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Assessing The Geographical Impacts Of Climate Change And Tourism In The Gir Region

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Abstract:

The Gir region, situated in Gujarat, India, is well-known for its diverse ecosystems, particularly as the final sanctuary of the Asiatic lion. Nevertheless, the region is encountering difficulties due to climate change and the growing number of tourists. This study seeks to explore the geographical impacts of climate change on the Gir region and examine the role of tourism in exacerbating these effects. By conducting extensive fieldwork, analyzing data, and thoroughly reviewing existing literature, this research uncovers significant environmental changes, evaluates the vulnerability of the region's biodiversity, and assesses the sustainability of current tourism practices. The findings underscore the importance of implementing comprehensive management strategies that consider the preservation of the environment and the socioeconomic advantages of tourism. This paper explores the relationship between climate change and tourism in Gujarat's Gir region, known as the habitat of Asiatic lions' last remaining wild population. The study delves into the intricate relationship between climate patterns, the local ecosystem, wildlife, and tourism. It aims to understand the effects of shifting climate patterns on these interconnected elements and the subsequent implications for tourism. In addition, it delves into how the rise in tourism impacts the environment in the region.

Keywords: Gir Region, Climate Change, Tourism Impact, Biodiversity Conservation, Sustainable Tourism, Asiatic Lion Habitat, Environmental Degradation, Ecosystem Management, Geographical Analysis, Conservation Strategies, Human-Wildlife Conflict, Sustainable Development

Introduction:

Within the one-of-a-kind ecosystem of Gir Forest National Park and Wildlife Sanctuary, located in Gujarat in India, the Asiatic lion has discovered its final secure haven. Within the context of this environmentally delicate region, this project aims to investigate the intricate interaction between climate change and tourism. Since the Gir region is home to many plant and animal species, it is considered an environmentally vulnerable location. In addition, it significantly contributes to the preservation of the endangered Asiatic lion, also known as *Panthera Leo persica*. The location's ascent to popularity as a tourist destination has benefited the surrounding area's economy. However, because climate change and rising tourism are simultaneously exerting pressure on the region's ecosystems, some people are concerned about the long-term viability of these ecosystems.

Tourism has been a significant economic support and maintenance source for both developed (Denstadli & Veisten, 2020) and emerging (Nixon, 2020) states. Both types of nations have relied largely on international tourism. The challenge governments and corporations face is the tough dilemma of maintaining economic growth without compromising environmental quality. This is a problem that has far-reaching repercussions for both individuals and locations. The tourism industry ought to prioritize ecotourism and other types of responsible travel under the Sustainable Development Goals (SDGs; Moyle et al., 2020; Weaver, 2007). Many topics have been the focus of study in the rapidly increasing area of sustainable tourism (Bramwell et al., 2017; Demeter et al., 2023; Mihalic, 2020). Some of the topics that have been investigated include the protection of the environment and resources, as well as the responsibilities played by many stakeholders.

Research Objectives

The objectives of this study are:

- To examine the geographical impacts of climate change on the Gir region.
- To analyze the effects of tourism on the region's environment and wildlife.
- To propose sustainable management strategies to mitigate the adverse effects of climate change and tourism.

Significance of the Study

These findings are important because they add to a better understanding of how tourism and climate change interact in an area particularly vulnerable to climate change's effects. In addition to offering ideas for protecting the Gir area's natural integrity while promoting sustainable tourism growth, it gives insights into the issues the Gir region is now facing.

Climate Change in Gir:

According to the findings of the study conducted in Gujarat on climate change, temperatures are increasing, patterns of precipitation are shifting, and the frequency of severe weather events is increasing. The quantity of water, the amount of plant cover, and the suitability of animal habitat are the three areas in which these changes are most likely to have a discernible influence on the ecosystems of the Gir region.

The tourist industry has both positive and negative effects on the surrounding environment. The potential exists for it to worsen conflicts between humans and animals, to ruin ecosystems, and to raise awareness about the need for conservation, but it also offers economic benefits. Although the native flora and animals of the Gir area are already under great stress, the unrestrained tourist industry is making the situation much more dire by destroying natural habitats.

Sustainable tourism is predicated on the notion that we cannot afford to allow economic expansion at the price of protecting the environment. The Gir area may benefit from the lessons learned from successfully implementing strategies for controlling tourism in ecologically fragile sites in other locations.

The flowering and fruiting times of the local plant species have shifted due to climate change, which has also affected the availability of food for animals. It is crucial for the survival of many species, including the Asiatic lion, that they adapt to the rapidly changing surroundings in which they live.

Tourism in Gir

Growth of Ecotourism:

In recent years, Gir has seen a remarkable growth in the number of visitors. This increase has been driven mostly by wildlife enthusiasts, environment lovers, and conservationists attracted to the area because of its exceptional biodiversity and the chance to watch the endangered Asiatic lion in its native habitat. This increase in ecotourism has been spurred by a growing worldwide awareness of the importance of environmental protection and the allure of environmentally responsible trips. Due to the abundance of flora and animals found inside the Gir National Park, it has become an important destination for those looking for genuine wildlife experiences while contributing to conservation efforts.

