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Original Paper

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ABSTRACT

The park management (PM) that evolved from the park-renewal project based on Installation-Management Permission (IMP) in Tennoji Park, a major urban park in Osaka City, Japan is evaluated herein. The PM of Tennoji Park is composed of 'hard' and 'soft' tasks. The process and characteristics of the hard tasks, i.e., the park-renewal project including the construction of a significant landmark, the lawn plaza (named 'TEN-SHIBA') and convenience facilities with various service functions are analyzed. The details and outcomes of the soft tasks including cleaning, security, and lawn/planting management plus events held on the TEN-SHIBA plaza are also clarified. The PM results and financial effects of the introduction of IMP in TEN-SHIBA are evaluated based on both the park users' characteristics obtained by a questionnaire, an observation survey of the park users, and a data analysis of the track record. Based on a comparison with Sumiyoshi Park, an urban park similar to TEN-SHIBA but without the introduction of IMP, it was found that young females were the predominant users of TEN-SHIBA and the average staying time on the lawn plaza was 2 min. longer than that in Sumiyoshi park. Together these results suggest the effectiveness of IMP for PM based on the TEN-SHIBA experience. It also appears that placing a plaza in the center of a park and providing facilities and various events by private business operators can generate profits; this might

be effective for future PM hard tasks, while various and continuous soft-task efforts remain essential.

Keywords: urban park, public-private partnership, lawn plaza, questionnaire

1. Introduction

The management of urban parks in Japan affects millions of people, and the trend of creating public-private partnerships for park management has been increasing therein. This paper focuses on an advanced park management case: Tennoji Park in the city of Osaka, Japan. Several investigations of the many functions of urban parks in Japan have been described, including examinations of the uses of urban parks as a disaster refuge (Masuda 2014), nursery facilities (Miwa et al. 2017), childcare support services facilities (Miyaji et al. 2017), and allotment gardens (Kawakami and Terada 2019). Notably, the park administration paradigm for urban parks in Japan has undergone a major shift, from an era focused on park construction to an era of park management/operation. Amidst this trend, the concept of park management has begun to incorporate an active programming of park usages that uses the organization(s) operating the park, the park's specific resources, and the involvement of the local community. Efforts that are aimed at the maintenance of assets in each park space and the maintenance and upkeep of park facilities have increased, and today there is a need for the comprehensive management of all of these aspects (Akazawa et al. 2011).

According to a historical study concerning the development of city park systems in Japan (Funabiki 2016), there have been distinct three periods in the development of the country's urban parks. The first period dates from the establishment of urban parks in the Meiji Era (1868–1912) up until the enactment of an urban park administration policy. During the second period, there were developments of the park system designed to manage the profitable facilities, and in the third period there have been further developments that involve the public sector. The differences in motivation and characteristics among these three periods are of interest. I discuss the structure of the

private sector's participation in the management of urban parks, in addition to the current system's problems and a promising solution, i.e., the park management approach (Kaneko 1990; Shimomura 2013; Funabiki 2016).

In the previous park management approach in Japan, the focus was on the involvement of local citizens in their park's management, and numerous efforts were aimed at wide-ranging park management — covering everything from self-directed participation or cooperation with park tasks (which was the core of park management by citizens) to the implementation of independent projects by citizens. In particular, at large-scale parks with diverse park facilities and environments plus an organization that is open to citizen activities, efforts to encourage citizens' participation in the parks' management have been made by multiple citizen groups. At these large-scale parks, the participation of a wide range of citizen groups and ordinary citizens is invited, due to the public nature of the park and the wide area it serves.

As part of that approach, designated managers (which are private businesses) were in the position of supporting specific parks and the parks' activities only by conducting the ordinary day-to-day upkeep tasks. The designated manager system was considered an important system to facilitate and support the management of each large urban park. This system for Japan's urban parks began in 2003. Maeda and Shinji (2008) pointed out that the designated manager system of public facilities was introduced due to the revision of the Local Autonomy Law; urban parks as well as various public facilities owned by local governments were covered by the system. Factors that were reported to significantly influence the evaluations of park management by designated managers are 'safety' and 'proposal business' (Kaneko 1999; Ohtaki and Miyake 2007; Tsukada and Yuzawa 2008). Takeda et al. (2015) indicated that a gap was present between the park management

evaluation items that were currently used by local governments and those that the designated park managers wanted the local governments to adopt for annual evaluations.

At urban parks in Japan that have shown increasing deterioration of facilities, inflexibility, and accompanying problems in recent years, a new broadening of the concept of park management has become prominent based on the development of park facilities that make use of the vitality of the private sector. There is now an ongoing shift toward next-generation park management which makes parks easier to use through the active management and operation of the parks by private companies, designated managers, and other entities which more effectively use the vitality of the private sector.

At the same time, it has been speculated that the construction of new parks will decrease because the stock of urban parks in Japan has reached a saturation level. In these circumstances, it is thought that urban park renovation projects will become important tasks and business for landscape architects (Miwa et al. 2017; Hirata and Tachibana 2019). For example, a Private Finance Initiative (PFI) scheme has been applied to the development of urban parks in Japan; this scheme enables the use of business practices in urban parks by civic groups (Takeyama and Nakase 2007; Inbe et al. 2010). The scheme's aims are to promote the participation of private businesses and accelerate the redevelopment of deteriorating urban parks, with the objective of developing urban parks to suit the characteristics and needs of each park's local community.

As urban parks throughout Japan approach a time for renewal, there has indeed been increasing participation by private businesses. This helps to achieve redevelopment and maintenance while holding down costs, as is essential due to the financial difficulties of local governments driven by issues such as depopulation and the super-aging of Japan's population. The number of cases of private involvement in park management are expected

to increase based on "agreements to promote urban convenience," which were established based on a 2011 amendment of the Act on Special Measures concerning Urban Reconstruction in 2011, as well as due to the park development and Installation-Management Permission (IMP) of revenue-generating facilities by private businesses based on the 2017 amendment of the Urban Park Act. The purposes of revision of the act are to reduce urban parks' management costs and to renovate urban parks with profit-making facilities managed by private sectors (Song et al. 2018; Yamazaki et al. 2019).

A key feature of the drive to reduce park management costs is the above-mentioned agreements to promote urban convenience, i.e., the ability to use such agreements as a technique for institutionally securing park management efforts in the maintenance and utilization of public spaces (Izumiyama et al. 2015). In this context, Shiomi et al. (2019) discussed the possibility of "businesses utilizing urban parks," paying attention to the viewpoint of private enterprise. Specific research initiatives could clarify the motivations of private enterprises as "businesses utilizing urban parks," the conditions of urban parks where businesses are established, and more. However, there appear to be no published evaluations of cases of park management based on IMP in urban parks, or of the characteristics and results of such park management.

2. Research background

2.1. Deployment of park management in urban parks based on Installation-Management Permission (IMP)

In Japan, the general rule thus far for any sort of public land such as urban parks has been for the government itself to use the land for the public benefit, and even when such land has been used by the private sector, the number of uses for revenue-generating purposes

has been limited. To enhance the number of urban park functions and improve urban living environments in response to changing social conditions, new contributions by the private sector have begun to be encouraged. There has been a positive recognition of private revenue-generating activities at places such as public lands and public facilities.

Herein, I focus on TEN-SHIBA, the entrance plaza of Tennoji Park in Osaka City (Fig. 1). Based on IMP, the firm Kintetsu Real Estate Co., Ltd. (referred to hereafter as "Kintetsu") was selected through public recruitment and contracted by Osaka City for a "project to generate bustle" as a park renewal project at the entrance area to Tennoji Park, which had deteriorated and declined in popularity. The TEN-SHIBA project includes both 'hard' tasks (i.e., the installation and operation of facilities for selling food, beverages, and merchandise, and the development of the park and green spaces for generating bustle) and 'soft' tasks, i.e., event planning/implementation, public relations (PR) activities, cleaning/security, green space and facility maintenance, and other management/operations. The management of TEN-SHIBA is an advanced example of park management where a comprehensive effort is made by private business in both hard and soft tasks.

