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Impacts of Tourism on Environment

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Abstract: Impacts from tourism occur when the level of visitor use is greater than the environment's ability to cope with this use within the 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. Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce. Water, and especially fresh water, is one of the most critical natural resources. The tourism industry generally overuses water resources for hotels, swimming pools, golf courses and personal use of water by tourists. This can result in water shortages and degradation of water supplies, as well as generating a greater volume of waste water. In dryer regions like the Mediterranean, the issue of water scarcity is of particular concern. Because of the hot climate and the tendency of tourists to consume more water when on holiday than they do at home, the amount used can run up to 440 liters a day. This is almost double what the inhabitants of an average Spanish city use. Golf course maintenance can also deplete fresh water resources. In recent years golf tourism has increased in popularity and the number of golf courses has grown rapidly. Golf courses require an enormous amount of water every day and, as with other causes of excessive extraction of water, this can result in water scarcity. If the water comes from wells, overpumping can cause saline intrusion into groundwater. Golf resorts are more and more often situated in or near protected areas or areas where resources are limited, exacerbating their impacts.

Introduction

Tourism can create great pressure on local resources like energy, food, and other raw materials that may already be in short supply. Greater extraction and transport of these resources exacerbates the physical impacts associated with their exploitation. Because of the seasonal character of the industry, many destinations have ten times more inhabitants in the high season as in the low season. A high demand is placed upon these resources to meet the high expectations tourists often have (proper heating, hot water, etc.). Important land resources include minerals, fossil fuels, fertile soil, forests, wetland and wildlife. Increased construction of tourism and recreational facilities has increased the pressure on these resources and on scenic landscapes. Direct impact on natural resources, both renewable and nonrenewable, in the provision of tourist facilities can be caused by the use of land for accommodation and other infrastructure provision, and the use of building materials.[1,2]

Forests often suffer negative impacts of tourism in the form of deforestation caused by fuel wood collection and land clearing. For example, one trekking tourist in Nepal - and area already suffering the effects of deforestation - can use four to five kilograms of wood a day. Tourism can cause the same forms of pollution as any other industry: air emissions, noise, solid waste and littering, releases of sewage, oil and chemicals, even architectural/visual pollution. Transport by air, road, and rail is continuously increasing in response to the rising number 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 CO₂ emissions produced by all other sources (lighting, heating, car use, etc.) consumed by an average person yearly. [3,4]

Transport emissions and emissions from energy production and use are linked to acid rain, global warming and photochemical pollution. Air pollution from tourist transportation has impacts on the global level, especially from carbon dioxide (CO₂) emissions related to transportation energy use. And it can contribute to severe local air pollution. Some of these impacts are quite specific to tourist activities. For example, especially in very hot or cold countries, tour buses often leave their motors running for hours while the tourists go out for an excursion because they want to return to a comfortably air-conditioned bus.

Noise pollution from airplanes, cars, and buses, as well as recreational vehicles such as snowmobiles and jet skis, is an ever-growing 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. For instance, noise generated by snowmobiles can cause animals to alter their natural activity patterns. 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. Today some cruise lines are actively working to reduce waste-related impacts. Solid waste and littering can degrade the physical appearance of the water and shoreline and cause the death of marine animals.[5,6]

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. Some trails in the Peruvian Andes and in Nepal frequently visited by tourists have been nicknamed "Coca-Cola trail" and "Toilet paper trail". Construction of hotels, recreation and other facilities often leads to increased sewage pollution. Wastewater has polluted seas and lakes surrounding tourist attractions, damaging the flora and fauna. Sewage runoff causes serious damage to coral reefs

because it stimulates the growth of algae, which cover the filter-feeding corals, hindering their ability to survive. Changes in salinity and siltation can have wide-ranging impacts on coastal environments. And sewage pollution can threaten the health of humans and animals. Often tourism fails to integrate its structures with the natural features and indigenous architectural of the destination. Large, dominating resorts of disparate design can look out of place in any natural environment and may clash with the indigenous structural design.

A lack of land-use planning and building regulations in many destinations has facilitated sprawling developments along coastlines, valleys and scenic routes. The sprawl includes tourism facilities themselves and supporting infrastructure such as roads, employee housing, parking, service areas, and waste disposal.

Attractive landscape sites, such as sandy beaches, lakes, riversides, and mountain tops and slopes, are often transitional zones, characterized by species-rich ecosystems. Typical physical impacts include the degradation of such ecosystems.[7,8]

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. The threats to and pressures on these ecosystems are often severe because such places are very attractive to both tourists and developers.

Discussion

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.

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 dune 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.[9,10]

In Yosemite National Park (US), for instance, the number of roads and facilities have been increased to keep pace with the growing visitor numbers and to supply amenities, infrastructure and parking lots for all these tourists. These actions have caused habitat loss in the park and are accompanied by various forms of pollution including air pollution from automobile emissions; the Sierra Club has reported "smog so thick that Yosemite Valley could not be seen from airplanes". This occasional smog is harmful to all species and vegetation inside the Park.

