

Regular Paper

A Longitudinal Investigation of Urban Park Management in Hong Kong: A Managerial Perspective

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Executive Summary

Urban park management is key for urban green spaces to achieve their functions of ecosystem services and sustainability. While the complex management-user relationship is often a challenge for user conflicts and resource depletion in urban parks nowadays, park managers have also had changing management expectations and perceptions over the years. To understand the trend of management held by urban park managers and the changing importance and performance of different park resources and characteristics, it is essential to investigate park managers' perceptions regarding areas of their concern. Specifically, these areas can be represented by indicators that allow park managers to consider selecting, applying, measuring and monitoring park conditions periodically.

This paper presents a longitudinal study on the perceptions of urban park managers in Hong Kong through a comparison of their importance and the performance ratings of selected indicators, which captured findings from two previous studies in 2004 and 2012, respectively. With an updated list of indicators from literature review and a modified Delphi screening process by park managers, academics and park users

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reported in a previous study, the refined indicator items were presented to park managers with a structured questionnaire-based survey in each round of opinion collection and ratings.

The results show that urban park management in Hong Kong has emphasized resource and environmental dimensions such as physical features and hardware facilities in parks. Over the years, urban park managers have possessed a clear set of management objectives to enhance the park environment, landscaping and other physical conditions, but are confined to these controllable or manageable tasks within their park's jurisdiction. Park managers have found it increasingly difficult to handle complaints, or to engage park users and surrounding communities. It is recommended that urban park authorities should break through their administrative nature and encourage more public and community engagement with urban park settings and management.

In the case of Hong Kong's urban parks, the dominant operative management approach is largely similar to the major constraint of urban parks worldwide. It is strongly advised that more public and community engagement should be encouraged to add more elements such as art and creativity, smart recreation and innovative design to urban park settings and management. This involves a gradual administrative breakthrough especially in the apparent silo form of park management and operation in Hong Kong.

Keywords

Importance, indicators, park managers, performance, sustainability, urban parks

Introduction

Urban parks are important spaces that provide and realize recreational and other ecosystem functions for the well-being of urban populations (Campbell et al., 2016; Crompton, 2017; Konijnendijk et al., 2013; Nilsson et al., 2007; Rall et al., 2017; Swanwick et al., 2003). A wider understanding of the sustainability of urban parks should embrace their economic, social, and ecological functions and commitments (Çay, 2015). From a practical perspective, one criterion of sustainable urban park management should rely on the effectiveness of multidimensional functions provided by parks (Harnik, 2003; Rall et al., 2017), which are determined by a management-user relationship (Jansson & Lindgren, 2012; Randrup & Persson, 2009), and healthy park conditions being measured by specified indicators (Chan, 2017; Chan & Marafa, 2006).

Management involves the strategic process of planning with actions and allocating resources to a specific space to achieve a prescribed goal (Broadhurst, 2001; de Magalhães & Carmona, 2009), while urban open space management is described as the action of maintaining and enhancing (the space and) its quality to maximize benefits for users (Dempsey & Smith, 2014; Jansson & Lindgren, 2012). Urban park management is key for these urban green spaces to realize the functions of ecosystem services and their sustainability (Fisher et al., 2011; Harnik, 2003), especially in terms of long-term functioning of the habitats within a park environment that require management to adapt to local conditions, to use natural processes, to continue park monitoring, and to apply knowledge about recreation management (Aldous, 2007; Hermy, 2011). However, urban green space management is often fragmented and treated as a subset of other

management areas of urban governance (e.g., housing and transport infrastructure; Randrup & Persson, 2009). Park management authorities are sometimes constrained by the silo form of bureaucratic governance (Chan et al., 2015).

In “strategic park management,” park managers have been defined as the most active player on a tactical level, responding to the political level, and organizing the operational level (Randrup & Persson, 2009). Thus, the managers are considered the “spider in the web,” whose personal perceptions and knowledge must be regarded as essential in order to understand how the actual management of the park occurs. In attempt to follow the trend of management held by urban park managers, it is essential to investigate park managers’ perceptions regarding their areas of concern. Specifically, these areas can be represented by yardsticks or indicator items that allow park managers to consider selecting, applying, measuring and monitoring park conditions periodically. The quality, philosophical, academic, and experiential background of individual park managers also determine the success of park management (Çay, 2015; Emanuelson, 2013; Kraus & Curtis, 2000) through the provision, planning and design of park features (Wong & Domroes, 2005).

