities	
	<= 2 rai	-	1 kilometer or walking distance within 5-10 minutes	<b>Pocket parks</b> ⊙□
<b>Village park</b>	25-50	2,000-10,000	300-500 meters	
	2-25	-	1-3 kilometer	<b>Neighbor hood parks</b> □
<b>Community park</b> ⊙	25-50	10,000-20,000	12.5 kilometers or within 0.5 hours by using the public transportation system	
	25-125	-	3-8 kilometers	<b>Community park</b> ⊙
<b>District park</b>	30-75	50,000-100,000	3-6 kilometers or within 1 hour by using the public transportation systems	
	125-500	-	Over 8 kilometers	<b>District park</b>
<b>City park</b>	100 rai or larger	1 park/ 100,000 people	within 1 hour by using the public transportation systems	
	> 500	-	provided population of whole city	<b>City park</b>
<b>Regional park</b>	> 200	population larger than that of a city	within 1 hour by private cars	
	Wider > 3 meters	-	No limit	<b>Street park</b> ⊙□
<b>Other green areas</b>	No limit	-	provided areas such as road corners	
	No limit	-	-	<b>Special purpose park</b> ⊙□

Note. ⊙ Samutsakhon municipality □ Banphaeo municipality

The park provision under the City Planning Criteria and Standards B.E. 2549, Department of Public Works and Town and Country Planning

The scopes of the services and the sizes of the parks, Park Office, Environment Department, BMA

**Figure 1** The comparison of the criteria for considering the types and service radii of the parks

which should provide equal opportunities for people to access and participate in all kinds of activities (Chandrasiri & Arifwidodo, 2017). A study by Kongphunphin and Srivanit (2021) found that park development in cities depends on the level of urbanization and the level of urban structure development. For example, parks in high-urban areas have convenient public transportation, while parks in low urban areas are usually larger and have more elements that are natural. In terms of land acquisition strategy, such can be considered based on land ownership. If it is private land, there should be guidelines for requesting land purchases, accepting donations, making lease agreements, and using incentive measures. If it is government land, cooperation to use the area can be requested. Adopting urban planning measures to increase the park area can be achieved by increasing the park area(s) in the predetermined area(s), which is a large area. For small parks, they can be found in the form of outdoor areas such as street areas and along canals (Faculty of Forestry, Kasetsart University, 2003). A literature review led to research concerning the conceptual framework for categorizing parks derived from a study of the situation of parks in each municipality with a combined city plan, a summary of public opinions, the determination for the conformity of park types to the criteria standards, together with the implementation of urban planning measures as guidelines for the development of parks in each municipality.

## Methodology

This research used both quantitative and qualitative approaches. The research scope included: (1) spatial scope, considered by a representative(s) of the municipality (Administration of Thailand with a large city with a population of more than 50,000 residents) and a representative(s) of the sub-district municipality (Administration of Thailand, that is, a small city with a population of less than 10,000 residents), who promulgated or were in the process of renovating a comprehensive plan. It is also an area that has not clearly been researched in terms of the development of park areas by urban planning measures; and (2) Content scope includes: (1) the number of parks by considering all the parks in the study area, regardless of the different sizes and agencies responsible for these parks; (2) types of parks which are considered based on land use from the comprehensive plan, types and radius of service according to the criteria and standards of Department of Public Works and Town & Country Planning and the radius of service and area size(s) according to the criteria of Department of Environment, [BMA]. Also included are; (3) people's needs; and (4) the urban planning measures. The research procedures comprised: (1) collecting relevant theories such as the criteria and standards for parks, urban planning

in the area, park development, and urban planning measures, as well as; (2) classification of parks according to standard criteria obtained from a field survey to collect the park situation(s); (3) public opinion(s) from the utilization of questionnaire(s), future park management and park development guideline interview form(s); and (4) a summary and recommendations about park development in accordance with the urban planning criteria and measures were also undertaken (Figure 2).

### Participants

In the questionnaire for Samutsakhon Municipality, the sample size included 405 people; for Banphaeo Sub-district Municipality, the sample size was 317 people. The first group of interviews was with representatives of each municipality who were responsible for planning work, which was one person for each area with duties related to planning area development policy and a group of two urban planning experts.

### Data Collection

There was a collection of information on the park situation(s), land use with digital map aerial photograph, the use of the questionnaire on opinions, park utilization and park management in the future, the use of an interview form to inquire about future park developments.

### Data Analysis

The main data were analyzed as follows: (1) field survey data and standard data for classification of parks; (2) the data regarding people's questionnaires on utilization and future park management shown as statistical data expressed in percentage; and (3) interview form data on park development guidelines in each

municipality from municipal representatives and experts by analyzing the data and grouping opinions, bringing the synthetic data together to find a way to develop the park together with the standard criteria and urban planning measures.

