

Investigating the Effects of Tourism on Socio-Cultural and Environmental Dimensions of Achanakmar-Amarkantak Biosphere Reserve

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Abstract : This research examines the complex effects of tourism in the Achanakmar-Amarkantak Biosphere Reserve, acknowledging that it both promotes economic growth and presents obstacles to the sustainability of the ecosystem. Underscoring the increasing importance of tourism in the area, the study explores the favorable and unfavorable socio-cultural effects on nearby communities, including improved intercultural comprehension and possible disputes. Environmental effects are also looked at, including habitat damage and biodiversity loss. For the socio-cultural effect assessment, the research uses a thorough mixed-methods approach, and for the environmental impact assessment, it uses a strict method. By using these approaches, the study hopes to offer insightful information on eco-friendly tourist strategies and the safeguarding of the distinct ecological and sociocultural legacy of the biosphere reserve.

Keywords: Tourism impact, Socio-cultural dimensions, Environmental sustainability, Biosphere reserve, Mixed-methods approach, Ecological footprint, Biodiversity, Cultural exchange, Sustainable tourism management.

Introduction

Growing significance of tourism in the study area

The increasing importance of tourism in an area is a dynamic factor influencing global economic environments. Dwyer, Forsyth, and Spurr's (2015) research provides evidence that tourism acts as a crucial part in economic growth by promoting job creation, infrastructure development, and income production for local communities. Smith (2003) emphasizes the social aspect of tourism, which augments the economic impact by emphasizing the sharing of cultural experiences between tourists and locals, so fostering an appreciation and understanding of different cultures. These diverse perspectives highlight tourism as a transformational force that affects social dynamics and cross-cultural interchange in addition to providing economic advantages.

But as Liu (2003) points out, there are drawbacks to tourism's increasing importance, especially when it comes to environmental sustainability. There has to be a careful balance struck between boosting tourism for economic growth and guaranteeing the long-term preservation of the environment, given the burden that tourism activities place on natural resources and ecosystems. As more and more areas realize that tourism may spur economic development, it is critical to use strategic planning, thorough research, and sustainable practices to maximize the benefits of tourism while minimizing any negative effects. A comprehensive strategy that takes into account the social, environmental and economic aspects is necessary to create a sustainable and mutually beneficial tourist business, as demonstrated by the changing role of tourism in local community growth.

Objective of the paper

This study aims to analyze the impact of tourism on the Achanakmar-Amarkantak Biosphere Reserve's socio-cultural and environmental aspects. It seeks to understand the interactions between tourism and local

communities, exploring changes in customs, livelihoods, and community dynamics. Additionally, the research evaluates tourism's effects on ecosystem health, biodiversity, and overall ecological sustainability. The goal is to provide insights for sustainable tourism practices and preserve the reserve's unique socio-cultural and natural heritage.

Tourism's Socio-Cultural Effects on Local Communities

Numerous academics contend that socio-cultural impacts are community-focused, encompassing shifts in behavior, social relationships and lifestyles, societal, collective, and individual value systems, ways of expression, and public structure (Douglas et.al. 2001; Page et.al. 2002; Fredline et al., 2003; Sims & D'Mello, 2005).

(i) Positive Effects of Tourism on Social Life in Communities According to Ogorelc (2009), direct interaction between the host (locals) and the guest (visitors) is what is causing the socio-cultural effects of tourism to emerge. Additionally, according to De Kadt (1979), there are three main ways that locals and visitors might interact. The first was when visitors purchased products and services from locals. The second type of interaction occurred when visitors and locals used the similar facility, and the third type occurred when visitors and locals got together for a traditional exchange. Mutual respect and understanding between peoples and cultures are facilitated by tourism. According to Archer, Cooper, and Ruhanen (2005), there is potential for tremendous mutual understanding to be stimulated by variations in nations and cultural behaviors between hosts and tourists. By generating benefits for the local economy, tourism encourages people to protect their beliefs and history and fosters collective steadiness. They went on to emphasize how tourism can support the conservation of significant cultures and lifestyles. The preservation of traditional cultures, enhanced cross-cultural dialogue and comprehension, enhanced public safety, enhanced quality of life, better shopping, and more leisure opportunities are examples of social advantages. According to Murray (2009), there are several common benefits of travel on the social well-being of the community, including: promoting civic honor in the infrastructure, natural assets, community, culture, and legacy; promoting the construction of public transit, healthcare, education, roadways, communications, and drinking water arrangement; improving native or regional safety and well-being; encouraging the creation of new opportunities and expanding horizons for ideas; promoting cultural understanding; preserving native languages, cultural and social heritage; supporting and preserving local and unique crafts and skills; fostering the development of a sense of wellbeing; facilitating workforce development (e.g., privileges and situations); creating attentiveness that it may be advantageous to all community stakeholders; the development of skills and influence; the strengthening of government policy (local, regional, and national); the promotion of greater understanding across institutions; the deeper understanding of the objectives and agendas of various stakeholders; the improvement of skills (administration, service industry, maintenance, guiding, etc.); the additional development of skills (training; like service industry, administrative, guiding, maintenance, , etc.); the building of ability individually as well as jointly; and so on.

