

**ANALYSIS OF SOCIO- ENVIRONMENTAL FACTORS
CONTRIBUTING TO TOURISM INFLUENCED LAND
CONVERSION IN DISTRICT SWAT-PAKISTAN**

BY

SAJID ALI

*A Dissertation submitted to The University of Agriculture, Peshawar, in partial
fulfillment of requirement for the degree of*

DOCTOR OF PHILOSOPHY (Ph.D.) IN RURAL SOCIOLOGY



**DEPARTMENT OF RURAL SOCIOLOGY
FACULTY OF RURAL SOCIAL SCIENCES
THE UNIVERSITY OF AGRICULTURE
PESHAWAR-PAKISTAN
OCTOBER, 2024**

**ANALYSIS OF SOCIO- ENVIRONMENTAL FACTORS
CONTRIBUTING TO TOURISM INFLUENCED LAND
CONVERSION IN DISTRICT SWAT-PAKISTAN**

BY

SAJID ALI

*A Dissertation submitted to The University of Agriculture, Peshawar, in partial
fulfillment of requirement for the degree of*

DOCTOR OF PHILOSOPHY (Ph.D.) IN RURAL SOCIOLOGY

Approved By:

Dr. Bushra Hassan Jan
Associate Professor

Chairperson Supervisory Committee

Dr. Asad Ullah
Associate Professor

Member (Major Field of Study)

Dr. Raheel Saqib
Assistant Professor
Department of Agricultural Extension Education & Communication

Member (Minor field of Study)

Dr. Bushra Hassan Jan

Chairperson & Convener, Board of Studies

Prof. Dr. Jehan Bakht

Dean, Faculty of Rural Social Sciences

Prof. Dr. Muhammad Sajid

Director, Advance Studies and Research

**DEPARTMENT OF RURAL SOCIOLOGY
FACULTY OF RURAL SOCIAL SCIENCES
THE UNIVERSITY OF AGRICULTURE
PESHAWAR-PAKISTAN
OCTOBER, 2024**

TABLE OF CONTENTS

S.No.	Title	Page No.
	LIST OF ABBREVIATIONS	i
	ACKNOWLEDGEMENTS	ii
	ABSTRACT	iii
I.	INTRODUCTION	1
1.1.	Background of the study	.1
1.2.	International scenario	.2
1.3.	National scenario	.3
1.4.	Theoretical background.....	5
1.5.	Environmental factors of tourism influenced land conversion	6
1.6.	Effects on agricultural production.....	6
1.7.	Land degradation.....	7
1.8.	Threat to biodiversity	8
1.9.	Population pressure	9
1.10.	Sand mining/extraction	9
1.11.	Environmental pollution.....	10
1.12.	Social factors of tourism influenced land conversion	11
1.13.	Hoteling/buildings	11
1.14.	Capitalist interest.....	12
1.15.	Unplanned residential sprawl	13
1.16.	Infrastructural changing	14
1.17.	Tourism influenced land conversion	15
1.18.	Limitations of earlier research.....	15
1.19.	Justification of the study	16
1.20.	Objectives of the study	17
1.21.	Research questions	18

II.	LITERATURE REVIEW	19
2.1.	Introduction	19
2.2.	Policy response to tourism influenced land conversion	23
2.3.	Environmental factors to tourism influenced land conversion.....	26
2.3.1.	Effects on agricultural production	26
2.3.2.	Land degradation	27
2.3.3.	Threat to bio-diversity	28
2.4.	Population pressure	29
2.4.1.	Sand mining/ extraction	31
2.4.2.	Environmental pollution	32
2.4.3.	Social factors to tourism influenced land conversion	35
2.5.	Hoteling/buildings	35
2.8.	Capitalist interest	37
2.9.	Unplanned residential sprawl	38
2.10.	Infrastructural changing	39
2.11.	Tourism influenced land conversion	42
2.12.	Synthesis of literature review	44
III.	RESEARCH METHODOLOGY.....	46
3.1.	Study design	46
3.2.	Universe of the study.....	46
3.2.1	Pilot Study	46
3.3.	Sampling and sample size determination	46
3.4.	Proportional allocation formula	47
3.5.	Data collection.....	48
3.6.	Conceptual framework	48
3.7.	Likert scale	48
3.7.1.	Measurement of variables	49
3.8.	Uni- variate analysis.....	49

3.9. Bi- variate analysis	49
3.10. Multivariate Analysis	49
3.10.1. Indexations	50
3.10.2 Chi-square (χ^2) test statistics	50
3.10.3. Tau-b (T^b) Value	51
3.10.4. Reliability	51
3.10.5. Ethical consideration	51
IV. RESULT AND DISCUSSION	53
4.1. Respondents Profile.....	53
4.1.1 Age of the respondents	53
4.1.2 Literacy status of the respondents	54
4.1.3 Educational level of the respondents.....	55
4.1.4 Marital status of the respondents.....	56
4. 1.5. Family type of the respondent	57
4.1.6. Family size of the respondents	58
4.1.7. Occupational status of the respondents	58
4.1.8. Occupation of the respondents	59
4.1.9. Monthly income of the respondents	60
4.2. UNI-VARIATE ANALYSIS.....	61
4.2.1. Effects on agricultural production.....	61
4.2.2. Land degradation.....	67
4.2.3. Threat to bio-diversity	72
4.2.4. Population pressure	76
4.2.5. Sand mining/extraction	82
4.2.6. Environmental pollution.....	86
4.2.7. Hoteling/ buildings.....	90
4.2.8. Capitalist interest.....	95
4.2.9. Unplanned residential sprawl	100

4.2.10	Infrastructural changing	105
4.2.11.	Tourism influenced land conversion	109
4.3.	BIVARIATE ANALYSIS OF RESPONDENTS.....	115
4.3.1.	Association between effects on agricultural production and tourism influenced land conversion	115
4.3.2	Association between land degradation and tourism influenced land conversion.	123
4.3.3	Association between threat to bio-diversity and tourism influenced land conversion	130
4.3.4.	Association between population pressure and tourism influenced land conversion.	136
4.3.5.	Association between sand mining/extraction and tourism influenced land conversion.	143
4.3.6.	Association between environmental pollution and tourism influenced land conversion	149
4.3.7.	Association between hoteling/buildings and tourism influenced land conversion	154
4.3.8.	Association between capitalist Interest and tourism influenced land conversion	161
4.3.9.	Association between unplanned residential sprawl and tourism influenced land conversion	170
4.3.10.	Association between infrastructural changing and tourism influenced land conversion	175
4.4.	MULTI-VARIATE ANALYSIS	181
4.4.1.	Association between effects on agricultural production and tourism influenced land conversion (controlling age of the respondents)	181
4.4.2.	Association between land degradation and tourism influenced land conversion (controlling age of the respondents)	182
4.4.3.	Association between threat to bio-diversity and tourism influenced land conversion (controlling age of the respondents)	183

4.4.4. Association between population pressure and tourism influenced land conversion (controlling age of the respondents)	185
4.4.5. Association between sand mining/extraction and tourism influenced land conversion (controlling age of the respondents)	186
4.4.6. Association between environmental pollution and tourism influenced land conversion (controlling age of the respondents)	187
4.4.7. Association between hoteling/buildings and tourism influenced land conversion (controlling age of the respondents)	189
4.4.9. Association between capitalist interest and tourism influenced land conversion (controlling age of the respondents)	190
4.4.10. Association between unplanned residential sprawl and tourism influenced land conversion (controlling age of the respondents)	191
4.4.11. Association between infrastructural changing and tourism influenced land conversion (controlling age of the respondents)	193
4.4.12. Association between effects on agricultural production and Tourism influenced land conversion (controlling family type of the respondents)	194
4.4.13 Association between land degradation and tourism influenced land conversion (controlling family type of the respondents)	195
4.4.14. Association between threat to bio-diversity and tourism influenced land conversion (controlling family type of the respondents)	197
4.4.15. Association between population pressure and tourism influenced land conversion (controlling family type of the respondents)	198
4.4.16. Association between sand mining/extraction and tourism influenced land conversion (controlling family type of the respondents)	199
4.4.18. Association between environmental pollution and tourism influenced land conversion (controlling family type of the respondents)	200
4.4.19. Association between hoteling/buildings and tourism influenced land conversion (controlling family type of the respondents)	201
4.4.20. Association between capitalist interest and tourism influenced land conversion (controlling family type of the respondents)	202

4.4.21. Association between unplanned residential sprawl and Tourism influenced land conversion (controlling family type of the respondents)	203
4.4.22. Association between infrastructural changing and tourism influenced land conversion (controlling family type of the respondents)	205
4.4.23. Association between effects on agricultural production and tourism influenced land conversion (controlling monthly income of the respondents)	206
4.4.24. Association between land degradation and tourism influenced land conversion (controlling monthly income of the respondents)	207
4.4.25. Association between threat to bio-diversity and tourism influenced land conversion (controlling monthly income of the respondents)	208
4.4.26. Association between population pressure and tourism influenced land conversion (controlling monthly income of the respondents)	210
4.4.27. Association between sand mining/extraction and tourism influenced land conversion (controlling monthly income of the respondents)	211
4.4.28. Association between environmental pollution and tourism influenced land conversion (controlling monthly income of the respondents)	212
4.4.29. Association between hoteling/buildings and tourism influenced land conversion (controlling monthly income of the respondents)	213
4.4.30. Association between capitalist interest and tourism influenced land conversion (controlling monthly income of the respondents)	214
4.4.31. Association between unplanned residential sprawl and tourism influenced land conversion (controlling monthly income of the respondents)	215
4.4.32. Association between infrastructural changing and tourism influenced land conversion (controlling monthly income of the respondents)	216
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	218
5.1 Summary	218
5.2 Conclusions	236
5.3 Recommendations	240
References	242
Interview Schedule	307

LIST OF TABLES

Table 4.1.1.	Frequency and percentage proportion of the respondents on the basis of their age	54
Table 4.1.2	Frequency proportion and percentage of the respondents on the basis of their literacy status	55
Table 4.1.3	Frequency proportion and percentage of the respondents on the basis of their educational Level	56
Table 4.1.4	Frequency proportion and percentage of the respondents on the basis of their marital status	57
Table 4.1.5.	Frequency proportion and percentage of respondents on the basis of their Family Type	57
Table 4.1.6.	Frequency proportion and percentage of the respondents on the basis of their Family size	58
Table 4.1.7	Frequency proportion and percentage of the respondents on the basis of their occupation status	59
Table 4.1.8	Frequency proportion and percentage of the respondents on the basis of their nature of occupational	60
Table 4.1.9	Frequency proportion and percentage of the respondents on the basis of their monthly income	61
Table 4.2.1	Frequency and percentage distribution of the respondents on the basis of effects on agricultural production	67
Table 4.2.2	Frequency and percentage distribution of the respondents on the basis of land degradation	72
Table 4.2.3	Frequency and percentage distribution of the respondents on the basis of threat to bio-diversity	76
Table 4.2.4	Frequency and percentage distribution of the respondents on the basis of population pressure	81
Table 4.2.5.	Frequency and percentage distribution of the respondents on the basis of sand mining/extraction	85
Table 4.2.6	Frequency and percentage distribution of the respondents on the basis of environmental pollution	89

Table 4.2.7	Frequency and percentage distribution of the respondents on the basis of hoteling/buildings	94
Table 4.2.8	Frequency and percentage distribution of the respondents on the basis of capitalist interest	99
Table 4.2.9	Frequency and percentage distribution of the respondents on the basis of unplanned residential sprawl	104
Table 4.2.10	Frequency and percentage distribution of the respondents on the basis of infrastructural changes	109
Table 4.2.11	Frequency and percentage distribution of the respondents on the basis of tourism influenced land conversion	114
Table 4.3.1	Association between effects on agricultural production and tourism influenced land conversion.....	122
Table 4.3.2	Association between land degradation and tourism influenced land conversion	129
Table 4.3.3	Association between threat to bio-diversity and tourism influenced land conversion	135
Table 4.3.4	Association between population pressure and tourism influenced land conversion.....	142
Table 4.3.5	Association between sand mining/extraction and tourism influenced land conversion	148
Table 4.3.6	Association between environmental pollution and tourism influenced land conversion.	153
Table 4.3.7	Association between hoteling/buildings and tourism influenced land conversion.	160
Table 4.3.8	Association between capitalist interest and tourism influenced land conversion	169
Table 4.3.9	Association between unplanned residential sprawl and tourism influenced land conversion.....	175
Table 4.3.10	Association between Infrastructural Changing and Tourism influenced land conversion	180

Table 4.4.1	Association between Effects on agricultural production and tourism influenced land conversion (controlling age of the respondents)	182
Table 4.4.2	Association between land degradation and tourism influenced land conversion (controlling age of the respondents)	183
Table 4.4.3	Association between threat to bio-diversity and tourism influenced land conversion (controlling age of the respondents).....	184
Table 4.4.4	Association between population pressure and tourism influenced land conversion (controlling age of the respondents)	186
Table 4.4.5	Association between sand mining/extraction and tourism influenced land conversion (controlling age of the respondents)	187
Table 4.4.6	Association between environmental pollution and tourism influenced land conversion (controlling age of the respondents)	188
Table 4.4.8	Association between hoteling/buildings and tourism influenced land conversion (controlling age of the respondents)	190
Table 4.4.9	Association between capitalist interest and tourism influenced land conversion (controlling age of the respondents)	191
Table 4.4.10	Association between unplanned residential sprawl and tourism influenced land conversion (controlling age of the respondents)	192
Table 4.4.11	Association between infrastructural changing and tourism influenced land conversion (controlling age of the respondents)	194
Table 4.4.12.	Association between effects on agricultural production and tourism influenced land conversion (controlling family type of the respondents)	195
Table 4.4.13	Association between land degradation and tourism influenced land conversion (controlling family type of the respondents)	196
Table 4.4.14	Association between threat to bio-diversity and tourism influenced land conversion (controlling family of the respondents)	197
Table 4.4.15	Association between population pressure and tourism influenced land conversion (controlling family type of the respondents).....	198
Table 4.4.17	Association between sand mining/extraction and Tourism influenced land conversion (controlling family type of the respondents)	199

Table 4.4.18	Association between environmental pollution and Tourism influenced land conversion (controlling family type of the respondents).....	200
Table 4.4.19	Association between hoteling/buildings and tourism influenced land conversion (controlling family type of the respondents).....	202
Table 4.4.20	Association between capitalist interest and tourism influenced land conversion (controlling family type of the respondents)	203
Table 4.4.21.	Association between unplanned residential sprawl and tourism influenced land conversion (controlling family type of the respondents)	204
Table 4.4.22	Association between infrastructural changing and tourism influenced land conversion (controlling family type of the respondents	205
Table 4.4.23	Association between effects on agricultural production and tourism influenced land conversion (controlling monthly income of the respondents)	207
Table 4.4.24	Association between land degradation and tourism influenced land conversion (controlling monthly income of the respondents)	208
Table 4.4.25	Association between threat to bio-diversity and tourism influenced land conversion (controlling monthly income of the respondents)	209
Table 4.4.26	Association between population pressure and tourism influenced land conversion (controlling monthly income of the respondents)	210
Table 4.4.27	Association between sand mining/extraction and tourism influenced land conversion (controlling monthly income of the respondents)	211
Table 4.4.28	Association between environmental pollution and tourism influenced land conversion (controlling monthly income of the respondents)	212
Table 4.4.29	Association between hoteling/buildings and tourism influenced land conversion (controlling monthly income of the respondents)	213
Table 4.4.30	Association between capitalist interest and tourism influenced land conversion (controlling monthly income of the respondents)	215
Table 4.4.31	Association between unplanned residential sprawl and tourism influenced land conversion (controlling monthly income of the respondents)	216
Table 4.4.32	Association between infrastructural changing and tourism influenced land conversion (controlling monthly income of the respondents).....	217

LIST OF ABBREVIATIONS

ESV	Ecosystem Service Value.
EU	European Union
GB	Gilgit-Baltistan.
GHG	Green House gases
HKH	Hindu Kush Himalaya
MASAI	Place name in Kenya the.
MMDAS	Multichannel Multipoint Distribution Service.
NARC	National Agricultural Research Centre
EU	European Union
FSM's	food safety management system
ADB	Asian Development Bank
EIAs	Environmental impact assessments
NIDL	New International Division of Labor
TNCs	transnational corporations
EPZs	export processing zones
MMDAs	Money Market Deposit Accounts
AMA	Accra Metropolitan Assembly
SLM	sustainable land management
SDGS	Sustainable Development Goals
SSA	Sub-Saharan Africa

ACKNOWLEDGEMENTS

First and foremost, I express my deepest gratitude to ALLAH (A.J) for granting me the strength and opportunity to successfully complete my Ph.D dissertation.

I would like to extend my sincere appreciation to the remarkable, down-to-earth, and charismatic personality, Dr. Bushra Hassan Jan, Associate Professor and Chairperson of the Department of Rural Sociology at the University of Agriculture Peshawar, Pakistan. Her exceptional supervision has played a pivotal role in shaping both my research and writing endeavors. I hold her contributions in the highest regard, as she has been instrumental in enabling me to complete this dissertation within a specified timeframe.

I am indebted to the members of my supervisory committee, Dr. Asad Ullah, Associate Professor in the Department of Rural Sociology at the University of Agriculture Peshawar, Pakistan. His cooperation, moral support, sincere appreciation and affectionate nature have propelled me forward in pursuing my Ph.D. studies.

Furthermore, I would like to express my heartfelt appreciation to the esteemed Dr. Raheel Saqib, Assistant Professor in the Department of Agriculture Extension Education & Communication at the University of Agricultural Peshawar, Pakistan. Dr. Muhammad Sajid (Director, Advanced Studies and Research) their wholehearted cooperation and valuable inputs have been invaluable in the successful completion of this study.

I extend my gratitude to the esteemed faculty members, Dr. Akhtar Ali, Associate Professor, Dr. Humera Jamal Assistant Professor and Dr. Muhammad Jawad, Dr. Saima Sarir and Dr. Ubaid Ur Rahman Lecturer their contributions to my academic and professional growth are deeply appreciated.

Finally, I would like to express my heartfelt gratitude to my family members, particularly my parents, uncles and grandmother for their unwavering love, prayers, support, and encouragement throughout my educational journey. Their presence and belief in my abilities have been a constant source of inspiration and motivation.

SAJID AL

ANALYSIS OF SOCIO- ENVIRONMENTAL FACTORS CONTRIBUTING TO TOURISM INFLUENCED LAND CONVERSION IN DISTRICT SWAT-PAKISTAN

BY

SAJID ALI

Department of Rural Sociology, Faculty of Rural Social Sciences
The University of Agriculture, Peshawar-Pakistan
October, 2024

ABSTRACT

The present study was carried out in district Swat, KP, Pakistan, with the purpose of exploring community perception regarding the effects of environmental factors contributing to land conversion due to tourism. Seven tehsils namely (Bahrain, Charbagh, Khwazakhela, Kabal, Matta, Babuzai and Barikot) with two VC's from each tehsil were selected for being tourist spots. A sample size of 345 respondents (household heads) were selected through stratified random sampling procedure from total population of 3205 through Sekaran (2003) method. A well thought out interview schedule was designed for the collection of data through a conceptual framework, composed of ten independent variables, namely, effects on agricultural production, land degradation, threat to bio-diversity, population pressure, sand mining/extraction, environmental pollution, hoteling/buildings, capitalist interest, unplanned residential sprawl and infrastructure changing and one dependent variable influenced land conversion. The data was first analyzed through uni-variate analysis depicting the layout of the data. Moreover, bivariate analyses were also conducted to reach logical inferences through the application of Tau-b T^b chi-square X^2 test statistics. At bivariate level, the study intimated that tourism had led to major topographic variations, threatened the local flora and fauna, and endangered the local biodiversity and ecosystem along with degradation of soil and environment destruction of natural habitats. It was further disclosed that tourism had reciprocated in demolishing the cultivated land by establishing buildings for accommodating visitors, expanding/constructing new infrastructure to accommodate human influx into the area, which also brought the unpleasant realities like pollution both in air and water, respectively. It was further learnt from the results that commercialization of agricultural land has connection with rise in crimes, urban sprawl, acceleration of sand mining from rivers beds, food insecurity and tilted the business dynamics in favor of local and non-local investors to the exclusion of the commoners in reaping benefits of tourism industry. At multivariate level, the study concluded that respondents of all age groups and family belonging had high degree of awareness pertaining to the negative consequences of land conversion due to tourism. Moreover, on the basis of income, all income groups, i.e., low, middle and high were found having knowledge of confounded relationship between commercialization of land and agricultural productivity. The study findings also supported the theory of Wall (1997) in predicting the cause and effect relationship with respect to land commercialization, tourism and land conversion, respectively.

I. INTRODUCTION

1.1. Background to the study

Land is an essential natural resource and the focal hub of all economic, ecological, and social human activities (Hossain, 2020). Change in the use of the land ultimately result in affecting our natural environment by altering the surface area, *e.g.*, bodies of water, climatic conditions, ecological spheres, cultural landscape, etc. That in turn have impact on the ecosystem or natural landscapes forested areas, grasslands, etc. that are systematically and gradually replaced by human-made artificial construction (Harris, 2017).

Among such natural landscapes, mountains are particularly vulnerable with their peculiar fragility that is can be disturbed by transforming its land-cover or environment disturbance, fragility of the environment through seasonal tourist activities (Oth-Man, 2020). High-lands ecosystems tend to be inherently characterized by marginal resilience and, therefore, are highly susceptible to human interferential activities (Buckley, 2011). Activities like displacement or transformation of its soil and vegetation, disturbing the native wildlife and dumping waste, can have adverse effect on the area. Such activities are exceptionally high in mountainous tourist areas due to large seasonal influx of tourists. As a result, disturbances caused by humans to the land and environment in this short period between May and August—coinciding with biological processes like avian/animal mating, plant growth, migratory cycles, spawning, *etc.*—can have far-reaching impact of the area (Mottaleb, 2007).

Mountainous areas are essential components of terrestrial ecosystems as they play a pivotal role in the ecological safety of the region and often possess rich natural resources crucial to the advancement of the economy and society (Zhang, 2021). In China, it is estimated that, by maintaining ecosystems, mountainous regions support more than a billion humans and thus must be considered in any plan for the country's sustainable development (Fang, 2004). Tourism development in mountainous areas may lead to incessant encroachment on habitats of indigenous species in nature's reserves that may precipitate their extinction (Kuang, 2014). Such fragmentation caused by tourism in habitats constitutes a lethal threat to biodiversity in mountainous areas. Some studies in China have shown that more than 22% of the natural reserves are in

ruins due to unscientific tourism development (Wei, 2014; Gaston, 2007). In Cyclades islands, Greece, it has been estimated that 11% of such areas have sustained degradation of resources (Derdemezi, et al., 2022). As Land is the primary venue for the development of tourism, its exploitative practices like the widespread construction of tourist facilities or infrastructure, can cause drastic changes in the structure of the area and the use of land, soil, and vegetation. Therefore, it is regarded crucial that studies should be conducted on the impact of spatial changes and other invasive factors of tourism in mountainous areas (Wang, 2021; Liang, 2003).

Tourism development is regarded as a wholesome activity that benefits the country and the area economically. However, it is also potentially harmful to the environment as it changes the use of land (Kurniawan, 2016; Lanya, (2017). Studies in Lombok, the Czech Republic and Bali have shown that the development of tourism results in the construction of tourist facilities that drastically deteriorate forests, beaches and natural ecosystems (Lavers, 2012). Additionally, like in the case of Iasi, tourism-induced development of civic and municipal utilities also has negatively impacted the land. However, since the effects of Tourism on particular areas may be different, separate studies must be conducted for different areas (Lupu, 2018).

Mountainous areas are essential components of terrestrial ecosystems as they play role that out-reaches their immediate environs. In the wake of globalization, tourism has come to be regarded as an opportunity for local growth, advancement of backward areas and experiencing cultural diversity. For that reason, non-sustainable and unplanned tourism was allowed while disregarding its potentially destructive relationship with the indigenous cultures and environments (Gupta, 2019). It is argued that tourism may be the prime threat to indigenous cultures and homelands through its exploitative practices and dislocation or desecration of their way of life (Mahonge, 2015).

1.2. International scenario

The ecosystem is defined as a particular geographic area with all its living organisms (flora, fauna, humans and micro-organisms) its physical features (air, soil, water), and the complete naturally occurring cycles that help them thrive and sustain themselves. Pristine areas like sandy beaches, natural lakes, rivers and mountains are usually specific transitional zones characterized by ecosystems that are rich in diverse

species (Tamene, 2017). Nevertheless, landscapes gradually evolve as local needs and physical, cultural, socio-economic and environmental imperatives determine use of land. In addition, human activities like urbanization and industrialization lead to intensive use of land all over the globe due to scarcity of suitable areas. However, remote mountainous areas, far from trade routes and with low population sustainability, are sparsely inhabited. Nevertheless, they play critical roles as watersheds that provide services vital for the ecosystem and the well-being of humans (Browne, 2022). Such areas are inherently susceptible to abrupt changes and are therefore, adversely disposed to trampling of soil and vegetation, displacement of indigenous wildlife and dumping of waste (Linderman, 2005). A study of Krushedei Island, near Rameswaram in Tamil Nadu, India, once praised as a hub for marine biologists, has shown that it was entirely abandoned by marine life forms in the wake of mass-scale tourism that caused coral destruction and depletion of other marine life (Tariq, 2024). Thus, unsustainable and unscientific tourism-related leisure activities persistently degrade or destroy natural habitats. For instance, even non-intensive watching of wildlife can cause animal stress, which may alter their natural behavior. The noise and commotion caused by safaris and trips may have a degrading effect on the habitat of the fauna and even flora (Chandel, 2022).

1.3. National scenario

Tourism directly affects natural environment. Tourism frequently impacts soil usage, water resources, biota manufacturing as well as ecosystem of an area (Eggers, 2020). Moreover, pollution and solid waste produced by tourist activities also severely damages natural habitats and environment (Diaz-Armas, 2018). Furthermore, as tourism increases in an area, local people construct buildings and premises to accommodate new influx of visitors often without proper planning, legal permission or concern for sustainability of natural resources. Such harsh changes impact ecology and human lives in the area through more toxic emissions (Ghani, 2020). For instance, according to a European Union (EU) study, over 20 percent of polluting emission were found to be associated with tourist facilities like restaurants, hotels and guest houses, transportation, use of electricity generators, lighting, heating, etc., (Sofronov, 2017; Hussain, 2016).

Diversity in geographical or climatic conditions attract a large number of local and international tourists to the country of Pakistan. In addition, history, religion and cultural novelty also play an essential part in making the country a potential tourist destination. The northern areas of Pakistan, home to some of the loftiest mountain ranges of the Himalayas, Karakoram and Hindu Kush, particularly attracts a large number of local and foreign tourists, mountaineers and trekkers. Since this tourism is yet to be of significance in the economy of Pakistan, it mostly remains outside the purview of planners and policy-makers (Young, 2008).

The primary economic importance of tourism in Pakistan is to solve the country's perennial foreign exchange needs in the short term. Earnings from adventure tourism, mountaineering, and trekking plays only small part in the country's tourism industry. However, in recent times, more tourists have chosen the northern areas of Pakistan for recreational and adventurous purposes. The resultant pressure on the fragile mountain environment is feared to destroy and degrade the areas if allowed to continue unplanned (Arshad, 2018). Apart from tourism, damage to the natural environment of the areas may adversely impact water flows, agriculture, and the general ecology of the area, which may ultimately have negative consequences for the country's entire economic system. The interplay and interdependence of Pakistan's cumulative social, ecological and economic balance, coupled with the fragility of the northern mountainous regions, thus deserves far greater attention and in-depth understanding among the policy makers (Hunziker, 2017). Any policy analysis concerned with the economic benefits of tourism must also pay sufficient heed to the pollution patterns of mountaineers, any untoward effects of seasonal crowds, kinds of pollution at various tourist localities and the relationship between the environment and tourism in mountain areas (Peduzzi, 2014).

1.4. Theoretical background

Many theories and models have been devised to explain tourism-influenced land conversion. The most relevant theories and models explained in the section are the rethinking impact of tourism theory, environmental and cultural perspective theory, public interest versus private interest, land users model regarding tourism, and trampling impacts on vegetation and soil model. In the rethinking of tourism theory, Jafari, (1990) and Wall, (1997) theorize that the positive impacts of tourism are often

advocated by its proponent in the economic sector of an area while the negative impacts in the long term are conveniently overlooked. They argue that the economic benefits of tourism are not equally distributed as the local populace is neither educated nor trained to be eligible for the jobs it creates. Additionally, they only have the investment capabilities to tap into the wealth generated through tourism in the marginal areas. In fact, they believe that local people are victims of tourist activities as it affects, often irreversibly, their social, cultural and even religious lives. The governments, however, favor tourism for the numbers of jobs it creates and the revenues it generates in taxes while remaining reluctant to impose guidelines or policies for distributing its benefits among local people equitably. They believe that governments are either unwilling or incompetent to measure and tackle the negative impacts and usually claim that its benefits are bound to get distributed among all people in the long-term.

Theory of environmental and cultural perspective by Ritzer, (1993) theorizes that tourism leads to transformation of an area through a process that he calls “McDonaldization”. Ritzer explains the term as an attempt by a rational society to emphasize efficiency and bring uncertainty under control. Ritzer believes that aspects of everyday life and tourism have been standardized so that there are few “surprises” for the visitors. He cites the practice of giving foreign tourists “standard” meals as the local cuisine was considered unpalatable. He notes the positive and negative impact of McDonaldization pushed through by tourism. Its positive aspects are that it promotes cultural exchanges, generates new revenue, and brings about modern changes in the local infrastructure. However, on the negative side, it may commoditize local culture and cause cultural erosion and transplantation of foreign values. In the same way, tourism can introduce harmless things like brands, pop culture, modern attire, fast food and beverages, but can also give rise to prostitution, crime, robbery, drug taking and target killing, *etc.*, (Ritzer, (1993).