## Results

1. The classifications of parks was considered according to the following groupings.

1.1 Types of land use according to the comprehensive plan found that Samutsakhon Municipality according to the Samut Sakhon comprehensive plan B.E. 2550 showed the use of the types of land in the open space area(s) for recreation and environmental quality preservation in a total of four areas. These included Provincial Central Stadium, 60th Anniversary Queen's Health Park, The Institute of Physical Education Samut Sakhon, and Princess Sirindhorn Park. Banphaeo Municipality did not have the mentioned land classification under the Banphaeo comprehensive plan B.E. 2556.

1.2 Park classification according to the distances and services of the Department of Environment, [BMA] (2016) revealed several factors. First, there are pocket parks in Samutsakhon Municipality, such as a pocket park in the Samutsakhon Municipality Office, as well as community parks, such as the 60th Anniversary Queen's Health Park, and street parks on the roads, such as Setthakit 1 Road. There are also special purpose parks, such as the park in the Provincial Central Stadium (s). Banphaeo Sub-district Municipality's parks can be classified as pocket parks, such as the pocket parks in the district office, neighborhood parks, such as the riverside park in Wat Tham Chariya Phirom, street parks on the roads, such as Sukhaphiban 3 Road, and special purpose parks, such as the indoor stadium (Figure 3).

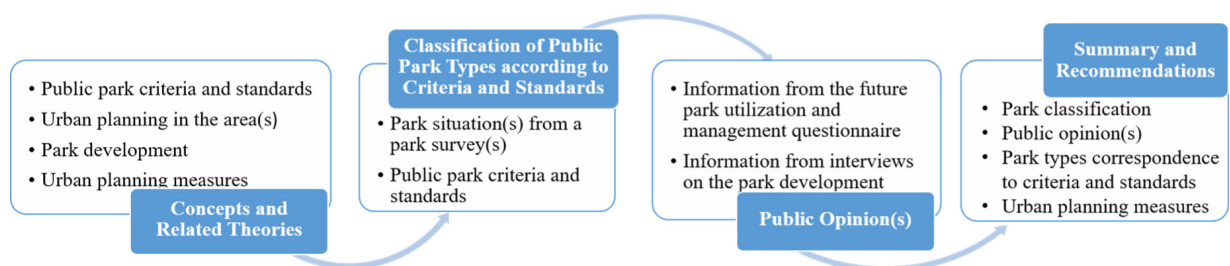
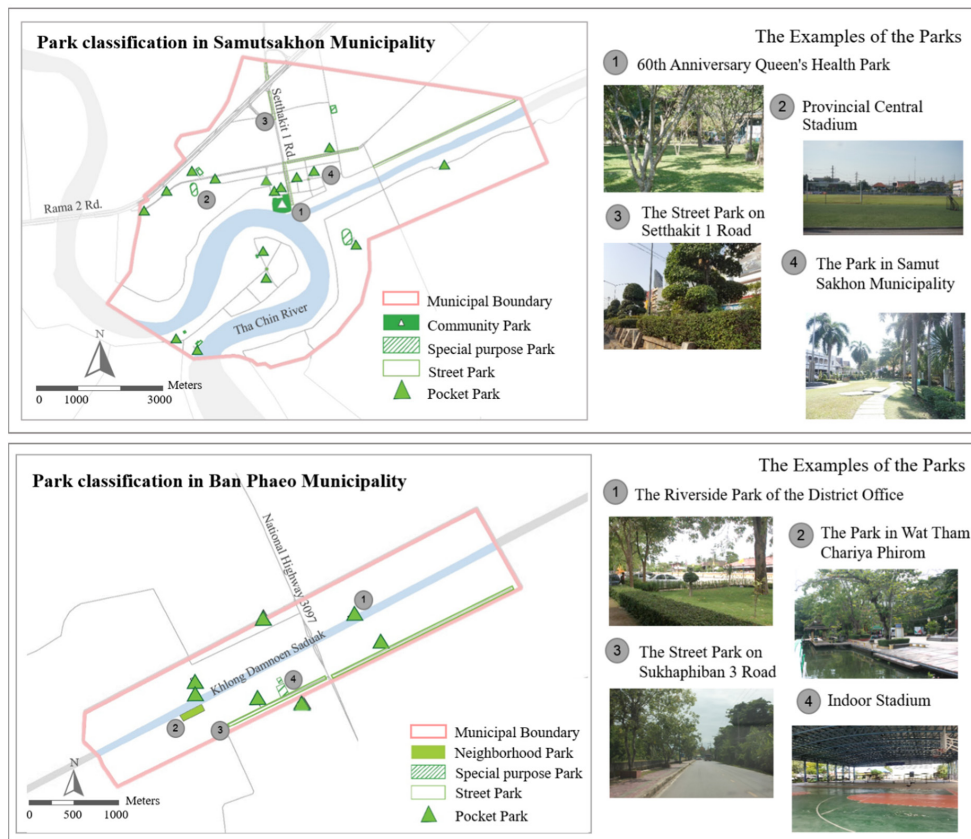


