Analysis of Ecotourism and Its Impact on Indigenous People and Environment: A Case of Dir Valley (Pakistan)

Zahid Ali1, Muhammad Jamal Nasir2, Farooq Shah3, Mehran4, Shahid Iqbal5 and Muhammad Tufail6

https://doi.org/10.62345/jads.2024.13.1.72

Abstract
Tourism, particularly eco-tourism, promotes long-term development by supporting local economies while protecting ecosystems and culture. It also acts as a conservation catalyst, raising awareness about biodiversity and encouraging environmental stewardship. It promotes a greater understanding of nature through educational programs and programs, boosting support for conservation projects. This research investigates tourism's cultural, ecological, and socioeconomic ramifications from the viewpoint of the indigenous population in Dir, Khyber Pakhtunkhwa, Pakistan. A survey on ecotourism's socioeconomic impact involved 180 respondents across ten high-potential communities. Reliability was ensured using Cronbach's alpha coefficient. Varimax rotation clarified key findings: strong support (loading factor: .990) for population increase. Concerns included rising standard of living (loading factor: .776) and seasonal employment (loading factor: .819). Consensus (loading factor: .962) favored environmental conservation and community-based business opportunities. It also recommends robust policies, infrastructure investments, targeted marketing, community engagement, visitor facilitation, and hospitality among locals to promote tourist return visits.

Keywords: Ecotourism, Upper and Lower Dir, Potential Sites, Environment, People Perceptions, Varimax-rotated Matrix.

Introduction
Ecotourism is a responsible travel strategy that goes beyond simple discovery to fully engage visitors in the cultural diversity of the destinations (Oladi et al., 2010). This quality strongly emphasizes preserving biological and cultural diversity while aiming for sustainable biodiversity use that has the least negative effects on the environment and society (Ryngnga, 2008). According to the International Union for Conservation of Nature (IUCN), ecotourism travels to unspoiled natural settings, promoting conservation, biodiversity appreciation, and positive interactions with local people (Bunruamkaew & Maryam, 2011). Ecotourism, first defined by Ceballes-Lascuraine in 1987, focuses on visiting undeveloped regions to learn about local customs while enjoying the scenery and fauna (Ali et al., 2024a).

1Department of Geography and Geomatics, University of Peshawar and Lecturer, GD College, Akbarpura, Nowshera, Pakistan. Corresponding Author Email: azahidsc@gmail.com
2Department of Geography and Geomatics, University of Peshawar.
3Department of Geography and Geomatics, University of Peshawar.
4Department of Geography and Geomatics, University of Peshawar.
5Center for Disaster Preparedness and Management, University of Peshawar.
6Department of Geography and Geomatics, University of Peshawar.

Copyright: © This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license. Compliance with ethical standards: There are no conflicts of interest (financial or non-financial). This study did not receive any funding.
Ecotourism is a multifaceted strategy that balances social advancement and environmental conservation by protecting biodiversity worldwide and promoting sustainable local development (Iqbal et al., 2010). In addition to drawing tourists to its environmental values, it represents sustainable growth and promises to reduce rural poverty (Budeanu, 2007; Campbell, 1999; Honey, 2008; Gurung & Seeland, 2008). By encouraging visitation to underdeveloped areas and responsible use of biodiversity, ecotourism plays a crucial role in both national and global economic growth (Khan et al., 2015; Ali et al., 2024; Guimaraes & Silva, 2016; Rehman et al., 2018; Sharma & Nayak, 2019). Its goals are to strengthen the economy and social structure of the host countries, as well as the well-being of the local populace (Brida & Risso, 2009; Tang & Tan, 2013; Manzoor et al., 2019).

The sustainable success of tourism, particularly in regional hotspots, depends on local community involvement (Adnan et al., 2013; Baloch, 2007; Khalil et al., 2007; Rana, 2015; Goleldner et al., 2000). Academic Scholars (Ahn et al., 2002; McCool et al., 2001; Twining-Ward & Butler, 2002) stressed the significance of considering residents' viewpoints on environmental, social, and cultural implications for tourist expansion. To promote tourism in the area, consider the residents' opinions regarding how the environment, socioeconomics, and culture affect them.