2.2. Background of TEN-SHIBA development

According to Osaka City (2015), Tennoji Park opened in 1909. The park covers about 26 hectares of undulating terrain, and it has attractive tourism resources including the Tennoji Zoo, the Osaka City Museum of Fine Arts, the famous Keitakuen Garden (which formerly belonged to the Sumitomo family), and Chausuyama, the setting of various historical events. On the occasion of the Tennoji Exposition held in 1987, the land on which Tennoji Park sits was redeveloped as a park rich in water and greenery and has since been

managed/operated as a fee-based park. Over 30 years have passed since then, and the need for the redevelopment of the park's facilities has arisen.

In particular, the Tennoji-Abeno district in which Tennoji Park is located is directly linked to Tennoji Terminal, the southern gateway of Osaka which links directly with Kansai International Airport. The park thus has an outstanding location, and it is positioned as a priority area in the Osaka Prefecture/City Strategy to Create Appeal formulated by Osaka Prefecture and City in 2012 (Hsiao 2020).

Tennoji Park is both rich in attractions — combining nature, history, and culture — and located at the city's center, and therefore the revitalization of the park by maximally exploiting its characteristics has been set forth as a key policy. In the pursuit of the best approach for the new park, based on the concept of "citizens in the starring role, government in a supporting role," it was decided to incorporate flexible and novel park management activities conducted by private businesses integrating the facility development (hard tasks) and strategic operation (soft tasks) in Tennoji Park.

3. Overview of this research

3.1. Research purpose

TEN-SHIBA is an advanced example of park management for a park-renewal project based on IMP. In the deployment of the park management approach used at TEN-SHIBA, the foundation is the hard tasks of the park-renewal project, and the soft tasks of management/operation are implemented on top of this foundation. In the present research, I excluded the Entrance Area TEN-SHIBA, Chausuyama Entrance Area, and the new Gate Area (approx. 5,000 m^2) which opened on November 22, 2019 because the necessary data have not been accumulated for these park areas. The purposes of the present study

were as follows.

(1) Clarification of the framework of park management: The hard tasks including the development process and spatial characteristics of the park-renewal project based on IMP at TEN-SHIBA are clarified first (section 4.1). The details of the soft tasks for generating bustle at TEN-SHIBA based on the hard tasks are then evaluated. The actual situation of the soft tasks at TEN-SHIBA was determined and assessed. The system of management/operation at TEN-SHIBA and the record of holding events via that system are described (section 4.2).

(2) Evaluation of park management results after the introduction of IMP: By taking the park's hard and soft tasks together as the park management and ascertaining and evaluating results achieved after the introduction of IMP, I summarize the park management results at TEN-SHIBA from the aspects of both park users (section 5.1) and financial effects (section 5.2).

3.2. Research framework and methods

Both quantitative and qualitative analyses were conducted to achieve the above-described purposes of this study. Figure 2 provides a flowchart illustrating the research framework and methods, which can be summarized as follows.

(1) Semi-structured interview surveys: Parties involved in the TEN-SHIBA park-renewal project, e.g., Kintetsu Real Estate Co. (the department and section managers in charge) were interviewed in June/July 2018. The responsible officer of the Economic Strategy Bureau of Osaka City, which is the primary organization implementing park management, was interviewed

in October 2020. The results of the analyses of these interviews are presented in sections 4.1 and 4.2.

(2) Site surveys: For the confirmation of the actual situation of the park's hard and soft tasks, site surveys were conducted multiple times in June/July 2018, April/May 2019, and July–November 2020. The findings are summarized in sections 4.1 and 4.2.

(3) Track record analysis: An evaluation of the park-renewal project's 'track record' of encouraging bustle was conducted. From the aspect of park users (section 5.1), this evaluation was based primarily on data obtained from the Kintetsu interview described at (1) above. To ascertain the number of park users, the line census system used by the TEN-SHIBA security staff was consulted. The monthly park-user data from 2015 to 2017 was acquired from the park operator Kintetsu, and semiannual changes were analyzed by calculating the average of months in each half-year. The term "first half" in the tables refers to April–September of the pertinent year, and "second half" refers to October–March. For the evaluation of the results from the aspect of financial effects (section 5.2,) the analysis was based primarily on data obtained from the Osaka City interview described at (1) above.

(4) Questionnaire: A questionnaire was administered to 418 randomly sampled TEN-SHIBA users over a four-day period (May 15, 16, 18, and 19, 2017) which was ~18 months after TEN-SHIBA opened. Items such as invalid samples were removed; the analysis was carried out on the remaining 414 samples, which included 208 samples of holiday users and 206 samples of weekday users. As each of these groups accounts for about one-half of the

samples, there is likely to be almost no bias in the samples.

Ten questions comprised the questionnaire. Questions 1 to 4 asked about the attributes of the TEN-SHIBA users, including gender, place of residence, age, and number of companions. Questions 5 to 7 asked the respondent about his/her use of TEN-SHIBA, the number of visits, facilities used, and the purpose of the respondent's visits. Questions 8 to 10 asked the respondents what facilities they desired, what type(s) of the services they desired, and their satisfaction with the current TEN-SHIBA.

(5) Tracking and observation survey: For a comparison of the park management at TEN-SHIBA where IMP was introduced, Sumiyoshi Park is used: a normal public-built and privately operated urban park without IMP. For the evaluation and comparison of the effects of park management at the two parks focusing on the park users, a park-user tracking and observation survey was conducted; this is a survey method with qualitative and quantitative characteristics that is considered an effective method for collecting accurate data in unrestricted, outdoor environments (Hill 1984). Several investigators conducted the survey at three periods throughout the day at the lawn plaza of TEN-SHIBA and the main plaza of Sumiyoshi Park, each on two dates. During each period of the survey, park users who entered the plaza area were randomly selected every 3 minutes, and attributes such as the apparent age of the park user and the number of individuals in groups were recorded. The length of time that the selected park users remained in the plaza was also recorded based on the time points at which they entered and left the plaza. The survey's results are summarized in Table 1. It should be noted that the ages of the park users were only estimated by the investigators, which may be a limitation of

this survey.

4. The park management of TEN-SHIBA

4.1. Hard tasks: The development of TEN-SHIBA by a park-renewal project

For the park-renewal project at TEN-SHIBA, potential operators were recruited via a call for operators to create appeal and conduct management/operations in the Tennoji Park entrance area, based on the Urban Park Act and the Osaka City park ordinance. Candidates then applied for permission to install and manage park facilities in accord with the Urban Park Act, providing the details of their projects (both hard and soft tasks) to generate bustle. The process stipulated that (1) a park use fee is to be paid continuously to Osaka City during the business period in accord with the scale and nature of the installed facility, and (2) during the business period, the operators are to maintain ownership rights over the installed facilities and equipment that they manage and operate, and to bear all of the associated costs. In addition, the process stipulated that on the final date of the business period (or within 6 months of the business cancelation date), the operators must return the business zones to Osaka City (with the exception of facilities donated to Osaka City) after the zones' restoration to their original state (with all costs borne by the operators).

Documents obtained from Osaka City show that the selection procedure for the Tennoji Park Entrance Area Appeal Creation and Management/Operation Project (the parent organization for TEN-SHIBA) started in 2014, and after steps such as site tours and the addressing of candidates' questions in response to the call for proposals, the screening was carried out by the project's Candidate Selection Committee composed of outside experts. Based on the committee's conclusions, Kintetsu was selected a the

operator in December 2014. After ~10 months of renewal work, TEN-SHIBA officially opened in October 15, operated by Kintetsu. In November 2019, an additional new facility named TEN-SHIBA i:na (pronounced "ee-nah") opened.

