



# COULD TOURISM CARRYING CAPACITY BE A VITAL ASSET TO RESPOND TO CLIMATE CHANGE?

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## ABSTRACT

Tourism is today one of the world's largest industry. Tourism activities can generate both positive and negative effects on the conditions of the areas where visiting and fruition activities take place. Every form of human use of natural environment causes changes to the environment conditions. There is significant change in the scale, frequency and character of the visitors over the past few decades reflect new pressure on environment and the tourist destination. Today rapid trend of tourism along with the urbanization and other factor affect climate, so sustainable tourism is necessary. Sustainability has become an important policy issue in tourism, it grows discussion and criticism and increase need to understand nature of the limit of growth. Tourism mainly causes biophysical and social impact. In many cases scientist and planners have turned to the concept of tourism capacity as the way of formulating problem and management action to identify limits of a system to absorb changes. Carrying capacity is ultimately assessment tool for the exploration of natural and artificial resource which contributes to growth of tourism. Tourism carrying capacity has shifted now from a one-dimensional approach to incorporating environmental, social and political aspect.

**Keywords:** Tourism, climate change, sustainable tourism, carrying capacity, tourism carrying capacity

## INTRODUCTION

The overall consumption segment is heavily weighted towards the leisure industry, which accounted for 78.5 percent of total business spending compared to 21.5 percent, and the sector accounted for 6.5 percent of total global exports and 27.2 percent of total global services exports. (WTTC 2019).

India has experienced strong exponential growth in the tourism industry in recent years. Tourism in India has outperformed the global tourism industry in accordance with the rise, amount of foreign tourism and revenue, according to Indian official estimates. Tourism in India is the largest service sector with a 6.23 percent contribution to the country's GDP, and 8.78 percent of the nation's total employment. In India various types of tourism are introduced such as business, safety, and pilgrimage and wildlife tourism. India's tourism ranks 7th in terms of its contribution to the world's GDP. In 2018, Foreign Exchange Earnings (FEE) increased from tourism by 11.9% and foreign tourist arrivals (FTA) by 10.56 million, hitting a growth rate of 5.20%.

Gujarat has the desert and is also known for its 1666 km long coastline with its beaches, temple town and historic capital. Gujarat's gifts include wildlife sanctuaries, hill resorts and natural grandeur. Sculpture, crafts, music, and festivals make the state beautiful, too. Gujarat is among the most advanced in technology and houses the country's largest petrochemical plant. Gujarat has always been a major center for Jains alongside temples that include Gir wood, desert trip, and wild Ass sanctuary, the main attractions of the state.

Tourism's relationship to climate is bilateral. There is a conundrum about the relation of tourism to climate change. It is a crucial sector that hires millions and contributes significantly to local and national economies but also has substantial carbon footprint. This

