

Research article

ENVIRONMENTAL EFFECTS OF TOURISM

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ABSTRACT

Tourism is an important sector to any country for the development of the economy. But tourism industry is directly related to the environment. The quality of the environment, both natural and man-made, is essential to tourism. However, the relationship of tourism with the environment is complex. It involves many activities that can have adverse environmental effects. Many of these impacts are linked with the construction of general infrastructure such as roads and airports, and of tourism facilities, including resorts, hotels, restaurants, shops, golf courses and marinas. The negative impacts of tourism development can gradually destroy environmental resources on which it depends. On the other hand, tourism has the potential to create beneficial effects on the environment by contributing to environmental protection and conservation. It is a way to raise awareness of environmental values and it can serve as a tool to finance protection of natural areas and increase their economic importance. In this paper, we describe that the effects of tourism on natural resources, environmental pollution, physical environment and tourist activities in the national park. In addition, we explain environmental impacts of tourism on global scale, positive impacts of tourism and, finally, how tourism can contribute to environmental conservation. **Copyright © AJEPR, all rights reserved.**

KEY WORDS: TOURISM, ENVIRONMENTAL IMPACTS, SUSTAINABILITY

1. INTRODUCTION

Tourism is one of the biggest and fastest growing sectors in the global economy and has significant environmental, cultural, social and economic effects, both positive and negative. Tourism can be a major tool for economic development but, if not properly planned it can have destructive effects on biodiversity and pristine environments, and can result in the misuse of natural resources such as freshwater, forests and marine life. At a number of sites tourism development has resulted in serious water shortage affecting both local communities and industry, forests have been depleted and coral reefs have been damaged.

The adverse impact that tourism can have on the environment both undermines the basic resource for tourism in coastal areas and heavily affects other non-tourist economic activities. To avoid these impacts tourism needs to be

planned, managed and undertaken in a way that is environmentally sustainable, socially beneficial and economically viable.

Negative impacts from tourism occur when the level of visitor use is greater than the environment's ability to cope with this use within acceptable limits of change. Uncontrolled conventional tourism poses potential threats to many natural areas around the world. It can put enormous pressure on an area and lead to impacts such as soil erosion, increased pollution, discharges into the sea, natural habitat loss, increased pressure on endangered species and heightened vulnerability to forest fires. It often puts a strain on water resources, and it can force local populations to compete for the use of critical resources.

Sustainable tourism development always needs to respect the environment and refer to accepted principles of sustainability. It must be planned to make balanced use of the resources of any site, thus avoiding negative effects, reducing visitor satisfaction, or adversely impacting the local society, economy and culture. Sometimes it may be difficult to quantify limits, but they are essential for sustainable tourism. Thus, if it is to maintain the main elements on which it is based, the tourism sector needs to invest in the maintenance of the natural environment. If properly planned, tourism can become a positive force for conservation and environmental protection, and economic development.

2. OBJECTIVES

The specific objectives were the followings

- a. To see the positive and negative impact of tourism on environment.
- b. To develop a model to minimize the negative impact of tourism on environment. (it might be third)
- c. To determine the direct impact of tourist activities in the respective tourism areas. (Or, try to do something better)

3. RESEARCH METHODOLOGY

The study has been conducted mainly on the basis of literature survey and secondary information. Various seminar papers and summary of discussion in those seminars, taskforce reports of research organization, journals and some periodicals on environmental impacts of tourism have been surveyed for the purpose of the study. Some environmental analyst and expertise person has also been interviewed for the purpose of accumulating facts and information.

4. LITERATURE REVIEW

Ugur Sunlu (2003) concludes in his research that the quality of the environment, both natural and man-made is essential to tourism. However, the relationship of tourism with the environment is complex. It involves many activities that can have adverse environmental effects. Many of these impacts are linked with the construction of general infrastructure such as roads and airports, and of tourism facilities, including resorts, hotels, restaurants, shops, golf courses and marinas. The negative impacts of tourism development can gradually destroy environmental resources on which it depends.

G.R. Cessford and P.R. Dingwall state (1998) in their research that tourism industry absolutely affects the environment. Its negative impact is very dangerous for the environment and the future generation. For this reason planning and sustainable tourism industry is very essential for every country.

Terry Davies and Sarah Cahill (2000) describe that this study uses a framework developed from the industrial ecology literature to assess the impacts of the tourism industry on the environment. Three categories of impact are discussed: direct impacts, including impacts from the travel to a destination, the tourist activities in and of themselves at that destination, such as hiking or boating, and from the creation, operation, and maintenance of facilities that cater to the tourist; "upstream" impacts, resulting from travel service providers' ability to influence suppliers; and "downstream" impacts, where service providers can influence the behavior or consumption patterns of customers.

