

# Sustainable Tourism Perspective of Wildlife Conservation Areas: A Case Study in Nepal

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## Abstract

*The conservation of biodiversity is a critical issue all around the globe, which is home to a diverse range of flora and fauna, including several endangered species. Tourism has been identified as a potential catalyst for the enhancement of the value of biodiversity and the promotion of conservation in modern development paradigm. However, there is a need to examine the opportunities and challenges of using tourism for these purposes. This research used a mixed qualitative study approach for data collection. The researcher has used document review, case study, FGD and expert opinion poll methods in order to capture the in-depth understanding on the issue. The SWOT analysis was used to identify the current status of sustainable tourism in Nepal and its potential for biodiversity conservation. The study found that Nepal has made significant progress in promoting sustainable tourism practices and biodiversity conservation. The government has implemented various policies and regulations to promote ecotourism, such as the establishment of national parks and conservation areas. However, there are still weaknesses that need to be addressed, such as poor waste management, insufficient infrastructure, and lack of awareness among tourists and locals about the importance of biodiversity conservation. The study highlights the need for a more strategic and collaborative approach to tourism development in Nepal that prioritizes biodiversity conservation and sustainable livelihoods. Furthermore, the study suggests that research is needed to identify the potential impacts of climate change on biodiversity in Nepal and develop adaptation strategies for the tourism industry. The research provides insights into the sustainable tourism perspective of biodiversity conservation in Nepal and highlights the need for collaboration among stakeholders to promote sustainable tourism practices and biodiversity conservation in Nepal. The findings suggest that tourism can play a positive role in biodiversity conservation, but this will require careful planning, effective management, and close collaboration between stakeholders in the tourism and conservation sectors.*

**Keywords:** Sustainable Tourism, Biodiversity Conservation, Conservation Policies, Community Involvement, SWOT Analysis, Nepal

## 1. Introduction

Nepal is a country known for its diverse and unique natural resources, including the majestic Himalayan mountains, exotic wildlife, and rich biodiversity. According to a 2022 report by the World Bank, the tourism industry contributed about 6.7% to Nepal's GDP. The tourism industry's growth has created both opportunities and challenges for the country, particularly in terms of conservation efforts and biodiversity management. The conservation of biodiversity in Nepal is critical not only for its intrinsic value but also for the country's economic development and the livelihoods of its people.

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The preservation of a tourist destination heavily depends on the preservation of its natural resources, which serve as a major attraction for visitors. Certain tourism activities, such as constructing roads, buildings, and golf courses, can have detrimental effects on the environment, resulting in environmental degradation (Newsome et al., 2002). The influx of tourists not only impacts the local culture and traditions but also depletes local resources and causes issues like water and noise pollution and traffic congestion (Hunter & Green, 1995; Liddle, 1997; Newsome et al., 2002; Mason, 2003; Pandey et al., 2010).

Wildlife tourism or the nature-based tourism has been recognized as a potential catalyst for conservation and sustainable development, and many countries have used tourism as a tool for conservation and sustainable development (Dowling et al., 2013). Tourism can create economic benefits for local communities, which can serve as incentives for biodiversity conservation. Furthermore, tourism can raise awareness of conservation issues among tourists, which can lead to more responsible tourism practices and increased support for conservation efforts.

In Nepal, the potential of nature-based tourism to promote conservation and biodiversity has been recognized in various government policies and strategies. For example, the Nepal Biodiversity Strategy and Action Plan 2014-2020 has identified nature-based tourism as a potential tool for promoting biodiversity conservation (Government of Nepal, 2014). Similarly, the Tourism Policy 2073 of Nepal has also recognized the importance of sustainable tourism development and biodiversity conservation (Government of Nepal, 2017).

Implementing regulatory measures minimize adverse effects on the ecosystem and promote the preservation of the tourism site's integrity and vitality. In the present time, it is essential and worrisome to regulate the exploitation of resources and promote awareness regarding the preservation of the environment and natural resources in the region (Butler and Boyd, 2000). However, there is a lack of agreement on defining the concept of sustainability and its relationship with nature-based tourism, leading to a lack of harmony in the current scenario (Sharpley, 2000; Tao & Wall, 2008; Wall, 1995).

Despite huge potential of nature-based tourism to enhance the value of biodiversity and promote conservation in Nepal, there are also several challenges associated with tourism development. Uncontrolled tourism activities can lead to environmental degradation, habitat destruction, and wildlife disturbance. Additionally, some tourism activities, such as trekking and mountaineering, can have negative impacts on biodiversity conservation efforts. Regulating the exploitation of resources and promoting awareness for the preservation of natural gifts in the region, especially with regards to the environment, is crucial at present (Butler and Boyd, 2000). However, defining the concept of sustainability and its relationship with tourism is challenging, resulting in a lack of agreement and harmony in the current scenario (Sharpley, 2000; Tao & Wall, 2008; Wall, 1995). Therefore, it is crucial to understand the opportunities and challenges associated with tourism development in Nepal and identify strategies to harness tourism's potential for promoting conservation and enhancing the value of biodiversity.

Nepal's rich biodiversity and growing tourism industry create a unique opportunity to explore tourism's potential as a catalyst for conservation. The study aims to identify the key factors that contribute to the success or failure of nature-based tourism in enhancing the value of biodiversity in Nepal. Additionally,

the study will evaluate the effectiveness of the government of Nepal's policies and initiatives to promote sustainable tourism practices and achieve conservation goals. Insights gained from the study will be valuable for policymakers, conservationists, and tourism stakeholders not only in Nepal but also in other countries with similar challenges. The study's results will provide a comprehensive understanding of the opportunities and challenges of harnessing tourism to promote conservation in Nepal. The study's findings will offer insights into the policies and initiatives that are most effective in achieving conservation goals, as well as the factors that contribute to successful or unsuccessful tourism initiatives. This research aims to assist stakeholders in Nepal and other countries in developing and implementing sustainable tourism practices that promote conservation and biodiversity preservation.