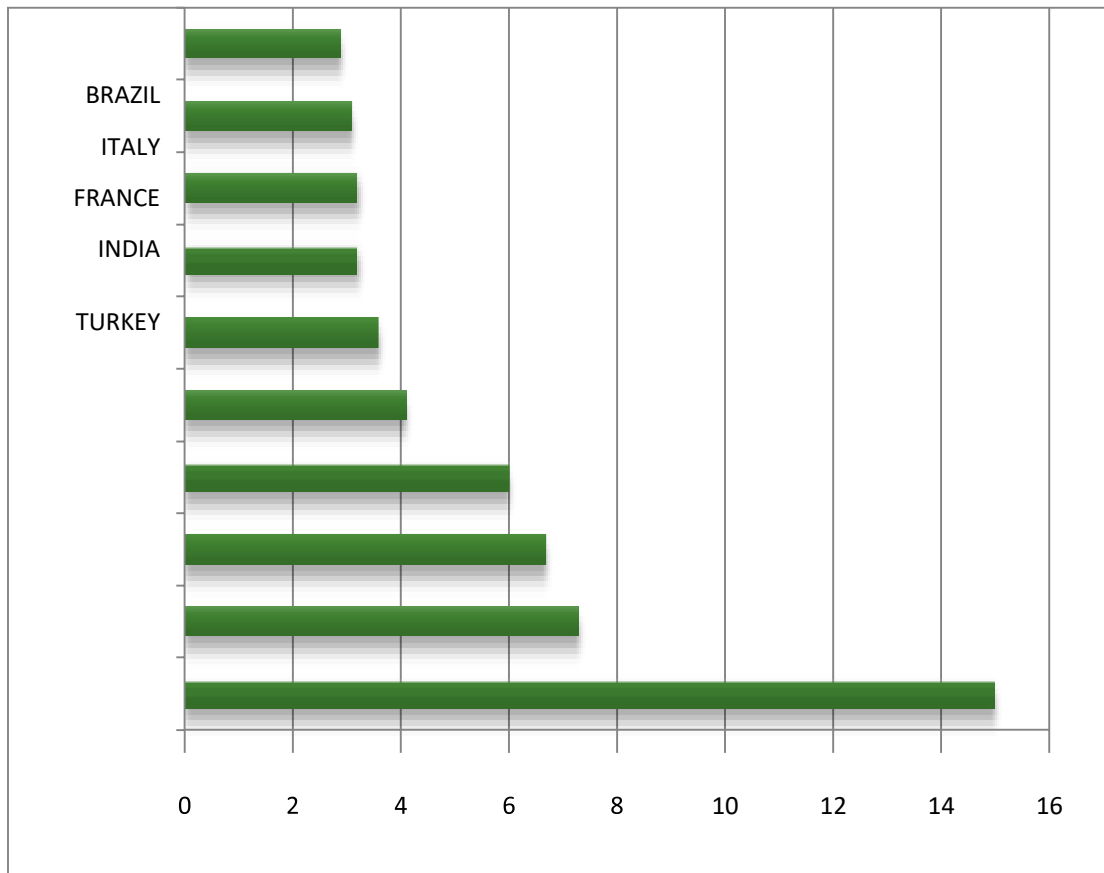
accounted for 8 per cent of global greenhouse gas emissions in 2018. Sustainable tourism is the concept of traveling as a visitor somewhere and seeking to have a positive effect on the climate, culture and economy. Ecotourism has been widely described as the environmentally friendly tourism. Conflict between resource use and livelihood of local people, and efforts to mitigate these conflicts, is important. Educating the tourism stakeholder on the value of sustainable and responsible tourism practice is important in the tourism industry.

Tourism Carrying Capacity has been described by the World Tourism Organization as "the maximum number of people who may visit a site within a given time, so that local natural, physical, economic and socio-cultural characteristics are not compromised and without reducing tourist satisfaction" (WTO, [12]). The object of an assessment of a destination's carrying capacity is to determine the threshold above which alteration due to human activity is inappropriate for the recovery of resources. To determine the effect of tourism activities, it is important to know the characteristics of the ecosystem on which they insist, and especially its resilience, which is the measure of the disruption that the natural environment can withstand without altering its equilibrium state.