Joseph E. Mbaiwa argues in their research that tarred roads and other communication facilities have also been developed in Ngamiland District partly to facilitate tourism development. Tourism in the Okavango Delta also provides employment opportunities to local communities and it is a significant source of foreign exchange for Botswana. Despite its positive socio-economic impacts, the industry is beginning to have negative environmental

impacts in the area such as the destruction of the area's ecology through driving outside the prescribed trails, noise pollution and poor waste management.

Swarbrooke (1999) conclude in his previous research that tourism can be seen as an economic activity that produces a range of positive and negative impacts. However sustainable tourism seeks to achieve the best balance between economic benefits and social and environmental costs. In order to plan and develop tourism successfully, economic, environmental and social aspects of tourism must be well understood.

Mowforth & Munt (2003) argues that the growth of mass tourism has led to a range of problems, which have become more obvious over the recent years. It includes environmental, social and cultural poverty. These problems are often connected with mass tourism, although there is evidence from studies concerning the impacts from tourism which suggests that new forms of tourism also suffer from similar problems.

Shaw & Williams (2004) conclude that if tourism is well planned, developed and managed in a socially responsible manner, it can bring several types of socio-cultural benefits. For example improve the living standards of people and help pay for improvements to community facilities and services if the economic benefits of tourism are well distributed. A possible way to prevent this development is to promote and invest in sustainable tourism; an alternative form of tourism that could help to protect the natural, cultural and social environment of a destination. This form of tourism whether it is called eco-tourism, responsible travel or other, is a reaction of the consequences of mass tourism.

Murphy's (1985) publication 'Tourism: A Community Approach' emphasized the necessity for communities to relate tourism development to local needs and formed the basis for numerous later studies on the various relationships between tourism and communities (Richards & Hall, 2000).

According to Godfrey and Clarke (2000), socio-cultural changes of tourism relate to local quality of life and sense of place. Positive changes in the quality of life could be as follows: personal income increases, helps to improve living standards for those more directly involved in industry, supports the diversity of restaurants and other cultural entertainment, influences the assortment of goods for sale in many local shops that would not be available in the same amount if tourism did not exist to support them, park areas are often improved, street furniture and design criteria introduced, greater care and attention placed on overall environmental quality, new opportunities etc. And on the contrary negative changes in the quality of life could be as follows: local shops overcharging, petty theft from cars and accommodation, more serious personal assault etc

Hassan (2000) argues that tourism has become sensitive to and depended on a high-quality sustainable environment. Therefore, tourism marketing in the future must focus on forms of tourism that are sensitive to sustain the environmental integrity of nature and cultural heritage resources. He also expects that sustainable tourism will, in the future, make an economic contribution to both the world economy and the economies of the local destination.

Richards & Hall (2000) explains the importance of the host community in relation to sustainability: "Human communities represent both a primary resource upon which tourism depends, and their existence in a particular place at a particular time may be used to justify the development of tourism itself. Communities are a basic reason for tourists to travel, to experience the way of life and material products of different communities"

Mitra (2005) described that Bangladesh does not have enough effort to promote the country as a tourist destination. He argued that Bangladesh has to make aware the tourists about what to see, where to stay and what to eat. He emphasized for the development of tourism industry, Bangladesh need to develop the infrastructure like hotels, resorts, promoting more places and there should have a link of the government tourism organization with the private sector to boost up the promotional activities for the same. So a coherent interdepartmental support and effective promotional campaigns are advisable to boost up the sector. Hunter (2002) says that "For sustainable tourism to occur, it must be closely integrated with all other activities that occur in the host region". According to this statement it can be concluded that there is a responsibility that lies on the industry but also on powerful organizations within the destination. Management and control therefore seems necessary to be able to integrate sustainability in tourism development

Williams (2004) continues to argue that the motives for travel are many but a common reason is curiosity. "Curiosity leads the traveller to search for all kind of experiences in all parts of the world. To see other people, other cultures and other political systems is a primemotivational force for travel."

The draft report of Department of Environment for the management of sustainable tourism in Ecologically Critical Areas in Cox's Bazar (January 2008) observed that the current tourism pattern is marginalizing locals; poor communities in the area are receiving no significant benefits from tourism rather than paying some of the social and environmental costs of this activity. It also states that involving locals in management can be done either by delegating tourism rights to community level or by ensuring that government planning processes are participatory and responsive to local needs.