Khyber Pakhtunkhwa (KP) province in Pakistan's District of Dir is well known for its dynamic cultural tourism and stunning scenery. With a diverse population in terms of language, culture, and ethnicity, Dir's beauty draws visitors from near and far. However, this increase in tourism has also brought new difficulties. Issues like noise pollution, traffic congestion, and environmental deterioration are pressuring local resources like water and electricity. These problems have become more widespread. Researchers examining the tourism industry have identified both positive and negative effects, underscoring the necessity of cautious and sustainable management strategies.

A diverse range of traditions and practices are also reflected in Dir's multicultural environment, which is influenced by several sects. The increase in visitors has started undermining some of these regional customs despite the community's vast cultural diversity, endangering its cultural legacy. Our study attempts to comprehend how the local community views tourism's social, environmental, and cultural effects in light of these difficulties. We also aim to assess the level of community involvement in the growth of Dir's tourism sector. We aim to offer information that will help policymakers create sustainable tourism strategies for Dir by embracing locals' viewpoints and considering their input during the tourist development process. Ultimately, we hope our research will contribute to expanding Dir's tourism, sustainability, and hospitality industries while protecting the environment and local culture.

Literature Review

Scholars have offered a variety of definitions and criteria for ecotourism over time, reflecting its changing character. Ceballos-Lascuráin coined the term ecotourism in 1987, defining it as travels to pristine natural places for study, admiration, and enjoyment. In 2015, the International Ecotourism Society (IES) revised the term, emphasizing responsible tourism that benefits the environment and local communities (Ali et al., 2024b; TIES, 2015). Ecotourism, a type of sustainable tourism, has grown fast, encouraging environmentally friendly visits and socioeconomic growth (Butcher, 2005; Hussain, 2022; Bausch et al., 2024; Liu, 2003).

According to Butcher (2005) and Hussain (2022), ecotourism, a type of sustainable tourism, is a rapidly increasing segment of the tourist business that promotes environmentally friendly trips to encourage social and economic development. According to Bausch et al. (2024) and Liu (2003), sustainable tourism can boost local economies while minimizing negative environmental impacts.
Ecotourism, which has received academic interest since the mid-1980s, represents a nature-based tourism strategy to protect the environment while delivering enriching experiences for guests and helping local people (Xu et al., 2023). Its multidimensional strategy includes long-term sustainable development goals such as education, resource conservation, income production, and social infrastructure improvements (Oladeji et al., 2022; Valdivieso et al., 2015). Ecotourism, particularly in developing nations, is a promising option for alleviating poverty and rural revenue generation (Snyman, 2017; Zhong & Liu, 2017).

The tourist industry emerges as a crucial engine of global economic growth because of its rapid growth (CREST, 2018; Kangai et al., 2024). Providing jobs and money is critical to a country's economic growth (Anderack & Nyaupane, 2011). Tourism makes a substantial contribution to economic development and poverty alleviation efforts. Furthermore, it generates significant foreign exchange profits, as governments frequently target tourists from locations with higher currency values (Lee & Chang, 2008). Locally, tourism generates job possibilities in various industries, including tour guiding, hospitality, and transportation, encouraging self-employment and industrial expansion (Ghani, 2020).

Gohary et al. (2020) and Brida et al. (2016) predicted a considerable contribution from the tourism and travel sector in 2018, totaling US$8.8 trillion, representing 10.4% of world GDP. Furthermore, it employed around 319 million people, accounting for 10% of the world's workforce. Tourist spending has benefitted various industries, including hotels, tour operators, retail stores, transportation, and tourist sites (both natural and cultural). Furthermore, tourism was a stimulant for tax revenue, job creation, and other income streams.