Within an urban park context, park managers are responsible for maintaining a balance between the quality of park resources and users’ experiences (Budruk & Manning, 2006; Mattijssen et al., 2017). Urban park management would deal with a reciprocal relationship between the park environment and park users, which involves the attributes and characteristics of the environment, the recreational use by park visitors, and management strategies (Pigram & Jenkins, 1999). Such environment-user settings may incorporate a great variety of resources or characteristics that can be measured by some parameters or indicators as suggested in the countryside and other public park recreation environments (Cranz & Boland, 2004; Manning et al., 2011; Newman et al.; Wight, 1998; Zimmermann et al., 2001). These indicators have been applied in urban parks and green spaces by various researchers and organizations as useful parameters to monitor park conditions and to benchmark park performance across cities over the years (e.g., Chan et al., 2018; Lindsey, 2003; PRAMS, 2005; Yardstick, 2017).

Previous studies on urban parks and green spaces considered the perceptions of park management authorities, officials and managers as important sources of information. For example, administration (Bretzer et al., 2016; Leiren Lindholm et al., 2016), park conditions countrywide (PNC and CFP, 2016), global best practices reviews (National Park Service, 2007), governance and green branding (Gulrsud et al., 2013; Harnik, 2003), and the sustainability of park planning and management models (Randrup & Persson, 2009; Takyi & Seidel, 2017). Combining objective park data, statistics and responses from park authorities and officials, these studies largely covered specific resources or characteristics of parks.

The Local Context of Hong Kong

Hong Kong is a densely populated city with a huge demand for urban park usage and urban environmental improvement (Jim, 2000). Compared with the rate of population growth, the increase in the number of urban parks managed by the Leisure and Cultural Services Department (LCSD) of the government over the past decade is considered insufficient. Although the rate of increase in the number of major and small parks (about 12% to 15%) was slightly higher than the population’s growth rate (8.4%) between 2004 and 2017, the absolute number of increase between 2012 and 2017 (no

major parks and 20 small parks versus an addition of 190,000 people) is apparently unacceptable. This shortage of urban green spaces was reported in a previous review, which highlighted that the urban park provision ratio of Hong Kong (0.35 hectare per 1,000 residents) was among the lowest of cities being compared (Tan et al., 2013).

Chan et al. (2015) conducted a qualitative review of the changing managerial perceptions of urban park managers in Hong Kong through a comparison of the importance and performance ratings of a set of indicator items in 2004 and 2012. Their findings suggested that urban park managers in Hong Kong had demonstrated an increasing satisfaction with park managerial performance and other improvements. Hong Kong's urban parks also had to face problems, including shortage of funding, lack of educational functions and less responsive role of park managers in addressing changing socio-economic conditions (Chan et al., 2015). Chan et al. (2018) developed a set of indicators for sustainable urban park management in Hong Kong, based on the inputs of urban park managers and park visitors. Based on the measurement of these indicators, how have managers' perceptions of urban park conditions changed over time?

Methodology

This study adopted a modified Delphi approach for responses collection from urban park managers in Hong Kong. This modified approach was accepted as an effective way to collate professional opinions and views without direct contact with or between the experts (Torres-Delgado & Saarinen, 2014; Young & Jamieson, 2001). The instrument of the study is a set of indicators measuring the dimensions of urban park attributes. These indicators were classified into three categories of urban park functions, namely, Managerial and Institutional Indicators (MII) about internal management and the operation of parks (the MII category included 17 items), Resource and Environmental Indicators (REI) addressing the physical environment and park facilities (the REI category included 26 items), and Social Indicators (SI) relating to park user perceptions and accessibility (the SI category included 23 items). A list of 66 preliminary indicators were collected from relevant literature on park management fields in 2004. The indicator set was applied in two connected studies in 2004 and 2012, and was then reported by Chan et al. (2015). The current management-focused study applied Chan et al. (2018)'s indicator set (their study was conducted in 2016 and the results were published subsequently in 2018) as the instrument of measurement and comparison across the three years, 2004, 2012 and 2017.

Data Collection: Screening and Ratings on Indicators by Park Managers

Precisely, this study contained a two-staged survey process using separate sets of questionnaires as the instruments of response collection. The first stage involved LCSD's major urban park managers, who were asked to consider and extract the indicators that were considered to be most relevant and applicable to Hong Kong. The survey occurred between September and December of 2016. Out of the 26 major urban parks, 20 park managers participated in this first stage, reaching a study response rate of 77%. Indicators with less than 60% of support across all groups were removed, and resulted in 66 indicators. Researchers also took into consideration the comments on replication and the combination of items, management jurisdiction and applicability

to the local context. Eventually, 40 indicators were extracted to the second-stage study. In this second stage, 25 completed responses were collected from the 25 major urban parks (excluding Nanlian Garden) because two responses were from former managers who shifted to another position during the process of the survey.