5. DIRECT ENVIRONMENTAL IMPACTS

5.1. Water Quality

The tourism industry impacts water quality through construction and maintenance of tourist infrastructure, recreational boating, and certain activities of the cruise industry. Tourist infrastructure increases the pressure on existing sewage treatment plants and can lead to overflows during peak tourist times. The most significant problem from the standpoint of human health associated with recreational boating and water quality is the discharge of sewage into water bodies with limited flushing, where the discharge occurs near the location of shellfish beds. Diseases that can be potentially transmitted through human contact with fecal discharge and/or ingestion of contaminated shellfish include typhoid fever, dysentery, infectious hepatitis, and nonspecific gastroenteritis (Seabloom, Plews, & Cox, 1989, p.1).

5.2. Air Quality

Most tourism-related air pollution comes from automobiles (Andereck, 1993, p. 27). Automobiles emit by far the most carbon monoxide of all transportation modes. In 1997, they emitted 26 million short tons of carbon monoxide, compared with 1.7 million short tons from recreational marine vehicles, and 1 million from aircraft (U.S. Environmental Protection Agency [EPA], 1998, December, Table A-1). Specific information on tour bus emissions was not available, but all heavy-duty diesel vehicles (most tour buses fall into this category) emitted 1.4 million short tons in 1997. Transport by air, road, and rail is continuously increasing in response to the rising number of tourists and their greater mobility. The International Civil Aviation Organization reported that the number of international air passengers worldwide rose from 88 million in 1972 to 344 million in 1994. One consequence of this increase in air transport is that tourism now accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions. One study estimated that a single transatlantic return flight emits almost half the CO emissions produced by all other sources (lighting, heating, car use, etc.) consumed by an average person per year (ICAO, 2001).

5.3. Noise pollution

Noise pollution from airplanes, cars, and buses, as well as recreational vehicles such as snowmobiles and jet skis, is a problem of modern life. In addition to causing annoyance, stress, and even hearing loss for humans, it causes distress to wildlife, especially in sensitive areas (www.unepie.org/tourism).

5.4. Solid Waste and Littering

In areas with high concentrations of tourist activities and appealing natural attractions, waste disposal is a serious problem and improper disposal can be a major despoiler of the natural environment, rivers, scenic areas, and roadsides. For example, cruise ships in the Caribbean are estimated to produce more than 70,000 tons of waste each year. Solid waste and littering can degrade the physical appearance of the water and shoreline and cause the death of marine animals (UNEP, 1997).

In mountain areas, trekking tourists generate a great deal of waste. Tourists on expedition leave behind their garbage, oxygen cylinders and even camping equipment. Such practices degrade the environment with all the detritus typical of the developed world, in remote areas that have few garbage collection or disposal facilities.

5.5. Habitat/Ecosystem Alteration and Fragmentation

Ecosystems and natural habitat can be damaged by tourist infrastructure, tourist activities, recreational boating, and the cruise industry. Recreational boats and cruise vessels can damage aquatic vegetation by cutting it with their propellers or otherwise damaging it when running aground. Wetlands have been destroyed in order to build tourist-related infrastructure, such as airports, roads, and marinas (Andereck, 1993, p. 29). For example, in Jamaica over 700 acres of wetlands have been destroyed since the 1960s for tourism development (Bacon, 1987, pp.105-6). When snorkeling and hiking, tourists can damage ecosystems by littering, and trampling coral and vegetation. This type of damage is cumulative in nature. One or two tourists may not cause visible harm, but hundreds over time can do substantial damage.

5.6. Impacts on Wildlife

Wildlife can be adversely affected by the construction and maintenance of tourist infrastructure, and by tourist activities. Impacts from tourist infrastructure can be direct, such as when development in lower elevations of mountain resorts restricts the migratory range of certain wildlife, or indirect, such as when marine turtles are disoriented by automobile headlights and resort illumination (Gartner, 1996, p.125). The two primary ways in which tourist activities disturb wildlife are by altering their eating habits and feeding patterns, and by altering their habitat. Feeding patterns are altered directly by tourists feeding animals, and indirectly by littering, which encourages wildlife to scrounge for food (Mathieson & Wall, 1982, p.109). Wildlife habitat is altered by tourists' trampling and by the use of off-road vehicles (ORVs).