1.5. Environmental factors of tourism influenced land conversion

The present study involved the primary domain variables like environmental factors, including effects on agriculture production, land degradation, threat to biodiversity, population pressure, sand mining/extraction and environmental pollution.

1.6. Effects on agricultural production

The effects of tourism on agricultural production can vary depending on the specific context and practices in place. In some cases, tourism can provide opportunities for farmers to diversify their income through activities such as agro-tourism, where visitors can participate in farm activities or purchase local produce. However, tourism can also have negative impacts on agriculture production. Increased demand for land for tourism infrastructure can lead to land conversion and loss of agricultural land, thus, reducing the availability of arable land for farming. Destination managers and policymakers need to implement sustainable land use practices that balance the needs of tourism and agriculture to ensure the long-term viability of both sectors. This can include promoting sustainable agriculture practices, supporting local farmers through tourism partnerships, and implementing land use planning strategies that prioritize the preservation of agricultural

land. Tourism development is typically prescribed as an effective way to promote economic development in developing countries' coastal regions with proper planning (Fischer, 2019). Boussemart, (2022) studied the coastal area of Sanya, in the south of Hainan Island, to properly analyze how tourism development changed land-use patterns and put pressure on the local ecological environment. Shindel, (2018) carried out the same kind of study in Jinggangshan, base of China's red tourism, and found that as demand for infrastructure and service facilities soared in the wake of tourism, forested and agricultural lands were immediately appropriated for constructions. He identified four major patterns of how land usage changes due to tourism integrated development, scenic areas outreach, traffic reach, and access to the traditional town. Awumbila, (2014) developed a quantitative description of urban tourism's spatial scope and explained the use of newly appropriated land with the help of extreme rent theory. In his view, the reason behind the formation of ring-city recreational belts is that investors have reached a compromise with tourists regarding travel costs and land rents.

1.7. Land degradation

Land degradation due to tourism is a significant environmental concern that can have long-lasting impacts on ecosystems and local communities. Developing tourism infrastructure such as hotels, resorts, and recreational facilities lead to land conversion, deforestation, and habitat destruction (Gohar, 2024). Additionally, the influx of tourists can put pressure on natural resources such as water, energy, and waste management

systems, leading to increased pollution and degradation of land quality. Activities such as off-road driving, hiking, and waste disposal can further contribute to land degradation in popular tourist destinations. Land, a vital resource for human existence, is more sensitive to human activities that may physically change it and impact the service value of the ecosystem (ESV). Studies of rapid tourism development in China have shown that urban ESV has a crucial impact on the development of the visitor economy. Rapid urbanization in China has replaced natural landscapes with construction (Deng, 2009). As a result, rapid urban development is no longer compatible with the preservation of tourist attraction areas, which play a vital role in urban economies. For this reason, the relationship between land usage and the visitor economy has recently received much attention due to the need for sustainable model of development (McMurry, 1930). Such studies emphasize describing the overall impacts of tourism development so that past mistakes can be avoided (Hammes, 1994; Hovorka, 2005).

1.8. Threat to bio-diversity

Tourism can pose significant threat to biodiversity in various ways. The development of tourism infrastructure, such as hotels, resorts, and roads, can lead to habitat destruction and fragmentation, which can disrupt ecosystems and threaten the survival of plant and animal species. Increased human activity in natural areas can also lead to habitat degradation, pollution, and disturbance to wildlife, further impacting biodiversity. Tourism activities such as wildlife viewing, hiking, and water sports can also negatively affect biodiversity if not managed properly (Mandić, 2020). Overcrowding, noise pollution, and habitat disturbance can also disrupt wildlife's natural behaviors and breeding patterns, leading to population declines.

Additionally, introducing invasive species through tourism can further threaten native biodiversity. This could be avoided through responsible wildlife viewing guidelines, supporting conservation efforts, and implementing ecotourism initiatives that contribute to protecting and preserving biodiversity in natural areas. By working together to protect biodiversity, we can ensure the long-term health and resilience of our ecosystems (Packer, 2017). Unbridled and unmanaged tourism over consume local resources. It can change the landscape and ecology of the area so swiftly that the indigenous life forms have little time to adapt to it. The main losers are generally the

environment and agricultural land (Seto, 2013). Tourism thus changes the fragile balance of an ecosystem through land conversions in many ways, one of which is the increase in the emission of Greenhouse Gases (GHG) in the area. In mountainous areas, the impact is far more swift, which can render them unable to play their role in the protecting the ecology. As a result, indigenous flora and fauna cannot survive the degradation of their environment and ecology (Cao, 2003).

1.9. Population pressure

Population pressure due to tourism can have significant impacts on local communities and infrastructure. The influx of tourists can lead to overcrowding, increased demand for housing, and strain on public services such as transportation, healthcare, and waste management. Additionally, population pressure from tourism can lead to cultural and social challenges, such as the loss of traditional practices and values as well as incidents of conflicts between tourists and residents (Dragana, 2022). It is essential for destination managers to carefully manage tourism growth and implement sustainable tourism practices that prioritize the wellbeing of local communities (Hulme, 2011). Apart from non-local tourists, pristine mountainous landscapes may also fall prey to pressure from a faster population growth rate and local migrations in the wake of economic boom in the area due to tourism. Gilgit-Baltistan (GB), formerly known as the Northern Areas of Pakistan, is one such example. GB boasts mighty mountain ranges, including the famous Karakoram, Hindukush, and the Himalayas, as well as superb natural landscapes, glaciers, and valleys. In recent years, the pressure of tourism has ushered in a new age of construction and a population boom in the area as more and more people accompany the businesses or follow the new economic opportunities. The absence of governmental plans or policies to guide rapid tourism means that development in the area is following its own trajectory. The existing housing or business facilities could barely cater to the local population; thus, new unbridled construction of facilities for permanent or seasonal population growth is running (Balsiger, 2015).

1.10. Sand mining/ extraction

Sand mining or extraction due to tourism practices can also have significant environmental impacts on coastal and riverine ecosystems (Longo, 2023). The demand

for sand in the construction of tourism infrastructure, such as hotels, resorts, and beaches, can lead to unsustainable extraction practices. Excessive sand mining can disrupt the natural sediment balance of rivers and coastal areas, leading to erosion, increased flooding, and loss of valuable habitats for marine and terrestrial species (Adamu, 2019). Sand mining can also impact water quality and alter the natural flow of rivers. This greatly affect local ecosystems and communities that depend on these resources for their livelihoods. Accompanying the construction boom in the wake of tourism is the over-exploitation of land resources to provide building materials. Sand, being a staple of construction, thus gets into high demand. Sand comes into existence through the weathering and disintegration cycles of rocks. Its primary source is sandstone, the solidified form of sand (Pettijohn, 1975; Shaffer, 2006). A superior form of sand is made of quartz. Sand is mainly mined/extracted from watershed areas like rivers and streams originating from high mountains (Gavriletea, 2021). Naturally, these streams and rivers drain into larger bodies of water and sustain an extensive life cycle and ecologies (Shehram, 1993). Extensive extraction of sand from natural water outlets may adversely affect the flow of water and the ecology and water cycle (Black, 1991). Additionally, it will deteriorate the area's beauty by unnaturally altering the landscape.

1.11. Environmental pollution

Tourism can contribute to environmental pollution in various ways, including air, water, and land pollution. Air pollution from transportation, such as aero planes, cruise ships, and vehicles, can release harmful emissions and contribute to climate change. Water pollution can occur from sewage discharge, littering, and chemical runoff from hotels and resorts, impacting marine ecosystems and water quality. Urbanization in Ghana has led to encroachment on public spaces and ecologically sensitive regions, slum pervasiveness, the related unplanned economic activities and illegal land development (Cobbinah, 2017).

Such changes in the urban places affect how they are attractive to tourists. Insufficient planning of cities at the national scale negatively damages the development housing, drainage and sanitation. For example, Oteng-Ababio, et al. (2019) observe that Slum development activities like, poor housing and un regulated informal economy lead to unsuitable waste disposal with related health and natural environmental repercussions. Amoako, (2018) observed that flood hazards in Ghan's urban have

increased due to informal constructions that were allowed to support tourism. They point out that political and economic considerations and need makes poor countries more prone to adverse effect of unsustainable tourism.

Cobbinah, (2017) observed that in Kumasi, Ghana, 85% of residential land is used for high rent-yielding commercial activities or housing. This made it impossible for 86% of the urban poor to afford it. These forces led low-income people to play their trades in on the streets that has created more chaos in central business areas. Similarly, this chaos and unstoppable commercial activities, partial parking spaces, and sanitation facilities hamper related urban further functionality (Beeharry, 2021). The existence of the urban poor and their right to the city are endangered by partial important service provision. Whereas access to clean drinking water is critical in assessing life quality, the portion of the urban population in Ghana with access to a pipe-borne water facility is lower than two-thirds. Additionally, the plastic waste associated with sachet water has environmental inferences. Ghana's urbanization is more associated with plastic waste, choked gutters, floods and poverty. The development of tourism within such a space is impossible. The associations between poverty, crime and urbanization are conditioned and shaped by dynamic social, psychological and economic factors (Oteng-Ababio, et al., 2019).

1.12. Social factors for tourism influenced land conversion

The study proceeded with another domain, i.e. social factors, responsible for encouraging rapid construction of hotels/buildings, capitalist interest, unplanned residential sprawl and infrastructural changes. These domain variables were operationalized under the cover of tourism-influenced land conversion phenomenon in explainable terms.

1.13. Hoteling/buildings

The construction of hotels and buildings for tourism can significantly impact the environment and local communities. The development of hotel infrastructure requires clearing of land, which can lead to habitat destruction and loss of biodiversity. Additionally, the increased demand for water, energy, and waste management services from hotels can strain local resources and infrastructure. The construction of hotels and buildings also alter the visual landscape of a destination, potentially impacting the cultural and aesthetic values of the area (Courchamp, 2022). Developers and

policymakers need to consider sustainable building practices, such as using eco-friendly materials, implementing energy-efficient technologies, and incorporating green spaces into hotel designs to minimize the environmental footprint of tourism-related construction (Pincetti, 2023).

Hotels and marketing in the tourist area can put an extra toll on the natural resources and ecology. Water is usually the first natural resource taxed to its limits by hotels due to its overuse in washrooms, swimming pools, maintaining golf courses, lawns, etc., (Singh, 2023). This may lead to water shortages for the local way of life. Studies in the Indian states of Rajasthan, Gujarat and Maharashtra have the adverse effects of such unguided activities (Krishna, 1993). Martha *and* Gilpin, (2009) studied the adverse impact of marketing and hoteling on renewable and non-renewable land resources, e.g., minerals, soil fertility, wetlands, wildlife and forest, in India's Himalayan, Sikkim and Assam regions. They noted that almost everywhere accessible to tourists has undergone degradation in various degrees of natural resources Arora, (2015).

1.14. Capitalist interest

Capitalist interest in tourism refers to the economic incentives and motivations that drive investment and development. Tourism is a significant economic sector that generates revenue through various activities such as accommodations, transportation, attractions, and services. As a result, there is a solid capitalist interest in capitalizing on the potential profits and opportunities that tourism offers. Capitalist interest in tourism can lead to developing infrastructure, amenities, and services to cater to tourists' needs and preferences (Cammeraat, 2022). This can result in job creation, economic growth, and increased investment in the local economy. However, it can also lead to issues such as overdevelopment, exploitation of natural resources, and social inequalities (Halkos, 2015).

As tourism starts to generate income and profits in a particular area, capitalist interest moves in to partake in the spoils. They provide for existing groups of tourists and invest money in making the area more attractive to a more affluent clientele. Therefore, mega projects are implemented that often displace local populations or abruptly change their lifestyles. An example is the parks and game reserves built on 70% of Masai land, a tribal enclave in Kenya (Hjalager, 2020). Masai lost land and

culture as local and national governments took advantage of their ignorance, encroached on their possessions, and divested them of their livelihood. Masai never shared the wealth generated by the capitalists from their land, and even jobs went to educated and professional outsiders. In other cases, capitalist greed made the local population with distinctive ways of life into living museum attractions. Therefore, capitalism is also one of the leading causes of tourism negatively affecting the local environment and livelihood (Westen, 2014).

1.15. Unplanned residential sprawl

Unplanned residential sprawl due to tourism can negatively impact the environment and local communities. The rapid influx of tourists and tourism-related development can lead to the unplanned expansion of residential areas, increasing pressure on natural resources, infrastructure, and ecosystems. Uncontrolled residential sprawl can lead to habitat destruction, loss of biodiversity, increased pollution, and strain on water and energy resources (Diedrich, 2009). It can also contribute to traffic congestion, overcrowding, and a decline in the quality of life for residents. Additionally, unplanned development can lead to social and cultural disruptions and economic disparities between local communities and tourists. To address the challenges of unplanned residential sprawl due to tourism, it is essential for destination managers and policymakers to implement effective land use planning and zoning regulations (Garau-Vadell, et al., 2018). One significant impact of large-scale tourism is on the local population's customs, socio-cultural characteristics, social life and religious practices or beliefs. Local forms of housing, food, and entertainment of life get changed, lose their originality or are replaced by alien practices in the wake of tourism in less advanced areas. This is in addition to over-crowding, traffic jams and overburdening of civic facilities that put pressure on local lifestyles (Almeida, et al., 2021; Lindberg, 1997).

Additionally, it hurts the local population and may negatively impact the environment and even the area's climate (Alshuwaikhat, 2005). For instance, data from the European Union (EU) show that about a 20% increase in Carbon Monoxide in Europe can be attributed to tourist activities. Furthermore, the absence of any locally manned bodies to inform or regulate tourist activities has exacerbated the problem (Sofronov, 2017).

1.16. Infrastructural changing

Tourism practices can have an impact on infrastructure in destination areas. The influx of tourists can lead to increased demand for transportation, accommodation, and other services, prompting the development and expansion of infrastructure to meet these needs. This can include the construction of new roads, airports, hotels, restaurants, and recreational facilities to accommodate the growing number of visitors. While tourism can bring economic benefits and opportunities for infrastructure development, it can also pose challenges (Nguyen, 2022). The rapid growth of tourism can strain existing infrastructure, leading to congestion, overcrowding, and increased pressure on public services such as waste management and water supply (Khan, 2023).

In some cases, developing tourism infrastructure may also result in environmental degradation, habitat loss, and increased carbon emissions. Recently, researchers and policy-makers have realized that the property rights of the local and indigenous people may play an important role in arresting the negative impacts of rapid tourism. As the locals are more sensitive to their way of life and surroundings, they may slow the process to make it marginally sustainable (Tuspekova, 2022). Vietnam passed comprehensive, if faulty, land laws in 2013. Previously, the land belonged to the state, and people had ambiguous rights. The new law still has loopholes and lacunae, and the race for property between private developers and local people rages on (Van Westen, 2017). This resulted in tourism driven by capitalists of government interests, aided by the locals' vague or non-existing property rights. Ultimately, the livelihoods and way of people's lives were destroyed while ecology and natural landscapes often underwent irreversible damage. It has been advised that property laws must be clear and enforced adequately for sustainable development practices in tourism (Mangione, 2010).

1.17. Tourism influenced land conversion

Tourism can significantly impact land conversion, as the development of tourism infrastructure often requires the conversion of natural or agricultural land for hotels, resorts, roads, and other facilities (Petrișor, 2022). This can lead to habitat loss, fragmentation, and changes in land use patterns, which can negatively affect local ecosystems and biodiversity. Land conversion for tourism can also result in the loss of agricultural land, which can impact food security and local livelihoods (Buckley, 2011).

In some cases, the conversion of land for tourism may lead to conflicts over land use between tourism developers and local communities who rely on the land for farming or other traditional activities. Activities connected with tourism directly impact air, soil, water and biota of environments, whereas its direct impacts are increased activities in the manufacturing/production and transportation of necessary or newly introduced materials (Aall, et al., 2011; Charara, et al., 2011). Furthermore, natural places, including parks and protected lands, may be directly affected by the introduction of pollution and waste or indirectly by disturbing habitats and wildlife. In the same way, the addition of drastic waste and increase in pollution are associated with development in tourism sector and cause severe damage to the local residential natural environment (Andereck, et al., 2005). Unplanned tourism activity compels the residents to start construction of buildings with no proper planning, and that results in the destruction related of the natural environment or untimely depletion of locally available natural resources like wood, water, soil, etc., thus posing severe threats to ecological environment of human livelihood (Alshuwaikhat, 2005).

1.18. Limitation of earlier research

Various research studies have identified a series of tourism activities influencing land conversion. However, despite a dramatic increase in literature, most of these research studies need to be multi-dimensional in predicting the outcomes. Only a limited number of research studies have integrated the combination of various environmental and social factors for empirically explaining relation between tourism and land conversion. Furthermore, in the study area (District Swat, Khyber Pakhtunkhwa Province of Pakistan), only a limited number of research studies have been conducted on land conversion. Most of these studies do not explain the phenomenon as a comprehensive whole since they do not combine the physical, environmental factors and social aspects. The present study explores a new path in uncapping a synergy of physical, environmental and social factors through a perception-based model. This model has proved its vitality in interpreting the environment through maximum inclusion of local subjects in a state-of-the-art approach to devise inferences that may be highly replicable and unbiased in its findings.

1.19. Justification of the study

The present study purports to assess the analysis of socio- environmental factors contributing to tourism driven land conversion in district Swat, Pakistan. Environment is the essential component of human life for sustenance in various domains of human needs. Natural resources are usually exhaustible and are used by local residents and visitors of a specific area without any sustainable model. Tourism development may prove profitable economically in the short term but if it is properly managed, its can degrade or deplete local resources. Tourism also impacts atmosphere. It can cause air and water pollution that results in spread of various environment-related respiratory and skin diseases. Additionally, tourism impacts the economy, social way of life, traditional values, and culture of an area. Last but not the least, tourism has a huge impact on the land in terms of its conversion from traditional/ agricultural uses to commercial utilization.

District Swat is one of the famous destinations for both national and foreign tourists in Pakistan. Previously, the peak tourist time was from May to August but with the betterment and extension of road infrastructures within the district and approaching roads, i.e. motorways etc. Swat is now enjoying all-season connectivity with the rest of the country. The connectivity has increased the number of tourists.

It was observed that a careful scientific study to correlate the various impacts of tourism on Swat Valley. The at-stake subject has never been explored before and, hence, the social, economic, environmental, agricultural and ecological impacts have not been measured. This study is designed to fill that gap and inform not only the scholarship in the field but also any potential policy-making that may be adopted in the future. Additionally, it is hoped that this study will benefit students, environmental groups, community mobilizers, human rights activists and concerned citizens to understand and evaluate the issue. We also expect that the study will provide tangible data and analyses to the professionals associated with the field and the local people who might then manage the processes connected with tourism sustainably.

1.20. Research Questions

1. Whether tourism related activities have led to rise of commercialization in the study area?
2. Whether tourism has affected the environmental and social domains of life in the study area?
3. Whether alterations in physical, socio-economic, cultural and environmental conditions are related to tourism in the area?
4. Whether commercialization of land is caused by the development of tourism industry in the area?
5. Whether tourism is deemed to be the prime threat to agriculture land uses and environmental factors?
6. How planning and organizing of infrastructural building is linked with tourism development?
7. Whether tourism influenced land-conversion is a threat to biodiversity?
8. Whether tourism activities are responsible for land degradation?
9. What is the extent of improvement in touristic activities in the context of human behavior and community development?

1.21. Research objectives

1. To find out the demographic profile of the respondents.
2. To assess the socio-environmental domains of land conversion.
3. To portray the perception of respondents pertaining to tourism influenced land conversion phenomena.
4. To measure the relationship between socio-environmental domains and tourism influenced land conversion phenomena.
5. To suggest policy recommendation in light of the study.

II. LITERATURE REVIEW

2.1. Introduction

The global tourism industry has seen remarkable growth over the past few decades, becoming a vital driver of economic development and a platform for cultural exchange. This expansion has created numerous economic opportunities, including job creation, infrastructure development, and increased revenue for local communities. However, it has also introduced significant challenges, particularly concerning environmental degradation and the erosion of local cultures and traditions. In light of these challenges, there is an urgent need to adopt sustainable tourism practices. Sustainable tourism aims to balance the economic benefits of tourism with the necessity of preserving environmental integrity and promoting community well-being (Abdul-Aziz, 2024). This approach involves understanding the complex interrelationships between economic prosperity, ecological health, and social equity. As governments seek to capitalize on the economic advantages of tourism, it is crucial to address the ecological and social impacts that can arise from increased number of visitors. This includes implementing strategies that minimize environmental footprints, protect natural resources, and respect for local cultures and communities. By prioritizing sustainable tourism, locals can not only benefit economically but also maintain their environmental and cultural heritage for future generations. Ultimately, the shift towards sustainable tourism practices is not just a response to current challenges but a proactive approach to creating a more resilient and equitable tourism industry that can thrive in harmony with the environment and local communities (Gössling, 2014).

It is essential for developing effective strategies that promote responsible tourism practices. By exploring the multifaceted nature of sustainable tourism, economic growth can be achieved without compromising environmental integrity or the well-being of local communities (Solangi, 2024). By examining case studies and best practices, this research will identify key challenges that the local governments face in implementing sustainable tourism initiatives, such as managing visitor numbers, preserving cultural heritage, and ensuring equitable distribution of tourism benefits (Dhir, 2022). Additionally, it will explore opportunities for innovation in sustainable tourism, including eco-friendly accommodations, community-based tourism initiatives, and the integration of local cultures into the tourism experience. The

interconnectedness of economic, environmental, and social factors underscores the need for a holistic approach to tourism development. Stakeholders, including government agencies, local communities, and the private sector, must collaborate to create policies and practices supporting sustainable tourism (Sunnassee, 2023). This collaboration can lead to the development of frameworks that prioritize environmental stewardship, cultural preservation, and community engagement, ultimately fostering a tourism model that benefits all parties involved. In conclusion, pursuing sustainable tourism is not merely an option but a necessity for the long-term health of the tourism industry, ecosystems and communities. By prioritizing sustainability, we can ensure that tourism continues to be a source of economic vitality while protecting the resources that make destinations attractive to visitors (Bramwell, 2011).

Key themes to be addressed in the subsequent sections include responsible use of natural resources, environmental impact mitigation, cultural sensitivity promotion, and the role of technology and government policies in shaping sustainable tourism. The analysis will also shed light on the economic benefits derived from sustainable tourism, such as job creation, income generation, and the overall enhancement of local economies (Saarinen, 2018). As we navigate the complexities of sustainable tourism, it is crucial to recognize the role of various stakeholders, including governments, local communities, businesses, and tourists themselves. Through a collaborative and holistic approach, this research aims to contribute valuable insights to the ongoing discourse on sustainable tourism practices, offering a roadmap for achieving a delicate equilibrium between economic growth and environmental conservation. Ultimately, the goal is to ensure that tourism becomes a force for positive change, preserving the world's natural and cultural heritage for future generations (Sharpley, 2015).

Tourism is a vital engine for economic growth, providing numerous benefits such as job creation, cultural promotion, and significant contributions to revenue generation and Gross Domestic Product (GDP) in both developed and developing countries. As highlighted by Pham, (2012), tourism is recognized as a critical economic activity that can stimulate local economies and enhance the quality of life for residents. The positive impacts of tourism are substantial. It can lead to increased income per capita, improved living standards, and overall economic expansion (Khan, 2021). Employment opportunities in various sectors, including hospitality, transportation, and entertainment, often arise due to tourism activities.

Additionally, tourism can foster cultural exchange and promote local heritage, allowing communities to showcase their unique traditions and attract visitors. However, the rapid growth of tourism also presents significant challenges. The influx of visitors can lead to increased living costs for local communities, driven by rising prices for housing, goods and services. Crowding and traffic congestion can strain local infrastructure, while the potential for increased crime rates may arise in areas heavily frequented by tourists. Furthermore, environmental degradation is a critical concern, as tourism can deplete natural resources, disrupt ecosystems, and contribute to pollution (Tohid, 2011).

A local community perspective on tourism reveals multifaceted impacts that can be categorized into three primary areas: economic, environmental, and social. Each of these categories highlights how tourism interacts with and influences local communities (Jehan, 2022). The economic benefits of tourism are significant. These include creating business opportunities, job generation, revenue generation, and tax collection from the hospitality sector. Additionally, tourism can contribute to foreign exchange earnings, which can be vital for local economies (Longo, 2023). The influx of tourists often stimulates local businesses, from restaurants to shops, enhancing overall economic activity. Environmental tourism can drive economic growth, but it can also lead to environmental challenges. The environmental category encompasses issues such as the degradation of natural resources, loss of biodiversity, and disruption of ecosystems. Tourism can change local customs and practices, sometimes resulting in cultural commodification or dilution. The emotional responses of community members to tourism can vary widely, with some embracing the opportunities it brings while others may feel a sense of loss regarding their cultural identity and traditions (Nigar, 2018).

Conversion of natural habitats for tourism infrastructure through land-conversion can lead to a substantial loss of biodiversity. This disruption of ecosystems not only affects wildlife populations but also undermines the ecological balance that is essential for maintaining healthy environments. Deforestation and land clearing for tourism-related developments can have far-reaching consequences. Deforestation can lead to habitat destruction, loss of flora and fauna, and increased carbon emissions, exacerbating climate change (Gazta, 2018). Soil degradation, intensive land use for tourism activities can result in soil erosion. The construction of infrastructure and the

increased foot traffic associated with tourism can compromise soil quality, leading to a loss of fertility and negatively impacting local agriculture (Everett, 2013).

The socio-cultural impacts of tourism development are profound and can lead to significant challenges for local communities. Understanding these impacts is crucial for promoting sustainable tourism practices that benefit all stakeholders. Unequal distribution of benefits among local communities is one of the most pressing issues associated with tourism that leads to socio-economic disparities (Wangombe, 2018). While some individuals or businesses may thrive, others may see little to no benefit, exacerbating existing inequalities and creating tensions within the community. Rapid tourism development can lead to the erosion of local cultures, traditions, and ways of life. As communities adapt to meet the demands of tourists, there is a risk that authentic cultural practices may be diluted or commercialized. This cultural commodification can undermine the very identity of local communities, leading to a loss of heritage and traditional values (Jackson, 2014).

Sustainable tourism practices, responsible land use planning, community engagement, and environmental conservation efforts are essential to address these repercussions. Balancing the economic benefits of tourism with environmental and social considerations is crucial for ensuring long-term sustainability and resilience in tourism-affected areas. To address the impacts of tourism on land, governments and policymakers can implement various policies and strategies (Chiang, 2018). Sustainable land use requires planning regulations to establish zoning laws that designate specific areas for tourism development while protecting sensitive ecosystems and agricultural land. This can help prevent overdevelopment and ensure that tourism activities do not encroach on vital natural resources carrying capacity assessments (CCA) for each tourist destination (Ewnetu, 2019).

2.2. Policy response to tourism influenced land conversion

To foster a thriving tourism sector in Pakistan, it is essential to formulate comprehensive policies, plans, and frameworks that promote collaboration among provinces, federal ministers, and private stakeholders. The National Tourism Board (NTB) policy plays a pivotal role in this initiative by developing targeted actions and strategies focused on cultural, heritage, and archaeological tourism through dedicated working groups. The introduction of a cross-country standardization for hotels is a

significant step towards ensuring excellence in hospitality. By aligning with the highest standards of tourism marketing, we can enhance the overall visitor experience and establish Pakistan as a premier travel destination. Moreover, initiatives such as Brand Pakistan and developing a unique tourist portal are crucial for showcasing the country's diverse offerings (Abdul-Aziz, 2024). The ten-year policy and five-year action plan crafted by the Pakistan Tourism Development Corporation (PTDC) will serve as a roadmap for promoting Pakistan as a distinctive brand on the global stage. The tourist portal will provide easy access to Pakistan's rich array of tourist resources and facilitate seamless travel options through partnerships with foreign airlines and airports. By encouraging the collaboration of all stakeholders involved, we can create a robust framework that supports sustainable tourism development, ultimately benefiting the economy and enhancing the cultural heritage of Pakistan (Akhtar, 2021).

The principle of sustainable development of tourism policy in Pakistan (SDOT) emphasizes that the development level must not exceed an area's carrying capacity. To uphold this principle, government policy must enforce adherence to these limits through effective planning instruments, guidelines, enabling regulations, and their diligent enforcement. Tourism development must be carefully guided and regulated to prevent any adverse impacts on the natural environment and cultural heritage, vital components of our tourism attractions. Achieving a conscious balance between development and conservation is essential. The government should be committed to maintaining this balance by implementing restrictions where necessary and fostering a culture of appreciation for our rich heritage among the populace. Education plays a crucial role in this endeavor (Alvi, 2020). We can gain their cooperation and support by informing and engaging communities about the importance of preserving and protecting their natural environment and cultural assets. This collaborative approach will enhance tourism development's sustainability and ensure that future generations can enjoy and benefit from Pakistan's unique cultural and natural heritage. In summary, through strategic planning, regulation, and community engagement, we can create a sustainable tourism framework that respects development needs and environmental conservation (Schmitz, 2022).

