TOURISM

PRINCIPLES AND PRACTICE

Sixth Edition

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CHAPTER 8

THE ENVIRONMENTAL IMPACT OF TOURISM

LEARNING OUTCOMES

The objective of this chapter is to provide you with:

- an understanding of the physical impacts of tourism on the environment, both direct and indirect, positive and negative;
- a review of strategies and techniques that may be implemented to measure and quantify the impacts of tourism on the environment such as an environmental impacts assessment;
- an appreciation of the difficulties of assessing environmental impacts; and
- real-life examples to encourage the application of theory to practice.

INTRODUCTION

All forms of production (goods and services) will have impacts on the physical environment in which they take place. Because tourists must visit the place where the services are provided in order to consume the output, it is inevitable that tourism activity will be associated with environmental impacts. The need to ensure that tourism is developed and operated in a way that minimises its environmental impact is now into its fourth decade but in spite of the fact that environmental issues are high profile, little has been achieved to ensure that future developments are environmentally sound.

ENVIRONMENTAL IMPACT

At the end of the 1970s the **OECD** set out a framework for the study of environmental stress created by tourism activities. This framework highlighted four main categories of stressor activities including permanent environmental restructuring (major construction works such as highways, airports and resorts); waste product generation (biological and non-biological waste which can damage fish production, create health hazards and detract from the attractiveness of a destination); direct environmental stress caused by tourist activities (destruction of coral reefs, vegetation, dunes, etc. by the presence and activities of tourists); effects on the population dynamics (migration, increased urban densities accompanied by declining populations in other rural areas).

In 1992, the United Nations Conference on the Environment and Development, held in Rio de Janeiro, added further impetus to a debate that was growing stale and a new maxim emerged where 'Only whatever can be sustained by nature and society in the long term is permissible'. This new impetus was given the title **Agenda 21** to reflect the fact that it was a policy statement aimed at taking the world into the twenty-first century. What made Agenda 21 significant was the fact that it represented the first occasion when a comprehensive programme of environmental actions was agreed to be adopted by 182 governments. The Agenda was based around a framework of themes that were aimed at providing an overall strategy to transform global activity onto a more sustainable course. The matters addressed within Agenda 21 were not solely environmental because they included aspects such as human development and the redressing of the imbalance between rich and poor nations. However, many of the matters discussed and the strategies recommended were environmentally based.

Now, in the twenty-first century and in spite of the programme's elegance and simplicity, the adoption of this maxim requires enforcement that is still far beyond the reach of most legislative frameworks and none of the recommendations made in Agenda 21 were legally binding on the 182 nations that approved its adoption. Furthermore, the implementation of this maxim requires that those charged with the construction of the necessary legislative framework be fully informed of the environmental repercussions of productive and consumptive activities. To date this is not the case. The literature on the environmental impacts of tourism is often biased, painting highly negative pictures of tourism with respect to its associated environmental impacts. In this chapter we examine the nature of environmental impacts, how they can be identified and measured and how this information can be integrated into the tourism planning process.

Tourism and the environment

The environment, natural or man-made, is a vital component of the tourism product. However, as soon as tourism activity takes place, the environment is inevitably changed or modified either to facilitate tourism or through the tourism production process. Environmental preservation and improvement programmes are now an integral part of many **development strategies** and such

considerations are treated with much greater respect than they were in the twentieth century. However, relatively little research has been undertaken within a standardised framework to analyse tourism's impact on the environment. The **empirical studies** that have taken place have been specific case studies – such as the impact of tourism on the wildlife of Africa, the pollution of water in the Mediterranean or studies of particular coastal areas and mountains. But the diverse areas studied, the varying methods used to undertake those studies and the wide range of tourism activities involved makes it difficult to bring these findings together in order to assemble a comprehensive standardised framework within which to work.

In order to study the physical impact of tourism it is necessary to establish:

- the physical impacts created by tourism activity as opposed to other activities;
- what conditions were like before tourism activity took place in order to derive a baseline from which comparisons can be made;
- an inventory of flora and fauna, together with some unambiguous index of tolerance levels to the types of impact created by different sorts of tourism activity; and
- the secondary levels of environmental impact that are associated with tourism activity.

Positive environmental impacts

On the positive side, the direct positive environmental impacts associated with tourism include:

- the preservation/restoration of ancient monuments, sites and historic buildings, such as the Great Wall of China (PRC), the Pyramids (Egypt), the Taj Mahal (India), Stonehenge and Warwick Castle (UK);
- the creation of national parks and wildlife parks, such as Yellowstone Park (USA), the Amboseli National Park and the Maasai Mara National Reserve (Kenya), Las Canadas (Tenerife), the Pittier National Park (Venezuela) and the Fjordland National Park (New Zealand);
- protection of reefs and beaches, such as the Great Barrier Reef (Australia), Grand Anse (Grenada); and
- the maintenance of forests, such as the New Forest (UK) and Colo I Suva (Fiji).

