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SOCIO-ECONOMIC DEPENDENCE OF LOCAL COMMUNITIES ON SWAT RIVER

Abdul Samad
International Islamic University Islamabad
Dr Saeed Akbar
International Islamic University Islamabad
saeed.akbar@iiu.edu.pk
Dr. Anwar ul haq (Corresponding Author)
(Lecturer, Government Associate College Daultala)
Haqanwar11@gmail.com

Abstract
Rivers are the main source of fresh water for all living beings. They provide income-generating opportunities for people, especially for those who live near riverbanks. The river "Swat" plays a pivotal role in providing water for the residents of Swat. The use of water for their homes, fields and pastoral activities all depends on the Swat River. This river bridges several regions like Malakand, Charsadda and Swat. Using the quantitative methodology this study gathered data from 364 respondents using structured interview schedule. It was found in the study that main variables of socioeconomic importance fishing, tourism and river flora have been tested with various measures of economic life. It was found that none of the components affected the lives of people. However, in univariate analysis it was found that many people use products associated with the river.
Key Words: Swat River, Socio-economic development, Flora, Fauna

Introduction:
Rivers are the main source of fresh water for all living beings. They provide income-generating opportunities for people, especially for those who live near riverbanks. Rivers are only way of communication, transportation and trade for people living near riverbanks. Their socioeconomic life is associated with rivers (Tickne, 2017). The other benefits of rivers include the provision of clean water, better life and income opportunities for the locals. Rivers also help to enhance the productivity of agricultural lands. There also live many species of animals, birds and fish. Human beings also get drinking water from the rivers (Stirton, 2011). Water is a great resource gifted by nature and an essential requirement for the betterment of rural and urban communities. It also affects the growth of region as well as country (Khan, 2013). The dependency of human beings on water for their survival widens the impact of water for the smooth running of daily life. So, the individual's main requisite for life is safe drinking water, mainly for the inhabitants of underprivileged countries.
The river "Swat" plays an important role in providing water for the residents of Swat. The use of water for their homes, fields and pastoral activities all depends on the Swat River. This river bridges several regions like Malakand, Charsadda and Swat. No doubt it is a significant river in that region. However, it can be observed that there is a research gap from a social and economic perspective. There is almost no research that explores the rivers' impact and to which extent local people rely on it. Moreover, the quality of water has been decreasing drastically due to the increase in pollution which is the result of urbanization, industrialization and modern means of agriculture. This causes harmful effects on river flora and fauna, and it also directly effects the lives of fishermen. As Swat is a tourist site, in the last few decades development projects and hotel industry started to expand and without planning they started to build hotels and other buildings. These erections are also harmful for rivers and during the rainy seasons these constructions are also hazardous. Just a year ago floods in the Swat River took away

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multistorey high-rise hotel and completely shattered it. Downpours and floods cause loss of lives and property and turn into a calamity (Bazai, 2024). Another problem that is evident on the banks of the river Swat is dumping of solid waste into the river. This solid waste has not only damaged the river's beauty but has also posed serious environmental and social challenges for the locality. All these are serious concerns and considering the independence of the life of local residents on the river Swar, it is pertinent that research related to Swat River should be conducted. The primary aim of this study was to fill the research gap related to socioeconomic dependence of communities on River Swat. The main objective of this article is to examine the role of River Swat in socioeconomic lives of people living on riverside.

In earlier studies across the globe, it has been established that rivers play a multifold role in daily life (Luo, 2019). Rivers provide clean water, promote agriculture, provide transportation routes and help industries flourish. However, these industrial and agricultural wastes if thrown into river untreated causes severe harms (Odige, 2014). Importance of river bodies also dependence of dwellers near them on their main source and tributaries (Filipenco, 2024).

Livestock, agriculture, fishing, wood logging and tourism are the main sources of income for inhabitants of Swat. All these activities are linked with the river Swat. The lives of 3 million people are tied in many ways with River Swat. However, environmental challenges, including but not limited to solid waste management and deforestation, challenge the existing ecology. Deforestation is simply the loss of jungle and this significantly poses challenges for river bodies (Posada, 2022).

Hence, conservation of Swat's ecosystem and Swat's beauty is linked with waterbody flowing in the heart of Swat. The importance of Swat River is not only limited to local communities, but it has significant socio-cultural, socio-economic and ecological importance for whole Khyber Pakhtunkhwa and Pakistan. Although government and NGOs have initiated numerous projects to restore the swat river in its organic flow, these steps are not sufficient and there is a need to understand the river in detail from socio economic perspective. This research is an effort to understand the importance of river for livelihood of residents of Swat. This study benefits from and utilizes socio-ecological models.