## **2. Literature Review**

Tourism is an essential driver of economic growth in many developing countries, and Nepal is no exception. However, unchecked tourism development can result in environmental degradation, leading to negative impacts on biodiversity, local communities, and the tourism industry itself. Sustainable tourism, with a focus on biodiversity conservation, is thus essential for Nepal's long-term economic and environmental sustainability. This literature review provides an overview of research related to sustainable tourism, biodiversity conservation, conservation policies, and community involvement in Nepal.

Sustainable tourism in Nepal involves developing tourism activities in a way that ensures that the environmental, social, and cultural assets are conserved and used in a sustainable manner. One approach to sustainable tourism in Nepal is community-based tourism, where local communities play a significant role in tourism development and management. Community-based tourism is considered an effective approach to reducing poverty and conserving biodiversity in Nepal (Gurung & Dearden, 2008). Research has shown that community-based tourism can result in better environmental conservation outcomes than conventional tourism models (Lama & Witt, 2016).

Biodiversity conservation is also essential for sustainable tourism in Nepal. The country is home to several endangered species, including the Bengal tiger, snow leopard, one-horned rhinoceros, and red panda. Conservation efforts have been made to protect these species and their habitats, including the establishment of protected areas such as national parks and wildlife reserves. However, there are challenges to biodiversity conservation in Nepal, including a lack of resources and capacity, weak law enforcement, and conflicts between conservation and local livelihoods (Ghimire, 2018).

Conservation policies in Nepal have evolved over the years, with a shift towards community-based conservation and sustainable use of natural resources. The government has established policies to promote sustainable tourism and biodiversity conservation, including the National Biodiversity Strategy and Action Plan, the Tourism for Rural Poverty Alleviation Program, and the Community Forest Development Program. However, there are challenges to implementing these policies, including a lack of resources and capacity, limited community involvement, and weak law enforcement (Dahal & Stork, 2017).

Community involvement is essential for successful sustainable tourism and biodiversity conservation in Nepal. Studies have shown that involving local communities in conservation and tourism management

can result in better conservation outcomes and more equitable distribution of benefits (Gurung & Dearden, 2008; Lama & Witt, 2016). Community involvement can also help to address conflicts between conservation and local livelihoods (Ghimire, 2018). However, there are challenges to community involvement in Nepal, including a lack of education and training, limited access to resources, and cultural barriers (Dahal & Stork, 2017).

Dhungana and Bhattarai (2017) conducted a SWOT analysis to identify the strengths, weaknesses, opportunities, and threats of sustainable tourism and biodiversity conservation in Nepal. The authors found that the strengths of sustainable tourism in Nepal include a diverse range of natural and cultural attractions, while the weaknesses include poor infrastructure, inadequate human resource development, and weak policy implementation. The study also identified opportunities such as community-based ecotourism and the promotion of sustainable tourism, as well as threats such as overexploitation of natural resources and climate change.

Malla (2015) analyzed the impact of sustainable tourism on biodiversity conservation in Chitwan National Park, Nepal. The author found that sustainable tourism had a positive impact on the conservation of biodiversity by creating economic incentives for local communities to protect natural resources. However, the study also identified challenges such as limited tourism infrastructure and the need for effective conservation policies.

Thapa et al. (2013) exposed that the role of sustainable tourism in biodiversity conservation in the Annapurna Conservation Area, Nepal. The authors found that sustainable tourism had a positive impact on biodiversity conservation by generating income for local communities and promoting environmental awareness. However, the study also identified challenges such as the need for better waste management and the negative impact of tourism on cultural heritage sites.

Subedi et al. (2018) examined the role of ecotourism in biodiversity conservation in Bardia National Park, Nepal. The authors found that ecotourism had a positive impact on biodiversity conservation by creating economic incentives for local communities to protect natural resources. However, the study also identified challenges such as the need for better infrastructure and the negative impact of tourism on local culture.

Bista et al. (2019) analyzed the challenges and opportunities of sustainable tourism and biodiversity conservation in Nepal. The authors found that sustainable tourism had the potential to contribute to biodiversity conservation by generating income for local communities and promoting environmental awareness. However, the study also identified challenges such as inadequate policy implementation and the need for better infrastructure.

According to Gurung (1992), the prospect of establishing a protected area in the Annapurna region was initially met with resistance due to concerns that traditional local rights of resource use and management would be overturned. To address these concerns, a survey team spent six months engaging with villagers and collecting information while developing a provisional project design and management plan. The team found that locals were generally supportive of conservation efforts and identified the need for an effective framework to control poaching and random forest cutting, while providing economic alternatives (Sherpa et al., 1986).

While designating the Annapurna region as a national park would have resulted in rapid international recognition and higher fees, it was feared that the restrictive management required by law would generate negative local responses as seen in other national parks in Nepal. Additionally, there was concern that a national park would focus primarily on wildlife and habitat protection, neglecting necessary education, development, and management activities in more populated areas. After considering various options, a new legal designation of “conservation area” was recommended, allowing for hunting, collection of forest products, and delegation of management authority to the village level, while also allocating visitor fees for local development. The Annapurna conservation area is divided into several zones, each with specific regulations and management policies, with the highest management priority given to special management zones, which are areas of conservation importance threatened by degradation (Wells, 1994a).

Tourism has become a significant industry in Nepal in recent years, with visitors being drawn to the country's cultural heritage, religious sites, wildlife, and mountain trekking opportunities. According to the Nepal Tourism Board, international tourist arrivals increased from around 6,000 in 1962 to over 1.1 million in 2018 (Nepal Tourism Board, 2019). However, the COVID-19 pandemic has severely impacted the industry, with only 230,085 international arrivals in 2020 (Nepal Tourism Board, 2021).

The government of Nepal had set a target of reaching two million international tourists by 2020, but this was not achieved due to the pandemic. Despite the tourism master plan and other similar documents prepared with the assistance of international development agencies, strategic planning for tourism in Nepal remains limited (Asian Development Bank, 2018).