Figure 2 The research procedures



**Figure 3** Park Classification

2. Public Opinions were divided into 2 groups, namely, the general public opinions that provided important information on the use and management of the parks in the future and the municipality representative group's opinions. The experts made suggestions on park development guidelines. The results could be divided into each municipality as follows. (1) for Samutsakhon Municipality, the results of the questionnaires showed that people use the park area to exercise (57.19%), go to the parks by personal motorcycles (70.86%), and spend about 10–20 minutes in the park(s) (66.67%). The results also showed people need more parking space (12.47%), need community participation in development management (12.34%), and need footpaths and bicycle lanes to enter the park to be developed and improved (12.31% and 11.66%). Based on the interview results with municipal representatives, it was found that the municipality needs to provide more parking space in the exercise areas. According to the action plan, the land was procured in the area of Wat Chetsadaram located

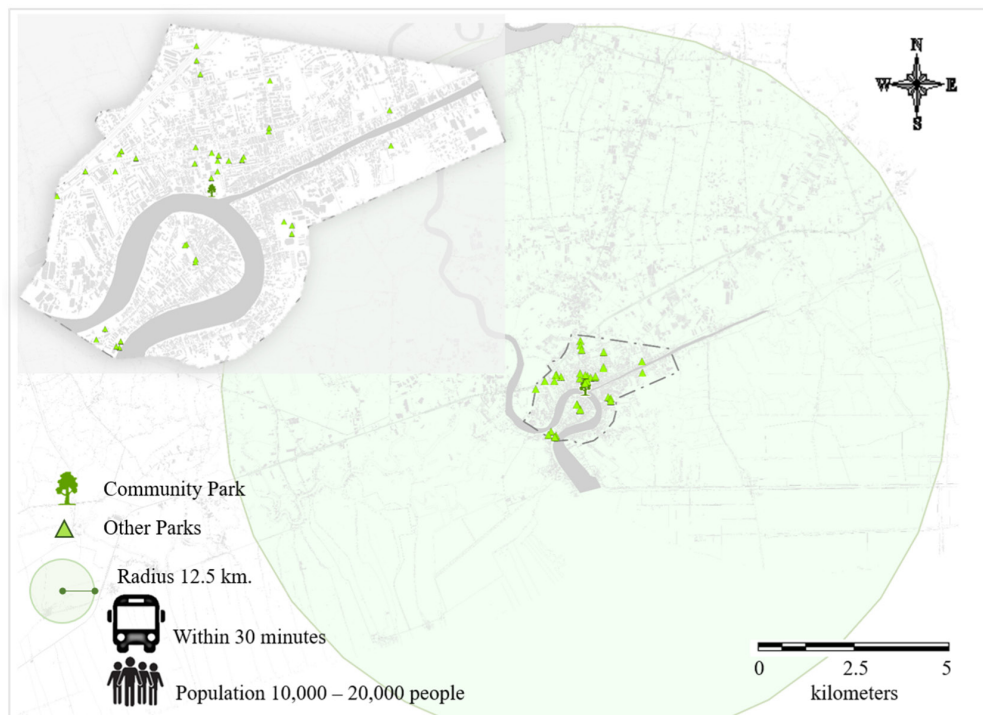
at the waterfront and another park at “Wat Krok Krak; and (2) for Banphaeo Sub-district Municipality, the parks were used for sitting and enjoying the landscapes (49.78%), private bicycles and motorcycles were used to go to the parks (29.97% and 29.29%), and people spent around 10–20 minutes in the park (36.91%). There was a need for community parks (49.78%).

According to the interviews with municipal representatives, it was found that based on the policy plan, there was the need to provide more park space, promoted as a place to exercise, and the area should be owned by the municipality or state property. Moreover, there was a plan to improve the existing park. In terms of experts' opinions, there had to be a study to analyze the sufficiency of the parks mainly procured in state-owned areas. These include the waterfront areas; there should be some requirements for several measures to be taken together, such as the Town Planning Act B.E. 2562, urban planning measures, Land Readjustment Act for Area Development B.E. 2547, etc.



