Tourist attractions in Bangkok and Singapore; linking vandalism and setting characteristics

Abhishek Bhati [a, *], Philip Pearce [b]

[a] James Cook University Australia, 149 Sims Drive, 387380, Singapore
[b] James Cook University Australia, Townsville, QLD, Australia

HIGHLIGHTS

- Links between vandalism (property damage) at attractions and the site characteristics (physical setting).
- Confirmed that properties of vandalism revealed in western studies are applicable to the Asian context.
- Features of site design and management varied between the sites.
- Importance of design, management and stakeholder involvement in visitor attraction management.
- Reviews how to present, protect, and preserve tourist attractions.

ARTICLE INFO

ABSTRACT

The study adopts an exacting observational approach to vandalism and its site determinants in two pivotal Asian cities, Bangkok and Singapore. The study served three goals: to develop and evaluate an observational approach to auditing the damage to tourist attractions; to link the setting characteristics to the indicators of damage; and to explore the applicability of Western constructs of vandalism and control to these Asian settings. A cluster analysis identified five kinds of sites which differed systematically in levels of disrepair and the factors influencing that damage. Sites with higher and lower levels of vandalism appeared in both cities. Powerful factors limiting damage were identified. The western site determinants for vandalism applied to the Asian settings.

1. Introduction

Across the decades of tourism study there has been a recognition that well managed, appealing tourist attractions are pivotal to the health of the tourism system (Fyall, Garrod, Leask, & Wanhill, 2008; Gunn, 1994; Pearce, 1991). Attractions are key icons in destination marketing efforts and they are frequently used to spearhead regeneration projects and new developments (Jafari, Fuat Fırat, Ahmet Süerdem, Søren Askegaard, & Dalli, 2012; Leask, 2010). Arguably, visitor attractions play a pivotal role in the appeal of tourism destinations because they act as motivators for both local and leisure based travel (Leask, 2010; Shaw & Williams, 2004; Weaver & Lawton, 2007). Edelheim (2015) refers to visitor

attractions as contributing to the narratives of place identity and adding meaning to visitor experiences. An inclusive approach to commercial and non-commercial settings is underpinned by the view that the term attraction refers to "a named site with a specific human or natural feature which is the focus of visitor and management attention" (Pearce, 1991, p. 46). The approach is supported in the works of Faulkner, Moscardo, and Laws (2001), Swarbrooke (2002) and Morgan and Messenger (2009). For the purposes of specific site analysis and research, large spaces and corridors such as the Great Wall of China, the Rocky Mountains or the Rhine River are effectively collations of attraction sites and visitor opportunities.

Within the broad array of tourist attraction studies there are two themes that have rarely been brought together to build more sustainable tourism destinations. The topic areas which can be juxtaposed are analyses of attractions in Asia (Henderson, 2010) and the specific concern of the physical damage by tourists and others to

* Corresponding author.
E-mail addresses: Abhishek.bhati@jcu.edu.au (A. Bhati), Philip.pearce@jcu.edu.au (P. Pearce).

site facilities (Crotts & Pan, 2007; Garrod, Fyall, Leask, & Reid, 2012). There are three specific justifications for exploring the conjunction of these topics. There is the issue of the costs incurred, and these costs may be in terms of replacing materials, maintenance time, surveillance requirements and the larger issues of reputational damage and ill effects on the community. A second justification for the juxtaposition of the interest areas lies in the ongoing rise of tourism in Asia, both in terms of domestic travel within and across Asian countries and international arrivals from other continents. There is some public concern that the new waves of tourists are placing pressure on tourist sites and that their behaviour is not always exemplary (Benckendorff, 2006). In this context, building the study of attraction management in the Asian region may be a step towards the broad goals of minimising impacts and promoting sustainable practices and policies. A third reason for linking the topics lies in exploring the applicability of concepts about vandalism and the influence of site characteristics developed in the western (and especially British and North American) contexts. The question being addressed here is do the conceptual approaches and mini-theories about damage and the influence of setting characteristics transfer to Asian attraction sites?

Working in the important Asian hub cities of Bangkok and Singapore, the first aim of the present study is to develop and evaluate an observational approach to auditing the damage to tourist attractions. A second aim is to link the setting characteristics at a range of tourist attraction sites in these two cities to the indicators of damage. A third goal is to explore the applicability of Western constructs of vandalism and control to these Asian settings.

The specific goals of the research can be set in the broader context of supporting the development of an informed approach to creating and managing sustainable tourism attractions in Asia and beyond.

1.1. Literature review

Two topic areas are considered to build the conceptual and methodological background to meet the aims of the research. Most attention is given to the environment design influences on vandalism. This literature provides considerable information on the kinds of outcomes which may be assessed at tourist sites and the site characteristics seen as likely to influence those outcomes. A second supporting area of interest lies in exploring and employing observational studies. It will be argued that this style of work with a long history in other social science areas has some special strengths for the present research.

1.1.1. Environment design influences on vandalism and its prevention

The following definition is central to the use of the term vandalism in this research project.

> Vandalism is as an act of intended human aggression that is effectively anti-social, which while not necessarily invoking criminal charges, does result in damage to or loss of property.

Some key points in this approach include an emphasis on aggressive behaviour, anti-social behaviour, acts of property damage and losses to society.

The foundation work in this field includes the study of defensible spaces by Newman (1972) and the explanations of vandalism by Cohen (1971). Their perspectives are based on the premise that deviant behaviour can be influenced by opportunity and may not always be planned a long time in advance. The more contemporary

discourse on crime prevention through environment design (CPTED) in the works of (Cozens, Saville, & Hillier, 2005) and (Ekblom, 2011b) also attends to the properties of the physical setting. The CPTED concept is based on crime-prevention studies (Clarke & Mayhew, 1980; Cozens, 2008; Cozens et al., 2005; Ekblom, 2011a; Jacobs, 1961; Jeffrey, 1971; Lynch, 1960; Newman, 1972; Poyner, 1983). Bhati and Pearce (2016) applied CPTED in a tourism setting. The key ideas recognise that specific features of a setting can discourage offenders and deviant behaviours. The following succinct sub-sections present a discussion of the importance and appropriateness of key characteristics.

1.1.1.1. Territoriality. Newman (1972) in *Defensible Spaces* emphasised the importance of 'sense of belongingness' and 'ownership' of the environment. Clearly defined boundaries of public, semi-public, semi-private, and private space provide perception of control and thus influence behaviours within the environment. Different forms of territorial cues include symbolic barriers (signage, both verbal and non-verbal) and real barriers (barricades, marked walkways). Several studies have shown the link between higher levels of territorial claim and low crime rates (Devlin & Brown, 2003; Glasson & Cozens, 2011; Reynald, 2013). Closely linked to territoriality is the opportunity to provide surveillance.

1.1.1.2. Surveillance. The opportunity to provide guardianship by a property owner determines levels of surveillance (Ekblom, 2011b). Informal elements (e.g., open facility design, windows) provide a natural self-surveillance opportunity to visitors and employees of the attraction. Formal organised surveillance elements (e.g., site guards) show involvement of guardians and stakeholders (Cozens et al., 2005). In addition, technological progress has provided mechanical elements in the form of CCTV cameras and artificial lighting to enhance possible levels of surveillance (Sohn, 2016).

Certain features of the physical setting such as adequate illumination in the physical setting and reduced visibility due to corners or bends influence possible levels of surveillance. The perception of surveillance is a deterrent in itself, limiting deviant behaviour in advance. An individual's perception of being watched, such as the feeling of being monitored by guards or CCTV camera, affects behaviour and encourages desired behaviours (Ekblom, 2011b).

1.1.1.3. Access control. This concept focused on reducing the opportunity of open access in an environment and the resultant increase in the perception of risk for offenders. Access control includes the access to the attraction from outside and access to the artefacts within the attraction. A survey of the literature reveal that access control mechanics include informal measures (physical design and landscaping elements), natural element (waterfronts, highways), formal/organised (entry points and exit nodes), and mechanical tools (automated gantry, security codes). The concept can be expanded to include additional elements limiting access to artefacts and features within the attraction. These are classified as organised access control measures in the study. Measures in form of railings, tamper-proof clear glass/plastic panels, and display cabinets limit open access to visitors (Clancey, Lee, & Fisher, 2012; CPTED Committee, 2000; Leanne, 2011; Reynald, 2011). Further, some measures such as natural and mechanical access control are more effective in limiting entry into the attraction, while informal and organised elements are more relevant within the attraction. Studies by Newman (1976, 1996) and others (Albrecht & Das, 2011; Buckley, 2010; Shaw & Williams, 2004) have indicated an association between increased access control and lower levels of vandalism.

1.1.1.4. Activity support. The concept of activity support can be conceived as a set of elements motivating visitors to be safe or avoid unsafe activities. The set of instructions may include when, where and how to enjoy components of the attraction space. Ekblom (2011a, p21) suggests that activity support variously informs, motivates, empowers and directs public behaviour. These directives act as crime prevention forces as they encourage certain behaviours while discouraging others, thus reducing the perceived opportunity for deviant behaviour. Further, elements in the physical setting in the form of signage, facilities, and amenities provide behavioural cues and encourage safe activities for visitors at an attraction site (Cozens et al., 2005).

1.1.1.5. Image/management. In the words of Cozens et al., 'Promoting a positive image and routinely maintaining the built environment ensures that the physical environment continues to function effectively and transmits positive signals to all users' (2005, p. 337). Efficient prompt management, and up to date maintenance are the main components of this site feature. The concept of 'image' with its emotional underpinning determines the distinctive appeal of an attraction. It affects the nature of visitors attracted to a site and their intended behaviours. At times stakeholder involvement may be affected by their impression of tolerable visitor behaviours (Ekblom, 2011a; Mair & Mair, 2003).

While maintenance of the facilities and equipment affect the functionality of a site, management, which encompasses maintenance, affects opportunity for crime. The broken windows study (Wilson & Kelling, 1982) emphasised the role of management, while other work has linked inadequate management practices to crime precipitators (Wortley & Mazerolle, 2012). The opportunity to create a positive image and to ensure rapid repair and maintenance are dependent on the nature of attraction property. A vulnerable property feature is considered as a soft target and is easy to vandalise (Fyall et al., 2008).

1.1.1.6. Target hardening. As the term suggests, the concept refers to the process of 'hardening' the target, which means making it more difficult to damage property. The impression of a 'gated community' and the perception of higher levels of difficulty or effort required to damage property can discourage deviant behaviour. Both are features of target hardening (Fyall et al., 2008). Effective target hardening is dependent on the choice of materials in construction and presentation of actual sites and involves very specific choices depending on climate, aesthetics and use levels of the facilities (Sohn, 2016).

1.1.1.7. Stakeholder participation. Sustainable tourism development typically requires involvement and collaboration between several partners (Paskaleva-Shapira, 2007). Similarly, sustainability of a visitor attraction often mandates collaboration among the main stakeholders, namely, the site management, the local government, and the immediate community (Timur & Getz, 2008). The issue of who is seen as owning and managing the area or place is a visible part of the presentation of an attraction. It is possible to argue that different site w owners may attract different responses from site users. It is therefore appropriate to include the item in a physical audit of attraction sites (Jamal & Stronza, 2009; Sheehan & Ritchie, 2005).