In terms of the economic impact of tourism, the industry has been a significant source of foreign exchange for Nepal. According to the Nepal Rastra Bank, foreign exchange receipts from tourism increased from \$78,000 in fiscal year (FY) 1961-62 to \$1.1 billion in FY 2018-19 (Nepal Rastra Bank, 2020). Unofficial estimates suggest that the actual figures may be higher due to unreported transactions (Asian Development Bank, 2018).

Tourism has also been a significant employer in Nepal, with around 1.05 million people directly or indirectly employed in the industry in 2018 (Nepal Tourism Board, 2019). However, the pandemic has had a severe impact on employment in the sector, with many businesses closing down and workers losing their jobs.

The economic importance of Nepal's major parks as tourist destinations is difficult to estimate, although it is undoubtedly substantial. According to the Department of National Parks and Wildlife Conservation (DNPWC), in the fiscal year 2018/2019, the total revenue generated from the entry fees of the protected areas was NPR 1.39 billion (approximately USD 11.8 million) (DNPWC, 2020). However, this figure does not include the revenue generated from other tourism-related activities, such as accommodation, food, and transportation, which can significantly contribute to the local economy.

The economic importance of Nepal's major parks as tourist destinations is substantial. According to the Nepal Tourism Board, in 2019, 1.19 million foreign tourists visited Nepal, with a majority of them visiting national parks and conservation areas (NTB, 2021). However, the economic benefits of tourism in rural areas are not well-documented. Tourism in parks has led to numerous and complex conflicts of interest among various stakeholders, including the Department of National Parks and Wildlife Conservation (DNPWC) staff, local people, foreign or Kathmandu-based tour and trekking agencies, and

various government agencies. No mechanism exists for resolving conflicts among these groups (Poudyal et al., 2016).

Almost all activity in the tourism sector has resulted from private-sector initiatives which are decentralized, spontaneous, uncoordinated, and largely unmanaged. According to the Ministry of Culture, Tourism and Civil Aviation (MoCTCA), in the fiscal year 2018/2019, a total of 1,173,072 foreign tourists visited Nepal, generating revenue of NPR 77.78 billion (approximately USD 660 million) (MoCTCA, 2020). The majority of tourists enter the country through Kathmandu, where the cultural heritage of the city and its surroundings provide the main reason for sightseeing.

The Department of Tourism and its parent Ministry perceive their main role to be to maximize the number of foreign visitors to Nepal. Their activities focus largely on promoting Nepal as a destination and liaising with private-sector travel and trekking agencies based in Kathmandu. However, they have recently shown interest in promoting tourism in rural areas as well (MoCTCA, 2020).

Tourism in Nepal is highly concentrated in a few locations. In the fiscal year 2018/2019, the majority of foreign tourists visited Kathmandu (72.8%), followed by Pokhara (15.7%), Chitwan (5.8%), and Lumbini (2.2%) (MoCTCA, 2020). Local benefits from tourism at Royal Chitwan National Park and other protected areas in the Tarai have been significant, with the tourism industry providing employment opportunities and income to the local communities (Thapa et al., 2020).

The ecosystems of Nepal's hills and mountains are under serious pressure due to the demand for resources of the indigenous population. Tourism has aggravated these pressures in at least two ways, by increasing the demand for fuelwood and hence causing deforestation and by causing litter and pollution problems along major trekking routes. These effects are particularly evident at the major Himalayan destinations of Sagarmatha and Langtang National Parks and in the Annapurna Conservation Area.

To address these issues, the government of Nepal has implemented several regulations, such as prohibiting the use of fuelwood by trekking and mountaineering groups in the mountain parks and requiring them to use kerosene instead. Local people are generally allowed to collect firewood, and the cutting of live trees is prohibited. However, these regulations have not been applied consistently or effectively and have led to serious pressure on some forested areas near the parks. Litter and pollution problems are most evident along trekking routes, at camp sites, in small mountain villages, and at the base camps used by mountaineering expeditions (Thapa et al., 2020).

According to a report by the International Centre for Integrated Mountain Development (ICIMOD, 2003), tourism in parks has led to numerous and complex conflicts of interest, which varies by location. In very simple terms, the stakeholders can be said to include: DNPWC staff, who seek to minimize ecological impacts; local people, who try to exploit economic opportunities; foreign or Kathmandu-based tour and trekking agencies, which seek to maximize their own profits; and various HMGN agencies, which are anxious to increase overall tourist numbers and resist the regulation of tourists in the parks. No mechanism exists, either formally or informally, by which to resolve conflicts among these groups. Almost all activity in the tourism sector has resulted from private-sector initiatives, which are decentralized, spontaneous, uncoordinated and largely unmanaged. The few luxury hotels in Kathmandu and the wildlife lodges at Chitwan have depended largely on foreign investments, while many people in areas visited by tourists have benefited from selling goods and services to them. The most significant

regulatory role played by HMGN has been the issuance of visas and trekking permits by the Department of Immigration. The Department of Tourism and its parent Ministry perceive their main role to be to maximize the number of foreign visitors to Nepal. Their activities focus largely on promoting Nepal as a destination and liaising with private-sector travel and trekking agencies based in Kathmandu. They are not active outside Kathmandu and seem to have little interest in the economic benefits of tourism in rural areas. The Department of Tourism does not have the capacity to monitor or regulate the activities of tourists or trekking agencies in rural areas. As a result, the tourism sector has operated in a decentralized manner with minimal regulation.

According to a report by the United Nations Development Programme, "Nepal Human Development Report 2004: Empowerment and Poverty Reduction," (2004), tourism in Nepal is highly concentrated in a few locations, with about 80 percent of tourists entering the country through Kathmandu, where cultural heritage provides the main reason for sightseeing. Until recently, most tourist travel outside the Kathmandu valley was limited to a few destinations, with many other areas of the country closed to foreigners. However, people living in open areas, especially in Sagarmatha National Park and to a lesser extent in Annapurna Conservation Area and Langtang National Park, have benefited by providing food, lodging, and working as porters and guides. In contrast, local benefits from tourism at Royal Chitwan National Park and other protected areas in the Tarai have been negligible.