The IMP project at TEN-SHIBA includes the Entrance area (~25,000 m^2), a bus parking area (~1,160 m^2), and the Chausuyama North-East Area (~5,400 m^2). The project period is 20 years, from October 1, 2015 to September 30, 2035. As noted above, the park management of TEN-SHIBA consists of both hard and soft tasks. The hard tasks at TEN-SHIBA refer to the renewal and construction of facilities including the lawn plaza (~ 7,000 m^2), two convenience stores (one at the entrance and one at the Chausuyama North-East Area), seven shops offering sales of food, beverages, and merchandise, three sports facilities, and one hostel. The soft tasks at TEN-SHIBA are event planning/implementation, promotion activities, and maintenance/management, cleaning/security, and green space and facility management.

After its selection as the operator of TEN-SHIBA, Kintetsu moved forward with its project development, and the Kintetsu Group established community restoration and community contribution as goals based on its long history of business in the Tennoji area. Taking overseas parks such as Bryant Park in New York City as a reference point for TEN-SHIBA, the Kintetsu Group placed an approx. 7,000-m^2 lawn plaza at the center of the new development to make the park a place for relaxation during ordinary times and a bustling event space at special times. Kintetsu invited facilities (tenants) that were highly compatible with the lawn plaza and park. The details are as follows and are illustrated in Figure 3.

A) Convenience facilities (offering sales of food, beverages, and merchandise):

These are anchored by a cafe (the circled '2' in Fig. 3) and a convenience

store (the circled '3'), the standard park convenience facilities such as restrooms and vendor machines, and a gardening merchandise shop (#1) and various dining/drinking establishments, for a total of eight facilities.

B) Sports facilities: The sports facilities in the park are a futsal court (#11 in Fig. 3), a dog run (#9), and a hybrid playground combining an indoor section with the theme of "playful experiences" for nurturing healthy children (#10), and an outdoor playground, for a total of three facilities.

C) Tourism facilities: A guest house called the Kintetsu Friendly Hostel, Osaka Tennoji Park (#12 in Fig. 3) was built near the TEN-SHIBA entrance, and it is attracting a lot of attention as a new facility never seen before in a park. Due to the hostel's design with a fresh and clean atmosphere and inexpensive lodging fees, 70% of the users are from outside Japan; the hostel is becoming an important magnet for tourists visiting the Tennoji area. There is a bus boarding point at one corner of TEN-SHIBA, and on the first floor of the guest house, there are two facilities, a bus shelter and an international tourist information center (#13).

Low-rise wooden buildings were chosen as the design for each shop and facility. The view of the buildings from the surrounding area was taken into account when the buildings' roof colors were chosen, and colors were used that harmonize with a park rich in greenery, with a lawn plaza and plantings. In addition to the permanent facilities, there are seasonal constructions such as marsh-reed screen tents and hanging tarps between trees for shade in the summer. Sufficient lighting is provided so that park users can also enjoy the lawn plaza, restaurants, and cafe at night.

4.2. Soft tasks: The current management/operation of TEN-SHIBA

As described above, a key point of park management is not just the development of 'hard' aspects of a park; continuous management and operation are crucial to make the park facilities enjoyable and easy to use. This section describes the actual, 'on the ground' circumstances of the management and operation of soft tasks deployed based on the hard task of the park-renewal project at TEN-SHIBA.

4.2.1. Soft tasks, part 1: Cleaning and security

Cleaning work involves primarily tasks such as routine patrol cleaning, picking up litter, and collecting fallen leaves in areas like garden paths and the lawn plaza. In the park restrooms, the floors and plumbing (sinks and toilets) must be cleaned regularly, and sanitary supplies (e.g., toilet paper) must be replenished. For all in-park facilities, the surfaces of signs, information boards, and the like must be periodically cleaned, as must benches, tables, and handrails. Weeds growing in the lawn plaza or on garden paths must be removed, and unsanitary matter such as pet feces and dead animals and birds must be quickly disposed of. Refuse produced inside the park must be sorted and collected from the designated sorted refuse stations. Sorting management is performed with shared refuse storage bins (ordinary business waste, material for recycling, industrial wastes) (Hsiao 2020).

Regarding the park's cleaning system, the frequency of patrol cleaning is increased during the park's busy season and on weekdays, and the number of cleaning staff is increased during summer vacation and the spring cherry-blossom viewing season. Training for cleaning staff is provided four times a year with instruction on the methods of cleaning, work equipment, new information on toilet cleaners and other chemicals,

safety education, and skill improvement. This training is provided to both impart the knowledge needed for the work and to improve the park's response to park users. The cleaning system is as follows, and the details of the work record are as indicated in Table 2.

Pattern A: The cleaning system for Saturdays, Sundays, and holidays in the spring, summer, and fall. There are three cleaning staff, and the total work time is 20 hr, with two cleaners working 8:00 a.m. to 17:00 p.m. (with a 1-hr lunch break for a net working time of 8 hr), and one cleaner working 8:00 a.m. to 12:00 noon (4 hr). In fiscal 2017, the system was switched to two cleaning staff and a total work time of 16 hr, with both cleaners working 8:00 a.m. to 17:00 p.m. (with a 1-hr lunch break for a net working time of 8 hr).

Pattern B: The cleaning system for weekdays in the spring, summer, and fall, and Saturdays, Sundays, and holidays in the winter. There are three cleaning staff, and the total work time is 16 hr, with one cleaner working 8:00 a.m. to 17:00 p.m. (with a 1-hr lunch break for a net working time of 8 hr), and two cleaners working 8:00 a.m. to 12:00 noon. In fiscal 2017, the system switched to two cleaning staff and a total work time of 12 hr, with one cleaner working 8:00 a.m. to 17:00 p.m. (with a 1-hr lunch break for a net working time of 8 hr), and one cleaner working 8:00 a.m. to 12:00 noon (4 hr).

Pattern C: The cleaning system for weekdays in the winter. There are two cleaning staff, and the total work time is 12 hr, with one cleaner working 8:00 a.m. to 17:00 p.m. (with a 1-hr lunch break for a net working time of 8 hr), and one cleaner working 8:00 a.m. to 12:00 noon (4 hr).

The core security work is carried out by three security personnel, and it involves regular

patrols and inspection inside the park and park facilities as well as extra patrols in case of a typhoon or earthquake. The security tasks include unlocking/locking gates and facilities at specified times and checking for people remaining in the park or restrooms. The number of security staff is increased during spring vacation and the cherry-blossom viewing season, and overnight management is performed with both mechanical security and security cameras. To impart the necessary knowledge and improve the park's response to park users, education for current security staff is provided twice a year, including training in AED (automated external defibrillator) use. The security system is as shown in Table 3.

4.2.2. Soft tasks, part 2: Turf and planting management

4.2.2.1. Overview of work

The central soft task is the management of the lawn plaza, which is the showpiece of TEN-SHIBA. The lawn-mowing in the surrounding area is performed while ensuring the health and safety of both workers and park users. Regarding the types of turf, mowing is performed from spring to fall for *Zoysia japonica* and Tifton, and for ryegrass, mowing is performed as appropriate in the period from fall to spring. When allowing the park's turf to recuperate, the key point is to not impose a complete shutdown; it is important to maintain the park's bustle while securing space where park users can relax. The turf recuperation is performed in one-week units at areas with severe damage caused by heavy use by park users.

Seeding or re-covering is performed, and at times when many users are expected (such as Saturdays, Sundays, holidays, and event days), the widest possible area is left open while the turf is allowed to recuperate. Water sprinkling and aeration are performed

while avoiding dispersion to surrounding areas, vibration and noise, and contact with park users. Fertilization and insecticide or fungicide applications take into account the park hours and park attendance, and weeding work is performed in accord with the growth situation of weeds (Hsiao 2020).

For plantings, pruning is carried out separately for trees and shrubs, taking care not to interfere with park users. Inspection is periodically carried out for damage caused by diseases and insects, and pest control is performed. At times of abnormal weather, patrol inspections are carried out to check for problems with the managed trees and turf, and any issues are dealt with. The details of turf and plant management are summarized in Table 4.

