

Using Indicators for Enhancing Outdoor Recreation and Sustainable Urban Park Management in Hong Kong

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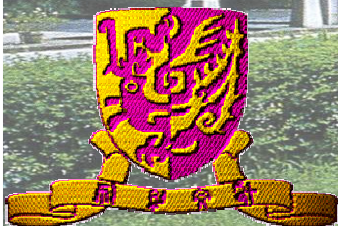
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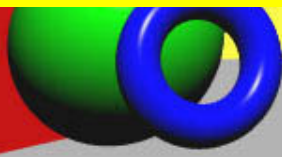
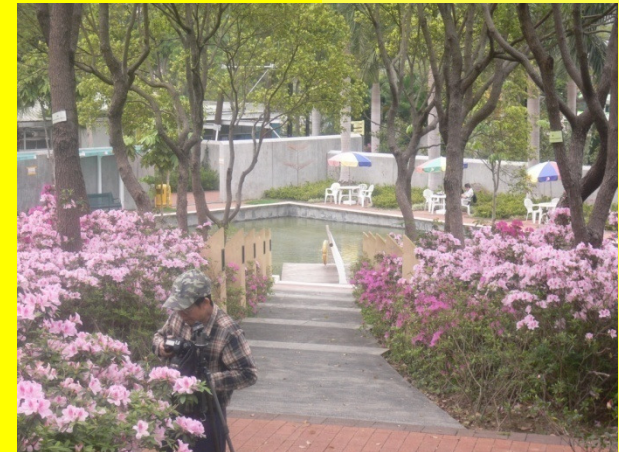
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Outline

- # Research background
- # Objectives
- # Methodology
- # Findings and Results
- # Discussions
- # Conclusion and Recommendations

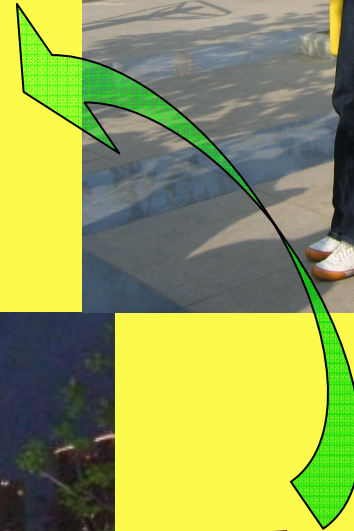


Introduction

- **Indicators** (in park and recreation) are **measurable and specific parameters** that reflect the resource conditions and provide impetus for **improving management**
- Indicators refer to pieces of **information that show and measure important changes, represent meanings, and signal the need for action** (Jenkins and Pigram, 2003).
- Relevant indicators have been used together with **management frameworks** as ROS, LAC, VIM, CC, etc. in country side
- **Indicators have not been used for management in urban parks/open spaces**

Research background

- ② **Urban parks/open spaces** have unique and indispensable role
(Jim, 2000)
- ② **Benefits of urban parks** are multi-dimensional
(Manning and Moore, 2002; Schwartz, 2002)



**In the pursuit of
Leisure and
Recreation**

- ④ Urban park managers are facing **multi-dimensional challenges**
- ④ The need for park management frameworks **(standards/indicators)**
(Pigram and Jenkins, 1999)
- ④ Current management frameworks and indicators of countryside recreation are not universally adoptable



Research background



⊕ International studies of urban park indicators

✓ Biodiversity indicators

(Hermy and Cornelis, 2000; Cornelis and Hermy, 2004)

✓ Broad measures of an excellent park system

(Harnik 2003)

