Chapter 3
Measuring Tourism Carrying Capacity: A Multi-Dimensional Framework for Assessment

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ABSTRACT
Tourism is used as an engine for economic growth and is considered a source of income and employment generation. However, like any other human activity, it causes changes to its surroundings. Planners often plan for growth and development of tourism, ignoring the rights of local communities, who are custodians of the resources and are dependent on them. Local communities are most harshly affected by tourism-induced changes. The concept of tourism carrying capacity tries to identify how much change is acceptable change, which would then guide planning and management of tourism in the area. In this chapter, the authors explore the different methodologies that have been developed for assessment of tourism carrying capacity and suggest a suitable framework for the Indian context.

BACKGROUND
Tourism, cleverly positioned as a natural renewable resource, imagining that visitors would come only to admire and not to consume (Murphy, 1989). Tourism began to be seen as a driver of economic growth and many countries, like India, brought tourism development into mainstream, economic development, linking services such as energy, telecommunications, manufacturing, agriculture, services and other facilities (Pluemarom, 2012). However, tourism did not bring in the expected economic growth and

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progress. Researchers began to notice that while income and jobs created by tourism are counted, the costs of environmental degradation and loss of livelihoods are not accounted for. (Pluemarom, 2012). It was also realised that for common resources, the costs of transactions that are undertaken between buyers and sellers fall on otherwise uninvolved third parties (Smith & Eadington, 1994). In tourism, local people are often the third parties who lose access to beaches, mangroves, rivers, lakes, grasslands and forests that are ‘tourism products’.

In the fast-paced context of tourism development that visibly affects local economies, cultures and ecologies there is a need to understand impacts and plan future development models more carefully. However, within India’s larger plan for economic development, the focus has been on increasing tourism’s contribution to the Gross Domestic Product, without considering its sustainability (All India Forum of Forest Movements et al., 2016). Increasing numbers of domestic and international visitors in India have led to problems of overuse, overcrowding and unwanted impacts and a lack of participation of local people in decision making (Pluemarom, 2012). In spite of global research on Tourism Carrying Capacity (TCC) and attempts at its application elsewhere, TCC in India is applied in a very limited capacity. This study examines the various models of assessing TCC and suggests a theoretical framework suitable for the Indian context. This would then help advocate for a more robust assessment and planning for tourism.

**LITERATURE REVIEW: THE CONCEPT OF TOURISM CARRYING CAPACITY**

TCC stems from the concept of the Hardin’s 1968 classic, ‘tragedy of the commons’. This theory says that in the absence of assigned responsibility, every individual benefits from overusing common resources in the short term, leading to its inevitable decline. This applies to tourist areas that rely on common resources such as seas, lakes, wilderness and heritage.

In 1980, Butler explained the Tourism Area Life Cycle (TALC) model, arguing that without intervention, destinations would inevitably be subjected to over-development, loss of appeal and an eventual fall in visitor numbers and expenditures, creating a vicious cycle of decline (Butler, 1980).

The World Tourism Organization (UNWTO, 1981) defined TCC as the maximum number of tourists that may visit a tourist destination at the same time without causing destruction of the physical, socio-cultural, and economic environment and an unacceptable quality of visitor satisfaction.

This definition of TCC led to efforts in estimating the maximum number of visitors a tourist area can take before degradation. (Castellani & Sala, 2012).

However, as type of visitors, their behaviours and activities is a wide range, it was insufficient for TCC to be only visitor number. Subsequent TCC definitions (McIntyre 1993, Clark 1997, Chamberlain 1997) began focusing on the tolerance level of the resource and limits of use beyond which degradation/ negative impacts occur at the tourist destination. Besides, from initial concerns regarding the natural environment and visitor satisfaction, impacts on and perceptions of resident communities gained importance.

Chamberlain (1997), defined TCC as the level of human (tourism) activity an area can accommodate, without deteriorating or having adverse effects on the resident communities or declining in quality of visitor experience. (Maggi and Fredella, 2010).

As Oreilly (1986) puts it, TCC is a complex concept which is a search for a balance between often conflicting aims of its different components: