

## **AYUBIA NATIONAL PARK: EVALUATING SOCIO-ECONOMIC IMPACTS ON LOCAL COMMUNITIES AND SUSTAINABLE TOURISM DEVELOPMENT**

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### **Abstract**

Ayubia National Park (ANP) serves as a critical area for biodiversity conservation and sustainable tourism in Pakistan. This research examines the socio-economic impacts of ANP on local communities and its contribution to sustainable tourism development. Data was collected through surveys, interviews, and field observations from 300 local residents. Results show that tourism in ANP has significantly improved local livelihoods by creating employment opportunities, enhancing education levels, and uplifting living standards. Most respondents (92.8%) believe tourism has enhanced the community's image, and 88.4% credit it for increasing education levels. The study also highlights challenges, including waste generation, wildlife conflicts, and restricted access to park resources. Approximately 70.8% of respondents face crop and livestock losses due to wildlife, such as leopards and monkeys. Despite these challenges, 77.2% of locals benefit directly from tourism, mainly through businesses and agriculture, though most remain in low-income brackets. While 68% of respondents indicated involvement in decision-making, concerns about the fair distribution of benefits persist. The study

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*concludes that ANP significantly contributes to the local economy and social cohesion. However, sustainable tourism practices, such as waste management, wildlife conflict mitigation, and greater community participation, are necessary to balance conservation goals with local livelihoods. Recommendations include inclusive management, enhanced infrastructure, and compensation for wildlife-related losses.*

**Keywords:** *Ayubia National Park (ANP), Sustainable Tourism Development, Socio-Economic Impacts, Protected Areas, Local Communities, Community Perceptions, Ecotourism.*

## **INTRODUCTION:**

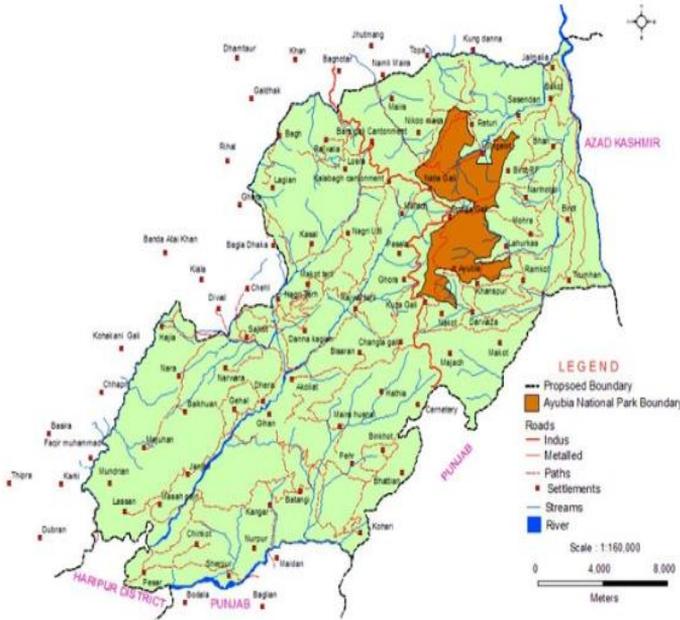
### **Overview of Ayubia National Park**

*Ayubia National Park, also known as Ayubia, covers an area of 3,312 hectares (33 km<sup>2</sup>) in Abbottabad District, Khyber Pakhtunkhwa, Pakistan (Khan, 2010). It was declared a national park in 1984 (PARC, 2012) and is named after Muhammad Ayub Khan, Pakistan's second president. The park is characterized by temperate coniferous forests and mixed broadleaf forests, with an average elevation of 8,000 feet (2,400 m) above sea level (The Travel Industry Report, 2011). It is surrounded by seven major villages and three towns: Thandiani, Nathiagali, and Khanspur (Wildlife, 2002). Ayubia National Park was formed by combining smaller recreational sites in Galiyat, including Khaira Gali, Changla Gali, Khanspur, and Ghora Gali. It is managed by the Khyber Pakhtunkhwa Wildlife and Parks Department.*