Location of the study:

Swat is a beautiful city with its lush green valleys and river located in Malakand division Khyber Pakhtunkhwa. Its total area as per Government of Khyber Pakhtunkhwa is 5337 square kilometers and its total population as per 2023 census is 2687384. These statistics have been derived from the official website of government of Khyber Pakhtunkhwa.

This study was conducted in Kabal. Kabal is sub-tehsil and a town in Swat city. This sub tehsil is located 10 kilometers away from Mingora tehsil. Kabal city was historically called Chendakhwara, which is an important town in Khyber Pakhtunkhwa. There are 14 union councils in Kabal tehsil. The first author of this study belongs to union council Kuz Abakhail which is located on bank of river Swat. The researchers chose this tehsil due its closeness to the Swat River. Union council Kuz Abakhail has seven villages and out of these seven villages data was obtained. Total population of seven villages is 31,494, and 3,997 households.

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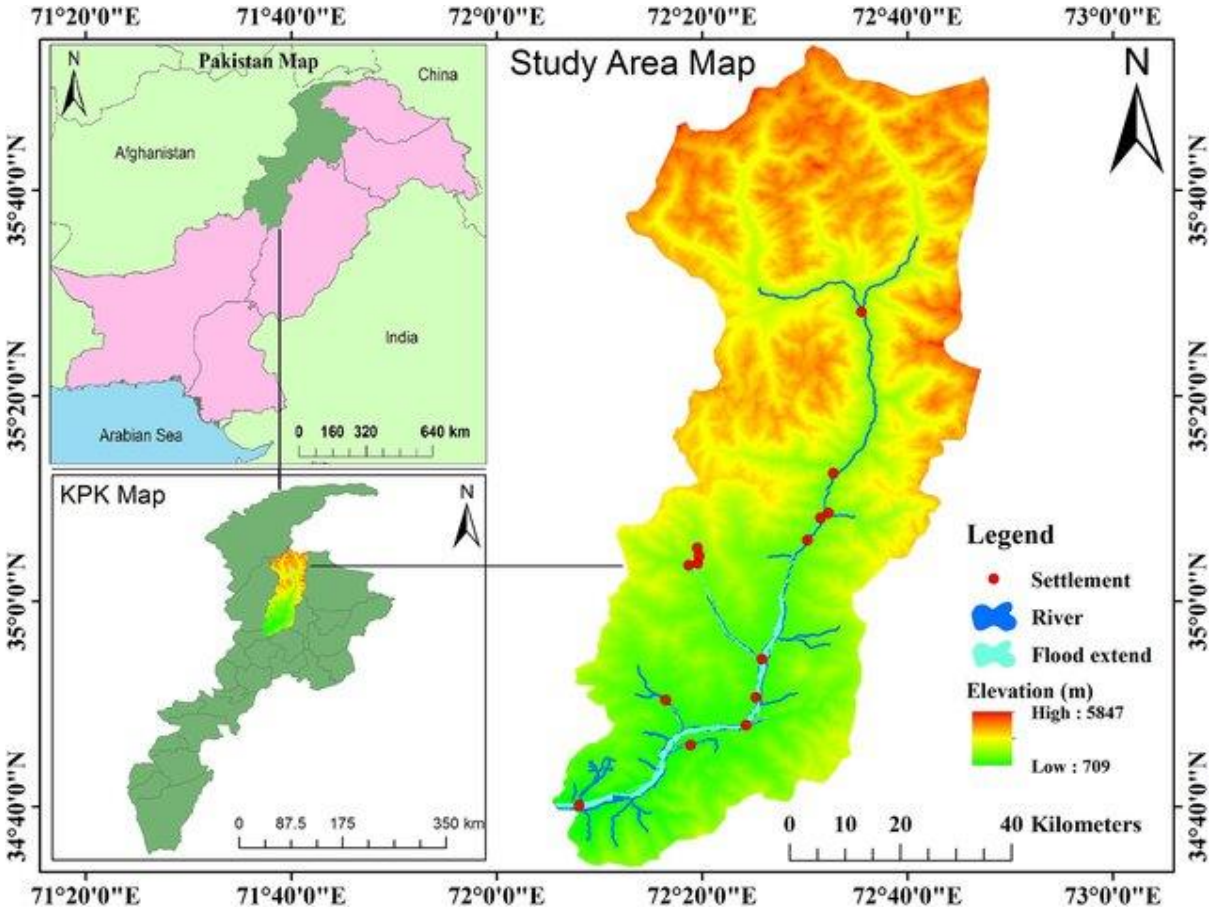