Economic Impact:

The local villages in Gir have been significantly impacted economically due to the expansion of tourism in the area. Since it creates employment opportunities in fields like hospitality, guiding, and transportation, tourism has emerged as an essential source of income. This increase in wealth has, in turn, contributed to the funding of conservation projects and the building of infrastructure, which has helped to ensure that the natural environment will be conserved for future generations. Furthermore, tourism has significantly contributed to the promotion of environmental consciousness among both tourists and residents, resulting in a more profound comprehension of the significance of safeguarding the area's ecosystems. As a result of the mutually beneficial link between tourism and conservation, Gir has become a paradigm for sustainable development. This model is characterized by aligning economic advantages with the objectives of protecting natural assets.

The interplay between Climate Change and Tourism:

Climate Change Effects on Tourism:

The relationship between tourism and climate change was not well recognized until the mid-1990s. The effects of aircraft emissions at high altitudes on the chemistry and physics of the atmosphere were a topic of rising research at the time. The first examination of the impact of foreign travel on climate change was offered at the start of the twenty-first century (Gossling, Citation and 2002). Over time, the United Nations World Tourism Organization recognized the mutual relationship between tourism and climate change in the 'Djerba Declaration' published in 2003. National studies were carried out in the next years to assess the emissions from tourism at the national level. The selection of system boundaries (resident-based accounting versus destination-based accounting), the subsectors that required coverage (transport, lodging, activities, shopping, and food), the assessment of supply chains and lifecycles, and the short- and long-lived greenhouse gases that required attention were some of the challenges that needed to be overcome. Lenzen et al. (Citation 2018) calculated that 2013, tourism accounted for about 8% of global CO₂-equivalent emissions, and there is evidence that this contribution is still significantly growing. Since then, there has been a notable decline in both tourism and the associated emissions due to the COVID-19 pandemic. A rebound is already underway in response to this downturn, and predictions suggest that 2024 will be the first year when tourism activity surpasses 2019.

How animals behave and utilize their surroundings has changed, changing opportunities to observe wildlife. There is a potential for visitors to become less comfortable due to climate change. The growing threat of forest fires impacts the safety and accessibility of visitors.

Tourism, recreation, weather and climate

In places like Gir, where natural scenery and animals are major draws, the connections between tourism, leisure, weather, and climate are complex and important.

Tourism and Recreation:

The environment and weather have a significant influence on the tourist industry as well as leisure activities. As a result of favorable weather conditions, such as bright skies and comfortable temperatures, more tourists are visiting locations such as Gir. As part of the ecotourism experience, it is vital to participate in outdoor activities with guests. Some examples of these activities include bird watching, wildlife safaris, and nature walks. In many cases, the timing and quantity of tourism are determined by seasonal weather patterns. Peak travel seasons often coincide with the finest weather windows for outdoor activities.

Weather and Climate:

In tourism and leisure, the weather and climate are crucial in determining people's experiences. For instance, the dry season in Gir is ideal for wildlife watching since it is during this time that animals are more prone to concentrate around water sources, which makes it simpler to locate them. On the other hand, severe weather events or climatic changes, such as extended droughts or unseasonable rains, can potentially interrupt tourist activities, influence the behavior of animals, and even cause harm to natural environments. These changes can potentially affect the tastes and habits of tourists, which may result in oscillations in the number of visitors and economic consequences on the tourism business in the local area.

The interplay of Factors:

The relationship between tourism, recreation, weather, and climate highlights the significance of recognizing and adjusting climatic conditions in tourist planning and management. In areas strongly reliant on natural attractions, they must consider the possible consequences of climate change. These consequences include a rise in the frequency of severe events and an increase in the unpredictability of weather patterns. It is vital to implement sustainable tourism practices to limit the risks associated with these changes. Some examples of these activities include encouraging off-season trips and constructing climate-resilient infrastructure. Destinations such as Gir can improve their visitors' overall experience while protecting the long-term viability of their natural resources if they connect their tourism plans with certain weather and climatic factors.

Current trends

Climate hazards, which can have both physical and socioeconomic effects, and carbon risks, which can result in higher travel costs, are two of the most important ways climate change will negatively impact tourism (Scott & Gossling, Citation 2022). The relationship between these two variables is complex. However, it will affect both the quantity of accessible tourism and the rise in demand for it. "Physical climate risks" include a wide variety of phenomena, some of which are but are not limited to severe weather, sea level rise, reduced biodiversity, and potential health effects. It is important to acknowledge that socioeconomic effects include societal disturbances and alterations in economic opportunities and job prospects. There's a connection between carbon dangers and the goals of lowering carbon costs and emissions, both of which apply to tourism goods with large carbon footprints. These two goals apply to

tourism-related products. Transportation providers are exposed to potentially hazardous situations due to switching to new technologies and fuels, such as electrification, e-fuels, and fuels based on biomass.