However, the ecosystems of Nepal's hills and mountains are under serious pressure due to the demand for resources of the indigenous population, and tourism has aggravated these pressures in at least two ways. Firstly, the demand for fuelwood has led to deforestation, and secondly, litter and pollution problems have arisen along major trekking routes. These effects are particularly evident at the major Himalayan destinations of Sagarmatha and Langtang National Parks and in the Annapurna Conservation Area.

To address these issues, the use of fuelwood by trekking and mountaineering groups is now prohibited in the mountain parks, and these groups are required to use kerosene. While local people are generally allowed to collect firewood, the cutting of live trees is prohibited. However, these regulations have not been applied consistently or effectively, leading to serious pressure on some forested areas near the parks. Litter and pollution problems are most evident along trekking routes, at camp sites, in small mountain villages, and at the base camps used by mountaineering expeditions.

According to the United Nations Development Programme's "Nepal Human Development Report 2004: Empowerment and Poverty Reduction," the responsibility for addressing tourism and park-related issues in Nepal lies with the Department of National Parks and Wildlife Conservation. However, this department lacks the power to regulate the numbers and activities of tourists and trekkers in the parks and has had little success in collaborating with other relevant agencies such as finance, tourism, and immigration. The report suggests that the active participation of these agencies is necessary to address park and tourism-related problems effectively.

Despite an official consensus that tourism's objective in Nepal is to maximize foreign exchange earnings, the report identifies four significant strategic issues that require attention. First, Nepal needs to decide whether it should continue to encourage large numbers of low-budget tourists or focus on attracting smaller numbers of high-budget travelers with less environmental impact. Second, there is a need to open up additional areas to visitors and address transport and infrastructure bottlenecks. This raises the

question of how to disperse visitors, either through regulations or incentives such as user charges. Third, the study suggests that direct government revenues from tourism should be increased significantly through higher fees and charges, and some of the extra income should be reinvested in conserving and managing Nepal's natural and cultural assets. Finally, Nepal needs to develop a national capacity to monitor and mitigate the environmental impacts of tourism. However, the lack of policy guidance by the central government has resulted in a situation where there is almost no capacity to act on these issues within individual Ministries, and there are no effective means to achieve coordination among them.

Based on these literature reviews, it can be concluded that sustainable tourism can potentially contribute to biodiversity conservation in Nepal, despite some significant challenges. The key factors that can help promote sustainable tourism and biodiversity conservation include effective policy implementation, community involvement, and better infrastructure. Therefore, it is crucial to prioritize sustainable tourism with a focus on biodiversity conservation to ensure long-term economic and environmental sustainability in Nepal. For this purpose, community involvement, conservation policies, and effective biodiversity conservation strategies are critical components that need to be implemented in sustainable tourism development in Nepal. Future research should also concentrate on identifying and addressing the challenges to sustainable tourism and biodiversity conservation in Nepal, including strengthening community involvement, enhancing conservation policies, and improving biodiversity conservation strategies.

### **3. Research Methods**

The methodology section is structured into two key subsections, the first concerned into the case analysis of the study area, which is focused on wildlife conservation areas in Nepal. The second subsection elaborates on the tools used for qualitative data extraction. This research employs SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis, along with the utilization of focus group discussions (FGDs) and expert opinion polling. These methods are carefully chosen to provide a comprehensive exploration of the sustainable tourism perspective within wildlife conservation areas, drawing from both qualitative insights and expert opinions to ensure a thorough and in-depth examination, specifically tailored to the context of Nepal.

#### **3.1. Study Areas and Case Studies**

As the researcher has set Nepal's top and famous wildlife conservation areas for the study purpose, individual case studies of these areas have been presented as follows:

##### **Chitwan National Park**

Chitwan National Park, located in Nepal's subtropical lowland, covers an area of 932 km<sup>2</sup> and is home to a wide range of endangered species, including tigers, one-horned rhinoceros, and Asian elephants. The park was established in 1973 to control hunting and protect wildlife populations that were once in decline. Today, the park faces challenges such as unmanaged tourism, which is having a detrimental impact on the park's ecosystem. Although tourism has increased in recent years, it provides minimal economic benefits for park management, and the park warden has no authority over tourism development (DNPWC, 2021; Gurung, 2019).

Despite these challenges, the park continues to implement conservation policies and involve local communities in conservation efforts. For example, the park has implemented a community forestry program that allows locals to harvest non-timber forest products, providing them with an alternative source of income and reducing their reliance on the park's resources (Sapkota, 2019). The Nepalese government has also established buffer zones around the park and created community-based conservation programs, aiming to involve local communities in the conservation and sustainable use of natural resources and provide them with economic opportunities linked to tourism (Adhikari & Di Falco, 2009).

To address the issue of unregulated tourism, the park has increased entry fees and implemented stricter regulations on tourist lodges. The park has also started community-based tourism initiatives to involve local communities in tourism activities and provide them with economic benefits (DNPWC, 2021). According to the Department of National Parks and Wildlife Conservation (2019), Chitwan National Park generated a revenue of approximately NPR 476.4 million (USD 4.0 million) from the 192,090 visitors it received in 2019.

Despite conservation efforts, illegal wildlife poaching and unregulated tourism remain ongoing issues for the park's management. Therefore, continued efforts are needed to ensure the long-term sustainability of Chitwan National Park's biodiversity and ecosystem services (Gurung, 2019). The park remains a vital conservation area and a major tourist attraction in Nepal, and it is important to balance tourism development with conservation efforts to ensure its long-term sustainability.

### **Koshi Tappu National Park**

KoshiTappu National Park is a protected area in Nepal that covers 175 km<sup>2</sup> of wetlands, grasslands, and riverine forests in the eastern Terai region. The park is home to a diverse range of wildlife, including over 485 species of birds, making it an important bird-watching destination (WWF, 2021).

In addition to birds, the park is home to several species of mammals, including the endangered wild water buffalo, the Gangetic dolphin, and the gharial crocodile. The park's wetlands also provide important habitat for several species of fish and other aquatic animals (DNPWC, 2019).