*National parks play a critical role in preserving natural ecosystems and biodiversity while offering opportunities for sustainable socio-economic growth. Ayubia National Park contributes to both conservation and tourism, attracting over 100,000 visitors annually. Its proximity to popular destinations such as Murree Hill Station and Nathiagali enhances its appeal for tourists from across the country. The park generates significant economic benefits for the local population by creating jobs in the hospitality sector, including hotels, restaurants, and recreational services. Activities like trekking, chairlift rides, and nature observation also support eco-tourism initiatives. Furthermore, the park provides essential resources, such as medicinal plants and firewood, for the surrounding communities, underscoring its importance for local livelihoods (Waseem et al., 2005).*

*National parks in both developed and developing countries are vital for improving the socio-economic conditions of local communities. Ayubia National Park is among the 29 national parks in Pakistan, with immense potential to*

attract domestic and international visitors. Despite its economic and ecological significance, there is limited research on the relationship between tourism and local livelihoods in Ayubia. A better understanding of how the park influences the local economy and community well-being is essential to inform policies and improve conservation efforts.



**Figure 1.** Map of Ayubia National Park

## LITERATURE REVIEW:

### Role of National Parks in Conservation and Local Community Development

National parks play a critical role in conserving biodiversity and natural habitats. Protected areas (PAs) safeguard ecosystems and provide a sanctuary for endangered species, ensuring the preservation of global biodiversity (Maxted et al., 2013). They also contribute to sustainable livelihoods by supporting ecotourism and other conservation-linked activities (Fisher, 2005). Globally, protected areas cover approximately 11.5% of the Earth's surface (Jenkins et al., 2013). In some countries, such as Tanzania, over 40% of the land is under protection, illustrating the significance of these areas in environmental and economic contexts (Songorwa, 2007).

Despite their benefits, protected areas often face challenges, including human population growth and resource exploitation, which lead to habitat degradation and biodiversity loss (Toonen et al., 2013). Additionally, the

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*establishment of PAs sometimes restricts local communities from accessing traditional resources, causing conflicts over land and livelihoods (Lele et al., 2010). Balancing conservation goals with the needs of local populations remains a significant challenge. Integrating community participation into the management of national parks can help address these issues and ensure sustainable conservation efforts (Bode et al., 2015).*

### **SOCIOECONOMIC IMPACTS OF PROTECTED AREAS**

*Protected areas have both positive and negative socioeconomic impacts on local communities. On the positive side, they generate income through tourism, create employment opportunities, and support small businesses. Ecotourism linked to national parks is a growing industry worldwide, contributing significantly to local and national economies (Goodwin, 2002; Saayman, 2000). For instance, tourism in national parks can stimulate local economies by creating jobs in hospitality, transportation, and guiding services (Higginbottom, 2004). Additionally, it can enhance community well-being by promoting education and awareness of environmental conservation (Standish et al., 2004).*

*On the other hand, the establishment of protected areas can impose costs on nearby communities. Restrictions on resource use, loss of agricultural land, and conflicts with wildlife, such as crop damage and livestock predation, are common challenges (Redpath et al., 2013). These issues often lead to negative perceptions of conservation efforts among local residents, undermining the long-term sustainability of protected areas (Clements et al., 2014). Ensuring that communities receive tangible benefits from conservation is crucial for fostering positive attitudes and reducing conflicts (Sekhar, 2003).*

*Research suggests that participatory approaches, such as Integrated Conservation and Development Projects (ICDPs) and Community-Based Conservation (CBC), can enhance the effectiveness of conservation efforts by involving local populations in decision-making processes (Lele et al., 2010). However, the outcomes of these approaches vary, and further research is needed to identify the conditions under which they succeed (Wang et al., 2012).*