**GLOBAL TRENDS OF TOURISM**

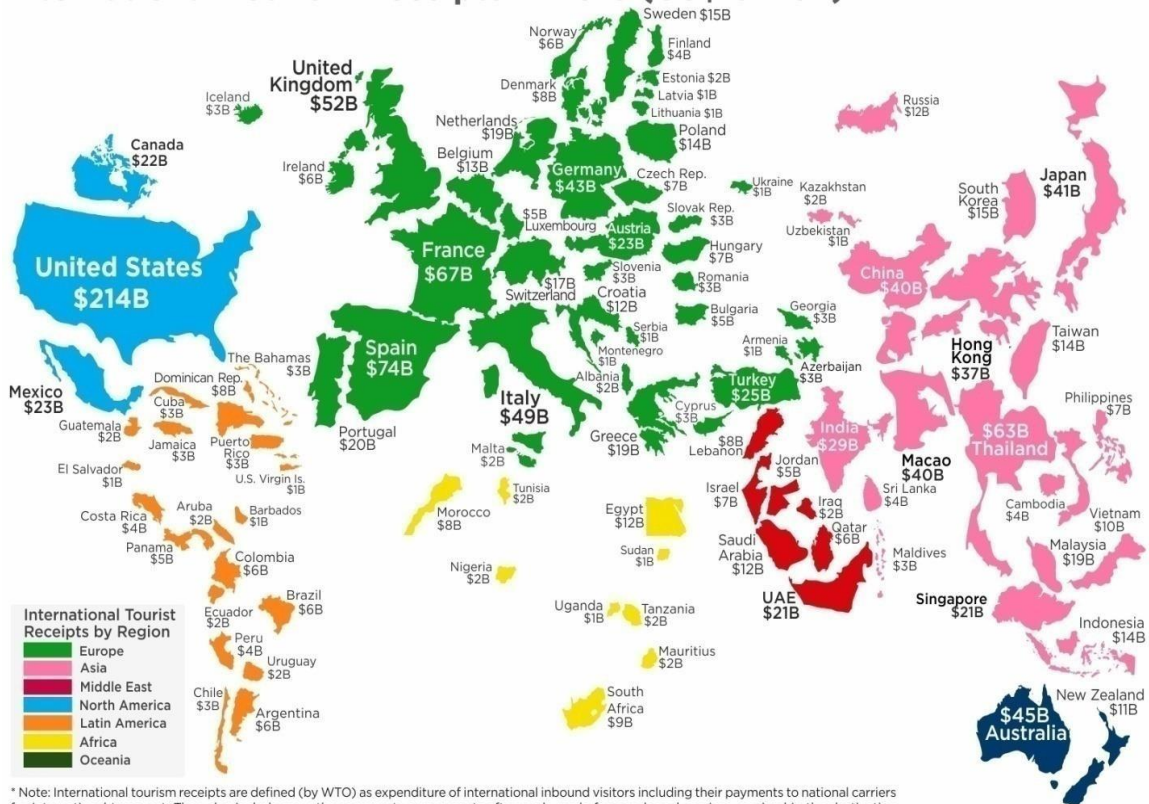
In the five years to 2019, the global tourism industry is projected to rise at an annualized rate of 1.5 per cent to \$1.7. Global tourism performed well over the five-year period, with emerging economies continuing to predict growth.

India ranked **7th** out of 184 countries in terms of overall GDP allocation for travel & tourism in 2008. India's travel and tourism industry is the **3rd** highest foreign exchange earner for India. In 2018, e- visa arrivals increased 39.60 per cent year to 2.37 million. International hotel chains are growing their presence in the region, accounting for about 47 per cent of India's share in tourism & hospitality by 2020 & 50 percent by 2022.



**Chart 1 - 2018 GDP GROWTH**

## The World's Top Tourist Destinations by Money Spent International Tourism Receipts in 2018 (US\$ billion)\*



howmuch net

Figure 1 – TOP TOURIST DESTINATION BY MONEY SPENT

Global tourism presence in India is projected to reach 30.5 million by 2028. India's medical tourism market is estimated to reach US\$ 9 billion by 2020.

NO.	REGIONE	TOTAL GD CONTRIBUTION (US\$)	% WHOLE ECONOMY GDP	%GDP GROWTH
	NORTH AMERICA	1.9 TN	8.2	2.3
	CARIBBEAN	62 BN	15.5	2.1
	EUROPE	2.2 TN	9.7	3.1
	LATIN AMERICA	336 BN	8.7	2.4
	AFRICA	194 BN	8.5	5.6
	MIDDLE EAST	237 BN	8.7	0.6
	NORTH EAST ASIA	2.1 TN	9.6	6.6
	SOUTH ASIA	296 BN	8.8	7.2
	SOUTH EAST ASIA	373 BN	12.6	6.2
	OCEANIA	206 BN	12.2	3.5

Table 1 – CONTRIBUTION OF TOURISM IN GDP IN THE WORLD'S VARIOUS REGIONS

<https://iabcd.org.in/>



## **BILATERAL APPROACH OF TOURISM AND CLIMATE CHANGE**

Tourism and climate change both are mutually related. Nearly all forms of tourism are weather dependent, and climate dependent by default. Climate change is a fairly slow process but can impact your country, neighboring country or business area sooner or later. The impact of climate change can be both positive and negative on tourism business; it all depends on the organization against climate change.

- 1.) Impacts due to the development of accommodation structures (hotels, restaurants, campingsites) and the creation of visitor products and services
- 2.) Impact due to tourist activity: waste development and high visitor numbers threaten the fauna and flora

Climate variability is also critical for many forms of tourism, while climate change can intensify the variability. Those all will affect the region's biophysical structure. Biophysical impacts are the product of several variables — including level of use, tourism behavior, types of tourism activities, management practices and investments, industry practice and growth, environment, use season, place of use, climate, geological, vegetation and topographical features. Rapid tourism and urbanization trend has brought profound changes not only to the physical landscape but also to the economic assets and climate in society.