The 40 indicators were presented to park managers for ratings on importance and performance using a 5-point Likert scale (a score of “5” denotes the most important/the best performing and “1” denotes the least important/the poorest performing) between January and March 2017. Respondent park managers were allowed to review their comments in Stage 1 but no changes were requested. Two indicators were added, namely “the availability of innovative facilities or equipment” (REI) and “the number of complaints about any insect problem” (SI). A parallel comparison was conducted by putting together the top ten and bottom ten indicators (both in terms of importance and performance) so that changes in the perceptions of park managers were identified and interpreted by the research team.

Results

Comparison of the Importance and Performance of Urban Park Indicators

The importance and performance of the urban park indicators were ranked according to their mean scores. The resultant top 10 and bottom 10 items over the three investigations (the years of 2004, 2012, and 2017) are presented in Tables 1a and 1b (importance), and Tables 2a and 2b (performance), respectively.

The top 10 important indicators had a slight general increase in the mean scores of about 0.1 between 2004 and 2017, although some indicators had decreased ratings in 2012. There was an increase in the mean scores of about 0.3 among the bottom list. Managers considered government funding to be the most important attribute in 2017, which was also the case in 2004, but not in the 2012 survey. It is noticeable that government funding jumped from being the least important indicator in 2012 to being the top item in 2017 (although it was ranked fifth in 2004). This finding shows a drastic change in the perceptions of park managers. Regardless of the categories of indicators, items related to facilities, equipment and hardware resources made up the top ranking (four to five items in the top 10 as highlighted in italics). Specifically, “checks on facilities” and “play equipment management and maintenance guidelines” are the only two items present over the years.

In terms of which indicators were perceived by park managers to be least important, the two items related to smart urban development (wireless Internet connection and innovative recreation facilities) were at the bottom of the list. These two items were added for literature reviewers’ and managers’ consideration. The “availability of school programs or public educational activities in urban parks” was also ranked among the least important attributes over the years. The indicator items presented in the top-10 and bottom-10 tables (1a to 2b) were numbered according to the complete list in Appendix 1 and marked by indicator categories of MII, REI and SI, accordingly.

The best and the poorest performing park indicators over the years are presented in Tables 2a and 2b, respectively. The mean scores in the tables indicate a general increase in the perceived performance of the park management attributes of about 0.1-0.2 over the years. Regarding the nature of park attributes, indicator items related to

Table 1a
Top Ten Most Important Indicators According to Urban Park Managers in Hong Kong. (Common items are highlighted.)

TOP ten important indicators					
Park managers in 2004 (n=22)		Park managers in 2012 (n=20)		Park managers in 2017 (n=25)	
Rank	(Item no.) Indicator	Mean	Rank	(Item no.) Indicator	Mean
1	(66) Complaints about hygiene conditions (SI)	4.33	1	(3) Service quality of contractor (MII)	4.40
2	(3) Service quality of contractor (MII)	4.29	2	(10) Checks on facilities (MII)	4.25
	(9) Play equipment management and maintenance guidelines (MII)	4.29	3	(2) Staff satisfaction (MII)	4.21
4	(56) Complaints about facility damage (SI)	4.26	4	(40) New and existing trails or routes built in parks (REI)	4.10
	(13) Government Funding (MII)	4.21		(9) Play equipment management and maintenance guidelines (MII)	4.10
5	(2) Staff satisfaction (MII)	4.21	6	(45) Complaints about issues of equity or social exclusion (SI)	4.05
	(10) Checks on facilities (MII)	4.08		(19) Park facilities under deterioration (REI)	4.05
8	(41) Accidents reported in parks (REI)	4.04	9	(1) Legislation or mission about purposes of providing, protecting and developing parks (MII)	4.05
	(65) Park users' level of satisfaction with environmental quality (SI)	3.92		(48) Change in perception of safety by park users (SI)	4.00
9	(19) Park facilities under deterioration (REI)	3.92	8	(38) Number of lights for outdoor illumination in the park (REI)	4.04
				(43) Percentage of open area within the park (REI)	4.04
				(37) Number of toilets within the park (REI)	4.04

(Source: Chan & Marafa, 2006 for 2004 statistics; Chan et al., 2014 for 2012 statistics)

Table 1b
Ten Least Important Indicators According to Urban Park Managers in Hong Kong. (Common items are highlighted.)

