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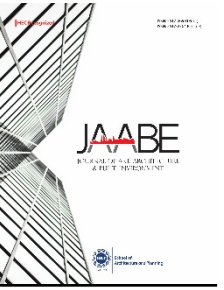

Title:	**Development of Ecotourism for Local Economic Growth in Chotiari Wetland Complex-Sanghar, Sindh Pakistan**
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Development of Ecotourism for Local Economic Growth in Chotiari Wetland Complex-Sanghar, Sindh Pakistan

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Abstract

Tourist organizations, such as Sindh Tourism Development Corporation (STDC), Sustainable Development Foundation (SDF), and WorldWide Fund for Nature-Pakistan (WWF-Pakistan), agree that ecotourism has a significant potential to invite both domestic and foreign visitors. Accordingly, ecotourism industry has been promoted as one of the most important tourist industries due to its potential for protecting natural resources, while also improving the socio-economic conditions of local residents. As per there view of relevant literature, most of the developed and underdeveloped nations utilize their natural assets for tourism and economic upliftment. Thus, the study aimed at determining how ecotourism development adds to the economic growth of local communities of the study region. The research was carried out in Chotiari Wetland Complex, Sindh, Pakistan primarily due to its scenic natural assets. The research sample included officials of local non-governmental organizations (NGOs), local community organizations, the management of Chotiari's Nature Reserve, local leaders, and individuals from local households living in areas surrounding the wetland. A sample of 60 participants was chosen from the community using a random sampling methodology. Mixed-methods research, comprising both quantitative and qualitative methodologies, was used to collect and analyze the collected data, interpret results, and draw conclusions. A questionnaire survey was used as a tool to collect data. The Statistical Package for the Social Sciences (SPSS version 22) was utilized to evaluate quantitative records, while content interpretation was conducted to evaluate qualitative information. The findings indicated that ecotourism and wetland development improved the local economic growth of the studied region through job creation and capacity building.

***Keywords*:** ecotourism, foreign visitors, local economic growth, natural resources, wetland development, WWF-Pakistan

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Introduction

Tourism is a process through which individuals travel and stay outside their usual environment in order to relax and seek pleasure through various commercial activities. In recent years, due to the booming tourism industry, it has become the need of the day to give importance to sustainable tourism. Ecotourism, a sub-group of sustainable tourism, is a significant mechanism for sustainable development and is being adopted by developing countries for economic gain (Ko & Stewart, 2002). Ecotourism includes proper management of excursions and the conservation of nature in order to maintain a perfect balance between the needs of tourism and the environment (Zahedi, 2006). The goal of ecotourism is to enhance the understanding of the economic and environmental benefits of tourism among the general populace. By linking long-term biodiversity conservation with local economic and social betterment, well-organized ecotourism may benefit both protected areas and residents of neighboring communities (Russo & Borg, 2002).

Sadly, most advantages eco-tourism are intangible. However, the advantages commercialization of natural resources through tourism are often tangible. Tourists spend more money on services, such as accommodation, food, and other products, to experience the natural resource in the best way possible. Resultantly, such expenditures create jobs for both local and non-local inhabitants that generally benefit very little from economic development initiatives. Sometimes a small number of employments can have a large impact in regions with low population and limited opportunities.

Literature Review

Ecotourism and Local Economic Opportunities

Ecotourism in its most perfect form is defined as tourism that has less harmful impacts on the earth and surrounding culture while providing money, occupation, and protection to local wildlife and vegetation (Blangy & Mehta, 2006). Through this form of tourism, tourists use sustainable ways to travel in order to conserve nature and protect the local inhabitants. It also creates sustainable employment opportunities for the local inhabitants. It also creates sustainable employment opportunities to the local inhabitants. The employment options available to the individuals living near host locations are among the most tangible, non-environmental benefits of

ecotourism (Snyman, 2017). Ashley and Mitchell (2009) reiterate that increased regional socio-economic development is one of the most significant outcomes of ecotourism. Ecotourism related employment opportunities improve local socioeconomic conditions and offer a sustainable income. For this reason, the United Nations Environment Programme (UNEP) declared that ecotourism initiatives around the world increase job opportunities and enhance socio-economic growth (Stemet al., 2003; Anup, 2017).

The tourism industry is developing rapidly in Pakistan because of its many destinations that attract tourists. Wetlands are an important tourist destination around the world. They can be a main source of revenue for Pakistan, bringing financial advantages to domestic and local economies and contributing to local livelihoods. Well-managed growth of tourism in and around wetlands guarantees sustainable development of local communities.

In the context of the Chotiari Wetland Complex, many organizations adopted ecotourism as a means of generating jobs and boosting local economies. Wages received by native people working in resorts, income earned by regional Small, Medium, and Micro Enterprises (SMMEs) through outsourcing, and food supplied to tourists, specifically local fish food, are among the economic benefits gained from ecotourism by the residents in Chotiari Wetland Complex. Additionally, tour operators and riders who provided local transportation and boating services profited from tourism. However, majority of the local inhabitants were engaged in low salary baseline posts offered by the ecotourism industry due to a lack of local expertise, while key jobs were largely taken by non-locals with the needed expertise.

The Multiplier Effect of Ecotourism

Though ecotourism delivers immediate economic advantages to communities, such advantages are sometimes overestimated since the inputs necessary to sustain ecotourism business are challenging to measure. For instance, food, supplies, transport, government projects, infrastructure, and labour, are all necessary inputs needed to sustain the ecotourism business. Local inhabitants engaged in the ecotourism business often invest their earnings in their region, thus supporting the regional economy.