Figure 1. Location of Swat River (A.Rahman, 2023)

Hypotheses

H1. More will be the usage of river wood less will be the energy expenditure of households
H2. More will be the opportunities for fishing more will be the income of residents of Swat
H3. More will be the opportunities for tourism in Swat region more will be the Socio-economic upliftment of people of Swat

Methodology:

To assess the socio-economic dependence of residents of Kabal region on Swat river 5 villages in union council Kuz Abakhel were selected. These five villages Gadi, Akhonkalay, Dagay Dadahara, Kotlai" are located in close vicinity to river Swat. Their location on proximity of river Swat made them the most suitable population to study socio-economic dependence because people in these areas are dependent on river for their everyday activities.

Sample:

Using the quantitative research design in the beginning phase data related to the households in these three regions was obtained from National census 2017. Total Number of households in these three wards constituted the unit of analysis and also served as the sampling frame. Sample was selected using the systematic random sampling which is a technique in probability sampling. There are 3997 households in the selected wards. Using the Taro Yamane formula for sample size calculation, the sample size obtained was 364.

Instrument:

Data was acquired from the head of the household. As household heads were mostly males so data was only acquired from male respondents. Due to cultural restrictions, it was difficult to acquire data from female participants that's why data was only obtained from males. Interview

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schedule was used as a tool for data collection. Interview schedule consisted of close ended questions mostly except for few qualitative opinion based questions. Structured interview schedule was used because it was difficult for local residents to complete the questionnaire on their own.

Data Analysis:

Data collected from the residents was rich, extensive and vast as the interview evaluator (Author 1 in the paper) was acquainted with local language, culture and conditions. This vast data gathered from the respondents was added to SPSS and analyzed for univariate and bivariate analysis to establish the correlation between various measured quantities and to establish the relationship between hypothesized variables. It is important to provide operational definitions of some of the constructions that are used in the hypothesis.

Operational Definitions:

Construct	**Operational definition**
Socio-economic:	Social and Economic life of residents of Swat River
Dependence:	How people's lives depend on River
Communities:	People who live near the Swat River and who work there everyday
Fauna:	Animals and migratory birds near Swat River
Flora:	All kinds of plants and herbs near River Swat

Results:

After the structured interviews with the respondent's univariate and bivariate analysis were performed. The first section consists of the background information and main source of income of the respondents. Table 1 shows the age and education of the respondents.

Table No. 1

Distribution of the respondents by two background variables age and education

		>= 25	**26-35**	**36-45**	**46-55**	**56 older**	**Total**
Age	F	71	130	107	47	9	364
	%	19.5	35.7	29.4	12.9	2.5	100
		Illiterate	**Primary**	**High school**	**Graduate**	**Total**	
Education	**F**	38	109	124	93	364	
	%	10.4	29.9	34.1	25.5	100	

Table 1 shows the distribution of the respondents by age and level of education. Majority of the respondents 35.70% and 29.40% belonged to age groups 26-35 and 36-40 respectively. Around 20% of the respondents were of age 25 years or less than that. 12% of the respondents were older than 46-55 years and even 2% of the respondents were older than 55 years.

The table also highlights that out of the total 364 respondents only 10.4% are illiterate. Around 29.9% have completed 5-8 years of schooling. The majority of the respondents, 34.1% have completed high school to intermediate, and 26% have completed graduate education. The next table discusses the distribution of the respondents by main source of income.

Table 2

Distribution of the respondents by main source of income for family

Category	**f**	**%**
Unskilled labor	122	33.50
Boating and Fishing	38	10.4
Forest related goods	27	7.40

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Hotel Services and tenting	23	6%
Transport Services	27	7.40
employed	29	8.0
Skilled labor	72	19.80
livestock farming	27	7.40
Total	364	100

The data shows that the majority of the respondents (33.5%) earn their income from unskilled labor, followed by skilled labor (19.8%), government or private jobs (8.0%), and livestock farming (7.4%). The tourism-related services are on the decline and only around 10% of the respondents are directly or indirectly associated with these activities.

Hypothesis tests:

H1. More will be the usage of river wood less will be the energy expenditure of households

H_0. There is no relationship between river wood and energy expenditure

Table 3.

Correlation Between flora and household energy expenditure.