Conservation and **preservation** may be rated highly from the point of view of researchers, or even the tourists. However, if such actions are not considered to be of importance from the hosts' point of view, it may be questionable as to whether they can be considered to be positive environmental impacts. When evaluating the net worth of preservation and conservation activities the opportunity costs associated with such activities must also be taken into account. African wildlife parks, such as Etosha National Park in Namibia, may result in the grazing lands of nomadic tribes being limited and hence constrain food production capability.

Negative environmental impacts

On the negative side, tourism may have direct environmental impacts on waste production, the quality of water, air and noise levels. Sewage disposal into water adds to pollution problems, as does the use of power boats on inland waterways and sheltered coastal waters. Increased usage of petrol and diesel for tourist transport, oil burning to provide the power for hotels' air conditioning and refrigeration units all add to the level of air pollutants. Noise levels may be dramatically increased in urban areas through nightclubs and other forms of entertainment as well as by increased road, rail and air traffic.

Physical deterioration of both natural and built environments can have serious consequences:

- hunting and fishing have obvious impacts on the wildlife environment;
- sand dunes can be damaged and eroded by over-use;
- vegetation can be destroyed by walkers;
- camp fires may destroy forests;

- ancient monuments may be disfigured and damaged by graffiti, eroded or literally taken away by tourists (the Byzantine Fort in Paphos, Cyprus, for instance, is a World Heritage Site subject to pilfering);
- the construction of a tourism superstructure utilises real estate and may detract from the aesthetics;
- the improper disposal of litter can detract from the aesthetic quality of the environment and harm wildlife;
- the erosion of paths to the Pyramids at Giza, Egypt by the camels used to transport tourists;
- the dynamiting of Balaclava Bay (Mauritius) to provide a beach for tourist use; and
- the littering of Base Camp on Mount Everest, Nepal by tourists and the erosion of the pathway to this site.

The building of high-rise hotels on beach frontages is an environmental impact of tourism that used to achieve headline status. This kind of obvious environmental damage is now less common than it was during the rapid growth periods of the 1960s and 1970s. In a number of countries, particularly island economies, the issue of land usage is often high on the agenda of planning meetings. Regulations have been introduced in many countries to restrict beachfront developments to a height no greater than that of the palm trees (as for example in Mauritius), or restrict development to a certain distance back from the beach (as in some parts of India).

Tourism activities can put scarce natural resources, such as water, under severe pressure. Tourists tend to be far more extravagant with their use of water than they are at home, with estimates of up to 440 litres per person per day being made for areas around the Mediterranean. To put this into context, this is up to twice the normal usage of residents in urban areas of Spain or Italy. Some activities, such as swimming pools and golf courses, require intensive use of these scarce resources and the latter can add further to the environmental impacts if fertilisers and weeding chemicals are used. Tourism Concern has estimated that the average golf course in tropical countries like Thailand requires 1,500 kg of fertilisers, pesticides and other treatments per annum and uses the same amount of water that would be consumed by approximately 60,000 village residents. Similar physical depletion can be witnessed in terms of deforestation as trees are cleared for land use and fuel.

Tourism is responsible for high levels of air and noise pollution through the transportation networks and leisure activities. Air transport is claimed to be a significant factor in global warming and tourism is responsible for the vast majority of international air transport. At the local level air transport near urban areas can cause severe noise and air pollution problems, along with ground transport systems such as tour buses that use up resources to maintain climate control for their passengers. Other forms of transport, such as jet skis, quad bikes and snowmobiles, can create excessive noise pollution in coastal areas, national parks and areas of outstanding natural beauty. Tourists can be responsible for high levels of littering (such as the high profile given to the littering by tourists at Base Camp on Mount Everest) and this can present significant dangers to wildlife as well as being unsightly and expensive to clean up. Similarly, solid human waste disposal, if not undertaken properly, can be a major despoiler of the environment in coastal areas, rivers, lakes and roadsides. Such pollution can also give rise to serious health risks, to humans as well as wildlife.

The issues relating to tourism and environmental impact have been high profile for some time and organisations such as UNEP are actively trying to address those issues (see **http://www.unep.org**).