KoshiTappu National Park faces several threats, including illegal hunting and fishing, habitat loss and degradation, and water pollution. In response, the park has implemented several conservation measures, including the establishment of community-based conservation programs and the promotion of sustainable tourism (WWF, 2021).

Community-based conservation programs involve local communities in the management and conservation of natural resources. In KoshiTappu National Park, these programs have helped to reduce illegal hunting and fishing and have provided local communities with alternative sources of income through ecotourism and sustainable use of forest resources (DNPWC, 2021).

Sustainable tourism initiatives in the park include bird-watching tours, jungle safaris, and river rafting. These activities provide visitors with an opportunity to experience the park's wildlife and natural beauty while also generating revenue for park management and supporting local communities (WWF, 2021).

In conclusion, KoshiTappu National Park is an important protected area in Nepal that provides critical habitat for a wide range of wildlife, particularly birds. The park faces several threats, but conservation

measures and sustainable tourism initiatives are helping to mitigate these challenges and ensure the long-term sustainability of the park's biodiversity and ecosystem services.

### **Bardiya National Park**

Bardiya National Park, located in the western part of Nepal, covers an area of 968 km<sup>2</sup> and is home to a diverse range of flora and fauna, including tigers, Asian elephants, one-horned rhinoceros, and several species of birds (Department of National Parks and Wildlife Conservation, 2021). The park was established in 1988 with the goal of conserving the area's natural resources and promoting sustainable tourism (Shrestha, 2018).

One of the park's most significant conservation achievements has been the successful recovery of the Bengal tiger population. In the early 2000s, the park had only a few tigers due to rampant poaching and habitat destruction. However, with the implementation of strict anti-poaching measures, such as the deployment of surveillance cameras and increased patrolling by park rangers, the tiger population has rebounded to around 50 individuals (Shrestha, 2018).

Bardiya National Park also plays a crucial role in the conservation of Nepal's biodiversity. The park is home to over 800 species of plants, 30 species of mammals, and 250 species of birds (Department of National Parks and Wildlife Conservation, 2021). Additionally, the park serves as a corridor for the movement of wildlife between Nepal and India, making it an important conservation area at the regional level (Shrestha, 2018).

Furthermore, Bardiya National Park is an important contributor to Nepal's tourism industry. The park is a popular destination for tourists, attracting over 30,000 visitors annually (Department of National Parks and Wildlife Conservation, 2021). Tourism revenue generated by the park is used to fund conservation efforts and support local communities through community-based tourism initiatives (Shrestha, 2018).

In conclusion, Bardiya National Park plays a significant role in the conservation of Nepal's biodiversity and is a major contributor to the country's tourism industry. The park's success in recovering the Bengal tiger population and its importance as a wildlife corridor make it a vital conservation area for Nepal and the region as a whole.

### **Sagarmatha National Park**

Sagarmatha National Park is a protected area located in the Himalayas of eastern Nepal, containing the southern half of Mount Everest and other peaks. It was established in 1976 and covers an area of 1,148 km<sup>2</sup>. The park is home to a wide range of flora and fauna, including the endangered snow leopard and the Himalayan black bear (Department of National Parks and Wildlife Conservation, 2019).

According to Sherpa et al., (2021), Sagarmatha National Park, located in the Himalayas of eastern Nepal, is not only of significant ecological importance but also has immense cultural significance, as it is the home of the Sherpa people and their traditional way of life. The park is also the site of Mount Everest, a major attraction for both mountaineers and tourists, making it a significant contributor to Nepal's tourism industry. Despite its importance, the park is facing several challenges, including the impacts of climate change. Glacial melt caused by rising temperatures is a threat to the park's ecosystem and the livelihoods

of local communities. Additionally, the growing number of tourists visiting the park is leading to environmental degradation and littering, which is a significant threat to the park's delicate ecosystem.

To address these issues, the Nepalese government has implemented various conservation policies and management strategies, such as the establishment of buffer zones around the park and the creation of community-based conservation programs. These programs aim to involve local communities in the conservation and sustainable use of natural resources and provide them with economic opportunities linked to tourism (Adhikari & Di Falco, 2009).

Overall, Sagarmatha National Park is a crucial area for the conservation of Nepal's biodiversity and is of great cultural and economic significance. However, continued efforts are needed to ensure the long-term sustainability of the park's ecosystem and the livelihoods of local communities.

### **Annapurna Conservation Area**

The Annapurna Conservation Area (ACA) is located in the central Himalayas of Nepal and covers an area of approximately 7,629 km<sup>2</sup>. It is one of the largest protected areas in Nepal and was established in 1986 with the aim of conserving the region's natural and cultural resources while promoting sustainable tourism (Pokharel et al., 2016).

The ACA is home to a wide variety of flora and fauna, including over 100 species of mammals, 450 species of birds, and 1,226 species of plants, including several endemic species. Some of the iconic wildlife species found in the ACA include snow leopards, Himalayan tahr, and musk deer (Karki et al., 2015). The area is also of cultural significance, as it is home to several ethnic communities such as Gurung, Thakali, and Manange, who have their unique cultures and traditions.

The ACA has implemented several conservation and sustainable development programs, including ecotourism, community forestry, and alternative energy development. These programs aim to promote sustainable resource use, reduce the dependency on natural resources, and improve the livelihoods of local communities (Sherpa et al., 2020). The ACA has been successful in its conservation efforts, with increased wildlife populations and improved ecosystem health. The successful implementation of these programs has also led to increased community participation and engagement in conservation efforts (Chhetri et al., 2018).

However, the ACA still faces several challenges, including the impacts of climate change, unsustainable tourism practices, and illegal wildlife trade. The warming temperatures are causing changes in the region's ecosystems, including the melting of glaciers and changes in precipitation patterns, which are affecting the region's biodiversity and the livelihoods of local communities (Pokharel et al., 2016). The increasing number of tourists visiting the area has led to environmental degradation, littering, and other negative impacts on the region's fragile ecosystem. To address these challenges, the ACA has implemented several measures, including the development of eco-friendly tourism practices, community-based conservation initiatives, and the promotion of alternative livelihoods for local communities (Sherpa et al., 2020).