Park managers in 2004 (n=22)		LEAST ten important indicators		Park managers in 2012 (n=20)		Park managers in 2017 (n=25)		
Rank	(Item no.) Indicator	Mean	Rank	(Item no.) Indicator	Mean	Rank	(Item no.) Indicator	Mean
1	(33) Areas of urban parks (REI)	2.78	1	(13) Government Funding (MII)	2.89	1	(36) Access to wireless internet in the park (REI)	3.16
2	(5) Regular visitor surveys (MII)	2.92	2	(5) Regular visitor surveys (MII)	3.05	2	(New) Availability of innovative facilities or equipment (REI) *	3.36
3	(20) Water quality (REI)	2.95	3	(49) School programs or public educational activities (SI)	3.11	3	(62) Number of community events (SI)	3.40
4	(21) Air quality (REI)	3.05	4	(12) Integration of park planning and urban planning (MII)	3.13	4	(49) School programs or public educational activities (SI)	3.46
5	(49) School programs or public educational activities (SI)	3.09	5	(56) Complaint about facility damage (SI)	3.21	5	(59) Park users' level of satisfaction with the aesthetic value of urban parks (SI)	3.64
6	(44) Enquiries for park information (SI)	3.21	6	(6) Expenditure on park maintenance and management (MII)	3.29	6	(57) Number of complaints relating to conflicting use of facilities (SI)	3.68
	(63) Environmental education programmes (SI)	3.21	7	(44) Enquiries for park information (SI)	3.35	7	(17) A geo-referenced database for mapping park resources and facilities of individual parks (MII)	3.71
8	(40) New and existing trails or routes in parks (REI)	3.22	8	(15) Policies that identify or support the promotion of the educational functions of parks (MII)	3.37	8	(15) Policies that identify or support the promotion of the educational functions of parks (MII)	3.72
9	(4) An official citizen advisory board (MII)	3.32		(21) Air quality (REI)	3.37		(41) Accidents reported in the park (REI)	3.72
10	(62) Number of community events (SI)	3.33	10	(30) Types of facilities in parks (REI)	3.45		(42) Number of reported crimes in the park (REI)	3.72

(Source: Chan & Managa, 2006 for 2004 statistics; Chan et al., 2014 for 2012 statistics; item with an asterisk (*) is the new indicator that only appeared in the 2017 study.)

facilities, equipment, and hardware resources were rated higher in 2004 and 2012 (six to seven out of 10 items), but only four remained by 2017. However, accessibility to urban parks is considered to have improved and performed well currently as three items were present in 2017: “distance from the nearest residential area” (ranked first), “number of pedestrian paths linking to park entrances” (ranked fourth) and “methods of public transport that are directly linked to the park” (ranked seventh). In 2017, park managers gave the highest performance rating to the characteristics of park accessibility and facility management.

Crossover of Importance and Performance

Apart from separate importance and performance lists, Table 3 provides a matrix showing the combined view of the importance and performance levels over the three study years. This matrix was generated through the crossover between the top and bottom 10 indicator items. Observations were drawn on pairs of most/least importance and best/poorest items in the same year, and factors in the trends across years (these spaces in the table are shaded). Common items in each year are highlighted in italics. Several observations are drawn.

First, within this grid, the “number of checks on facilities” is the most common item to appear over the years. Nevertheless, the nature of these five indicators changed from complaint-related items in 2004 to physical features and facilities in 2017. Second, no item is found regarding the crossover of the most important and poorest performing indicators. The first two observations suggest that park managers have consistently trusted their ability and recognized their effort in managing their parks so that some of the most important dimensions are effectively addressed. Third, one to two indicators are found overkilled (i.e., exerting much effort to low importance) in 2012 and 2017 as they were paradoxically the least important and the best performing indicators. In the current study, the “number of accidents reported” was considered to be less important and maintained a low level when ranked by the managers.

Lastly, some areas were ignored by park managers. These are represented by six indicators from 2004, through another three indicators in 2012, to four indicators in 2017. A gradual decline in the number of this classification implies that park managers have strengthened their work by either raising their self-expectations or enhancing the performance of various management issues. Over the three study years, “the presence of regular visitor surveys” was a common item that has received the least attention, whereas indicators relevant to the educational function of urban parks also appear on this low-profile basket (e.g., “the presence of environmental education to park users” and “policies that identify or support the promotion of the educational functions of parks”). This issue was also found earlier by Chan et al. (2015).

Discussion

Longitudinal Change in Management Focuses

Based on the self-reported importance rating of the respondent managers, urban park management in Hong Kong demonstrated a prolonged culture of operation dominance and jurisdiction determination (Chan & Marafa, 2006; Jim, 2002; Tang & Wong, 2008), which is arguably a consequence of the separation between urban planning and urban park management (Chan et al., 2015). This is in line with recent findings from

Table 2a
Ten Best-Performing Indicators Amongst Urban Park Managers in Hong Kong. (Common items are highlighted.)