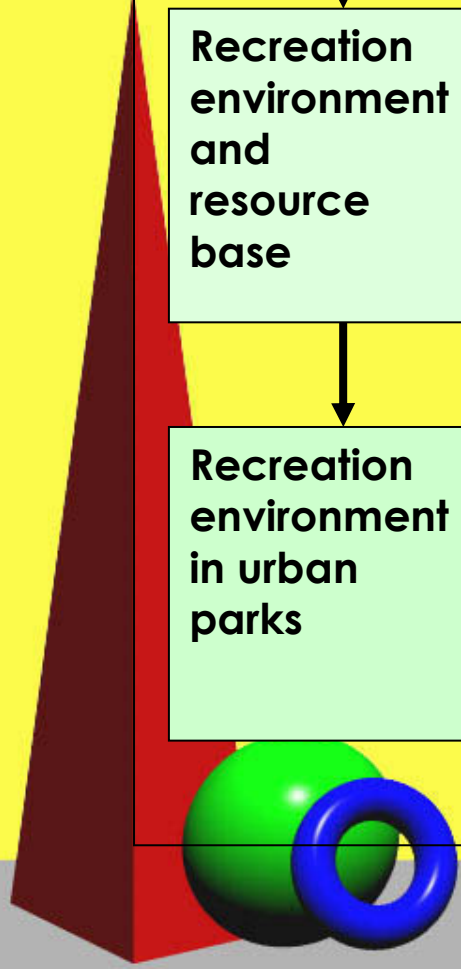
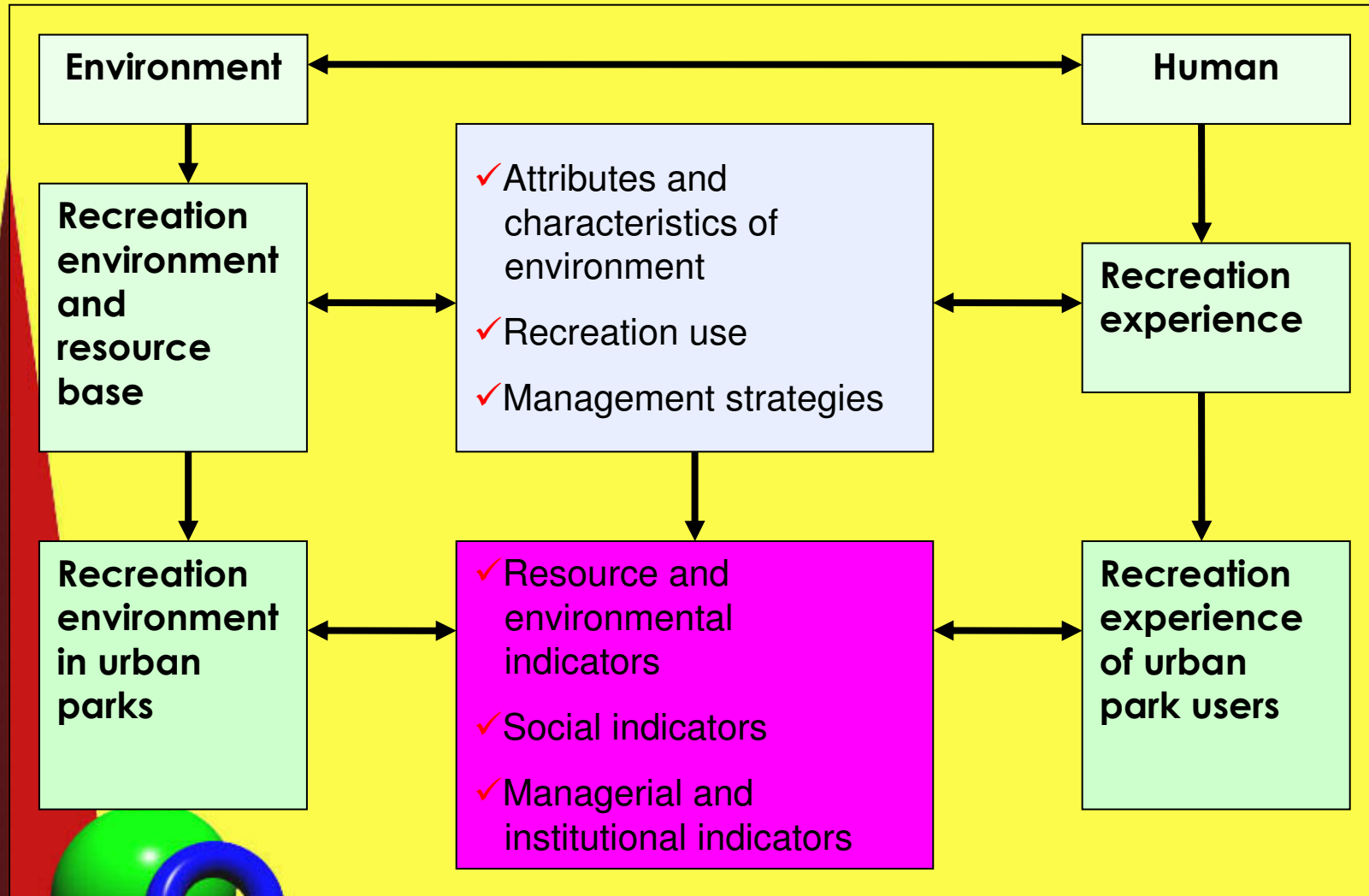
✓ Service quality of public recreation