In conclusion, the Annapurna Conservation Area is a crucial protected area in Nepal, with immense ecological and cultural significance. The successful implementation of conservation and sustainable

development programs has improved the region's biodiversity and the livelihoods of local communities. However, continued efforts are needed to address the challenges facing the area and ensure its long-term sustainability.

### **Langtang National Park**

Langtang National Park is located in Nepal and is known for its diverse flora and fauna. The park contains over 1,000 species of plants and is home to several rare and endangered species such as the red panda, snow leopard, and musk deer (Karki, Chalise, & Jnawali, 2015). However, tourism can have negative impacts on biodiversity if not managed properly (Adhikari, Di Giovanni, & Koens, 2018).

To minimize the negative impacts of tourism on biodiversity, Langtang National Park has implemented several measures such as restricting trekking routes, promoting responsible waste management, and encouraging visitors to stay in eco-friendly lodges. These efforts aim to protect the diverse flora and fauna that call the park home.

Tourism can also have positive impacts on biodiversity by providing resources for conservation and supporting local communities (Adhikari et al., 2018). In Langtang National Park, tourism revenue is used to fund conservation efforts and support community development projects. The park also works closely with local communities to promote sustainable tourism practices and create economic opportunities that reduce dependence on natural resources.

The park's efforts to promote sustainable tourism practices have been recognized by various organizations. Langtang National Park is part of the Sacred Himalayan Landscape initiative, which aims to promote sustainable development in the region. The park has also been recognized as a UNESCO Biosphere Reserve, highlighting its importance as a conservation area (UNESCO, n.d.).

Overall, Langtang National Park is an example of how tourism and biodiversity can coexist if managed carefully. By promoting sustainable tourism practices, supporting conservation efforts, and engaging with local communities, the park is able to provide economic benefits while preserving the unique ecosystem and biodiversity of the area.

### **Khaptad National Park**

Khaptad National Park is a protected area located in the far-western region of Nepal. It covers an area of 225 km<sup>2</sup> and is home to several endangered species such as the red panda, musk deer, and leopard (Giri et al., 2018). The park is also a hotspot for birdwatching, with over 270 species of birds recorded, including several endemic species (Bhusal et al., 2020).

Tourism is an essential aspect of the local economy and a significant source of revenue for the government. However, it can also pose a threat to biodiversity conservation if not managed sustainably. Khaptad National Park has implemented several measures to promote sustainable tourism, including community-based ecotourism and the involvement of local communities in conservation efforts (DNPWC, 2016). This approach has not only helped to conserve the region's biodiversity but has also improved the livelihoods of local communities.

One example of the park's successful community-based conservation efforts is the Ghodaghodi Lake Area, which is a Ramsar site located adjacent to the park. The local community manages the lake and its surrounding area through a community-based organization, which has resulted in the conservation of several endangered species of birds and mammals (Lamsal et al., 2018).

In conclusion, sustainable tourism can play a crucial role in biodiversity conservation and can contribute to the local economy's development. Khaptad National Park's community-based approach to conservation and sustainable tourism has shown that these goals are not mutually exclusive. By involving local communities in conservation efforts, the park has not only protected its biodiversity but has also improved the livelihoods of those who depend on the park's resources.

### **Shivapuri Nagarjun National Park**

Established in 2002, Shivapuri Nagarjun National Park stands situated amid the mid-hills on the northern fringes of the Kathmandu Valley. Its name derives from the towering Shivapuri Peak, soaring to 2,732 meters (8,963 feet). Encompassing a vast expanse of 159 square kilometers (61 square miles), the park spans the Kathmandu, Nuwakot, and Sindhupalchowk districts, along with 23 Village Development Committees and also extends even further into the Dhading District in the west (Bhujju et al., 2007).

With a storied past, this region has served as a vital water catchment area, furnishing the Kathmandu Valley with a generous daily water supply. Initially designated a safeguarded watershed and wildlife sanctuary in 1976, the area transformed into Shivapuri National Park in 2002, covering an initial area of 144 square kilometers (56 square miles) (Pandey, 2010). Later, in 2009, the park expanded by absorbing the Nagarjun Forest Reserve, increasing its size by 15 square kilometers (5.8 square miles).

The park offers more than just natural beauty; it hosts historical and religious sites that make it a beloved hiking destination for both locals and tourists. Occupying a transitional climate zone, the park experiences an annual precipitation of around 1,400 millimeters (55 inches), predominantly falling between May and September. Temperature variations are evident, with winter temperatures ranging from 2 to 17°C (36 to 63°F), while summer temperatures oscillate between 19 and 30°C (66 and 86°F).

The park's vegetation flourishes within the middle hill forest, situated between altitudes of 1,000 to 1,800 meters (3,300 to 5,900 feet). This diverse landscape encompasses Himalayan subtropical broadleaf forests, characterized by Schima-Castanopsis associations, and Eastern Himalayan broadleaf forests, adorned with oak, laurel species, and rhododendron on northward slopes. At higher altitudes, an abundance of medicinal herbs contributes to the area's biodiversity. Astonishingly, botanists have cataloged 129 mushroom species and a remarkable 2,122 floral species, including 449 vascular plants and 16 endemic varieties.

Fauna surveys conducted since 2002 have unveiled a diverse array of wildlife within the park's protected boundaries. Species like Indian leopards, jungle cats, golden jackals, and Himalayan black bears have been identified. Through camera traps, clouded leopards, crab-eating mongooses, and Indian pangolins have made appearances. The park also harbors a remarkable avian population of 318 species, ranging from the majestic Eurasian eagle-owl to the captivating golden-throated barbet.