TOP ten performed indicators						
Park managers in 2004 (n=22)		Park managers in 2012 (n=20)		Park managers in 2017 (n=25)		
Rank	(Item no.) Indicator	Rank	(Item no.) Indicator	Rank	(Item no.) Indicator	Mean
1	(66) Complaints about hygiene conditions (SI)	1	(56) Complaint about facility damage (SI)	1	(32) Distance from the nearest residential area (REI)	4.28
2	(3) Service quality of contractor (MI1)	2	(40) New and existing trails or routes in parks (REI)	2	(38) Number of lights for outdoor illumination in the park (REI)	4.21
	(10) Checks on facilities (MI1)		(10) Checks on facilities (MI1)		(10) Checks on facilities (MI1)	
	(27) Cases of facility and equipment damage (REI)	4	(29) Facilities for disabled people (REI)	3	(34) Number of pedestrian paths linking to park entrances (REI)	4.20
	(41) Accidents reported in parks (REI)	5	(19) Park facilities under deterioration (REI)	5	(31) Proportion of soft landscape to hardware (REI)	4.16
6	(56) Complaint about facility damage (SI)		(3) Service quality of contractor (MI1)	6	(41) Accidents reported in parks (REI)	4.13
7	(57) Complaints about conflicting use of facilities (SI)	7	(47) Positive written comments by users (SI)		(39) Methods of public transport that are directly linked to the park (REI)	4.04
8	(30) Types of facilities in parks (REI)	8	(62) Number of community events (SI)	7	(9) Play equipment management and maintenance guidelines (MI1)	4.04
9	(9) Play equipment management and maintenance guidelines (MI1)		(9) Play equipment management and maintenance guidelines (MI1)		(33) Area of the park (REI)	4.04
10	(31) Proportion of soft landscape to hardware (REI)	10	(30) Types of facilities in parks (REI)		(37) Number of toilets within the park (REI)	4.04

(Source: Chan & Marajfa, 2006 for 2004 statistics; Chan et al., 2014 for 2012 statistics)

Table 2b
Ten Poorest Performing Indicators Amongst Urban Park Managers in Hong Kong. (Common items are highlighted.)

LEAST ten performed Indicators								
Park managers in 2004 (<i>n</i> =22)		Park managers in 2012 (<i>n</i> =20)		Park managers in 2017 (<i>n</i> =25)				
Rank	(Item no.) Indicator	Mean	Rank	(Item no.) Indicator	Mean			
1	(20) Water quality (REI)	2.69	1	(27) Cases of facility and equipment damage (REI)	2.95	1	(12) Integration of park planning and urban planning (MII)	3.12
2	(5) Regular visitor surveys (MII)	2.73	2	(6) Expenditure on park maintenance and management (MII)	3.00	2	(15) Policies that identify or support the promotion of the educational functions of parks (MII)	3.25
3	(33) Areas of urban parks (REI)	2.76	3	(59) Park users' level of satisfaction with the aesthetic value of urban parks (SI)	3.15	3	(New) Availability of innovative facilities or equipment, e.g., solar lights, etc. (REI) *	3.44
4	(4) <i>An official citizen advisory board</i> (MII)	2.89	3	(61) Number of users (SI)	3.15	4	(11) <i>Staff qualifications in relevant park management-related disciplines</i> (MII)	3.48
5	(21) Air quality (REI)	2.94	4	(41) Accidents reported in parks (REI)	3.15	5	(57) Number of complaints relating to conflicting use of facilities (SI)	3.48
6	(7) Police patrolling in parks (MII)	3.05	6	(11) <i>Staff qualifications in relevant park management-related disciplines</i> (MII)	3.16	6	(63) Environmental education to users (SI)	3.54
6	(8) <i>Definition of core services or themes of parks</i> (MII)	3.05	6	(15) <i>Policies that identify or support the promotion of the educational functions of parks</i> (MII)	3.16	6	(60) Percentage of park users who feel pleasant because of the natural settings (e.g. ponds, trees) (SI)	3.54
	(12) <i>Integration of park planning and urban planning</i> (MII)	3.05	8	(13) <i>Funds from the government</i> (MII)	3.16	8	(5) Regular visitor surveys (MII)	3.59
9	(1) <i>Legislation or mission about purposes of providing, protecting and developing parks</i> (MII)	3.10	9	(5) Regular visitor surveys (MII)	3.17	9	(8) <i>Definition of core services or themes of parks</i> (MII)	3.60
	(63) Environmental education to users (SI)	3.10	10	(33) Areas of urban parks (REI)	3.21	10	(59) Park users' level of satisfaction with the aesthetic value of urban parks (SI)	3.63

(Source: Chan & Maruja, 2006, for 2004 statistics; Chan et al., 2014, for 2012 statistics; item with an asterisk (*) is the new indicator that only appeared in the 2017 study.)