(Cohen and Eimicke, 1998; Hunt et al., 2003 and Tomas et al., 2003; Cavnar et al., 2004)

⊕ The need for urban park indicators in Hong Kong



Research background





Objectives

- ❖ To *develop indicators* for urban park management in Hong Kong
- ❖ To *examine* park managers' and park users' *perceptions* of urban park management;
- ❖ To *investigate* the *similarities and differences* between park managers' and park users' views on urban park indicators;
- ❖ To *understand the condition* of urban parks in Hong Kong as resources for leisure and recreation activities



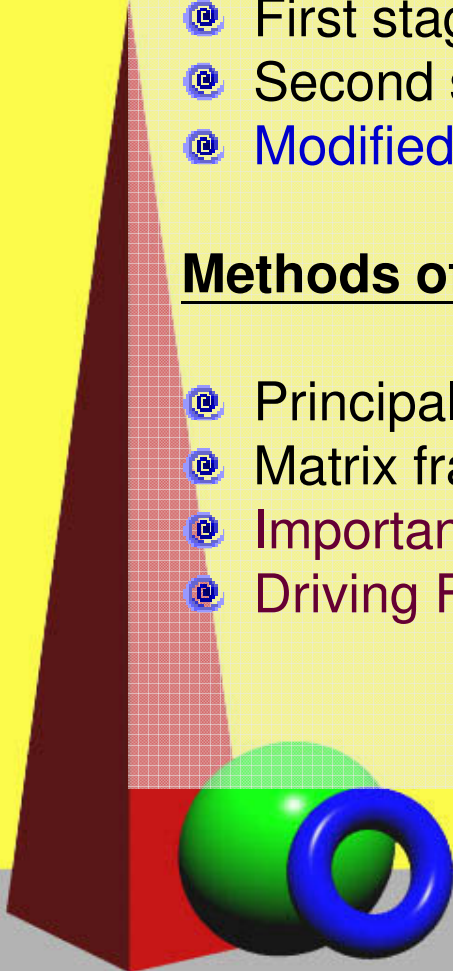
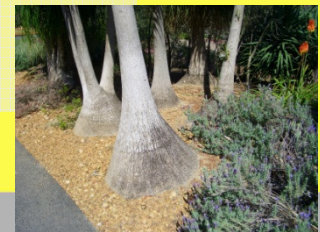
Methodology