### 3.2. FGD and Expert Opinion Polling

In this study, we conducted a combination of Focus Group Discussions (FGD) and Expert Opinion Polling involving a diverse group of participants:

- ◆ **Wildlife Conservation Specialists (5 participants):** These experts bring their specialized knowledge in wildlife conservation to provide insights into the sustainability of tourism in wildlife conservation areas.
- ◆ **Eco-tourism Experts (3 participants):** Eco-tourism specialists were consulted for their expertise in aligning tourism practices with environmental conservation principles.
- ◆ **Tourism Operators (5 participants):** These professionals in the tourism industry contributed their on-ground experience and industry perspectives to the study.
- ◆ **Visitors (8 participants):** The views of tourists and visitors were sought to understand their preferences, perceptions, and experiences related to wildlife conservation areas and sustainable tourism.
- ◆ **Community Forest Members (15 participants):** Local community members with a stake in the conservation areas provided insights into the community perspective and involvement in sustainable tourism practices.

By involving a diverse group of participants, including specialists, experts, operators, visitors, and community members, this study aimed to gather a comprehensive range of perspectives on sustainable tourism in wildlife conservation areas, ensuring a well-rounded analysis.

## 4. Results and Discussion

The result and discussion part consists of two different sections. The first part highlights the SWOT analysis and the second part exposes thematic analysis.

### 4.1. SWOT Analysis

A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis can provide a comprehensive understanding of the current situation and future prospects of sustainable tourism and biodiversity conservation in Nepal. The analysis presents a comprehensive overview of four renowned wildlife conservation areas in Nepal: Chitwan National Park, Koshi Tappu National Park, Bardiya National Park, and Sagarmatha National Park, along with the additional mention of Annapurna Conservation Area, Langtang National Park, Khaptad National Park, and Shivapuri Nagarjun National Park. It is presented as follows:

#### Strengths

**Biodiversity:** All these conservation areas exhibit rich biodiversity, featuring a wide range of flora and fauna, including endangered and iconic species like tigers, rhinoceroses, elephants, red pandas, and various bird species.

**Conservation Efforts:** Each park has implemented conservation initiatives to protect its unique ecosystems and species. Successful anti-poaching measures, habitat restoration, and community involvement have contributed to the recovery of species such as Bengal tigers in Bardiya National Park.

**Cultural Significance:** Several parks hold cultural importance, like Sagarmatha National Park, which encompasses the revered Mount Everest and is a cultural hub for the Sherpa community.

**Tourism Potential:** These areas attract tourists globally, contributing to the local economy. Parks like Chitwan and Bardiya offer opportunities for safari tours, while Sagarmatha National Park is a magnet for mountaineers.

**Community Engagement:** Many parks have embraced community-based conservation strategies, involving local residents in resource management and providing them with alternative livelihoods, which reduces pressure on park resources.

Thus, Nepal's conservation areas boast diverse biodiversity, including iconic species like tigers and red pandas. Effective conservation efforts, such as anti-poaching measures and habitat restoration, have led to species recovery. Cultural significance, tourism appeal, and community engagement enhance their value, promoting both environmental preservation and sustainable development. It is the strength of conservation areas in Nepal.

## Weaknesses

**Illegal Activities:** Some parks face challenges like illegal hunting, fishing, and wildlife poaching, which undermine conservation efforts and pose threats to endangered species.

**Unmanaged Tourism:** The influx of tourists can lead to negative environmental impacts, such as littering, habitat disturbance, and degradation, especially when tourism isn't properly regulated.

Despite its strengths, Nepal's conservation areas suffer from some weaknesses such as illegal actions, including unlawful hunting, fishing, and wildlife poaching, undermine conservation endeavors and jeopardize endangered species in certain parks. Unregulated tourism influx can result in adverse environmental consequences, like littering, habitat disruption, and degradation, particularly in cases of inadequate tourism management.

## Opportunities

**Sustainable Tourism:** Leveraging tourism can benefit both conservation and local communities. Implementing sustainable tourism practices can generate revenue while minimizing ecological harm.

**Community Involvement:** Further engaging local communities in conservation efforts can foster a sense of ownership and responsibility, ultimately leading to better protection of park resources.

**Scientific Research:** These parks offer opportunities for valuable research on biodiversity, ecology, and climate change impacts, contributing to scientific knowledge and conservation strategies.

Regardless of some weaknesses, conservation areas have many opportunities. Such as, promoting sustainable tourism holds potential for dual gains in conservation and community welfare. By adopting

eco-friendly tourism approaches, parks can generate income while preserving nature. Involving local communities enhances their commitment and stewardship, bolstering resource safeguarding. The parks also serve as crucial sites for essential scientific research, aiding our understanding of biodiversity, ecology, and climate change impacts, thereby informing effective conservation approaches.

## Threats

**Climate Change:** Rising temperatures, glacial melt, and altered precipitation patterns pose significant threats to the ecosystems and wildlife of these parks.

**Habitat Loss:** Urbanization, deforestation, and encroachment on park land can lead to habitat loss and fragmentation, impacting species survival.

**Inadequate Infrastructure:** Insufficient infrastructure and resources for effective park management, including patrolling, surveillance, and conservation measures, can hinder successful conservation efforts.

Still, Nepal's wildlife conservation areas and imitation has some threats such as climate change presents pressing risks to park ecosystems and fauna due to temperature escalation, glacial thaw, and shifting precipitation patterns. Habitat loss, stemming from urbanization, deforestation, and land encroachment, jeopardizes species viability through fragmentation. Subpar infrastructure and limited resources impede park management effectiveness, including surveillance, patrolling, and conservation strategies, hampering conservation success.

To put it briefly, Nepal's famed wildlife conservation regions stand as showcases of extraordinary biodiversity and dedicated conservation endeavors. Though grappling with issues like unlawful actions and unchecked tourism, the potential for positive impact through sustainable tourism, community engagement, and scientific inquiry is evident. The imperative to counter challenges such as climate change and habitat erosion demands persistent commitment to safeguard these invaluable ecosystems and the species they nurture. Maintaining a delicate equilibrium between environmental protection and human interaction is paramount for the sustenance of these natural havens.

## 4.2. Thematic Analysis (FGD and Expert's Opinion)

The focus group discussions held with diverse stakeholders in Nepal yielded invaluable insights into the perspective of sustainable tourism in biodiversity conservation. Local communities, tourism operators, and conservation organizations openly shared their viewpoints on the advantages and hurdles of sustainable tourism, and its effects on both their livelihoods and the environment. These discussions illuminated the necessity for the engagement of all stakeholders in both tourism development and conservation endeavors.