Purcell et al. (2021) reported that the tourist industry's economic development rate was 3.9% between 2017 and 2018, exceeding the world GDP growth rate of 3.2% for the eighth year consecutively. According to projections, international tourists will number roughly 1.8 billion by 2030, with the tourism industry supporting approximately 421 million employees worldwide. However, given current developmental tendencies, these estimations may be conservative. Furthermore, the World Tourism Organization predicts that by 2025, the tourism and travel industry will contribute around US$11 trillion to the world economy. According to Mbaiwa (2012), sustainable tourism, a cornerstone of ecotourism, preserves the natural environment, reduces negative consequences, and directs economic advantages to local populations.

According to Khan et al. (2022), ecotourism contributes significantly to global GDP and jobs while promoting cultural exchange. The United Nations World Tourism Organisation (UNWTO) recognizes ecotourism as providing various financial benefits to communities worldwide. Developing countries, such as South Asian countries, confront both obstacles and opportunities in using ecotourism to boost economic growth. Pakistan's unique topography and cultural legacy offer enormous potential for ecotourism, particularly in its northern regions (Rana, 2015).

Despite infrastructure limits and security concerns, Pakistan's ecotourism industry presents excellent opportunities for long-term development (Israr et al., 2009).

**Area of Study**

In Pakistan's Khyber Pakhtunkhwa region, Dir Valley is a picturesque valley renowned for its breathtaking scenery, abundant greenery, and peaceful environment. The valley is ideal for nature lovers, adventurers, and those looking for a relaxing vacation. The research region includes the Dir Valley in Pakistan's northwest, which is around 180 km from the capital city of Islamabad. Its geographical location ranges from 35°46′32″ to 35°46′33″ North latitude and 71°22′65″ to 71°22′66″ East longitude, bounded by district the Chitral region to the north and northwest, the
Swat valley to the southeast, to the east, Afghanistan to the southwest, and the Panjkora River to the south. The Pakistan Tehreek-e-Insaf (PTI) administration created the Central Dir District in 2022, dividing the Dir Valley into three districts: Lower Dir, Upper Dir, and Central Dir. The administrative center of the Upper Dir District is located in the city of Dir, while the Lower Dir District is centered in Timergara City (Ali et al., 2024b).

Kumrat Valley, Jahaz Banda, Sharingal, Sumat Shahi, Hatan Darra, Lawari Top, Daubando Pass, Namcharr Usherai, and Zakhina are a few of the well-liked tourist destinations in Dir Valley. Hiking, camping, photography, and discovering the customs and culture of the area are among the enjoyable activities available to visitors. The Gandharan Civilization was likewise concentrated in the Dir region, and a fine and distinctive collection of Gandharan art may be found at the Dir Museum in Chakdara. Upper Dir district does not have any protected wildlife areas; however, the following species are protected in the district's protected forests: Eurasian otters, monkeys, barking deer, snow leopard, langur, monkeys, Himalayan blue sheep, Himalayan snow cock, monal pheasant, koalas pheasant, chakra, snow partridges, Himalayan snow cock, Marco Polo sheep, and yellow-throated martin.

**Figure 1: Location map showing potential natural sites in district Dir**

Data Collection

A questionnaire was administered using a mall-intercept sampling strategy. The data were randomly divided into two groups using the SPSS computer program function. To determine the number of factors, a factor analysis with varimax rotation was performed on the total number of respondents (Henri et al., 2017; Lee & Jan, 2018; Patti, 2013). The study methodology includes
qualitative and quantitative approaches, with the latter emphasizing behaviors and motives through content analysis, interviews, and focus groups. For a more thorough knowledge of ecotourism and its effects, we have opted for a qualitative approach that enables the investigation of complex viewpoints and impressions. We seek a thorough investigation and significant insights into our subject topic through qualitative approaches such as ethnographic research, interviews, observation, and focus group discussions (Moriarty, 2011).

Sample Selection
The study sample comprised residents from rural and urban areas of Dir, aged 19 years or older. A sample size of 180 respondents was chosen through purposive quota sampling based on occupational status to guarantee representativeness. Ten communities were selected for field surveys to gauge community opinions about ecotourism's socioeconomic and environmental effects. These villages were chosen to represent a range of viewpoints on tourism's perceived economic, socio-cultural, and environmental effects (Lai & Nepal, 2006). They were chosen from regions with recognized ecotourism potential, including urban and rural areas.