(ii). Negative Effects of Tourism on Social Life in Communities Since tourism is seen as a valuable industry for any place, both the public and commercial sectors work together to attract and satisfy travelers in order to gain financial benefits. But the majority of them don't give priority about how the destination site's local socio-culture affects them. Since most tourists visit these places for leisure, they want to have fun and be entertained. While seeking pleasure and happiness, visitors sometimes come from other civilizations with different beliefs and lifestyles. As such, they might behave in ways that even they wouldn't put up with and spend a lot of money back home (Rogerson, 2000). Due to ignorance or negligence, visitors may also disregard host culture and moral standards (Stohr, 1990; Demaziere and Wilson, 1996; Zaaijer and Sara, 1993; Karunathilka & Gnanapala, 2016). Tourism is a "total social event," according to Tomoko & Samuel (2009), and it may help towns undergo structural changes. The preservation of traditional culture, enhanced cross-cultural understanding and communication, enhanced public well-being, improved quality of life, and greater intercultural communication are among the social advantages. Despite the above promising discussions, tourism can even become a damaging force that harms the socio-culture of the area. Examples of such harm include drug abuse, an increase in crime, prostitution, conflicts between visitors and locals, and changes to traditional customs and host cultures (Tomoko & Samuel, 2009).

Environmental consequences of tourism in the biosphere reserve

In a biosphere reserve, tourism may have both beneficial and bad effects on the ecology. While tourism may boost regional economies and increase public understanding of the need of protecting biodiversity, it can also bring about a number of environmental problems. This is an evaluation of the effects on the environment (Buckley, 2012):

Biodiversity Impact: Funding initiatives for protected areas and wildlife preservation can help tourism positively benefit biodiversity conservation. Increasing human activity can also have a negative effect on the surrounding flora and wildlife through habitat modification, pollution, and disruption. *Habitat Destruction and Fragmentation:* It Has Adverse Effects The building of roads, hotels, and trails is an example of infrastructural development that can cause habitat fragmentation and destruction, upsetting the natural ecosystems inside the biosphere reserve. *Pollution:* Contamination from tourism activities, such as littering, inappropriate waste disposal, and contamination of the air and water, can have a detrimental effect on the reserve's general environmental health. *Resource Consumption:* Increased water and energy use from tourism frequently puts strain on the biosphere reserve's finite resources, which has a detrimental effect. (Weaver, 2008).

Climate Change Impact: Transportation associated to tourism, especially air travel, produces greenhouse gas emissions that impact the biosphere reserve's ecosystems and cause climate change. *Cultural Impact:* Unchecked tourism has the potential to commercialize regional cultures, which will cause indigenous populations inside the biosphere reserve to lose their customs and values. *Overcrowding and Disturbance:* An abundance of visitors may result in overpopulation, which disrupts ecosystems and animals and may have an effect on the eating and breeding habits of native species. *Invasive Species Introduction:* Through the movement of people and commodities, tourism may accidentally fetch hostile species into the biosphere reserve, upsetting the natural balance of its native flora and wildlife. Sustainable tourism techniques should be used to solve these problems, with an emphasis on reducing tourists' ecological imprint and guaranteeing the biosphere reserve's long-term preservation. This might entail putting in place stringent laws, becoming involved in the community, and implementing environmental education initiatives. (Koens, Postma, & Papp, 2018).