The "multiplier effect" refers to the level to which the initial incremental amount of spending on ecotourism initiatives produces returns, such as creating jobs, income, and profits earned outside of ecotourism attractions (Muhanna, 2007). Small and medium enterprises are some of the most common types of multiplier impact resulting from ecotourism. Over the last twenty years, sustainable development efforts focused on encouraging small and medium enterprises (SMEs) to engage in ecotourism activities. For example, at the Agenda 21 for Tourism, a request was made for more community engagement in the preparation of tourism strategies and programs meant at enhancing the formation of Small and medium enterprises and regional economic effect (van Niekerk, 2014). Due to their potential to improve economic growth, the engagement of SMEs in ecotourism initiatives has become a topic of interest for academic researchers and policy experts (Mshenga & Richardson, 2013). Aside from enhancing the positive attitudes regarding ecotourism development in the local population, SMEs streng then community stability and empower local inhabitants by assuring their ownership of all developments made for ecotourism (Bailey & Richardson, 2010). Despite this context, the engagement of local SMEs in ecotourism initiatives provides a mechanism for improving socioeconomic livelihoods and alleviating poverty, particularly in rural areas. Considering the country's overall high percentage of unemployment, this form of development is extremely significant.

Ecotourism and Capacity Building

Ecotourism plays a significant part in local economic growth. It offers opportunities of learning and skill development through community capacity building exercises (Snyman, 2013). Capacity building, in the framework of ecotourism, means skill development training offered by the sector as part of the job package to its employees and people of the surrounding community. For instance, a capacity-building project for ecotourism may teach environmental conservation techniques to staff and members of the community. In general, capacity-building programs are utilized as a platform for trainees to gain new tools that enable them to take part in developmental efforts while also strengthening their confidence in their talents.

Theoretical Framework

Participatory Approach

The participatory approach was used as the study's theoretical framework. Ecotourism is an instrument that aids in the growth of the regional economy as well as the national economy. This form of tourism encourages appreciation of the natural resources among the tourists to conserve natural spaces and promote economic growth in local communities (Coria & Calfucura, 2012). Regional economic growth is only possible through ecotourism if local communities are allowed to participate in ecotourism development. Their participation is also crucial because they are the ones who are directly influenced by ecotourism initiatives and policies. For this reason, they need to actively participate in the process of decision-making. By allowing the local community to participate in the ecotourism industry in their local spaces, sustainable development and economic growth is guaranteed.

According to Vaidya and Mayer (2014), in the setting of ecotourism, there seem to be two kinds of participatory strategies that can be used: expert-assisted strategies and expert-initiated strategies. The expert-assisted strategy allows people who are engaged in ecotourism development to start making decisions and act in ways that shape or influence sustainable economic growth and social development. These people have complete authority in defining the issue, proposing indicators of sustainability, and developing a final group of indicators by using this technique. On the other hand, the expert-initiated strategy supports two types of actors: community-based actors and system-based actors. The first team comprising of local residents associated with the academic researcher that can support and facilitate meetings aimed at outlining the problems and proposing potential solutions (Vaidya & Mayer, 2014). The second is made up of people from the general populace, as well as individuals from the private and governmental sectors who could have an impact on how ecotourism activities are managed. As opposed to expert-initiated strategy, the expert-assisted strategy has proven to be a successful tool to assess sustainability, profitability, effortlessness of use, and time savings needs. Furthermore, it has been seen as a good strategy to continue the preservation efforts of natural resources (Vaidya & Mayer, 2014).

After reviewing the literature on wetlands, ecotourism, and economic growth, the researchers discovered that ecotourism plays a substantial role in affecting the economic stimulus of local populations. Development of ecotourism in wetlands would improve the socioeconomic conditions of the individuals living in the area. There is a need to implement a specific economic framework for the development of ecotourism, which would benefit local inhabitants and communities in wetland complexes with hot, arid climates. Future researchers may determine this framework by examining Chotiari Wetland.

Methodological Approach

The study was carried out at the Chotiari wetland complex, which is located around 287 kilometres from Karachi and spans 4,805 square kilometres along the Indian border in the districts of Sanghar at the end of the Nara canal, near Achro Thar desert, Sindh (WWF, 2008).

For this purpose, descriptive analysis was used along with qualitative and quantitative approaches during the research processes. Data were gathered from primary and secondary sources published in early 2019. The primary information was collected through field surveys as well as discussions with key speakers and stakeholders after visiting three villages of the Chotiari wetland complex, namely Baqar Goth, Phulail Goth, and Faqir Wanhyal Mangrio Goth. These locations were chosen because they have the potential for ecotourism development. The secondary information on tourism development in Chotiari Wetland Complex was gathered through reports, publications, and documents taken from government and non-government tourism agencies as well as communities.

Using both purposive and simple random sampling approaches, a sample size of 60 respondents was selected from the community at random using the simple random sampling method. Out of the 60 selected respondents, 35 were household heads. A semi-structured questionnaire was developed to get feedback from the community members, particularly those involved in pottery, basket weaving, and the creation of other items, to quantify the number of community engagement and to determine the influence of ecotourism on the community. Those involved in the tourism development initiative, such as tour guides, opinion leaders, officials from the tourism information office, Mr Mola Bakhash Mallah (CDO WWF- Pakistan in Chotiari), Majeed Mangrio CEO of SDF (Sustainable Development

Foundation), the officials from the Sindh Tourism Development Corporation (STDC), and the tourism management committee, were purposefully chosen because they carry important relevant data.

Content analysis was selected to analyze the collected qualitative information. The explanation provided in the responses were analyzed using qualitative data analysis to determine the participants' understanding and perspective of ecotourism development in the area. To analyze quantitative information, the Statistical Package for Social Sciences (SPSS) 22 version was utilized. The raw information was cleaned and recorded in Microsoft Excel before it was moved to SPSS for statistical analysis. Descriptive statistical approaches were used to estimate and present frequency, percentages, and averages. To evaluate correlations between bivariate variables, Pearson correlation coefficient was used, while Chi-square goodness of fit was implemented to test hypotheses. The statistics were examined to draw conclusions.

The Goal, Aims, and Hypothesis

The goal of this study was to investigate whether ecotourism can be used to boost local economic development in villages surrounding the Chotiari Wetland Complex or not. The specific goals of the study are as follows:

a) To determine how ecotourism supports the local economic growth of the selected area.
b) To increase awareness about ecotourism among community members in the selected area.

The mentioned hypotheses were made in accordance with the study's objectives:

Hypothesis 1: Ecotourism does not aid local economic growth in the selected area.
Hypothesis 2: The inhabitants of the local community in the selected area do not understand ecotourism.

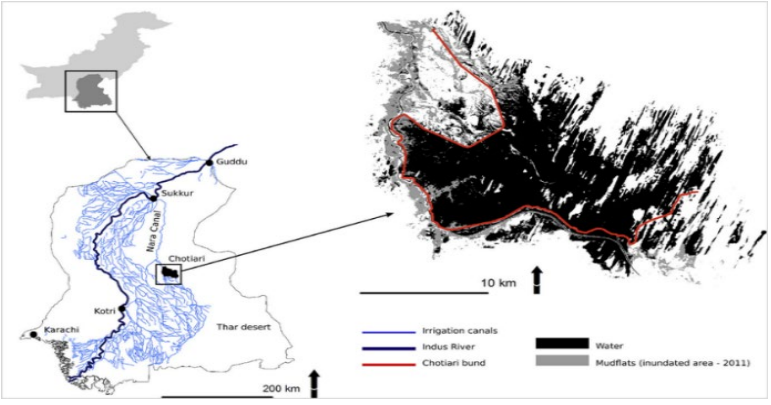
Area of Study

The Chotiari wetland complex is located in the Sanghar district **(**Figure 1), 35 kilometres from

Sanghar city. The region is an eco-friendly area, home to a diverse mixture of deep-water lakes, wetlands, shallow marches, desert scrubs, dunes of sand, riverine forests, and agricultural land. The Nara canal, situated in the surrounding area, offers a scenic sight of riverine forest fields (Rais et al., 2013). However, the area's beautiful lakes have been transformed into Chotiari Reservoir (Chotiari Dam) which adversely affects the livelihoods of the local communities and denies them the opportunity to earn through ecotourism development. This reservoir was erected to retain floodwaters from the Indus River during the flood season (June to September) and discharge them as needed, mostly during wintertime (December to March) or summertime (April to June) (Qureshiet al., 2009). The pits and natural dhands (lakes) in the region are littered with rainwater and leakage from the Lower Nara Canal as well as Nara Canal overflow water **(**Figure 2). Bakar and Makhi are the biggest dhands, reaching depths of 45 feet in certain spots (Rais et al., 2011). The reservoir lands encompass sixty-three village clusters (dehs): Makhi, Haranthari, Bakar, Phuleli, Faqir Wanhyal Mangrio, Akanwari, Khadvari, and many others (WWF, 2008). Moreover, the region has bio-diversity and a rich cultural and historical heritage, which attract many tourists and researchers around the year.

Figure 1

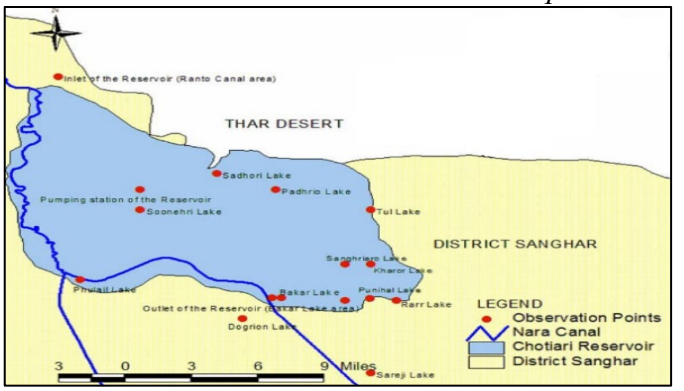
Chotiari Reservoir and Location of Nara Canal in Chotiari Wetlands Complex, Sanghar, Sindh, Pakistan



Source: Atif et al. (2021). Investigating the flood damages in Lower Indus Basin since 2000: Spatiotemporal analyses of the major flood events. *Natural Hazards,* 1-27.

Figure 2

Map Presenting the Scale of Chotiari Reservoir, Location of Various Wetlands and Nara Canal in Chotiari Wetlands Complex



As discussed previously, the three villages of Chotiari, namely Baqar Goth, Phulail Goth, and Faqir Wanhyal Mangrio Goth, were selected for this study (Figure 3). Baqar village is located at the edge of Baqaar Lake, reaching a depth of 45 feet.It is easily accessible from Sanghar city by a linkage road.The other two villages, Phulail and Faqir Wanhyal Mangrio Goths, are connected by Baqaar Lake and can only be reached by boats since they do not have road access. In Phulail Goth, houses can be approached only by boats, and in Faqir Wanhyal Mangrio Goth, a naturally made path serves as a road andcan be used by 4-wheel special jeeps. This village can also be reached by taking an hour-longboat ride from Baqar Goth, which is located at the edge of the Thar Desert.