4.2.2.2. Evaluation of the park project's track record

The turf/planting management track record is summarized in Table 5, which also indicates whether the actual number of implementations of each item of turf and planting management shown in Table 4 out exceeded (as "More than planned" in Table 5) or was equal to (as "Achieved" in Table 5) the planned implementations. When the actual number of implementations was lower than the planned implementations and when there was no numerical value of planned implementations, the result "Not achieved" was entered in Table 5. As can be seen, efforts were first made from fiscal 2015 to 2016 to bolster the content of the work, and the track record of work implementation improved greatly from fiscal 2016 to 2017. This management record was evaluated herein based on the implementation rate calculated as follows:

Implementation rate: [Actual number of implementations achieved or exceeding the planned number of implementations/Planned number of implementations] × 100%

The types of work for which a planned number of implementations was not indicated (see Table 5) were excluded from this calculation. The overall average for turf/planting management was 33.3% in fiscal 2016, and in fiscal 2017 it rose to 61.1%, or almost double that of the previous year, revealing a major improvement. As shown in Table 4, the planned number of implementations for each type of work was actually the same in both fiscal 2016 and 2017, and the significant increase stemmed from the fact that in fiscal 2016 there were many items for which the actual number of implementations was lower than the planned number (Table 5, "N = Not achieved" column), and in fiscal 2017 the actual number of implementations was larger than the planned number (Table 5, "More than planned" column).

4.2.3. System for collaboration with diverse actors in the local community

4.2.3.1. Collaboration system

As noted earlier, the main purpose in developing TEN-SHIBA was to improve the appeal of Tennoji Park and revitalize the Tennoji/Abeno area. The importance of a system for collaboration among the TEN-SHIBA park operator, the city of Osaka, and members of the local community was also emphasized in the management/operation plans for TEN-SHIBA. Many local groups have been active in the area surrounding Tennoji Park, including the Welcoming Abeno-Tennoji Campaign Secretariat and the Uemachi-Daichi Mild Hope Zone Conference. To ensure that the TEN-SHIBA operator collaborates and shares information with these local groups, and to ensure adequate collaboration within Tennoji Park, a collaborative system was developed with the Tennoji Park Liaison Council (secretariat: Osaka City) comprised of management bodies for the Tennoji Zoo Office, the Osaka City Museum of Fine Arts, and others (Fig. 4) (Hsiao 2020).

4.2.3.2. Evaluation of Tennoji Park's track record

To improve the appeal of Tennoji Park and achieve its revitalization, various events are held at TEN-SHIBA as one of the soft tasks, based on the collaboration system with the local community. The track record of these events is shown in Table 6. In fiscal 2015, the focus was large-scale events with a large number of attendees both per time and per day, but since 2016, a trend toward more days has been evident due to the larger number of events, and in fiscal 2016 and 2017, the number of attendees both per time and per day were far lower than the record in fiscal 2015. A new trend was thus evident in the operating approach: striving to generate continuous bustle rather than aiming for large but transient numbers of participants.

5. Evaluation of the park management results at TEN-SHIBA

5.1. Evaluation based on park user aspects

5.1.1. The TEN-SHIBA users' questionnaire responses

To examine the results of park management at TEN-SHIBA, let us first look at the use situation. Based on changes in the use situation at TEN-SHIBA from the beginning of operation in 2015 to 2017, it is evident that there have been major ups and downs in the total number of park users and the total number of shop users depending on the time period, but the percentage of shop users has consistently risen, growing from 24.5% in the second half of 2015 to almost twice that (47%) in the second half of 2017. This likely reflects the fact that, without any dependence on the Tennoji Zoo — previously the showpiece of Tennoji Park — there has been a steady increase in park users visiting the park's shops, due to the increase in the appeal and recognition of TEN-SHIBA and the

shops located there (Table 7). Regarding the number of visitors to Tennoji Park as a whole, it was less than 1.5 million a year in 2012 before the introduction of IMP, but in 2016 (the year after the introduction of IMP), it was 2.6 times that number at 3.79 million. The annual number of visitors to Tennoji Park has been increasing year by year since then, and as of 2019, it reached 5 million (Table 8).

Next, to determine the characteristics of the population of TEN-SHIBA users among the Tennoji Park users, the results of the questionnaire were analyzed. The questionnaire revealed that regarding the TEN-SHIBA users' places of residence, about 10% were local residents of the wards Tennoji and Abeno, 31% were from Osaka City outside those two wards, 30% were from places in the surrounding Osaka Prefecture, and 12% were from the wider Kinki (Kansai) region. Thus, most of the TEN-SHIBA users were local residents who generally came from the various areas of the Kinki region. Park users from outside the Kinki region accounted for only ~6.5%, and thus there is room improvement in drawing park users from a broader population (Table 9).

Looking at the number of uses, the percentage of first timers was about 30%, and the percentage who had used TEN-SHIBA two times or more was very high at 69.8%. The average number of uses was ~10, and thus the number of repeat users of TEN-SHIBA is extremely high. This shows the users' fondness for TEN-SHIBA (Table 10).

In terms of the purposes of the park's use, the use of the lawn plaza accounted for the majority of responses, and demonstrating the importance of the lawn plaza at TEN-SHIBA. In particular, >60% of the park users on holidays reported coming to the park specifically for the lawn plaza. On weekdays, in contrast, taking a walk rivaled the use of the lawn plaza at 34%, and it can thus be presumed that much of the use on weekdays is by local residents. Another notable point is that uses other than for TEN-SHIBA, but

rather the park's use incidental to a visit to the zoo or the Osaka City Museum of Fine Arts ranked 3rd on average, accounting for 11.5% of the park uses (Table 11). If this is compared against the actual situation at the used facilities, use of the lawn plaza is greatest on average at 83.2%, followed by convenience facilities as a whole at 50%; the breakdown by convenience facilities is 25.1% on average for the convenience stores and 20% for other food and drink establishments. In contrast, the present usage of the park's sports facilities and tourism facilities is comparatively low, and users at TEN-SHIBA are focused on the lawn plaza and convenience facilities (Table 12). Going forward, it will likely be important to make efforts to improve the recognition and increase the number of users of facilities where the usage is low.

Finally, regarding the TEN-SHIBA users' satisfaction with the park, those responding "very good" accounted for 30% of the total on average, and those responding "good" accounted for 60%. Combining these two, about 90% of the users overall gave a "good/very good" evaluation, establishing that most of the park's users are satisfied with TEN-SHIBA. However, it will be necessary in the future to establish more detailed evaluation items, and to measure the park users' satisfaction with greater refinement by looking at individual facilities and specific service content, and thereby elucidate specific factors (Table 13).

5.1.2. Comparison with Sumiyoshi Park

As shown in Table 14 and Figure 5, Sumiyoshi Park is highly similar to TEN-SHIBA in terms of the scale of the plaza and the entire park as well as the surrounding environment, and it can thus be considered an appropriate comparison target. On the other hand, in Sumiyoshi Park, there are only plazas and sports facilities in contrast to TEN-SHIBA,

which has various functions such as convenience stores and tourism facilities in addition to sports facilities — due to the introduction of IMP. In other words, although the two parks are equivalent in their basic attributes, there is a major difference in the two parks' management methods, and they provide a good contrast for comparison.

The totals of 307 (656) and 212 (295) groups (people) of users participated in the surveys conducted at TEN-SHIBA and Sumiyoshi Park respectively, and based on their responses, the features of each park's users are summarized as follows. The average of number of users per group at TEN-SHIBA and Sumiyoshi Park are 2.33 and 1.48 people respectively, making it quite clear that TEN-SHIBA has had more groups of users rather than single users. In terms of the users' age groups, the greatest numbers of users of TEN-SHIBA (in descending order) were in their 20s, 10s, 30s and 40s whereas the greatest numbers of users of Sumiyoshi Park were in their 60s, 20s, 30s and 40s. At TEN-SHIBA, young people (20s or younger) account for ~49.8% of the users, whereas at Sumiyoshi Park, the major users are older, i.e., in their 60s.