*In Pakistan, the role of protected areas in local development is gaining attention. National parks like Ayubia provide economic opportunities for nearby communities through tourism. However, limited studies have examined the extent of their socioeconomic impact, highlighting a gap in understanding the*

*dynamics between conservation and local livelihoods.*

## **THEORETICAL FRAMEWORKS ON TOURISM AND SUSTAINABLE DEVELOPMENT**

*Tourism and sustainable development are closely linked. Sustainable tourism aims to balance the economic benefits of tourism with environmental protection and social equity (Palomo et al., 2013). National parks serve as key attractions for nature-based tourism, providing opportunities for recreation, education, and conservation awareness. The concept of ecosystem services underscores the value of protected areas in delivering ecological, economic, and cultural benefits (Považan et al., 2014).*

*The economic impact of national parks is often evaluated in terms of job creation, income generation, and contributions to local and regional economies (Byström & Müller, 2014). For example, tourism in protected areas can stimulate economic growth by attracting visitors who spend money on lodging, food, and transportation. This, in turn, supports the livelihoods of local residents and contributes to poverty alleviation (Eagles et al., 2002).*

*Social aspects of national parks include improving quality of life and fostering community cohesion through shared benefits and conservation goals (Saayman & Merwe, 2008). However, achieving sustainability requires careful management to minimize environmental degradation and ensure equitable distribution of benefits (Coetzee, 2004). Strategies such as eco-certification, capacity building, and inclusive governance are essential for aligning tourism development with conservation objectives (Dudley, 2008).*

*National parks are critical for conservation and community development. While they offer significant economic and social benefits, their success depends on integrating local needs and promoting sustainable tourism practices. Research on Ayubia National Park can provide valuable insights into these dynamics and contribute to the broader discourse on protected areas and sustainable development.*

### **RESEARCH METHODOLOGY:**

#### **Study Area Description**

*Ayubia National Park (ANP) was selected as the study site for this research. ANP is located in the Abbottabad District of Khyber Pakhtunkhwa, Pakistan, and covers an area of 3,312 hectares (33 km<sup>2</sup>). It is a hilly terrain with an average elevation of 2,400 meters (8,000 feet) above sea level. The park's geography includes dense forests, steep slopes, and diverse wildlife, making it challenging yet essential for in-depth fieldwork.*

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*ANP serves as an important site for biodiversity conservation and is surrounded by seven villages and four towns, including Nathiagali and Dungagali. The park is a popular tourist destination, attracting thousands of visitors annually. Its demographic composition includes local communities that depend on tourism, forestry, and agriculture for their livelihoods. Understanding the park's ecological significance and its socio-economic impact on the local population was critical for this research.*

## **GEOGRAPHICAL, ECOLOGICAL, AND DEMOGRAPHIC CHARACTERISTICS**

*ANP is part of the Galiyat region, known for its lush forests, diverse wildlife, and cool climate. The park's ecological characteristics include temperate coniferous forests with species such as blue pine, deodar, and oak. Wildlife includes mammals like the Indian leopard and flying squirrel, and over 200 bird species, including the koklass and kalij pheasants.*

*The surrounding villages are home to approximately 18,000 people (census 1996), with livelihoods tied to tourism, forestry, and small-scale agriculture. These communities also face challenges such as limited resources and dependency on park resources for firewood and grazing.*

## **DATA COLLECTION TECHNIQUES**

*To collect data, we employed a combination of surveys, interviews, and field observations. These methods ensured a comprehensive understanding of the perceptions, opinions, and experiences of the local community regarding tourism and conservation in ANP.*

### **1. Surveys**

*Structured questionnaires were used to gather data from the local population. A total of 300 responses were collected during fieldwork conducted in 2019. The questionnaire was carefully designed to cover various aspects of tourism's impact on the local community. Both open and closed-ended questions were included to capture detailed feedback and measurable data. Open-ended questions allowed respondents to express their thoughts in depth, while closed-ended questions provided quantifiable insights.*

*The questionnaires were translated into Urdu to ensure clarity and accessibility for all respondents. Team members briefed the locals about the purpose of the research and guided them through the questions.*

### **2. Interviews**

*Informal interviews were conducted with selected community members,*

local business owners, and officials from the Galiyat Development Authority (GDA). These interviews provided additional context and helped validate the survey findings. The director of the GDA, Zahid Khan, facilitated the fieldwork by offering accommodation and logistical support.