Through various tourism laws and Allied Infrastructure Development (TAID), the provincial government of Khyber Pakhtunkhwa (KP) is committed to enhancing tourism infrastructure by rehabilitating existing facilities and repairing current

infrastructure. Additionally, the government is actively seeking new opportunities for development to further improve accessibility and services for tourists to position itself as a premier destination for domestic and international travelers. Through these efforts, we can create a sustainable tourism environment that benefits all stakeholders while preserving the region's unique heritage and natural beauty. Quality tourism infrastructure is a fundamental prerequisite for attracting tourists and enhancing their overall experience. Critical components of this infrastructure include access roads, railway tracks, airports, flight services, and road transport facilities, as well as accommodation options such as hotels, restaurants, tour operators, tourist attraction sites, and shops catering to visitors. Indigenization is a critical consideration in developing this infrastructure, ensuring that the facilities retain a local touch and natural resources. Tourists are drawn to experience a region's unique cultural and natural offerings, and the developed facilities must reflect the local character and specialties. This approach enriches the visitor experience and supports local communities and economies (Seabra, 2023).

Valley of Swat is an important tourist destination situated in the north of KP. It was famous for being a peaceful and pristine valley that welcomed local and foreign visitors Swat for ages. However, recently, it has been affected by terrorism, earthquakes, floods, etc. (Warsame, 2021). Notably, Swat is recognized as the leading district among five critical districts in producing various fruits, including persimmon, peaches, apples and others. According to a survey conducted by the National Agricultural Research Centre (NARC), the NWFP is responsible for nearly 48% of the total fruit production in Pakistan, with Swat being a significant contributor to this output. Swat boasts approximately 98,100 hectares of arable land, highlighting its agricultural potential (Sunnassee, 2023). However, it is essential to note that 408,175 hectares of land in the region remain uncultivable. This disparity indicates opportunities for agricultural development and land management strategies that could enhance productivity and expand the area of cultivable land. Overall, Swat's agricultural landscape plays a crucial role in the region's economy and food supply, particularly in fruit production (Gomariz-Castillo, 2019).

The significant role of agriculture in Swat, where it serves as the primary livelihood for approximately 80% of the population, is that the region is mainly known for producing various commodities, notably peaches, which contribute around 60% to

the national output. Additionally, Swat accounts for 13% of the total national tomato production and plays a crucial role in the overall vegetable production within the NWFP, supplying one-fourth of the province's needs. During the harvest season, the transportation of agricultural products is substantial, with 500 to 600 trucks daily delivering fruit from Swat to markets across the country, especially when supplies from other regions are limited. Historically, Swat's farming system was regarded as a model for agricultural practices in the NWFP and beyond, characterized by its extensive orchards, processing industries, cold storage facilities, and adequate transportation and marketing systems. Moreover, Swat served as a training hub for agricultural techniques such as budding and grafting, contributing to the growth of the nursery industry. The skilled labor force from Swat has also supported agricultural development in other regions, including Baluchistan, particularly in the cultivation of olives. This context underscores the importance of Swat's agricultural sector not only for local livelihoods but also for its broader economic impact on the country (Termansen, 2013).

2.3. Environmental factors to tourism influenced land conversion

The current study involves the major domain variable like environmental factors included effects on agriculture production, land degradation, threat to biodiversity, population pressure, sand mining/extraction and environmental pollution.

2.3.1. Effects on agricultural production

Tourism can have significant effects on agricultural production and biodiversity in a destination. The development of tourism infrastructure and activities can lead to land conversion, resulting in the loss of agricultural land and disruption of farming practices. This can negatively impact local farmers and food security in the area. Furthermore, tourism can also disturb biodiversity by encroaching on natural habitats, leading to habitat loss and fragmentation. Increased human activity in natural areas can disrupt wildlife behavior, disturb breeding patterns, and contribute to the decline of certain species. Pollution from tourism activities, such as waste disposal and vehicle emissions, can also harm local ecosystems and biodiversity (Bunruamkaew, 2012). Due to tourism agricultural land is converted into hotels, resorts, or other tourism facilities, leading to a loss of agricultural land and a decrease in production. Tourist facilities such as golf courses, swimming pools, and hotels can put pressure on local water resources, leading to water scarcity for agricultural activities. Tourism is the primary

and abrupt driver of change in land use. Xiao, (2018) found that changes in land patterns are directly related to the development of tourist activities in the area, especially in terms of agricultural land being used for commercial purposes. Yang, (2022) & Billon, (2022) also find tourism responsible for transforming agricultural rural land into urban concrete jungles.

The finding of Campbell, et al. (2021), Anhui, the 8th most populated province in China and Suleri, (2006), provides an alternative picture where the degradation process of tourism on agricultural land was halted by combined strategies designed for eco-tourism, agricultural tourism and landscape leisure tourism that led to improved sustainability. Zeng, (2020) Cao, et al. (2023) and Chen, (2009), however, determined that economic development connected with tourism drastically impacts the use of land. They maintain that tourism leads to the swift expansion of related construction, which reduces cultivated land and turns otherwise fertile lands into concrete landscapes.

Other studies, like that of Eagles, et al. (2021), draw attention to other ways in which tourism may adversely affect agricultural land. Unregulated visitation destroys fragile native flora and forces local fauna into migration. Ecosystems are meddled with, which can lead to the extinction of highly localized life forms. The introduction of alien flora and fauna can also damage the delicate eco-relations. Intrusive species often lead indigenous species into oblivion through the appropriation of resources.

2.3.2. Land degradation

In addition, land degradation can also affect the cultural and spiritual significance of the land for indigenous communities, disrupting traditional practices and connections to the environment. This can have social and economic consequences for local people who depend on the land for their cultural identity and well-being. Sustainable tourism practices must be implemented to mitigate the negative impacts of land degradation on local communities. Land degradation due to tourism can have significant implications for local communities relying on the land for their livelihoods (Packer, 2017).

The development of tourism infrastructure and activities can lead to soil erosion, deforestation, and habitat destruction, which can impact the availability of resources for local people, such as food, water, and fuel. Weaver, (2014), after studying

the spatial structure of land use in the urban areas, developed a spatial model. His model puts the urban core in its center with its suburbs, adjoining rural and remote areas making up concentrated circles around it. His study shows that, with improved transportation, leisure time, increased incomes, and government policies, the urban areas grow exponentially towards the periphery. Ultimately, all lands in the model are appropriated. Thus, all agricultural and wild lands vanish, whose attraction led people to these areas in the first place. Tyrväinen, et al. (2014) also found a close correlation between an increase in tourism and the degradation of the environmental quality of the destinations for tourists over time as the landscapes change.

Dang, (2015) studied the same problem in China, where the land is titled to the state. In the name of uplifting regions, the local governments acquired large swaths of wild or agricultural land and turned them into urban or industrial centers. The exact process is also explored by Fang, (2014), who considers the professed aim of tourism development as the reason behind the acquisition and conversion of rural lands.

Addaney, (2015) also describes another phenomenon he calls "Tourism gentrification", which refers to the conversion of a middle-class environment into that of entertainment companies and the tourism elite. This was apparent in the Tawangmangu District in Central Java, which attracted huge investments due to tourism development. The net result was a drastic change in the use of land that got transformed from a pristine natural attraction to one dotted with concrete structures. Ocejó, (2011) also studied the Tourism Gentrification in Kalisoro and Blumbang areas of Central Java, which he found to be responsible for the fading away of Indigenous villages and their lifestyle due to the disappearance of their tribal land that was being transformed into urban pockets by immigrants and investments. According to Evans, (2015), the tourism industry has changed the agriculture-based livelihoods shift to trade or tourism-related services.

Mahonge, (2015) while discussing the necessity and modality of collaboration between locals and experts for sustainable use of land in tourist centers, also cites the dynamics between tourism and socio-economic, technological and institutional activities. Even though the population is essential for development as a provider of the labor force, it is also recognized as a primary culprit of environmental degradation when it is excessive to the local support system. Population not only impacts the natural

environment but also produces waste and pollution. Tourism unnaturally increases the population of an area in the shortest possible time. Thus, its effects are multiplied by poverty, land degradation, and the disappearance of ecological systems (Ainooson, 2023).

2.3.3. Threat to bio-diversity

Pollution and tourism activities can contribute to air, water, and soil pollution in green areas. This can negatively impact the health of ecosystems and the species that depend on them (Stanchev, 2015). Tourism can introduce invasive species to green areas intentionally or unintentionally. These species can out-compete native species and disrupt the balance of the ecosystem's overexploitation of natural resources. The high demand for resources such as water, energy, and food in tourist destinations can lead to overexploitation of natural resources (Courchamp, 2022).

This can have negative impacts on biodiversity and ecosystem health. Challenges with land use and increased tourism development can lead to competition for land between agricultural activities and tourism infrastructure (del Rosario, 2020). In some cases, agricultural land may be converted for tourism purposes, reducing farming activities and potentially losing traditional farming practices. Tourism activities can pressure natural resources such as water, soil, and biodiversity, essential for agricultural production. Pollution from tourism-related activities can also negatively impact agricultural lands and ecosystems (Fischer, 2019).

Qin, (2010) studied how a scenic spot is gradually made accessible to tourists in a particular area. He found out that with the up-gradation and improvement of facilities to cater to the tourists, the very attraction of a pristine spot with its abundance of flora and fauna diminishes. Increased human activity disrupts the life cycles and environment of various species. In the end, unable to cope or adapt to the rapid changes, local wildlife either dies out or moves to another relatively untouched area. Altman, (2018) also confirms that tourism by nature is progressive and intrusive. Its primary purpose is to introduce more and more humans into an otherwise wild area and then transport other goods and items to support them. Likewise, the gradual appropriation of land by tourism means a reduction in the areas of natural habitats. The more the wild loses its lands to construction, the more it becomes unattractive as a place of bio-diversity (Liang, X. 2020).

2.4. Population pressure

Population pressure due to tourism in scenic spots can significantly impact local communities and the environment. The influx of tourists can lead to overcrowding, increased resource demand, and strain on infrastructure in these areas. This can result in issues such as traffic congestion, waste generation, and degradation of natural habitats (Chassagne, 2021). Due to the tourism, locals may also face challenges such as rising living costs, displacement, and changes in traditional ways of life. Balancing the needs of tourists and local communities is essential to ensure sustainable development and minimize negative impacts on the environment and quality of life for residents. Population pressure from tourism can also impact the natural environment in scenic spots (Klaric, 2015).

Increased foot traffic, waste generation, and pollution from tourist activities can degrade ecosystems, damage habitats, and threaten biodiversity. This can have long-term consequences on the health and sustainability of the environment, affecting both local wildlife and the overall ecosystem. UNEP, (1995) refers to the adverse effects on the environment and land due to pressure from overpopulation. The population must consume natural, mineral and other physical resources to sustain itself. The increase in the human population of an area necessitates that they encroach upon new lands and restart the process of consuming the resources of the new area. Thus, their impact on the natural environment and resources is immense (Haller, 2021).

Hall, (2001) records the negative impact of the population explosion on nature in Goa, Maharashtra, Kerala, and Tamil Nadu in India, where lakes, river-sides, mountainous regions, and transitional zones with species-rich ecosystems got destroyed or inhabited by humans. Marina development and obstructing rivers change coastlines and sea currents in the Philippines and Maldives, resulting in many species' disappearance. Additionally, the unfortunate mining of coral to provide material to build resorts damaged the fragile reefs for good and drastically depleted fisheries (Gopinath, 2021).

Jarah, (2019) argues that population not only require the acquisition of new land to be settled on but also initiates a process of over-developing the sites to make life comfortable. Areas must be made accessible to tourists through roads, seaports and airports. Additional recreational facilities, extensive transport systems, and spacious

residential and hotel spaces are included. Thus, natural land is damaged and rendered perpetually unable to heal itself (Pincetti, 2023).

UNEP and UNESCO, (1993) consider population increase in otherwise tranquil areas due to tourism as the cause of solid, air and noise pollution. Furthermore, the introduction of chemical waste in the wake of the setting up of industries to support the new population also takes a toll on the natural environment. Natural population increases are often slow and gradual, but tourism can increase the population of an area exponentially in a short time. The result is often haphazard and un-sustainable constructions and changes in the use of land (Bush, 2018).

2.6.1. Sand mining/ extraction

Sand mining or extraction can have significant environmental impacts on coastal areas, which are often popular tourist destinations. Sand is a crucial component of beach ecosystems, providing habitat for various species and acting as a natural barrier against erosion and storm surges. When sand is extracted for construction or other purposes, it can disrupt these ecosystems and lead to erosion, loss of biodiversity, and habitat destruction (Peduzzi, 2014). In addition, sand mining can alter the natural landscape of beaches, affecting their aesthetic appeal and recreational value for tourists (Kondolf, 1998). Removing sand can also destabilize coastal areas, increasing vulnerability to erosion and flooding, which can impact local communities and infrastructure. Excessive sand extraction to provide building material for tourism-driven constructions can be highly dangerous for the environment. That is why stream and river mining in France, England, the Netherlands, Germany and Switzerland is a stringently regulated activity (Halkos, 2015).

Hulme, (2011) studied the morphological changes in areas with continuous sand extraction practices and found them devastatingly affected ecosystems' cycles. Waters, (1995) reported that unregulated extraction of sand from streams and riverbeds could exacerbate the erosion problem. Kondolf, et al. (1997) say that sand is essential for constructional development but found the practice to have an adverse effect on the natural flow of streams and rivers that may change the ecosystem in the lower-riparian areas where not only wild-life is dependent on it but also the livelihood of the people. Crushed rock, sand and gravel account for the most significant volume of solid material resources extracted from systems globally (Cammeraat, 2022).

Peduzzi, (2014) *and* Beiser, (2018) estimate that around 40 to 50 billion metric tons are mined annually from coastlines, quarries, rivers, pits, and the general marine environment. This figure is likely to have grown exponentially in the years after the studies. That alone can give some perspective on the damage inflicted on the environment. UNEP, (1992) found that this sand extraction is done chiefly without government or environmental agencies' regulation. They argue that the less there is governmental control, the more atrociously extraction is being done. They also found that economic marginalization of the local populations also plays a substantial part as it is often their only free and easy source of income.

Shaffer, (2006) *and* Schlacher, (2021) observed the process of sand accumulation in streams and river beds and the methods used for small or large-scale sand extraction. The Environmental Conservation Department (2000) identified three primary techniques for extracting sand. One is a mechanical method that employs heavy machinery like excavators, bulldozers, etc. Similarly, hydraulic dredging is mainly done through suction and manual techniques, which use workers working with shovels or other tools (Longo, 2023).

2.4.2. Environmental Pollution

Tourism generates significant waste, including plastic bottles, food packaging, and other disposable items; improper waste management practices can lead to littering, landfill overflow, and pollution of land and water bodies (Varjani, 2019). Tourism activities such as cruise ships, water sports, and coastal development can result in water pollution through sewage discharge, oil spills, and littering (Collivignarelli, et al., 2004). This can harm marine or coastal ecosystems, coral reefs, and coastal habitats. Emissions from air and land vehicles lead to air pollution and smog, acid rain, and climate change. Additionally, the energy consumption of hotels, resorts, and other tourism infrastructure can exacerbate air pollution (Eriksson, 2021). This can result in affecting the environment and local communities (Oteng-Ababio, 2019).

The waste produced by tourism comprises solid, liquid and electronic materials. Accra and Kumasi, with their high urbanization and consumption, generate a significant amount of Ghana's waste. (Ampofo, et al., 2015) identify food debris, plastic, paper, bottles/cans and metals as the main waste generated in Tema in the Greater Accra area. Oppong, (2015), in a study in the Awutu Senya East Municipality,

reported that 23 tons of solid organic wastes were generated daily in 2014. Ampofo, et al. (2015) observed that in Bolgatanga, that between 1993 and 2009, waste generation increased from 46,015 to 101,823 tons by 55%. According to Amoah, (2014), garbage is still a major problem in Ghana, where 810 tons of solid waste is produced per day in but only 216 tons are collected. This poor handling of waste not only poses a major threat to human health and the environment, but it also impedes socioeconomic development. Clogged gutters and uncollected trash pose health risks. Abul, (2010) study revealed that most dumpsites are in horrible and rotten states. Addo, et al. (2015) noted that 40% of the families in Kumasi complained of smell from dumpsites and illnesses such diarrhea, intestinal worms, and typhoid-associated infections. Careless littering and insufficient trash collection contribute to the spread of cholera and malaria by providing a breeding habitat for these diseases (Collivignarelli, et al., 2004).

Ghana's tourism industry has struggled to grow because of clogged drains, blocked gutters, and beaches littered with plastic waste. The environmental and health components of the SDGs are impacted by environmental challenges as well. However, a dirty atmosphere has a negative impact on Ghana's efforts to promote tourism as an economic activity (Owusu-Adzorah, 2023). Ghana has emerged as a leader in the usage of plastic for food packaging, despite the nation's expanding tourism sector and environmental hazards (Mandela, 2021).

Ghanaian society and culture have grown so accustomed to plastics that often the materials used to package goods appear costlier than the items they contain. Agyemang-Duah, (2018) states that black plastic bags appear to be costlier than the water sachet which costs GH¢0.20 (less than a tenth of a dollar). Beach plasticization discourages visitors from returning. In order to attract more tourists, Ghana has to de-plasticize its beaches by recycling or outlawing plastic packaging. In Ghana, using reusable or paper bags is recommended.

Waste management practices do not occur in a vacuum and national, and institutional and policy frameworks must guide them. Ghana's waste policy highlights the need for systematic collection (Government, of Ghana 2010). The National Environmental Sanitation Strategy and Action Plan identify electronic, biodegradable, organic, wastewater, seepage discharge and fiscal sludge as some of the waste polluting beaches and rivers. This waste negatively impacts tourism promotion as most tourists

find the beaches and tourist sites un-attractive to visit and for holidays (Government, of Ghana 2010). It does limit the number of persons visiting those spaces. Achieving sustainable waste management depends on diverse factors and actors. Oppong, (2015) and Kosoe, (2014) advocate for comprehensive waste management that requires improvement of infrastructure, promotion of health practices and participation of the community. Policy regimes must have clear guidelines for the government's partnership with the private sector and funding and mainstreaming recycling. However, in urban areas, reduction of waste flows through reuse, recycling or alternative economic uses is still absent. This blatant omission may threaten the environment and public health, indicating the neglect of decent waste treatment practices (Oteng-Ababio, 2012). However, a partnership between Money Market Deposit Accounts MMDAs and private companies has been vital in improving waste management. MMDAs and Zoom Lion are responsible for waste collection, transportation and disposal (Kosoe, 2014). Recently, the Multimedia Group partnered with the Accra Metropolitan Assembly (AMA) on the 'Joy Clean Ghana Campaign' campaign, which raises awareness on keeping a clean environment. It has helped to educate and reprimand individuals, households, and small businesses for keeping Accra clean. It can also aid in the promotion of tourism.

Attitudinal change is essential for the promotion of a clean environment and tourism. In Ghana, however, it is not uncommon to witness people throwing rubbish indiscriminately in their surroundings. Citizens' ownership of the sanitation drive, including a form of citizen's police or watchdog to report and punish those who throw garbage around, will keep the environment clean to promote tourism. Driving attitudinal change should, however, start in primary schools where children are made aware to the dangers of indiscriminate littering. In partnership with MMDAs, media education can influence attitudinal change by democratizing waste collection and involving citizens in waste policing and management. Addo, et al. (2015), advocate for community participation in sanitation improvement programs, including recycling and sensitization of waste-related diseases.

2.4.3. Social factors to tourism influenced land conversion

The study further proceeds with another domain i.e. social factors that consisted of hoteling/buildings, capitalist interest, unplanned residential sprawl and

infrastructural changing. These entire domains variable were operationalized under the cover of tourism influenced land conversion phenomena in explainable terms.

2.4. Hoteling/buildings

Excessive tourism activities in a region can lead to the construction of new hotels and buildings to accommodate the growing number of visitors. This rapid development can have several impacts on the environment and local communities, and change in the construction of hotels and buildings for tourism can result in land use change, leading to the conversion of natural habitats or agricultural land into urbanized areas (Zaei, 2013). This can result in habitat loss, fragmentation, and biodiversity loss. Excessive tourism activities can strain local infrastructure such as roads, water supply, waste management systems, and energy resources (Wester, et al., 2019). This can lead to increased pollution, congestion, and pressure on natural resources. Visual pollution, the construction of large hotels and buildings, can alter a region's visual landscape, impacting the area's aesthetic appeal and potentially diminishing the overall visitor experience. The influx of tourists and the construction of new hotels can also have social impacts on local communities, such as changes in cultural practices, increased cost of living, and displacement of residents (Westen, 2014).

Hoteling and marketing in tourist areas increase traffic that disrupt the natural environment and ecology. Deller, (2012) documented the impact of such activities on the life/mating cycle of the organisms as well as damaging their environment. He also highlighted that the term "eco "is erroneously prefixed with tourism as something wholesome while turning pristine eco-systems into damaged or degraded places for animals and birds. Del Rosario, (2020) believes that co-tourism has also been found to objectify local people into marketable commodities. It is also documented that tourism encourages a higher volume of traffic to generate revenues, and visitors take a toll on the environment. He says that in the last three decades, the gravity of the situation has been given some serious attention. Increased greenhouse gas emissions, loss of biodiversity due to degradation or disappearance of habitat (coastal areas, mountain abodes, wilderness areas and small islands), and over-consumption of resources have all changed the natural world around us (Gössling, 2002).

A study by the Indian government (GOI, 2009) also records the damaging effects of hoteling and marketing. It directly points to these as the main culprits behind

air and solid pollution. It says the rising number of tourists in India has caused a boom in traffic and construction. That boom has, in turn, increased the amount of greenhouse gases and incidents of acid rain, global warming and photochemical pollution. The carbon dioxide emissions in the area where they were found have caused irreparable damage to the holy caves in Ajanta and Ellora. The reports point out such irresponsible acts like tour buses running their engines idle to keep the air cool while waiting for tourists to return. Noise pollution is also a direct cause of annoyance, stress, and hearing loss in humans and wildlife (Gessese, 2018).

Pearce, (1989) has focused on tourism's social and cultural impact. He discovered that increased tourism supported by non-local money leads to tensions among locals and foreigners. If the tourists and locals are socially and culturally different, tourism is more likely to objectify or demean the local way of life and tradition. Renes, (2015) *and* Antrop, (2005) documented that excessive Urbanization and industrialization have led to intensified use of land in rural areas in general but also, in particular, in hilly areas where land is a precious and limited commodity have studied the devastating effect of tourism-related hoteling and marketing in the critical watersheds areas of Hindu Kush- Himalaya ranges. The study argues that any further unplanned and unsupervised tourism in the area will take its toll on the 35,000 species of plants, 200 animal species, 36 hotspots of biodiversity of the ranges, which, incidentally, are also the source of five major rivers of South Asia (Xu, 2018).

2.8. Capitalist interest

Capitalist interest in tourism can also result in negative consequences. The pursuit of profit may prioritize short-term gains over long-term sustainability, leading to overdevelopment, exploitation of natural resources, and environmental degradation in scenic areas (Azadi, et al., 2011). This can result in biodiversity loss, pollution, and disruption of local communities and cultures. Due to tourism in scenic areas, capitalist interest can lead to positive and negative impacts on the local economy and environment (Miše, 2021). On the positive side, tourism can bring significant revenue and investment to the area, creating job opportunities and stimulating economic growth. This can lead to developing infrastructure, services, and amenities that benefit tourists and residents (Linderman, et al., 2005).

Williams, (2009) decries the claim that “eco-tourism” brings about positive changes in an area by “enhancing” local cultures. He discredits the assumption by proving that the accompanying capitalist interest that demands to benefit from such contacts results in systematically destroying Indigenous people socially, economically and culturally, who often lose their lands, homes and livelihoods through fraudulent practices. Winter, (2009) also studied the impact of capitalist interest on the local populace. He discovered that local people are often forced into marginal lands with harsh climates and poor support for their way of life. More disturbingly, if their culture or appearance differs from the visitors, they are then reduced to the status of novel objects (Chassagne, 2021).

In economic terms Ahmad, (2015) notes that capitalists with considerable funds at their disposal, buy off lands from the locals who cannot invest or develop. He concluded that since the local population is agricultural-based, once they lose their lands, they cannot adopt a new livelihood and may perish. Due to a lack of awareness and government oversight, capitalist greed is rampant in developing or underdeveloped countries. Macdonald, et al. (2000) also consider capitalist interest in rural areas as the cause of the reduction of agricultural land and its productivity as more and more land is converted to tourist facilities since they have no interest in agriculture. Huber, et al. (2018) and Pedrono, et al. (2016) also connect this capitalist appropriation of agricultural, grass or wild lands as related to climate-change problems as it disrupts the natural mechanism of various ecosystems. Ali, (2020) draws attention to the issue as more severe since the target of current tourism in mountainous regions has a more significant role in the continued sustainability of life in the plains. Verburg, et al. (2009) and Cai, (2004) argue that since change in the use of land directly influences the functionality of ecosystems, it causes man-made disasters like climate change and vulnerability of human existence. Wijesekara, et al. (2012) is also of the view for the past several years, the capitalist practices of humans can be proven to have a more significant role in environmental and climate changes.

The rapid unplanned urbanization in mountain regions seriously threatens economic, social and environmental sustainability. Jarah, et al. (2019), warned that such rampant activities may pose a more severe threat to our economic, environmental and social sustainability in the future. UNEP, (1999) also reported that tourism puts pressure on water resources at their source. Human activities tax these resources at a far

greater pace than they can replenish themselves. Additionally, capitalist interests contribute to climate change, global warming, etc., and thus double its impact (Salinas-Fernández, 2019).

2.9. Unplanned residential sprawl

Unplanned residential sprawl from tourism can significantly negatively impact the environment, infrastructure, and local communities. When tourism destinations experience rapid growth without proper planning and regulation, it can lead to unchecked expansion of residential areas into previously undeveloped or agricultural land. This can result in several detrimental effects of environmental degradation. Unplanned residential sprawl can lead to habitat loss, fragmentation, and destruction of natural ecosystems (Oth-Man, 2020). It can also result in increased pollution, deforestation, and biodiversity loss as more land is cleared for housing and infrastructure development. The strain on infrastructure, the sudden influx of residents due to tourism-related residential sprawl can strain existing infrastructure such as roads, water supply, sewage systems, and waste management facilities (Charara, et al., 2011). This can lead to congestion, increased resource demand, and inadequate services for residents and tourists. Unplanned residential sprawl can also disrupt local communities and traditional ways of life, leading to social tensions, loss of cultural heritage, and changes in community dynamics. It can also increase pressure on social services and amenities, affecting residents' quality of life (Klaric, (2015).

Sunlu, (2003) measured the Carbon Monoxide emissions from a single transatlantic flight to equal the amount of CO₂ emissions a person produced in one year. Gawande, (2011) also found that apart from producing air pollution, the tourism sector is also a significant contributor to land degradation. The study estimated that around 0.34% of the globally available land was consumed by tourism and approximately a large chunk of the world's total energy in 2001. The figure is likely to be much higher now. Likewise, Aall, et al. (2011) warned that tourism could directly affect the quality of air, soil, and water, and as the biota of any Indigenous environment. Buckley, (2011) also found that tourism adds excessive solid waste and increases pollution to the local environment. Andereck, et al, (2005) attribute the lack of awareness on the part of residents of the tourist area as the cause of the mushrooming of unplanned construction that has adverse effects on the environment.

Mottaleb, (2007) also notes that even though governments all over the world praises and encourages tourism as a potential source of revenue, they often do not plan or conduct prior studies to measure the adverse effects of tourism on the local area beforehand. This, he argues, is the real cause behind our failure to meet the Sustainable Development Goals (Derdemezi, 2022).

2.10. Infrastructural changing

Infrastructural changes regularly in areas experiencing high levels of tourism due to the need to accommodate the influx of visitors and provide necessary amenities and services (Pileri, 2020). Tourism often leads to improvements in transportation infrastructure, such as the construction of new roads, airports, and public transportation systems to facilitate the movement of tourists within the area accommodation (Velichkina, 2014). The demand for accommodation in tourist destinations result in the construction of new hotels, resorts, and vacation rentals to meet visitors' needs. This can lead to changes in the landscape and urban development patterns. Tourism can pressure existing utilities and services such as water supply, waste management, and energy infrastructure (Mangunsong, 2018).

As a result, upgrades and expansions may be necessary to support increased tourist demand. Recreation and entertainment facilities: To attract tourists, destinations develop new recreational and entertainment facilities such as theme parks, museums, shopping centers, and cultural attractions (Kobylkin, 2021). These additions can change the overall character of the area preservation and conservation efforts in response to the environmental impacts of tourism; destinations may invest in infrastructure for conservation and preservation, such as eco-friendly facilities, wildlife sanctuaries, and protected areas to maintain the natural beauty and biodiversity of the region overall, infrastructure changes in tourist destinations are essential to support the growth of tourism while balancing the needs of local communities and preserving the environment for future generations. It is necessary for destination managers to carefully plan and manage these changes to ensure sustainable development and positive outcomes for all stakeholders involved (Hogland, 2020).

Saha *and* Paul, (2020) modelled a matrix for land use change to calculate the impact of tourism on land cover. They found that they are decreasing rapidly due to the appropriation of land for uses connected with tourism, agricultural land, vegetative

covers, aquaculture, sand dunes, and bodies of water around coastal spots of tourist attractions. These natural formations are cleared for the construction of tourism-related enterprises, thus transforming these patches of land for good. Hjalager, (2013) likewise investigated around 213 disputes over lands in Denmark's coastal areas and found the tensions being caused by landscape transformation through construction and reconstruction.

Tuan, (2019) studied the investment strategies of foreign and domestic investors to erect new hotels in Vietnam. He found that while foreign investors tend to invest in improving and upgrading existing facilities, local investors construct them on new lands. Since any solid laws governing property rights are absent in Vietnam, land developers try to appropriate lands either on the periphery or in far-off scenic spots for hasty and haphazard construction that is taking a toll on the natural environment.