Regarding gender, females accounted for 54.5% of the TEN-SHIBA users while males accounted for 51.5% of the Sumiyoshi Park users, showing a clear difference. The average length of time spent on the lawn plaza of TEN-SHIBA (see Fig. 3) was roughly 6 minutes, versus ~4 minutes in the main plaza of Sumiyoshi Park (see Fig. 5). It thus appears that park users are willing to stay longer at the lawn plaza at TEN-SHIBA (Table 14). Taking the above findings together, it can be concluded that although TEN-SHIBA is used mainly by groups of younger females, Sumiyoshi Park is used mostly by single females. In fact, females in their 20s accounted for 17.2% of all park users of TEN-SHIBA and might be considered the major user group. In addition, since the average stay on the lawn plaza of TEN-SHIBA is 2 minutes longer than that on the main plaza of Sumiyoshi

Park, it appears that the TEN-SHIBA lawn plaza is more comfortable for users.

5.2. Evaluation of financial effects

The effects of the differing park management methods on financial aspects of TEN-SHIBA are described next. Since Tennoji Park, where TEN-SHIBA is located, is a public park in Osaka City, I focus herein on the fiscal balance of Osaka City. First, as an initial investment for the hard tasks of TEN-SHIBA, namely the renewal of the entrance area, Osaka City paid 100 million yen and Kintetsu paid 1.5 billion yen. The City's income from TEN-SHIBA is roughly 32 million yen per year from Kintetsu, whereas the expenditure is 7 million yen per year (Table 15). After the introduction of IMP, the maintenance costs of TEN-SHIBA covered by Osaka City decreased significantly from 37 million yen to 7 million yen per year. Further, approx. 31–37 million yen has been generated by TEN-SHIBA and paid by Kintetsu to Osaka City each year since the introduction of IMP. Although the details of this income are not disclosed by Kintetsu, the income is mainly tenant income from individual facilities (including restaurants and other shops), advertising income, and income from holding paid events (e.g., participation fees).

There has also been a positive financial effect on the reduction of administrative expenditures by Osaka City. Approximately 60 million yen is now saved every year since the introduction of IMP in 2016, and the savings is increasing year by year. The total effect of the above-described income/expenditure balance was an annual deficit for the City of ~37 million yen, but since the introduction of IMP, the balance has provided a surplus and is on an increasing trend. In 2019, TEN-SHIBA produced about 97 million yen. It can thus be said that the introduction of IMP has eliminated the financial burden

that Osaka City had been carrying for a long time. IMP could therefore be considered an effective public-private partnership park management method to create a stable financial scenario for government entities (Table 15).

Kintetsu has been operating businesses based in the Tennoji area for more than 100 years since 1914, and with the long-term regional revitalization of the Tennoji area, the contract period for Kintetsu was finally decided as 20 years under discussions with Osaka City. Since the contract period of IMP is generally 10 years according to the Urban Park Act and as a matter of fact it actually takes about only 13 years to recover the initial cost of 1.5 billion yen invested by Kintetsu, the case of IMP of TEN-SHIBA is considered to be longer than usual. However, when introducing IMP in other areas in the future, it is not always necessary to set the IMP contract based on 20 years; the contract can be set as a shorter period depending on the actual situation of the area and the content of the business.

6. Results

TEN-SHIBA is an advanced example of the park management of a park-renewal project based on IMP. The results of the present study can be summarized as follows. The analyses have helped determine the project's actual situation in terms of both hard and soft tasks. A lawn plaza (a hard task) was adopted as the centerpiece of the TEN-SHIBA park-renewal project — taking overseas parks as a reference point — and the development envisions the park as a relaxation space during ordinary times and an event space on special occasions. The facilities at TEN-SHIBA are quite diverse. They include a cafe, convenience stores, and various dining and drinking establishments that fit well with the lawn plaza and park, sports facilities that are crucial within the framework of a

park, facilities targeted at users with pets or children, and users interested in casual ball games. For the enhancement of tourism in and around Tennoji, tourism facilities are now provided, i.e., a tourist bus boarding point and an international tourism information center. Low-rise wood buildings were chosen for each shop and facility, and the view of the park from the surrounding area was taken into account when choosing the roof colors. Unity was achieved with a color that harmonizes with the lawn plaza and plantings. Lighting is now present so users can enjoy the centerpiece lawn plaza, restaurants, and other facilities even at night.

The present management/operation of soft tasks accompanying the development of the hard tasks includes the cleaning and security and their associated systems as evaluated herein. The management of the lawn and plantings (the core of soft tasks) was examined, revealing that the content of this work was bolstered from fiscal 2015 to 2016, and the work implementation record was greatly improved from fiscal 2016 to fiscal 2017. Judging from the 'implementation rate' indicator established in this paper, there was tremendous growth: from an overall average of 33.3% for lawn and planting management in fiscal 2016, to 61.1% in fiscal 2017.

Regarding the users of Tennoji park, after the introduction of IMP, the annual number of visitors to Tennoji Park as a whole has risen from about 1.4 million to over 5 million in 2019, or approx. 3.3 times the number before the introduction of IMP. Further, 69.8% of the TEN-SHIBA users reported visiting TEN-SHIBA two times or more, revealing that the number of repeat users is extremely high. In addition, 83.2% of the TEN-SHIBA users use the lawn plaza, and ~90% of users overall gave a "good/very good" evaluation and were satisfied with TEN-SHIBA. The questionnaire responses demonstrated that the users of TEN-SHIBA have been mainly groups of younger females,

which is quite different from the profile of the users of Sumiyoshi Park, which is a park with features similar to those of TEN-SHIBA but without the introduction of IMP. The present finding that the average stay on the lawn plaza of TEN-SHIBA is 2 minutes longer than that of Sumiyoshi Park might be an effect of the soft tasks in Tennoji park.

Another positive result of this study's analyses is the total financial effect generated by TEN-SHIBA; that is, about 97 million yen was saved in 2019 by reducing administrative expenses from Osaka City and by producing new income from Kintetsu earn from the operation of convenience and tourism facilities.

Based on the above results, it can be concluded that the hard tasks (e.g., facility construction) and soft tasks (operation systems) for the park management at TEN-SHIBA have been quite effective. The main implication of this study's results is that by introducing IMP, unnecessary administrative expenditures due to administrative management might be reduced first. Further, placing a plaza space in the center of the park where many people can stay, and providing various functions and convenience facilities that can generate profits by private business operators around the plaza space might be an effective model for future park management. Nevertheless, software efforts such as the continuous management and upkeep of plaza spaces and events held in cooperation with local actors are also indispensable for a park's success.

In the case of TEN-SHIBA, the contract period is set longer, i.e., 20 years, based on the history of the IMP operators' activities in the Tennoji area. For the introduction of IMP in other cases in the future, it is considered essential to set the contract period flexibly based on factors such as the scale of the park, the business content, and the type of business operator.

7. Discussion

When the results of park management at TEN-SHIBA were examined from the perspective of the park users, the number of users stably exceeded 100,000 people per year on average over the past three years. The number of shop users at TEN-SHIBA was 24.5% of the park users in the second half of 2015, and visits to the park's shops grew dramatically after that, almost doubling to 47% in the second half of 2017. In addition, the analysis of the questionnaire responses of TEN-SHIBA users showed that there is currently an extremely large number of repeat users, and users who come for the park's lawn account for the majority. This shows the importance of the lawn plaza at TEN-SHIBA. The percentages of users of the various facilities showed that the current average was 83.2% for the lawn plaza and slightly less than 50% for convenience facilities. This indicates that TEN-SHIBA users are concentrated at the lawn plaza and convenience facilities, and efforts are needed to improve the recognition and increase the users of facilities that are used less, e.g., the sports and tourism facilities. Finally, in the park users' evaluations of their satisfaction, good or very good evaluations were obtained from 90% of the users, indicating that at present, most of the users are satisfied with TEN-SHIBA. However, it is necessary to ascertain more detailed factors in a future study, and an evaluation of park users with a focus on the new gate area which opened in 2019 is needed.