### **3. Observations**

Field observations were made during visits to the park and surrounding villages. The research teams noted key aspects such as infrastructure, tourism facilities, and community interactions with tourists. Observations helped cross-verify the survey and interview data.

### **STATISTICAL ANALYSIS**

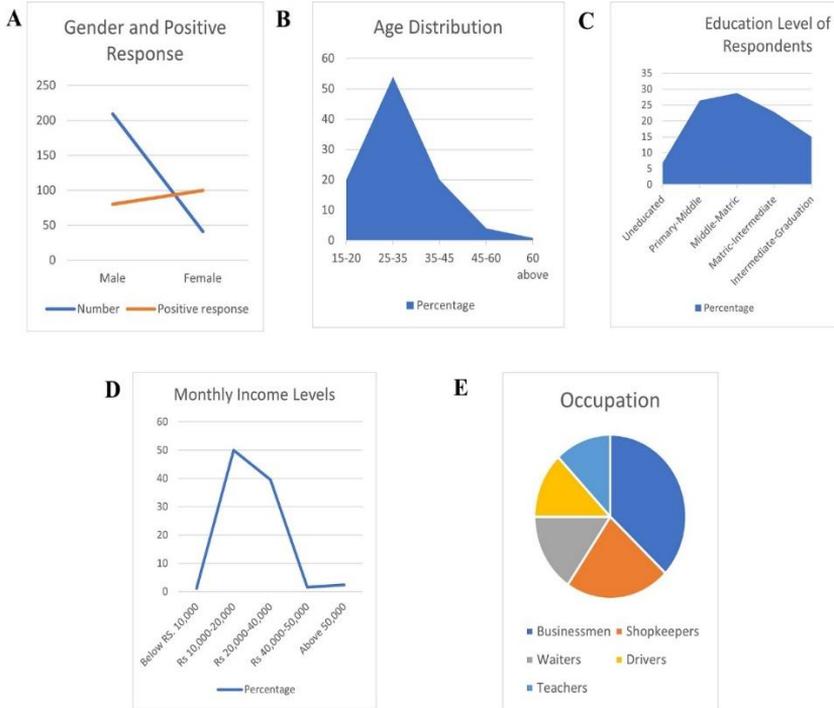
Quantitative data from the closed-ended questions were analyzed using the Statistical Package for Social Sciences (SPSS). Percentages were calculated to summarize the opinions and satisfaction levels of respondents. For qualitative data, responses from open-ended questions were categorized into common themes using Microsoft Excel. This thematic analysis provided deeper insights into community perspectives, challenges, and suggestions for park management and tourism development.

### **RESULTS AND DISCUSSION:**

#### **Demographics and Economic Impact:**

The study highlights the demographic and economic significance of Ayubia National Park (ANP) for the local community. Among respondents, 83.6% were male, and 16.4% were female. Interestingly, 100% of female respondents viewed tourism positively, compared to 83% of males. This indicates that tourism benefits are appreciated across genders, although women's participation in tourism-related jobs appears limited, emphasizing the potential to involve women more actively in tourism ventures. A young age group (54%) constituted the majority, suggesting that young adults form the primary workforce in tourism activities. Education levels show that 28.8% of respondents had middle-to-matriculation education, while 22.8% had matriculation-to-intermediate education, which supports their involvement in service-oriented tourism roles. 17.2% were businessmen, 10.4% shopkeepers, and 7.2% waiters, indicating that tourism provides significant employment opportunities. Income levels reveal that 50% earned Rs. 10,000–20,000 monthly, and 39.6% earned Rs. 20,000–40,000, demonstrating tourism's ability to generate stable, though modest, incomes.