1.1.1.8. Surrounding land use. Discussion on land use in urban areas has attracted some attention in research studies, especially in the wider the discourse about environment impact assessment (Doygun & Kuşat Gurun, 2008; Williams & Shaw, 2009). Unplanned land use surrounding the larger nature-based attractions (for example national parks and zoos) may have consequences for the quality of the attraction itself, in terms of invasive species or simply impacts on the image (Getz, 1994; Teye, Sirakaya, & F.; Sönmez, 2002; Weaver & Lawton, 2013). Similarly, conflicting surrounding land use may reduce the attractiveness of an attraction to visitors and promote destructive behaviour including fires, littering, and pollution (McKercher, 1992; Williams, 1998).

In summary, the preceding review serves as an examination of the potential sustainability of tourist attractions in terms of the appraisal of the physical properties of the setting. This review does not mean to imply that the behaviour, motives and attitudes of the people using the setting are of lesser concern in tackling the problems of vandalism. To adopt that perspective would be to adhere to a naïve form of environmental determinism, a position long rejected in environmental psychology and human geography studies (Bell, Fisher, & Loomis, 1978). Instead, the view is taken that an understanding of the outcomes of destructive human behaviours at tourist attractions can at least build on a systematic appraisal of the characteristics of the site. The task of accessing and understanding the values and intent of those causing the damage is a related but separate study topic and research project.

2. Research aims

By drawing together key ideas from the literature on vandalism and the observational technique which can be employed to explore these issues, the present study has built the information and methodological pre-requisites to pursue the following aims in a study in Singapore and Bangkok. The researchers seek to

(1) Develop and evaluate an observational approach to auditing the damage to tourist attractions.
(2) Link the setting characteristics at a range of tourist attraction sites in these two cities to the indicators of damage.
(3) Explore the applicability of Western constructs of vandalism and control to these Asian settings.

3. Methods

Singapore and Bangkok are two pivotal South East Asian cities; they are home to the dominant tourism hub airports of the region and both are locations where the pressure of tourists on the attractions are considerable and well worth studying (Enright & Newton, 2004; Hui & Wan, 2009, pp. 109–123; McKercher, 2008). The destinations have some interesting points of comparison. Some similarities are that they are urban tropical cities which are international transport hubs with important tourism and convention industries. Sitting at opposite ends of the Malay Peninsula, Singapore and Bangkok have both enjoyed rapid tourism inbound growth in recent years. Notwithstanding the commonalities, the locations do have substantial differences (McKercher, 2008; Tagliacozzo, 2009). Some of the differences are varied styles in the government and regulatory framework for managing tourism, more active government intervention and support for tourism infrastructure growth in Singapore, and cultural, ethnic and religious differences of note. Bangkok is a hub to a whole country whereas Singapore, as a small island nation, has no substantial hinterland beyond the city.

3.1. Selection of visitor attraction sites

The following section outlines the detailed steps adopted to select the sites for the fieldwork.

A key preliminary step was to identify the types of attractions in these urban tropical tourism destinations. An activity-based

approach has advantages in differentiating attraction types for detailed analysis (Morgan & Messenger, 2009). The differences among attractions are determined by grouping attractions into key themes which reflect the tourists' behaviours and on-site actions (Mehmetoglu, 2007; Navarro, 2015). The categories of attractions and the type of visitor activity at these attractions are summarised in Table 1 below.

The preceding steps build a conceptual framework to select the sites for the study. The next step was to identify popular visitor attractions in Singapore and Bangkok.

In order to establish the popularity of the sites, publicly available website sources making recommendation to visitors were identified. Four kinds of sources were identified: the official source of tourism-related information, the popular tourism reference books, popular regional travel website, and popular global travel web sources. A website for each type of source was selected for Singapore and Bangkok, respectively. Table 2 lists the web sources employed to identify the sites for the study.

Thus, the selected site had to represent the following features:

- Attract visitors and offer a specific 'type of activity' as listed in Table 1 above.
- Meet the previously stated criterion of an attraction and should be recommended as a visitor attraction by popular and reliable web sources.
- Be recommended by all the *four* sources as a popular visitor attraction to be eligible for selection.

Table 3 identifies the sites that were carefully selected with due consideration to the qualification criteria.

An important step in the exercise was to ensure a basic similarity of attractions (sites) in Singapore and Bangkok to assist site and city comparisons. The attractions identified in Table 3 are compared on relevant parameters to ensure, firstly, the relevance of the sites to the study and, secondly, to link the attractions. The sites all met specific criteria such as being easily accessible to ensure higher chances of tourist visitation. The sites also represented different ownership/guardianship patterns in order to study the stakeholder responses. Five parameters were identified to establish the comparability of the visitor attractions in Bangkok and Singapore. One attraction for each type of activity was identified at every location. The five parameters of site comparability are outlined below.

- Within the city (municipal) limits
- Accessible by public transport
- Comparable in scope of operations
- Opportunity to collect data within the ethics approval guidelines
- Comparable in ownership/guardianship.

Table 1
Categories of attractions and type of visitor activity.

Category	Type of activity
Natural	Visit nature reserve/marine reserve
	Swimming and water sports
Human made not as an attraction	Visiting scenic landmark
	Excursion tour to city centre
	Visit place of worship
	Tour local community/market
Human made purpose built as an attraction	Experience night-time entertainment
	Shopping
	Visit amusement/theme park
	Visit galleries/museum
	Visit national park/wildlife conserve

Choosing eleven sites in each location meets the theme of sufficient numbers for this kind of work (Pearce, 2008), fulfils the criteria of being comprehensive Veal (2006), and covers a range of attraction types (Swarbrooke, 2002). The final selection of sites (attractions) in Table 3 was viewed as appropriate to achieve the objectives of the research to study vandalism by visitors at tropical tourism destinations, link the setting characteristics to the indicators of damage and explore the applicability of Western constructs of vandalism and control to these Asian settings.

3.2. Construction of audit check-sheet for the physical audit

Woods and Moscardo (2003) argue that use of on-site observational checklists to study acts and behaviours of visitors is an effective means of obtaining additional quantitative and qualitative information. The audit takes the form of a record of observation of physical properties of the sites, actual signs and evidences of vandalism, and the efforts towards restoration, repair, and general site management. An audit instrument in the form of detailed check-sheet was constructed to create an inventory of items that relate to the properties of the setting and the observable outcomes classified as acts of vandalism at tourist sites. The audit instrument draws on the early foundation work of defensible spaces by Newman (1972) and Cohen's explanation of vandalism. It is based on the premise that deviant behaviour is due to opportunity, that is, it is not premeditated. The current discourse on crime prevention through environment design (CPTED) in the works of Cozens et al. (2005) and Ekblom (2011a) was influential in outlining the properties of the physical setting. The CPTED concept is based on crime prevention studies (Clarke & Mayhew, 1980; Cozens, 2008; Ekblom, 2011b; Jacobs, 1961; Jeffrey, 1971; Lynch, 1960; Newman, 1972; Poyner, 1983).

It is impractical to observe and record all properties and characteristics in a setting. The audit tool developed for this study focuses on a model for considering properties, attributes and elements (refer to Table 4). The model consists of *properties* (defined as the overall factors that summarise the site environment), *attributes* that influence each of those *properties* (those factors that form the components of *properties*), and *elements* that influence the *attributes* (factors that have the potential to be changed to improve an *attribute*). A comprehensive instrument to measure the potentially important environmental factors that influence the extent of vandalism at a tourist attraction was developed using these components. The next section outlines the site properties.

The site properties are classified into two categories: site design and site management. These concepts follow the key ideas established in the literature review. The site design properties were territoriality, surveillance, and access control. The site management properties were activity support, image/maintenance, target hardening, and stakeholder participation. The surrounding land use was also captured as an additional site property. This measurement was included to determine a better understanding of tourist activities and interests within the immediate vicinity of the site. On-site comments and interpretations by the audit team were made for each category and sub-category. The validity of the recordings was strengthened by collecting visual evidence and 'as-it-happens accounts' captured in pictures, video recordings, voice recording, and narratives. Two auditors were used to complete the audit checklists to avoid bias. Using observation as the primary tool, two auditors working together recorded observations related to various properties of the setting (sites). The inter-rater reliability of their efforts is documented in a subsequent section.

The final section of the audit recorded observable outcomes of vandalism using an inductively derived typology. The observable

Table 2
Online sources referred to while selecting visitor attraction sites.

Website characteristics	Singapore selection	Bangkok selection
Official tourism information of the state	Singapore Tourism Board (www.stb.gov.sg)	Tourism Authority of Thailand (www.tourismthailand.org)
Popular tourism reference	Lonely Planet Singapore (www.lonelyplanet.com/Singapore)	Lonely Planet Thailand (www.lonelyplanet.com/thailand)
Popular regional travel website	www.Zuji.com.sg	www.Sawadee.com
Popular global travel web source	www.Tripadvisor.com/destination	www.Tripadvisor.com/destination

Table 3
List of visitor attraction sites in Singapore and Bangkok.

Category	Type of activity	Singapore	Bangkok
Natural	Visit nature reserve/Marine reserve	Botanical Garden	Lumpini Park
	Water sports	Sentosa Beach (Siloso)	Chao Pharaya River
Human made not as an attraction	Visiting scenic landmark	Marina Bay precinct	Grand Palace
	Excursion tour to city centre	Orchard Road	Prathumwan City Area
	Visit place of worship	Sri Marriamma Temple	Temple of Reclining Buddha
	Tour local community/market	Chinatown	Chinatown
Human made purpose built as an attraction	Sample local food/dining out	Clark Quay	Khaosan Road
	Shopping	Takashimaya Mall	Siam Paragon
	Visit amusement/theme park	Wild Wild Wet	Siam Park City
	Visit galleries/museum	Asian Civilization Museum	Jim Thompson House Museum
	Visit national park/wildlife conserve	Singapore Zoo	Dusit Zoo

outcomes ranged from graffiti, carvings, damage to artefacts, litter, pollution, damage to natural and marine features, and abuse of tourist infrastructure. Effort was taken to record all available visible features at the sites. The detailed observation included a judgment of the on-site presence of evidence of vandalism and identification of the actual location as part of the findings. An accompanying section with interpretations and a narrative provided additional description as appropriate.

The audit instrument was the primary tool for data collection in this study. The instrument provides a comprehensive method to study the properties of the setting, site management practices, and to assess vandalism at the research sites.