Figure 3

Map Showing 3 Selected Villages of Chotiari

Source: Nazir (2021) Ecotourim And Architecture: Perspective Of Chotiari Wetland Complex-Sindh, Pakistan. *Department of Architecture & Planning, NED University of Engineering & Technology, City Campus Maulana Din Muhammad Wafai Road, Karachi.*, 23.

Figure 4

Baqaar Lake (Captured by Author in 2019)

Figure 5

Visitors center (Captured by Author in 2019)

Figure 6

Otaq for Tourists (Captured by Author in 2019)

Figure 7

Fauna in Chotiari (Captured by Author in 2019)

Figure 8

Tourist's Activities in Chotiari Wetland (Captured by Author in 2019)

Besides, World Wide Fund for Nature-Pakistan (WWF-Pakistan), the Indus for All Program constructed a welcome centre named Chotiari conservation and information centre in Baqaar village **(**Figure 4 and 9). Sindh Tourism Development Corporation also built a rest house named Baqaar lake there **(**Figure 10). Phulail Goth also endeavours to facilitate the local communities in similar ways. It has a visitor centre, a school, and a small tuck shop that uses solar energy **(**Figure 11). Faqir Wanhyal Mangrio Goth **(**Figure 12) is situated on the top of a high hill. It overlooks the reservoir on one side and the natural lake on the other **(**Figure 5), offering some of the most stunning landscaped scenery. Majeed Mangrio has built an *Otaq*in this Goth for tourists, which comprises a *Landhi* and two *Chowrnas* **(**Figure 6). *Landhi* is used for the accommodation of tourists and one of the two *Chowrnas* is used as a souvenir shop to sell traditional things made by local women. The other Chowrnas is used as a kitchen to cook traditional food for tourists. Furthermore, Chotiari Wetland Complex is home to a diverse range of flora and fauna It is a major stopping point for hundreds of thousands of migratory birds, such as Great egret, Desert Lark, Houbara Bustard, Bay backed Shrike, and various others. Their presence adds to the overall enjoyment of the tourists (Figure 7). Tourists could enjoy several activities such as visiting the local village, meeting local people to experience their culture, bird watching, wildlife surveillance, hiking on dunes with panoramic views of the marshes, nature trail walking in the deserted area, launching boat tours on the lakes and waterways (Figure 8).

Figure 9

Baqar Lakeand Village with Tourist's Facilities like Resort (Captured by Authorin 2019)

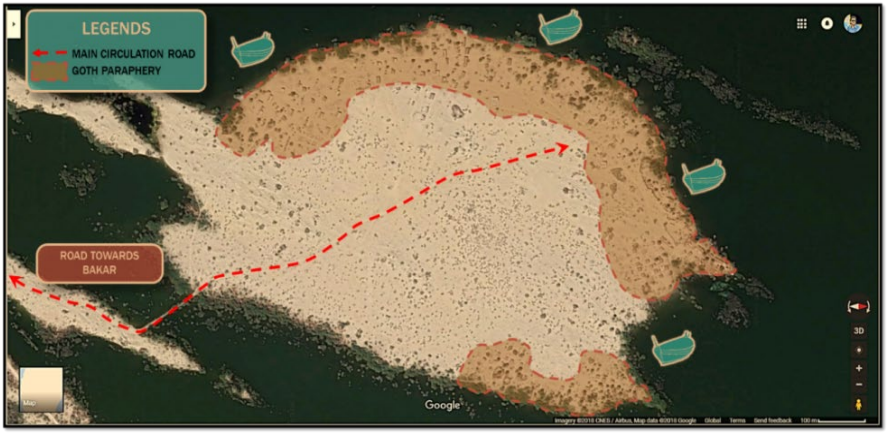
Figure 10

Map of Baqar Goth with highlighted tourist's Facilities

Source: Nazir (2021) Ecotourim and Architecture: Perspective of Chotiari Wetland Complex-Sindh, Pakistan. *Department of Architecture & Planning, NED University of Engineering & Technology, City Campus Maulana Din Muhammad Wafai Road, Karachi.*, 23.

Figure 11

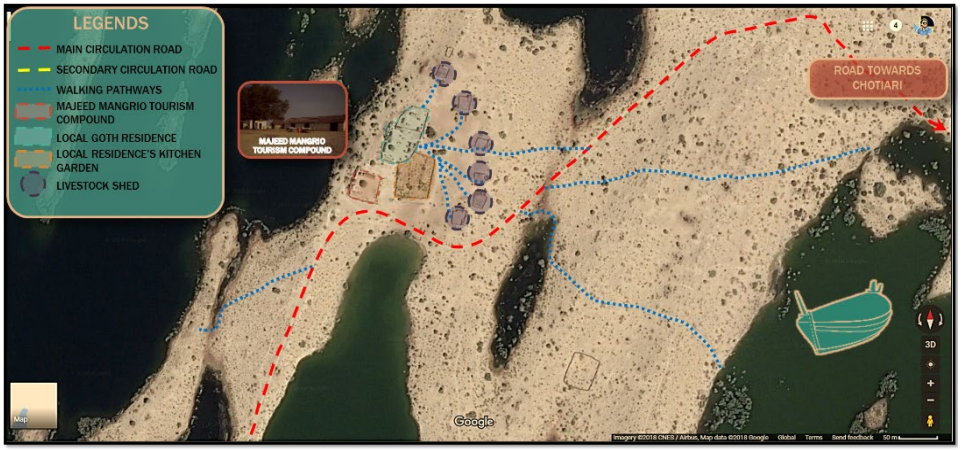
Village 02-Phulail Goth in the Chotiari Region



Source: Nazir(2021)Ecotourim and Architecture: Perspective of Chotiari Wetland Complex-Sindh, Pakistan. *Department of Architecture & Planning, NED University of Engineering & Technology, City Campus Maulana Din Muhammad Wafai Road, Karachi.*, 23.