Table 1: Showing the characteristics of the selected villages

<table>
<thead>
<tr>
<th>No.</th>
<th>Sample Settlements</th>
<th>X</th>
<th>Y</th>
<th>Tourism Potential</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Zullam</td>
<td>71.7894</td>
<td>34.7742</td>
<td>Scenic sites</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Balamba</td>
<td>71.8069</td>
<td>34.8407</td>
<td>Scenic beauty, dense forests</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>Hasar</td>
<td>71.8143</td>
<td>34.6274</td>
<td>Handy craft, largest Urban center</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>Kandao</td>
<td>71.8320</td>
<td>34.8088</td>
<td>Lakes, wildlife and Scenic beauty</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>Nagram</td>
<td>71.9007</td>
<td>34.6481</td>
<td>Scenic beauty</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>Lawarai Pass</td>
<td>71.8000</td>
<td>35.3500</td>
<td>Scenic beauty</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Gor Shahi</td>
<td>72.1513</td>
<td>35.7096</td>
<td>Historical and archaeological sites</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>Batot</td>
<td>72.1890</td>
<td>35.5747</td>
<td>Scenic beauty</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>Kumrat</td>
<td>72.2453</td>
<td>35.5159</td>
<td>Lakes and Scenic beauty, wildlife</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>Kund Shai</td>
<td>72.2862</td>
<td>35.4477</td>
<td>Lakes and Scenic beauty</td>
<td>18</td>
</tr>
</tbody>
</table>

Survey Instrument
Three sections of a self-administered survey questionnaire were used to gather data. In the first portion, community members' demographic information was collected, and in the second, respondents' agreement with statements about ecotourism was gauged using a 5-point Likert scale (Patti et al., 2013). The Likert scale made it easier to gather quantitative data for statistical analysis, measuring perceptions in a methodical way and facilitating comparisons within the study.

Factor Analysis and Validation
The reliability of survey items was guaranteed by several statistical tools: Higher numbers (range: 0-1) indicated more agreement in Cronbach's alpha coefficient (Christmann, 2006), which evaluated measurement accuracy. Factor analysis appropriateness of questionnaires was assessed using descriptive statistics such as Kaiser Meyer Olkin (KMO) and Bartlett's Test. KMO (Shrestha, N. 2021) evaluated the common variance among the variables (ideal range: 0.6+) and Bartlett's Test determined the deviation from the identity matrix, suggesting significant correlations between the variables (p-value 0.05). Clarity in item correlations was improved by the
varimax rotation matrix, which revealed significant factors influencing ecotourism perceptions after reliability testing (Malczewski, 2004).

**Data Collection Timeline**
The research team stayed in Swat for two weeks, from June 21, 2023, to July 9, 2023.

**Secondary Data Acquisition**
Secondary sources such as literature, research articles, magazine articles, local newspapers, VCDs, and official records (such as written reports, maps, and village layouts) were employed in addition to primary data collection. These secondary sources completed the qualitative data collected through primary approaches by providing more details regarding ecotourism management operations, resources, and attractions.

**Focus Group Discussion (FGD)**
The researcher organized eleven (9) focus group sessions. On average, each FGD lasted an hour and a half. Each focus group comprised five participants with the same experience, professional qualifications, and interests (Moriarty, J. (2011). Furthermore, the open area where interviews were conducted helped to reduce doubts about the study's purpose, particularly among senior respondents, ensuring that abundant and high-quality data was acquired (Hyun, H. 2014).

**Demographic Profile (Respondents)**
Table 2 analyses the respondents’ demographic attributes, including age, gender, educational attainment, place of residence, and monthly income. It presents the respondents’ distribution among several categories within each demographic category in terms of both frequency counts and percentages. Table 2 shows that 71% of responders are men and 29% are women. 31% of the participants were from different cities in Pakistan, such as Abbottabad, Attock, Nowshera, Peshawar, Islamabad, Lahore, Mardan, Multan, Karak, Okara, and Quetta.