3.3. Observation studies

Researchers who use direct observation tend to do so in specific circumstances (Sayer, 2010). Watching the behaviour of others or observing the traces and signs indicative of their behaviour are of particular value under the following conditions: where the research phenomena cannot be compartmentalized and studied in laboratories, for example, crowd behaviour; where there is a need to describe behavioural patterns and movements through space; when attending to non-verbal behaviour, particularly facial expressions, laughter, gestures and posture; in the consideration of illegal or anti-social behaviour, of much of which is unlikely to be readily reported; and where people cannot reliably report their own behaviour, such as when they are drunk or drugged. Additionally, even outside of these circumstances much behaviour is simply difficult to recall, such as how much time was spent in specific spaces within a setting. For many of these naturalistic, socially sensitive, time- and space-dependent recall tasks, there is an advantage to watching or recording the outcomes of public behaviour rather than asking questions about it (Pizam & Mansfeld, 1996).

The topic of vandalism at tourist attraction sites is suited to observational work because of the anti-social nature of the behaviour and the low likelihood that instigators would reliably report on the acts or recall their involvement over time with any accuracy. Since such behaviours tend to occur with low frequency or over extended time periods it is pragmatic to propose an observational style which is indirect and unobtrusive (Veal, 2006). The documentation of traces, effectively what people leave behind, or signs of erosion, that is what is worn away or damaged, become the major categories of information collected (Eugene, Campbell, Schwartz, & Sechrest, 1966). Each time the observation technique is used there are subtle modifications to the procedures adopted due to the sites and goals of the studies. For example, Vella et al., (2015) used an intensive observational approach in the form of a systematic pedestrian survey to document looting and vandalism around the Petra world heritage site in Jordan.

3.4. Pilot study

A pilot study was conducted at three public tourist sites—Esplanade Park and Merlion Park in Singapore and Pathum Wan in Bangkok. Two auditors conducted a simultaneous audit for ease of comparison. They recorded data relevant to all the categories listed in Table 4. The comparative analysis assisted in improving observation techniques, using the recording mechanism and amending the framework of the audit schema. For instance, the number of measures for the objective coding was increased from 102 to 104 observations after the pilot study. The finalized audit-sheets were collated for inter-rater reliability test as detailed in a subsequent section.

3.5. Inter-rater reliability audit instrument coding

The inter-rater reliability (IRR) study was conducted using Cohen's Kappa statistics. The average score after the pilot study was $k = 0.77$. Kappa (k) index above 0.5 is good agreement, while anything above 0.75 is considered to be extremely high level of agreement (Stemler & Tsai, 2008; Sun, 2011). Thus the kappa index $k = 0.77$ for the study signifies a high level of inter-rater reliability. Similarly, the random sample of five sites from the actual physical audit had an average score of $k = 0.69$ with $p < 0.001$ significance, indicating good inter-rater agreement.

In order to ascertain the reliability of the data collection and the physical audit exercise, observations of an independent observer

Table 4
Typology of properties, attributes, and elements in physical audit.

Properties	Attributes	Elements
Territoriality	Symbolic barriers	Signage
		Landscaping
		Pavement
	Real barriers	Fence
		Wall
Surveillance	Informal	Facility design
		Self-surveillance
		Windows
		Visibility
	Natural	Open layout
		Lighting (natural)
	Formal/Organised	CCTV
		Security guard
		Volunteers
		Lighting (mechanical)
Access Control	Informal measures	Physical design
		Landscaping
	Natural elements	Water body
		Wooded area
	Formal/Organised	Gate
		Entry/Exit
		Security guard
	Mechanical	Automated gantry
Activity Support	Safe activities	Signage
		Suggested itinerary
		Litter bins
		Sitting area
	Unsafe activities	Signage
		Public announcements
		Security guard
Image/Management	Positive image	Clean
		Functional
	Routine maintenance	Cleaning of bins
		Cleaning of toilets
		Maintenance of gardens
		Routine cleaning of attractions
	Rapid repair and rehabilitation	Repair of damage
		Clearing graffiti/carving
		Restoration of attractions
		Repair of signage
Target Hardening		Adequate surveillance
		Secluded areas
		Presence of vandalism
		Visibility of the surroundings
Stakeholder participation	Active participation	Site management
		Establishments with the site
		Local government
		Voluntary organisations/NGOs
		General community
Surrounding land use		Commercial property
		Residential property
		Public facilities
		Landscaping features
		Civic amenities
		Others
Observable outcomes of Vandalism		Damage to artefacts
		Litter, graffiti, and carving
		Property damage
		Damage to environment
		Misuse of tourism infrastructure

were sampled to establish consistency in observations and interpretations. The quantitative data from the audit-sheets were employed to conduct a cluster analysis to classify sites into clusters based on site characteristics. The rationale and methodology of cluster analysis is reported in the next section.

3.6. Use of cluster analysis to group attractions

Cluster analysis is a popular technique to group similar cases or to separate cases to form distinct homogenous clusters assisting comparison across elements (Everitt, Landau, & Leese, 2009). The objective of cluster analysis is to summarise n cases using k clusters, where K < N. It is the prerogative of the investigator to define the number of categories or groups for analysis (Baggio & Klobas, 2011; Dwyer, Gill, & Seetaram, 2012).

3.7. Use of photographs as supporting material for clusters

Pictures taken at the sites were used as illustrations to provide context to the cluster explanations. The pictures represented visual representation of the properties used in the narratives to explain the sites and the cluster analysis. The use of pictures is a presentational strategy that brings multiple meanings into the foreground. The benefit of this approach assists the presentation of the research findings, especially to those less familiar with the sites (Schwartz, 1989; Spencer, 2010; Stanczak, 2007). The photographs are used to document elements in the environment and provide shared meaning to cluster descriptions (Ray & Smith, 2012).

4. Results

The first aim of the study was directed at building an audit instrument to assess vandalism and site characteristics at tourist attraction sites in the two South East Asian cities. The results which address this aim are the reliability scores. The validity and reliability of the audit instrument is an important step to ensure robustness of the data in achieving the audit objectives. It is important to note that the audits were performed independently and the audit-sheets completed without consultation. According to Portney and Watkins (2009), the level of agreement between raters is an approach to measure reliability when the responses are measured on a categorical scale. The chance-related agreement is a limitation of the exercise, which can be corrected using Kappa statistics. This helps in overcoming the level of agreement that could have occurred by chance (Babbie, 2013; Carletta, 1996). Thus, the inter-rater reliability (IRR) study was conducted using Cohen's Kappa statistics. Audit schemas of Esplanade Park and Merlion Park in Singapore and Pathum Wan in Bangkok from the two observers were used for the inter-rater reliability test. The k indexes 0.74, 0.83, and 0.73 were recorded with a significance level of p < 0.001 for the three sites, respectively. The average score after the pilot study was k = 0.77. Kappa (k) index above 0.5 is good agreement, while anything above 0.75 is considered to be extremely high level of agreement (Stemler & Tsai, 2008; Sun, 2011). Thus the kappa index k = 0.77 for the study signifies a high level of inter-rater reliability from the pilot study. These results were pleasingly high and the first aim was achieved through careful transformation of the ideas in the literature into a manageable audit instrument.

The second aim of the study was addressed by using cluster analysis. As a way of integrating the large amount of data collected from the 22 sites, and to understand the commonalities among the issues of vandalism and site characteristics, the sites were classified into clusters. Each site was given a quantitative rating for nine parameters. Sites were then grouped on the basis of similarity according to these measures. There are two benefits of grouping sites into homogeneous groups. Firstly, it emphasises the similarity of characteristics of sites within the group and aids intra-group comparison. Secondly, the reduced number of groups provides a manageable number of entities to make inter-group comparison.

Using PASW software, hierarchical cluster analysis of the twenty-two sites was conducted. Hierarchical cluster analysis (HCA) method maximises the similarity between cases (sites) within a cluster (group) by classifying them into homogenous groups on the basis of hierarchy. The method is also helpful in maximising the differences between clusters. According to Baggio

and Klobas (2011), the reliability of cluster analysis is established by comparing the outputs using different clustering methods. The results of the Ward method were selected for identifying and analysing clusters. The choice of Ward method is supported by its popularity as a frequently used and reliable method of hierarchical cluster analysis (Aldenderfer & Blashfield, 1984; Everitt, Landau, Leese, & Stahl, 2011).

The output of the analysis in the form of a dendrogram in Fig. 1 represents a visual map of the five clusters: sustainable, low involvement, poor management, poor enforcement, and vandalised cluster. The size of the clusters is another variable influencing the prediction validity. According to (Everitt et al., 2009), a cluster should have three or more members to be of any significance. The clusters in this study fulfil the validity criterion. Three of the five clusters comprise of four cases (sites), while the other two are comprised of five cases each. The following section briefly describes the five clusters. Images are employed to assist the understanding of the site properties.

The description of the five clusters provides an overview of the characteristics of the sites and the rationale for the grouping. Fig. 2 illustrates the similarities and differences between the clusters. A higher score represented lack of attention, and thus was not favourable to the cluster's overall profile. The highest mean score was 4, while 1 was the lowest score for all properties. The properties of the site (measure names in the legend) are represented by respective symbols. The location of the symbol on the vertical continuum help is comparison of respective property across clusters. The five clusters are colour-coded with the *sustainable* cluster in green, while the worst rating *vandalised* cluster is in red. A red coding of the vandalised cluster signifies that the properties of the site received poor attention. In contrast, the green colour-coded sustainable cluster illustrated adequate consideration by the site management.

As evident from Fig. 2, the *vandalised* cluster is markedly different from the *sustainable* cluster on all properties analysed in the study. There is evidence of vandalism at all sites in the vandalised cluster in comparison to the sustainable cluster with no or very little vandalism. The *low involvement cluster, poor management cluster, and poor enforcement cluster* are distinguished on the basis of certain key characteristics. The low involvement cluster records a high degree of similarity with the sustainable cluster in the site characteristics of physical environment, site management, and lower levels of vandalism. Nevertheless, the *low involvement cluster* exhibited below-average ratings for image/maintenance, land use, and property management practices such as repair, maintenance, and restoration of the elements. A lack of involvement of primary stakeholders was also recorded compared to the *sustainable cluster*. Low stakeholder involvement and poor management of site operations at sites within the cluster could be the possible reasons for higher levels of vandalism at these sites.

The sites in the *poor enforcement cluster* shared the common features of being geographically large and primarily outdoors settings. The nature of the physical environment created challenges in ensuring complete surveillance of the physical setting. The difficulty in maintaining the large geographical setting was also evident from the scores at the sites. Similarly, the open outdoors environment arguably resulted in the perception of a soft target, which was easily vandalised. These processes presumably encouraged deviant behaviour and higher levels of vandalism at the sites within the *poor enforcement cluster*.

The poor management cluster is characterised by low levels of site management. The higher scores compared to the sustainable, low involvement, and poor enforcement clusters were for the surveillance, activity support, image/management, and impressions of land use. Together they signify poor operational policies

and practices resulting in poor site management. The five clusters are outlined in the next section.

4.1. Cluster description

The following sections describe the clusters in detail. The narrative accompanying the cluster analyses reports on the eight properties of the site. The accompanying images provide visual evidence.