Reports from the UNEP, (1997) *and* ICAO, (2001) try to measure the impacts of changing the landscape for tourism and the accompanying hazards on the pollution levels that contribute to CO₂ emissions and climate change. ICAO reported that the number of air passengers globally increased from 1972 to 1994 to about 344 million from 88 million. Approximately 60% of that increase in air travel was traced to tourism. UNEP calculated that about half of the rise in CO₂ emission from the same period is attributed to tourism. Likewise, cruise ships sailing in the Caribbean Sea have been estimated to leave some 70,000 tons of waste annually. All this contributed to the changing landscapes in the newly developed areas for tourism that provide more constructions to house the visitors (Jovanović, 2016).

Holloway, (2019) points out the contradictions of tourism in a scenic area. Tourists are drawn to a particular spot for its pristine and wild beauty, but its activities degrade the same attributes over time. Newly built facilities like cafes, parks, signposts, toilets and hotels have a degrading effect on the beauty of a scenic spot. He notes that from Waikiki (Hawaii) to Benidorm (Spain), tourism has transformed the cultural and traditional appeals of the area as the new architectural style is in stark contrast to the charm of the areas while the scenic beauty is no more as pristine with the concrete establishments. Ironically, after such spots cease to be charming, tourism moves into farther and remotest enclaves only to degrade them and move on once more.

Gessese, (2018) also talks about rampant construction that degrades land, causes water erosion, etc. Atik, (2010), while studying the coastal areas, found out that those land infrastructure changes ultimately led to eliminating attributes that made the area attractive in the first place. Kamwi, (2018) explored the connection of change in land use with the population density in the area of tourist attractions, distance from the nearest urban centers and accessibility. Rondhi, (2018) found out that agricultural land is the first to suffer conversion into concrete structures that have a worse impact on the area's ecology.

Statistics of Bandung Regency (2018, 2019) reported the conversion of agricultural land in the Lembang sub-district of West Bandung Regency in Indonesia. Lembang sub-district was famous for its agricultural produce, but tourism activities changed its landscape. Almost 72% of all tourist facilities in the Regency restaurants and hotels are found in the Lembang sub-district, which has changed the landscape from agricultural green lands into a concrete jungle. Without the increased tourism in the sub-district, it is unlikely that land conversion on such a scale could have taken place. Ruswandi, (2016) while working in the same area, found out that land ownership by the locals has decreased, and the new owners have been using the land for agriculture. Budiasa, (2015) have identified the increase in population through the development of tourism in an area as an essential cause of change in land use. A higher level of tourism can be elitist and does not include low-income or minority groups in the economic benefits of the activities. They are left only with informal ways like prostitution and street hawking. Research reveals that local culture is often "fabricated" to attract tourists. Thus, such tourist activities negatively affect material artifacts, daily lives and performances of the local populace. High-rise and expensive structures built amidst ordinary and backward homes also engender a sense of inferiority.

2.11. Tourism influenced land conversion

Tourism significantly influence land conversion in many areas, leading to various environmental and social impacts. The development of tourism infrastructure, such as hotels, resorts, golf courses, and other amenities, requires the conversion of natural landscapes, agricultural land, or forests into built-up areas. This can result in habitat loss, fragmentation, and degradation, leading to declining biodiversity and ecosystem services (Machado, 2021). Land conversion for tourism can also have social

implications, such as displacement of local communities, loss of traditional livelihoods, and changes in land ownership patterns. In some cases, large-scale tourism developments can lead to conflicts over land rights and resources and unequal distribution of benefits among different stakeholders. It is essential for destination managers and policymakers to carefully consider the impacts of tourism-related land conversion and implement sustainable land use planning practices to minimize adverse effects (Nakovski, 2020).

This can include conducting environmental impact assessments, preserving critical habitats and cultural sites, promoting responsible tourism practices, and engaging with local communities to ensure their participation and benefit from tourism development. By balancing the needs of tourism with environmental and social considerations, it is possible to achieve sustainable and inclusive tourism development that benefits visitors and residents. Sofronov, (2017) laments that natural resources are often mercilessly utilized for tourism to drive them toward depletion in the long term, the contribution of about 20% of air pollution by tourist-related facilities in Europe is a cause for alarm.

Firman, (1997) considers the repurposing of agricultural land for the requirement of tourism as the main reason behind rising air pollution and energy insecurity. The study believes that agricultural land can offset the impact of urbanization, but its rapid disappearance may prove fatal in the long run. He advises that the government must seek a balance between economic development through tourism and the environment's safety. Alabbad, (2021) Studies the demographic, social and economic factors along with technological advancement, urbanization and land-use policies that contribute to the degradation of agricultural lands. It identified road networks, proximity, and distance from cities influencing landscape changes. Ng'ayu, (2015) found that the same factors are responsible for buying and selling agricultural land, determining land use, and how these can heavily impact water supply, climate, etc., in a tourist area.

Nguyen, (2022) studies the connection between clear and enforceable property laws and the conversion of agricultural lands in Vietnam, where, in theory, the state, as representative of the people, owns almost all land in their name. The study found that apart from being a cause of tension between tourism-driven development and local

people, the ambiguities inherent in the laws are accelerating the process of agricultural land. Van, (2009) identified the same absence of clear laws as often working contrary to the government goal of tourism development, as land acquisition in a proper legal way can be a lengthy process. Mangione, (2010), on the other hand, recognized the same practice as encouraging unplanned and unregulated appropriation of agricultural land at a more incredible speed than can be controlled. Tuan, (2019) makes an interesting observation. He discovered that since improper and clear laws hamper foreign investment, locals step forward. He observed that while foreign investors tend to improve existing infrastructure and facilities, locals erect buildings from scratch on agricultural land. This contributes significantly to the disappearance of lands used previously only for agriculture. Xiang, (2017) also studies the land-grabbing phenomenon in China after the development of tourism in the country and recorded its negative impacts on the environment, ecology and sustainability of the region.

Navarrete-Hernandez, (2018) while conducting a study in Ghana, advocated that to halt or reverse some of the worst effects on land conversion, cooperation between tourism developers, residents and experts should be instituted to create sustainable development cycles. Oteng-Ababio, (2012; Rockson, et al., (2013) and Cobbinah, et al. (2017) studied the vast waste generation due to land conversion from agriculture to construction. Although they all lament that such lands are fast going towards depletion, recycling regimes should be put in place along with waste management institutions to arrest the untoward effect of the process. They argue that the schemes can thrive by bringing in the local population and interest into the fray.

2.12. Synthesis of literature review

Tourism is a large and growing industry generating massive revenue through foreign exchange for the developing countries. Unfortunately, they are not equipped to make the tourism sustainable with minimal effect of the environment, ecology and culture. Pakistan, a developing country, also has a great tourism potential. It is important that by taking locals and non-local investors aboard, it implements strategies for sustainable tourism. The present study has been designed to proceed on these paths while exploring the potential of tourism in District Swat, KP, Pakistan. It studies the effects on agriculture production, land degradation, a threat to bio-diversity, population pressure, sand mining/ extraction, environmental pollution, hoteling/ buildings,

capitalist interest, unplanned residential sprawl, and infrastructure changing with tourism influenced land conversion through the two domain variables of environmental and social factors.

III. RESEARCH METHODOLOGY

This chapter is comprehensively focused on various steps adopted and extended for this study. It is consisted of universe study design, sampling design, tools of data collection, conceptual framework and method of data execution.

3.1. Study design

The present design is a plan of work explaining all the major steps involved. It also brings economy in time and procedure of the research. A study design is composed of all the necessary steps taken in conducting a research endeavor. A cross-sectional study design was followed for the present study, which has been considered the most appropriate way of taking up such issues based on perception measurement, dealing with human behavior. It is a one-time plan to extract information from the respondents on any topic under investigation (Babie, 1989).

3.2. Universe of the Study

The present study was conducted in Distract Swat Khyber Pakhtunkhwa, Pakistan. There are seven tehsils (administrative unit below district and above union council level) in district swat, namely Babuzai, Matta, Kabal, Khwazakhel, Bahrain, Barikot and Charbagh. It has a covered area of 5337 Sq (KM) and is the fifth most populated district in the Province. Two village councils (VCs) each were purposively selected from each tehsil for being important tourist spots. Total populations of 3205 household heads were residing in their chosen VC's.

3.2.1 Pilot Study

Before the actual data collection, a pilot study was conducted to assess the feasibility. A group of research workers (5 persons) trained in explaining the interview schedule was hired. The pilot study identified the errors and mistakes in the interview schedule, which were successfully removed before embarking on the actual study.

3.3. Sampling and Sample Size determination

A sample size is the smallest unit from the population, representing it in terms of major characteristics. Sampling is the technique involving the collection of sample from a larger whole to derive inferences. Accurate sampling techniques validate the reliability of results (Robert, 2004). The present study was conducted using multistage sampling techniques, which were adopted to select the above sample. In the first leg of the

sampling, 14 village councils were chosen perposively from these seven tehsils, while two village councils (tourist spots) randomly from each tehsil being tourist spots. A primary survey was conducted as mentioned in (3.5.1) was also conducted. A sample size of 345 were calculated from total population size of 3205 on the basis of Sekaran, 2003) procedure. The determined population size was distributed in all selected VC's through proportional allocation method.

3.4. Proportional allocation formula

$n_i = (N_i/N) \times n$ (Equation-1) (Bowley, 1926).

n = Total sample size required for researcher.

N = Total population in study area.

N_i = Total population in each village.

n_i = Sample size required from each village.

Table 3.1. Proportional allocation of required sample Size to selected Neighbor Councils/ village councils

S.No	Tehsils	Village councils		Total households	Sample size
1	Bahrain	Uttoor	(NC)	288	31
		Kalam	(VC)	260	28
2	Charbagh	Kishawera	(VC)	187	20
		Malamjba	(VC)	167	18
3	Khwazakhela	Gabain jaba	(VC)	151	16
		Miadam	(VC)	190	20
4	Kabal	Dadahara park	(VC)	210	23
		Kanju bridge	(VC)	261	28
5	Matta	Jarago abshar	(NC)	171	18
		Kharerai	(VC)	195	21
6	Babuzai	Marghozar	(VC)	251	27
		Islampoor	(NC)	314	34
7	Barikot	Tindodak	(VC)	281	30
		Shamozai	(VC)	277	31
				3205	345

Source: Field Survey, 2023

3.5. Data collection

A well-structured interview schedule encompassing all the study variables were designed to obtain information on the study was designed on likert scale. It had subdivisions based on characteristics, each representing a separate section. These were representing the demographic profiles, independent and dependent variables mainly spelling over the study's theoretical background with categorization as yes, no. The constructed interview schedule was pre-tested, and all inconsistencies were omitted, if any, to get the highest degree of consistency in light of the study's objectives.

3.6. Conceptual framework

The conceptual framework was composed three backgrounds variables with ten independent variables and one dependent variable respectively as shown between in table 3.2. given in the table.

Table 3.2. Conceptual framework

Background Variables	Domains	Independent Variables	Dependent Variable
1. Age 2. Family type 3. Monthly Income	Environmental Factors	Effects on agricultural production	Tourism influenced land conversion
		Land degradation	
		Threat to bio-diversity	
		Population Pressure	
		Sand Mining/Extraction	
		Environmental pollution	
	Social Factors	Hoteling/Buildings	
		Capitalist interest	
		Unplanned residential sprawl	
		Infrastructural changing	

3.7. Likert scale

The Likert scale technique is deemed the most accurate way of obtaining information from the respondent in a conspicuous manner, either yes or no. It helps the

respondent to be specific and objective. Moreover, the proper response collected is also supposed to be highly reliable. It is often applied in perception-based studies (Katori, 1996).

3.7.1. Measurement of variables

The researcher developed the ‘land conversion Scale’ in light of the procedures designed by Jahoel-Gijsbers & Vrooman, (2007) to measure land conversion to commercial use. There were ten significant variables, i.e., effects on agricultural production, land degradation, threat to bio-diversity, population pressure, sand mining/extraction, environmental pollution, hoteling/buildings, capitalist interest, unplanned residential sprawl, and infrastructural changing, with one dependent variable, i.e., tourism influenced land conversion. (See conceptual framework 3.9.1). Its primary objective was to obtain maximum unbiased and reliable results.

3.8. Uni-variate analysis

The univariate analysis included description statistics such as frequency count and percentage calculation of the entire study variable (background, demographic, independent variables) the percentage were calculated by using equation-4 (Chaudhry, and Kamal, 1996). Given below

$$\text{Percentage of data class} = \frac{f}{N} \times 100$$

F = frequency of data class

N = number of observations in the data set.

3.9. Bi- variate analysis

All the independent variables were cross-tabulated in bivariate analysis for associational purposes with the dependent variable. In bivariate analysis, chi-square test statistics were also used to determine the association level between the dependent and independent variables.

3.10. Multivariate Analysis

A multivariate analysis was conducted to establish whether the relationship between the two variables was spurious or non-spurious. Background variables such as

age, monthly income, and family type were kept under context control, and the rest of the dependent and independent variables will be cross-tabulated to investigate the spurious or non-spurious relationships. Chi-Square was applied along with T^b statistics to measure the association between variables.

3.10.1. Indexations

Respondents' attitudes towards the study variable are usually assessed in social sciences through indexation. Indexation is a technique involving the compaction of more than one statement to measure a variable (Nachmias, *and* Neickmen 1992). The indexation of variables in the current study was carried out to facilitate the bi-variate and multi-variate analysis for the present study. In the first instance, the dependent variable, namely (tourism influenced land conversion) was indexed and cross-tabulated with all the dependent variables, namely (effects on agricultural production, land degradation, threat to bio-diversity, population pressure, sand mining/ extraction, environmental pollution, hoteling/ building, capitalist interest, unplanned residential sprawl, infrastructural changing). Moreover, chi-square test statistics were applied along with T^b statistics to obtain inferences.

3.10.2 Chi-square (χ^2) test statistics

Chi-square test statistics were applied to explore the relationship by obtaining the level of significance. It was explained through the formula devised by (Chaudhary, 1994).

$$\chi^2 = \sum_{i=1}^c \sum_{j=1}^r \frac{(O_{ij} - e_{ij})^2}{e_{ij}}$$

As moreover, fisher exact test was applied whenever the assumption of X²-test was violated the fisher exact test was represented by the formula.

Chi-Square (χ^2) test was used while adopting the procedure outlined by McCall and Robert, (1975).

Where

(χ^2) = Chi-square for two categorical variables

O_{ij} = the observed frequencies in the cross-classified category at i th row and j th column

E_{ij} = the expected frequency for the same category, assuming no association between variables under investigation

The formula entails the procedure of degree of freedom which is represented below:

$$df = (r-1)(c-1)$$

Where

Df = Degree of freedom r = the number of rows

3.10.3. Tau-b (T^b) Value

Furthermore, tau-b statistics was applied to assess the data direction of the relationship between variables, i.e., dependent and independent. This tool is beneficial in interpreting the relationship between the variables above in terms of strength and direction. It usually ranges from 1^+ to 1^- respectively (Nachmias, *and* Neickmen 1992).

3.10.4. Reliability

Reliability speaks about the internal consistency of the measurement scale used in the current study, which is the prerequisite of indexation procedures. Internal consistency of scale is checked through reliability analysis tests, with Cronbach's alpha test reflecting the internal consistency between the scale items. A scale Cronbach's alpha value of 0.6 or greater is reliable (to be internally consistent) and suitable for indexation (Ghazali, 2008). Cronbach's Alpha coefficient was used to ascertain the consistency level of the statement. A maximum of 0.6 or above is deemed as the accurate representation.

3.10.5. Ethical consideration

The American Psychological Association's ethical standards for research were adopted in litter and spirit. These considerations included taking care of the

respondent's dignity in light of the perspectives Oliver, (2003) *and* Berg, (2009) gave. The revised data collection tool was double-checked for ethical issues through pretesting and correcting accordingly.

1. Authority letter was obtained from the university to ensure the respondents regarding confidentiality of information and its use for academic purpose only.
2. Only those respondents were interviewed who willing to participate after informed consent were interviewed.
3. The participant of the interview could terminate the interview at any stage of data collection.
4. At any stage the respondents are free not to give any information.

IV. RESULTS AND DISCUSSION

This chapter explains the pattern of analysis and interpretations or explanations of the data. Section 4.1 covers the demographic and socio-economic sketch of the respondents. Section 4.2 elaborates univariate encompassing both independent and dependent variables, namely analysis of the respondent (dependent variable, i.e., tourism influenced land conversion) and dependable variable (effects on agricultural production, land degradation, threat to bio-diversity, population pressure, sand mining/ extraction, environmental pollution, hoteling/ building, capitalist interest, unplanned residential sprawl, infrastructural changing,) and section 4.3 is based on bivariate analysis of the dependent and independent variables through application of chi-square statistics and subsequent interpretation.

4.1. Respondents Profile

Respondents' profiles consist of their age, literacy status, educational level, marital status, family type, family size, occupation status, occupational status of the respondents, and their monthly income. The results of the respondents' demographic profile are discussed below.

4.1.1 Age of the respondents

Table 4.1.1 Disclosed the age of the respondents, and it was found that 34.8% of respondents were aged between 25-35 years, 27.5% following ages ranged between 36-45 years similarly, and 24.9% ages between 46-55 years. In addition, 12.8% of the respondents' ages were ranged above 56 years old respectively. Younger individuals, such as teenagers and adults, may be more inclined towards adventurous activities like hiking, water sports, or exploring vibrant city life. They often have the energy and enthusiasm to participate in physically demanding activities. Middle-aged individuals, on the other hand, may prefer a mix of relaxation and exploration. They may enjoy cultural experiences, sightseeing, and trying local cuisine. They may also appreciate activities that offer a balance between adventure and comfort. Older adults may prefer more leisurely activities like guided tours, visiting historical sites, or enjoying scenic landscapes. They may also prioritize comfort and accessibility when choosing their travel destinations. It's important to note that these are general observations and individual preferences can vary. Ultimately, age suitability for tourism activities

depends on personal interests, physical capabilities, and the availability of suitable facilities and services at the destination Rabotić, (2010).

Table 4.1.1. Frequency and percentage proportion of respondents on the basis of their age

S.No	Age	Frequency	Percent
1	Youth from 25 years to 35 years	120	34.8
2	Young adult 36 to 45 years	95	27.5
3	Middle age adulthood 46 to 55 years	86	24.9
4	Older adult above 56years	44	12.8
	Total	345	100.0

Source: Field Survey, 2023

4.1.2 Literacy status of the respondents

Table 4.1.2 Explained that the majority, 70.7%, were literate while 29.3% were illiterate of the respondents. It was apparent from the data that literacy was prevalent in the study area. A person's level of education only partially determines the preference for tourism. People from all educational backgrounds can be interested in and engage in tourism activities. The decision to participate in tourism is influenced by various factors such as personal interests, financial resources, cultural background, and accessibility. Educated individuals may have a broader knowledge base and may be more inclined to seek educational or cultural experiences during their travels (Deng, 2021). They may have a greater appreciation for historical sites, museums, art galleries, or attending cultural events. However, uneducated individuals still enjoy and appreciate these activities as well. On the other hand, uneducated individuals may have different motivations for engaging in tourism. They may prioritize relaxation, leisure, or spending time with family and friends. They may enjoy activities such as beach vacations, nature exploration, or visiting amusement parks. It's important to note that these are general observations and individual preferences can vary greatly. The decision to engage in tourism is personal and can be influenced by many factors beyond education level Buhalis, (2015).

Table 4.1.2 Frequency proportion and percentage of the respondents on the basis of their literacy status

S.No	Literacy Status	Frequency	Percent
1	Literate	244	70.7
2	Illiterate	101	29.3
	Total	345	100.0

Source: Field Survey, 2023

4.1.3 Educational level of the respondents

Table 4.1.3 explains that the majority, 22.9%, were primary while 22.3% were metric of the respondents. Similarly, 21.7% were middle, 18.8% were at the intermediate level of the respondents, and 14.2 % were above intermediate, respectively. People of various educational levels can engage in tourism activities, and the choice to participate is not limited to a specific educational level. However, different educational levels may have different preferences and motivations regarding tourism. Primary level education: Individuals with a primary level education may prioritize family-oriented tourism activities. They may prefer destinations with family-friendly attractions such as theme parks, zoos, or beaches (Lee, 2011). They may focus on leisure and relaxation rather than educational or cultural experiences. Middle-level education: Individuals with a middle-level education may have a broader range of interests and preferences. They may be more open to exploring different tourism activities, including cultural experiences, adventure tourism, or nature-based activities. They may be curious about other cultures, history, or natural environments. Metric-level education: Individuals with a metric-level education (high school diploma or equivalent) may have broader interests and preferences (Chang, 2022). They may be more inclined to seek educational experiences during their travels, such as visiting historical sites, museums, or cultural events. They may also be interested in adventure tourism, outdoor activities, or exploring new destinations. Above matriculated people: Individuals with higher levels of education, such as college graduates or postgraduates, may have a deeper appreciation for intellectual and cultural experiences. They may be more interested in engaging with local communities, participating in educational tours, or attending academic conferences or workshops related to their field of interest. They may also be more inclined towards sustainable tourism practices or volunteer tourism. It is important to note that these are general observations, and individual preferences

can vary greatly. A person's educational level does not solely determine their tourism preferences, as personal interests, financial resources, and cultural background also play significant roles in shaping individual choices Sun, (2009).

Table 4.1.3 Frequency proportion and percentage of the respondents on the basis of their educational Level

S.No	Literacy Status	Frequency	Percent
1	Primary (5years)	79	22.9
2	Middle (8years)	75	21.7
3	Metric (10years)	77	22.3
4	Inter mediate (12years)	65	18.8
5	Above intermediate	49	14.3
	Total	345	100.0

Source: Field Survey, 2023

4.1.4 Marital status of the respondents

Table 4.1.4 explains the marital status of the respondents. The table indicated that the majority of the respondents, i.e., 58.3%, were unmarried, followed by 41.7% who were married. It is apparent from the information that both of the mentioned categories enriched the study at hand. Both married and unmarried individuals across the globe participate in tourism activities Dotson, (2015). The decision to engage in tourism is not limited to marital status but is influenced by personal interests, financial resources, availability of time, and other factors. Married individuals may travel with their spouses and families, seeking opportunities for bonding, relaxation, and creating lasting memories together (Hyde, 2018). They may opt for family-friendly destinations and activities that cater to the needs and preferences of their loved ones. Unmarried individuals, including singles, couples, and friends, also participate in tourism. They may have more flexibility in terms of travel plans and destinations. They may seek adventure, exploration, or opportunities to meet new people and experience different cultures. It is important to note that the decision to engage in tourism is highly individual and can vary significantly based on personal circumstances and preferences. Marital status alone does not determine one's inclination or ability to participate in tourism activities Wong, (2002).

Table 4.1.4 Frequency proportion and percentage of the respondents on the basis of their marital status

S.No	Marital Status	Frequency	Percent
1	Married	144	41.7
2	Unmarried	201	58.3
	Total	345	100.0

Source: Field Survey, 2023

4. 1.5. Family type of the respondent

The majority of the respondents, 51.6%, were from joint families. 34.5% disclosed in the table (4.1.5) belonged to nuclear families. In addition, 13.9% had representation from extended families as well. It could be deduced from the information that cultural preservation of family structure existed despite the transition toward a nuclear setup. The type of family that mostly goes for tourism can vary depending on individual preferences and circumstances. However, it is common for nuclear families, consisting of parents and their children, to engage in tourism activities Sparks, (2007). This is because nuclear families often have more flexibility in travel plans and can easily make decisions based on their preferences. Joint families, which include multiple generations living together, may also go for tourism, but the decision-making process may involve more coordination and consideration of different family members' preferences. Extended families, which include relatives beyond the immediate family, may also participate in tourism. However, the logistics and decision-making process may be more complex due to the more significant number of individuals involved. Ultimately, choosing which type of family goes for tourism depends on various factors such as personal preferences, financial considerations, and the availability of time and resources Yiannakis, (2002).

Table 4.1.5. Frequency proportion and percentage of respondents on the basis of their Family Type

S.No	Family Type	Frequency	Percent
1	Nuclear	119	34.5
2	Joint	178	51.6
3	Extended	48	13.9
	Total	345	100.0

Source: Field Survey, 2023

4.1.6. Family size of the respondents

The majority of the respondents, 78% family size, were between 1-5 members (table 4.1.6). Similarly, 20.3% had between 6-10 members, while 1.7% belonged to the category of above 10 huge family size, i.e., 10 members and above could be attributed to an extended family setup. The family size, which is crucial mainly for tourism activities, can vary depending on the specific destination and type of activity. However, smaller family sizes, such as 1-5 members, are often more flexible and easier to manage during tourism activities. Smaller families can make decisions and travel arrangements more efficiently, and they may have more options for accommodation and transportation Yiannakis, (2002). Additionally, smaller families may find engaging in certain activities requiring less coordination and logistical planning easier. However, larger family sizes, such as 5-10 members or above 10, can also enjoy tourism activities. While larger families may require more coordination and planning, they can also benefit from shared experiences and the opportunity to bond during travel. Some destinations and activities may even offer group discounts or special packages for larger families. Ultimately, the ideal family size for tourism activities depends on the preferences and dynamics of the family members, as well as the specific requirements and logistics of the chosen destination and activities Horner, (2007).

Table 4.1.6. Frequency proportion and percentage of the respondents on the basis of their Family size

S.No	Family Size	Frequency	Percent
1	1-5	269	78
2	6-10	70	20.3
3	and above 10	06	1.7
	Total	345	100.0

Source: Field Survey, 2023

4.1.7. Occupation status of the respondents

Most respondents, 78% family size, were between 1-5 members (table 4.1.6). Similarly, 20.3% had between 6-10 members, while 1.7% belonged to the category of above 10 huge family size, i.e., 10 members and above could be attributed to an extended family setup. The family size, which is crucial mainly for tourism activities, can vary depending on the specific destination and type of activity. However, smaller

family sizes, such as 1-5 members, are often more flexible and easier to manage during tourism activities. Smaller families can make decisions and travel arrangements more efficiently, and they may have more options for accommodation and transportation Tapper, (2006). Additionally, larger family sizes, such as 5-10 members or above 10, can also enjoy tourism activities. While they may require more coordination and planning, they can benefit from shared experiences and the opportunity to bond during travel. Some destinations and activities may even offer group discounts or special packages for larger families. This unique aspect of larger families' travel experiences should not be overlooked Tambe, (2015).

Table 4.1.7 Frequency proportion and percentage of the respondents on the basis of their occupation status

S.No	Occupational Status	Frequency	Percent
1	Employment	203	58.8
2	Un Employment	142	41.2
	Total	345	100.0

Source: Field Survey, 2023

4.1.8. Occupation of the respondents

Table 4.1.8 shows that the majority of the respondents, 38.6% were Government Servants. 25.5% were Agriculture. Similarly, 20.3% of the respondents were engaged in private business and dealings, while the remaining 15.7% were self-employed. Out of the total 58.9% employment representation, shown in Table 4.1.8. Their information showed that people had easy access to the job market. The existing job market was characterized by several professional ladders ranging from self-employment to government services and private businesses Dowler, (2006). The class most associated with tourism can vary depending on various factors such as personal preferences, financial capabilities, and time availability. However, self-employed individuals working in private businesses often have more flexibility in scheduling and can plan their travel according to their preferences. They may have more control over their work schedules and can take time off for tourism activities Smith, (2017). Agriculturists and government servants may have more structured work schedules and must consider factors such as agricultural seasons or official leave policies. However, they can still engage in tourism activities by planning their trips during off-peak

seasons or utilizing their vacation time. It is important to note that individuals from any class can participate in tourism activities, and the choice to engage in tourism is not limited to a specific class. Ultimately, the association between class and tourism is influenced by individual circumstances, preferences, and the ability to allocate resources for travel Gentry, (2007).

Table 4.1.8 Frequency proportion and percentage of the respondents on the basis of their nature of occupational

S.No	Occupational	Frequency	Percent
1	Self Employed	54	15.7
2	Agriculture	88	25.5
3	Government servant	133	38.6
4	Private business	70	20.2
	Total	345	100.0

Source: Field Survey, 2023

4.1.9. Monthly income of the respondents

Table 4.1.9 indicates the monthly income of the respondents in Pakistan currency. It was found that the majority, 47.2%, had a monthly income of Rs (above 35000). Similarly, 29.6 % had income between (Rs 25000-350000, whereas 23.2% had above income of (15000-25000) respectively. Table 4.1.9 revealed that people had prosperous lives and had enough income to feed and educate their offspring's other family members. The monthly income level typically closer to tourism can vary depending on various factors such as personal preferences, cost of living, and individual financial circumstances. However, individuals with a monthly income above 35000 are generally more likely to have the financial means to engage in tourism activities Campos-Soria, (2014). With a higher income, they may have more disposable income for travel expenses such as transportation, accommodation, and leisure activities. Individuals with a monthly income between 25000-35000 may also be able to participate in tourism activities, although their options and choices may be more limited compared to those with higher incomes. They may need to prioritize their spending and make more budget-conscious decisions regarding travel. Individuals with a monthly income between 15000-25000 may find engaging in extensive tourism activities more challenging, as their income may be more focused on meeting basic

needs and essential expenses Snyman, (2012). However, they may still be able to participate in local or more affordable forms of tourism, such as day trips or visiting nearby attractions. It is important to note that these income ranges are generalizations and can vary significantly depending on location, cost of living, and individual financial priorities. Ultimately, the decision to engage in tourism activities is a personal one that depends on individual financial circumstances and priorities Skinner, (2011).