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.[11,12]

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 that sustain local people and attract tourists.

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, overfishing, and fishing with poisons and explosives that destroy coral habitat.

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.[13,14]

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

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.

Alteration of ecosystems by tourist activities Habitat can be degraded by tourism leisure activities. For example, wildlife viewing can bring about stress for the animals and alter their natural behavior when tourists come too close. Safaris and wildlife watching activities have a degrading effect on habitat as they often are accompanied by the noise and commotion created by tourists as they chase wild animals in their trucks and aircraft. This puts high pressure on animal habits and behaviors and tends to bring about behavioral changes. In some cases, as in Kenya, it has led to animals becoming so disturbed that at times they neglect their young or fail to mate.[15,16]

Results

In 1950 there were 25 million international tourist arrivals, in 1970 the number was 166 million, and by 1990 it had grown to 435 million. From 1990 to 2018 numbers more than tripled reaching 1.442 billion. By 2030, 1.8 billion tourist arrivals are projected. An average golf course in a tropical country, for example, uses as much water as 60,000 rural villagers. It also uses 1500 kilos of chemical fertilizers, pesticides and herbicides per year. Tourism contributes to more than 5 percent of global greenhouse gas emissions, with transportation accounting for 90 percent of this.

By 2030, a 25% increase in CO₂-emissions from tourism compared to 2016 is expected. From 1,597 million tons to 1,998 million tons.[17,18]

Tourism, in simple terms, is an activity that involves people visiting places of interest, both local and international, and exploring new different activities and experiences for leisure or business. Countries

such as the Maldives, British Virgin Islands, China, and Seychelles including many others across the world, depend highly on the tourism sector as a source of income generation.

The global tourism sector is the largest industry, contributing up to USD 2.9 Trillion to GDP; with France, the USA, Spain, China, and Italy being the world's top destinations. And on a global scale, tourism generates income as one of the fastest-growing industries for many countries. But in as much as mass international as well as local inbound tourism has numerous positive impacts on the environment, it also comes with its downsides.[19]

As such, investment in sustainable tourism options can put in place policies or a framework that can help protect the environment as well as boosting the tourism industry at a global level. This article particularly sheds light on both the positive and negative impacts of tourism on the environment. The positive impacts of tourism on the environment include:

1. Awareness creation and sensitization about sustainable tourism options.

Over time, tourism has brought about awareness in conservation, protection, and maintenance of exotic often near-extinct, fragile flora and fauna in the ecosystem. Organizations such as The World Wildlife Fund, UN Environment Programme, and the Nature Conservancy have set strategies, policies as well as programs that steer ahead of the agenda of sustainable tourism. International and local tourists, as well as dwellers, are also becoming more and more aware of the value of preserving and maintaining the environment.[20,21]

2. The adoption and implementation of regulatory measures

Through enacting regulatory measures to curb the potential negative aspects of tourism, the government has been able to offset a number of destructive environmental impacts.

Such measures include the control of the visiting number of tourists, identifying and limiting accessibility within protected areas, and setting up restrictive legislation directed at conserving the environment like carbon offset programs. With these policies upheld, it has become easier to uphold the vitality and the integrity of tourist sites and the protection of surrounding natural resources as well as ecosystems.

3. Development of infrastructure

Improvement of roads, electrical grid systems, telecommunications as well as social amenities are some of the benefits that have been realized around communities within tourist destination sites. This brings about the improvement of standards of living, especially in remote areas; as well as improving on the landscape and aesthetic nature of an area.[22,23]

4. Preservation of historic monuments and cultural heritage

Some international tourists seek to experience diversity in culture and a difference in the scenery as compared to theirs. This need brings about demand from the local dwellers to retain their culture as well as preserve their historical monuments as it becomes a tourist attraction.

Some of their cultural practices that have not been eroded by modern civilization link to the natural habitat of the area. Practices such as using herbs for medication, or linking certain wild animals with historical significance helps retain and preserve their ecosystem.

Despite the benefits that come with tourism as the fast-growing industry globally, it has left behind numerous poorly managed and uncontrolled negative impacts on the environment that warrant the need for ecotourism or sustainable tourism options.[24,25]

Some of the negative impacts of unsustainable tourism practices that should be brought to the people's attention include:

5. Degradation and loss of natural ecosystems and aesthetic landscape

Improper development of infrastructures such as extensive paving and sand and beach mining, unplanned construction of resorts, hotels, roads, airports, power plants, reservoirs, and waste disposal systems brought about as a result of tourist visits has led to congestion within areas that are fragile and sensitive like natural habitats for wildlife, wetlands, coral reefs, lakes, forests, minerals, oceans, fertile soils, and riverbed basins.