4.1.1. Cluster one — low involvement group
One of the two larger clusters, 'low involvement' cluster comprised of Siam Paragon Mall, Takashimaya Mall (Ngee Ann City shopping complex), Wild Wild Wet, Clarke Quay, and the Grand Palace sites. The five sites in the cluster had similar ratings in territoriality, access control, activity support, image/management, and extent of vandalism.

The sites are characterised by low levels of involvement of visitors in exhibiting desired behaviours and indifference of key stakeholders such as the local community, site management, and the government authorities. The sites in the cluster exhibited low scores consistently across the 'site management' properties of image/management and stakeholder participation. The majority of the sites were reported to be vandalised. All sites in the cluster were under an identifiable management regime where private, public, or voluntary management was responsible for management. However, there were limited signs of active management involvement and action.

In Fig. 3 picture composite evidence, the low involvement group shows visitors are exhibiting less desired behaviours by disregarding the signage and damaging the property. Lack of involvement of primary stakeholders encourages deviant visitor behaviours and widespread vandalism.

4.1.2. Cluster two — poor enforcement group
The cluster comprised of Lumpini Park, Orchard Road (open area within 100 m on both sides of the orchard road between Orchard Central Mall and Tangling Shopping Centre), Siloso Beach, and Singapore Botanical Garden. The sites in this cluster exhibited a very high level of homogeneity in scores across the eight site properties. A distinguishing characteristic of the cluster was the 'outdoors' and large physical setting of the sites. The sites consistently scored low ratings in surveillance, image/management, and target hardening dimensions with high level of vandalism. Poor surveillance and maintenance has results in high levels of vandalism at these sites. Inadequate measures to target hardening the site result in vulnerable property elements, soft target for vandals. There was a lack of adequate enforcement of rules and policies to correct deviant behaviour. The cluster was characterised by high involvement of stakeholders and positive overall impressions of land use. The sites were managed by public or voluntary management organisations.

Poor enforcement of rules and signage is evident in the accompanying picture composite in Fig. 4. Lack of adequate surveillance has resulted in widespread vandalism. The above images illustrate the disregard of rules and signage. Visitor presence in 'keep away' zone in Sentosa, display of merchandize beyond the regulated white line in Chinatown, Singapore, and visitors ignoring the prohibitive signage are examples of poor enforcement. Presence of litter and general damage highlight the need for surveillance and target hardening in geographically large attractions.

4.1.3. Cluster three — poor management group
This was the other larger cluster with five sites, namely, Wat Po temple, Sri Marriamman temple, Dusit Zoo, Singapore's Chinatown
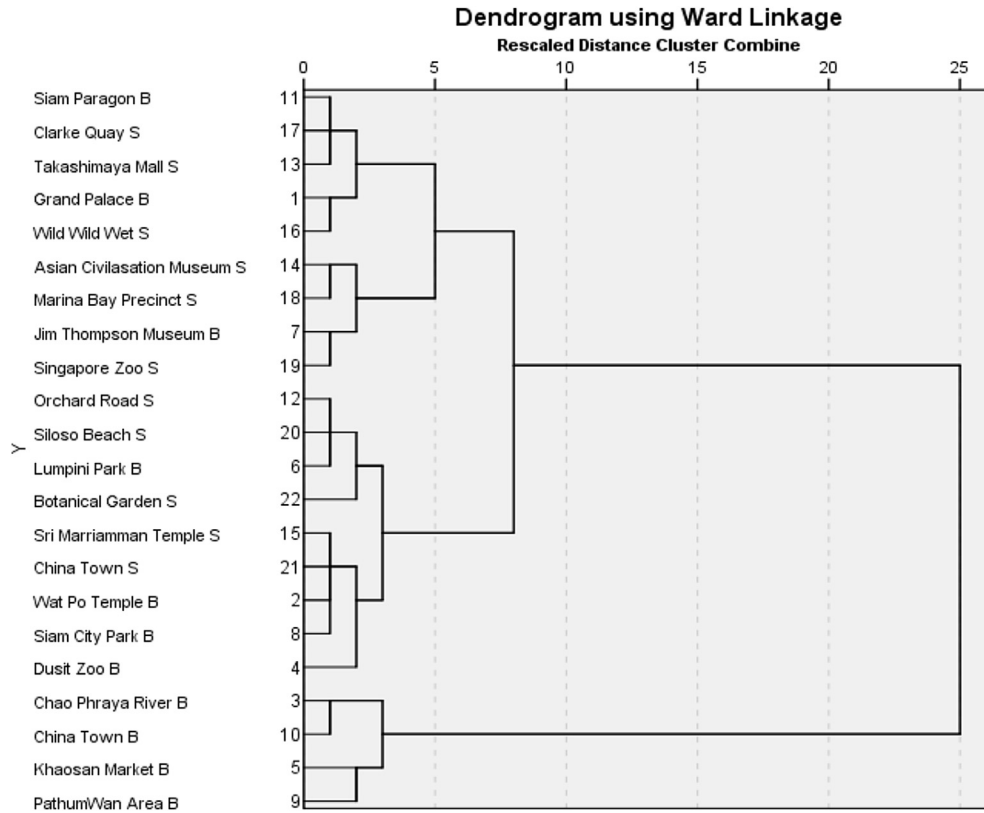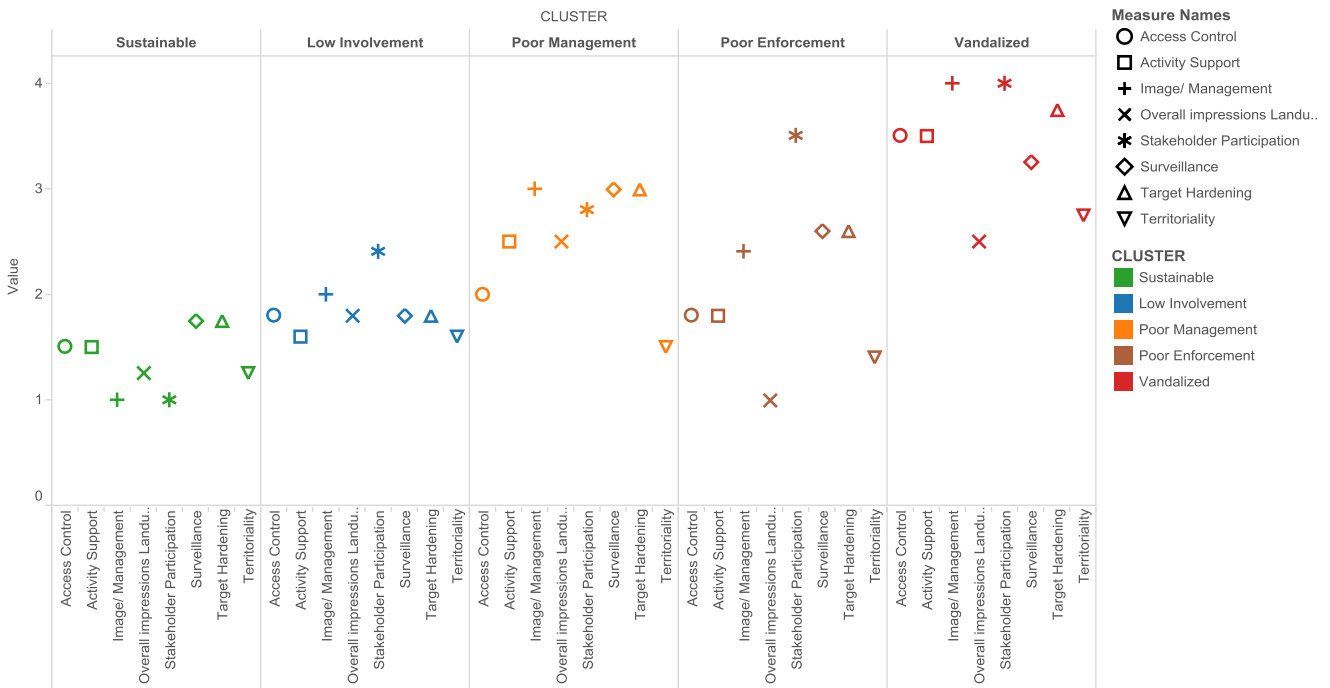
Fig. 1. Dendrogram to illustrate five clusters using Ward linkage. (B refers to a Bangkok site, S to a Singapore site).

Access Control, Activity Support, Image/ Management , Overall impressions Landuse, Stakeholder Participation, Surveillance, Target Hardening and Territoriality for each CLUSTER. Color shows details about CLUSTER. Shape shows details about Access Control, Activity Support, Image/ Management , Overall impressions Landuse, Stakeholder Participation, Surveillance, Target Hardening and Territoriality.

Fig. 2. Visual presentation of properties (measures) of the five clusters.

(Temple street), and Siam City Park attraction sites. The sites were managed by private or voluntary management regime, but management practices were inadequate to prevent vandalism. The sites were characterised by inadequate surveillance opportunities, poor activity support, limited attention to maintenance and rehabilitation, and poor land use. The rating for site management properties
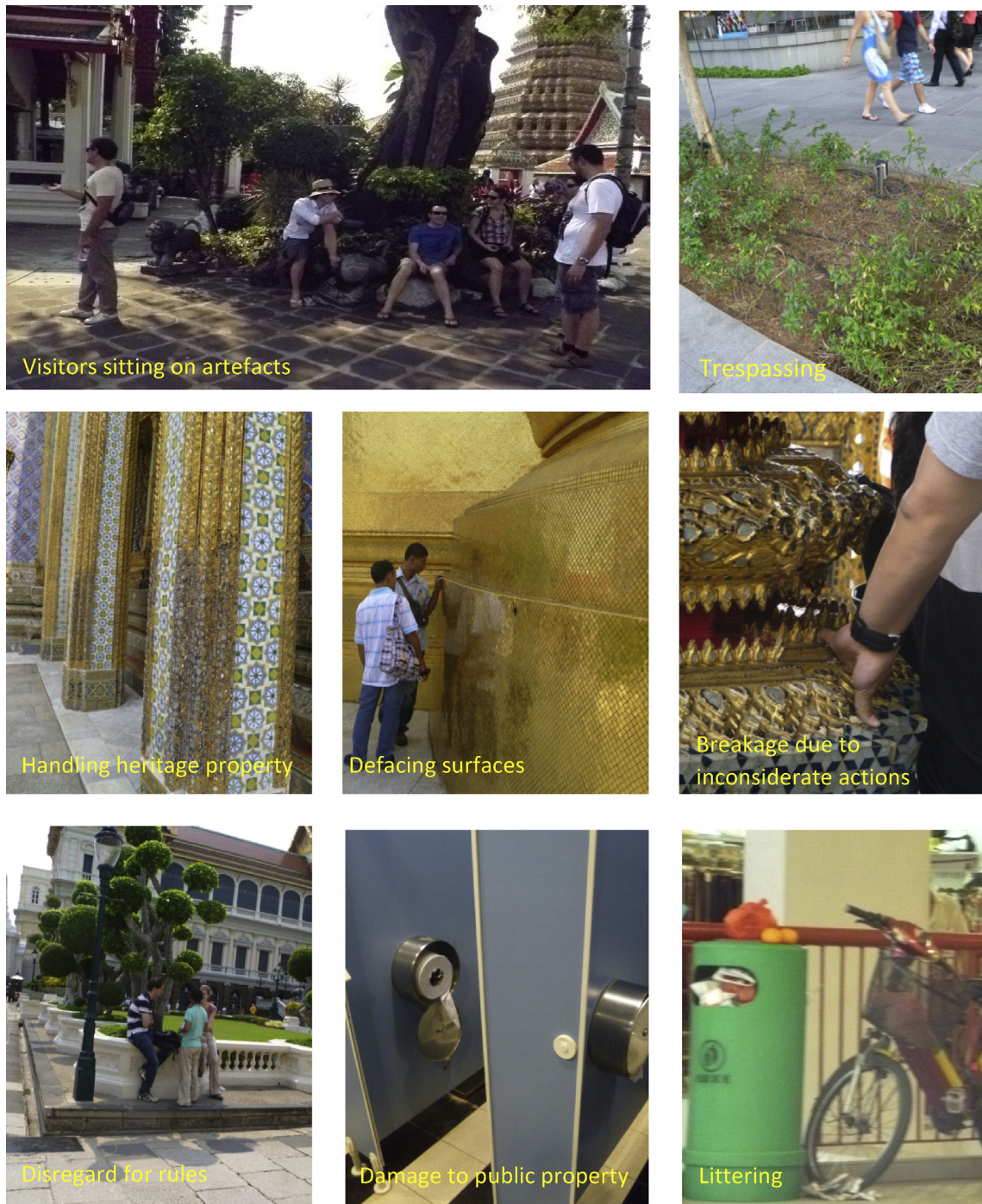
Fig. 3. Images supporting low involvement group cluster.