Figure 12

Map of Faqir Wanhyal Mangrio Goth with Highlighted Tourist's Facility (Otaq)



Source: Nazir (2021) Ecotourim and Architecture: Perspective of Chotiari Wetland Complex-Sindh, Pakistan. *Department of Architecture & Planning, NED University of Engineering & Technology, City Campus Maulana Din Muhammad Wafai Road, Karachi.*, 23.

Findings and Discussion

The findings of the study depended on the involvement of respondents and whether they are able to get accurate data, specifically concerning the socio-demographic and socio-economic conditions of the respondents, the correlation between bivariate variables, and the impact of ecotourism on the area.

This section provides a summary of the results of the overall socioeconomic and demographic characteristics of the three Goths. Subsequently, it also summarizes the selected group's data based on gender, monthly salary, and education.

Figures 13 and 14show the overall socioeconomic and demographic characteristics of the selected villages. This data was collected to determine the actual figures of the population so they can be used to develop tourism.

Figure 13 indicated that the population of women is greater than men in the selected villages. Therefore, it is necessary to focus on providing job

opportunities to women as well men through the development of ecotourism.

Figure 13

Total Population in Selected Villages (Author)

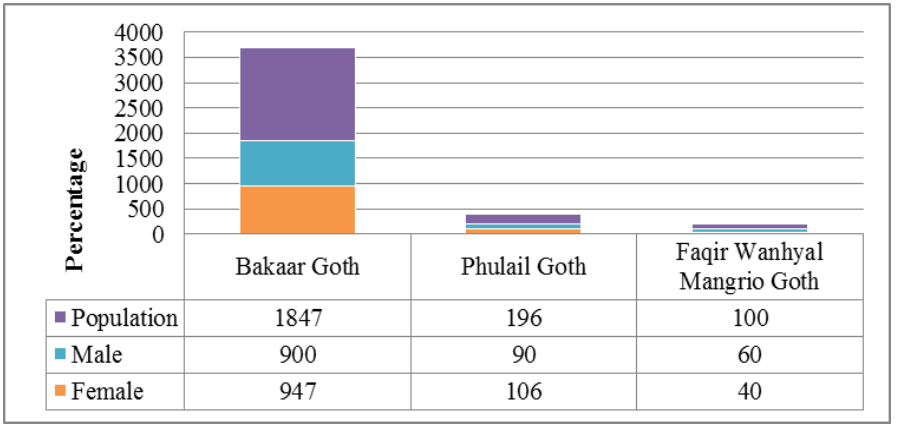


Table 1

Gender Distribution of Respondents

Variable and sub-variable			
Gender	Men	Women	Sum
Frequency	35	25	60
Percentage	58%	42%	100%

The data on the participants' gender revealed that there were more men (58%) who took part in the survey than women (42%of the total participants). This finding might be affected by two factors: females are confined to their homes and are not permitted to get into contact with strangers in some of these households, and the overall number of men in the region exceeds that of women.

Figure 14 depicts the collected data on the monthly income of the participants with respect to their profession. It also depicts the daily wages of each profession.

Figure 14

Average Daily Wages by Major Professions (Author)

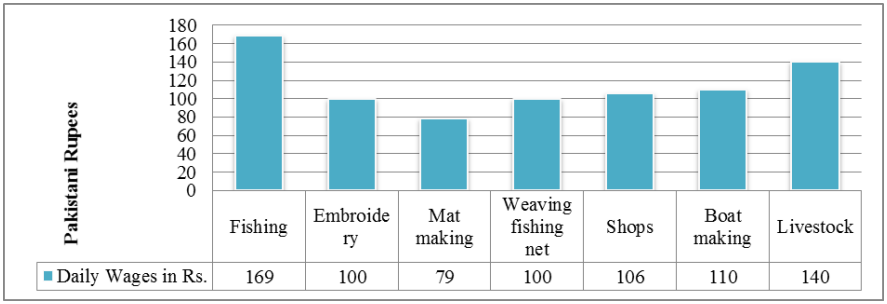


Table 2

Monthly Earning of the Participants (Author)

Variable and sub-variable						
Household Economic Status						
S.No	Monthly income	Gender (Frequency)				Overall Percentage of all respondents
		Male	Percentage	Female	Percentage	
1	No income	2	5.71%	5	20%	12%
2	≤1000	5	14.29%	2	4%	12%
3	1 K-5 K	3	8.57%	6	24%	15%
4	5 K-10 K	20	57.14%	7	28%	45%
5	10 K-15 K	6	17.14%	2	4%	13%
6	15 K-20 K	1	5.71%	0	0%	2%
7	> 20 K	1	0%	0	0%	1%
Total		35	100%	25	100%	100%

According to the data, 12% of the total participants had no earnings. The percentage of women exceeds that of males. Those earning less than R1000 share the same sum, (12-15%) as those earning between R 1000 and R 5000. The majority (45%) of the participants were men and were earning between R 5001 and R 10000. Those earning between R 10,000 and R 15,000 were mostly male and made up 13% of the total respondents. Those earning

between R 15 000 and R 20 000 made up 3% of all respondents. Males and females both had the same proportion in this category. The last category (R 20 001 and above) represented 0% of all the responders. The data showed inequalities in male and female monthly earnings, implying that males are employed in all higher paying categories. Income inequality represents one of the major issues that the municipality needs to be overcome.