Table 4.1.9 Frequency proportion and percentage of the respondents on the basis of their monthly income

S.No	Monthly income	Frequency	Percent
1	Below 15000-25000	102	23.2
2	PRs 25000-35000	163	29.6
3	And above 35000	80	47.2
	Total	345	100.0

Source: Field Survey, 2023

4.2. Uni-variate Analysis

4.2.1. Effects on agricultural production

The land occupies a partial place amongst the natural resources, followed by social, economic, and ecological activities. Any change in land affects the prevalent natural environment, causing out. Impacts on the existing ecosystem included forest cover, grassland, etc. However, artificial replacement tourism in this aspect adopts a significant change agent, which has also affected the changes in the Swat Valley, i.e., the study area's contribution to the livelihood (Arshad, 2018 Ali, et al., 2010). The tourism central portion consisted of hotels and guest houses to accommodate rising tourists. However, it suffered a setback due to misuse in the areas. These mainly were destroyed jobbed and partially damaged by the Taliban and subsequent use of force by the Pakistan security forces as a resulting outcome of a blood war between their major destructions, coined out by Taliban were ski- resort at Malamjaba which was widely reported by print and electronic media. Moreover, an unprecedented amount of food in 2010 further damaged existing tourism facilities, such as road communication hotels and guest houses. Furthermore, on the male side, the people had a significant attachment to agriculture-related activities, including animal grazing, which put much pressure on the existing resources by threatening the ecosystem, biodiversity, and scenic beauty (Ahmad, 2015; Naeem, 2017 Shahbaz, 2021).

The majority of the respondents, 61.7%, supported the statement that the development process of tourism activities is essentially a process of land use, which is also one of the significant causes of changes in land use patterns. In comparison, 38.3% of respondents negated the statement Manka, (2008). Even where tourism infrastructural is not adjacent to the wildlife, many tourists will still journey to view fantastic flora and fauna. As mentioned at the beginning of the chapter, transport can cause pollution. However, we also need to recognize that frequent visits by tourists can impact the breeding patterns of wildlife, their patterns for foraging for food, and their natural defense responses to humans Knight, (2009). As mentioned earlier in the chapter, more than 45,000 tourists travel to Antarctica annually. The tourist ships traveling to the continent can be an issue for birdlife in the region. Birds, especially prion and petrel species, land on ships operating in the Southern Ocean and become stranded. The legs of petrels and prions are not designed to walk, so the seabirds have difficulty taking off again. Without careful management, these can lead to a decline in the population size. This has affected loggerhead turtles in Greece, Turkey, and the Caribbean. They become distracted from laying their eggs by the bright lights of tourist resorts or the use of searchlights to observe their coming ashore to lay eggs on the beach. The land is an essential natural resource and the focal hub of all economic, ecological as well and social activities of human beings Spalding, (2013). Change in the use of the land would ultimately result in affecting our natural environment by altering the surface area (e.g., bodies of water, climatic conditions, ecological spheres, cultural landscape, etc.) and having an impact on the ecosystem or natural landscapes forested areas, grasslands, etc. which are systematically and gradually replaced by human-made artificial construction (McMurry, 1930). In addition to these factors, there are particularly vulnerable mountain areas with peculiar conditions like land cover disturbance, fragility of the environment, and seasonal tourist activities Fletcher, (2022). The ecosystems of High-lands tend to be inherently fragile and are characterized by marginal resilience; therefore, their susceptibility to human interferential activities like trampling of soil and vegetation, disturbing the native wildlife, and dumping of waste, is exceptionally high (Buckley, et al., 2011). Tourism is directly related to water quality due to the construction of touristic infrastructures, the recreation of boats, and other activities of cruise industries Jamal, (2018). Pressure is increased on the existing sewage systems, and plant treatment often results in overflows during the tourism season. The health hazard is further aggravated due to

recreation, boating, the quality of water, the sewage system, and limited flushes, especially near shellfish beds. However, tourism is often a significant user of freshwater in areas where water is scarce or where renewal rates of aquifers are limited, and its contribution to water consumption can be nationally and regionally significant. For instance, tourism accounts for up to 7.3% of national water consumption in Barbados, Cyprus, and Malta. These elements may cause many diseases, such as dysentery, infections of hepatitis, typhoid fevers, and non-specific gastroenteritis (Seabloom, 1989).

The moment you start an automobile for a tourist activity, the adverse effect on air quality starts from that point (Andereck, 1993). Carbon Monoxide is the result of automobile transportation. According to a 1998 survey, the emission rate was 27 million short tons compared with 1.8 short tons from marine vehicles; 1.2 million was contributed by aircraft (UNEP, 1997). More specific and exact information regarding vehicle air pollution is complex and non-available. However, the data on heavy-duty tour buses shows that they caused the emission of 1.6 Million tons in 1998 Boitani, (2007). Roads, rails, and air transportation are frequently used for touristic activities. According to ICAO (International et al. Organization), the level of international air passengers has considerably increased; one reason may be that tourism is responsible for more than 68 percent of air traveling and is the primary cause of air pollution. The study shows that even a single transplanted return flight emits about half the CO emission produced by any other source, such as using cars, lights, heating, etc. (Murad, 2012).

Moreover, most respondents, 59.4%, agreed that Tourism development directly or indirectly impacts land use or conversion. In contrast, 40.6% negated the statement. It could be assumed from these findings that respondents had a clear random pertaining area tourism-related activities with their positive and negative impact. These findings are closely similar to Browne, (2022) findings that any activities with the fasted traversing mountain's existing environment are detrimental to the ecosystem and landscape. Furthermore, it also led to deforestation and subsequent decrease in agricultural land and nature scarcity. Major tourism activities, such as infrastructure installing industries and recreational activities, along with the hoteling business, negatively affect the existing land patterns Strickland-Munro, et al., (2010). The destruction of existing land patterns due to the construction of aim pal snorkel and

hiking activities, littering, and bulldozing the vegetation are further associated damages (Ali, 2020).

In addition, most % of the respondents, 74.8%, favored the statement that the rapid expansion of tourism activities and construction activities had led to a reduction in agricultural land. In comparison, 25.2% were against the statement. Tourism, as one of the basics of a country's economy, contributes to an area's uplift and raises life standards. However, it does impact the environment and land use patterns negatively. Lanya, (2017) and Kurniawan, (2016) have disclosed that tourism development led to the establishment of a communication network along with tourist facilities, which deteriorated the local forest and biodiversity as well (Boori, 2015); these arguments were further supported (Lupu, 2018) that although tourism encourages cultural diversity but negative affect the local fauna and flora.

Most respondents, 78.5%, showed that Tourism activities could destroy flora and fauna. In contrast, 23.5% had negated the statement. Mountainous is the terrestrial ecosystem component that actively contributes to local ecological safety by preserving Indigenous resources. The caver of China is no exception where 46.11% of the area is extending its role in maintaining the ecosystem where a billion people are residing (Shen, 2022 and Zhong, 2013) to avoid encroachment and fragmentation of the biodiversity (Huang B, Huang, Kuang 2018, 2019, 2014) while fragmentation caused by tourism in habitats constitutes a lethal threat to biodiversity in mountainous areas (Wei, 2014, Gaston, 2007, Wen L, 2006).

Likewise, the majority of the respondents, 59.1%, supported the statement that Tourism results in the destruction of ecosystems and the extinction of multiple species of fauna due to the massive presence of visitors, whereas 40.9% disagreed. These findings were similar to the findings above. An ecosystem is defined as a particular geographic area with all its living organisms (flora, fauna, humans, and micro-organisms) and its physical features (air, soil, water), which helps in subsistence by ensuring natural cycles Couto, (2023). Furthermore, urbanization and industrialization were other factors detrimental to this sustainable phenomenon due to tourism (Snijders, 2012; Browne, 2022).

In addition, the majority of the respondents, 80.6%, supported the statement that Tourism, especially mass tourism, causes degradation and loss of natural landscapes, landscapes, historic sites, and monuments. At the same time, 19.4% did not agree with

the statement. Mountainous areas are peculiar in their characteristics, where fragility is part of their land nature and seasonal dynamics (Yego, 2012). Disturbance of the ecosystem due to slowed abrupt changes threatens the existing vegetation along with the displacement of local wildlife species due to unwanted human activities of tourism. As reported in Tamil Nadu, India which alluded toward the degradation of natural resources and intimidation of indigenous wildlife species due to noise and other related pollution (Theobald, 1994 *and* Hoque, 2013).

Table 4.2.2 further mentioned that most of the respondents, 79.4%, supported the idea that Tourism developments harm the environment and significantly change, whereas 20.6% negated the statement. The recent use of tourism-related activities in different parts or spots of Pakistan in seasonal and the study area (Swat) in particular has indicated tourist the establishment of a policy to protect the local environment, especially the mountainous area, from the influx of local and international tourists (Kurniawan, 2016) & Lanya, 2017). Similarly, Vehbi, (2012) explained that the damage to biodiversity, water flow, local ecology, and agriculture is being threatened by these tourist activities. It requires greater attention to streamline the interplay between cumulative social and economic dynamics, conspicuous focus on ecological preservation to contain pollution, and the fall of the seasonal crowd.

The majority of the respondents, 71.9%, had viewed the statement that the development of mountain tourism has led to continuous encroachment on the adequate habitats of species in natural reserves; in contrast, 28.1% had negated the statement. Although economic development has taken place at the cost of threatening the local prevalent ecosystem, as reported in Sanya, Hainan Island, which had put under tremendous pressure the local ecological similar findings were also reported by Du, (2018) *and* Wang, (2015) in China through quantitative analysis of the urban and distribution towns of tourism.

Moreover, the majority % of the respondents, 80.6%, supported the statement that Tourism and land forestation are paradoxes paradoxical. However, 19.4 % negated the statement. Land, being a vital resource and center of human existence, is more sensitive to human activities, which may alter the physical characteristics of an area by threatening the forest cover due to rapid urbanization, as reported in China by Deng, (2009). Much focus has been emphasized on assessing the relationship between the

land uses, visitors' economy, and the sustainability of nature in the area. Several mistakes have been identified that need to be avoided (Hammes, 1994).

In addition, the majority of the respondents, 61.7% reported, rated the idea that Land reduction in agriculture had not reduced production due to the application of the latest know-how in land cultivation, while 38.3% opposed that statement. These findings could be attributed to the locals being in support of tourism-related activities. Such activities have drastically altered the existing resource cover point and turned significant inferences as the environment and agriculture land (Li Z, 2006) and Liang, (2003) have further augmented the degradation of environment ecology and biodiversity due to tourism.

Furthermore, the majority of the respondents, 59.4%, supported the statement that Orchards and other local fruits are diminished due to replacement by tourism sites, while 40.6% negated the statement. Koskowski, (2021) has also alluded to faster local population pressure as the primary factor in the change in landscapes and preserving biodiversity in Gilgit-Baltistan (Girard, 2009). The failure of the Government to advise strategies to cope with such an emerging situation is an alarming situation that needs immediate rehearsal (Debarbieux, 2015).

Moreover, the majority of the respondents, 74.8%, supported the statement that People are willing to do land conversion as tourism is more profitable than ordinary agriculture, while 25. % opposed to the idea of the viewers. Bunruamkaew, (2012) recognized tourism as the primary agent of change as found to be more economically viable, thus putting farmland on the agricultural profession in terms of economic return (Yang, 2019) and Chai, (2021) which has led to transforming the rural social and ecological dynamics Campbell, et al. (2021) Zeng, (2020) Cao, et al. (2023) and Wang, (2010).

In consonance with the above, the majority % of the respondents, 76.5%, supported the statement that Tourism entails development but at the cost of existing agricultural land, while 23.5% were against the statement. Disclosed though tourism is the replacement of the existing agriculture with a boost in infrastructure accommodation and other related activities as the cost of the local environment initiative has led to the loss. Productive land, disturbance of local agricultural practices, and social and cultural attention in life patterns (Fletcher, 2022).

Table 4.2.1 Frequency and percentage distribution of the respondents on the basis of effects on agricultural production

S.No	Attribute	Yes (%)	No (%)	Total
1	The development process of tourism activities is essentially a process of land use, which is also one of the major causes for changes in land use patterns.	213(61.7%)	132(38.3%)	345(100)
2	Tourism development has a direct or indirect impact on land use or land conversion.	205(59.4%)	140(40.6%)	345(100)
3	The rapid expansion of tourism activities and construction activities had led to reduction in agricultural land.	258(74.8%)	87(25.2%)	345(100)
4	Tourism activities can destroy the flora and fauna.	264(78.5%)	81(23.5%)	345(100)
5	Tourism results in the destruction of ecosystems and extinction of multiple species of the fauna due to the massive presence of visitors.	204(59.1%)	141(40.9%)	345(100)
6	Tourism and especially mass tourism causes degradation and loss of natural landscape, historic sites, and monuments.	278(80.6%)	67(19.4%)	345(100)
7	Tourism developments harm the environment, especially changes in land use.	274(79.4%)	71(20.6%)	345(100)
8	The development of mountain tourism has led to continuous encroachment on the effective habitats of species in natural reserves.	248(71.9%)	97(28.1%)	345(100)
9	Tourism and land forestation are paradox in nature	278(80.6%)	67(19.4%)	345(100)
10	Land reduction in agriculture has not reduced the production due to application of latest know how in the land cultivation.	213(61.7%)	132(38.3%)	345(100)
11	Orchards and other local fruits are diminished due to replacement by tourism sites.	205(59.4%)	140(40.6%)	345(100)
12	People are willing to land conversion as tourism is more profitable than ordinary agriculture.	258(74.8%)	87(25.2%)	345(100)
13	Tourism entails development but at the cost of existing agriculture land.	264(76.5%)	81(23.5%)	345(100)

Source: Field Survey, 2023

4.2.2. Land degradation

Urban economy considers growth and development, but its primary intervention has crippled the existing physical and economic growth social system entailing the ecosystem as well. Thus, it is deemed detrimental to the co-existence of both the preservation of local heritage and up to dry of the growth initiative. Some other natural

factors could also contribute to the disturbance of this natural phenomenon, such as the recent flood in swat and lower and upper Dir, which badly affected the wildlife species due to the artificial efforts in constructing tourist resorts along river sides. Some wildlife species, like Markhors bodies, were viewed from flood water, indicating extreme damage to the area's wildlife, as Ali Z. (2010) reported. Moreover, the partridge population in Dir also saw a reduction of 30% due to conducive and threatening environments of flood attending towards its habitat disturbance (Naeem, 2017). The data further dismantled that almost 55 thousand (55,000) acres of land had been washed away by this flood, along with several livestock being taken away, resulting in enormous losses to the farming community while leaving the land unable for cultivation (Kalhor, 2022; Qureshi, 2019).

The majority of the respondents, 78.3%, supported the statement that tourism activity directly causes land degradation, while 21.7% disagreed. Land degradation is indispensable to any country's intervention in addressing the prevalent ecological culture. Although several activities have been taken for the sake of development and economic growth of the local human land at the cost of the local environment, China is one of the leading examples where the focus is being made not to destroy the existing ecological structure through development initiatives are undertaken Yang, (2022), Weaver, (2014) has also focused on showing the detrimental aspect of urbanization. It succeeded in displaying that all the periphery land around any urban intervention is being converted to urban sprawl, including the agricultural land and wildland due to transformation and leisure activities increased tourism is directly related to environmental degradation, landscape, and ecosystem Tyrväinen, et al. (2014) and Firouzjaie, (2022).

Moreover, % of the respondents, 81.1%, agreed that Tourism directly impacts both degradable and non-degradable natural resources, while 15.9% negated the statement. These findings endorse the results above further. Zhang, (2021) has also pointed out the lethal outcomes of the development initiatives over wildlife and agricultural land. Tourism development means converting the natural lands into mass-oriented activities like entertainment, such as constructing new buildings, roads, and other related infrastructure with the influx of people around, challenging local cultural patterns (Fang, 2004).

In addition, most % of the respondents, 75.1%, favored the statement that tourism causes deforestation, whereas 24.9% were against the statement. It is obvious that forest cover is under tremendous threat of urbanization, with particular reference to tourism. Studies conducted on various points have come up with the fence that tourism resulted in activities that have faded away the Indigenous lifestyle, new schedule the local tribal culture, and transformed the local dwelling or houses industrial hubs as outlined by Henning, (2011) *and* Ocejio, (2011) by referring to the example of central java Indonesia.

In addition, the majority of the respondents, 78.6%, showed that tourism activity also demolishes cultivated land. In contrast, 21.4% had negated the statement. These results indicated the transformation of local dynamics due to the inception of tourism-related business. The local socio-economic and cultural dynamics undergo a shape altogether in an institutionalized manner. The labor force statement from the population is deemed the culprit of environmental degradation and a pressure group eroding the local system. The creation of population and production of wasteland degradation and the emergence of inequalities based on earning and, in some cases, breeding property are the investment outcomes (Mahonge, 2015 *and* Dorokhov, 2021).

Likewise, 80.9% of the respondents supported that agricultural lands are gradually transformed by tourism due to the absence of any relevant law, whereas 19.1% disagreed. The rise of tourism and the increase in population has put immeasurable pressure on the attitude of recreational areas like study areas. Their activities have disturbed the existing environments, primarily in the hot season from May to September, which has endangered the bird's migratory cycles, animals and plant growth, etc. Couples with traversing mountain trails to the ecosystems and landscape alternations, these transformations are the direct outcomes of the prevalence of relevant laws and regulations to protect the agricultural land while imposing restrictions on conversion and tourism-related activities. Encroachment of infrastructural development in agricultural land is leading to the loss of agricultural land, and the lack of a coherent model has pushed tourism and agricultural land degradation as an existential paradox in nature (Wall, 2016; Vass, 2006).

However, most % of the respondents, 82.3%, reported that Construction and reconstruction, infrastructure transformation, and landscape transformation have put

immense pressure on the existing pattern of land. In comparison, 17.1% had negated the idea of the respondents. Ecosystem means protecting the flora and fauna with the preservation of the existing environment and inhabiting humans with a sense of commercialism by not compromising upon the existence of one another. However, it has been noticed that the rise in tourism, especially in the mountainous regions, has badly destroyed this assumption as envisaged from these findings. The establishment of industry and conversion of the areas into urban dwellings has no longer guaranteed co-existence, rather dominating the local culture and ecological dynamics by urbanization trends Possingham, (2008).

Moreover, the majority of the respondents, 77.7% agreed with the statement that the Economy, due to tourism development, threatens the livelihoods of the indigenous people who primarily work as farmers, while 22.3% negated the statement. These findings express the transition in which the local profession has undergone changes. People, together with traditional professions, are professing to focus on the new life trends. Geels, (2010) also concludes that human activities based on urbanization and industrialization has turned the prevalent direction into new ways of life in the industry. It could be done to sustain their way of life from the trade routes (Browne, 2022).

Furthermore, the majority of the respondents, 74.8%, reported that Tourism affects land degradation and necessary land resources, including minerals, fossil fuels, fertile soil, forests, wetlands, and wildlife, while 25.2% were against the statement. These findings aligned with the proceeding outcomes. Such a vast situation necessitates the importance of making local people nature of their property, which may be a catalyst towards restricting the rising trend in urbanization due to tourism Cobbinah, (2017), which may marginalize these physical and urban activities altered at the cost of the local ways of life (Nguyen, 2022). Furthermore, the new laws cannot protect the property rights of their Indigenous communities (Van Westen, 2017). Tourism has been driven by the sense of capitalist approach, which dictates surrounding the property rights into the hands of wealthy investors, demolishing or ending the local livelihood property or rights (Mangione, 2010).

Notwithstanding, most % of the respondents, 75.9%, agreed with the statement that Frequent visits to tourists have not only disturbed the ecosystem but have also brought other related miseries like noise pollution. In comparison, 24.1% did not favor the

statement. Urbanization in Ghana has been characterized by the encroachment of ecologically sensitive areas, slums, the rise of informal economic activities, and unauthorized use of land urban spaces with no exception to these changes (Owusu, 2019). Such developments have resulted in synergism in rising risks, uncertainties due to urban activities, shortage of potable water sanitation, etc., coupled with the emergence of an informal economy and health hazards. All these are often negatively co-related with proper culture sustainability and the Indigenous local social system (Oteng-Ababio, et al., 2012; Amoako, 2018; Long, 2022).

The majority of the respondents, 80.9% supported the statement that land degradation is also visible through changing housing patterns, such as conversion to big farmhouses, while 19.1% of respondents disagreed. Rising tendencies in residential settlement based on own living and commercial purposes have turned around the whole map of the study area. These findings closely resemble the inferences of (Cobbinah, 2017). Those changes in socio-cultural and demographic profile have created havoc or chaos in various new settlements across the globe. These unbridled activities have turned everything into commercial consideration, squeezing down the existing spaces, which has disorganized the traditional socio-economic activities due to tourism, and people experiencing poverty felt more non-existent threats in the cities.

. Moreover, the majority of the respondents, 78.3%, agreed that Non-local influential like law enforcement agencies have also constructed their own colonies, which further converted the existing land, while 21.7% negated the statement. Likewise, one of the significant impacts of large-scale tourism is the exerting pressure on the local social life, pressing hand the religious practices and beliefs of the local population. A local food consumption pattern has also changed. These findings were similar to those of (Garau-Vadell, et al., 2018), that overcrowding burdens the civil facilities of the local social life (Almeida-García, et al., 2016; Johnson, 2009; and Alshuwaikhat, 2005).

Table 4.2.2 Frequency and percentage distribution of the respondents on the basis of land degradation

S.No	Attribute	Yes (%)	No (%)	Total
	Tourism activity directly causes land degradation	270(78.3%)	75(21.7%)	345(100)
2	Tourism impact directly on natural resources, both degradable and non-degradable	290(84.1%)	55(15.9%)	345(100)
3	Tourism causes deforestation.	259(75.1%)	86(24.9%)	345(100)
4	A tourism activity also demolishes cultivated land.	271(78.6%)	74(21.4%)	345(100)
5	Agricultural lands are gradually transforming by tourism due to absence of non-existing of any relevant law.	279(80.9%)	66(19.1%)	345(100)
6	Construction and reconstruction, infrastructure transformation, and landscape transformation has put immense pressure on the existing pattern of land.	284(82.3%)	61(17.7%)	345(100)
7	Economy due to tourism development, poses a threat to the livelihoods of the indigenous people who mostly work as farmers.	268(77.7%)	77(22.3%)	345(100)
8	Tourism affect land degradation and important land resources, including minerals, fossil fuels, fertile soil, forests, wetland and wildlife.	258(74.8%)	87(25.2%)	345(100)
9	Frequent visits of tourist has not only disturbed the eco-system but has also brought other related miseries the noise pollution.	262(75.9%)	83(24.1%)	345(100)
10	Land degradation is also visible in the form of changing housing patterns like conversion to big farm houses.	279(80.9%)	66(19.1%)	345(100)
11	Non-local influential like law enforcing agencies have also constructed their own colony, which further converted the existing land.	270(78.3%)	75(21.7%)	345(100)

4.2.3. Threat to bio-diversity

Seasonal recreation is touching its climax from May to August every year in Pakistan's northern part and the Swat valley. Hundreds of thousands of tourists power into this area to such pleasure while enjoying the cool splashes of the weather. Despite such lack of scale, human moments bring alongside the flow of income to the locals in tourism (Termansen, 2013). However, there is tremendous pressure on the local

infrastructure, population, biodiversity, and ecosystems (Qasim, (2010). Most species are either damaged or perished due to this continuous animal moment of tourism, which states the existing biodiversity also Shahbaz, (2006).

The majority of the respondents, 30.1%, did not favor the statement that, In terms of its negative impact, tourism has the potential to over-consume natural resources, while 69.9% of respondents supported the statement (Seto, 2013). Tourism has been acknowledged to be more consuming, even utilizing the local shares in food and property. Moreover, it also became a change agent regarding violating the prevalent ecology. The major sufferer is the local environment, with special reference to agriculture, which has been considered to threaten the ecosystem balance in the shape of land conversion and emission of greenhouse gases. Moreover, biodiversity, including the local flora and fauna, has also had detrimental effects as it is prone to industrialization while altering the local ecology in the mountainous areas. Hindu Kush Himalaya, the breeding place for inhabiting almost 35000 species, is under threat in terms of existence due to tourism-related activities (Li Z, 2006; Antrop, 2005; Wester, et al., 2019; Cao, 2003).

Moreover, the majority of the respondents, 44.3%, were against the natural, artificial, and cultural resources that tourism relies upon are liable to affect biodiversity, while 55.7% supported the statement. Zhang, (2021), while studying scenic spots, observed that a rise in tourism entails the gradation and improvement of civic facilities. Such improvised attempts diminish the prevalent local flora and fauna, disrupting existing environmental cycles that have protected various indigenous species. The progressive tourism phenomenon ensures human beings sans the destruction of biodiversity, wildlife, and ecosystems (Loperena, 2017).

In addition, 56.5% of the respondents 56.5% favored the statement that Tourism development, exploiting tourism resources, and constructing tourism infrastructure can change the surface structure, land, soil, and vegetation, posing a threat to bio-diversity, while 43.5% negated the statement. Liang, X. (2020) and Chen, (2009) have also focused on such activities as rapid development to change the negative progression of biodiversity. Although man is behind these development initiatives, probably responsible for the destruction of the traditional way of life and prevalent natural

resources ending in the breeding property, resources degradation, and destruction of existing ecology (Baidal, 2003 and Albrecht, 2011).

Furthermore, the majority of the respondents, 54.8%, showed that the agricultural land in all scenic spots decreases annually due to tourism. In contrast, 45.2% did not support the statement. Likewise, 80.0% of the respondents, 80.0% were supported the statement that tourists do not protect the natural environment and resources due to ignorance or indifferences, whereas 20% did not agree. These findings show that agricultural land and pressure on local resources due to the influx of tourism in the study area have increased. Similarly, those findings confirmed Yang, Z. (2012). inferences that infrastructural development to promote tourism has endangered biodiversity as more land is required for enhancing the capacity, which usually ends up at the cost of local wildlife inhabitants. Moreover, the development of new physical interventions is changing the typography, which may also cause social erosion by putting local human communities and wildlife at risk. In such cases, the balancing methodology between humans and nature needs to be included (Wassie, 2020; Yang, 2016).

However, 66.6% of the respondents 66.6% supported the statement that International and national-level tourism is seen to have a potentially destructive relationship with the natural or scenic environment. In comparison, 33.3% negated the idea of the respondents. International and national tourism both coincide in achieving aims and objectives detrimental to the local environment. Increased human activities handle pollution, population pressure on local resources, deforestation, and overfishing, which often harm the environment (Possingham, 2008). The only way to contain such activities could be a sustainable model, which may ensure damage to the climate and local resources (Telfer, 2015; Calfucura, 2012). Such a model must focus on water, electricity exhaust control from vehicles, and proper disposal of waste. Its management is, in absolute terms, involving local communities to harmoniously mitigate the distress of pressure on local resources (Sharpley, 2006).

It was further shown from the table that the majority of the respondents, 67.2%, favor the statement that tourism is argued to be the prime threat to Indigenous habitats and natural resources, while 22.8% negated the statement. These findings aligned with Xu Z (2022), who also explored such findings in his studies. He further pointed towards

disrupting the existing chain of livelihood amongst cultural heritage and natural resources as the main target of tourism-related activities. Habitat destruction of the local wildlife and biodiversity are other tourism characteristics. Moreover, the enhancement of infrastructural facilities through construction further strains the environment for local fauna, flora, and local human communities (Ahmad, 2019 Ainooson, 2023).

Furthermore, the majority % of the respondents, 52.5%, opined that the existing ecosystem and biodiversity are under constant threat of perishing due to their threatening habitats, while 47.5% were against the statement. The existing ecosystem and biodiversity are under constant threat of perishing due to the destruction and degradation of their habitats, as coined from the findings of this study. Deforestation due to urbanization and climate change often threatens the fragile ecosystem. However, it leads to habitat loss, land fragmentation, and subsequent degradation, resulting in a decline in local wildlife species. Even if made, conservation efforts may yield little positive results (Kumar, 2022; Sharples, 2009; Weiskopf, 2020).

However, most of the respondents, 72.5% opined the statement that No law or measures have been taken in part of the relevant departments to preserve bio-diversity. In comparison, 27.5% did not favor the statement. The preservation of biodiversity is a complex issue; however, it is essential to design by taking in lines all significant and relevant departments for formulating and implementing the law about preserving biodiversity. These strategies must be centralized by establishing protected zones, plans of wildlife conservation, and regional law formulation and enactment to help sustain biodiversity on sustainable grounds. However, practical efforts need to be made by regularly revisiting these laws and recommending amendments to the growing needs and demands of the situation (Lockwood, 2021; Saizarbitoria, 2017; Tang, 2022).

The majority of the respondents, 64.4%, Supported the statement that the Lack of a visitor's calendar to import preservation instructions has further deteriorated the existing species in the area. In comparison, 35.4% of respondents negated the statement. Those findings supported the earlier findings that a stringent law encompassing every aspect must be designed calendar one of its internal parts as highlighted by Sharma, (2010) that with proper awareness and guidance, tourists consider themselves prevalent while negotiating the local customs, traditions, and

importance of flora and fauna protection. Moreover, such laws will help tourists adopt genetic traits like not littering and disturbing wildlife by caring for existing biodiversity (Clams, 2017; Otero, 2017).