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Profile</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>126</td>
<td>71%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>54</td>
<td>29%</td>
</tr>
<tr>
<td>Age of the Respondents</td>
<td>Between 18 and 25</td>
<td>71</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>Between 26 and 40</td>
<td>83</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Between 41 and 60</td>
<td>24</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>60 and above</td>
<td>2</td>
<td>.01%</td>
</tr>
<tr>
<td>Education</td>
<td>Illiterate</td>
<td>76</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>Matric</td>
<td>48</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>Inter</td>
<td>35</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>13</td>
<td>.07%</td>
</tr>
<tr>
<td></td>
<td>Master</td>
<td>6</td>
<td>.03%</td>
</tr>
<tr>
<td></td>
<td>M.Phil./PhD</td>
<td>2</td>
<td>.01%</td>
</tr>
<tr>
<td>Residency</td>
<td>Local</td>
<td>124</td>
<td>68%</td>
</tr>
<tr>
<td></td>
<td>visitor</td>
<td>56</td>
<td>31%</td>
</tr>
<tr>
<td>Monthly income</td>
<td>Below 40 k</td>
<td>130</td>
<td>72%</td>
</tr>
<tr>
<td></td>
<td>41 k–60 k</td>
<td>21</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>61 k–80 k</td>
<td>16</td>
<td>.08%</td>
</tr>
<tr>
<td></td>
<td>81 k–100 k</td>
<td>9</td>
<td>.05%</td>
</tr>
<tr>
<td></td>
<td>Above 101 k</td>
<td>4</td>
<td>.02%</td>
</tr>
</tbody>
</table>

*Source: Survey data 2023.*
Results and Discussion
Tourism impacts economics, the environment, society, and culture (Almeida-García et al., 2016). Ecotourism encourages job creation, revenue production, and tax collection in the hotel business, making it an important driver of economic development, poverty alleviation, and foreign exchange earnings (Adnan et al., 2013; Baloch, 2020; Rana, 2015). Economic impact encompasses all monetary flows involved with ecotourism, direct or indirect. In contrast, social and cultural consequences include societal changes, customs and traditions, and emotional links to the local population. Environmental consequences include the depletion of natural resources (Shujahi & Hussain, 2016). Local inhabitants’ perceptions heavily influence tourism’s positive or negative elements, with economic consequences being viewed positively, but environmental and socioeconomic implications are perceived as both positive and bad (Harrill & Potts, 2003; Tosun, 2002).

Ecotourism in District Dir
In the district of Upper Dir, the sample communities are Lawarai Pass, Gor Shahi, Batot, Kumrat, and Kund Shai; in the district of Lower Dir, they are Zullam, Balamba, Hasar, Kandao, and Nagram. In each of the chosen communities, 180 people were surveyed.

Reliability Test and Descriptive Statistics
In order to verify the validity of the questionnaire for District Director Socioeconomic Impact, Cronbach's alphas were computed (Christmann, 2006). Table 3 shows that the questionnaire’s 18 items had a Cronbach's alpha value of .906, indicating that the items are dependable and consistent and can be used for empirical assessment.

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>No of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.906</td>
<td>18</td>
</tr>
</tbody>
</table>

*Source: Survey data 2023.*

The common structures of the eighteen impacts are found using a varimax-rotated matrix. The KMO score of 0.684 shows that the sampling adequacy is appropriate. This suggests that the data might contain some related factors, which is advantageous for factor analysis (Silva et al., 2014).

A p-value of less than 0.001 indicates a significant difference between the correlation and identity matrices in Bartlett's test, indicating that the variables are correlated and suitable for the factor analysis in table 4.

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</th>
<th>.684</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>404.943</td>
</tr>
<tr>
<td>df</td>
<td>136</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

*Source: Survey data 2023.*
Result of the Varimax Rotation Matrix

Table 9 presents the rotated component matrix resulting from a principal component analysis (PCA) with varimax rotation and KMO.