The earnings of the local inhabitants are also adversely affected by the construction of the Chotiari Dam. It was the initiative of the local government; however, community participation and expertise was not utilized. Table 3 shows the respondent's perspectives on the impact of income on Chotiari Dam construction.

Table 3

Impact on Income by the Construction of Chotiari Dam (Author)

S.No	Gender	Male	Female	Overall
	Responses	(Yes)	(Yes)	percentage of respondents
1	Fishing industry adversely effected because fishes are diverted or died because of dam construction	15	5	33%
2	Makhi forest drowned in water and honey production and selling ended.	6	3	15%
3	Houses of people drowned in water and people forced to migrate	4	3	12%
4	Land is drowned in water and they failed to irrigate it	3	5	13%
5	Grass stopped to grow and grazing of animal became an issue	4	8	20%
6	Brackish groundwater seepage through the soil from below caused farmland salinization and it effected crops badly	3	1	7%
	Total	35	25	100%

From the responses of the native communities, it was deduced that the construction of Chotiari Dam, also known as Chotiari Reservoir, effected the income and lives of people adversely. The dam was constructed for the betterment of the local people but instead of becoming advantageous to the local community, it affected them negatively. Therefore, to compensate the

local economic lose, ecotourism development with strategic planning and participation of local community is needed.

To find the link between income and education level of the respondents, graphical presentation of collected data on literacy rate is given below in Table 4.

Table 4

Education of the Participants (Author)

Variable and sub-variable						
Household literacy rate						
S.No	Education	Gender (Frequency)				Overall
		Male	Percentage	Female	Percentage	Percentage of education of all respondents
1	Illiterate	18	51.43%	22	88%	66.67%
2	Primary	9	25.71%	2	8%	18.33%
3	Middle	3	8.57%	1	4%	6.67%
4	Matric	4	11.43%	0	0%	6.67%
5	Intermediate	1	2.86%	0	0%	1.67%
6	Graduation	0	0%	0	0%	0%
7	Postgraduate	0	0%	0	%	0%
Total		35	100%	25	100%	100%

The data revealed that most respondents (66.67%) were illiterate. Furthermore, 18% of the respondents had primary education, while6.67% had secondary education and 6.67% had completed matriculation.

The cultural norms of the respondents are quite different from those found in cities, especially the behaviour towards female education. This deduction could also be confirmed by observing the lack of girls' schools in the village. It was also determined that in the village, most kids do not go to school. Men's average education is 47% and women's is 14%. According to Majeed Mangrio (CEO of SDF), in 63 villages of Chotiari, there are 15 primary and one elementary school for males, and one primary and one elementary school for girls. According to the local residents, the distance between the girls' school and the selected villages in Chotiari was also significantly long at 11 kilometres. For this reason, parents prefer to keep their female children at home. This is also one of the reasons behind the low literacy rate of females. Therefore, from the above-given data, it is deduced

that there is a low literacy rate in the Chotiari region, due to which the majority of the population lacks opportunities for jobs in the region.

The Pearson correlation coefficient was employed in bivariate correlation analysis to see whether there is a relationship between the variables of the study. The participants' gender and earnings, as well as their earnings and education, were used to check whether the correlations had any relation between them. In this context, Table 5 shows the results.

Table 5

Correlation between the Variables and Significance Level at $p<0.01$ (Author)

Variables	Correlation *r*	Significance, $p<0.01$
Gender and earning	-0.0792	0.0001
Earning and education	0.061	0.0001

At 0.0001 level of significance, the statistics show a negative correlation between gender and earnings with a low value (-0.0792) (Figures 16). The association between respondents' gender and economic status reveals that the women, who were observed to be in the minority (42%), with regards to survey involvement, earned a relatively lower monthly income than males who were in the majority (58%) with regards to research participation. The findings also revealed that males earned significantly more than women. According to the findings, there is a link between participants' gender and their earning levels, indicating that there is gender inequality in terms of income, with females earning lower earnings than males who seem to be equally productive.