Methods of information collection

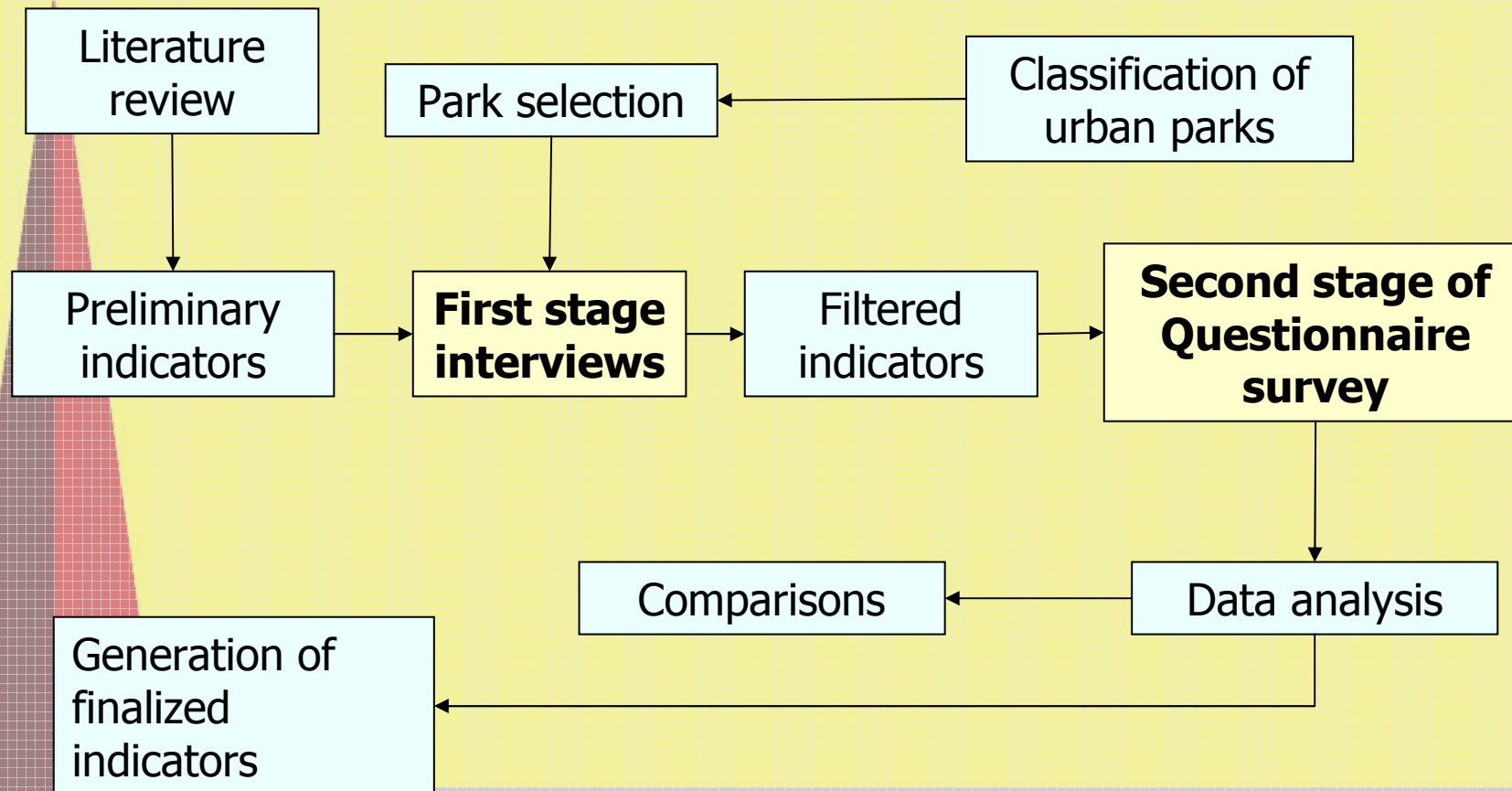
- ① First stage (In-depth interviews and questionnaire survey)
- ② Second stage (Questionnaire survey)
- ③ Modified Delphi approach

Methods of data analysis

- ① Principal Components Analysis (PCA)
- ② Matrix frameworks
- ③ Importance-performance (IP) analysis
- ④ Driving Force-State-Response (DSR) framework