was consistently poor across all sites. The cluster was characterised by inadequate attention to prevention and restoration intervention strategies. Widespread vandalism signified poor management practices. The cluster was also characterised by high presence of vandalism with three sites classified as vandalised. Evidence of stakeholder participation was an important feature of the cluster.

The carving on the tables and breakage of seats and benches in the picture composite in Fig. 5 illustrate the failure to undertake regular repair and routine rehabilitation Old and faulty public announcement system, water pollution, and absence of repair of the floor at the entrance of the attractions present clear evidence of management malfunction. Poor activity support forces visitors to

sit on landscaping elements and also damage wall paintings through constant handling. These effects result in large-scale vandalism.

4.1.4. Cluster four — sustainable group

Jim Thomson Museum, Asian Civilization Museum, Marina Bay precinct (The bay area surrounded by the Esplanade -Theatre by the Bay, The Float @ Marina Bay, Helix bridge, Marina Bay Sands Bay front, The promontory@ Marina Bay and Merlion) and Singapore Zoo sites make up a distinctive sustainable cluster. It is noteworthy that three sites are in Singapore with the Jim Thompson Museum in Bangkok being a strongly western influenced attraction space in
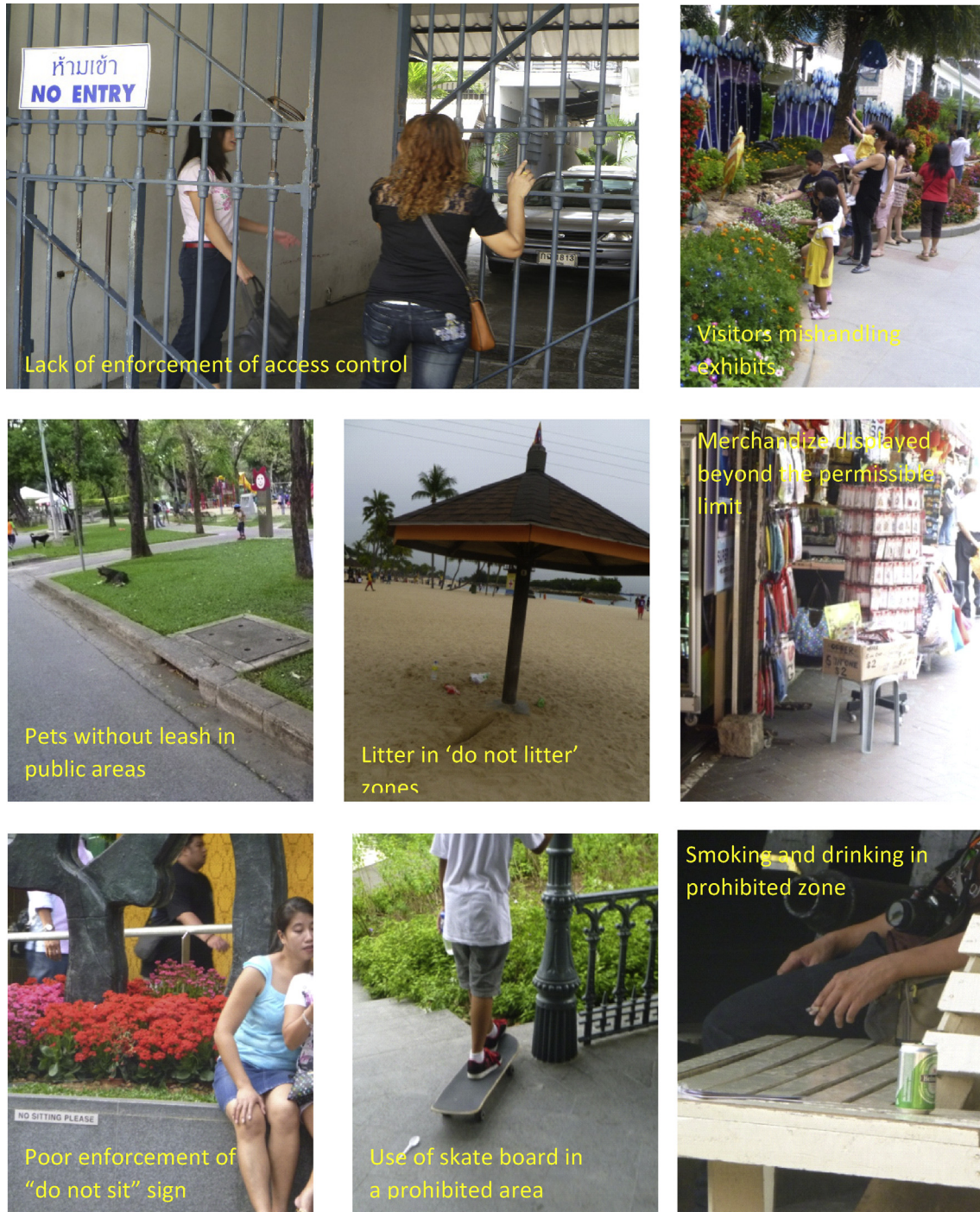
Fig. 4. Images supporting poor enforcement cluster sites.

Bangkok. The sites are characterised by the highest positive ratings in image/management, stakeholder participation, and extent of vandalism. They exhibit very similar scores in territoriality, access control, activity support, target hardening, and overall impressions of land use. The cluster was characterised by a high degree of territorial claim, adequate access control measures, and target-hardening measures. The salient feature of the sites in the cluster was effective site management practices in activity support, involvement of stakeholders, and attention to maintenance and

restoration. The cluster includes sites under private, public, and voluntary management regimes. There was very limited evidence of vandalism in these sites.

The picture composite in Fig. 6 illustrates good practices in form of activity support such as necessary signage, adequate seating, relevant information, and facilities for visitors, which encourage desired behaviours. The images present evidence of stakeholder involvement, adequate surveillance, and routine maintenance, thus promoting sustainable tourism development.

Fig. 5. Images supporting the poor management group cluster.

4.1.5. Cluster five — vandalised group

The final cluster in this set of analysis comprised of Chao Phraya river precinct (the river and the open area within 100 m of the river between Pier 0 Sathorn and Pier 13 Phra Arthit), Khaosan market, Pathum Wan area, and Chinatown Bangkok (Yaowarat road and Charoenkrung Road). It is notable that all four sites are in Thailand. The four sites are characterised by consistent low scores in surveillance, access control, activity support, image/management, target hardening, stakeholder participation, and extent of vandalism. The clusters report poor attention to physical setting of

the property characteristics such as poor surveillance opportunities, poor access control measures, and lack of target-hardening measures. A similar trend was reported in the site management characteristics in terms of a lack of basic activity support, poor management, and absence of stakeholder involvement. There was an obvious lack of local government involvement as all sites in this cluster are under public sector management. None of the sites are under private management. The sites in the cluster were vandalised with extensive damage to property.

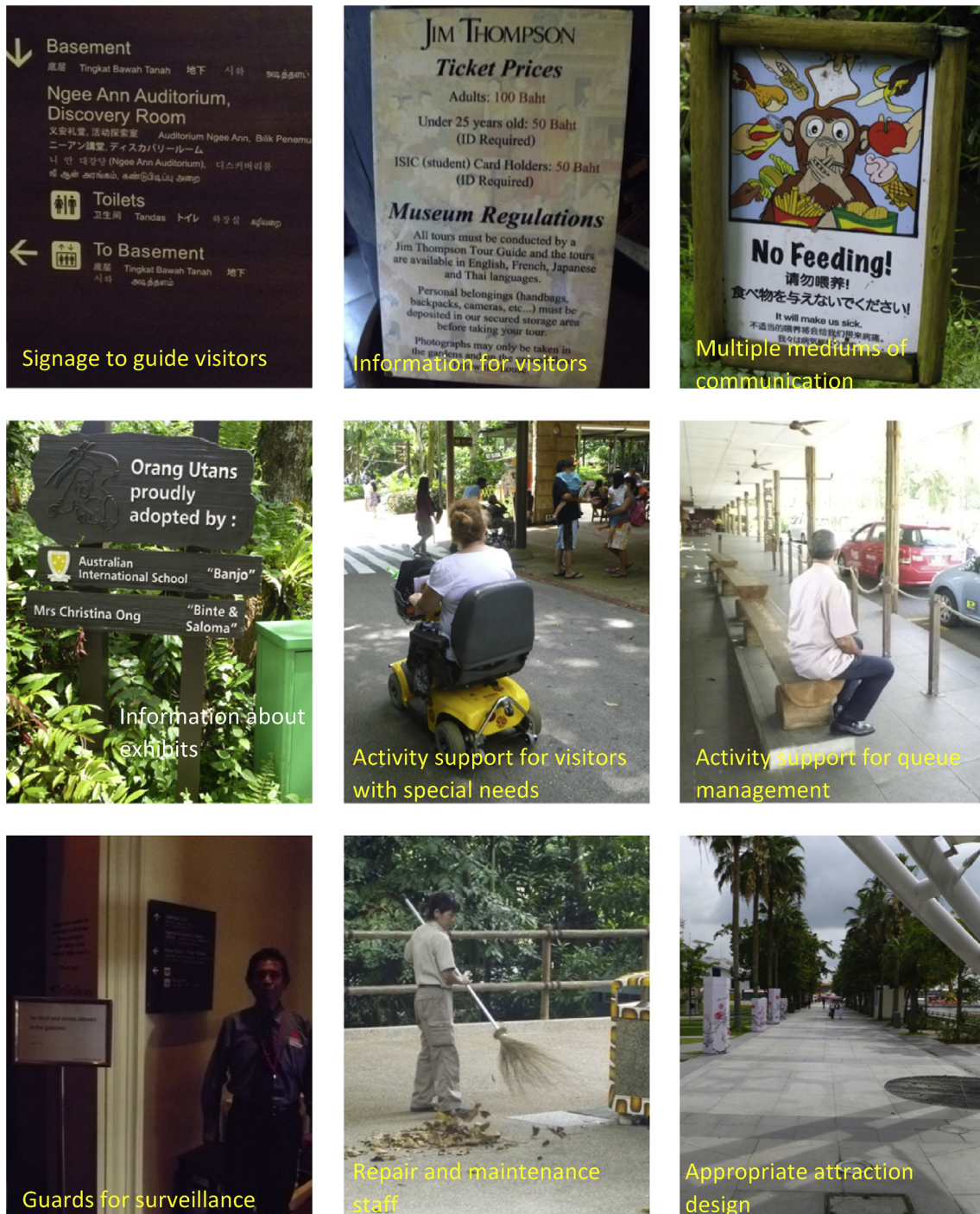The picture composite in Fig. 7 portrays widespread vandalism

Fig. 6. Images supporting the sustainable group cluster.

at the sites within the cluster. There is evidence of vandalised signage, breakage in general, absence of repair and maintenance, and litter. The lack of stakeholder participation resulted in crowded walkways and encouraged visitors to exhibit less desirable behaviours. The sites in this cluster are most vandalised and least sustainable when compared to other clusters.