5.7. Aesthetic and Cultural Impacts

Tourism can diminish the aesthetic appeal of a destination through the construction of buildings that clash with the surrounding environment, creating "architectural" or "visual" pollution (Andereck, 1993, p. 30; Mathieson & Wall, 1982, p.121). The high-rise hotels along the coastal zone of Atlantic City and Miami are examples, as are several high-rise hotels in Jerusalem, whose construction arguably damaged the city's architectural beauty (Bosselman, 1978, pp. 26-7).

5.8. Impact on Gateway Communities Outside National Parks and Other Host Communities

Tourism affects the natural landscape and character of "gateway communities," which are adjacent to national parks, and other significant tourist destinations. Development related to tourist activity can be detrimental to cultural and aesthetic aspects of these communities if undertaken in an indiscriminate and/or scattered manner. For example, Tusayan, the town near the south rim of the Grand Canyon is "dominated by a gaggle of fast-food restaurants, motels, and trinket shops along the highway, [and] has been likened to a strip mall on the way to the Vatican" (Whitman, 1999, p. 19).

5.9. Loss of biological diversity

The effects on loss of biodiversity:

- a) It threatens our food supplies, opportunities for recreation and tourism, and sources of wood, medicines and energy.
- b) It interferes with essential ecological functions such as species balance, soil formation, and greenhouse gas absorption.

c) It reduces productivity of ecosystems.

d) It destabilizes ecosystems and weakens their ability to deal with natural disasters such as floods, droughts, and hurricanes, and with human-caused stresses, such as pollution and climate change. Tourism, especially nature tourism, is closely linked to biodiversity and the attractions created by a rich and varied environment. It can also cause loss of biodiversity when land and resources are strained by excessive use, and when impacts on vegetation, wildlife, mountain, marine and coastal environments and water resources exceed their carrying capacity. This loss of biodiversity in fact means loss of tourism potential. Introduction of exotic species which tourists and suppliers can bring in species (insects, wild and cultivated plants and diseases) that are not native to the local environment can cause enormous disruption and even destruction of ecosystems (WWF, 1992; WWF, 1994).

5.10. Depletion of the ozone layer

The ozone layer, which is situated in the upper atmosphere (or stratosphere) at an altitude of 12-50 kilometers, protects life on earth by absorbing the harmful wavelengths of the sun's ultraviolet (UV) radiation, which in high doses is dangerous to humans and animals. For example, one of the reasons scientists have put forward for the global decrease of amphibian populations is increased exposure to UV radiation. Ozone depleting substances (ODSs) such as CFCs (chlorofluorocarbon) and halons have contributed to the destruction of this layer. The tourism industry may be part of the problem; direct impacts start with the construction of new developments and continue during daily management and operations.

Refrigerators, air conditioners and propellants in aerosol spray cans, amongst others, contain ODSs and are widely used in the hotel and tourism industry. Emissions from jet aircraft are also a significant source of ODSs. Scientists predict that by 2015 half of the annual destruction of the ozone layer will be caused by air travel (UNEP, 1997; UNEP, 1998).

5.11. Climate change

Climate scientists now generally agree that the Earth's surface temperatures have risen steadily in recent years because of an increase in the so-called greenhouse gases in the atmosphere, which trap heat from the sun. One of the most significant of these gases is carbon dioxide (CO₂), which is generated when fossil fuels, such as coal, oil and natural gas are burned (e.g. in industry, electricity generation, and automobiles) and when there are changes in land use, such as deforestation. In the long run, accumulation of CO₂ and other greenhouse gases in the atmosphere can cause global climate change a process that may already be occurring.

Air travel itself is a major contributor to the greenhouse effect. Passenger jets are the fastest growing source of greenhouse gas emissions. The number of international travelers is expected to increase from 594 million in 1996 to 1.6 billion by 2020, adding greatly to the problem unless steps are taken to reduce emissions (WWF, 1992).

6. PHYSICAL IMPACTS

Attractive landscape sites, such as sandy beaches, lakes, riversides, and mountaintops and slopes, are often transitional zones, characterized by species-rich ecosystems. Typical physical impacts include the degradation of such ecosystems. An ecosystem is a geographic area including all the living organisms (people, plants, animals, and microorganisms), their physical surroundings (such as soil, water, and air), and the natural cycles that sustain them. The ecosystems most threatened with degradation are ecologically fragile areas such as alpine regions, rain forests, wetlands, mangroves, coral reefs and sea grass beds. Threats to and pressures on these ecosystems are often severe because such places are very attractive to both tourists and developers.

Physical impacts are caused not only by tourism-related land clearing and construction, but by continuing tourist activities and long-term changes in local economies and ecologies.