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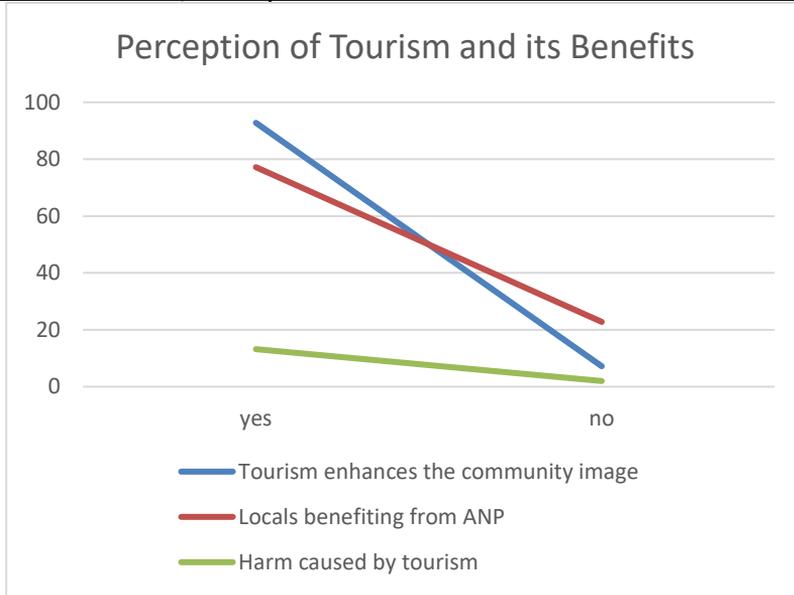
**Figure 2.** Demographic and economic impact of Ayubia national park for local community: **A:** Gender wise distribution of local community. **B:** Age of the respondents. **C:** Education level of respondents. **D:** Monthly income levels of respondents. **E:** Occupation of respondents.

## PERCEPTION OF TOURISM AND ITS BENEFITS:

Residents largely view tourism as beneficial. A significant 92.8% believe that tourism improves the community's image, while only 7.2% disagree. This suggests that most people see tourism as having a positive impact on the region's reputation. Additionally, 77.2% of residents reported benefiting from Ayubia National Park (ANP), citing advantages such as employment opportunities and increased business activity.

However, when asked if tourism causes harm, 86.8% said it does not. The 13.2% who did report harm mentioned issues such as increased waste, unruly tourist behavior, and environmental damage.

This data highlights both the benefits and challenges of tourism in the area, reflecting a predominantly favorable perception but also concerns about its negative effects.