The clusters described in preceding section form part of the narrative of vandalism analysis in this study. The narratives are useful in revealing treatment to each property of physical setting and in comparing and contrasting sites in terms of presence of vandalism and site management.

5. Discussion

Recent reviews of the state and themes of tourist attraction research reveal only moderate attention to the theme of property damage and vandalism (Edelheim, 2015; Leask, 2016). For example, Edelheim in a volume of 230 pages, treats environmental damage within the span of 4 pages (Edelheim, 2015, pp. 43–47). In a broader field of interest, that of crime prevention studies, the role of environmental design in preventing the costs and damage to sites have been considered in more detail (Leask, 2016). Building on the foundation work of Newman (1972) on defensible space,
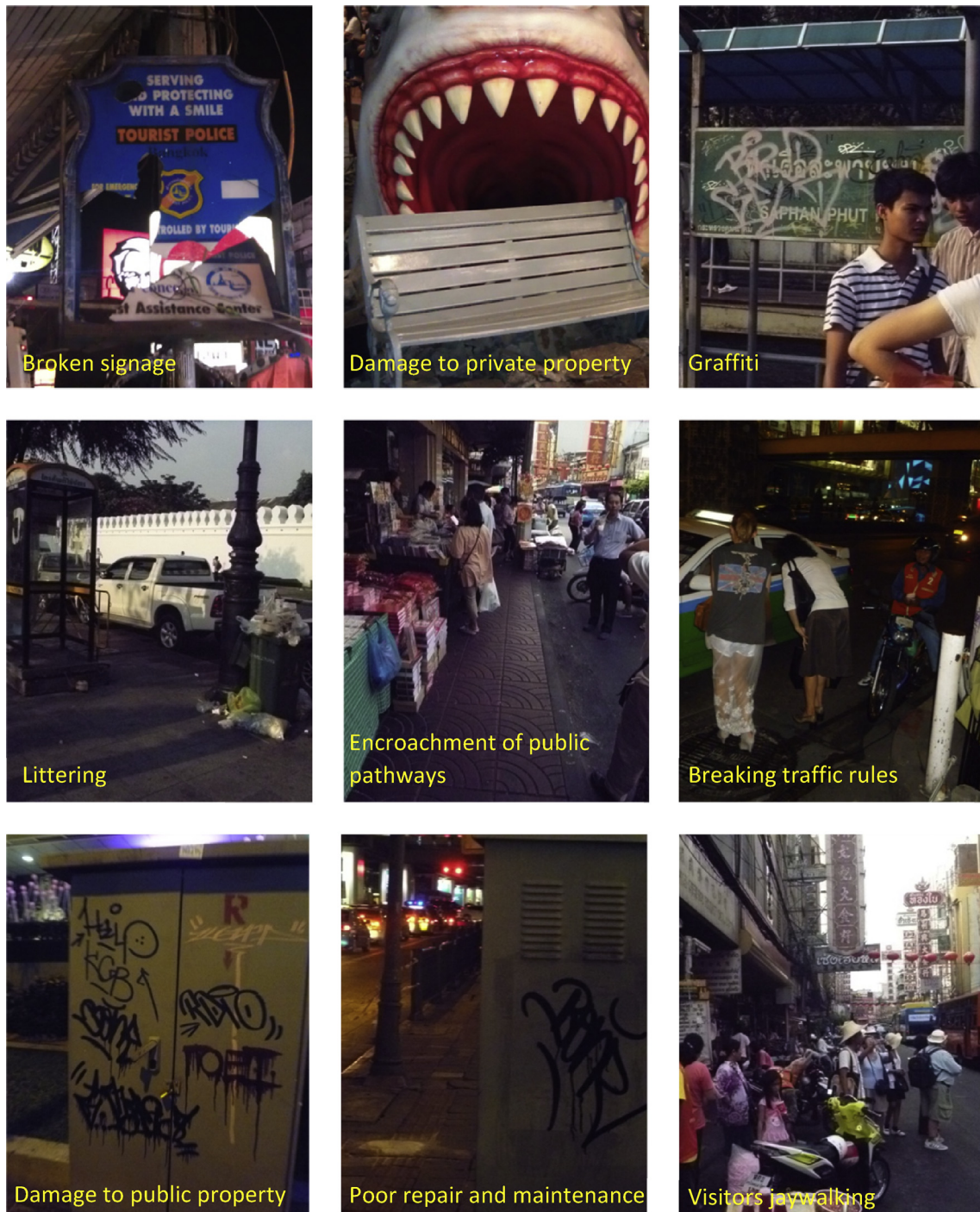
Fig. 7. Images supporting the vandalised group cluster.

researchers have highlighted the many roles of the physical environment in influencing deviant behaviour. Few studies, however, have focused specifically on the relationship between the physical design properties such as territoriality, surveillance, access control and target hardening and damage generating behaviour in tourist attraction settings (Crotts, 2011; McCaghy, 2008; Owen, 2007). The present work in a South East Asian tourism context represents new work assessing property damage with a specific focus on city attractions.

Initially the study achieved its first aim of being able to develop a coding scheme with solid reliability to assess observable

outcomes of vandalism on site. Next, the researchers identified a significant set of links between vandalism (property damage) at tourist attractions and the physical properties of the sites. The value of considering the two locations was highlighted in the contrasts between the most and least vandalised clusters. For example, the sites in the vandalised cluster were all in Thailand and had limited surveillance while nearly all those in the sustainable cluster were in Singapore with strong application of design principles of territoriality, stakeholder involvement and image management.

The sites in the other three clusters adopted varied approaches to environment design, often with some inattention to specific

elements which could be linked to observable vandalism at these sites. For these clusters, there are sites from both countries. The nature of vandalism corresponded to the characteristics of the poorly rated properties of physical design. For example, inadequate surveillance led to poor enforcement of rules in the poor enforcement cluster. The large geographic setting and open access nature of the poor enforcement cluster presented challenges in providing adequate surveillance opportunities and ways to ensure rapid repair and rehabilitation. Glasson and Cozens (2011) in their work on crime prevention through environment design (CPTED) and Ekblom (2011b) have stressed the deterrent value of surveillance. Low levels of monitoring at the sites in poor enforcement cluster appear to be linked to higher levels of vandalism. Arguably, the lack of maintenance gives the perception of a 'soft target' and encourages deviant behaviour (Fyall & Leask, 2006; Leask & Fyall, 2006,2008).

The results from the poor management cluster which is characterised by high vandalism can be explained by the lack of management practices in reducing the perception of opportunity by offenders to damage property. The 'broken windows' theory (Katy, 2007), which proposes that timely repair and maintenance of physical space discourages acts of vandalism, can be applied to the sites within this grouping as the presence of litter, graffiti, and defaced surfaces may serve as symbolic facilitators for future transgressions. Evidence from empirical studies such as carving on tables (Samdahl & Christensen, 1985), the availability of alleyways and recessed doors for offenders to congregate or act (Owen, 2007), and the nature of an attraction can all create hot spots for repeated damage (Roncek & Maier, 1991).

Another important finding of this study was that the extent of vandalism was also related to the large variance in the activity support systems at attractions. The sustainable and the low involvement clusters recorded lower levels of vandalism which can be attributed to encouraging visitors to participate in safe activities while discouraging involvement in unsafe activities or less desirable behaviours. Pearce, Bhati, and Lee (2012) argue that poorly informed visitors may produce unintentional outcomes such as vandalism. Information about safe/unsafe activities and advice highlighting the negative outcomes of less desirable behaviours can assist visitors to reduce their negative impact on the attraction. On the other hand, the lack of activity support systems increases the chances of occurrence of vandalism. A similar perspective has been recorded in the literature where travel related stress and environmental learning in an unfamiliar setting have been linked to undesirable visitor behaviour (Guy, Curtis, & Crotts, 1990; Zehrer & Crotts, 2012). Enjoyment theory (Offler, Thompson, Hirsch, Thomas, & Dawson, 2009) and aesthetic theory (Greenberger & Allen, 1978) have both stressed better understanding of behaviour by relating it to enjoyment and pleasure seeking behaviours. Thus, activity support mechanisms at attractions could consider visitor motivation and behavioural outcomes more closely in devising systems to guide behaviours.

Stakeholder involvement in the management of visitor attractions is a further factor of interest. Lack of active participation of primary stakeholders is linked to the presence of vandalism in the vandalised cluster and the poor involvement cluster (Fyall, Leask, & Garrod, 2001; Garrod et al., 2012). The literature reveals the need for an inclusive approach to involve diverse groups and individuals in visitor attraction planning and development processes (Hetherington, Inskeep, & McIntyre, 1993; Nepal & Lu, 2009; Paskaleva-Shapira, 2007). The absence of collaborative arrangements between the site management, legislative authorities and the local community results in indifferent attitudes towards deviant behaviour and vandalism at the attractions, thus threatening sustainable tourism development (McCool & Moisey, 2008;

Pizam & Mansfeld, 1996). Arguably, in the absence of community engagement in attraction management within tropical South-East Asia, this study extends the findings about the need for civic involvement in limiting vandalism from predominantly Western studies to this region (Jafari et al., 2012; Nunkoo, Smith, & Ramkissoon, 2013; Xiao & Smith, 2006).