Tennoji Park was originally used as a hangout for the elderly participating in street karaoke. As described above, with the introduction of IMP, additional functions and convenience facilities have been provided in TEN-SHIBA in addition to the lawn plaza, and the park is now being used mainly by groups of young females. The use of the park by elderly people appears to have decreased significantly since the introduction of IMP and renewal of TEN-SHIBA, and this is a concern. Such a homogenization of park users

at TEN-SHIBA and polarization with users of other parks such as Sumiyoshi Park are major issues that need to be addressed. It might be effective to provide more diverse functions and facilities that allow more diverse groups of users to coexist in TEN-SHIBA in the future.

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Disclosure

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Table 1: Collected group (total no.) of park users by the observation survey

		TEN-SHIBA		Sumiyoshi Park	
Date		26 Oct 2019	14 Nov 2020	31 July 2020	14 Nov 2020
Investigators		10	7	5	5
Period	10–13 p.m.	60 (140)	44 (86)	42(66)	49 (68)
	14–17 p.m.	55 (131)	54 (106)	20(26)	50 (73)
	18–21 p.m.	46 (105)	48 (88)	–	50 (62)
Subtotal		161 (376)	146 (376)	62 (92)	149 (203)
Total		307 (656)		212 (295)	

Table 2: Cleaning system patterns

	Total no. of days and total time of implementation					
	Fiscal 2015		**Fiscal 2016**		**Fiscal 2017**	
Pattern A	30	600	93	1,860	92	1,472
Pattern B	93	1,488	213	3,408	273	3,276
Pattern C	60	720	59	708	–	–
Total	183	2,808	365	5,976	365	4,748

Table 3: Implementation hours per day by security work type

Work type	Time slot	Fiscal 2015	Fiscal 2016	Fiscal 2017
Gate opening	7:00 am	1	1.5	1
Gate closing	22:30 pm	1.5	1.5	1.5
East standing guard	11:00 am–22:00 pm	14	14	11
Patrol	11:00 am–6:00 am the following day	9.5	9	11
West guard	11:00 am–22:00 pm	2	2	4.5
Break	13:00–19:00	6	6	3
Standby	23:00 pm–00:00 pm	2	2	1
Total no. of hours implementing security work		36	36	33

Table 4: No. of actual/planned implementations of turf/planting management

Work type and items		Fiscal 2015		Fiscal 2016		Fiscal 2017	
Turf management (10 items)	Lawn mowing	1	△	3	28	25	28
	Spiking	1	△	2	3	17	3
	Sand application	X	△	1	2	9	2
	Fertilizer and activator application	1	△	10	5	38	5
	Ryegrass seeding	X	△	2	1	8	1
	Insecticide and fungicide application	0	△	0	4	3	4
	Weeding (manually)	3	△	2	5	5	5
	Sprinkling	0	△	9	40	91	40
	Recuperation (keep out users / heat insulation sheet)	X	△	32	–	89	–
	Other special work	X	△	4	–	21	–
Planting management (8 items)	Tree / Shrub pruning	3	△	3	3	6	3
	Hedge pruning	X	△	1	1	6	1
	Weeding	0	△	1	6	16	6
	Fertilizing application	1	△	2	2	2	2
	Chemical application	1	△	0	5	4	5
	Sprinkling	△	△	0	10	85	10
	Other maintenance	–	△	0	–	68	–

X: No pertinent work. **–:** No plan to implement. △: No clear indication.

Table 5: Implementation rate for turf/planting management by fiscal year

Indicator / Work type	No. of items of turf and planting management of fiscal 2016/ 2017									
	Achieved (a)		More than planned (b)		Not achieved (c)		Total (d)=(a+b+c)		Implementation rate (e)=(a+b)/(d)	
Turf management average	0	1	2	5	8	5	10	10	20.0%	60.0%
Planting management average	3	1	1	4	4	2	8	8	50.0%	62.5%
Subtotal / (Overall average)	3	2	3	9	12	7	18	18	33.3%	61.1%

Table 6: Record of events at TEN-SHIBA

	Fiscal 2015	**Fiscal 2016**	**Fiscal 2017**
No. of events, times	12	23	20
Total no. of event days, days	14	97	87
Total attendance, people	162,638	228,242	125,388
Total no. of collaborating groups	12	16	15
Attendance per time, people	13,553	9,924	6,269
Attendance per day, people	11,617	2,353	1,441

Table 7: No. of visitors to TEN-SHIBA and to shops at TEN-SHIBA

	Total park visitors (a)	**No. of whom visited shops (b)**	**Percentage visiting shops (b/a*%)**
2015, 2nd half	348,276	85,183	24.5%
2016, 1st half	350,667	129,000	36.8%
2016, 2nd half	282,000	109,333	38.8%
2017, 1st half	391,500	173,000	44.2%
2017, 2nd half	307,893	144,686	47.0%

Table 8: No. of annual visitors to Tennoji Park before and after the introduction of IMP

Year	2012	2016	2017	2018	2019
Visitors	1,436,000	3,796,000	4,197,000	4,399,000	5,028,000

Table 9: Place of residence of TEN-SHIBA users

	Weekdays	Holidays	Average
In Tennoji Ward	3.9%	4.6%	4.3%
In Abeno Ward	7.8%	5.8%	6.8%
In Osaka City, except for the above two wards	28.6%	33.7%	31.2%
Sakai City, Osaka Prefecture	9.7%	7.7%	8.7%
In Osaka Prefecture, except for the above two cities	31.5%	29.3%	30.4%
In Kinki area, except for the above	11.2%	13.0%	12.1%
Other	7.3%	5.9%	6.5%
Subtotal	100%	100%	100%

Table 10: No. of visits by TEN-SHIBA users

	Weekdays	**Holidays**	**Average**
1st time	26.2%	34.1%	30.2%
2nd time	16.5%	14.4%	15.5%
3rd time	14.1%	10.1%	12.1%
4th time	4.9%	3.6%	4.3%
5th–9th time	13.6%	16.3%	15.0%
10th–19th time	13.5%	11.6%	12.6%
20th time or more	11.2%	9.6%	10.4%
Subtotal	100%	100%	100%
Average no. of times	13.4	7.3	10.3

Table 11: Purpose of the use of TEN-SHIBA (multiple responses)

	Weekdays	Holidays	Average
Relax on the lawn	34.0%	**67.3%**	**50.7%**
Other use of the lawn	0.5%	0.5%	0.5%
Participation in event	1.0%	9.1%	5.1%
Shopping at store(s)	2.9%	1.9%	2.4%
Dining at shop	10.2%	6.7%	8.5%
Other facility use	10.2%	2.9%	6.5%
Walk	**34.4%**	10.6%	**22.5%**
Walking a pet	1.5%	3.4%	2.4%
Killing time	14.8%	7.7%	11.1%
Zoo, art museum, other	**13.1%**	**10.6%**	**11.5%**
Uncertain	0.5%	0.0%	0.2%

Table 12: Facilities used by TEN-SHIBA users (multiple response)

	Weekdays	**Holidays**	**Average**
Lawn plaza	75.9%	90.4%	**83.2%**
Convenience facilities (facilities offering sales of food, beverages, merchandise)	45.0%	46.3%	**45.7%**
Sports facilities	20.8%	14.9%	17.9%
Tourism facilities	0.5%	0.5%	0.5%

Table 13: Evaluation of satisfaction by TEN-SHIBA users

	Weekdays	**Holidays**	**Average**
Very good	28.6%	37%	32.8%
Good	63.6%	57.7%	60.65%
Can't say either way	7.8%	5.3%	6.55%
Not very good	0%	0%	0%
Not good	0%	0%	0%
Subtotal	100%	100%	100%

Table 14: Facilities used by TEN-SHIBA users (multiple responses)