Not only does tourism grow in terms of quantity but it also affects the nature of the town. It gradually transformed into a complex and diversified operation. Other types of tourism are related, apart from mass tourism, to climate, culture, industry, education, health, religion, etc. Some types of tourism in recreation are significant. Recreational opportunities depend on the natural feature of each region as well as its ability. Environmental resilience and characteristics are critical for evaluating the effect of tourism activities on the usage of vulnerable natural resources for tourism purposes, posing significant environmental, social and economic problems as the recreational pressure on tourism is continuously rising worldwide.

Tourism has main three interrelation factor as below:-

- 1.) Local context: - this can be illustrated in terms of local resources, climate, population, economic structure, culture, and heritage.
- 2.) Type of tourism: - Each tourist visiting the destination generates a specific amount of impact - which depends on rotation and holidays, tourist facilities, management system characteristics, stakeholder perception.
- 3.) Tourism –Environmental interface: - It is composite.

## **ECO TOURISM**

Eco-tourism is generally known as environmentally friendly tourism. Ecotourism is a modern form of tourism which is often promoted through local and regional plans. This includes many other forms of tourism, such as outdoor / recreational, adventure-related tourism and wildlife exploration, educational, green, sustainable, urban tourism, special forms of tourism, and agro-tourism. According to 1994 figures, between 40 and 60 per cent of tourists at international level had nature as their final destination, comprising between 211 and 317 million, of which between 106 and 211 million are tourists whose destination is wild. The estimates above do not include domestic visitors, suggesting that the real number of tourists visiting the natural areas is much higher. The WTO reports that 7% of international tourism spending, which is bound by definition, and estimates that 20% of foreign arrivals in 1997 were in the field of ecotourism. Tourist agencies say that demand for tourism in the wild rises by 10-25 per cent per year. (Hellenic Ministry of Development, Hellenic Tourism Organization, 1999).

It is necessary to recognize conflicts between the use of ecotourism services and the wellbeing of local people, and to seek to mitigate these conflicts. The types and scale of development of

eco- should be consistent with local community climate and socio- characteristics.

- Mathieson and Wall (2006) discuss three main aspects of tourism:

(1.) Complex aspect involving decision-taking on the tourist distribution and selection of the preferred destination, as well as a set of specific social, economic and administrative considerations for making such a decision.

(2.) Function of tourist destination which includes the tourist's stay in the destination area as well as the interaction with the cultural, social and natural subsystems of the region concerned.

(3.) Consequential aspect deriving from the preceding two and manifesting in economic, socio-cultural and natural-ecological effects which directly or indirectly affect the quality of the tourist experience in the destination concerned.

### **TOURISM CARRING CAPACITY**

The definition of carrying potential is related to stability which grows from the need to assess what is the highest appropriate degree of effect for the system or for one of its elements and the recovery strength back to the previous situation. We may also describe carrying capacity as the potential of environmental and man-made structures to fulfill the needs of various applications without compromising the economic, social and cultural environment. (Abernethy, 2001; Godschalk & Parker, 1975; Oh et al., 2002). Tourism Carrying Capacity has been described by the World Tourism Organization as "the maximum number of people who may visit a destination within a given time, such that local natural, spatial, economic and socio-cultural characteristics are not compromised and without decreasing tourist satisfaction" (WTO, 1999).

#### 1.) Physical carrying capacity

This is the max number that is actually supported by area. In the case of a particular tourist attraction it is the maximum number that can fit at any given time on the site and still allow people to move about. This is usually approximately 1 m per human. "PCC per day= area (in square meters) x visitors per meter daily length" This is a calculation used to measure the physical capacity. (Mow forth and Munt)

#### 2.) Economic carrying capacity

It refers to a degree of undesirable transition within a tourist destination's local economy, it is the extent to which a tourist destination can handle tourist activities without the lack of local activities, such as having a souvenir store in place of a shop that sells essential items to the local community.

The economic carrying capacity can also be used to define the point at which the increased revenue produced by the growth of tourism is overtaken by tourism-inflation.