Encroachment into the natural habitat of plant and animal species to build hotels, roads, and beaches poses a great risk to the endangered species and often push wildlife to migrate in search of less congested areas or deeper into the forest that may have unfavorable breeding, preying, camouflaging, and feeding environments.[26,27]

Besides pushing wildlife far interior into the wild, development projects most of the time affect the scenery and aesthetic nature of natural habitats, thereby destroying the quality that makes it a tourist attraction site in the first place.

6. Leads to various types of environmental pollution

Tourisms as a whole and some of the actions by tourists have over time adversely affected the destination areas through various kinds of environmental pollution including air, land, water, and soil. Some tourists, for example, will litter and leave behind garbage or waste like plastic wrappers and cigarette butts in the surrounding environment thereby causing land pollution, plastic pollution, and cigarette pollution respectively.[28,29]

Water pollution due to recreational boating activities has equally been reported. According to estimates by Ocean Conservancy, for instance, records an estimate of 70,000 tons of wastewater produced per year from cruise ships in the Caribbean, which affects the natural habitat of marine life.

Sometimes, land degradation can also happen in the form of soil erosion as a result of creating nature trails and cutting of bushes and obtaining wood fuel to facilitate hiking and camping activities.

Tourism is also highly associated with noise pollution during festive seasons and events, and particularly due to high noise levels from cars, buses, airplanes, and recreational vehicles that can cause distress to wildlife and even alter wildlife's natural activity patterns. And since tourism accounts for more than 60% of all air travel, it is equally responsible for a significant share of air pollution through travel air emissions[30]

7. Depletion of natural resources and putting a strain on the locally existing ones

When the number of tourists visiting an area over time surpasses the level to which the area can sustain; it subsequently leads to an overuse of the available local resources causing a strain on the environment. In most cases, tourism puts a strain on the already scarce local natural resources owing to over-consumption.

Food, fresh water, and power usage in hotels and resorts increase to a high capacity when tourist numbers increase, which also affects the access of local dwellers to such services or resources.

And on instances where marine tourists taking part in recreational fishing are not properly controlled, the outcome is the endangerment to some of the aquatic species – causing an imbalance in aquatic ecological functions.

8. Erosion of social and cultural norms aimed at preserving local and environmental heritages

International tourists come with diverse social-cultural behaviors that are often quite distinct from the usual ways of local dwellers. Tourism involves intermingling and exposure to new experiences, new practices, a dynamic way of living, new traditions, and new historical background for the locals.[28,29]

As such, this has in some places influenced people to abandon their traditional practices, beliefs, norms, religion, and values for the newly acquired practices thereby eroding their ways of life.

Examples are the use of traditional medicine, consumption, and protection of certain indigenous foods, protection of certain wildlife animals, or areas believed to be gods or dwellings of god that after all help to conserve the natural environment.

Most of the traditional ways of life and beliefs in tourism locations like in Australia, Brazil, some African countries, and China, for example, the aborigines often maintain a balance between nature and human activities by trying as much as possible not to harm nature – hence conserving biodiversity and natural ecosystems.

Their beliefs and values are that nature is life and that it provides them a direct link with their ancestors. With the introduction and influence of new or outside cultures, however, it may erode such practices that may ultimately lead to the degradation of natural ecosystems.[27,28]

9. A contributor to global warming and climate change

Tourism is a key contributor to greenhouse gases emitted in the atmosphere, which have been scientifically proven to be the main reason for the increasing global temperatures and changing climates. This is simply because tourism entails the movement of people from their areas of residence to new destinations.

Environmental specialist attributes the ever-rising global temperatures to increased greenhouse emissions that trap the sun rays. One of the leading greenhouse gasses is carbon dioxide, mainly released into the atmosphere as a result of the combustion of natural gases and fossil fuels in the generation of electricity, in industries, in the powering of automobiles.

Tourism accounts for over 55% of traffic movement globally and for this reason, it contributes an estimated 3% of the total carbon dioxide emissions. As the number of tourists grows over the years, the level of emission will rise and climate change is also expected to worsen.[26,27]

Conclusions

To sum up, environmental sustainability is an issue of utmost concern even when promoting tourism. From the discussions herein, it is correct to conclude that in regards to the environment, tourism has both advantages and probable threats that ought to be examined.

This calls for the need of practicing healthier and sustainable tourism practices, especially ecotourism. It desperately requires everyone's involvement and initiative to always conserve and protect the environment when traveling or in a foreign land as it has been proven that it is possible to ensure a mutually beneficial co-existence between tourism and the surrounding ecosystems as well as natural resources.

Efficient management and proper planning with the aid of strict legislation and proper interpretation are also key to creating ecological awareness for both the local and visiting tourists.[30]

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