		TEN-SHIBA	Sumiyoshi Park
Basic attributes	Operation	Public park with IMP	Public-built privately operated
	Plaza area	25,000 m^2	22,000 m^2
	Total area of park	~100,000 m^2 (Osaka City Museum and Osaka Tennoji Zoo excluded)	~80,000 m^2
	Location	Tennoji Ward, 6.8 km from Osaka Station, the gateway of Osaka City	Sumiyoshi Ward, 10 km from Osaka Station
	Accessibility	35 m to the nearest railway station	36 m to the nearest railway station
	Surrounding environment	Mainly residential areas, and close to the historical resources Keitaku Garden and Chausuyama Grave	Mainly residential areas, and close to the historical resource Sumiyoshi Grand Shrine
Features of park users (average)	No. of users	2	1
	Age	20s: 30.8%; 10s: 19%; 30s: 15.9%; 40s:12.3%	60s: 17.9%; 20s: 17.2%; 30s: 15%; 40s: 13.5%
	Gender	M: 45.5%, F: 54.5%	M: 51.5%, F: 48.5%
	Time staying in plaza	6 min	4 min

Table 15: Financial effects by PM before and after the introduction of IMP in TEN-SHIBA users (unit: million Yen)

Year	**Income and expenditure**	**Financial effect (reduction of administrative expenses)**	**Total effect**
2015, Before the introduction of IMP	Expenditure: −37 Income: 0 Total: −37	0	**−37**
2016, After the introduction of IMP	Expenditure: −7 Income: 31 Total: 24	61	**85**
2017	Expenditure: −7 Income: 32 Total: 25	62	**87**
2018	Expenditure: −7 Income: 36 Total: 29	66	**95**
2019	Expenditure: −7 Income: 37 Total: 30	67	**97**