6.1. Physical Impacts of Tourism Development

Construction activities and infrastructure development:

The development of tourism facilities such as accommodation, water supplies, restaurants and recreation facilities can involve sand mining, beach and sand erosion, soil erosion and extensive paving. In addition, road and airport construction can lead to land degradation and loss of wildlife habitats and deterioration of scenery.

Deforestation and intensified or unsustainable use of land: Construction of ski resort accommodation and facilities frequently requires clearing forested land. Coastal wetlands are often drained and filled due to lack of more suitable sites for construction of tourism facilities and infrastructure. These activities can cause severe disturbance and erosion of the local ecosystem, even destruction in the long term.

6.2. Marina development

Development of marinas and breakwaters can cause changes in currents and coastlines. Furthermore, extraction of building materials such as sand affects coral reefs, mangroves, and hinterland forests, leading to erosion and destruction of habitats. In the Philippines and the Maldives, dynamiting and mining of coral for resort building materials has damaged fragile coral reefs and depleted the fisheries (Hall, 2001). Overbuilding and extensive paving of shorelines can result in destruction of habitats and disruption of land-sea connections (such as sea-turtle nesting spots). Coral reefs are especially fragile marine ecosystems and are suffering worldwide from reef-based tourism developments. Evidence suggests a variety of impacts to coral result from shoreline development, increased sediments in the water, trampling by tourists and divers, ship groundings, pollution from sewage, over-fishing, and fishing with poisons and explosives that destroy the coral habitat (Hall, 2001).

6.3. Physical Impacts from Tourist Activities

Trampling: Tourists using the same trail over and over again trample the vegetation and soil, eventually causing damage that can lead to loss of biodiversity and other impacts. Such damage can be even more extensive when visitors frequently stray off established trails.

Trampling impacts on vegetation Trampling impacts on soil

- ❖ Breakage and bruising of stems Loss of organic matter
- ❖ Reduced plant vigor Reduction in soil macro porosity
- ❖ Reduced regeneration Decrease in air and water permeability
- ❖ Loss of ground cover Increase in run off
- ❖ Change in species composition Accelerated erosion

(Source: www.unepie.org/tourism/).

Anchoring and other marine activities: In marine areas (around coastal waters, reefs, beach and shoreline, offshore waters, uplands and lagoons) many tourist activities occur in or around fragile ecosystems. Anchoring, snorkeling, sport fishing and scuba diving, yachting, and cruising are some of the activities that can cause direct degradation of marine ecosystems such as coral reefs, and subsequent impacts on coastal protection and fisheries (Hall, 2001).

6.4. WILDLIFE DISTURBANCE EFFECTS

Visitors can intrude upon wildlife in a variety of ways, from their visual presence to their movement, noise, and behaviour. Different species will perceive the consequent disturbance in different ways and for different reasons. Wildlife tolerance and response, and any impact consequence, will vary among different species, settings and times. Factors contributing to these variations can include different feeding patterns; territoriality; breeding seasons and behaviours; lifecycle maturity; alarm behaviours; and ecological niche competition. Some visitor effects, such as trampers passing by, may be incidental to wildlife, whereas others, such as ecotourism visits or photography, may be specifically directed at wildlife. Additional visitor-related effects can also arise from the ways in which wildlife responds to the presence of staff; any of their associated construction, maintenance and research activities; and the effects related to the presence of facilities and structures (e.g. huts, signs, tracks, lighting, reflections, colour, and noises).

6.5. HAZARD INTRODUCTION EFFECTS

When visitors come to a natural environment they can import harmful external material, substances, or biota. Visitors may accidentally introduce hazard sources such as exotic weeds, predators, and diseases. They may also introduce hazards from negative behaviours such as fuel leakage or disposal; soap chemicals from washing; littering; bringing dogs; or inappropriate fire practices. Similar hazards arise from the activities of management staff, both direct and indirect, in facility provision and maintenance. These may be direct introduction effects, such as exotic seeds in track fill or building materials; leachate from timber; and chemicals from material degeneration. Or they may be indirect effects, such as providing access routes for predators; fire potential; and providing focal points for visitor congregation. Summaries of visitor effects are similarly provided in other reviews, both in New Zealand (e.g. Devlin et al. 1995) and internationally (e.g. Kuss et al. 1990). However, while the wide range of possible visitor effects across a diversity of sites can be summarised in these ways, the critical question still remains – how do we distinguish among all these effects the situations of significant visitor impacts?