At a broad level, the researchers also confirmed that nearly all the fundamental physical properties of vandalism/property damage revealed in western studies are applicable to the tropical Asian context at least in the cases of Singapore and Bangkok. Several key features of site design and management varied between the sites and all seemed to play a role at specific attractions in creating positive or inattentive stewardship. The factors highlighted as powerful in the research and fully consistent with previous research in North America and the Europe were control over access, support for activities, image management, stakeholder participation, surveillance, and target hardening. The cluster analysis indicated that there were good sites in terms of management and site characteristics in each city, although overall more Singaporean sites had better design and control features. It is important to note that these results do not immediately or simply suggest that the meaning of the vandalism is the same as that observed in western contexts. The researchers examined what was left behind or removed from the sites but the symbolic value of, for example graffiti, in a political and cultural sense was not able to be examined with the methods used. Additional work is required to interpret local or specific cultural meanings of the choice of targets and the meaning of some vandalism acts in the Asian region.

There are several key links which can be developed between the present work and recent writing about managing tourist attractions. For promotional purposes and development goals, the interlocking power of attraction sites functions as a united force for marketing, but tourists are also likely to see and behave in common ways across sites which may shape degradation in the same city. The confirmation of this view lies in part in the small number of Thai attractions which are in the well managed or sustainable categories. Viewed in this way the network approach to tourist attractions in a city represents a molar view of the broken windows concept where existing damage attracts further vandalism (Bhati & Pearce, 2016; Crotts, 2011). The significance of this overarching view for management is that a piece meal approach to preventing vandalism may not work, especially if nearby and similar sites are in disrepair.

In examining the Asian attractions and their forms, the work forces a reconsideration of the structure of attractions proposed by Gunn (1994, 1998). In that foundation work, Gunn hypothesised that there were three zones defining a tourist attraction, specifically a nucleus or core, an inviolate or protected zone and a zone of services. It was apparent from the field work that many of the Asian attractions were not structured in that way. Instead the services zones were often adjacent to the core of the attraction and there were few inviolate or protected zones. Gunn's notions were in part, conceptual rather than physical zones, but the breakdown of the ideas, especially in the Bangkok and Thai context permitted tourists to penetrate the core of many settings while services to them were not separate from the heart of the experience. This was particularly apparent in the parks, markets, mall, waterfront, and dining settings. Since it was these settings which appeared more frequently among the vandalised, low involvement, poorly enforced, and poorly managed sites, ways to better manage the locations are needed. The opportunity to conceptualise new service and experience zones becomes a challenge for research, a challenge which is consistent with new directions in tourism study emphasising the coalition of service and experience design studies (Fesenmaier & Xiang, 2016). The study takes a cross sectional approach and only

considers the damage and vandalism at one point in time. In further work the researchers can envisage a more longitudinal approach where the trajectory of the damage over time is monitored and potentially linked to models of visitor life cycles in the use of a setting.

6. Conclusion

The focus on the extent and nature of vandalism at attractions in this research refers to visitor acts and their consequences at 22 sites in Singapore and Bangkok. Examples of the problems studied included graffiti, carving on surfaces, litter, defacing statues and artefacts, damage to public toilets, public property, damage to private property and damage to the natural environment. The 22 attractions studied were chosen using a priori criteria specifically identified for this research project. The cases represented major comparable sites with different visitor activities in the two cities.

Many of the sites studied could be improved by attending to the characteristics assessed during the study. Though the findings provide a comprehensive analysis of the observed phenomenon, the research did not consider the meaning of the vandalism nor the profiles of the offenders. The study extended the current literature by arguing for the importance of environment design, management practices, and stakeholder involvement in ensuring sustainable development of Asian visitor attractions. Further, the relatively few Thai sites in the sustainable or well managed clusters, suggest that a whole of city approach to dealing with vandalism may be necessary as the perceived generalisation of disrepair from one site to another may set the scene for the diffusion of vandalism. The kind of close observational work conducted in this study represents a step in a longer journey of understanding how to present, protect, and preserve tourist attractions for a more sustainable future in the Asian context.

References

Albrecht, J. F., & Das, D. K. (2011). *Effective crime reduction strategies: International perspectives*. Hoboken: Taylor and Francis.

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis*. Beverly Hills: Sage Publications.

Babbie, E. R. (2013). *Adventures in social research: Data analysis using IBM SPSS statistics*. Thousand Oaks, Calif: SAGE.

Baggio, R., & Klobas, J. E. (2011). *Quantitative methods in tourism: A handbook*. Buffalo [NY]: Channel View Publications.

Bell, P., Fisher, J., & Loomis, S. R. (1978). *Environmental psychology saunders*. Cambridge, Mass.

Benckendorff, P. (2006). Megatrends in tourist attractions. In D. Buhalis, & C. Costa (Eds.), *Tourism business frontiers* (pp. 200–210). Amsterdam: Elsevier.

Bhati, A., & Pearce, P. (2016). Vandalism and tourism settings: An integrative review. *Tourism Management, 57*, 91–105.

Buckley, R. C. (2010). *Conservation tourism*. Cambridge, Mass: CAB International.

Carletta, J. (1996). *Assessing agreement on classification tasks: The kappa statistic*.

Clancey, G., Lee, M., & Fisher, D. (2012). Crime prevention through environmental design (CPTED) and the New South Wales crime risk assessment guidelines: A critical review. *Crime Prevention and Community Safety, 14*(1), 1–15. http://dx.doi.org/10.1057/cpcs.2011.10.

Clarke, R. V. G., & Mayhew, P. (Eds.). (1980). *Designing out crime. HM stationery office*.

Cohen, A. K. (1971). *Delinquent boys: The culture of the gang*. USA: Free Press.

Cozens, P. (2008). Crime prevention through environmental design. In R. Wortley, & L. Mazerolle (Eds.), *Environmental criminology and crime analysis* (pp. 153–194). Devon, UK: Willan.

Cozens, P., Saville, G., & Hillier, D. (2005). Crime prevention through environmental design (CPTED): A review and modern bibliography. *Property Management, 23*(5), 328–356. http://dx.doi.org/10.1108/02637470510631483.

CPTED Committee. (2000). *General guidelines for designing safer communities*. City of Virginia Beach.

Crotts, J. C. (2011). Serendipitous gleanings. In P. L. Pearce (Ed.), *The study of tourism: Foundations from psychology* (Vol 15, pp. 171–188). Bingley, UK: Emerald Group Publishing.

Crotts, J. C., & Pan, B. (2007). Destination appraisals. *Annals of Tourism Research, 34*(2), 541–544. http://dx.doi.org/10.1016/j.annals.2006.12.002.

Devlin, A. S., & Brown, G. (2003). Vandalism: Environmental and social factors. *Journal of College Student Development, 44*(4), 502–516. http://dx.doi.org/10.1353/csd.2003.0037.

Doygun, H., & Kuşat Gurun, D. (2008). Analysing and mapping spatial and temporal dynamics of urban traffic noise pollution: A case study in Kahramanmaraş, Turkey. *Environmental Monitoring and Assessment, 142*(1), 65–72. http://dx.doi.org/10.1007/s10661-007-9908-7.

Dwyer, L., Gill, A., & Seetaram, N. (2012). *Handbook of research methods in tourism: Quantitative and qualitative approaches*. Cheltenham: Edward Elgar.

Edelheim, J. (2015). *Tourist attractions: From object to narrative*. UK: Channel View Publications.

Ekblom, P. (2011a). Deconstructing CPTED and reconstructing it for practice, knowledge management and research. *European Journal on Criminal Policy and Research, 17*(1), 7–28. http://dx.doi.org/10.1007/s10610-010-9132-9.

Ekblom, P. (2011b). Special issue: New thinking on Crime Prevention Through Environmental Design (CPTED) introduction. *European Journal on Criminal Policy and Research, 17*(1), 1–5.

Enright, M. J., & Newton, J. (2004). Tourism destination competitiveness: A quantitative approach. *Tourism Management, 25*(6), 777–788. http://dx.doi.org/10.1016/j.tourman.2004.06.008.

Eugene, J., Campbell, D. T., Schwartz, R. D., & Sechrest, L. (1966). *Unobtrusive measures: Nonreactive research in the social sciences*. Rand McNally.

Everitt, B. S., Landau, S., & Leese, M. (2009). *Cluster analysis* (4 ed.). USA: Wiley.

Everitt, B. S., Landau, S., Leese, M., & Stahl, D. (2011). *Cluster analysis*. Hoboken: John Wiley & Sons, Ltd.

Faulkner, H. W., Moscardo, G., & Laws, E. (2001). *Tourism in the twenty-first century: Reflections on experience*. London: Continuum.

Fesenmaier, D., & Xiang, Z. (2016). *Design science in tourism*. Amsterdam: Springer.

Fyall, A., Garrod, B., Leask, A., & Wanhill, S. (2008). Conclusion. In A. Fyall, B. Garrod, A. Leask, & S. Wanhill (Eds.), *Managing visitor attractions* (2nd ed., pp. 347–353). Oxford: Butterworth-Heinemann.

Fyall, A., & Leask, A. (2006). Destination marketing: Future issues - strategic challenges. *Tourism and Hospitality Research, 7*(1), 50–63. http://dx.doi.org/10.1057/palgrave.thr.6050029.

Fyall, A., Leask, A., & Garrod, B. (2001). Scottish visitor attractions: A collaborative future? *The International Journal of Tourism Research, 3*(3), 211–228. http://dx.doi.org/10.1002/jtr.313.

Garrod, B., Fyall, A., Leask, A., & Reid, E. (2012). Engaging residents as stakeholders of the visitor attraction. *Tourism Management, 33*(5), 1159–1173. http://dx.doi.org/10.1016/j.tourman.2011.11.014.

Getz, D. (1994). Residents' attitudes towards tourism. *Tourism Management, 15*(4), 247–258. http://dx.doi.org/10.1016/0261-5177(94)90041-8.

Glasson, J., & Cozens, P. (2011). Making communities safer from crime: An under-valued element in impact assessment. *Environmental Impact Assessment Review, 31*(1), 25–35. http://dx.doi.org/10.1016/j.eiar.2010.03.007.

Greenberger, D. B., & Allen, V. L. (1978). An aesthetic theory of vandalism. *Crime & Delinquency, 24*(3), 309–321.

Gunn, C. (1994). *Tourism planning. Basic concepts, cases* (3rd edn). New York: Taylor & Francis.

Gunn, C. (1998). *Vacationscape. Designing tourist regions* (2nd ed.). New York: Van Nostrand Reinhold.

Guy, B. S., Curtis, W. W., & Crotts, J. C. (1990). Environmental learning of first-time travelers. *Annals of Tourism Research, 17*(3), 419–431. http://dx.doi.org/10.1016/0160-7383(90)90007-E.

Henderson, J. C. (2010). New visitor attractions in Singapore and sustainable destination development. *Worldwide Hospitality and Tourism Themes, 2*(3), 251–261.

Hetherington, A., Inskeep, E., & McIntyre, G. (1993). *Sustainable tourism development: Guide for local planners*. Madrid: World Tourism Organisation.

Hui, T.-K., & Wan, D. (2009). *Health-care tourism in Singapore* (Vol. 5, pp. 109–123). Emerald Group Publishing Limited.