Nowhere is this type of direct environmental impact more obvious than with respect to cruise ships. Cruise ships have grown in size over the past century and are now equivalent to floating cities or towns. They visit coastal areas where water quality is vital for marine life and the safety of bathers. Although they are subject to regulations such as the use of advanced water treatment systems, these are often violated because of a lack of monitoring and such violations have resulted in areas, such as British Columbia, being referred to as the 'toilet bowl' of the Western Coast of the United States (see 'Cruise Ships Dumped a Billion Gallons of Sewage, Environmental

Photograph 8.1

Group Says', at **https://www.youtube.com/watch?v=FnihqVWds3I**). A typical 3,000-passenger cruise ship will produce nearly 200,000 litres of sewage every day and the maximum capacity of the largest cruise ship in 2017 is 6,780 passengers (*Harmony of the Seas*), which results in more than double that volume of sewage. Furthermore, the sewage systems on cruise ships are often not as water-intensive as land-based flushing; consequently any effluent pumped into the sea will be four or five times more concentrated than effluent discharged from land systems. This can introduce hazardous levels of bacteria into the sea. It is not only the environmentally pristine islands that are suffering from the impacts of cruise ships, historic ports such as London and Southampton in the United Kingdom are suffering from cruise ship-related pollution (**https://www.theguardian.com/environment/2016/mar/31/huge-cruise-ships-will-worsen-london-air-pollution-campaigners-warn**).

MINI CASE STUDY 8.1
Environmental Pressure on Thailand

Tourism is a major source of income and foreign exchange for Thailand. It accounted for 19.3% of Thailand's total GDP and represented 14% of its total employment in 2014, and international visitor arrivals accounted for 69.9% of total tourist spending. With these figures in mind Thailand ranks as one of the world's top tourist destinations, receiving almost 30 million tourists annually.

The tourism offering in Thailand is diverse. However, sun, sea and sand is its major attraction for tourists from all over the world. The sheer number of arrivals to many of Thailand's small islands has now started to put pressure on its environment.

The Thailand government has been facing a number of political challenges including allegations of corruption, political instability and terrorist attacks. But the country is also facing environmental challenges caused by mass tourism.

For many, social media is now an inherent part of life, but only a few years ago it was movies that informed people about destinations and they were a powerful and far-reaching means of destination placement. *The Beach*, filmed in 2000 and starring Leonardo DiCaprio following his lead role in *Titanic*, was seen as a major success for the Phi Phi Islands in Thailand. Since the distribution of that particular movie the Phi Phi and nearby islands have seen annual visitor arrivals soar to over 1.4 million. In response to the environmental pressures incurred through this level of tourism activity the Thailand government 'closed' Koh Tachai Island to all tourists in an attempt to preserve the island and limit the damage that had been caused by tourism. There are, however, suggestions of serious damage also to Phi Phi and its surrounding islands. This is being caused by a wide range of mass tourism-related activities such as anchors, scuba diving, oil pollution from motorboats and contamination from untreated waste.

DISCUSSION QUESTIONS

1. 'The tourism industry is a relatively "clean" industry and just gets a bad press.' Discuss this statement with respect to the evidence on the environmental impact of tourism.
2. 'Environmental damage is simply a part of the twenty-first century and there is no point in trying to clean up the tourism industry unless all industries are brought into line.' Discuss.
3. Are certification schemes likely to succeed in 'greening' the tourism industry?

It is also important to note that many environmental factors are interdependent – often in ways that are not yet fully understood. Damage to coral reefs by divers, cruise ship anchors, or through the construction of coastal developments will reduce the local diversity and population of fish and other creatures that may feed off the coral. This, in turn, may reduce the numbers of birds that feed on the fish and so on. In order to determine the full impact of environmental changes accurately, the **ecological system** and the way in which it responds to environmental stress must be understood.

The effect of any loss to **biological diversity** is an increased threat to the food chain, can imbalance species and soil formation, and result in less ability to absorb greenhouse gases. A loss of biodiversity also hinders nature's ability to withstand the natural shocks caused by droughts, earthquakes, floods and hurricanes. Finally, it reduces the enjoyment that tourists experience when visiting areas by reducing the variety and wealth of flora and fauna available.

ENVIRONMENTAL IMPACT ASSESSMENT

There are no generally accepted models for environmental impact assessment (EIA). In many environmentally sensitive tourism destinations the need for EIAs has become more frequent and expected when considering tourism development and its relationship with the environment. There are now examples of EIAs in all forms of tourism activity from mass tourism to backpacking and for geographical areas as remote as the poles or as intense as the Mediterranean. Many countries have now incorporated the need for EIAs within their planning legislation but even the absence of legislation to support environmental planning should not deter tourism planners from undertaking their own environmental impact assessments on proposed developments. Environmental protection is so much easier and less costly than environmental correction even when such remedial action is possible.

It is important to understand the motivation that underlies a particular environmental impact assessment before an appropriate methodology is selected. For instance, an EIA may be undertaken in order to determine a development's impact upon a specific ecology or even upon a