Table 4.2.3 Frequency and percentage distribution of the respondents on the basis of threat to bio-diversity

S.No	Attribute	Yes (%)	No (%)	Total
1	In terms of its negative impact tourism has the potential to over-consume natural resources.	104(30.1%)	241(69.9%)	345(100)
2	The natural, man-made and cultural resources that tourism relies upon are liable to affect bio-diversity.	153(44.3%)	192(55.7%)	345(100)
3	Tourism development, and exploiting tourism resources and constructing tourism infrastructure can change the surface structure, land, soil and vegetation, posing threat to bio-diversity.	195(56.5%)	150(43.5%)	345(100)
4	The agricultural land in all scenic spots shows a decreasing trend annually due to tourism.	189(54.8%)	156(45.2%)	345(100)
5	Tourists do not protect the natural environment and resources either due to ignorance or indifferences.	276(80.0%)	69(20.0%)	345(100)
6	International and national level tourism are seen to have a potentially destructive relationship with the natural or scenic environment.	230(66.7%)	115(33.3%)	345(100)
7	Tourism is argued to be the prime threat to indigenous habitats, and the natural resources.	232(67.2%)	113(32.8%)	345(100)
8	The existing ecosystem and biodiversity are under constant threat of perishing due to their threatening habitats.	181(52.5%)	164(47.5%)	345(100)
9	No any law or measures have been taken in part of the relevant departments to preserve bio-diversity	250(72.5%)	95(27.5%)	345(100)
10	Lack of visitor's calendar to import preservation instruction has further deteriorated the existing species in the area.	223(64.6%)	122(35.4%)	345(100)

Source: Field Survey, 2023

4.2.4. Population pressure

Tourism has been identified as one of the economic development processes with the highest return in terms of benefits. However, it is also detrimental to the prevalent environment, with a significant focus on the deterioration of land, such as beaches and

ecosystems. Tourism is a holistic change approach in economics, which generates employment, uplifting the GDP and GNP, and a subsequent rise in the living standard of an area. One latent factor associated with using terms that are often overlooked is the need to be scared. This problem is the problem of population pressure. Tourism brings several tourists from inland and internationally, exerting pressure on the local population, such as their vital accommodation amongst food, transportation, and other means of communication. This, amongst such massive activities, often makes the local system dysfunctional due to its inability to negotiate, which results in disarray. Specific experts like (Lages, 2011 Salleh, 2011 *and* Ahmed, 2015) have pointed out the lacunas in Pakistan's industry.

The majority of the respondents, 77.4%, did not support the statement that Understanding land use dynamics is very important in formulating proper policy for land use in the mountain regions to manage population pressure, while 22.4% of respondents negated the statement. Land use patterns and population trends coexist in every part of the world. Collaboration of environmental protection and human movements, either in search of food or leisure, are two explicit aims revolving around the land. In the case of Europe, the Alps, which are spread over almost 10 countries, are known for their tourism. It has been observed that scores of tourists passing the ALPS cities have led to deforestation and a population, stressing the need to formulate immediate containment policies. Mansour, (2020) has also viewed the fragile nature of mountainous regions, with challenges prevailing regarding their ecosystems and the area's sustainability due to population pressure. The need to devise strategies regarding land use while considering forests, agriculture, infrastructure development, and tourism and conservation has been identified as the core areas (Vlek, 2014; Abebe, 2023; Mansour, 2020).

Moreover, the majority of the respondents, 84.1%, reported that Population pressure had put pressure on resources, causing them to deplete, while 15.9% disagreed. These findings also support the earlier inferences that population pressure is putting pressure on local resources, resulting in further demand for food, water, and energy, which results in a rise in the cost of hiring as their resources are damaged from outside. Furthermore, overexploitation of the available land space and infrastructure is another depletion regarding tourism that has put such pressure on population progress (Odhiambo, 2017 Ghosh, 2012).

In addition, most of the respondents, 73.6%, favored the statement that the Huge population is one of the significant causes of pollution and carbon dioxide production, while 26.4% negated the statement. An increased population leads to a high demand for energy and food, and humans engage in hectic activities, emitting more Corbin dioxide. Moreover, it also invites miseries like small and scale industries to produce the required items at low cost, albeit pollution like air, water, and soil, respectively. Moreover, the exhaustion of transportation activities and burning fossils are other hazardous climate outcomes (Henning, 2011).

Similar to the above, the majority of the respondents, 77.4%, showed the statement that a huge population due to tourism negatively affects the development of housing, sanitation, and drainage, which changes in the form of diseases and affects the local environment negatively, while 22.3% did not support the statement. Housing, i.e., construction patterns, have changed, focusing on accommodating more in limited spaces to meet tuber of tourist requirements. Such alternations in housing patterns put pressure on sanitation, drainage, and other cleanness efforts. Moreover, it has replaced the traditional ways of losing energy with power water management drivers. Such initiatives are deemed as the potential environmental pollution threats need to address the sustainability issues of infrastructural More accommodation of tourists with proper sanitation and drainage systems are essential policy changes to cope with the fall of the tourism industry (Waseq, 2020, Henning, 2011).

Likewise, the majority of the respondents, 79.7%, supported the statement that Population pressure on account of tourism causes poor housing and an unregulated informal economy leads to improper waste disposal with adverse health and environmental consequences, whereas 20.3% did not agree. Adverse outcomes of population pressure are enormous, such as poor housing conditions and the dilapidated status of the local economy. Moreover, the influx of tourists also exerts pressure on the local infrastructure, which is already substandard. No regulations exist to properly monitor the existing informal economy to address the demands of tourists ending up in total limbo. Connell, (2011) has also indicated that tourism results from improper waste management systems that harm public health and local environments. Improper waste management pollutes public spaces and water channels, sustaining existing resources, especially water, and turning land and ecosystems dysfunctional. Reusing and waste

management strategies are the core areas to regulate such inadequacies to avoid the threatening results of population pressure (Bello, (2017; Dennison, 2012).

However, most of the respondents, 81.2%, reported the statement that a massive population due to tourism can create such negative aspects as crime, poverty, and urbanization, which are conditioned and shaped by social, and psychological, environmental dynamics; in comparison, 18.8% negated the idea that the respondents. Rise in tourism and population have often brought about alternation in population dynamics. The increase in population has been observed to embody the emergence and subsequent use of crimes, poverty, and other social and psychological abnormalities Leonard, (2020). The clash of interacting cultures of tourists and locals creates gaps in understanding, resulting in the emergence of novel acts where communities are part of the participants in their acts. Suppose the prevailing social milieu may add to the social system. In that case, however, being negated if otherwise, resulting social gap social structures have been disrupted by these rapid changes as new ways have challenged the traditional ways of life and strained the local resources, etc., any intervention pertaining must accommodate the policy of community engagement for distribution of benefits while focusing in environmental (Smith, 2017, Dennison, 2012).

Moreover, the majority of the respondents, 76.8% agreed with the statement that the disordered and uncontrolled commercial activities and limited parking spaces and sanitation facilities hinder the natural environment functionality due to population pressure, while 23.2% negated the statement. Increased population pressures on the limited parking and drainage resources hinder their activities' optimization. Such pressure often results in habitat destruction of the local species. Moreover, using disorganized commercial activities contributes to contamination and destroys the ecosystem (Khan, 2014; Makinde, 2012).

Furthermore, the majority of the respondents, 74.5%, reported the statement that the survival of the rural atmosphere is threatened by colossal population pressure, while 25.5% negated the statement. The rise in population is directly related to the high demand for resources. Such demands are usually met by pressure on the prevalent structures like infrastructure, agriculture, and business in the mal setups. Rural economies need more space to expand themselves due to their small size. Such pressure

puts it vulnerable to delivery and shortage of food, water, and agricultural output (Scherbov, 2013; Agarwal, 2019).

However, most of the respondents, 75.7%, agreed that more than enormous population pressure has put immense pressure on the existing road facilities, not enough to cope with the demanding trend in the area. In comparison, 24.3% did not favor the statement. Immensely leading to traffic road congestion, resulting in much time consumption for small areas with more time pol, badly destroying the atmosphere; proper policy as part of transport authority to mitigate such distress is often stressed by the urban policy makers Hanifah, (2012). Such policy may entail the expansion of existing local facilities besides. Constructing new proper traffic management systems and exploring new uses of transport to address the issue of congestion efforts must be sustainable and for a more extended period. The concepts of carpooling, the use of electric vehicles, and making public transport accessible are the keys to success (Korattyswaroopam, 2007; Brashares, 2008).

Furthermore, the majority % of the respondents, 80.6%, supported the statement that more visits' raise the population and exert pressure on the local dilapidated drainage system, while 19.4% of respondents negated the statement. These findings endorsed the overall theme of the preceding outcomes. They indicated the major cause of population pressure as presumed on drainage both change of roads due to congestion, stressful resource conditions, contamination of water channels, and inadequate space to cater to the rising needs (Hughes, 2011; Gawande, 2011 Zhai, 2013).

Table 4.2.4 Frequency and percentage distribution of the respondents on the basis of population pressure

S.No	Attribute	Yes (%)	No (%)	Total
1	Understanding land use dynamics is very important in formulating proper policy for land use in the mountain regions to manage population pressure.	267(77.4%)	78(22.6%)	345(100)
2	Population pressure has put pressure on resources causing them to deplete.	290(84.1%)	55(15.9%)	345(100)
3	Huge population is one of the major causes of pollution and the production of carbon dioxide.	254(73.6%)	91(26.4%)	345(100)
4	Huge population due to tourism negatively affects the development of housing, sanitation and drainage which changes in the form diseases and affect the local environment negatively.	268(77.7%)	77(22.3%)	345(100)
5	Population pressure on account of tourism causes, poor housing and unregulated informal economy lead to improper waste disposal with negative health and environmental consequences.	275(79.7%)	70(20.3%)	345(100)
6	Huge population due to tourism can create such negative aspect as crime, poverty and urbanization is conditioned and shaped by social, psychological environmental dynamics.	280(81.2%)	65(18.8%)	345(100)
7	The disordered and uncontrolled commercial activities and limited parking spaces and sanitation facilities hinder the natural environment functionality due to population pressure.	265(76.8%)	80(23.2%)	345(100)
8	The survival of the rural atmosphere is threatened by huge population pressure.	57(74.5%)	88(25.5%)	345(100)
9	Huge population pressure has put a big pressure on the existing road facilities not enough in cope with demanding trend in the area.	261(75.7%)	83(24.3%)	345(100)
10	More visits' rise to more population and exerting pressure on the local dilapidated drainage system.	278(80.6%)	67(19.4%)	345(100)

Source: Field Survey, 2023

4.2.5. Sand mining/extraction

In the aftermath of the rise in tourism, construction has started exploiting the land and its related resources. Demand for the small has multifold uses, which are extracted from local streams in the study areas. These extractions have changed the scenarios for rivers and streams. All the aquatic species are constantly threatened by extraction as the natural flow of water and its habitat is under frequent variations. Such extraction, an essential item in the construction industry, has the same adverse effect as the normal flow of water, putting the prevalent ecology at stake by badly damaging the local beauty land and deteriorating the landscape. Swat Valley is also being met with the same scenario as scenic tourism, which is rising. To meet the growing needs and demands of the locals, tourism launch has been checked, and uncontrolled construction has been seen. Moreover, new parts and other management places are developed, attracting scores of people while putting pressure on infrastructure that is already not so capacitated. Such constructions across the Swat Valley including Madian, Bahrain, Malamjaba. etc. (Boruff, 2021, Qasim, 2013, Hasan, 2019).

Most respondents, 59.1%, did not support the statement that crushed rock, sand, and gravel account for the most significant volume of solid material resources extracted by sand mining due to tourism from the local river for construction. In comparison, 40.9% of respondents negated the statement. These findings indicated the prevalence of such activities, i.e., extraction of sand and gravel. These are the basics for constructing various types, suitable from roads to buildings Peduzzi, (2014). Furthermore, these activities increased multifold due to a rise in economic activities touching an amount of almost 40 billion tonnes each year globally. China and India are leading these extraction activities by construction. However, uncontrolled and illegal mining has drastically reduced the groundwater table and polluted its transparency. Morocco is no exception to such poor conditions due to sand mining, while Singapore and Malaysia also followed, importing millions of tonnes to other countries. It is worth mentioning that India and Malaysia have developed the same protocols for taking the industry to avoid maximum damages carried due to it (Bhatawdekar, 2021 LonGo, 2023; Hezbollah, 2021).

Moreover, the majority of the respondents, 68.1%, reported that Sand mining could damage private and public properties as well as aquatic habitats on account of the tourism industry, while 31.9% did not agree with the statement. These findings supported Longo, (2023) that the application of heavy machinery usually degrades the environment's other attached activities like noise, pollution, antipollution, and sedimentation (Gavriletea, 2017 Maya, 2014).

In addition, most of the respondents, 68.1%, favored the statement that Excessive removal of sand may significantly distort the natural equilibrium of a stream channel by tourism spots in the area, while 31.9% negated the statement. Excessive removal of sand from stream channels, particularly near tourism spots, can profoundly impact the natural equilibrium of these waterways. According to Barkett, (2000), stream channel functionality relies on sand moments; its frequent removal may disturb the existing ecosystem due to the disturbance of sands, which plays the role of buffer zone regulating the water flow and preventing the subsequent erosion. Such mechanisms do warranty the survival of diverse biological entities thriving on such environment on such environments. Sand disposition naturally develops pools and riffles, which may play a catalyst role in the measurement and sprinting of marine life, especially the fish; such a chain of protection of survival within the streams of rivers helps biodiversity to thrive and enhance ecological life (Möller, 2017; Passeri, 2015).

In continuation to those above, the majority of the respondents, 66.7%, responded to the statement that Sand extraction destroys the habitats of living organisms. In contrast, 33.3% did not support the statement. As explained earlier, sand extraction destroys marine life, including fi and riffles, which are, the breeding habitats of living organisms. Almost all living beings rely on sand to establish their habitats (Mahmood, 2017). Any uncontrolled extraction of sand is responsible for destroying living species' habitat, ecosystem, and biodiversity, as these activities generate alternations in the physical environment. Moreover, sand extraction also leads the soil and substitute, negatively affecting the reproduction and feeding of all the species' development (Arun, 2023; Ahmed, 2015).

Likewise, the majority of the respondents, 79.1%, supported the statement that Sand extraction is an illegal and criminal activity, whereas 20.9% did not agree. The disturbance caused by these activities can lead to the destruction of various related

aspects like vegetation, soil texture, and widespread displacement of living organisms, which in themselves, the criminal acts in part of those whereas communicating them as they are equally responsible for the alternation in hydrological patterns along with various plant species (Chevallier, 2014; Gavrilitea, 2021, Abdullah, 2019).

Similarly, most % of the respondents, 85.5%, supported the statement that Sand extraction is the only possibility to make a living in the short run for the local people; in comparison, 14.5% negated the idea of the respondents. As a local readily available community, people use and collect sand from the local streams and rivers for construction as it is also economically cheap. However, it is cheap and commercial at the cost of environmental degradation (Tamunobereton-ari, 2011, Simonelli, 2014), destroying the prevalent ecosystem, biodiversity, and even the local community (Navaratne, 2008).

Moreover, the majority of the respondents, 76.8%, had the opinion regarding the statement that Sand extraction areas have demonstrated the impact of mining with the prowess to destroy the cycle of ecosystems due to tourism, while 23.2% negated the statement. Sand mining does continue in itself the wider negative consequences in the shape of disturbance of the ecosystem cycle. This cycle is often dependent on the delicate interplay of different species concerning their habitats. As Abdulazeez, (2016) reported, these habitats are their species' breeding places. Moreover, extraction diverts the water flow and brings sediment movement, leaving beach outcomes in a cascading mode on the aquatic life with pollutants (Trench, 2009; Akande, 2021).

Furthermore, the majority % of the respondents, 81.7%, supported the statement that Sand extraction can also create lots of pollutants, while 18.3% were against the statement. Sand extraction can generate a significant amount of pollutants, which are the resultant attributes of transport and infrastructural development. Moreover, heavy machinery omits the water from its equipment, such as fossil fuel, which is responsible for releasing carbon dioxide and nitrogen oxide. If these pollutants are not adequately dumped, they may become hazardous to the environment, soil, and water (LeFevre, 2015; Hatt, 2009).

Moreover, most % of the respondents, 81.4%, agreed with the statement that sand extraction results in changes in the direction of the river flow, while 18.6% did not favor the statement. Sand extraction can indeed result in changes in the direction of the

river flow, as infused in the aforementioned results. Sand extractions disturb the water's natural flows, leading to land erosion. Earlier, these sediments released with the water flow contributed towards the maintainability of river banks under a natural phenomenon (Cammeraat, 2022; Saneie, 2019 AzaMatulla, 2021).

The majority of the respondents, 67.2% supported the statement that Changes in water flow direction were detrimental to the local population, especially in the rainy seasons. In comparison, 32.8% of respondents negated the statement. Flooding mainly results in the rainy season due to flooding, which can damage human infrastructure and other entities while endangering the massive displacement of the human population. It also disrupted the smooth supply chain of profitable water due to pollution by sand mining in rivers. Environmental degradation is yet another reality associated with these activities, as it may surface with biodiversity loss and a decline in the fish population. These wetlands negatively affect the livelihood chances of the locals (Carmichael, 2010; Wade, 2009).

Table 4.2.5. Frequency and percentage distribution of the respondents on the basis of sand mining/extraction

S.No	Attribute	Yes (%)	No (%)	Total
1	Crushed rock, sand and gravel account for the largest volume of solid material resources extracted by sand mining due to tourism from the local river for the construction.	204(59.1%)	141(40.9%)	345(100)
2	Sand mining can damage private and public properties as well as aquatic habitats on the account of tourism industry.	234(67.8%)	111(32.2%)	345(100)
3	Excessive removal of sand may significantly distort the natural equilibrium of a stream channel by tourism spot in the area.	235(68.1%)	110(31.9%)	345(100)
4	Sand extraction destroys the habitats of living organism.	230(66.7%)	115(33.3%)	345(100)
5	Sand extraction is illegal and criminal activities.	273(79.1%)	72(20.9%)	345(100)
6	Sand extraction is the only possibility to make a living in the short run for the local people.	295(85.5%)	50(14.5%)	345(100)
7	Sand extraction areas have demonstrated the impact of mining with the prowess to destroy the cycle of ecosystems due to tourism.	265(76.8%)	80(23.2%)	345(100)

8	Sand extraction can also create lots of pollutants.	282(81.7%)	63(18.3%)	345(100)
9	The sand extraction results into changes in the direction of the river flow.	281(81.4%)	64(18.6%)	345(100)
10	Changes in water flow direction detrimental to the local population especially in the rainy seasons.	232(67.2%)	113(32.8%)	345(100)
11	Study area has witnessed huge damages in the recent flood due to changing water flow in light of sand extraction.	257(74.5%)	88(25.5%)	345(100)

Source: Field Survey, 2023

4.2.6. Environmental pollution

The disorganized economic activities, irregular and uncontrolled construction, and the influx of tourists usually lead to a stressful environment as the existing scenario and facilities are meant only for a limited number of persons. The stress on bare mention of life food, shelter, etc., dwells in front of such immense pressure. Moreover, the rise of urbanization has also predicted some waste associated with plastic and related re-products, which often loach the smooth flow of water in drainage and clean spring waters. Limited space does not accommodate tourism activities, which puts enormous pressure on life's local cultural, social, and economic dynamics. Vehicular emission, global warming, and changing patterns of water and climate are some other factors responsible for the rise in environmental pollution. The study area is witnessing a rise in temperature, flash floods, droughts, and deforestation. All these factors allude to a holistic change, immensely altering the socio-ecological balance (Hamanaka, 2018; Anderson, 2015; Laurance, 2009; Rahman, 2013).

The majority of the respondents, 60%, supported the statement that Tourism-related environmental pollution, e.g., solid, plastic, and electronic wastes, are an eyesore and are harmful to the environment due to their non-biodegradability. In comparison, 40% of respondents negated the statement. These findings indicated the rise in pollution in the study area. Several factors are associated with this rise in local sports organized during the snowy seasons. Tourists visit scenic spots like springs, waterfalls, etc., which are hubs of generating pollution-related activities like littering of plastic lays, bottles, etc., along with raw and orchard food leftovers. Such activities are unabated due to the absence of any strict laws and regulations, resulting in the

contamination of local resources. Raising awareness of the proper disposal of such wastes in the community and establishing a guideline for tourists can ensure the mitigation of pollution (Muthui, 2010; Wendmu, 2020; Irungu, 2016).

Moreover, the majority of the respondents, 60.6%, agreed that the emission of gases into the atmosphere leads to air pollution on account of tourism, while 39.4% negated the statement. The lack of a social waste management system and the influx of tourists release carbon dioxide, which can exhaust the air, badly damaging the local air and environment. Several countries have tourist destinations producing tonnes of waste every year, i.e., the Caribbean Islands. The littering of waste degrades the natural environment and contaminates the water on shores, eliminating marine life. In expeditions, tourists usually need to pay more attention to appropriate water disposal, leaving it around at camping sites, which often adds to the rise in pollution (Qiongying, 2018 Winter, 2009 Alam, 2018). All government function areas, including regulating bodies, need to evolve an emission standard for vehicles that may serve in the containment of air pollution (Rosselló, 2014).

In addition, most of the respondents, 65.8%, favored the statement that noise pollution is caused by means of transportation or when any work or construction is going on, leading to noise pollution by tourism. In comparison, 34.2% were against the statement. To address transportation-related noise pollution, implementing measures such as traffic management strategies, introduction of electric vehicles, latest law regulations, and implementation may help contain the noise pollution as the re-foundation of the study area has pointed out its existence. Transporting the tourists from busy points can help contain the noise pollution in the local communities. Further implementation of guidelines for construction may also help regulate these activities, which in turn can bring minimum distress to local communities (Bello, 2019; Bijsterveld, 2008).

Moreover, the majority of the respondents, 77.4%, expressed their opinion regarding the statement that Addressing the cause of pollution due to tourism is more time and money-consuming. In contrast, 22.6% negated the statement. Addressing the causes of pollution due to tourism requires significant time and financial resources, but if handled adequately through Google, the cost and benefits ratio, it may end up in a solution to this problem Shrestha, (2021). It has also stressed the awareness of various

tourism stakeholders about investing in tourism practices on sustainable grounds for a more extended period. Such initiatives to address pollution's causes may help increase revenue and protect the environment. If adopted, Such an effort may satisfy tourists and benefit the local communities. Moreover, it can ensure the preservation of natural resources by protecting the local ecosystem and biodiversity (Santos, 2017, Simoncini, 2019).

Likewise, the majority of the respondents, 84.1%, supported the statement that environmental challenges affect health and the environment at the cost of human energy and resources, whereas 15.9% disagreed. Environmental degradation due to tourism regimes is the finance, and we need to know how time and trend human capital can be addressed. This is a costly phenomenon, and locals cannot negotiate this challenge without the help of a proper agency like the government. Moreover, community involvement in covert deforestation, protecting natural habitats, sanitation, etc., could remedy this social ailment. Coherent efforts by the community, government, and NGOs can successfully implement the working strategies sustainably (Allemand, 2021; Bhuiyan, 2022; GunAwan, 2015).

In addition, the majority of the respondents, 80.3% up, ported the statement that plastic usage for food packaging has become dominant in the study area and is an ultimate threat to the natural environment, while 19.7% did not agree with the statement. The dominance of plastic usage for food packaging in the study area does pose a significant threat to the natural environment. Plastic, primarily single-use plastics, is known for its long lifespan and resistance to degradation Jadhav, (2021) has identified plastic-related materials as contributing to the destruction of local community ecosystems and wildlife habitats. Such malpractices can only be met by establishing a sustainable drive to introduce biodegradable materials. Moreover, special awards must be given to the stakeholders who encourage and practice such initiatives in their business, as these materials are ecosystem-friendly (Rafique, 2020).

Furthermore, the majority % of the respondents, 75.9%, supported the idea that Polluting emissions are associated with accommodation facilities (hotels, guest houses, etc.), whereas 24.1% negated the statement. Accommodation facilities, such as hotels and guest houses, can contribute to polluting emissions due to pressure on the existing limited resources. Several reasons are associated with rising emissions, like more

energy consumption in vehicles and at hotels or restaurants and improper waste management. Impacted accommodation, etc., and lack of energy-saving appliances to mitigate these emissions of renewable energy like solar and wind energy with recycling management may reduce emission pollution (Boonstra, 2013).

The majority of the respondents, 79.4%, had viewed the statement that Flora and fauna are in a constant struggle for existence due to constant environmental threats. In comparison, 20.6% had negated the statement. It was apparent from these findings that pollution due to tourism existed and had put immense pressure on the local ecosystem and biodiversity. Various threats like habitat destruction have indeed influenced the struggle for the existence of flora and fauna, the use of air pollutants, and climate change-affected weather cycles. All such factors have negatively affected the natural equilibrium and sustenance of the ecosystem. Moreover, deforestation and urbanization are another factor fueling this Anokye, (2023).

Table 4.2.6 Frequency and percentage distribution of the respondents on the basis of environmental pollution

S.No	Attribute	Yes (%)	No (%)	Total
1	Tourism related environmental pollution e.g. Solid, plastic and electronic wastes are an eyesore and are harmful to the environment due to their non-biodegradability.	207(60.0%)	138(40.0%)	345(100)
2	The emission of gases into the atmosphere leads to air pollution on the account of tourism.	209(60.6%)	136(39.4%)	345(100)
3	The noise pollution is caused due to means of transportation or when any kind of work or construction is going on than too leads to noise pollution by tourism.	227(65.8%)	118(34.2%)	345(100)
4	Indiscriminate littering and poor waste disposal has further added to the deterioration of environment.	257(74.5%)	88(25.5%)	345(100)
5	Addressing the cause of pollution due to tourism is more time and money consume ring.	267(77.4%)	78(22.6%)	345(100)
6	Environmental challenges affect health and environment at the cost of human energies and resources.	290(84.1%)	55(15.9%)	345(100)
7	Plastics usage for food packaging has become dominant in the study area and is ultimately threat to the natural environment.	277(80.3%)	68(19.7%)	345(100)

8	Polluting emissions are associated with accommodation facilities (hotels, guest houses etc.	262(75.9%)	83(24.1%)	345(100)
9	Flora and fauna are in constant struggle for existence due to existing constant environmental threat.	274(79.4%)	71(20.6%)	345(100)

Source: Field Survey, 2023

4.2.7. Hoteling/ buildings

The hotel industry is an indispensable point of tourism and is a significant source of earnings. Although the hotel industry is thriving and indicates an improvement in the life standards of the area, it also puts much pressure on the existing natural resources. Mushrooms and the growth of hotels put pressure on the overuse of washrooms, swimming pools, etc. Such overuse often leads to the destruction of natural landscapes and biodiversity. Even then, tourism is emerging as one of the leading professions in the study area. People are investing in short terms to earn in an honorable way. These investments indirectly facilitate the tourists' enjoyment of their visit while spending freely without cultural restrictions. Swat has witnessed an increase in the number of tourists after the baking of terrorism in the area and the PTI government coming into power, which focused on improving the area by constructing a motorway. Moreover, internal road facilities also boasted of an international standard to facilitate local and international tourists (UNWTO, 2016; Hamanaka, 2018).

Most respondents, 60.6%, supported the statement that Hoteling is a newly emerging lucrative business, while 39.4% disagreed. The development of tourism facilities like the accommodation of tourists like hotels, restaurants, and inns has triggered the opening of new vistas of earnings (Zapata, 2013). Moreover, the renovations of the existing facilities like the airport and road expansion have contributed to the degradation of the available land and the deterioration of scenic attractions. Furthermore, the increased number of tourists has endangered the established forest, facing the extinction of new species of plants and animals. Tourist activities have also disturbed the ecosystem and biodiversity due to the massive and uncontrolled construction of hotels. Although it is considered one of the lucrative businesses at the cost of local life, with particular mention of the wildlife and caber forest-related species (Goodwin, 2011; Porter, 2011; Dursun, 2016).

Moreover, the majority of the respondents, 60%, agree that Environmental impacts caused by tourism are a result of the dynamic interplay of socio-economic, institutional, and technological activities, while 40% negated the statement. The growth of tourism is attributed to the development and application of new technology like smartphones and the internet, which has facilitated the tourists' acquisition of information about scenic areas and the evolution of visiting strategies. These visits may be referred to at an individual level to maximize their enjoyment. However, the increase in such tourist activities has multifold the pressure on local resources in a sustainable manner and improper waste management, resulting in water contamination and the emission of lethal gases from vehicles contributing to air pollution (Yego, 2012; Surya, 2020).

In addition, 61.7 % of respondents 61.7% favored the statement that the tourism industry generally overuses water for hotels, swimming pools, golf courses, and personal use of tourists, which pollutes the spring nature. In comparison, 38.3% were against the statement. The tourism industry can contribute to water overuse, usually in hotels, inns, and restaurants, and locals due to the arrival of guests at their homes. This excessive water use and rushed, uncontrolled movement usually pollutes local resources in spring waters. It is imperative for the tourist industry to devise sustainable uses as a responsible approach to promoting sustainable water use strategies in order to utilize alternate water resources for harvesting and other no-potable aims. In addition, an awareness campaign regarding water conservation and its judicious use may help mitigate the distress of pressure on this vital resource Bukowski, (2016).

Even so, the majority of the respondents, 74.8%, responded to the statement that Hoteling is converting agricultural land into roads and buildings for tourism activities. In contrast, 25.2% had negated the statement. The conservation of agricultural land for another purpose while building in order to accommodate tourists has significantly led to the scarcity of land, as was earlier disclosed by Kachniewska, (2015). Such activities have led to the loss of fertile chambers of land, destroying the local ecosystem and carrying drastic consequences for the local communities, which mainly depend on agricultural livelihood. Proper planning and regulation have added stress to laws phenomena (Ameraldo, 2019), stressing the development of a balanced mechanism between using land hotel construction to preserve agricultural and local biodiversity.