6.6. Sewage

Construction of hotels, recreation and other facilities often leads to increased sewage pollution. Wastewater pollutes seas and lakes surrounding tourist attractions, damaging the flora and fauna. Sewage runoff causes serious damage to coral reefs because it contains lots of nutrients and it stimulates the growth of algae, which cover the filter-feeding corals, hindering their ability to survive. Changes in salinity and transparency can have wide-ranging impacts on coastal environments. And sewage pollution can threaten the health of humans and animals.

7. TOURIST ACTIVITIES

7.1. Hiking, Snorkeling and Diving

Many tourist activities occur in fragile ecosystems, such as coral reefs. While snorkeling and diving in and of themselves do not cause much damage, inadvertent related activities, such as stepping on coral do cause damage. With such activities, it is the cumulative nature of the damage that is most problematic. One or two tourists may not cause much harm, but hundreds of them over time can do considerable damage to an ecosystem (Gartner, 1996, p. 112). Coral reefs are also affected by tourism as a result of the market for souvenirs. Tourists break off pieces of coral themselves, or the reef is dynamited by locals to sell the pieces. Tourists hiking along mountain ranges can harm the ecosystem by littering and by trampling vegetation. The greatest impact of tourists on vegetation usually occurs during initial contact with an area, with the most sensitive species affected first. The cumulative impact of tourists on vegetation gradually shifts species composition, because only the most resilient plants can survive in an area under constant pressure from tourist activities (Mathieson & Wall, 1982, p. 102). Excessive hiking on trails has caused damage to the sequoia redwoods in California (Mathieson & Wall, 1982, p. 102).

7.2. Recreational Boating

The most significant problem associated with recreational boating and water quality is the discharge of sewage into waterbodies with limited flushing or nearby shellfish beds. Sewage contains pathogens (fecal coliform is used as an indicator of the amount of pathogens contained in the sewage) which can adversely affect human health and contaminate shellfish. Diseases that can be potentially transmitted through human contact with fecal discharge and/or ingestion of contaminated shellfish include typhoid fever, dysentery, infectious hepatitis, and nonspecific gastroenteritis (Seabloom, et al., 1989, p. 1).

8. TOURIST ACTIVITIES WITHIN NATIONAL PARKS

8.1 Visitor and Traffic Congestion

Visitor and traffic congestion exists in many tourist destinations, and national parks have been greatly impacted by this problem. Over 2.5 million people visit Zion Canyon each year, with half of those driving in the park. A summer day can see 2,000 vehicles in the canyon corridor, creating congestion, air pollution from vehicle exhaust, and vegetation damage along overflow parking areas (Sidles, 1997, p. 17). To help alleviate this problem, the park plans to launch a shuttle system in 2000. Although this system is expected to reduce some of the traffic-related impacts and provide a higher quality experience, it could also have the effect of increasing the number of visitors to the park. The next management question will then be how best to manage the volume of people. Similarly, the entrance to Yosemite National Park in California has had to be closed several times due to gridlock during the summer months when visitation is at its peak (Whitman, 1999, p. 19). With over 5 million visitors a year, Grand Canyon National Park suffers from congestion as well. The huge volume of traffic is more than just an inconvenience. There are physical impacts, such as air pollution from exhaust, and there are social impacts that also degrade the overall experience, such as honking horns and blaring radios. The superintendent of Grand Canyon National Park has commented that "we've taken this special place that is different from everything in your life and we've homogenized it so it's just like your life. It's full of cars, you're constantly looking for parking spaces, you're standing around in lines." ("A Cramped Grand Canyon," 1999). Tourist activities can alter the integrity of cultural resources. This damage includes vandalism and looting of sites of cultural significance. Historic structures and archeological sites were harmed by tourist activities at Gettysburg National Military Park (GAO, 1996). Damages to cultural resources can be more serious than those to natural resources, as the natural resources can recuperate over time.

9. STEPS TO LESSEN ADVERSE IMPACTS

As the environmental impacts of tourism have become more obvious, efforts to minimize or avoid further impacts have developed. There are existing initiatives within the tourism industry to minimize impacts. Potential improvements include voluntary efforts by industry sectors and government initiatives, developers' initiatives to design and build tourist infrastructure with minimal impact on the environment, and nonprofit tours that espouse environmentally friendly travel ethics.