Indirect environmental change impacts

Many environmental changes brought on by climate change will substantially influence tourism at the local and regional destination levels. Climate change will bring about these changes. This is because the environment is a resource that the tourism industry considers very precious. Some factors will have an impact on tourism to varying degrees. These factors include changes in agricultural production (such as food and wine tourism), loss of biodiversity, changes in water availability, increased natural hazards, coastal erosion and inundation, damage to infrastructure, and increased diseases transmitted by vectors.

On the other hand, in contrast to the many benefits of climate modification on tourism, it is anticipated that the indirect consequences of climate-induced environmental change would mostly be detrimental. Some significant regional gaps exist in our knowledge, one of which is the potential impact of climate change on the natural and cultural resources that are essential for tourism in Africa, the Caribbean, South America, the Middle East, and large regions of East Asia (see Simpson and Hall 2008). It is noteworthy that these gaps exist.

Impact of Climate Change on the Gir Region

The investigation's conclusions showed that, throughout the past 20 years, the Gir region has seen a steady increase in average temperatures, which varying rainfall patterns have accompanied. The vegetation zones have shifted, there is less water available, and the fragility of the natural habitats for many species has increased due to these changes.

The number of tourists to the Gir region has increased significantly, especially at the busiest times of the year, indicating the remarkable expansion of the tourism business in the area. As a consequence of the expansion of infrastructure, which includes buildings like hotels and roads, natural ecosystems have been intruded upon. Additionally, more people visiting the area has led to higher trash and noise pollution levels and wildlife disturbances, especially in Gir National Park's central areas.

The study results indicate that the adverse impacts caused by tourism are exacerbated by climate change. Long droughts have reduced the amount of water available, which has increased the frequency of conflicts between people and animals. This is a result of animals approaching populated areas in pursuit of water. Furthermore, the impact of tourism on natural resources is compounded by the effects of climate change, endangering the area's biodiversity to an even greater extent.

Global climate policy first highlighted tourism in 2003.

In 2003, the tourist sector saw a turning point when the relationship between tourism and global climate policy came to light for the first time. Growing public awareness of tourism's negative environmental effects, notably its role in deforestation, greenhouse gas emissions, and biodiversity loss, drove this change.

International forums and conversations on climate policy started to specifically examine how tourism contributes to climate change in 2003, acknowledging both its vulnerabilities and its responsibilities. This acknowledgment was important because it showed how the tourist industry must reduce its environmental impact and adapt to changing climatic circumstances.

An important result of this emphasis was a greater emphasis on eco-friendly tourist activities. Governments, global organizations, and industry players began investigating ways to lower tourism's carbon impact, such as boosting the use of public transit, energy-efficient lodging, and creating eco-friendly travel destinations.

The economic importance of the tourist industry and the need for it to be included in larger climate action plans were further highlighted by its involvement in debates on global climate policy. Thus, 2003 marked a turning moment when it was realized that tourism might contribute to and be a victim of climate change, calling for proactive steps to match travel industry practices with international sustainability objectives.

Since then, some projects have been launched to boost eco-friendly travel, including creating green certification guidelines, carbon offset programs, and incorporating climate resiliency into travel planning. The tourist sector's need to adapt and combat climate change globally is reflected in how the industry's involvement in global climate policy has changed over time.

Discussion

The findings highlight the need to respond to climate change and tourism that is not controlled in the Gir area. The preservation of plant cover, the protection of water supplies, and the guarantee of habitat connectivity are all essential components in preserving ecological equilibrium. To lessen the extent to which local communities are dependent on activities that might harm the environment, sustainability measures should also consider the economic and social requirements of such communities.

To ensure the continued viability of tourism in the Gir area, rigorous management is required. To accomplish this objective, it is essential to implement measures that control the number of visitors, encourage responsible conduct among guests, and promote hotels that are favorable to the environment. It is possible that projects that support community-based tourism, in which local inhabitants take an active role in controlling events and activities linked with visitors, might be beneficial to conservation efforts as well as local businesses.

The study's findings suggest that a unified management plan should be implemented to integrate efforts to adapt to climate change with sustainable tourism practices. One of the most important decisions that may be made about policy is to make environmental regulations more stringent fostering a greater level of community engagement in ecotourism and other programs connected to conservation efforts by providing financial assistance for research and observational studies that monitor the environmental changes and the efficiency of conservation activities.

Conclusion:

There are enormous issues that the Gir area must confront as a result of climate change, as well as the growing strain from tourism. Rigorous planning and management are required to strike a balance between the requirements of conservation and the growth of tourism. It is necessary to do more study to establish comprehensive policies that guarantee the long-term viability of this one-of-a-kind environment and the population of Asiatic lions.

The Gir area is confronted with major issues due to the combined impacts of tourism and climate change. Even though both of these elements have the potential to damage the environment, they also provide chances for the advancement of sustainable construction. The Gir area has the potential to continue to flourish as a one-of-a-kind natural and cultural environment if it adopts a comprehensive strategy that incorporates conservation efforts with responsible tourist activities.

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