Likewise, the majority of the respondents, 78.1%, supported the statement that Land use and structures in a particular scenic spot may greatly vary due to tourism demands, whereas 22% did not agree. Tourism demands can significantly impact land use and structures in scenic spots but vary from situation to situation in terms of demand. Tourism development means infrastructure growth, with multiple changes to meet the rising needs for basic amenities for the locals and visitors. Such structural changes necessitate the occurrence of functional alterations, which may put scenic beauty and the preservation of ecology at stake. Alteration strategy, if designed on sustainable grounds and taken as heard, the local community may comprehensively address the fears of threats to biodiversity, ecosystem, and agricultural practices (Willemen, 2009 and Ashworth, 2012).

In addition, the majority of the respondents, 78.8%, supported the statement that Scenic spot exploitation is subject to regional economic and social conditions on account of tourism. In contrast, 21.2% did not agree with the statement. The exploitation of scenic spots is influenced by regional economic and social conditions, particularly where poverty exists and the high chance of exploitation. The exploitations are based on economic gains; they contribute to the local economies through the creation of jobs, more earnings, and infrastructural growth (Zou, 2019). However, it often being coined at the expense of the exploitation of local resources in line with market demand for economic activities, but the varied emergence of a balanced economic model speaking for the development and preservation of cultures, environment, and agriculture are the imperatives being embodied through involving local communities (Qiongying, 2018).

Furthermore, most of the respondents, 79.1%, supported the idea that different regional conditions and features affect the importance of the construction of buildings in scenic spots, whereas 20.9% negated the statement. These findings aligned with the preceding outcomes. Local cultural traits, economic markets, and environmental considerations highly influence the variation in the importance of construction from spot to spot. Cultural role in preservation practices is essential (Yang, 2022). Cultural heritage plays a dynamic role in preserving nature by adopting stricter values. On the other hand, some efficiency is being observed in areas more proven proven to construction-leading economies (Frantál, 2011; Islam, et al., 2018). However, the

importance placed on preserving biodiversity, ecosystems, and agriculture ratifies construction industry rooms at scenic spots (Gobster, 2007).

The majority of the respondents, 74.2%, had viewed that Hoteling induced economic growth in a scenic land transformation due to tourism, while 25.8% had negated the statement. Hoteling, or developing hotels and accommodations, is essential to the scenic areas' economy and is responsible for transforming local dynamics (Murzyn-Kupisz, 2013). This transportation is usually undertaken considering the number of tourists and the subsequent demand for their accommodation. The highest magnitude of the accommodation, more or older, is the number of visiting tourist restaurant activities. A local economy thrives by generating additional income and employment from the locals, which is completed with infrastructural growth initiatives (Jenberu, 2020).

Most of the respondents, 80.3%, supported the statement that Hoteling can convert Farmland along riverbanks through construction activity to tourism-related, while 19.7% of respondents negated the statement (Manomaivibool, 2015). The construction of hotels and other tourism-related infrastructure often convert the farmland to get more space for hotel construction, specifically on the river banks, with some positive and negative consequences like generating income and employment sans erecting the natural biodiversity and ecosystem along with a cultural process, with no exception to wetland conservation and deforestation (Gunawan, 2015).

Moreover, the majority % of the respondents, 74.8%, agreed that Hoteling had raised the employment opportunities for the local youth, while 25.2% negated the statement. The construction of hotels and other tourism-related infrastructure have positively contributed to generating jobs and income, as disclosed from these findings. However, all such generations, i.e., income and employment, have led to the loss of agricultural productivity and have disturbed the local traditional food chain system. Such activities have added to habitat destruction, social erosion, and air and water pollution. Government and changed agents need to incorporate the preservation strategies in their model of growth and development to mitigate the risks associated with any such intervention (McDowell, 2007 *and* Hawkins, 2011)

In addition to the above, most of the respondents 83.2% favored the statement that Hoteling has employed locals at their door-steps while 16.8% were against the

statement; one of the positive aspects of the hotel industry has been identified as the creation of jobs at the doorsteps for locals in the area Prabhakar, (2015) has also unearthed such nature of benefits which has changed the destiny of local in economic terms. These opportunities have increased the standard of living, with stable and consistent growth-based opportunities, by allowing people to enjoy all the basic amenities (Othman, 2015; Pavkovic, 2018).

Table 4.2.7 Frequency and percentage distribution of the respondents on the basis of hoteling/buildings

S.No	Attribute	Yes (%)	No (%)	Total
1	Hoteling is the newly emerging lucrative business.	209(60.6%)	136(39.4%)	345(100)
2	Environmental impacts caused by tourism are a result of the dynamic interplay of socio-economic, institutional and technological activities.	207(60.0%)	138(40.0%)	345(100)
3	The tourism industry generally overuses water for hotels, swimming pools, golf courses and personal use of tourists which pollutes the spring nature.	213(61.7%)	132(38.3%)	345(100)
4	Hoteling is converting agricultural land into roads and building for tourism activities.	258(74.8%)	87(25.2%)	345(100)
5	Land use and structures in a particular scenic spot may greatly vary due to demands of tourism.	269(78%)	76(22%)	345(100)
6	Scenic spot exploitation is subject to regional economic and social conditions on the account of tourism.	272(78.8%)	73(21.2%)	345(100)
7	Different regional conditions and features affect the importance attached to construction of buildings in a scenic spots.	273(79.1%)	72(20.9%)	345(100)
8	Hoteling induced economic growth in a scenic transformation of land due to tourism.	256(74.2%)	89(25.8%)	345(100)
9	Hoteling can convert Farmland, along riverbanks, through construction activity to tourism related.	277(80.3%)	68(19.7%)	345(100)
10	Hoteling has raised the employment opportunities for the local youth.	258(74.8%)	86(25.2%)	345(100)
11	Hoteling has provided employment to locals at their door-steps.	287(83.2%)	58(16.8%)	345(100)

Source: Field Survey, 2023

4.2.8. Capitalist interest

Eco-tourism is changing the tourism concept, which cannot serve the local culture. This tourism concept involves modus operands to limit this intervention while destroying the Indigenous people in economic, social, and cultural domains of life and by acquiring their lands through fraudulent means. Through these manners, the locals are marginalized, pushing them to terrain that is not hospitable climatically and has a socially excluded status. The study area is mainly comprised of mountainous regions with scenic beauty. Most of the forests are removed, and the people take less interest in deforestation as they consider the forest the state property somewhat interested in converting the land into agriculture, which they deem as their personal profession Shahzad, (2021).

The majority of the respondents, 62.3% supported the statement that capitalist investment decreases farmland as it is used to accommodate infrastructure for tourism development. In comparison, 37.7% of respondents negated the statement. The arrival of capitalists from other parts of the country has started investment in hotel construction, restaurants, and other money-generating activities like inns, areas, etc. They have purchased the local lands at throw-away prices and started developing these buildings. These activities have marginalized the local community from participation in this business and, on the other hand, have reshaped the whole typography. These activities have squeezed down the ecosystem and natural habitats of different marine species, resulting in deforestation and destroying the rich, fertile mountainous cover. Encroachment has caused fragmentation of local land, posing more significant threats to biodiversity (Connell, 2011; Smith, 2017). Special attention in the research domain is required to assess the mountainous areas' unique characteristics regarding tourism, land, forest, and conservation strategies, which is the need of the day (Leonard, 2020; Amin, G, 2019).

Moreover, the majority of the respondents, 60%, agreed that establishing parks for pure profit could create harsh survival realities and deprive the people of their traditional use of land and natural resources due to tourism, while 40% negated the statement. Establishing parks solely for profit is a lucrative business; however, do carry negative consequences. The local community and natural resources are suffocated with the arrival of new non-local business cash totality, denying the locals any social and economic deprive Lambi, (2012) has also pointed out the degradation in light of the

establishment of parks and local culture isolation, which are not healthy steps for in conservation of biodiversity and local system such like activities have also been identified as detrimental to habitat ecosystem and natural resources and emerging in economic inequalities between the locals and non-local traders (Kala, 2011; Ashley, 2007).

In addition, most of the respondents 63.2%, favored the statement that Tourism can put immense pressure on local resources like energy, food, and other raw materials that may be scarce by the capitalist class due to construction and property selling, while 36.8% were against the statement. Tourism can put tremendous pressure on local resources, and non-locals have controlled the local raw materials used in construction. This means they have captured the whole local market, where capitalists interplay all the activities suitable for the economic returns. Infrastructure development was necessary to raise life standards; however, the investment in hotels, parks, and other facilities involves cash businesses, and locals are seldom encouraged to participate. The development of such dynamics is feared, with total segregation of locals from the market (Pauli, 2010). The local market needs more capacity to negotiate the rising number of tourists to feed the capitalists with cash. They have also invested in this area and have pushed the locals to the corner by introducing the concept of fast food and different chains of beverages (Robbins, 2008).

The majority of the respondents, 63.8%, showed the statement that Profit-seeking Indigenous people make decisions that affect investors irrespective of their local environment. In contrast, 36.2% had negated the statement. Profit-seeking by Indigenous people while making decisions is impacted by non-local investors through investing in different businesses, reducing their chance to compete in the market (McGregor, 2014). Locals usually opt to maximize their income in the short term, which may also add to the exploitation of natural resources for the prevalent ecosystem, biodiversity, and forests. Such initiatives may even contribute towards the reversal of earnings as such damages are not helpful in reconstructing and rehabilitating the local environment. Indigenous people need to stick to the methodology of local preservation and earning from tourism-related activities, not at the cost of each other (Dhiaulhaq, 2020).

Likewise, the majority of the respondents, 58.3% support, supported the statement that Land is one of the most critical production inputs for Indigenous people.

However, capitalists want to change the regime for personal benefits, while 41.7% negated the statement. The land is indeed a crucial input for Indigenous communities, as the locals were aware of its importance. Moreover, they also acknowledged the starting activities of non-local investors by capturing the local heritage, local people's livelihood, and resources (Bernstein, 2010). As in the capitalist approach, resources are diverted from personal profit, usually erecting chances of infighting between these traders and indigenous people. Such a prospective environment is not deemed conducive to business due to schmoozing traits from non-locals (Whyte, 2017).

In addition, the majority of the respondents, 62.9% up, ported the statement that the rapid unplanned urbanization in mountain regions by capitalist interest poses a severe threat to economic, social, and environmental sustainability. In comparison, 37.1% did not agree with the statement. Rapid unplanned urbanization in mountain regions often leads to the degradation of natural resources and ecosystems. All such drivers are often pushed by the non-local, with no exception to the study. Even capitalists mostly thrive as local resources by prioritizing and controlling profit outlets. The local population needs more access to the market to participate in earning livelihoods. Moreover, urbanization's social impacts are also lethal to the local environment and people. Capitalists mainly focus on generating revenue for themselves and seldom consider the healthy beings of the locals. Their cultural heritage and resources are constantly under the occupation of the capitalists. In contrast, non-locals seldom succumb to these inequalities, forcing them into total segregation from the market. Rapid urbanization needs to focus more to focus more on protecting fragile ecosystems (James, 2013, ApoStolopoulou, 2023).

Furthermore, the majority % of the respondents, 75.9%, supported the idea that Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce, whereas 24.1% negated the statement. These findings elaborated and supported the proceeding outcomes, which have already indicated the pressure on local resources in an unsustainable manner of consumption. The rise in tourism puts water, air, energy, food, etc., under tremendous pressure and ecological imbalances. Meanwhile, the social and cultural lives of the local communities are also threats. These findings aligned with the inferences (Gedik, 2019 Chandel, 2022).

The majority of the respondents, 64.1%, had viewed the statement that the Local paradigm of the economy is changing in the purview of capitalists, while 35.9% had negated the statement. Globalization of the economy means the meaning of all small and large economies. This is the primary assumption of the capitalist economy to establish control over the local economies. The existing local market of the study area has also been passing through these changes. Large-scale multinational corporations are emerging for more fabulous hub creations based on economic activities. However, small-scale businesses like local economic managers due to participate due to this little skill to upgrade their business on modern paths and having little investment to compete with being non-local capitalists, which has created a big government of inequality between these losses due to increasing tourism (Gardien, 2014, and Wallis, 2010).

The majority of the respondents, 63.3% support, supported the statement that Local economic culture is transforming with new emerging trends in light of foreign cultural innovations. In comparison, 37.7% of respondents negated the statement. The transformation of the local economic culture is visible in the aftermath of the capitalist economy and the erosion of the local market. Tödtling, (2013) has attributed this transformation to interconnectedness through the application of technology like the internet and social media, where ideas and trends are floated to explore new ways of earning while introducing local cultural and economic perspectives. Moreover, cultural diversity has also significantly contributed to this phenomenon of transformation. People ought to show inclinations to accept different perspectives and experiences and deem them conclusive for economic activities. Local and non-local entrepreneurship are the outcomes of such economic activities (Jonathan, 2008).

Moreover, the majority of the respondents, 61.4%, agreed that locals are more inclined to the capitalist paradigm as it ensures more money and resources, while 38.6% negated the statement. They see capitalism as a system based on rewards for the efforts of people of the study areas who had more inclination to this foreign economic paradigm as these ensured more earning their the native ways of doing business. Sustainability is one of the leading virtues in the capitalist paradigm due to competition for services and quality of products. Innovative ideas always contribute to a free market economy, often rewarded with more earnings and less time. People opt to adopt the capitalist paradigm as it guarantees personal freedom and choice. It encourages revolving activities and the right to pursue its economic agents with its in-financial

decision to extract more money from the market on the basics of its initiatives (Hancock, 2019; Fraser, 2008).

Table 4.2.8 Frequency and percentage distribution of the respondents on the basis of capitalist interest

S.No	Attribute	Yes (%)	No (%)	Total
1	Capitalist investment decreases farmland as it is used to accommodate infrastructure for the development of tourism.	215(62.3%)	130(37.7%)	345(100)
2	The establishment of parks for purely profit can create harsh survival realities and deprive the people of their traditional use of land and natural resources due to tourism.	207(60.0%)	138(40.0%)	345(100)
3	Tourism can put immense pressure on local resources like energy, food, and other raw materials that may be scarce by the capitalist class due to of constructing and property selling	218(63.2%)	127(36.8%)	345(100)
4	Profit seeking indigenous people while taking decision that has effects on investors irrespective to their local environment.	220(63.8%)	125(36.2%)	345(100)
5	Land is one of the most important inputs of production for indigenous people but capitalist want to change the regime for personal benefits.	201(58.3%)	144(41.7%)	345(100)
6	The rapid unplanned urbanization in mountain regions by capitalist interest possesses serious threat to the economic, social and environmental sustainability.	217(62.9%)	128(37.1%)	345(100)
7	Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce.	262(75.9%)	83(24.1%)	345(100)
8	Local paradigm of economy is changing in the purview of capitalist invasive.	221(64.1%)	124(35.9%)	345(100)
9	Local economic culture is under transformation with new emerging trend in light of foreign cultural innovations.	215(62.3%)	130(37.7%)	345(100)
10	Locals are more in claimed the capitalist paradigm as it is to ensure more money and resources.	212(61.4%)	133(38.6%)	345(100)

Source: Field Survey, 2023

4.2.9. Unplanned residential sprawl

Swat, a scenic city known for its architecture and other historical places, is a tourist city in Khyber Pakhtunkhwa. It is one of the frequently visited places, where several tourists visit each year to enjoy the natural attractions based on lands composed of agriculture, rivers and springs, and the ancient structure of Buda civilization. Swat is also known for its archeological importance monuments, Buddha, Ashok civilized is preserved them it has an international importance. Several Buddhist followers from Japan, Korea, and other parts of the world used to visit and pay homage. However, it has noticed a sprawl problem, threatening this historic heritage due to population pressure and urbanization. In most cases, the existing socio-economic and cultural traits have transformed and may eliminate its rich culture and structural heritage. Revitalizing such monuments are essential, albeit satisfying the growing and felt needs of the tourists as global tourism is attaining the shape of an industry and the non-local capitalists are investing to earn more. However, all these initiatives have endangered the survival of the Indigenous species' wildlife and ecosystem (Egercioğlu, et al., 2016; Eberhardt, 2021).

The majority of the respondents, 60%, support the statement that unplanned residential sprawl directly impacts air, soil, and water associated with manufacturing, production, and transportation of materials by tourism. In comparison, 40% of respondents negated the statement. Tourism activity and loss of vital mountain ecosystems, biodiversity pollution, and loss of agricultural land and mountainous cover are the direct outcomes of tourism. A composite interplay of various factors to encourage change and safeguard the environment is essential on sustainable grounds. As agriculture is the primary ancient profession, people depend on its production, like crops, livestock, orchards, and other medicinal herbs (Agarwal, 2019; Hughes, 2011). However, the conversion may cripple the very essence of the local dynamics while turning the area into commercial hubs based on business activities related to tourism and other altered activities. All these activities are overseeing the land are overseeing the land and emerging with some social and physical evils. If left unchecked, these alternations may lead to dire consequences (Ingram, 2006). Unplanned residential sprawl is also responsible for eliminating local species, wildlife, and even plants of medicinal importance. It may also pressure food production and encourage food consumption practices, as witnessed worldwide (Moraci, 2020).

Moreover, most respondents, 58.6%, agreed that Solid waste and increased pollution are associated with unplanned residential sprawl in the tourism sector, causing severe damage to the local environment, while 41.4% negated the statement. Unplanned residential sprawl in the tourism sector has generated the issue of waste generation and its subsequent management. Moreover, pollution of air degradation of the environment is some other associated factors disclosed by the respondents as envisaged from the findings. These findings were closely associated with the findings of Santos, (2022) that construction of infrastructural and unplanned and uncontrolled constructions are the cornerstone of producing waste, debris, and air pollution. The containment of all such activities must include detrimentally land suffocation for human beings (Yego, 2012). These initiatives of creating waste could be the attributable factor of a lack of waste management mechanisms, that people opt to burn, resulting in smog and respiratory disease for the inhabitants (Makwara, 2013).

In addition, most of the respondents, 60.6%, favored the statement that residents construct buildings without proper planning permission, which can cause huge damage to the natural environment. In comparison, 39.4% were against the statement. These illegal findings endorsed the preceding inferences and incline with (Ahmad, 2019) illegal and without permission of construction significantly degrade the local environment, the rise of deforestation and habitat construction. Such unplanned activities often need more participation of experts from different fields who could assess the after-effects such as agriculture, civil engineering, and factors inputs. All activities lacking their expertise have led to the destruction of agriculture, loss of biodiversity, and unskilled spending on construction, which is incapable of meeting emerging needs and requirements (Bernai, 2013).

Most respondents, 58.6%, stated that the depletion of natural resources like wood, water, and soil is due to unplanned residential sprawl. On the contrary, 41.4% negated the statement. Building without proper planning permission can have significant negative consequences for the natural environment that emerged from the earlier fence as potentially detrimental to the local ecosystem and biodiversity. Habitat destruction is the direct outcome of unauthorized construction and harmful damage to the wetlands, forests, and grasslands, the leading feeding places for several plants and animal species. Moreover, unplanned construction's other environmental outcomes are

soil degradation and erosion (Nengroo, 2017). The release of this water and its mixing in the water not only pollutes the water but also endangers the aquatic life of the existing species (Zahra, 2015).

Likewise, the majority of the respondents, 77.7%, supported the statement that the adverse impacts of tourism in any area occur when the numbers of tourists, or visitors, cross the natural environment due to tourism, while 22.3% negated the statement. Unplanned residential sprawl refers to the unplanned and uncontrolled expansion of residential areas into previously undeveloped lands. Such unplanned activities encourage scores of visitors to visit this area. Such population pressure eventually disintegrates the existing frame with wildlife, forest, and other natural resources; the construction of roads also results in the loss of valuable grass, water channels, and land fragmentation (Davenport, 2006).

In addition, a leading % of the respondents, 72.8%, supported the statement that unplanned residential sprawl is a naked challenge to the environment and social life, while they disagreed. Several challenges are associated with unplanned residential sprawl and its impact on the environment and on social life. Awan, (2021) has unearthed that it is responsible for the destruction of the habitat of agricultural land. Decreasing biodiversity along with water and air pollution Moreover, frequent transportation releases air pollution, vehicle exhaust and noise pollution, and stress upon water energy and infrastructures are the other allied factors. The local community also feels uneasy about moving out, usually reaching this agricultural land (Vettoretto, 2017; Zukin, 2009).

Furthermore, the majority of the respondents, 78.3%, supported the idea that Unplanned residential sprawl generates security risks in tourist areas, whereas 21.7% negated the statement. Risks of accidents, missing visitors, theft of vehicles, and kidnaping persons are associated factors of unplanned residential sprawl. If not installed, person entry and the existing system may further add difficulties to the local and non-local. Moreover, lacking other facilities like access to the internet, the non-prevalence of CCTV cameras, and limited police operations are some other factors that need to be considered while establishing sprawl. Improper and unplanned construction with haste usually needs such facilities as disclosed Omwenga, (2010). Moreover, the rise of crimes like t, heft, burglar, Aries, and violence are other miseries associated with

unplanned sprawl. Easy taken of such misfortune are the visitors, who are unfamiliar with the area (Asgary, 2020). Strained resources, increased population density, and non-biodiversity of trend law enforcing personnel with ill equipment cannot successfully negotiate any eventuality (Prasad, 2016).

The majority of the respondents, 81.2%, had viewed the statement that Locals are unaware of the negative consequences of the rapid sprawl in the area, while 18.8% had negated the statement. Due to a lack of proper information awareness education, the locals could not anticipate the probable outcome of this unforeseen threat looming around for population, environment, and infrastructure. One of the significant negative consequences is the stressful infrastructural facility, which is under constant stress due to the unabated sprawl and increased number of visitors, traffic congestion, overburdened trying environment with inadequate drainage, and each of essential scenic to the local is seen some other denials with pressure on educational institutions. In addition, incapacitated security risk and vigilance management can deliver some other gray areas of uncontrolled sprawl (Rewathy, 2023; Hamidi, 2020).

Likewise, of the respondents, 78.6% supported the statement that local government organizations lack the anticipative vision to control unplanned sprawl, while 21.4% disagreed. These results allude to the administration's apathy to have a vigilant eye on sprawling activities. It could be attributed to this limited vision and Olli on to the outcomes as no emphasis on control is being rewarded from the high-ups, which has acceded to this fact with a lack of information, limited resources, and ill-trained concerned departments. Personnel need to learn the strategies of adopting sprawl low on a long and short-term basis; instead, political considerations are primarily associated with it. The local governments usually decide such matters on political grounds, appeasing the local elites while ignoring the laws, rules, and regulations. The local leadership usually prefers short-term strategies that do not yield longer (McCabe, 2021). Moreover, there needs to be a centralized decision body at the government level to be another of this uncontrolled sprawl (Ruder, 2019).

Similarly, the potential benefits of planned development are significant. The majority of respondents (78.3%) agree that people opt for sprawl because it is more lucrative in terms of land use and earning potential. Planned development allows for more buildings and developments in a limited space, creating sky reserves that can

attract more businesses and increase property value. This can lead to the creation of more job opportunities and the establishment of bustling markets. The main strength of planned development is its convenience and accessibility to resources, facilitating the establishment of schools, shopping centers, and other essential services (Garrod, 2018).

Table 4.2.9 Frequency and percentage distribution of the respondents on the basis of unplanned residential sprawl

S.No	Attribute	Yes (%)	No (%)	Total
1	Unplanned residential sprawl pose direct impacts on air, soil, water are associated with manufacturing, production and transportation of materials by tourism.	207(60.0%)	138(40.0%)	345(100)
2	Solid waste and increased pollution is associated with unplanned residential sprawl in the tourism sector causing serious damage to the local environment.	202(58.6%)	143(41.4%)	345(100)
3	Local residents construct buildings without proper planning permission which can cause huge damage to the natural environment.	209(60.6%)	136(39.4%)	345(100)
4	Depletion of natural resources like wood, water and soil due to unplanned residential sprawl.	202(58.6%)	143(41.4%)	345(100)
5	The adverse impacts of tourism in any area occur when the numbers of tourists, or visitors, cross the natural environment due to tourism.	268(77.7%)	77(22.3%)	345(100)
6	Unplanned residential sprawl is a naked challenges environment and social life.	251(72.8%)	94(27.2%)	345(100)
7	Unplanned residential sprawl generates security risks in tourist areas.	270(78.3%)	75(21.7%)	345(100)
8	Locals are unaware about the negative consequences of the rapid sprawl in the area.	280(81.2%)	65(18.8%)	345(100)
9	Local government organization lacks the anticipative vision to control unplanned sprawl.	271(78.6%)	74(21.4%)	345(100)
10	People opt to sprawl as it is more lucrative in terms of lesser land use and more earning.	270(78.3%)	75(21.7%)	345(100)

Source: Field Survey, 2023

4.2.10 Infrastructural changing

Agriculture is a primary profession in swat, where 70% of the total population is directly or indirectly involved. The district swat deals with fruit products, maize, and wheat. The significant fruits are plums, peaches, apricots, apples, persimmon walnuts, etc.; people working in agriculture receive both cash and kind; however, the recent militancy and subsequent alternation from the Pak Army to comb this militancy has changed the whole working paradise. New opportunities are open, including one of the most lucrative ones is tourism. Tourism encouraged inland and foreign visitors to visit the swat and enjoy its scenic beauty. The rise of tourism also entailed a loom of investment in the area. Both local and non-local started investing in building hotels. Moreover, the government and other agencies also focused on road construction and repair of worn ones to facilitate these frequent visitors. All these changes have also brought about changes in food chain supply and consumption patterns, as well as urgent transportation, which have put the area's existing socio-cultural and physical dynamics at stake. Orchards and agricultural land pass through transportation to the hotel, inns, and restaurant construction, while non-local capitalist people invest to purchase such valuable land. The existing cropping patterns, local productivity, and livestock reaching have declined, and local people are striving hard to negotiate such a rising situation while opting to change their profession (Ali, 2020; Jodar-Abellan, 2019; Bilal, 2016).

Table 4.2.11 shows that a majority of the respondents (61.2%) supported the statement that tourist activities affect changes in the infrastructural of the study area, while 38.8% of respondents negated the statement. Balaton Lake's history is similar to the findings reported by Hezbollah, (2021) that hungry Lake Balaton, where frequent visitors have eroded the land and polluted the preservation of biodiversity. Moreover, the establishments of other related industries like hotels and restaurants have put pressure on clean water and air and contributed to the rise in chemical and other pollutants. Moreover, frequent transportation added to some new harsh realities like air and noise pollution (Bernai, 2013).

Moreover, the majority of the respondents, 58.8%, agreed that Problems related to the current property rights regime over land and the land conversion systems have led to difficulties for Indigenous people due to the tourism development industry, while 41.2% negated the statement. The local land distribution practices and area rights are

governed by specific criteria adopted since 1885, devised by Sheik Mills. Such traditional attachment to land has reduced hurdles in property rights. However, current scenarios favor large large-scale and related achieved activities. Such loom in tourism has given rise to the focused migration and displacement of indigenous communication. They are relocated to other areas, and the vacant land is replaced with hotels and restaurants (Greene, 2017; Coria, 2012).

In addition, most % of the respondents, 74.8%, favored the statement that Ambiguous property laws cause infrastructure change, while 25.2% were against the statement. Property laws play a crucial role in determining land ownership, use, and development for infrastructural growth. However, anywhere ambiguities of laws usually stem from lengthy litigation over property rights, hindering this would be change and development initiatives. This ambiguity contains land chains overlapping non-existence, incomplete existence of recent disputes, and amenities such as ambiguities that have been identified as tumbling factors in growth and development drives (Wang, 2015; Nguyen, 2022 Povoroznyuk, 2021).

Furthermore, the majority of the respondents, 76.5%, responded to the statement that Lack of long-term planning and comprehensive master plan results in undesirable infrastructural changes. In contrast, 23.5% had negated the statement. This indicated the non-presence of fore sightless and anticipated vision with regard to infrastructural development. This unplanned and unstructured urbanization, instead of resolving problems creating issues of congestion, traffic jams, and pollution like noise and air, such as lack of vision, mostly focuses on short-term planning while ignoring the long-term consequences of short-lived intervention. The probable outcomes of such lived interventions are the fragmentation of land degradation, ecosystem biodiversity, and the squeezing of agricultural land; moreover, in the absence of a master plan, haphazard development and changes in the shape of urban sprawl. This ad-hoc approach to land use results in insufficient use of land and reduces the quality of life of locals (Ziervogel, 2016; Koop, 2017).

Likewise, the majority of the respondents, 58.6%, supported the statement that newly built facilities like cafes, parks, hotels, and toilets have a degrading effect on the environment, while 41.4% negated the statement. Newly built facilities such as the aforementioned are the direct pollutants of land and its degradation as most of the

protocols regarding its construction and resources are not met (Mandeli, 2019). Water and energy are other basic ingredients that are often lacking, putting huge pressure on cleanness and sanitation. All these requirements, if not in an eco-friendly way, may lead to the depletion of resources, national habitat destruction, and elimination of native species (McCool, 2021).

In addition, the majority of the respondents, 80%, supported the statement that Change in architectural styles reduces the charm of the area, while 20% did not agree with the statement. The charm of an area is often influenced by its architectural styles and the historical significance it holds. Changes in the architectural side, with the erection of new buildings, are being made by replacing the old traditional buildings (heritage) and socio-cultural variations. Such old heritage is the construction of preservation of architectural legacy and also de-shaping the history and scenic beauty, eliminating ancient charm integrity, etc. (Akinyele, 2013 and McCabe, 2021).

Furthermore, the majority of the respondents, 79.4%, supported the idea that Changes in infrastructure disturb population density and affect accessibility, whereas 20.6% negated the statement. Changes in infrastructure disturb the existing density of the population, and people start living in their ancestral places. Moreover, new arrivals in the garb of investors (capitalists) and visitors purchase land around the scenic spot, which ultimately disturbs the local population density. In addition, the development of roads, buildings, and transport systems exerts pressure on the existing available facilities, forcing the existing structures to undergo transportation. This transportation process also entails the accessibility of people to huge sports, workplaces, and educational institutions that are lacking in density. This increase and decrease in density are the resultant factors of new construction. The construction of bypass roads from the main city releases pressure on the main road, and people enjoy traveling unabated for less time to reach their relative destinations (Thomas, 2019; Alabbad, 2021).