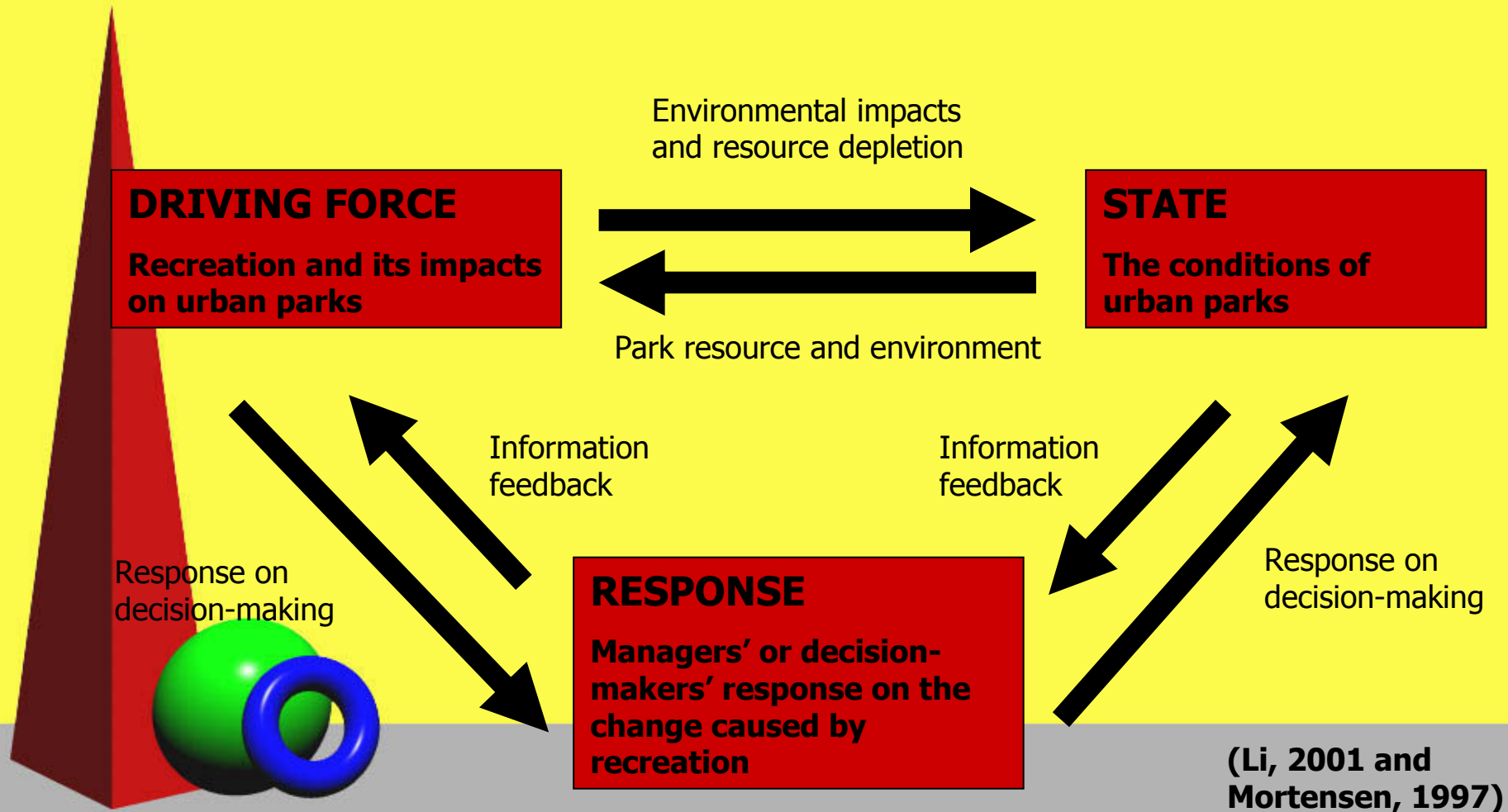
Research procedures

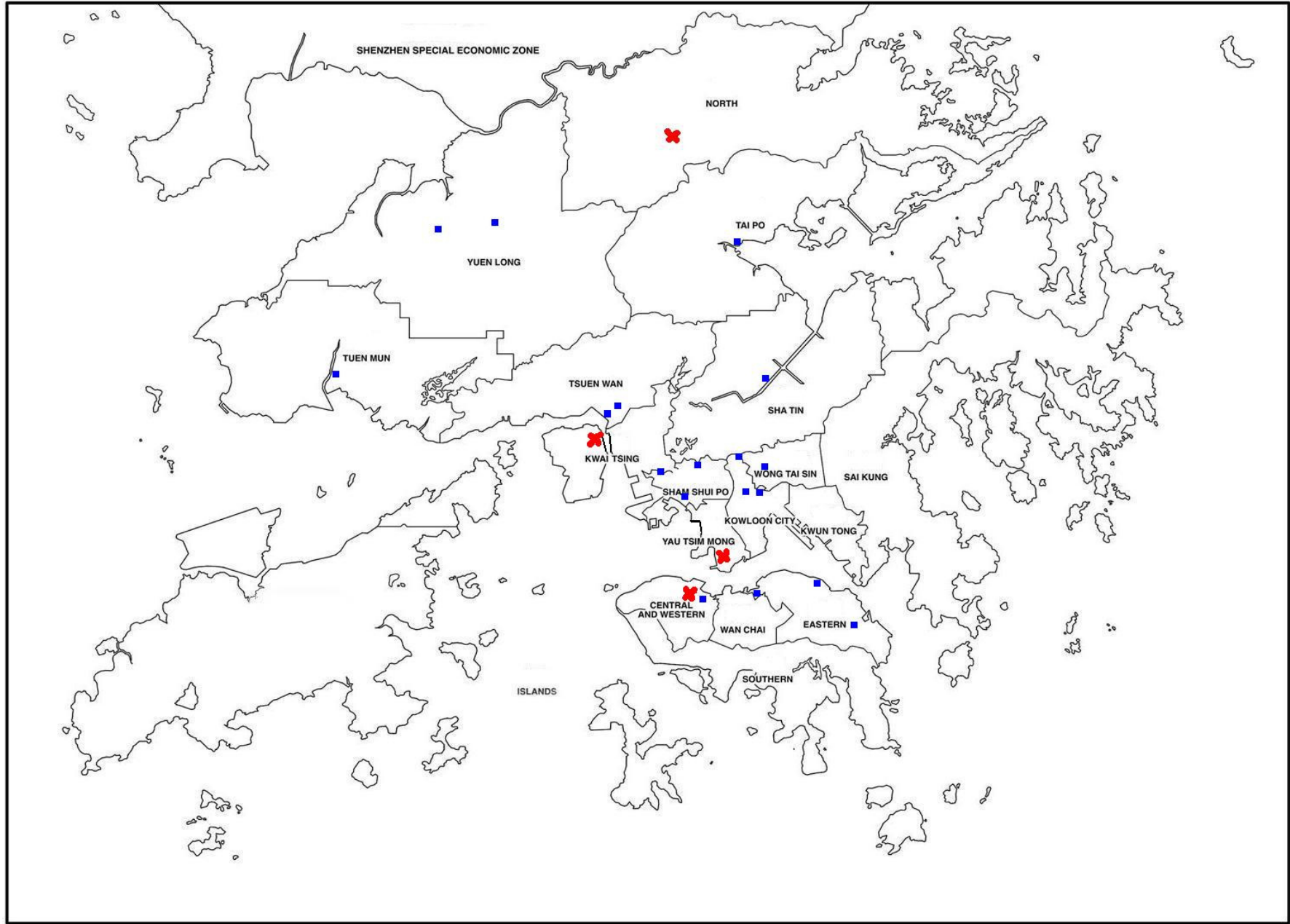


Methodology

Driving force – State – Response (DSR) Framework

◆ As a framework to categorize the indicators





**What were the characteristics
of the respondents?**



Characteristics of respondents

Gender

		Frequency	Percent	Valid Percent
Valid	Male	282	45.7	45.8
	Female	334	54.1	54.2
	Total	616	99.8	100.0
Missing	Not answered	1	.2	
Total		617	100.0	

Male: 45.7%

Female: 54.1%

Age

		Frequency	Percent	Valid Percent
Valid	20 or below	163	26.4	26.4
	21-30	130	21.1	21.1
	31-40	163	26.4	26.4
	41-50	111	18.0	18.0
	51-60	38	6.2	6.2
	61-70	8	1.3	1.3
	71 or above	4	.6	.6
Total		617	100.0	100.0

About 98% of the respondents were below 60 years old

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	5	.8	.8	.8
	Primary	46	7.5	7.5	8.3
	Secondary one to five	318	51.5	52.0	60.3
	Secondary six to seven	95	15.4	15.5	75.8
	University or above	148	24.0	24.2	100.0
Total				100.0	
Missing	Not answered				
Total					

About 91% of the respondents had an education level of secondary school or above



What indicators can be developed for urban park management in Hong Kong?