**Figure 3.** Perception of tourism and its benefits

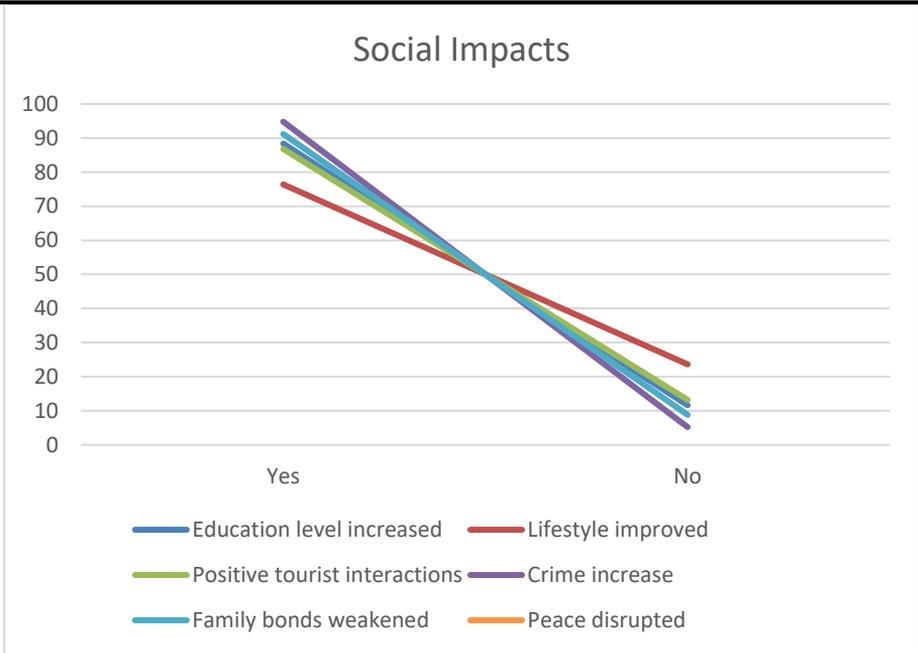
**SOCIAL IMPACTS OF TOURISM:**

*Tourism has had a positive impact on the social aspects of the local community. A majority of respondents (88.4%) stated that tourism has contributed to higher education levels, and 76.4% said it has improved their lifestyle. Interactions with tourists are seen in a positive light, with 86.8% reporting good experiences.*

*Most residents (84%) believe that tourism has strengthened relationships within the community. Additionally, 88.4% said it has not led to immoral behavior, 94.8% reported no increase in crime, and 91.2% noted that family bonds have remained unchanged. However, 56% expressed concerns about disrupted peace due to overcrowding and noise caused by tourists.*

*These findings highlight both the benefits of tourism and some challenges that need to be addressed for sustainable development.*

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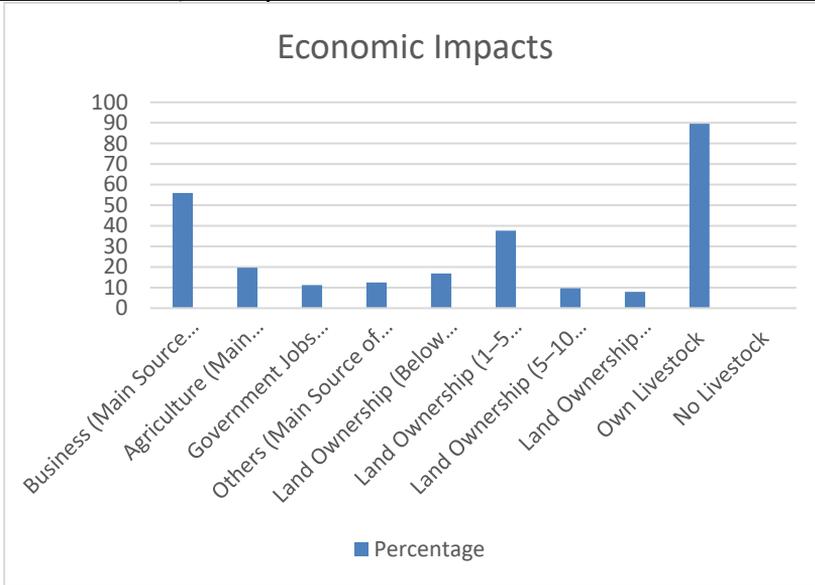


**Figure 4.** Social impact of tourism on local community

**ECONOMIC IMPACTS:**

*Tourism plays an important role in supporting local livelihoods. Business is the main source of income for 56% of respondents, followed by agriculture at 19.6%. Most residents own their houses (97.2%) and land, with 37.6% owning between 1 and 5 kanal. This land ownership supports farming and livestock activities. A majority of locals engage in agriculture, with 57.2% cultivating crops such as maize, potatoes, and beans.*