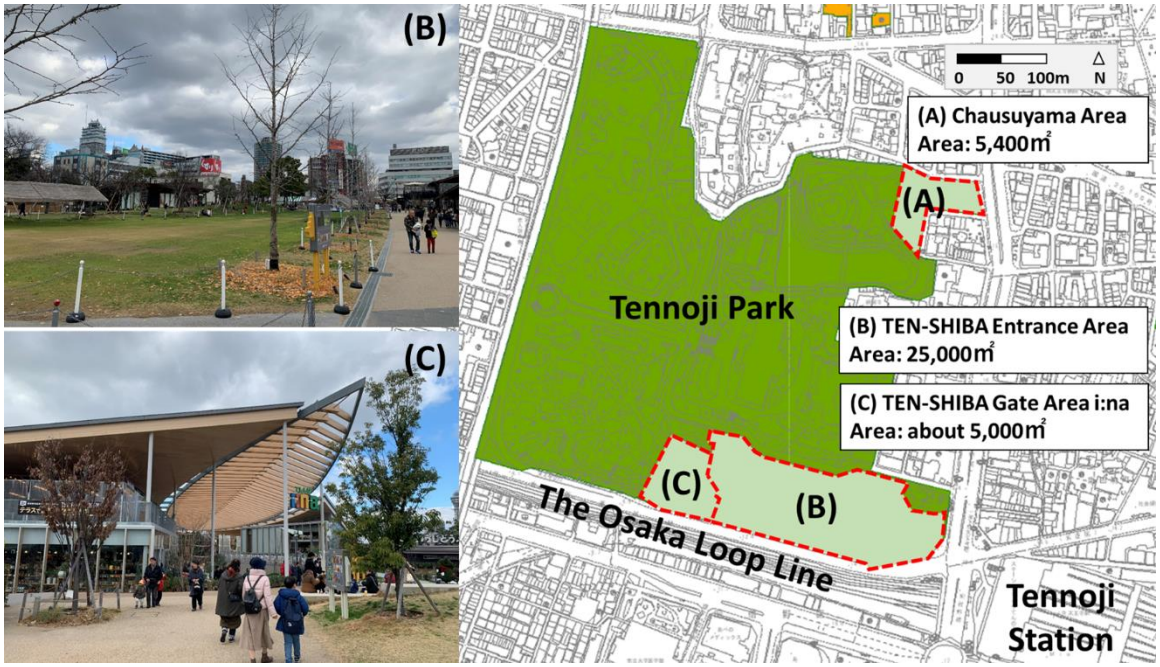

Fig. 1 Location of TEN-SHIBA

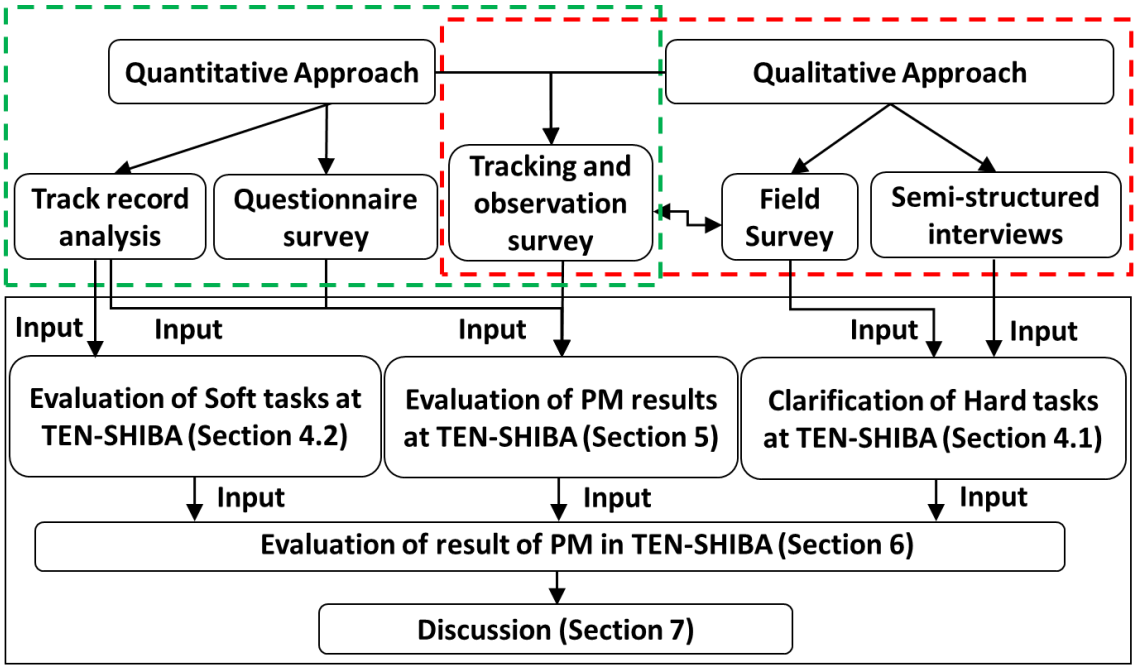

Fig. 2 Research framework and methods

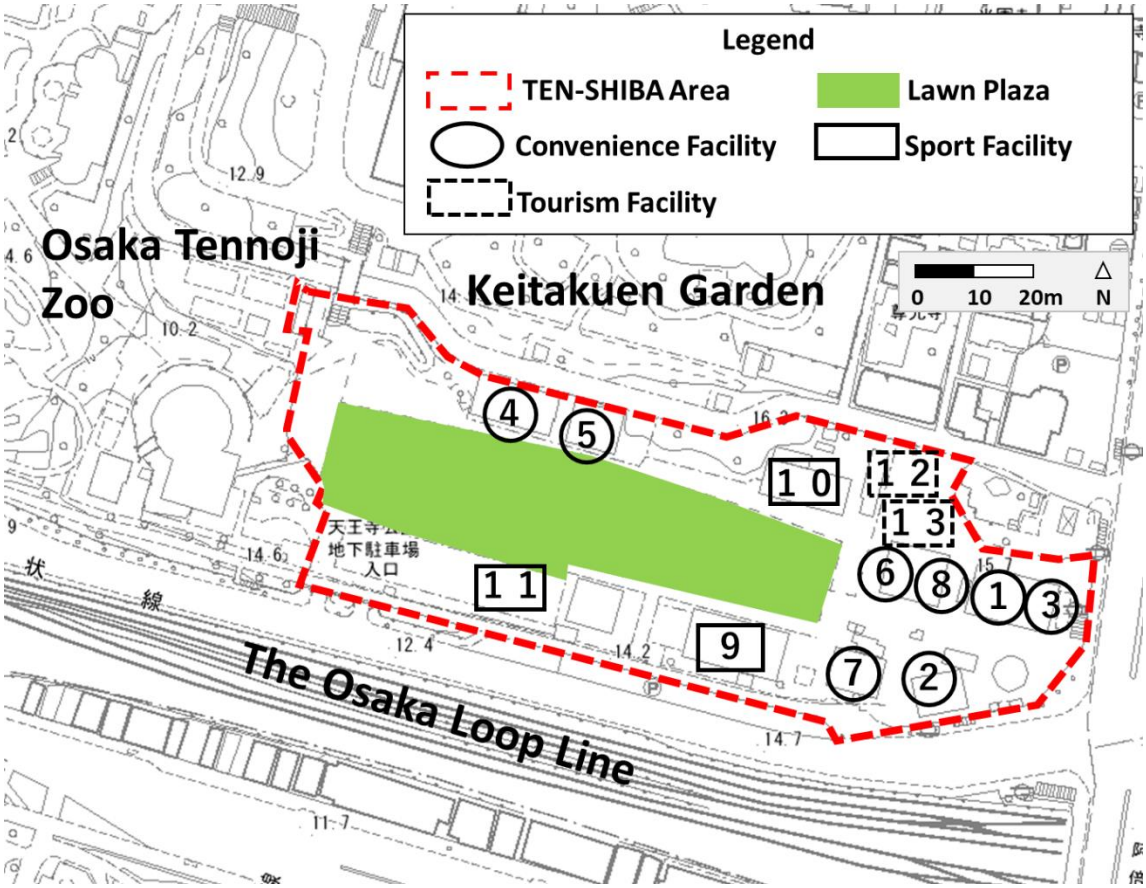

Fig. 3 TEN-SHIBA facilities

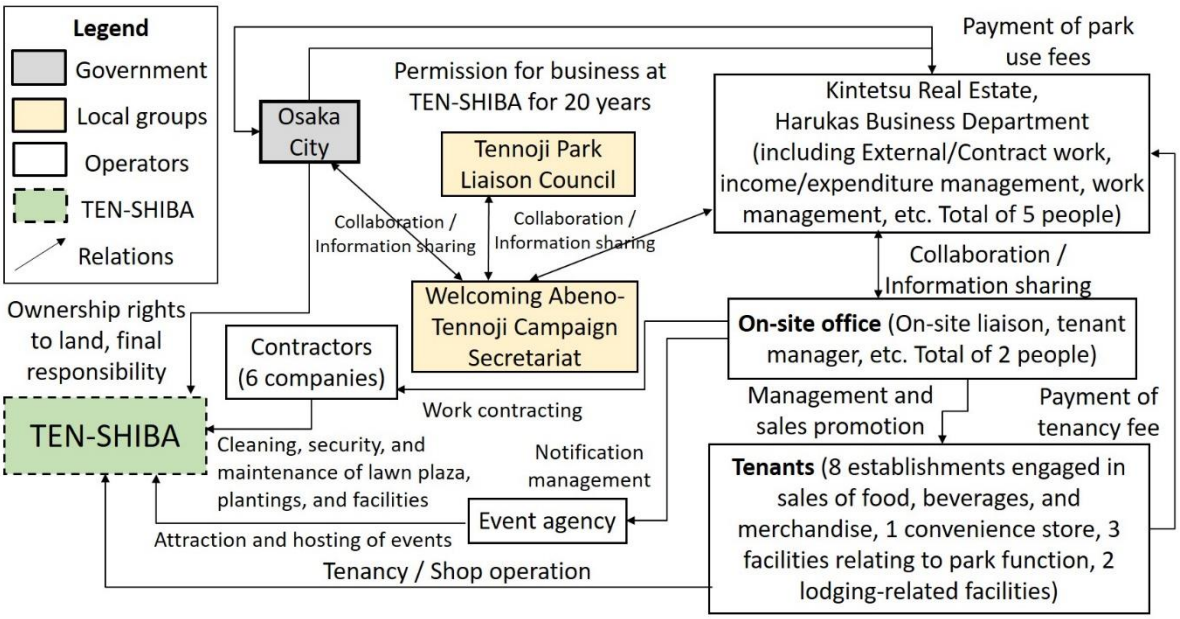

Fig. 4 System for TEN-SHIBA management/operation

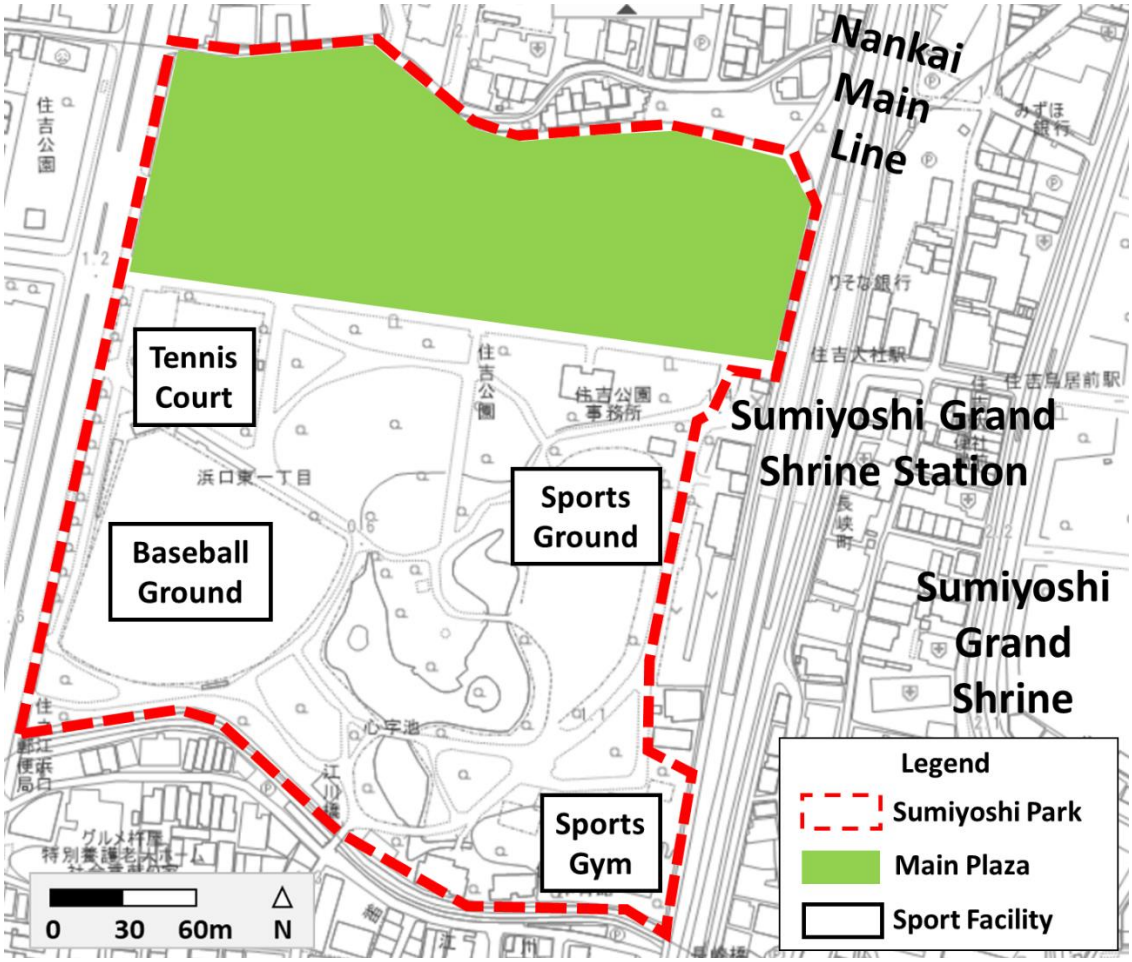

Fig. 5 Sumiyoshi Park facilities