Findings PCA of indicators with Factor loading > .5 (n=451)

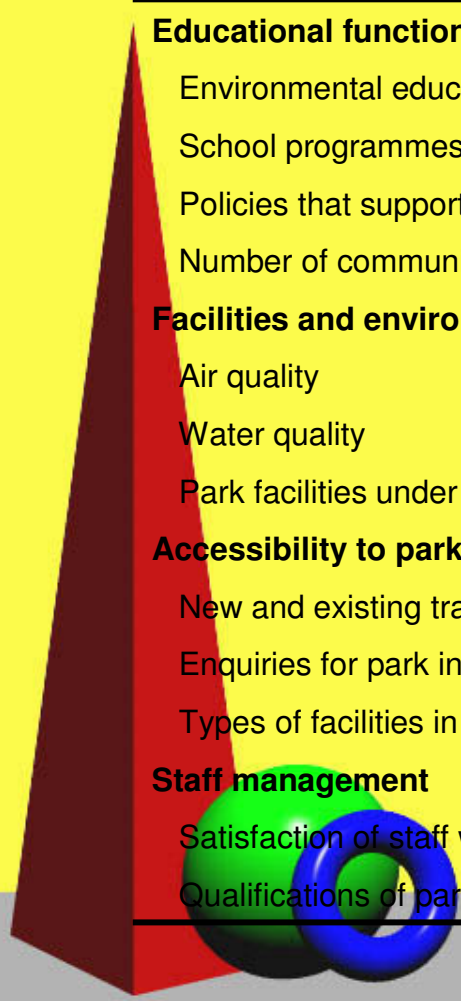
	Factor loading	Cumulative %
Safety and security ←		8.797
Patrolling trips of policemen passing through the parks	.774	
Number of security guards	.746	
Reported crimes in park areas	.703	
Perception of safety by park visitors	.629	
Accidents reported in park areas	.598	
Users' complaints about park resources ←		17.288
Complaints by minority or disabled groups	.716	
Complaints about conflicting use of facilities	.703	
Complaints about facility damage	.677	
Complaints about hygienic conditions	.589	
Park visitors' level of satisfaction with environmental quality	.527	
Park planning and management policies ←		25.193
Publicly-available purposes of providing, protecting and developing urban parks	.736	
Publicly-available definition of core services or themes of urban parks	.639	
Play equipment management and maintenance guidelines	.554	
An official citizen advisory board	.545	
Park plan that integrates into urban planning process	.502	



Findings

PCA of indicators


	Factor loading	Cumulative %
Educational function ←		32.972
Environmental education programmes or activities	.800	
School programmes or public educational activities	.743	
Policies that support the promotion of the educational functions of urban parks	.737	
Number of community events in urban parks	.717	
Facilities and environmental quality ←		39.767
Air quality	.701	
Water quality	.619	
Park facilities under deterioration	.504	
Accessibility to park usage and information ←		45.350
New and existing trails or routes inside urban parks	.755	
Enquiries for park information	.645	
Types of facilities in urban parks	.621	
Staff management ←		50.808
Satisfaction of staff with staff relationship and participation	.722	
Qualifications of park management staff	.677	



Findings PCA of indicators

	Factor loading	Cumulative %
Park usage ←		55.801
Number of park visitors	.716	
Positive-written comments by visitors	.649	
Users' satisfaction with park facilities ←		60.425
Users' assessment of park facilities	.678	
Park users' satisfaction with the aesthetic value of parks	.659	
Park finance ←		64.955
Expenditure on urban park maintenance and management	.750	
Funds from the government	.670	

- From the perspective of park users, ten components were extracted that represented nearly 65% of the variance
- 33 indicators were extracted
- The ten components can be entitled according to dimensions of urban park management



How are **park managers' and park users' perceptions** of urban park management in Hong Kong?