*Income in the area is seasonal. During the off-season, 48% of respondents reported having no alternative income. Others turned to daily wage labor (11.6%) or migrated to cities (4%) to find work. Livestock is an essential resource for many households, with 89.6% owning animals like cows and goats. These assets play a crucial role in sustaining livelihoods.*



**Figure 5.** *Economic impacts of tourism*

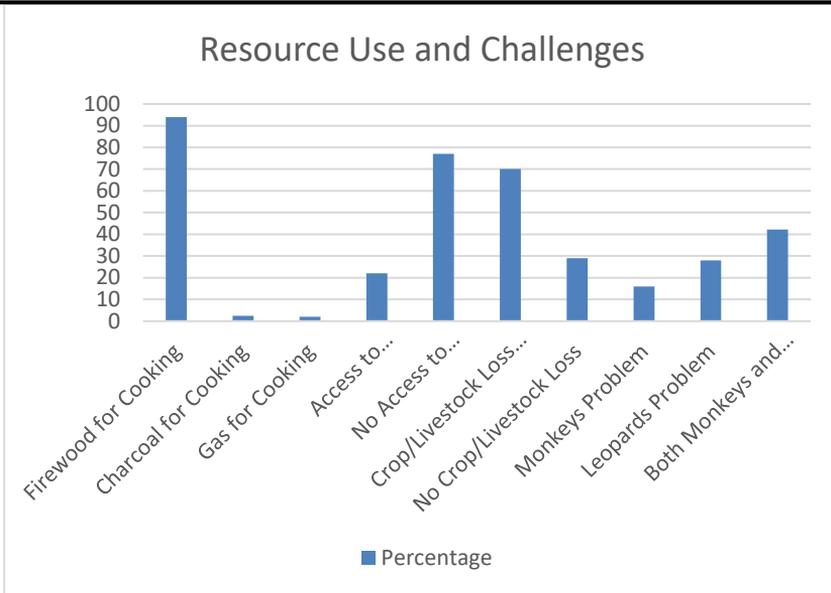
**RESOURCE USE AND CHALLENGES:**

*Local households rely heavily on natural resources for their daily needs. Firewood is the primary energy source for cooking for 94.8% of residents, with 40.4% sourcing it from forests and 28.8% buying it from markets. However, 77.6% of households lack access to firewood and building materials from the park due to restrictions.*

*Most residents (95.2%) reported good relations with the park. However, living near the park poses challenges for 70.8% of locals, who face issues like crop damage and livestock losses caused by wildlife. Monkeys and leopards are identified as the main causes of these problems, with 42.2% of respondents mentioning both animals as sources of conflict.*

*These findings highlight the community’s dependence on natural resources and the challenges of coexisting with wildlife.*

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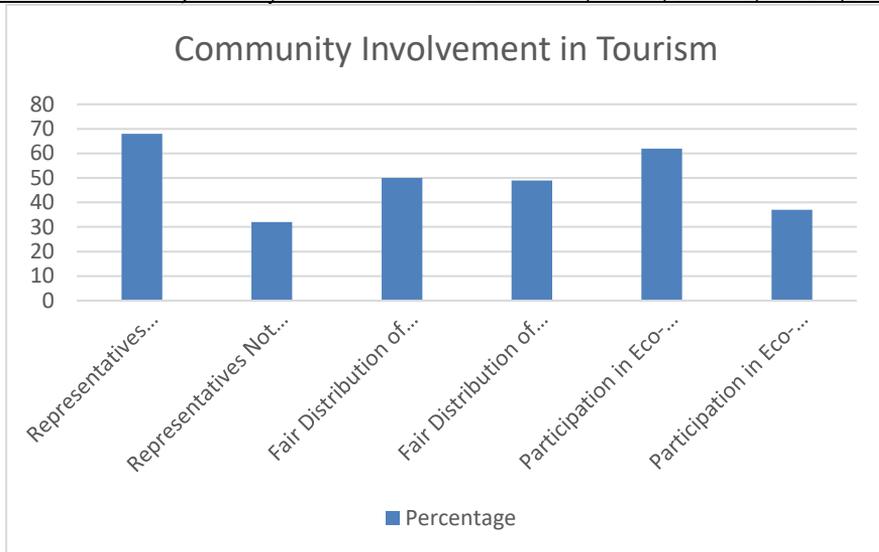