Jacobs, J. (1961). *The death and life of American cities*.

Jafari, A., Fuat Fırat, F., Ahmet Süerdem, A., Søren Askegaard, S., & Dalli, D. (2012). Non-western contexts: The invisible half. *Marketing Theory, 12*(1), 3–12. http://dx.doi.org/10.1177/1470593111424183.

Jamal, T., & Stronza, A. (2009). Collaboration theory and tourism practice in protected areas: Stakeholders, structuring and sustainability. *Journal of Sustainable Tourism, 17*(2), 169–189. http://dx.doi.org/10.1080/09669580802495741.

Jeffrey, C. R. (1971). *Crime prevention through environmental design*. Beverly Hills, CA: Sage.

Katy, O. (2007). Tackling the impact of drugs and alcohol through environmental design. *Housing, Care and Support, 10*(2), 33–40.

Leanne, M. (2011). The way forward in designing out crime? greater manchester police design for security consultancy. *Safer Communities, 10*(3), 31–40. http://dx.doi.org/10.1108/17578041111171069.

Leask, A. (2010). Progress in visitor attraction research: Towards more effective management. *Tourism Management, 31*(2), 155–166. http://dx.doi.org/10.1016/j.tourman.2009.09.004.

Leask, A. (2016). Visitor attraction management: A critical review of research 2009-2014. *Tourism Management, 57*, 334–361.

Leask, A., & Fyall, A. (2006). *Managing world heritage sites*. Amsterdam: Elsevier.

Leask, A., & Fyall, A. (2008). Introduction: Managing world heritage. *Journal of Heritage Tourism, 2*(3), 131–132. http://dx.doi.org/10.2167/jht054.0.

Lynch, K. (1960). *The image of the city* (Vol 11). MIT press.

Mair, J. S., & Mair, M. (2003). Violence prevention and control through environmental modifications. *Annual Review of Public Health, 24*(1), 209–225.

McCaghy, C. H. (2008). *Deviant behavior: Crime, conflict, and interest groups*. Boston: Pearson/Allyn and Bacon.

McCool, S. F., & Moisey, R. N. (2008). *Tourism, recreation, and sustainability: Linking culture and the environment*. Wallingford [England]: CABI Publishing.

McKercher, B. (1992). Tourism as a conflicting land use. *Annals of Tourism Research, 19*(3), 467—481. http://dx.doi.org/10.1016/0160-7383(92)90131-8.

McKercher, B. (2008). Segment transformation in urban tourism. *Tourism Management, 29*(6), 1215—1225. http://dx.doi.org/10.1016/j.tourman.2008.03.005.

Mehmetoglu, M. (2007). Typologising nature-based tourists by activity—theoretical and practical implications. *Tourism Management, 28*(3), 651—660. http://dx.doi.org/10.1016/j.tourman.2006.02.006.

Morgan, M., & Messenger, B. (2009). Using an activity and place-based typology to explain visitor motivations. *Journal of Forestry, 107*(1), 44—49.

Navarro, D. (2015). Tourist resources and tourist attractions: Conceptualization, classification and assessment. *Cuadernos de Turismo, 35*, 481—484.

Nepal, S. K., & Lu, J. (2009). Sustainable tourism research: An analysis of papers published in the journal of sustainable tourism. *Journal of Sustainable Tourism, 17*(1), 5—16.

Newman, O. (1972). *Defensible space: Crime prevention through urban design*. New York: Macmillan.

Newman, O. (1976). *Design guidelines for creating defensible space*. USA National Institute of Law Enforcement and Criminal Justice.

Newman, O. (1996). *Creating defensible space*. USA: Diane Publishing.

Nunkoo, R., Smith, S., & Ramkissoon, H. (2013). Residents' attitudes to tourism: A longitudinal study of 140 articles from 1984 to 2010. *Journal of Sustainable Tourism, 21*(1), 5—25.

Offler, N., Thompson, K., Hirsch, L., Thomas, M., & Dawson, D. (2009). *A review of the literature on social, non technical deterrents for vandalism in the rail industry*. Brisbane: CRC for Rail Innovation.

Owen, D. (2007). The dark side: Our far-flung correspondents. *The New Yorker, 83*(24), 28.

Paskaleva-Shapira, K. A. (2007). New paradigms in city tourism management: Redefining destination promotion. *Journal of Travel Research, 46*(1), 108—114.

Pearce, P. L. (1991). Analysing tourist attractions. *Journal of Tourism Studies, 2*(1), 46—55.

Pearce, P. L. (2008). Understanding how tourism can bring sociocultural benefits to destination communities. In G. Moscardo (Ed.), *Building community capacity for tourism development* (pp. 29—40). Wallingford, Oxfordshire, UK: CABI.

Pearce, P. L., Bhati, A., & Lee, D. (2012). Cutting edge - new directions to tourism Research. In *Paper presented at the tourism and hospitality research, Singapore*.

Pizam, A., & Mansfeld, Y. (1996). *Tourism, crime, and international security issues*. Chichester: Wiley.

Portney, L. G., & Watkins, M. P. (2009). *Foundations of clinical research: Applications to practice*. Upper Saddle River, N.J: Pearson/Prentice Hall.

Poyner, B. (1983). *Design against crime: Beyond defensible space*. London: Butterworths.

Ray, J. L., & Smith, A. D. (2012). Using photographs to research organizations: Evidence, considerations, and application in a field study. *Organizational Research Methods, 15*(2), 288—315. http://dx.doi.org/10.1177/1094428111431110.

Reynald, D. M. (2011). Translating CPTED into Crime Preventive action: A Critical Examination of CPTED as a tool for active guardianship. *European Journal on Criminal Policy and Research, 17*(1), 69—81. http://dx.doi.org/10.1007/s10610-010-9135-6.

Reynald, D. M. (2013). *Guarding against crime: Measuring guardianship within routine activity theory*. England: Ashgate Publishing.

Roncek, D. W., & Maier, P. A. (1991). Bars, blocks and crimes revisited: Linking the theory of routine activities to the empiricism of "hot spots". *Criminology, 29*(4), 725—753. http://dx.doi.org/10.1111/j.1745-9125.1991.tb01086.x.

Samdahl, D. M., & Christensen, H. H. (1985). Environmental cues and vandalism: An exploratory study of picnic table carving. *Environment and Behavior, 17*(4), 445—458.

Sayer, A. (2010). *Method in social science: Revised 2nd edition*. Routledge.

Schwartz, D. (1989). Visual ethnography: Using photography in qualitative research. *Qualitative Sociology, 12*(2), 119—154. http://dx.doi.org/10.1007/BF00988995.

Shaw, G., & Williams, A. M. (2004). *Tourism and tourism spaces*. Thousand Oaks: Sage Publications.

Sheehan, L. R., & Ritchie, J. R. B. (2005). Destination stakeholders exploring identity and salience. *Annals of Tourism Research, 32*(3), 711—734. http://dx.doi.org/10.1016/j.annals.2004.10.013.

Sohn, D. W. (2016). Residential crimes and neighbourhood built environment: Assessing the effectiveness of crime prevention through environmental design (CPTED). *Cities, 52*, 86—93. http://dx.doi.org/10.1016/j.cities.2015.11.023.

Spencer, S. (2010). *Visual research methods in the social sciences: Awakening visions*. Hoboken: Taylor & Francis.

Stanczak, G. C. (2007). *Visual research methods: Image, society, and representation*. Thousand Oaks, Calif: Sage Publications.

Stemler, S. E., & Tsai, J. (2008). *Best practices in estimating interrater reliability*. Thousand Oaks, CA: Sage publications.

Sun, S. (2011). Meta-analysis of Cohen's kappa. *Health Services and Outcomes Research Methodology, 11*(3), 145—163. http://dx.doi.org/10.1007/s10742-011-0077-3.

Swarbrooke, J. (2002). *The development and management of visitor attractions*. Oxford: Butterworth-Heinemann.

Tagliacozzo, E. (2009). Contraband and violence: Lessons from the Southeast Asian case. *Crime, Law and Social Change, 52*(3), 243—252. http://dx.doi.org/10.1007/s10611-009-9201-5.

Teye, V., Sirakaya, E., & F. Sönmez, S. (2002). Residents' attitudes toward tourism development. *Annals of Tourism Research, 29*(3), 668—688. http://dx.doi.org/10.1016/S0160-7383(01)00074-3.

Timur, S., & Getz, D. (2008). A network perspective on managing stakeholders for sustainable urban tourism. *International Journal of Contemporary Hospitality Management, 20*(4), 445—461.

Veal, A. J. (2006). *Research methods for leisure and tourism: A practical guide*. Harlow, Essex, England: Financial Times Prentice Hall.

Vella, C., Bocancea, E., Urban, T. M., Knodell, A. R., Tuttle, C. A., & Alcock, S. E. (2015). Looting and vandalism around a World Heritage Site: Documenting modern damage to archaeological heritage in Petra's hinterland. *Journal of Field Archaeology, 40*(2), 221—235.

Weaver, D. B., & Lawton, L. J. (2007). 'Just because it's gone doesn't mean it isn't there anymore': Planning for attraction residuality. *Tourism Management, 28*(1), 108—117. http://dx.doi.org/10.1016/j.tourman.2006.01.002.

Weaver, D. B., & Lawton, L. J. (2013). Resident perceptions of a contentious tourism event. *Tourism Management, 37*, 165—175. http://dx.doi.org/10.1016/j.tourman.2013.01.017.

Williams, P. W. (1998). Shared decision-making in tourism land use planning. *Annals of Tourism Research, 25*(4), 860—889. http://dx.doi.org/10.1016/S0160-7383(98)00037-1.

Williams, A. M., & Shaw, G. (2009). Future play: Tourism, recreation and land use. *Land Use Policy, 26*, S326—S335. http://dx.doi.org/10.1016/j.landusepol.2009.10.003.

Wilson, J. Q., & Kelling, G. L. (1982). Broken windows: The police and neighborhood safety. *The Atlantic Monthly, 249*, 29—38.

Woods, B., & Moscardo, G. (2003). Enhancing wildlife education through mindfulness. *Australian Journal of Environmental Education, 19*, 97—108.

Wortley, R., & Mazerolle, L. (2012). *Environmental criminology and crime analysis*. Hoboken: Taylor and Francis.

Xiao, H., & Smith, S. (2006). The making of tourism researchInsights from a social sciences journal. *Annals of Tourism Research, 33*(2), 490—507.

Zehrer, A., & Crotts, J. C. (2012). Vacation stress: The development of a vacation stress model among US vacation travelers. *Tourism Review, 67*(3), 41—55. http://dx.doi.org/10.1108/16605371211259821.

Associate Professor Abhishek Bhati is Campus Dean at James Cook University Singapore. He has interests in tourist vandalism and broad tourism issues especially, sustainable tourism practices, relevant to the Asian region.

Philip Pearce is Foundation Professor of Tourism at James Cook University Queensland, Australia, and has long standing interests in tourist behaviour and experience.