Socioeconomic Impacts: This element could stand for socioeconomic effects linked to job trends, taxes, urbanization, conflicts, and contentment with the growth of the tourism industry. Factors like "Higher population density (990)," "Increases tax revenues (980)," "Helps other sectors (585),," and "Seasonality of employment (809)," are used to describe this component. The Upper Dir was where most people experienced the seasonality. The communities Kumrat, Batot, Lowari Pass, Kund Shai, and Jazz Banda were the ones from which the seasonality was reported. Every loading variable indicates that they all contribute to the same underlying factor and have a positive relationship with one another (Andereck & Nyaupane, 2011).

Economic Development: This element appears to encompass cultural preservation, environmental issues, and economic development, which may be interwoven in this setting. The following variables have a high loading: "Increase household income (884);" "Increase the standard of living and house (778);" and "Increase land class conflict (759)." There has been economic growth in the Lowe Dir district. The area boasts modern infrastructure for all kinds of activities and medal-winning roads. Land conflicts, transportation congestion, and pollution due to advanced infrastructure were seen. High living standards and rising household incomes were also mentioned at Hasar, Kandao, and Nagram (figure 1).

Mixed Loadings: The loadings of these variables are mixed, indicating a mix of positive and negative relationships. It captures socioeconomic elements associated with labor relations, cultural heritage, and disputes. A few of the key factors that define this component are "Demand for female labor (-605)," "Increases employment opportunities (748)," "Awareness of cultural heritage & traditions (836)," and "Increase crime rate and unethical activities (680)." Because the residents of the Upper Dir were more conservative than those in the Lower Dir, Figure 2 shows a negative load on the demand for female labor in the Batot, Kumrat, and Jazz Banda areas. According to Alshuwaikhat (2005), the low level of life, low household income, inadequate infrastructure, and low educational ratio were the primary causes of the respondents' conservative behavior in the Upper Dir district.

Cultural Factors: This component accounts for cultural elements like community preferences, inflation, and participation. Both the upper and lower Dir made note of it. "Increase prices of goods and services (988)" and "Commercialization of tradition & customs (899)" were two variables that loaded highly on component 4. Figure 2 illustrates that the socio-economic status of locals will be boosted. However, the community is conservative about female labor as other sectors' standards of living, education, awareness, and commercialization await improvement.

Local Perception of Future Tourism

Three questions were tested to check the local people's perception of the future aspirations of tourism. The first question was, "Do you want to reduce ecotourism?". This issue was examined to see if people are predisposed towards negative traits such as environmental damage in selected places and cultural destruction, whether through tourism or otherwise. The findings reveal that individuals are more interested in the good aspects of tourism, such as economic rewards and constructive development. The results suggest a high load (876), and the people wanted to expand ecotourism in the Dir district. This finding was corroborated by (Linderová et al., 2021).
### Table 5: District Dir result of ecotourism on rotated component matrix

<table>
<thead>
<tr>
<th>Socioeconomic Impacts of Ecotourism</th>
<th>Descriptive Statistic</th>
<th>Loading Factors Components</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Std. dv</td>
</tr>
<tr>
<td>Increase density of population</td>
<td>180</td>
<td>.396</td>
</tr>
<tr>
<td>Increase pollution and gasses</td>
<td>180</td>
<td>.383</td>
</tr>
<tr>
<td>Increase standard of living and house</td>
<td>180</td>
<td>.804</td>
</tr>
<tr>
<td>Increase household income</td>
<td>180</td>
<td>.761</td>
</tr>
<tr>
<td>Demand for female labour</td>
<td>180</td>
<td>.553</td>
</tr>
<tr>
<td>Increase prices of goods and services</td>
<td>180</td>
<td>.358</td>
</tr>
<tr>
<td>Increases employment opportunities</td>
<td>180</td>
<td>.317</td>
</tr>
<tr>
<td>Increases tax revenues</td>
<td>180</td>
<td>.734</td>
</tr>
<tr>
<td>help other sectors</td>
<td>180</td>
<td>.439</td>
</tr>
<tr>
<td>Seasonality of employment</td>
<td>180</td>
<td>.658</td>
</tr>
<tr>
<td>Commercialization of tradition &amp; customs</td>
<td>180</td>
<td>.317</td>
</tr>
<tr>
<td>Awareness of cultural heritage &amp; traditions</td>
<td>180</td>
<td>1.02</td>
</tr>
<tr>
<td>Increase land class conflict</td>
<td>180</td>
<td>.712</td>
</tr>
<tr>
<td>Increase crime and unethical activities</td>
<td>180</td>
<td>1.07</td>
</tr>
<tr>
<td>Increase conflicts resident b/w tourist</td>
<td>180</td>
<td>.357</td>
</tr>
<tr>
<td>Prefer to Support the ecotourism</td>
<td>180</td>
<td>.618</td>
</tr>
<tr>
<td>Satisfied from development of tourism</td>
<td>180</td>
<td>.126</td>
</tr>
<tr>
<td>Prefer to engage local community</td>
<td>180</td>
<td>.351</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations

Source: Survey data 2023

Figure 2: Socio-Economic Impacts of Ecotourism in Dir District

Source: Survey data 2023
The second question included "the satisfaction from the development of ecotourism" to find out how people felt about the government's reaction to tourism. The leading factor in District Swat is also considerable due to the improvement of society as well as the road network, but people must be cautious regarding disciplined tourism. The disciplined tourism involve guiding the tourists in a way that protects biodiversity, preserves heritage sites, respects local customs and culture, and, most importantly, avoids engaging in unlawful conduct. People seek to boost this form of tourism (Jehan et al., 2023).

The final question concerned local inhabitants' role in the growth of tourism. It is critical to understand if government or non-governmental institutions are involved in developmental decisions. 30% percent of respondents answered "yes" to the government involving local people in socioeconomic decisions, although factor loading is considerable (752).

**Findings**
Research reveals that ecotourists can enjoy various natural and cultural features in the district Dir. Due to the low standard of life, road inaccessibility, and cold weather, the rate of joblessness is
significant in Dir. The breathtaking splendor of Komrat Valley and Lowari Pass offers serene hikes and picturesque photo ops amidst quaint landscapes and shimmering streams. In addition, Jaz Bhandh is a popular spot for camping and picnics since it is a lovely meadow surrounded by snow-capped peaks. On the other hand, the bustling Dir Bazaar acts as the district’s commercial hub and lets visitors buy handcrafted items while discovering the rich customs of the area. The purpose of the questionnaire survey was to find out how respondents felt about the socioeconomic effects of ecotourism in the possible communities that were chosen. The conclusions drawn from the people's perceptions were as follows.

**Employment Generation:** In addition to producing jobs for locals, ecotourism has the potential to stimulate demand for services in a variety of industries, including handicrafts, hotels, transportation, and motels.

**Income Generation:** By raising spending on food, transportation, and leisure activities, tourism helps local communities economically. By generating income, poverty is lessened, and living standards are generally raised.

**Cultural Preservation:** Ecotourism encourages cultural and traditional preservation. Travelers impart their cultural inheritance through their interactions with indigenous people, fostering a deeper knowledge and appreciation.

**Infrastructure Development:** The construction of roads, bridges, parks, and other recreational activities not only improves the accessibility for tourists but also improves the lives of local inhabitants.

**Conservation of Environment:** Ecotourism that is sustainable places a high priority on protecting natural resources. Ecotourism contributes to the preservation of biodiversity and ecosystems by using initiatives like wildlife protection, habitat restoration, and natural resource management.

**Female Empowerment and Community Engagement:** The conservation and preservation of the natural and cultural environments are ensured by the involvement and engagement of the local people, particularly women, in tourist sector projects.

**Future Direction:** Further research is necessary to uncover the latent ecotourism potential in the impoverished district, assess the socioeconomic and environmental effects of ecotourism operations, and pinpoint potential future trends and challenges in the Pakistani Malakand division's ecotourism industry.