**Figure 6.** Resources use and challenges

**COMMUNITY INVOLVEMENT IN TOURISM:**

*The study revealed that local involvement in tourism-related decision-making is limited. Only 68% of respondents said their representatives were involved, and just 50.8% believed that the benefits from the park are fairly distributed. Despite this, 62.8% of locals actively participated in eco-tourism activities.*

*When asked about park management, 61.6% supported the park's existence but called for improved wildlife control. Meanwhile, 38.4% emphasized the need for greater local involvement in managing the park.*



**Figure 7.** Community involvement in Tourism

*These responses highlight the community's interest in tourism and park management while pointing out areas for improvement in inclusivity and resource distribution.*

**SUGGESTIONS FOR SUSTAINABLE TOURISM DEVELOPMENT:**

*The findings highlight several areas where immediate action is needed to address local challenges and manage tourism for sustainable development. The government must prioritize building and maintaining proper road infrastructure to ease travel for locals and tourists. Parking issues require designated parking areas to reduce congestion and inconvenience. Training programs should be introduced to educate locals on interacting with tourists and serving as guides. The government should also promote winter tourism by introducing activities like skiing to create year-round income opportunities for the community.*

*Wildlife management needs urgent attention for wildlife to reduce crop and livestock losses. Compensation mechanisms must be established for locals who suffer such losses. Public safety should be improved by installing CCTV cameras in busy locations and trekking areas. Public washrooms and medical centers should be set up at key sites, such as the Ayubia chair lift, to provide basic facilities and emergency care.*

*Locals should receive economic benefits from tourism development. Development project contracts should prioritize local businesses, and job opportunities should be created for the local population, leveraging their knowledge of the area. Ticket fees at Ayubia National Park should be reduced*

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*for locals, as they frequently use park routes. Additionally, ATM facilities should be installed at major destinations to facilitate both residents and tourists. Finally, the government should establish emergency plans to supply essential items during the winter to ensure community well-being. These measures would address the community's needs while fostering sustainable tourism in the region.*

### **CONCLUSION:**

*This study examined the socio-economic impacts of Ayubia National Park (ANP) on local communities and its role in sustainable tourism. The findings demonstrate that ANP provides significant economic and social benefits while presenting some challenges.*

*Tourism has created stable employment opportunities, with most locals engaged in businesses, agriculture, and service-oriented jobs. While tourism has improved education levels and living standards for many, the majority remain in low- to mid-income brackets, highlighting the need for higher-paying opportunities. Women showed a universally positive view of tourism, but their direct involvement remains limited, suggesting the potential for more inclusive tourism strategies.*

*The community recognizes tourism's contribution to improving relationships, lifestyle, and overall satisfaction. However, challenges such as waste generation, wildlife conflicts, and restricted access to resources persist. Environmental degradation and infrastructure strain, especially during peak tourist seasons, underline the need for sustainable practices. Compensation mechanisms for crop and livestock losses due to wildlife are also a pressing need.*

*The involvement of local communities in decision-making remains moderate, with calls for fairer distribution of tourism benefits and greater inclusion in park management. Addressing these concerns through participatory approaches can ensure balanced development that benefits both conservation and local livelihoods.*

*In conclusion, Ayubia National Park plays a critical role in promoting economic growth and social well-being. To sustain these benefits, efforts should focus on addressing resource conflicts, improving infrastructure, and implementing eco-friendly tourism practices. Inclusive and participatory management will be key to fostering a sustainable balance between tourism development and conservation.*



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