The analysis of responses garnered from the participants involved in the study examining the sustainable tourism outlook within Nepal's wildlife conservation areas reveals a profound comprehension of the intricate interplay between tourism and conservation. The participants consistently underscore the advantages that sustainable tourism extends to these conservation regions. They highlight its pivotal role in generating crucial funds for conservation initiatives, acting as a lifeline for preserving the natural habitat, and concurrently supporting local economies and livelihoods. This mutually beneficial

relationship between sustainable tourism and conservation emerges as a cornerstone of these areas' longevity.

One prevailing theme that emerges from the analysis is the significance of community involvement. The consensus among participants accentuates the pivotal role that local communities play in the conservation equation. Empowering these communities through education, engagement, and active participation is seen as a catalyst for nurturing a sense of responsibility and ownership in safeguarding these areas. Collaborative efforts between conservation authorities and local residents are deemed essential for the sustained success of conservation initiatives.

Conversely, the challenges posed by unregulated tourism practices take center stage. Respondents consistently express apprehension about the adverse consequences of unchecked tourism on these fragile ecosystems. Disruption of habitats, littering, and overcrowding are cited as tangible examples of these challenges. The analysis underscores the pressing need for well-designed and meticulously managed tourism activities that strike a balance between economic progress and ecological preservation.

Another significant theme is the growing threat of climate change to wildlife conservation areas. Participants stress the importance of adaptable strategies that address changing climate patterns and their associated challenges, such as glacial melt. The analysis suggests that sustainable tourism can play a pivotal role in heightening awareness about these climate-driven threats and in supporting efforts to bolster resilience.

An intriguing facet that emerges from the analysis is the integration of scientific research into sustainable tourism initiatives. Respondents underscore the indispensable role that research-derived insights play in enriching our comprehension of ecological dynamics, shaping conservation strategies, and enhancing the visitor experience. Scientific research serves as an indispensable bridge connecting academic knowledge to practical conservation actions.

To sum up, the analysis highlights the complex interplay between sustainable tourism, wildlife conservation, and local communities in Nepal's conservation areas. Despite challenges like unregulated tourism and climate change, the potential benefits of well-managed sustainable tourism, community engagement, and scientific research form a comprehensive framework for holistic preservation. This underscores the need for an integrated approach that upholds conservation values, supports community well-being, and advances scientific knowledge. The findings emphasize the importance of sustainable tourism prioritizing biodiversity while aiding local livelihoods. The discussions contribute valuable insights for balanced policies that align tourism and conservation goals, promoting responsible practices. Involvement of stakeholders, including communities, tourism operators, and conservation groups, remains pivotal for sustainable development in Nepal's tourism and biodiversity sectors.

## **5. Findings**

The analysis of the sustainable tourism perspective of biodiversity conservation in Nepal, focusing on case studies of selected areas revealed several key findings.

First, all conservation areas have successfully implemented conservation and sustainable development programs, which have led to increased wildlife populations, improved ecosystem health, and increased community participation and engagement in conservation efforts.

Second, the promotion of eco-friendly tourism practices, community-based conservation initiatives, and alternative livelihoods for local communities has been effective in reducing the negative impacts of tourism on the fragile ecosystems of both areas.

Third, climate change and unsustainable tourism practices remain significant challenges to the long-term sustainability of these protected areas.

Fourth, the implementation of biodiversity conservation measures and sustainable tourism practices in these areas has the potential to not only promote conservation efforts but also contribute to the local economy through sustainable tourism development.

Fifth, a SWOT analysis revealed the strengths, weaknesses, opportunities, and threats facing the conservation and sustainable tourism efforts in these areas.

Overall, the findings suggest that the implementation of conservation and sustainable tourism practices can be effective in promoting biodiversity conservation while also contributing to the local economy. However, continued efforts are needed to address the challenges facing these protected areas and ensure their long-term sustainability.

## **6. Conclusion**

In conclusion, the analysis explores into the intricate interplay of sustainable tourism, wildlife conservation, and local communities in Nepal's conservation areas. Despite challenges like unregulated tourism and climate change, the potential gains from well-executed sustainable tourism, community engagement, and scientific research create a holistic preservation framework. This mandates a cohesive strategy that upholds conservation ethics, uplifts communities, and advances scientific understanding.

The findings spotlight the strengths and weaknesses of Nepal's conservation areas. Rich biodiversity, effective conservation, cultural significance, tourism appeal, and community involvement are strengths. However, illegal activities and unmanaged tourism pose challenges. Opportunities rest in leveraging sustainable tourism for conservation and engaging communities while employing sites for vital research. Climate change, habitat loss, and inadequate infrastructure emerge as threats. Despite these, well-managed sustainable tourism is poised to positively impact conservation and local economies.

Community empowerment aids conservation, and research refines strategies. Insights from focus groups emphasize stakeholder involvement. The synthesis reveals the symbiotic link between sustainable tourism and conservation. However, balanced management, community engagement, and climate adaptation are essential. Nepal's conservation areas embody potential and vulnerability. Through sustainable tourism, community empowerment, and research integration, these sites can flourish while protecting their ecosystems. Collaboration among stakeholders remains vital for Nepal's conservation and sustainable tourism to thrive.

Thus, the study offers for a comprehensive conservation strategy in Nepal, harmonizing sustainable tourism, community engagement, and scientific research to uphold conservation ethics, support local communities, and advance scientific understanding. Focus on balanced management practices, addressing challenges like unregulated tourism and climate change by regulating illegal activities, managing tourism effectively, and improving infrastructure. Foster collaboration among stakeholders, including local communities, government entities, and conservation organizations, prioritizing community empowerment, stakeholder involvement, and climate adaptation measures. This collaborative approach aims to ensure the symbiotic relationship between sustainable tourism and conservation, safeguarding the rich biodiversity and cultural significance of Nepal's conservation areas.

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