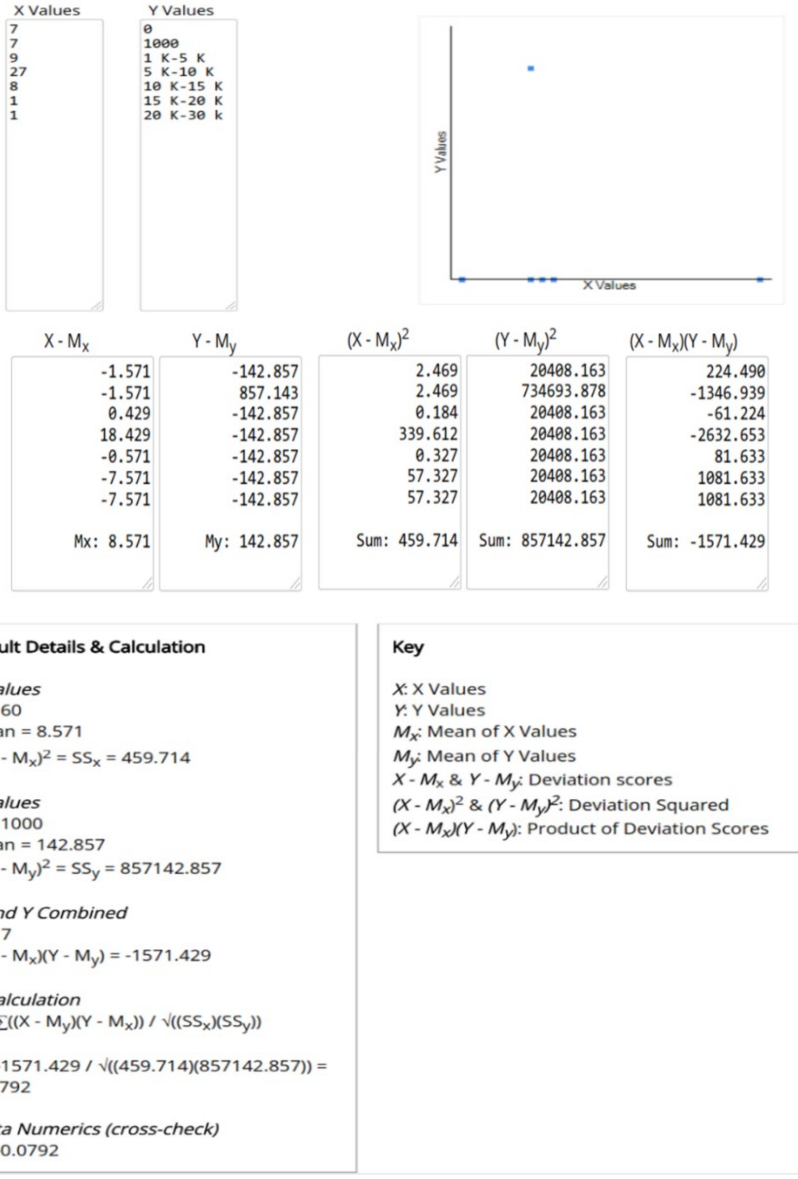
The second category looked at the relationship between participants' monthly income and their level of schooling. At 0.0001 level of significance, a weak positive correlation (0.061) was reported (Figures 17). This research suggests that there is a link between monthly earnings and educational attainment. Those with a high level of education had a higher monthly income than those with a low level of education. Hence, those with a higher level of education make more money than those with a lower level of education.

In the context of ecotourism's contribution to the studied area's economic development, the study found that ecotourism did not influence

job creation, multiplier effect, or capacity building. The distribution of respondent opinions on ecotourism's effects on job creation in the research area is shown in Table 6.

Figure 15

Correlation between Earning and Gender



X Values	Y Values
7	0
7	1000
9	1 K-5 K
27	5 K-10 K
8	10 K-15 K
1	15 K-20 K
1	20 K-30 k

$X - M_X$	$Y - M_y$	$(X - M_X)^2$	$(Y - M_y)^2$	$(X - M_X)(Y - M_y)$
-1.571	-142.857	2.469	20408.163	224.490
-1.571	857.143	2.469	734693.878	-1346.939
0.429	-142.857	0.184	20408.163	-61.224
18.429	-142.857	339.612	20408.163	-2632.653
-0.571	-142.857	0.327	20408.163	81.633
-7.571	-142.857	57.327	20408.163	1081.633
-7.571	-142.857	57.327	20408.163	1081.633
Mx: 8.571	My: 142.857	Sum: 459.714	Sum: 857142.857	Sum: -1571.429

Result Details & Calculation

X Values
$\sum = 60$
Mean = 8.571
$\sum(X - M_x)^2 = SS_x = 459.714$

Y Values
$\sum = 1000$
Mean = 142.857
$\sum(Y - M_y)^2 = SS_y = 857142.857$

X and Y Combined
$N = 7$
$\sum(X - M_x)(Y - M_y) = -1571.429$

R Calculation
$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = -1571.429 / \sqrt{((459.714)(857142.857))} = -0.0792$

Meta Numerics (cross-check)
r = -0.0792

Key

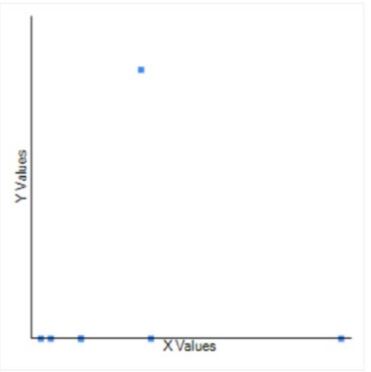
X: X Values
Y: Y Values
M_x: Mean of X Values
M_y: Mean of Y Values
$X - M_x$ & $Y - M_y$: Deviation scores
$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared
$(X - M_x)(Y - M_y)$: Product of Deviation Scores

Figure 16

Correlation between Earning and Education

X Values
0
10
30
11
4
4
1

Y Values
0
1000
1 K-5 K
5 K-10 K
10 K-15 K
15 K-20 K
20 K



$X - M_x$	$Y - M_y$	$(X - M_x)^2$	$(Y - M_y)^2$	$(X - M_x)(Y - M_y)$
-8.571	-142.857	73.469	20408.163	1224.490
1.429	857.143	2.041	734693.878	1224.490
21.429	-142.857	459.184	20408.163	-3061.224
2.429	-142.857	5.898	20408.163	-346.939
-4.571	-142.857	20.898	20408.163	653.061
-4.571	-142.857	20.898	20408.163	653.061
-7.571	-142.857	57.327	20408.163	1081.633
Mx: 8.571	My: 142.857	Sum: 639.714	Sum: 857142.857	Sum: 1428.571