Table 3

Matrix of Importance and Performance of Urban Park Indicators in Hong Kong in 2004, 2012, and 2017

Common items	Ten best performed in 2004	Ten best performed in 2012	Ten best performed in 2017	Ten worst performed in 2004	Ten worst performed in 2012	Ten worst performed in 2017
Ten most important in 2004	<ul style="list-style-type: none"> • (66) Complaints about hygiene conditions • (3) Service quality of contractor • (10) Checks on facilities • (56) Complaints about facility damage • (41) Accidents reported 	<ul style="list-style-type: none"> • (3) Service quality of contractor • (10) Checks on facilities • (9) Play equipment management and maintenance guidelines • (56) Complaints about facility damage 	<ul style="list-style-type: none"> • (10) Checks on facilities • (41) Accidents reported • (9) Play equipment management and maintenance guidelines 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • (13) Government funding • (41) Accidents reported 	<ul style="list-style-type: none"> • Nil
Ten most important in 2012	<ul style="list-style-type: none"> • (3) Service quality of contractor • (10) Checks on facilities 	<ul style="list-style-type: none"> • (3) Service quality of contractor • (10) Checks on facilities • (40) New and existing trails and routes • (9) Play equipment management and maintenance guidelines • (19) Park facilities under deterioration 	<ul style="list-style-type: none"> • (10) Checks on facilities • (9) Play equipment management and maintenance guidelines 	<ul style="list-style-type: none"> • (1) Legislation and/or mission about purposes of providing, protecting, and developing parks 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • Nil
Ten most important in 2017	<ul style="list-style-type: none"> • (10) Checks on facilities • (9) Play equipment management and maintenance guidelines • (31) Proportion of soft landscape to hardware • (27) Cases of facility and equipment damage 	<ul style="list-style-type: none"> • (56) Complaints about facility damage • (10) Checks on facilities • (9) Play equipment management and maintenance guidelines 	<ul style="list-style-type: none"> • (38) Lights for outdoor illumination • (10) Checks on facilities • (34) Adequacy of pedestrian paths linking to park entrances • (9) Play equipment management and maintenance guidelines • (37) Adequacy of toilets 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • (27) Cases of facility and equipment damage • (13) Government funding 	<ul style="list-style-type: none"> • Nil
Ten least important in 2004	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • (40) New and existing trails and routes 	<ul style="list-style-type: none"> • (33) Park's area 	<ul style="list-style-type: none"> • (33) Park's area • (5) Regular 	<ul style="list-style-type: none"> • (33) Park's area • (5) Regular 	<ul style="list-style-type: none"> • (63) Environmental education

Table 3 (cont.)

		<ul style="list-style-type: none"> • (62) Community events 		<i>visitor surveys</i> <ul style="list-style-type: none"> • (20) Water quality • (21) Air quality • (63) Environmental education • (4) Presence of an official citizen advisory board 	<i>visitor surveys</i>	<ul style="list-style-type: none"> • (5) <i>Regular visitor surveys</i>
Ten least important in 2012	<ul style="list-style-type: none"> • (56) Complaints about facility damage • (30) Types of facilities 	<ul style="list-style-type: none"> • (56) Complaints about facility damage • (30) Types of facilities 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • (5) <i>Regular visitor surveys</i> • (12) Integration of park planning and urban planning • (21) Air quality 	<ul style="list-style-type: none"> • (5) <i>Regular visitor surveys</i> • (6) Expenditure on park maintenance and management • (15) Policies supporting parks' educational functions 	<ul style="list-style-type: none"> • (5) <i>Regular visitor surveys</i> • (15) Policies supporting parks' educational functions
Ten least important in 2017	<ul style="list-style-type: none"> • (57) Complaints about conflicting use of facilities • (41) Accidents reported 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • (41) Accidents reported 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • (59) Park users' level of satisfaction with parks' aesthetic value • (41) Accidents reported • (15) Policies supporting parks' educational functions 	<ul style="list-style-type: none"> • (15) Policies supporting parks' educational functions • (57) Complaints about conflicting use of facilities • (63) Environmental education • (59) Park users' level of satisfaction with parks' aesthetic value

