A Proposal to Establish a Comprehensive Methodological Framework for Social Carrying Capacity in the Langkawi Island, Malaysia

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Abstract
In recent years, researches on social carrying capacity have focused by both scholars and destination managers. Despite the increasing studies on carrying capacity approaches, there is limited research on social carrying capacity on tourism destinations, particularly in Malaysia. The aims of this study are a) to illustrate critical variables concerning social carrying capacity b) to investigate international tourists’ perspective regarding social carrying capacity, and, c) to establish comprehensive methodological framework for social tourism carrying capacity in Langkawi Island. In order to achieve these aims, this study will be conducted on Cenang Beach in the Langkawi Island. It will be supposed that the findings of this study could be contributed from both theoretical and practical perspective on the subject of social carrying capacity.

Keywords: social tourism carrying capacity, social carrying capacity approaches, international tourists’ perspective.
1 Introduction

Malaysia has been endowed with large number of beautiful islands both in West (peninsular) and East (Sabah and Sarawak) Malaysia. Thus, islands in Malaysia continue to be developed into tourist spots to attract continuous number of arrivals. Although tourism is viewed as a manufacturing industry with respect to its capacity of generating economic benefits, the steady numbers of tourist arrivals have exerted pressure not only in physical resource but also the social fabric. Tourism in developing country like Malaysia has been a double-edge sword (Russel, 2003). While tourism development has led to rapid economic development of the country, it has also led to deterioration of the society on various aspects. Therefore, justifying tourism development based on economic benefit and over focusing on economic aspect sideline other detrimental impacts. To avoid this impacts tourism development and management should be based on the recognition of the limits characterizing a destination. In respect of sustainable tourism development, evaluation of carrying capacity in Malaysia has become extremely essential.

To date, an abundance of research has been conducted in the areas of ecological and economical carrying capacity, while the social aspect has received only minor attention (Bryon & Neuts, 2008). Moreover, most of the social carrying capacity studies focus on local communities’ perspective (e.g. Butler, 1980; Doxey, 1975; Page, 1995, Ap & Crompton, 1993; Carmichael, 2000, Bryon, 2005), while the social carrying capacity from the tourists’ perspective has often been neglected (Neuts, 2011). Furthermore, most of the study regarding to social carrying capacity have been conducted in developed countries (e.g. USA, UK), little effort has been paid to the study of social carrying
capacity in developing countries and little is known about social carrying capacity from tourists’ perspective in Asian recreational context.

In light of the significance of the tourism industry in Malaysia’s economy, this study endeavors to assess social carrying capacity of Langkawi Island by means of assessing the perceived crowding from tourists’ perspective. By synthesizing results from this case study, this study aims to evaluate social carrying capacity, in the form of indicator and seek for applicability of the social carrying capacity concepts as a management tool for Langkawi Island.

2 Definition of the concept of carrying capacity

Although the concept of carrying capacity was initially developed in the fields of wildlife and range management (Carey, 1993), it was gradually extended to economic and social issues. This concept appeared in the field of outdoor recreation since 1963 when an employee of the U.S. National Park Service noted that “park area cannot hope to accommodate unlimited number of people” and raised the question ‘How large a crowd can be turned loose in a wilderness without destroying its essential qualities?”, and argued that use of wildness must be kept “within the carrying capacity or recreational saturation point” (Stankey, 1981, p. 32). The concept of carrying capacity has diffused into studies of tourism due to the increasing concern for negative impacts of tourism and the realisation that destination area display cycles of popularity and decline (Saveriades, 2000, p.148). Since then an extensive literature on recreational carrying capacities has evolved (Wall, 1982). There is a plethora of conceptual bases for carrying capacity: social, economic, and ecological (Simon, et al., 2003, p. 277).

Social carrying capacity is defined as “the maximum visitor density at which recreationists still feel comfortable and uncrowned” (De Ruyket et al., 1997). Economic
carrying capacity is defined as the level of use of a site or facility that is required to yield a given financial return (Patmore, 1983). While ecological carrying capacity is defined as the maximum level of recreational use in terms of numbers and activities that can be accommodated by an area or an ecosystem before an unacceptable or irreversible decline in ecological values occur (Pigram, 1983).

There are a number of schools of thought which view carrying capacity differently (Saveriades, 2000). Baud-Bovy (1997, p. 184) defined carrying capacity as “the number of user-unit use periods, that a recreation site can provide (each year) without permanent biological and physical deterioration of the site’s ability to support the recreation experience”. From the environmental aspect carrying capacity is defined as “the maximum number of people who can use a recreational environment and without an unacceptable decline in the quality of the recreational experience’ (Mathieson & Wall, 1982, p. 184). The World Tourism Organization (UNWTO) defined tourism carrying capacity as ‘the level of the visitor use an area can accommodate with high level of satisfaction for visitors and few impacts on resources’ (Buckley, 1999, p. 706).

All definitions of recreational carrying capacity incorporate two central aspects: First, the biophysical component, relating to the integrity of the resource-base which implies some threshold or tolerance level after which further exploitation or used may impose strain on the natural ecosystem; and second, the behavioural component, reflecting the quality of the recreational experience (Mitchell, 1979; Wall, 1982, p. 191).

With the ever increasing recreational use of the destination area and the resulting impacts on the natural, cultural resources and the visitors’ experiences, the question of how much public use can ultimately be accommodated in such area has been raised (Manning, 2002). In respect of that, the concept of tourism carrying capacity is proposed as an
alternative planning tool towards sustainable management of the natural and tourism resources as well as of the quality of visitors’ experience.