#### 3.) Social carrying capacity

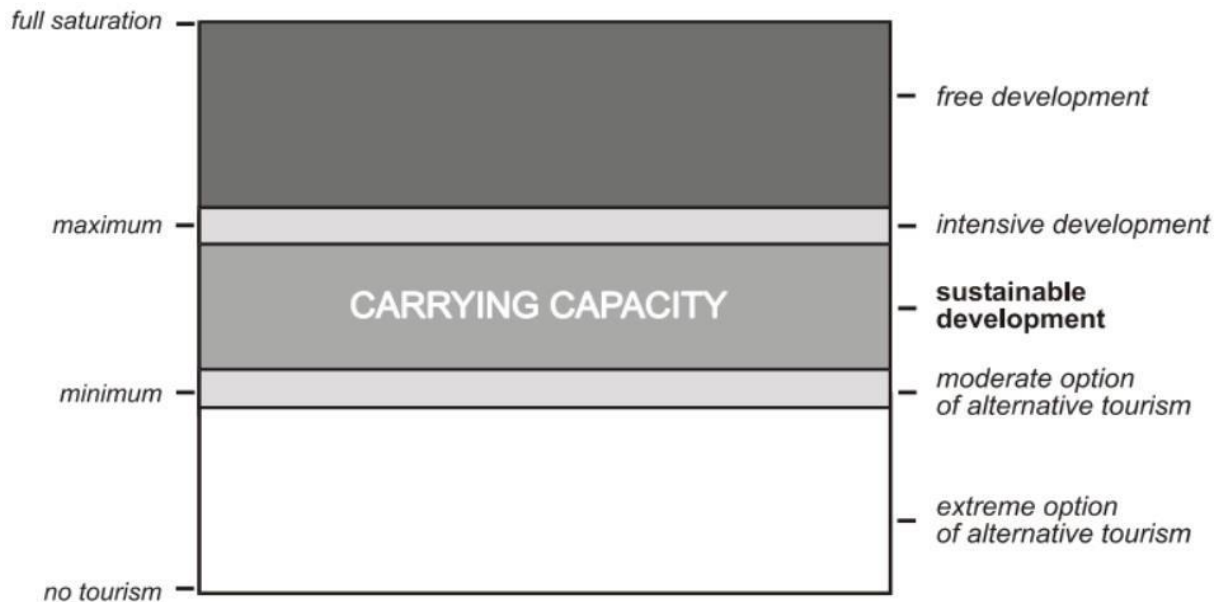
This refers to the socio-cultural negative that has to do with tourism growth. The indicators of exceeding the social carrying capacity are a reduced local tourism tolerance as defined in the Annoyance Index. Reduced tourist satisfaction and increased crime often suggest when the potential for social support has been surpassed.

#### 4.) Biophysical carrying capacity

It deals with the degree to which visitor activity can be accepted by the natural environment. This is made more complicated by the fact that because it deals with biodiversity that can regenerate to some degree so that in its case the carrying capacity is when the damage exceeds the regeneration capacity of the ecosystem.

5.) Environmental carrying capacity

It is also used with reference to ecological and physical parameters, capacity of resources, ecosystems and infrastructure.



**Figure 2 – RELATION BETWEEN TOURISM, CARRYING CAPACITY AND SUSTAINABLE DEVELOPMENT**

Rapid tourism and urbanization development introduced profound improvements not just to the geographical scenery but also to the economic power and climate of community.

Carrying capacity varies from location to location and character to character, and there is no specific capability for the whole field. Ultimately, carrying capacity is an appraisal method for investigating natural and artificial solutions that lead to the development of the region. Currently specific measurement methods including ecological footprint, carbon footprint, qualitative and quantitative appraisal approaches are used for carrying capability measurement. Tourism Carrying Capacity (TCC) problems relate to the number of visitors, visitor movements and spatial trends offrequency / dispersion with respect to nature security and environment functioning but also the quality of visitor interaction (Coccosis and Mexa 2004).

**CONCLUSION**

It is demonstrable that the tourism sector is an economic engine and its potential as an instrument of growth. The tourism industry is not only spearheading progress, it's also improving the quality of life for residents. The definition of carrying capacity has frequently been used to define device thresholds for handling improvements. Until applying some methodology we need further work on the quantitative dimension of the carrying principle.

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