3. Park type correspondence to criteria and standards: From the criteria and standards in [Figure 1](#), the following important issues were found. The types of parks are divided into equal subcategories, differing in the level of large parks with the same size factor and service radius. For the Department of Public Works and Town & Country Planning's criteria, however, there is also consideration for the population that the park serves. However, without the size of the population, there is flexibility to suit the condition of the park shortage. For example, Banphaeo Sub-district Municipality currently has a small population and the phenomenon of park shortage in both municipalities regarding the future demands for park spaces was predicted (Khongouan & Khamwachirapithak, 2020). The criteria for the Department of Environment, [BMA] (2016) takes into account the physical characteristics and cost-effective use in urban areas such as having street park. However, it was also found that the Department of Environment, [BMA] (2016)'s criteria stipulate the size of each park's area as large to accommodate a large population. Therefore,

it is not suitable for the current and future land use of the municipality with limited area such as the Banphaeo Sub-district Municipality area where most of the parks are pocket parks; each area does not exceed 0.0032 square kilometers. Furthermore, when considering the radius of service criteria, it was found that the criteria of the Park Office specified a radius that was wider and farther than the criteria of the Department of Public Works and Town & Country Planning, which defined the access by public transport and private cars to provide services to outsiders. In addition, the radius of service is more compact, such as Samutsakhon Municipality, with a community park for the 60th Anniversary Queen's Health Park. It is a community park that can provide comprehensive services and exceeds the boundaries of the municipality with access to public transportation for no more than 0.5 hours ([Figure 4](#)). Meanwhile, Banphaeo Sub-District Municipality does not find a type of park with sufficient area size to be considered compared to the radius of service.



**Figure 4** The service radius of the community park in Samutsakhon municipality

## Discussion

Regarding the classifications of parks according to relevant criteria and standards, it was found that Samutsakhon Municipality used the open space for recreation and environmental quality conservation according to the comprehensive plan enforcement announcement that reflected negative measures to control the use of public parks. Further, it is a municipality with a large area. There is also a high level of urbanization and urban structure development (Kongphunphin & Srivanit, 2021). There is a large population. The presence of parks in the area therefore aligns with the criteria and standards for considering parks. There have been only some improvements to develop the park(s) and increase the park area(s) to accommodate future needs. This is consistent with the opinions of the municipal representatives who have plans to provide areas to reflect the needs of the people (responses in the questionnaire(s)) by procuring and building on the royal property at Wat Chetsadaram and Wat Krok Krak. Both of the places are appropriate with sizes and shape of the area(s) near the waterfront along with the facilities that can set up exercise machines (Prathumthin, et al., 2021). It is a development in the area of the existing state using the law under the Town Planning Act B.E. 2562 as a development tool and providing equal opportunities for people to participate in the planning, designing the park and participating in all kinds of activities (Chandrasiri & Arifwidodo, 2017). In Ban Phaeo Sub-district Municipality, there is no use of open space for recreation or environmental protection. It is a municipality with a small area and a small population. Most of the parks are pocket parks, in which the criteria and standards of the Department of Public Works and Town & Country Planning cannot be applied. Therefore, urban planning measures should be used as guidelines for successful park development taking into account the consistent needs of people and agencies that need to increase and provide park space and emphasize exercise area by using municipal space or asking for cooperation to use the area (Faculty of Forestry, Kasetsart University, 2003). This is possible through the adoption of negative measures in applying the Land Readjustment Law for Area Development B.E. 2547 in conjunction with positive measures in order to prepare municipal land for future developments.

## Conclusion and Recommendation

Each municipality's park type varies according to the size of the municipality, park area, population size, and access distance. Samutsakhon Municipality is a large municipality with specific factors. It has a park(s) that meets the standards, for example, and the radius of service covers the entire municipality (12.5 km). There is only the need to develop and increase park areas to meet future demand with the introduction of negative measures to control land use and measures to promote development to increase the park area. Meanwhile, Ban Phaeo Sub-district Municipality is a small municipality. Parks in the area cannot be compared with the standards of the Department of Public Works and Town & Country Planning (pocket parks with each area not exceeding 0.0032 square kilometers). It is necessary to use urban planning measures as tools to provide and develop the park to raise the level and meet the standards to support future needs. Negative measures can be taken to define park areas in the overall urban planning. Moreover, incentive measures should be provided to increase park areas that have different land ownership. The area along the canal can be used as well to be consistent with the limited municipal area. This article will be useful to academics in urban planning, reflecting criteria, park standards, and guidelines for implementing urban planning measures. It will also aid agencies involved in making plans, policies, and guidelines for the development of park areas by applying the results of the study to adapt appropriately to their own municipalities.

## Conflict of Interest

There is no conflict of interest.

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