	Value	Error	T	Significance
r value	-.017	.054	-.326	.745c
ρ **value**	-.049	053	-.930	.353c

The first measure, Pearson's r, is a measure of association which shows that the relationship is negative but it's extremely weak or nonexistent. Spearman's correlation that is second measure of association for ordinal-level data. Spearman's correlation is -0.049 value also indicates there is no association between two variables. The bottom line of these two tests shows that in this study data it was found that there is no association between usage of plants as fuel and expenditure on energy. Likewise, no coefficient is significant at the 0.05 level, implying that there is no significant relationship between the two variables. Hence, it can be confirmed that null hypothesis is valid, and no relationship and association is found between these two variables.

H1. More will be the opportunities for fishing the more will be the income of residents of Swat

H_0. There is no association between fishing and income of residents

Table 4.

Correlation between fishing activities and family income

	Value	Error	T	Significance
r value	.002	.052	0.043	.966
ρ **value**	.018	.052	0.334	.739

Table 4 highlights correlation measures between fishing and average family income. Measures of correlation R value and rho values are near .002 and .018 which are extremely close to 0. This indicates there is no association between two variables. Additionally, the p-values for both coefficients are greater than 0.05, which means that the results are not statistically significant at the 95% confidence level. In this case, the null hypothesis is valid.

H1**.** More will be the opportunities for tourism in the Swat region will be the Socio-economic upliftment of people of Swat

H0. There is no relationship between tourism opportunities and children's education

Table 5.

Correlation between Tourism and Children Educational Opportunities.

	Value	Error	T	Significance

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r value	-.014	.052	-.273	.785
ρ **value**	-.014	.052	-.273	.785

Table 5 shows the correlation values between tourism and children's educational opportunities. It has been found that the value of Pearson correlation is .014 and spearman rho is also .014 which is near zero. Both these results show that there is very weak or no relation between the given variables. As the significance value is much higher than 0.05 the values are not significant. This indicates that null hypothesis is true and alternative hypothesis can be rejected.

Discussion:

The main theme of this study was to explore the Socioeconomic dependence of local communities on Swat River. Three indicators of socioeconomic progress tourism, fishing and flora are correlated with income of the respondents. From the data gathered it can be concluded that there is almost no correlation between fishing and average income, tourism and average income and flora on energy expenditure. The results from table 2 show that most of the residents of these villages are unskilled laborers. Their economic activity is independent of options associated with the river.

The dependency of the residents of Swat on the river can be analyzed by the large number of the respondents who agreed that their major activities either economic or social, based on the said river. The percentage of 64.8% of the residents of Swat utilized this river for the sake of fuel and 54.9% contented that this river also economizes their money and resources. The whole society puts herbal medicine and phytomedicine into use. It can be guessed from the percentage of 35.2% that the utilization of botanical medicine, plants and herbs are common among the residents of the region. However, the medication of animals also depends on medicinal plants which can be observed from the percentage of 27.5%. In the field of business, few people belong to the buying and selling of vegetables and fruits, which can be denoted by the percentage of 23.9%, from which 13.5% trade through shops and 9.9% buy for the consumption in hotels. 34.6% of respondents acquire aquatic animals from the river, while 28.0% get migratory waterbirds. A large number of participants agree that their consumption of fuel in dual seasons is above than four hundred kilograms likely in winter 59.9% and in the summer 61.3%. The most famous crop which is cultivated in the region Swat is Wheat (25.3%), and among the vegetables, the tomatoes are of 26.4%.

Conclusion and Recommendations:

This study explored the socioeconomic dependence of residents on the Swat River. In this article 3 main variables of socioeconomic importance fishing, tourism and river flora have been tested with various measures of economic life. It was found that none of the components affected the lives of people. However, in univariate analysis it was found that many people use products associated with the river. Swat river plays an important role is the lives of many people. However, it's evident from the findings of bivariate tables that the lives of citizens near the bank have changed and their economic reliance on rivers has sharply decreased. Most of the respondents are unskilled or skilled laborers and the river is no longer the main source of earning.

Furthermore, it has been observed that the river's significance as a main source of income has decreased due to a decrease in tourism. Nevertheless, as a supplemental source of income and support, the Swat River and the forests that surround it continue to yield substantial economic benefits. The river still provides fuel wood, which is still collected and utilized for other things. In conclusion, while the river may not be the primary source of income for many, it remains a vital secondary resource that socio-economically influences the lives of the local population.

On the basis of this study three basic ideas are recommended. One, in all development activities and construction of new buildings proper check and balance by the environmental protection

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agencies should be conducted. Environmental impact assessments of all projects should be done. Second, in all conservation activities local population should be engaged. Third, Unskilled labor should be given training related to river-based activities to enhance their socio-economic levels.

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