other studies of managers' perspectives about green space management, e.g., shown by de Magalhaes and Carmona (2009) in the United Kingdom and by Randrup and Persson (2009) in Scandinavia. As a result, it is not surprising that some resources or characteristics that are usually beyond or only partially under the control of park managers are ranked the lowest. These areas include many of the cultural ecosystem services such as educational functions and potential behaviors of park users. The provision of educational activities is not the duty of the park administration, and therefore this function has received less attention from park managers. This is believed to be the reason why "the presence of regular visitor surveys" has been ranked among the lowest indicators throughout the study period (Table 3). Internal management and hardware facilities are main concern of managers, rather than complaints from park users, as was

also shown in a recent Swedish study (Randrup et al., 2017). Often, complaints about park management are not directly brought about by park users but are rather reported by the media, who were even less controllable by park managers. The observation that park managers only focused on internal administration and management not only existed in the early years, but was reinforced gradually across the period as more REI and less SI appeared at the top of the importance list.

Changing Importance and Performance of Indicators

When comparing the categories of the indicators, several observations are noticeable in Table 4 in terms of importance and performance perceptions over the years. First, regarding the importance level, urban park managers in Hong Kong tended to consider the physical features and the park environment to be more important as there is an increase in the number of top 10 important REI items from two in 2004 to five in 2017. Second, park users' perceptions and attitudes are no longer the park managers' main concern, as depicted in the decreasing number of top most important indicators for the SI category. The number of less important SI items remained unchanged over the years.

Regarding performance levels, first, management's attention devoted to physical features and the park environment led to a higher performance rating with six items at the top of the list in 2017. Second, it is necessary to inspect the reverse trend in the performance levels of the SI items (i.e., decreasing best performing and increasing poorest performing indicators). The reasons behind such a phenomenon can be complicated, but this was discussed in earlier research as park manager's problem of lacking "responsiveness" to changing societal needs (Chan et al., 2015).

Table 4

Changes in Indicator Categories

Category	2004	2012	2017 (trend)
Number of top ten most important indicators			
MII	5	5	4
REI	2	2	5 (↑)
SI	3	3	1 (↓)
Number of ten least important indicators			
MII	2	5	2
REI	4	2	4
SI	4	3	4 (→)
Number of top ten performing indicators			
MII	3	3	4 (→)
REI	4	4	6 (↑)
SI	3	3	0 (↓)
Number of ten least performing indicators			
MII	6	5	5 (→)
REI	3	3	1 (↓)
SI	1	2	4 (↑)

(Source: Chan & Marafa, 2006 for 2004 statistics; Chan et al., 2014 for 2012 statistics)

In the latest stage-one survey, several managers proposed to add “innovative facilities or equipment” and “complaints about any insect problems” into the indicator list. Whereas the latter is caused by the urban environment of a humid and sub-tropical city like Hong Kong, the former indicator suggests the long-lasting circumstances that the provision of physical facilities in Hong Kong’s urban parks is characterized by their diversity, density, and resource intensity (Chan et al., 2015). An increasing focus on facility management across the period (as shown in various REI items in Tables 1a, 2a and 4) is perhaps a reflection of these park characteristics, and underlines the managers’ operational focusing on Strengths and weaknesses of park management

The self-reported ratings of indicators by park managers tended to demonstrate some strengths of park management in Hong Kong. Over the three reported years, there are few common items that received top importance ratings and had lowest performance. This implies that park managers had a positive view of their work to tackle the most important dimensions of park management.

Secondly, an overall rise in the self-evaluated mean scores represents an increasing managerial satisfaction with the performance of park management work. Urban park managers tended to concentrate on excelling in their ability to provide and improve the hardware facilities and physical environments in parks, as the five most highly important performing indicators show in the corresponding grid of Table 3. The indicator, “checks on facilities,” is the one that consistently appeared to be of top importance on the performance list throughout the study period. These resources or characteristics may become key indicators of the successful and sustainable urban park management in the long term (Harnik, 2003).

However, there are appeared to be some weaknesses that may even become risks in park sustainability. The self-reported performance levels in the areas of REI (which had more items in the highest performance) and SI (which had more items in the poorest performance) imply the current difficulties in managing urban parks. Park managers revealed their lack of ability to tackle public recreational complaints and conflicts within park areas. One example is a sharply falling performance of “the number of complaints about conflicting use of facilities” by park users from the seventh ranking in 2004 to the 36th in 2017.

Indicators relevant to educational function were rated as less important for urban park management in Table 1b and in a previous study (Chan et al., 2015). The main reason behind this phenomenon was the limited jurisdiction of urban park managers in Hong Kong, where park management is maintenance and administration focused. This weakness could become a potential strength when more collaborations are allowed to organize educational activities in parks with local schools, communities and non-governmental organizations. These collaborations may also become strategies, enhancing the education and stewardship of urban parks to the public, and reduce any unwanted conflicting activities in the parks (Wong & Yu, 2012) (for example, the prolonged occupancy of some areas by certain user groups such as unauthorized “performance and dancing activities”).