3 Social Carrying Capacity Theory

This study is centred on the social aspect of carrying capacity. Social Carrying Capacity (SCC) is defined as ‘the maximum level of use that can be absorbed by an area without an unacceptable decline in the quality of experience of visitors and without unacceptable adverse impact on the area’s society’ (Saveriades, 2000). The two components of social carrying capacity are (1) the quality of experience that visitors will accept before seeking alternative destinations and (2) the degree of tolerance of the host population to the presence of tourists (Lopez-Bonilla, 2007, p.118). SCC can be viewed from two perspectives: first, from the point of view of local communities, SCC is defined as the maximum number of tourists tolerated by host population without reducing their quality of life. Second, from tourists’ perspective, SCC is defined as the maximum number of tourists tolerated by the visitors themselves without reducing the quality of the recreational experiences or desiring to search for an alternative sites activity (Marzetti & Mosetti, 2005). Conceptually, SCC is about human tolerance level, which perhaps are the most difficult to evaluate (as opposed to environmental and economic), since they rely entirely on value judgements. However, with the development of suitable socio-psychological research techniques it should be possible to develop reliable evaluative standards (Saveriades, 2000). In assessing social carrying capacity, one of the elements that should be identified is the tourists’ perception towards tourism development.

The theoretical basis for much of the crowding and carrying capacity literature lies in normative theory (Cooper, 2010). Norms are defined as standards which individuals use for evaluating activities, environmental conditions, or management strategies as good or bad, better or worse (Vaske & Donnelly, 2002). Norms help to clarify what people
believe conditions or behaviors should be (Needham et al. 2004). Normative theory assumes that people have evaluative standards of acceptance of behaviours or conditions (Cooper, 2010). Therefore, norms are a direct measure of visitors’ standards of perceptions (Jin, 2009, p. 21). These norms can be measured to formulate standards of quality or points where indicator conditions become unacceptable (Maning, 2010). Norms have been utilized to build a conceptual framework concerning recreation crowding to examining whether or not a recreation area is crowded, and at what use level most visitors would consider that crowding occur (Copper, 2010). In this study three theories (expectancy, stimulus overload and social interference) underlying the concept of social carrying capacity have been adopted to explain perceived crowding.

4 Research objectives

The aim of this research is three-fold. First, the research seeks to illustrate critical variables concerning social carrying capacity, Second, the research attempts to investigate international tourists’ perspective regarding perceived crowding, and the final aim of the current research is to establish comprehensive methodological framework for social tourism carrying capacity in Langkawi Island.

5 Research Questions

In order to achieve the above objectives, seven research questions are pursued:

1- What are the principal indicators in measurement of perceived crowding in Langkawi Island?

2- What is the present level of perceived crowding among tourists in Langkawi Island?

3- What is the relationship between tourists’ expected level of encounters and perceived crowding?
4- What is the relationship between tourists’ past experience and perceived crowding?

5- What is the relationship between tourists’ motivation and perceived crowding?

6- What is the relationship between behavior of other tourists and perceived crowding?

7- What is the relationship between socio-demographic variables (age, gender, income, education, and nationality) and perceived crowding?

6 Proposed Methodology

This work is centered on the study of the psychological carrying capacity. This research will use a quantitative approach. A survey questionnaire will be used to identify international tourists’ perceptions towards perceived crowding in Langkawi Island. Following a random procedure data will be collected in different days, and times to reduce bias. Visitors in Cenang Beach will be asked to fill in a questionnaire in accordance to standard procedures that cover 10% of the total number of tourists in the beach as applied by Zacarias et al. (2011), and Needham et al. (2008). Questionnaires encompass respondents background, past experience, activities involve, the level of satisfaction, encounters, crowding, norms, in a combination of close-ended questions with 9-point Likert scale questions where 1 represents “strongly disagree” and 9 represented “strongly agree”.

In addition to close ended format, a visual approach using Image Capture Technology (ICT) will be used to measure reported encounters since the use of the close-ended format alone will not be sufficient to assess the respondents because it will be unrealistic to expect respondents to accurately ascertain from these written descriptions or lists in surveys, especially in places with high use levels (Manning, 1999, 2007; Manning et al.,
Respondents will be asked to identify their perceived sense of crowding and encounters in accordance to Manning (1999) and Manning et al. (2002) based on 15 different levels (0, 5, 10, 20, 35, 50, 75, 100, 200, 350, 500, 750, 1000, 1500 and 2000 + people) as suggested by Needham et al (2008). Respondents will be asked to rate from a set of photographs (Fig. 1) one that is much similar to the reality, with encounters and capacities being estimated by first dividing the beach total area by the corresponding unit standard in the photograph and then multiplying by respondents evaluation at the site in accordance with Needham et al . (2008), and Zacarias et al. (2011).

Fig. 1. Photographs used for measuring encounters and use level norms (retrieved and adapted from Needham et al., 2008).
All questionnaires will be incorporated in a Microsoft Excel datasheet for data collapsing and integration and, where necessary, analysis will be conducted using SPSS looking for percentages, cross-tabulations and multivariate statistical techniques (chi-square, t-tests conjoint modelling).

7 Expected Result

It will be expected to figure out tourists’ perspectives regarding social carrying capacity in Langkawi Island for improving tourism planning in the subject of tourism development. As well, by illustrating critical variables concerning social carrying capacity, critical impacts of tourism development in Langkawi island could be decreased via well-organized destination management.

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