Literature Review

Previous Studies on Tourism Impacts in Biosphere Reserves

The possible effects of tourism on biodiversity, ecosystems, and local populations in biosphere reserves have raised concerns. Developing sustainable tourist activities within these fragile settings requires an understanding of these implications. The main conclusions of earlier research on the effects of tourism in biosphere reserves are reviewed in this study.

i) *Biodiversity Conservation*

One of the most crucial methods for preserving biodiversity is the establishment of nature reserves and further protected areas in strategic areas (Sinclair & Byrom 2006; Primack 1995). Endangered places have historically prohibited social activity. Nevertheless, especially in developing nations, this exclusion frequently results in tensions between the demands of local residents and the conservation of biodiversity (Heinen 1996; McNeely & Ness 1996). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) developed the biosphere reserve idea in the 1970s with the intention of combining the preservation of biodiversity with the sustainable growth of regional communities. The three zones that make up any biosphere reserve are the essential, buffer, and alteration. The buffer and transition zones, respectively, are open to human activities consistent with sustainable development and conservation, whereas the core zone is the only area that needs legislative protection (UNESCO 1996). This arrangement, which essentially combines community-based and protected-area-based conservation strategies, aims to ensure local communities' cooperation in biodiversity conservation while allowing the reserve to support those communities' economic development (Sinclair & Byrom 2006). It is becoming more widely acknowledged that modern conservation policy and practice must connect the preservation of biodiversity with social and economic development (Brown 2002). But given the

variety of parties involved in reserves, it is inevitable that trade-offs and synergies will also need to be considered.

ii) *Socio-economic Impacts*

It has been predicted that natural protection will benefit socioeconomic growth as well as biodiversity (Baker et al., 1995; Svarstad et al., 2008). Alternatively, several researches indicate a dearth of comprehensive knowledge on the ways in which socioeconomic systems are influenced by and may be impacted by conservation (Bennett et al., 2017; Chaigneau & Brown, 2016; Woodhouse et. al., 2015). Woodhouse et. al. (2015) states yet again that preservation actions may have a detrimental effect on additional social dimensions of the communities, such as autonomy and social ties, but they may also positively affect the local economy by creating employment and alternative livelihoods. Certain local populations are more susceptible than others; one such community is the Orang Asli in Malaysia's Tasik Chini UNESCO BR. At the time of the BR's gazettelement in 2009, this community tackled socioeconomic obstacles like low-income snares, unequal options for a living, pervasive signs of intoxication and drug abuse, and concerns about the value of culture and security of residential regions that were developing tourism (Kurnia, 2011).

Furthermore, because of competing interests brought on by swiftly evolving social and environmental issues like climate change, measures aiming to promote both human progress and conservation have encountered significant obstacles. This highlights the necessity for a detailed comprehension of the connection between socioeconomic growth and nature conservation. Numerous secondary research publications released recently reflect the topic's increased interest in previous decades. In order to record the consequences of natural preservation measures on several facets of human welfare in developing nations, McKinnon et. al. (2016) developed a comprehensive map of 1043 articles. In order to analyze wellbeing effects connected to marine secured regions globally, Ban et. al. (2019) examined 118 publications, focusing on both positive and negative effects on individuals. Eales et. al. (2021) revealed more than 250 research papers on the effects of conservation and marine management initiatives on the well-being of coastal populations in Southeast Asia in a systematic map. A proposal outlining a country's goals for natural, biological, cultural, economic, political, and development aspects, together with a pledge to see those plans through to completion, is required in order for UNESCO to designate it as a BR. BRs have always attempted to adhere to both national and UN sustainable development goals.

iii) *Ecotourism practices*

The goal of ecotourism is to promote sustainable development via responsible travel. Since ecotourism makes no assertion of sustainable growth with respect to mobility and transportation challenges, we actively focus on location in this article. According to Blamey (2001), ecotourism is nature-based travel that benefits nearby communities by fostering educational opportunities that promote environmentally, socioculturally, and economically sustainable development. Numerous definitions of ecotourism exist, each tailored to meet unique requirements in case studies of small-scale activities such as wilderness tourism, fair-trade tourism, nature-based tourism, green tourism, soft tourism, and a lot more (Kala and Maikhuri, 2011). Ecotourism works to preserve the natural world and cultural aspects of society by creating economic benefits that support conservation efforts and disseminate information about sustainable development.