9.1. Voluntary Efforts by Industry Sectors and Government Initiatives

There has been growing recognition within the tourism industry as well as without of the need for tourism that is environmentally responsible. This recognition has been exemplified by industry and government initiatives aimed at fostering more sustainable tourism. The World Travel and Tourism Council (WTTC) developed a "Green Globe" program through which travel and tourism companies can commit to improvements in their environmental practice ("World Travel and Tourism," 1994). The WTTC membership consists of 70 corporate executive officers from all sectors of the tourism industry, including accommodation and transportation. Members commit to mitigating their environmental impacts using the WTTC "Environment Guidelines" published in 1991 or industry guidelines accepted by the Green Globe board. They participate in annual surveys, and pay a fee in exchange for access to publications and guidelines, an advisory network, a members directory, and promotional support (e.g., a logo and annual achievement awards) ("World Travel and Tourism," 1994).

9.2. Examples of Development that Minimizes Environmental Impact

Three examples of tourist infrastructure that minimize environmental impact and incorporate local people's needs are two eco-resorts in the U.S. Virgin Islands, and a riverfront park in Detroit, Michigan. Maho Bay Camps and Harmony Resort were built in the 1970s, and are two of the best known and successful eco-resorts (Honey, 1999, p. 5). Wooden walkways minimize soil erosion and vegetation damage from trampling. Communal toilets and captured drainwater reduce water usage, and reliance on solar and wind power along with computer monitoring of electricity and water use help reduce energy use (Honey, 1999, pp. 5-6). The "Detroit Linked Riverfront Parks Plan" is a good example of effective tourism planning. In lieu of indiscriminate development based solely on economics, planners first determined the needs of the local people, and then designed the area accordingly (McIntosh & Goeldner, 1990, p. 453).

9.3. Nonprofit Groups

The Audubon Society has recognized the potential for adverse effects of tourism, and has developed a “Travel Ethic” for tour operators that provide wilderness trips (www.audubon.org). The Travel Ethic encourages tour operators and cruises to stay on trails to protect vegetation, keep a minimum distance from wildlife, refrain from destruction of coral reefs, maintain and enforce an anti-dumping policy, and educate tourists about the types of souvenirs not to buy (such as sea turtle products and ivory) (www.audubon.org). The Sierra Club also educates its members on methods to minimize their impact on the environment. The club’s concern about the potential impact of member travelers on the environment started as early as 1970, when its leaders commissioned a report from three professors about any adverse impacts Sierra outings had, and how they could be mitigated. These “Wilderness Manners” include traveling on durable surfaces, camping away from water bodies and trails, reducing litter by repackaging used food and carrying out all trash and garbage, minimizing use and impact of fires, and respecting wildlife and other travelers (www.sierraclub.org). The World Wildlife Fund uses the trips it sponsors as a way of fulfilling one of the tenets of ecotourism: using tourism to support conservation (www.worldwildlife.org). The WWF attempts to minimize the environmental impacts of their trips by selecting commercial tour operators according to their reputation as environmentally friendly (Janet Fesler, World Wildlife Fund, personal communication, September 16, 1999).

9.4. Financial Contributions

- ❖ Direct financial contributions: Tourism can contribute directly to the conservation of sensitive areas and habitat. Revenue from park entrance fees and similar sources can be allocated specifically to pay for the protection and management of environmentally sensitive areas. Special fees for park operations or conservation activities can be collected from tourists or tour operators.
- ❖ Contributions to government revenues: Some governments collect money in more far-reaching and indirect ways that are not linked to specific parks or conservation areas. User fees, income taxes, taxes on sales or rental of recreation equipment, and license fees for activities such as hunting and fishing can provide 2 governments with the funds needed to manage natural resources. Such funds can be used for overall conservation programs and activities, such as park ranger salaries and park maintenance (WTO, 1997; WTO, 1998).

9.5. Improved Environmental Management and Planning

Sound environmental management of tourism facilities and especially hotels can increase benefits to natural areas. But this requires careful planning for controlled development, based on analysis of the environmental resources of the area. Planning helps to make choices between conflicting uses, or to find ways to make them compatible. By planning early for tourism development, damaging and expensive mistakes can be prevented, avoiding the gradual deterioration of environmental assets significant to tourism.

Cleaner production techniques can be important tools for planning and operating tourism facilities in a way that minimizes their environmental impacts. For example, green building (using energy-efficient and non-polluting construction materials, sewage systems and energy sources) is an increasingly important way for the tourism industry to decrease its impact on the environment. And because waste treatment and disposal are often major, long-term environmental problems in the tourism industry, pollution prevention and waste minimization techniques are especially important for the tourism industry (UNEP, 1995, 1997, 1998; WTO, 1995).