Another concern about the perception of the least important “innovation” in urban park management requires attention. “Access to wireless Internet in the park” received the lowest importance score. As the most connected city globally (GfK, 2017), most government premises including major parks and recreational facilities are equipped with wireless Internet (GovHK, 2017), but park managers generally consider such ser-

vices to be unimportant as the use of smartphones has spread widely among the majority of citizens (CSD, 2018). Furthermore, the concept of smart parks and recreation has been widely recognized as a global trend of innovative and creative development (City of Cape Town, 2017; City Parks Blog, 2017; Dellner, 2017; Krafcik, 2016). However, the “availability of innovative facilities or equipment” was ranked as the second least important and the third poorest performing indicator. As such, the innovation indicator was considered to be relatively weak according to the park managers’ ratings, although the government has attempted to promote new elements (e.g., Home Affairs Bureau, 2017) and locally initiated ideas in urban parks (e.g., MaD Forum, 2017).

Government Funding for Urban Parks

“Funding from the government” is an indicator experiencing a drastic change in the park managers’ perception of importance over the years. This item was ranked on the most important list in 2004 and 2017, which suggests that government funding is an indispensable source of financial support and a major resource for park management. The 2012 survey, however, had an exception, when park managers rated this indicator the least important-poorest performance, implying an uncontrollable and insufficient provision of government support at that time. Unlike some cases overseas, like Central Park in New York City (Central Park Conservancy, 2017), urban parks in Hong Kong do not rely on private funding or donations, but instead depend on private input through the use of outsourcing arrangements, as is also seen in many European countries (Bretzer et al., 2016; Leiren et al., 2016; Lindholm, 2009). This is regarded as the traditional “national park model” of management (Takvi & Seidel, 2017), which may impose a threat in funding security, low priority, and lack of community engagement to advance the governance and management of urban parks (Herrmann et al., 2000; McCann, 2009; Moore, 2017; Pauleit, 2003) in addition to an observable slow pace of park provision in Hong Kong (Tan et al., 2013). Unlike in the United Kingdom (see e.g., PNC and CFP, 2016), public parks in Hong Kong have not experienced the overwhelming threat of budget cuts, but the main concern found in this study was the cost effectiveness of using resources. Hong Kong urban park managers have interpreted and believed that successful and sustainable park management is the quality of hardware provisions and the physical environment, rather than specific areas of quality like park ecology and landscaping. This may be caused by more compact and resource intensive park settings in Hong Kong than in many public parks in other countries.

Management Implications

Park managers have become more reluctant to tackle problems that are beyond their park’s physical boundary, such as control and jurisdiction of management. Having a changing and increasing public expectation as described in the social indicators, park managers have found themselves experiencing more difficulty in handling complaints, and engaging park users and communities, although a few positive examples were recently observed (e.g., Home Affairs Bureau, 2017; MaD Forum, 2017). This implies that there are good signs of the innovation in the operation-led practice in Hong Kong’s urban parks, which may also be part of the urban visitor attractions (Konijnendijk et al., 2013). In light of such an opportunity, it is recommended that urban park management authorities in Hong Kong should break down traditional bureaucratic structures and introduce a cross-disciplinary administrative nature. The dominant operative management approach in Hong Kong seems to be similar to the

major constraint of urban parks worldwide (e.g., Dempsey & Burton, 2012; Randrup & Persson, 2009). It is strongly recommended that more public and community engagement should be encouraged to add more elements (e.g., art and creativity, smart recreation and innovative design, etc.) to urban park settings and management. This involves a gradual administrative breakthrough, especially with apparently silo form of park management and operations in Hong Kong.

Conclusion

Over the years, Hong Kong urban park managers have expressed the belief that they have correctly devoted management practices to those areas where indicators received both the strongest importance and the highest performance rankings. This may be both a strength and a weakness. On one hand, urban park managers appear to possess a clear set of management objectives for enhancing park environments, landscaping, and other physical conditions. On the other hand, an indication of successful urban park management may simply be confined to these controllable or manageable tasks within certain boundaries or jurisdictions.

It is difficult for directorate representatives to provide their personal views, so the perspective of park management leadership is challenging to understand. However, further research should be promoted to compare the importance and performance perceptions between park management staff and park users. As such, an investigation may reveal possible management-user gaps and inform decision-makers about opportunities for community participation in urban park operations, as well as areas for improvement. This study sets the example of a compact metropolis and park environment to other similar settings, but some of the indicators developed may also be adopted in other cities based on their varied park characteristics.

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