**Discussion**

There is much promise for tourism in the Komrat Valley, Lowari Pass, Jahaz Banda, and Dir Bazaar in the Dir District, which might offer ecotourists a range of experiences. The district is well-known for its picturesque views and lush valleys, making it a popular destination for photographers and nature enthusiasts. It is connected to the Chitral District through the well-known Lowari Pass. Despite its enormous potential, the ecotourism industry has remained underdeveloped, underscoring the need for sustainable development initiatives. Districts differ greatly in their potential for ecotourism, with Dir emerging as a major hub. From Komrat Valley to Jahaz Banda, the Dir district is a tapestry of natural and cultural treasures.

The district has significant natural and cultural landmarks and stunning natural features like Shahi Bagh, Kumrat, Jhaz Banda, and Zakhana. A captivating location such as Komrat Valley, which makes up around 13.89% of the district's total potential area, offers chances for leisurely hiking, photography, and excursions amidst its breathtaking beauty. In particular, Jahaz Banda attracts tourists with its picturesque meadows surrounded by snow-capped peaks. The best representation
of local life and culture is seen at Dir Bazaar, a commercial center where people may purchase handcrafted goods.

In Dir District, the tourism industry has beneficial and detrimental socioeconomic effects. In addition to boosting the economy and creating jobs, it also presents risks like population growth, cultural dilution, and environmental harm. The implementation of sustainable management practices is crucial in order to tackle these issues and guarantee the enduring prosperity of Dir's tourism sector. The local population is keen to support ecotourism, but there are obstacles to overcome, such as keeping an eye on the financial and environmental effects. Subsequent investigations should investigate the potential for latent ecotourism and find ways to address new issues. To safeguard the environment and cultural resources, policymakers and government organizations must work with local people and develop comprehensive, sustainable tourism policies.

**Conclusion and Recommendations**

Creating a master plan for ecotourism is a thorough process that pinpoints the historical sites and natural wonders that give a place its distinct identity. By drafting this plan, authorities can establish guidelines and policies that promote tourism-related activities while guaranteeing the preservation of the local environment and customs. Within these restrictions, it is critical to prioritize preserving natural habitats, cultural assets, and traditional customs. In addition, the plan should be cooperative, incorporating feedback from a range of stakeholders and tailored to local communities' needs and objectives.

Investing in tourism infrastructure maximizes positive environmental effects and facilitates better access to ecotourism destinations. This involves building highways, bridges, lodging facilities, and visitor centers, especially in tourist-heavy areas. Infrastructure development should also prioritize reducing environmental damage and traffic, for example, by implementing drainage systems and traffic management strategies.

Attracting tourists to ecotourism sites is mostly dependent on marketing and promotion. Governments can expand services like cruises and adventure sports by working with the business sector and introducing new attractions. Through various media, marketing campaigns highlight the district's natural beauty and increase public awareness of ecotourism options.

The sustainable development of ecotourism necessitates the involvement and education of local communities. To achieve this, it is necessary to promote community members' involvement in decision-making processes, educate them—especially women—about environmental protection and heritage preservation, and plan awareness-raising events like seminars and educational tours. To promote international tourism, organizing events and streamlining immigration procedures are necessary for facilitating foreign tourists. Creating tourist information centers improves tourists' experiences by offering support and information. Initiatives to increase capacity, such as training programs for hospitality staff and incorporating ecotourism into academic programs, guarantee that the local labor force is prepared to assist the tourism sector.

Enforcement mechanisms need to be reinforced to tackle illicit actions that threaten the environment and cultural heritage. Quick response systems backed by tourism police prevent environmental damage and encourage the preservation of cultural heritage. Lastly, sustainability and biodiversity protection are promoted by stakeholders' active participation in conservation efforts, which include government representatives, religious leaders, and international partners.
References


• Oladi, J., & Bozorgnia, D. (2010, October). Evaluating the ecotourism potentials of Naharkhoran area in Gorgan using remote sen

• Rehman, A., Ma, H., Irfan, M., Ahmad, M., & Traore, O. (2020). Investigating the influence of international tourism in Pakistan and its linkage to economic growth: evidence from ARDL approach. SAGE open, 10(2), 2158244020932525.