9.6. Environmental Awareness Raising

Tourism has the potential to increase public appreciation of the environment and to spread awareness of environmental problems when it brings people into closer contact with nature and the environment. This confrontation may heighten awareness of the value of nature and lead to environmentally conscious behavior and activities to preserve the environment. If it is to be sustainable in the long run, tourism must incorporate the principles and practices of sustainable consumption. Sustainable consumption includes building consumer demand for products that have been made using cleaner production techniques, and for services including tourism services that are provided in a way that minimizes environmental impacts. The tourism industry can play a key role in providing environmental information and raising awareness among tourists of the environmental consequences of their actions.

Tourists and tourism-related businesses consume an enormous quantity of goods and services; moving them toward using those that are produced and provided in an environmentally sustainable way could have an enormous positive impact on the planet's environment (UNEP, 1992).

9.7. Protection and Preservation

Tourism can significantly contribute to environmental protection, conservation and restoration of biological diversity and sustainable use of natural resources. Because of their attractiveness, pristine sites and natural areas are identified as valuable and the need to keep the attraction alive can lead to creation of national parks and wildlife parks. In Hawaii, new laws and regulations have been enacted to preserve the Hawaiian rainforest and to protect native species. The coral reefs around the islands and the marine life that depend on them for survival are also protected. Hawaii now has become an international center for research on ecological systems and the promotion and preservation of the islands' tourism industry was the main motivation for these actions.

Tourism has had a positive effect on wildlife preservation and protection efforts, notably in Africa but also in South America, Asia, Australia, and the South Pacific. Numerous animal and plant species have already become extinct or may become extinct soon. Many countries have therefore established wildlife reserves and enacted strict laws protecting the animals that draw nature-loving tourists. As a result of these measures, several endangered species have begun to thrive again (IUCN, 1996; UNEP and WTO, 1992; WWF, 1992; www.unepie.org/tourism).

9.8. Regulatory Measures

Regulatory measures help offset negative impacts; for instance, controls on the number of tourist activities and movement of visitors within protected areas can limit impacts on the ecosystem and help maintain the integrity and vitality of the site. Such limits can also reduce the negative impacts on resources. Limits should be established after an in-depth analysis of the maximum sustainable visitor capacity. This strategy is being used in the Galapagos Islands, where the number of ships allowed to cruise in this remote archipelago is limited, and only designated islands can be visited, ensuring visitors have little impact on the sensitive environment and animal habitats (UNEP, 1998; UNEP, 1997; www.unipie.org/tourism).

10. POSITIVE IMPACTS

Despite its many adverse impacts, tourism can have positive impacts on both natural and artificially constructed environments, as well as on destination communities. In fact, tourism has motivated the preservation of such sensitive ecosystems as the Everglades National Park in Florida (Andereck, 1993, p.30). Furthermore, tourism that focuses on cultural and historic sites (sometimes referred to as "heritage" tourism) can be the impetus for the preservation and rehabilitation of existing historic sites, buildings, and monuments. For example, historic lighthouses and piers in Cape Cod, Massachusetts and historic buildings in Williamsburg, Virginia have been transformed and preserved for the purpose of tourism (Mathieson & Wall, 1982, p. 98).

Socially tourism has a great influence on the host societies. Tourism can be both a source of international amity, peace and understanding and a destroyer and corrupter of indigenous cultures, a source of ecological destruction, an assault of people's privacy, dignity, and authenticity.

Here are possible positive effects of tourism:

- ❖ Developing positive attitudes towards each other
- ❖ Learning about each other's culture and customs
- ❖ Reducing negative perceptions and stereotypes
- ❖ Developing friendships
- ❖ Developing pride, appreciation, understanding, respect, and tolerance for each other's culture
- ❖ Increasing self-esteem of hosts and tourists
- ❖ Psychological satisfaction with interaction

So, social contacts between tourists and local people may result in mutual appreciation, understanding, tolerance, awareness, learning, family bonding, respect, and liking. Residents are educated about the outside world without leaving their homes, while their visitors significantly learn about a distinctive culture. Local communities are benefited through contribution by tourism to the improvement of the social infrastructure like schools, libraries, health

care institutions, internet cafes, and so on. Besides, if local culture is the base for attracting tourists to the region, it helps to preserve the local traditions and handicrafts which maybe were on the link of the extinction.

11. CONCLUSION

Tourism creates catastrophe situation all over the world and this collapse condition can extinguish regional collaboration and communication. Everybody should be conscious about the negative impact of tourism and take the proper steps to lessen the problem specially each government of each country and international authority in regarding of tourism industry.

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