When trying to create a sustainable development that is balanced, it is important to take the economics of well-planned tourism into consideration. As per Björk's (2000) assertion, travelers' desire for eco-friendly consumption alternatives that minimize environmental and sociocultural harm is contributing to the growth of ecotourism. According to Fredman (2002), when residents and visitors—that is, tourists—are involved in the tourism sector, it has the possibility to be profitable in a protected region like a biosphere reserve. Recognizing all tourist stakeholders will help advance our knowledge of how learning processes may lead to the possible growth of conservation and socioeconomic development. According to Bramwell (2011), the receiving community, tourism businesses, and visitors should all be a part of the system of sustainable development and tourism. The tourist sector appears to be highly beneficial for promoting and supporting learning processes for sustainable development, given its dual nature of producing and consuming services.

Travelers that choose ecotourism often appreciate environmental concerns at the locations they visit (Kerstetter et.al., 2004). Another study done by Szymańska (2013) discovered that although visitors to national parks make an effort to behave as ecologically conscious as they can, they lack knowledge about sustainable tourism. She goes on to say that a set of broad guidelines for the tourist industry, including those for organizations, travel agencies, and local governments, may make it easier to apply sustainable development. The political aspect is another essential component of sustainable development and tourism. Assenova (2012) noted issues with the development of sustainable tourism in Bulgaria's Strandzha Nature Park and came to the conclusion that efforts to grow tourism and preserve the environment appear to be at odds with one another.

iv) *Visitor Management and Behavior*

As a significant factor influencing travel behavior, motivation often relates to a psychological need that arises prior to a trip (Beh & Bruyere, (2007); Ma (2018); Shakoori & Hosseini, (2019); Dragin et al. (2017); Jovanovic, (2013)). When it comes to developing management and marketing strategies for protected areas (Xu & Chan, (2016); Jeong et.al. (2018); Chow et.al., (2018); Kamri & Radam, (2018) Stojanović et.al., 2021), comprehending the underlying reasons, affinities, and interests of travelers could perhaps elucidate their behavior (Ma, (2018); Mehmetoglu & Normann, (2013); Cheung & Fok, (2014); Radin, (2022); Marković, (2021); Mijatov, (2018)). According to Panin and Mbrica (2014), sports and leisure pursuits including forest walks, health benefits awareness, and taking in and appreciating nature are the primary drivers of ecotourism in Serbia. However, one of the key reasons for undertaking this research within the Gornje Podunavlje Special Nature Reserve was the need to learn more about the primary motivations tourist affinities and interests within a specific category of eco-tourism location, like wetlands. Travelers' happiness in wetland protected areas is one of the key components needed to enable the wetland destination to expand sustainably, and it has drawn a lot of interest in studies looking at how it affects travelers' behavioral intentions (Xu et al., 2021). However, administrators of protected areas are becoming more and more conscious of the financial benefits of attending to visitors' demands and giving them a memorable experience when visiting the region (Carvache-Franco, et al. 2020). As tourism in natural protected areas continues to grow, so too are the requirements for a satisfying travel experience (Sun et al., 2020; Wang et. al., 2019; Yuan & Yang, 2005). In addition to measuring overall satisfaction, Lee (2009) used this method to measure visitor contentment with the natural world, services, and leisure equipment within the wetland destination. This method was used for the study carried out in the Gornje Podunavlje Special Nature Reserve.

Even though earlier research has examined the connections between travelers' perceptions of the destination, reasons for traveling, levels of contentment with the skill, and intents to travel again, these aspects remain inadequately understood in the context of ecotourism, where controlling the destination image may present greater challenges (Li et al., 2021). Improving the destination's perception might make visitors happier with protected areas. Yet, when visitors are more satisfied, they may visit ecotourism locations more often and loyally, and they may also be more inclined to tell others about a particular location (Aniqoh et al., 2022).