What are the similarities and differences between park managers' and park users' **views on importance and performance of urban park indicators?**



Results Top-ranked important indicators

Park managers (N=24)				Park users (N=617)			
Rank	Indicator	Mean	S.D.	Rank	Indicator	Mean	S.D.
1	Complaints about hygienic conditions	4.33	.702	1	Air quality	4.33	.847
2	Quality of contractors	4.22	.764	2	Reported crimes	4.19	.960
3	Management and maintenance guidelines	Internal management		3	Perception of safety	4.12	.888
4	Complaints of facilities			4	Water quality	4.08	.893
5	Funds from government	4.21	.721	5	Complaints about hygienic conditions	4.06	.929
6	Staff satisfaction	4.21	1.021	6	Reported accidents	4.02	.979
7	Checks of facilities	4.08	.584	7	Quality of contractors	4.02	.945
8	Reported accidents	4.04	.928	8	Facility damage, breakage and missing	4.00	.986
9	Users' satisfaction with environmental quality	3.92	.830	9	Users' satisfaction with environmental quality	3.97	.899
10	Facility deterioration	Resources and facilities		10	Facilities for disabled	3.96	.914

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Safety

Park environment

Results Best performed indicators

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Rank	Indicator	Mean	S.D.	Rank	Indicator	Mean	S.D.
1	Complaints about hygienic conditions	4.08	.830	1	Area of parks	3.68	.928
2	Checks of facilities	4.00	.885	2	Air quality	3.68	.910
3	Facility damage, breakage and missing	3.96	.859	3	Green areas' proportion	3.55	.889
4	Reported accidents	3.96	.825	4	Flora and fauna species	3.54	.883
5	Quality of contractors	3.88	.852	5	Park plan integration with urban planning	3.52	.929
6	Complaints about facilities	3.87	.968	6	Users' satisfaction with environmental quality	3.52	.857
7	Complaints about conflicting use of facilities	3.83	1.029	7	Perception of safety	3.52	.907
8	Management and maintenance guidelines	3.79	1.062	8	Reported accidents	3.50	.913
9	Types of facilities	3.79	.721	9	Trails and routes in parks	3.48	.906
10	Green areas' proportion	3.71	.751	10	Users' satisfaction with aesthetic value	3.48	.859

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Discussion (1)



Indicator development can be based on the perceptions of park users because urban parks are provided and developed for visitors' use





❏ Park managers can select **appropriate and applicable indicators** to manage urban parks based on information collected from park users

❏ Park managers can **adopt frameworks or models** to organize indicators for easier monitoring

Discussion (2)

- Both similarities and discrepancies of park managers' and park users' perceptions of important indicators were observed and apparent

	Park managers	Park users
Most important	<ul style="list-style-type: none">Internal management (5)Resources and facilities (3)	<ul style="list-style-type: none">Safety (3)Environmental quality (3)
Least important	<ul style="list-style-type: none">Community and public education (3)Public participations (2)Environmental quality (2)	<ul style="list-style-type: none">Community and public education (3)Internal management (2)

- Expectation of park users were relatively greater than that of park managers

Discussion (3)

- Ⓔ Both similarities and discrepancies of park managers' and park users' perceptions of indicator performance were observed and apparent

	Park managers	Park users
Best-performed	•Park facilities (6)	•Park environment (4)
Least-performed	•Park planning policies (3) •Public participation (2) •Environmental quality (2)	•Community and public education (3) •Public participation (2) •Accessibility of minority and disabled (2)

- ✓ “Greenery/nature was what visitors liked most”
- ✓ “Park visitors reported that they were happy with the parks as they were...”
- ✓ Park visitors disliked most on inadequate recreation facilities

Conclusion and Recommendations

- ◆ Urban park management in Hong Kong can be improved by developing and adopting indicators:
 - ✓ Collecting and **summarizing park data**
 - ✓ Selecting **appropriate indicators for each thematic** urban park
 - ✓ Involving **multi-stakeholders' perspectives** in generating and selecting indicators
 - ✓ Using indicators as monitoring tools
 - ✓ Adopting **sustainability frameworks** to organize indicators
 - ✓ Making information of indicators publicly available
 - ✓ Comparing indicators among parks appropriately as basis for developing benchmarks and performance measurement
 - ✓ **Reviewing indicators periodically**





Thank you!