Result Details & Calculation

X Values
$\sum = 60$
Mean = 8.571
$\sum(X - M_x)^2 = SS_x = 639.714$

Y Values
$\sum = 1000$
Mean = 142.857
$\sum(Y - M_y)^2 = SS_y = 857142.857$

X and Y Combined
$N = 7$
$\sum(X - M_x)(Y - M_y) = 1428.571$

R Calculation
$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$

$r = 1428.571 / \sqrt{((639.714)(857142.857))} = 0.061$

Meta Numerics (cross-check)
r = 0.061

Key

X: X Values
Y: Y Values
M_x: Mean of X Values
M_y: Mean of Y Values
$X - M_x$ & $Y - M_y$: Deviation scores
$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared
$(X - M_x)(Y - M_y)$: Product of Deviation Scores

Table 6

Ecotourism's Role in the Creation of Jobs (Author)

S.No.	Responses	`Yes	No	Unsure	Total
1	Total no. of respondents	20	37	03	60
2	Percentage	33%	62%	05%	100%

According to the data, 33% of the respondents believed that ecotourism helps job development in the research region. Those who disagreed made up 62%of the total, while 5% stated that they were unsure. Based on this information, it is possible to conclude that ecotourism does not offer many job opportunities in the research region as a whole. When the respondents were asked questions about the types of jobs given by ecotourism, they responded that the locals worked as security guides and food providers for visitors, and no other jobs were offered to them. Table 7 illustrates the impact of ecotourism on the multiplier effect.

Table 7

Ecotourism's Role to the Multiplier Effect (Author)

S.No	Responses	`Yes	No	Unsure	Total
1	Total no. of respondents	12	16	32	60
2	Percentage	20%	27%	53%	100%

According to the statistics, 20%of the participants believed that ecotourism had a multiplier impact, whereas 27%disagreed. A significant number of the participants (53%) were unsure whether ecotourism contributes to the multiplier effect or not.

Table 8

Ecotourism's Role to Capacity Building (Author)

S.No	Responses	`Yes	No	Unsure	Total
1	Total no. of respondents	14	18	28	60
2	Percentage	23%	30%	47%	100%

Hence, it is not known if ecotourism adds to the multiplier effect in the research region. The results of this study may have been affected by the fact that there seem to be no tourism service providers, such as hotels and foodservice enterprises, in the research region. Table 8 demonstrates

respondents' perspectives on the impact of ecotourism on capacity building in the research region.

According to the ratio of the replies, 23%of the participants believed that ecotourism adds to capacity building, whereas 30%disagreed. The data revealed that a large percentage of the residents of the research region do not know whether ecotourism adds to capacity building or not.

Tables 9 and 10 illustrate the results of the hypothesis test using the Chi-square goodness-of-fit test. The outcome is evaluated using the Chi-square goodness-of-fit test, which is then used to justify the rejection or acceptance of null hypotheses. The threshold for rejecting or accepting the null hypothesis was set at 0.05 so if the p-value is less than 0.05, then the null hypothesis must be rejected. If the p-value is greater than 0.05, then the null hypothesis must be accepted (Kothari, 2004).

Table 9

Ecotourism's Role in the Creation of Jobs (Author)

Statistical Analysis	
	Ecotourism's role in the creation of jobs
Chi^2	87.8
Degrees of freedom (Df)	4
Asymp.Sig.	.00001

According to the results, the Chi^2 value was determined to be87.8. The p-value was determined to be.00001, and the degree of freedom was determined to be4.The outcome was determined to be significant at $p < .05$. The results showed that the observed variable in the sample was considerably different from the expected values with $X^2(4, 60) = 87.8$, $p = 0.00001$. This means that ecotourism and local economic growth are closely linked and contribute to employment creation.

Table 10

Ecotourism's Role in Capacity Building (Author)

Statistical Analysis	
	Ecotourism's role in the capacity building
Chi^2	20.4

	Statistical Analysis
	Ecotourism's role in the capacity building
Degrees of freedom (Df)	4
Asymp.Sig.	.00004

The Chi-square calculated from the data was20.4. The number of degrees of freedom was four, and the significance level was determined to be0.00004. At X^2 (4, 60) = 20.4, p = 0.00004, the results revealed that the observed variable in the study varied markedly from the expected values. Hence, ecotourism contributes to capacity building and has a significant link to local economic growth. The null hypothesis *"ecotourism does not contribute to the study area's local economic growth"* was rejected based on the Chi-square tests given in Tables 9 and 10.

Conclusion

Ecotourism is an effective tool to conserve local environments and to achieve sustainable development in remote locations. According to the findings, ecotourism doesn't contribute to the multiplier effect, but it can aid in regional economic growth through job creation and capacity building. Supporting nature-based initiatives for tourists, such as trekking, mountain biking, wildlife and bird viewing, boating, cycling, jeep racing, horseback riding, traditional food restaurants, shepherds walks, open markets to advertise traditional handicrafts, exhibition centres for local crafts and artwork, and other similar activities, will provide an enjoyable and meaningful experience to tourists. This would result in more earnings for tour operators. It would also offer more employment opportunities for native population. Ecotourism is expected to provide jobs such as conservationists, field guards, curators, tour guides, general staff, local food providers, local transportation riders, and others. Considering the country's rising unemployment rate, the current study proposes that the ecotourism industry should be further developed to offer more internship and work possibilities, particularly for local youth with matriculation and unemployed individuals with suitable qualifications. The methods employed in this study can also be utilized to examine and develop tourism strategies in other wetland destinations.

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