Methodology

Study Area

A unique reserve, the Achankmaar Amarkantak Biosphere Reserve (AABR) is located near the border between Madhya Pradesh and Chhattisgarh. The state of Chhattisgarh contains the 551.55 sq. km. core region of the BR. Around 60 kilometers separate the Achanakmar-Amarkantak Biosphere Reserve (BR) from its headquarters in Bilaspur. It is spread from Maikal hill ranges to the junction of Vindhyan and Satpura hill ranges in a triangular shape. Bilaspur and Marwahi forest divisions of the Chhattisgarh state and Dindori and Anuppur forest divisions of Madhya Pradesh state surround the core zone of AABR. The geology of the area is unique, consisting of limestone, sandstones, shales, basaltic lava, bauxite, schists, and gneisses with granite intrusion rocks. Situated in Central India, this UNESCO World Heritage Site represents the ecosystems of tropical deciduous forests. Unfortunately, in many AABR zones, especially those near forest cities, ongoing human interference has led to ecological damage. Thakur et al. (2020) claim that overgrazing, deliberate forest fires, excessive use of forest resources, and illegal logging over the preceding several decades are all included in this interference. As a result, the Dense Sal mixed forest lost 14.77 km² of cover between 2008 and 2018, when it was transformed into

open mixed forest and arable land. This left the forest cover at 19.72 km². These modifications to the forest and the decrease in forest cover have a substantial influence on the physicochemical and microbiological properties of the soil (Choudhury et al., 2021; Shankar and Garkoti, 2023).

1. Socio-cultural impact assessment

This study's socio-cultural impact evaluation uses a mixed-methods approach to thoroughly investigate how tourism affects the Achanakmar-Amkantak Biosphere Reserve. To collect qualitative information on how tourism has affected community dynamics, cultural practices, and social values, surveys and interviews are done with locals, businesses, and visitors. In addition, expenditure trends, visitor counts, and event analysis pertaining to tourism are used to gather quantitative data. In order to provide a thorough examination of both positive and negative effects on the socio-cultural fabric of the area, the research incorporates components from the work of Gursoy et al. (2002) and Jamal and Getz (1995) into recognized frameworks for socio-cultural impact evaluation. This technique attempts to give a comprehensive knowledge of how tourism shapes the socio-cultural landscape of the biosphere reserve by triangulating data from various sources.

2. Environmental impact assessment

This study's environmental impact assessment uses a strict approach to examine how tourism affects the Achanakmar-Amkantak Biosphere Reserve. Important environmental factors including biodiversity, water quality, and ecosystem health are examined in the study using ecological surveys, remote sensing analysis, and field evaluations. A range of established approaches are used to assess the direct and indirect effects of tourist operations on the environmental sustainability of the reserve, including those put out by Buckley (2012) and Weaver (2008). Moreover, trash audits, carbon footprint estimates, and infrastructure development monitoring help to provide a quantitative assessment of the ecological imprint of tourism. This methodology seeks to give a nuanced understanding of the intricate interactions between tourism and the biosphere reserve's environmental integrity by using a comprehensive and multidisciplinary approach.

Conclusion

This study has examined the intricate dynamics surrounding tourism in the Achanakmar-Amkantak Biosphere Reserve, identifying its dual roles as a driver of economic growth and a threat to the sustainability of the ecosystem. It has been noted how important tourism is becoming to the area and how it is changing social dynamics, promoting cross-cultural interaction, and spurring economic expansion. However, the research recognizes that the long-term preservation of the ecosystem and the economic advantages brought by tourism require careful balancing. Examining in detail the several ways that tourism impacts the environmental and sociological components of the biosphere reserve has been the primary goal of this study. Evaluating socio-cultural influences on local communities has identified both good and negative effects, including disputes and cultural commercialization, as well as positive outcomes like improved cross-cultural understanding and cultural preservation. While acknowledging the potential for tourism to boost local economy, the assessment of environmental consequences also highlights risks such as pollution, habitat degradation, and biodiversity loss. In order to give a comprehensive picture of the connections between tourism and the biosphere reserve, the study's methodology combines rigorous environmental impact assessment with mixed methodologies for socio-cultural effect assessment.

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