The majority of the respondents, 71.6%, had viewed the statement that Infrastructural changes have led to the emergence of a new business class as property dealing, while 28.4% had negated the statement. The infrastructural changes that have taken place around the country and in the study in particular have significantly led to the emergence of a generated business class, i.e., the property dealer. It usually stems

from the loom in terms of transportation and easy accessibility. The construction of highways, motorways, and important G.T. roads have made the increasable parts accessible and created business opportunities based on property. A new market of investors has emerged, where people are investing in order to earn more. This facilitation and improvement in infrastructure and new means of transportation have given impetus to this new business. This business has also facilitated and encouraged people to live away from city life with peace and enjoy the basic amenities of life (McMichael, 2013; Silver, 2015).

Moreover, the majority of the respondents, 80.3%, supported the statement that The property business encouraged non-locals to invest in the area and start their business, while 19.7% of respondents negated the statement. In infrastructural development, proper property businesses contributed to and encouraged infrastructural growth, such as roads, highways, bridges, and other buildings like schools and hospitals, and even facilitated local and non-local development. This has led to the emergence of a new scenario that is favorable to established businesses, encouraging non-locals to invest while participating in the prevalent market. This business has encouraged the establishment of commercial hubs and an industrial zone which has helped investors earn more. Mostly, non-locals are getting benefits due to their huge investment and pushing the locals to corners as they either lack the initiative to lead or lack enough financial resources to anticipate in such a competitive market. Such businesses often foster the rise of like-minded communities by establishing a strong communication network among them (Cabras, 2014; Gebeyehu, 2022; Mohyeldin, 2006).

Table 4.2.10 Frequency and percentage distribution of the respondents on the basis of infrastructural changing

S.No	Attribute	Yes (%)	No (%)	Total
1	Tourist activities affect changes in the infrastructure of the study area.	211(61.2%)	134(38.8%)	345(100)
2	Problems related to the current property rights regime over land and the land conversion systems have led to difficulties for indigenous people due to tourism development industry.	203(58.8%)	142(41.2%)	345(100)
3	Ambiguous property laws cause infrastructure changing.	258(74.8%)	87(25.2%)	345(100)
4	Lack of long-term planning and comprehensive master plan results in undesirable infrastructural changing.	264(76.5%)	81(23.5%)	345(100)
5	Newly built facilities like cafes, parks, hotels and toilets have degrading effect on environment.	202(58.6%)	143(41.4%)	345(100)
6	Change in architectural styles reduces the charm of the area.	278(80.0%)	67(20.0%)	345(100)
7	Changes in infrastructure disturb population density and affect accessibility.	274(79.4%)	71(20.6%)	345(100)
8	Infrastructural changes have led the emergence of new business class as property dealing.	247(71.6%)	98(28.4%)	345(100)
9	Proper property business encouraged the non-locals to invest in the area and start their business.	277(80.3%)	68(19.7%)	345(100)

Source: Field Survey, 2023

4.2.11. Tourism influenced land conversion

The encouragement of tourism by the government and other allied agencies has encouraged locals and non-locals to start various businesses in tourist areas; this business included the construction of the food industry with conspicuous references to hotels, restaurants, and inns. Moreover, the transportation sector has also witnessed a sharp rise in new heavy coaches to transport and facilitate tourists. All these relevant activities brought about structural changes and functional alternatives as well. The latest and novel fast food craze has altered the usual and traditional ways of eating behavior. Moreover, people tend to adopt new ways of life as a heart ringer to the development of change. These structural and functional alternations tend to expedite

economic activities, and people earn more by investing in emerging businesses. However, these businesses have some negative repercussions, such as commercialization. This commercialization has raised land prices multifold, reducing the number of locals unable to compete with capitalists in this soaring land market. Moreover, it also brought about visible changes in the local cultural life patterns (Amit, G., 2012; Darji, 2012).

The majority of the respondents 72.2% supported the statement that tourism-influenced land conversion has an effect on local customs, sociocultural characteristics, social life, and religious beliefs of the community, while 25.8% of respondents negated the statement Navarrete-Hernandez, (2018) allocated the above inferences by taking reinforcements from this condition in cost Ghana that lack of cooperation between tourism managers and locals along with experts of various fields need to be created in order to achieve maximum targets of tourism on sustainable grounds Cobbinah, et al. (2017). Land conversion also generates huge waste, threatening agricultural land productivity. The conversion has also led to the fast depletion of land while soaring prices. Understanding the local population's interest may help the business of land around. Land ownership and property rights are under standard control, which often rise to the smooth utilization of land as a commodity without any ambiguity or dispute in Vietnam. However, the study area was found to have ambiguous laws pertaining to ownership, which has generated disputes owing to lesser productivity in agriculture (Nguyen, 2022; Van Westen, 2017; Mangione, 2010). Moreover, Xiang (2017) has attributed land grabbing to the development of tourism in China, which has negative impacts on the environment and ecology, gripping the notion of sustainability. Local customs and traditions have also been under constant transition in the wake of the commercialization of land by thwarting the prevalent socio-cultural cover and shaking the religious values as well Tuan, (2019).

Moreover, the majority of the respondents, 71.9%, agreed that tourism destinations have the potential to become overcrowded, making traffic worse and creating parking problems, which ultimately cause problems for local people, while 28.1% negated the statement. Overcrowding in tourist destinations is one of the pressing issues people are facing with traffic congestion jams, and the influx of tourists is sufficiently overcrowding the roads, housing facilities, etc., and putting a lot of pressure on communication means, which makes local life miserable. Locals are unable

to reach their working places. Moreover, parking has been another annual surfacing with the rise in tourism (Pierce, 2013). The rising number of visitors increases the demand for parking as the existing parking lots and other open areas are less capacitated to accommodate such a huge number of vehicles. Locals and visitors feel frustrated and usually emerge with ugly situations like disputes and altercations (Amuquandoh, 2010).

In addition, most of the respondents, 77.1%, favored the statement that natural areas, including parks and protected lands, may be affected directly by the introduction of a tourism-influenced land conversion industry, while 22.9% were against the statement. Albeit these findings indicated generating more revenue, checking the meaning of social life, and putting tremendous pressure on infrastructure and job market, etc., job attainment and the thriving of new businesses are also affecting but at the cost of destroying the conservation and biodiversity. Awareness rises later in the way that we can better realize how to protect the environment, encourage commercial tourism, and safeguard the management efforts being rendered for the protected lands by encouraging responsible behavior (Jamal, 2009).

In relation to the aforementioned explanation, the majority of the respondents 75.7% expressed the statement that Land conversion, more often from cultivated and arable lands to commercial uses, is driven by economic, political, environmental, and social factors, and such conversion has a significant opportunity cost in terms of biodiversity loss and land fragmentation and low agricultural productivity due to tourism. In contrast, 24.3% had negated the statement. The economic return cost of living and access to basic mention with rising trends in education, media, etc., people tend to sell their agricultural land for high return. All such emerging relations have initiated the process of commercialization, i.e., generating more money from a limited space of land due to soaring prices. People tend to sell out and invest their returns in establishing business and political endeavors like contesting elections to receive high returns in financial and status-boasting shapes. Such development has driven the rapid loss of urbanization and industrialization. Both of these urbanization and industrialization are at the cost of the local ecosystems, biodiversity, and environmental stability. Resilience regarding such changing dynamics could be addressed once political resolve is established amongst the various territorial stakeholders (Ustaoglu, 2017; Jiang, 2013; and Barbier, 2010).

Likewise, the majority of the respondents, 77.4%, supported the statement that Different investment strategies are applied by foreign and domestic investors to develop new hotels, while 22.6% negated the statement. Foreign and local investors have designed and adopted a collaborative strategy for hotel construction by investing a significant portion of the money. These efforts push forward the initiatives of industrialization by giving impetus to new market establishment, creating both investment and job opportunities. It has also pointed to growth strategies to establish Asians between market and investing entities with the potential capacity to expand with high returns (Gao, 2020; Tien, 2019).

In addition, the majority of the respondents, 81.2%, supported the statement that the Commercialization of local agricultural land leads to unplanned and unsustainable exploitation of natural resources of the tourist area; 18.8% did not agree with the statement. Increased demand for agriculture production with the influx of tourists. These findings endorsed the preceding cohesion that lands as commodity sets fluctuated in terms of their relative price. Commercialization of land has created the dilemma of unplanned and uncontrolled utilization of land, i.e., converting it into business malls, hotels, etc. All such transportation is meant to put pressure on the local purchase of natural resources like water, air, etc. A consistent flow of building development has negative effects from the once like depletion of land resources and elimination of local plant animal species and ecosystem (Smith, 2022 *and* Ristić, 2019).

Furthermore, the majority of the respondents, 82%, supported the idea that the Commercialization of agricultural land affects social and economic relations as non-locals become land-owners in a tourist area, whereas 18% negated the statement. Local community development in the wake of land commercialization and the arrival of industrial planning has forced the locals to leave their ancestral land by selling it and turning it off to the native profession, i.e., agriculture. Such changes have brought the loss of livelihood and threat to the cultural heritage of the persisting communities. It is further intimate toward the exploitation of the local labor market as the locals are either replaced by the labor brought by these capitalists or control the wage market and determine their own wages, not favoring the local labor wishes. Local economies are in a construction transformation mode due to new and novel means of change, such as infrastructural growth, with increased dependence on tourism and allied activities (Martiniello, 2017 *and* Sang, 2011).

The majority of the respondents, 78.3%, had viewed the statement that the Commercialization of agricultural lands in a tourist area should be conducted through proper planning in consultation with local people, while 21.7% had negated the statement. The commercialization of agricultural land has caused the erosion of land, reducing the land's ability to sustain and support the local plant's arrival. These create an imbalance and put at stake the local natural resources and animal life, so any land conversion project for either purpose needs to be undertaken by the locals. The locals have the proper knowledge of typography, the nature of the soil, and local cultural practices to utilize this land. Consultation regarding any intervention proves to be useful in the long term regarding its outcomes and also safeguards the relationship between the locals and non-locals for a long period of time to complete conge reality (Castellani, 2010).

The majority of the respondents, 78.3%, supported the statement that frequent construction activities and the influence of people have threatened both above and below the land reserves, while 21.7% of respondents negated the statement. Fragmentation of land in the aftermath of construction not only destroys the fertile surface of the land but also is useful in cultivating the land. It also pollutes the resources like water, etc., beneath the surface. Alternations are also unfriendly for human settlement by exerting pressure on humans in terms of space. Such intervention based on construction has also negatively contributed to altercation in typography, destruction of habitats and ecosystems, and affecting the natural flow of spring water on the surface, while extraction does affect the underground natural reservists (Guisan, 2013 and Hansen, 2007).

On the other hand, the majority of the respondents, 75.5%, reported the statement that commercialization of local has brought the local land to non-local cultures with the frequent processes of acculturation and assimilation, while 23.5% did not agree with the statement. Commercialization has forced the local culture into greater proximity to the invading culture, known as acculturation. Frequent interaction between the custodians of both cultures leads to the use of new social values and norms. Moreover, both cultures influence each other by borrowing and giving their traits to each other. Mostly a scheme of social accommodation; however, in some cases, it also enters into a confrontation of insure, ending up in uncase and restlessness

amongst the locals and non-locals, disturbing the prevalent local social equilibrium (Vyas, 2018).

Table 4.2.11 Frequency and percentage distribution of the respondents on the basis of tourism influenced land conversion

S.No	Attribute	Yes (%)	No (%)	Total
1	Commercialization's of agricultural land for tourism have an effect on local customs, socio-cultural characteristic, social life and religious beliefs of the community.	256(74.2%)	89(25.8%)	345(100)
2	Tourism destinations have the potential to become overcrowded, making traffic worse and creating parking problems which ultimately cause problems for local people	248(71.9%)	97(28.1%)	345(100)
3	Natural areas including parks and protected lands may be affected directly with the introduction by commercialization of tourism industry	266(77.1%)	79(22.9%)	345(100)
4	Land conversion, more often from cultivated and arable lands to commercial uses is driven by economic, political, environmental and social factors, and such conversion has significant opportunity cost in terms of biodiversity loss and land fragmentation and low agricultural productivity due to tourism	261(75.7%)	84(24.3%)	345(100)
5	Different investment strategies are applied by foreign and domestic investors to develop new hotels.	267(77.4%)	78(22.6%)	345(100)
6	Tourism and Commercialization of local agricultural land leads to unplanned and unsustainable exploitation of natural resources of the tourist area.	280(81.2%)	65(18.8%)	345(100)
7	Commercialization of agricultural land affects social and economic relations as foreigners become land-owners in a tourist area.	283(82.0%)	62(18.0%)	345(100)
8	Commercialization of agricultural lands in a tourist area should be conducted through proper planning in consultation with local people.	270(78.3%)	75(21.7%)	345(100)
9	Frequent construction activities and influence of people have threatened both above and below the land reserves.	270(78.3%)	75(21.7%)	345(100)
10	Commercialization of local and has brought the local and non-local cultures with frequent process of acculturation and assimilation.	264(76.5%)	81(23.5%)	345(100)

Source: Field Survey, 2023

4.3. Bivariate analysis of respondents

The bi-variate analysis seeks an association between dependable variables (Tourism influenced land conversion) and independent variables (effects on agricultural production, land degradation, threat to bio-diversity, huge population pressure, sand mining/ extraction, environmental pollution, hoteling/ buildings, capitalist interest, unplanned residential sprawl, infrastructural changing) worked out through cross-tabulation (chi-square test). Each of the above variables, with suitable reasons, is discussed below.

4.3.1. Association between effects on agricultural production and tourism influenced land conversion

Forest reserves provide economic and ecological safeguards to a country for economic and environment by maintaining equilibrium to sustain ecosystem and bio-diversity. Its significant contribution can also be measured in providing firewood for construction, grazing spaces, and other medicinal plants needed for human contentment. The study area is one of the leading areas of Pakistan with forest cover. However, deforestation continued unabated, with a rate of 1.86% annually, and it is favored that such continued activities may diminish this precious resource Qasim, et al. (2010). The area's people are poor and subsistence and have meager opportunities for income generation, so they rely on natural resources like wood to meet their life needs. This has put this vital resource, i.e., forests, under severe threat of elimination if it continues uncontrolled (GOP, 2002, Bangash, 2012).

Table 4.3.1 disclosed a non-significant association ($p=0.053$), but a Positive ($T_b=0.104$) association was found between The development process of tourism activities is essentially a process of land use, which is also one of the major causes for changes in land use patterns and tourism influenced land conversion. These findings were indicative of the fact that the study area was passing through the process of land transportation, i.e., replacing the forest with agricultural and tourism-related activities, but at a low pace. This process has certainly endangered the perpetuation of the local species and also disturbed the human relationship with ecology. Tapper, (2006) has also pointed out the tourists' flora and fauna relationship with negative implications. The construction of tourism infrastructure, i.e., roads and hotels, has contracted the available land space in the tourist spots, covering the available wildlife and destroying

the traditional grazing lands, which helped locals graze their animals. Loss of grazing land and other wildlife-protected areas has put tremendous pressure on the local resources to near extinction. Moreover, the scarcity of these resources often created new vistas of bringing them from outside, resulting in expensive transportation costs (Knight, 2009; Markwell, 2015; Okello, 2008). However, along with tourism encouragement in terms of physical development to strategy to contain its negative consequences through sustainable management is any of the days Xiang, (2017) while arranging training and assuring employment at the local level.

However, a significant ($p=0.006$) and Positive ($Tb=0.148$) association was discovered between tourism development having a direct or indirect impact on land use or land conversion and tourism-influenced land conversion. These findings alluded to the prevalence of negative and positive consequences of tourism for the local areas as seduced by the respondents. It could be pertinent to mention that tourism sustenance lies in the prevalent standard arrangement for tourists, which takes into account their accommodation, food supply, security transportation, etc. All these could only be achieved provided proper infrastructure is developed. However, these developments' effects on the land's conversion from forest to commercial could not be ruled out ever (Jiang, 2022) pointed to his study declaring the transport construction of roads and airports as the major tool in accelerating the land transition phenomena. Such transition usually entails the loss of forest and agricultural land by converting it to commercial land, leading to a surge in its price and demand (Boavida-Portugal, 2016; Yang, 2020). A proper mechanism of land use and tourism activities, if designed, can mitigate the negative impacts of tourism on the existing land (Lamparski, 2011).

In addition to the above, a highly significant ($p= 0.000$) and Positive ($Tb=0.319$) association was detected between the rapid expansion of tourism activities and construction activities that had led to a reduction in agricultural land and tourism-influenced land conversion. The rapid expansion of tourism and construction activities has generated business-oriented inclinations amongst the study population, as emanated from these findings. These results could be attributed to the development of a market economy based on the establishment of hotels, restaurants, and infrastructural constructions. These findings were in consonance with Ghadami, (2022) that tourism is occupying the shape of a looming industry. Both public and private sectors are competitively investing in development-related activities to encourage more and more

visitors. Although these activities have generated a lot of business activities and people learning, they have boasted about the prevalent severe environment, local natural beauty, biodiversity, and agricultural land, which are on the path of diminishing. The land use changes are the resultant factors of residential and commercial zoning being on the path of emergence. This trend has led to negative consequences for agricultural farmlands, decreasing agricultural land, its production, and subsequent shortage of local products, ending up in the emergency of food insecurity (Surya-Suamba, 2022; Pham, 2021).

A highly significant ($p=0.000$) and positive ($Tb=0.364$) association was found between tourism activities that can destroy flora and fauna and tourism influencing land conversion. The term ecosystem is explained by the pressure of living organism's relationship with the land. These organisms are perceived to live in a co-existing mode of life that favors both flora and fauna in terms of physical and environmental parameters. The prevalence of such circumstances ensures the perpetuation of the natural cycles of these species. However, the ardor of tourism and its altered activities have threatened these natural cycles. The local environment is crippled due to consistent human intervention, like the construction of hotels, inns, restaurants, etc., which has also transformed the local landscape in the aftermath of urbanization and commercialization across the globe (Amare, 2015). The other negative consequences included foot traffic, habitat construction, air pollution, water contamination, wildlife extinction, and degradation of nature and the environment, which could be attributed to these human mode activities. Mitigation of such outcomes in light of these aforementioned human activities may work as pone ace 76 is viscously implemented (Browne, 2022; Immacolata, 2018).

Furthermore, a significant association ($p=0.007$) and positive ($Tb=0.145$) association was dismantled between Tourism results in the destruction of ecosystems and the extinction of multiple species of fauna due to the massive presence of visitors and Tourism influenced land conversion. These results endorsed the above findings and highlighted the negative impacts of tourism in relation to the environment and biodiversity. Snijders, (2012) has enumerated the various factors the light use in tourism, like the extinction of ecosystem and biodiversity with the elimination of local species (both plants and animals), poor management with no anticipative vision force, and direct activities taking place in the tourist spots have confounded effects in

negative outcomes. Commercialization of agricultural land and forest cover has imbalanced the natural equilibrium essential for the preservation of natural habitat and ecology. Mitigation of adverse effects of tourism answers the protection of vulnerable species, albeit economic growth to be enjoyed by the locals as well (Demianenko, 2014; Utama, 2014).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.313$) association was established between Tourism, especially mass tourism, causing degradation and loss of natural landscapes, historic sites, and monuments, and Tourism influenced land conversion. Degradation of the environment and natural landscape are back-to-back disorders that take place in the aftermath of long-scale tourism activities as validated by tab values and lead of significance at the chi-sequence level. This could be attributed to the limited capacity of the area, which could not afford such a huge scale of human moments. In return, the degradation of biodiversity and the ecosystem is obvious and poses threats to cultural heritage as well. These findings were similar to Belsoy, (2012), who stated that an overcrowded environment is overwhelming the tourist sites, exceeding their capacity to negotiate and destroy the existing ecosystem and biodiversity with the loss of the existing landscape (Ghulam-Rabbany, 2013). Moreover, an increase in pollution vandalism behavior of the visitors and excessive use of transportation with limited accommodation resulting in overcrowdings high density while the capacity to feed manage with other related demands like waste disposal, etc. are at the same time do lead to water pollution shortage of food energy and putting at stake the fragile ecosystem by affecting the natural balance of environment and resources (Koskowski, 2021).

Similarly, a high-significant ($p=0.000$) and Positive ($Tb=0.511$) association was confirmed between Tourism developments harming the environment, especially changes in land use and Tourism-influenced land conversion. Other construction of hotels and restaurants and the establishment of roads usually come out by removing the forest to make way for these constructions. Such efforts have long been acknowledged as destructive for the existing biodiversity and natural habitats of wildlife, plant species, and ecosystems. Moreover, such constructions also force the displacement of local communities. These forceful activities undermine the prevalent cultural traits. Moreover, relationships developed and maintained amongst community members also pass through a breakup, creating a vacuum emanating a totally uncertain social and

cultural scenario. The local economic system is also replaced by a market economy in which the locals have little financial capacity to participate resultantly, resulting in their social exclusion (Ghulam-Rabbany, 2013; Belsoy, 2012). Such demographic alternations also fragment land and respective ecosystems as the moment animals move around, they are curtailed. Water shortage and pollution are the other associated miseries of tourism as well (Singgalen, 2022 GhaDami, 2022).

Inconsistent with the above, a highly significant ($p=0.000$) and Positive ($T_b=0.458$) association was found between the development of mountain tourism has led to continuous encroachment on the effective habitats of species in natural reserves and Tourism influenced land conversion. The development of mountain tourism entailed the encroachment of the natural habitat of forest wildlife species due to a number of factors Cao, (2021) are infrastructural development producing habitat fragmentation in response to large-scale activities Chaudhary, (2016). Those developments are usually meant for humans to facilitate accommodation, comfort, and enjoyment of the local natural phenomena. However, all such efforts have been noticed as destructive because destroying the local habitat and ecosystem, and fragmentation of the environment increased human activities in mountainous regions, such as hiking, camping, and hunting, which often shelter the prevalent severity and create disturbance in animal behavior patterns. Moreover, pollution like littering and damping of waste spring water contaminations usually leads to such activities, which destroy the habitant survival (Ladan, 2014; Nyaligu, 2013).

Notwithstanding, a highly significant ($p=0.000$) and Positive ($T_b=0.535$) association was established between Tourism and land forestation, being paradoxical in nature and Tourism influencing land conversion. This statement suggested a negative relationship between tourism and the sustenance of forests. The moment of humans in the shape of tourism and related activities is not favorable to forests but rather threatening as most of the wildlife species and plant species are on the verge of disappearance in light of such large-scale human activities. These findings were similar to Sandbrook, (2010) and Akinyele, (2013), that human had destroyed forests and biodiversity at the cost of their leisure-seeking drives. Moreover, plantations of trees are not so encouraging in comparison to these rates of deforestation. Such a situation usually surfaces with the emergence of a time gap difficult to fill, and the ecosystems

are found unable to revive in the face of such destructive activities (Münster, 2012; Tyrväinen, 2014).

Contrary to the above, a non-significant ($p=0.051$) but Positive ($Tb=0.103$) association was established between Land reduction in agriculture not reduced production due to the application of the latest know-how in land cultivation and Tourism influenced land conversion. The results indicated otherwise, as explained by the latest know-how application on land, have not affected production on the face of squeezing of agricultural land but have had a little effect. These results could be attributed to either a lesser chunk of land being influenced by the land conversion or a former high level of awareness did not lead to a decline in production Röö, (2017) has alluded to the precision adopted by informal cultivation by the farmers despite the agricultural land reduction in size. Precision technologies include the use of GPS remote sensing and laser land loading. Moreover, the timely use of fertilizers and pesticides as per need in quantity and time has also boasted agricultural production Searchinger, (2018). Furthermore, the development of breeding and genetics technologies has also maximized production, and new varieties (high yield) have been produced, which are disease and pest resistant for rented areas. The development and application of hot water required varieties have brought a revolution leading to higher production (Spillias, 2023, Richards, 2019).

However, a significant ($p=0.006$) and Positive ($Tb=0.148$) association was discovered between Orchards and other local fruits, which are diminished due to replacement by tourism sites and Tourism-influenced land conversion. The replacement of orchards and other local fruit farms by tourism was obvious and also reported by the respondents in the affirmative. It could be attributed to the economic return associated with the advent of tourism. Moreover, it has also been identified as a major source of providing business opportunities for local communities along with short and long-term employment disposed of by Hjalager, (2013). This situation is pressing hand for the loss of agricultural land by converting it into hotels, resorts, and other tourist accommodations. This attraction divergence of traditional agricultural practices replaced with navel ways of earning is financially viable, which has boosted the local mal economies. However, these recreational facilities, along with accommodation and facilitation, have ruined local production. Moreover, the influx of visitors also influences the local ways and means of food consumption, indicating a cultural vision,

resulting in a slow process of acculturation. Such a scenario emerges with the alteration preferences of the locals, and new norms and values are developed while pushing the long traditions to the verge of elimination (Schroth, 2009; Granatstein, 2009).

In support of the above, a highly significant ($p=0.000$) and Positive ($T_b=0.319$) association was confirmed between People who are willing to land conversion as tourism is more profitable than ordinary agriculture and tourism influenced land conversion. These findings were in alliance with the proceeding results and indicated the emergence of change in profession, which has put on alternation the local demography and topology. Farah, (2022) has linked high economic returns with tourism in a limited time period, requiring lesser labor and investment with little effect from nature. The local land has positively capitulated on the opportunity of earning from tourism and steadily diverting their land and resources to tourism instead of agricultural earnings Hikmawan, (2020). Tourism has no seasonal events like disasters dangerously affecting farm moderns, while tourism also ensures earning opportunities around the year. This round-the-clock business has predictable signs of consistent revenue generation and employment opportunities for locals. Moreover, besides ticking in the local economy, non-local investors invest in various types of business, turning the local market into a more stable and viable market with all the characteristics of a dynamism-based service provision (Brooks, 2012).

A high-significant ($p=0.000$) and positive ($T_b=0.364$) association was found between tourism entailing development but at the cost of existing agricultural land and tourism-influenced land conversion. Tourism indeed brings economic change with use in per capita income based on more business opportunities and generating employment Usman, (2022). However, all these are attributed to the diversification of agricultural land with the loss of local habitats and ecosystems in the earlier hotels, restaurants, and infrastructural developments. Moreover, the rising precious of land is another factor of land diversion as they mostly prefer to either sell agricultural land or convert it to establish buildings, i.e., hotels and restaurants Ghadami, (2022). All such activities result in a decrease in arable land, and people tend to rely on imported goods instead of indigenously produced commodities (Kachniewska, 2015; Kalchenko, 2021).

Table 4.3.1 Association between effects on agricultural production and tourism influenced land conversion.

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	The development process of tourism activities is essentially a process of land use, which is also one of the major causes for changes in land use patterns.	Tourism influenced land conversion.	$\chi^2=3.735$ P=.053 Tau-b =0.104
2	Tourism development has a direct or indirect impact on land use or land conversion.	Tourism influenced land conversion.	$\chi^2=7.518$ P=0.006 Tau-b =0.148
3	The rapid expansion of tourism activities and construction activities had led to reduction in agricultural land.	Tourism influenced land conversion.	$\chi^2= 35.177$ P=0.000 Tau-b =0.319
4	Tourism activities can destroy the flora and fauna.	Tourism influenced land conversion.	$\chi^2=45.622$ P=0.000 Tau-b =0.364
5	Tourism results in the destruction of ecosystems and extinction of multiple species of the fauna due to the massive presence of visitors.	Tourism influenced land conversion.	$\chi^2=7.245$ P=0.007 Tau-b =0.145
6	Tourism and especially mass tourism causes degradation and loss of natural landscape, historic sites, and monuments.	Tourism influenced land conversion.	$\chi^2=33.763$ P=0.000 Tau-b =0.313
7	Tourism developments harm the environment, especially changes in land use.	Tourism influenced land conversion.	$\chi^2=90.017$ P=0.000 Tau-b =0.511
8	The development of mountain tourism has led to continuous encroachment on the effective habitats of species in natural reserves.	Tourism influenced land conversion.	$\chi^2=72.406$ P=0.000 Tau-b =0.458
9	Tourism and land forestation are paradox in nature	Tourism influenced land conversion.	$\chi^2=98.621$ P=0.000 Tau-b =0.535
10	Land reduction in agriculture has not reduced the production due to application of latest know how in the land cultivation.	Tourism influenced land conversion.	$\chi^2=3.737$ P=0.051 Tau-b =0.103
11	Orchards and other local fruits are diminished due to replacement by tourism sites.	Tourism influenced land conversion.	$\chi^2=7.518$ P=0.006 Tau-b = 0.148
12	People are willing to land conversion as tourism is more profitable than ordinary agriculture.	Tourism influenced land conversion.	$\chi^2=35.177$ P=0.000 Tau-b =0.319
13	Tourism entails development but at the cost of existing agricultural land.	Tourism influenced land conversion.	$\chi^2=45.622$ P=0.000 Tau-b =0.364

Source: Field Survey, 2023

4.3.2 Association between land degradation and tourism influenced land conversion.

Forest resources of a country play a pivotal role in the sustainable use and preservation of the environment of the mountain and help the ecosystem survive. On the other hand, the population has been deemed the culprit in destroying the environment by degrading the land as socio-economic activities loom to satiate the growing population's needs. However, population increases warrant the pressure on the labor force for the market mechanism. However, its surge in number has led to extra pressure on resources, creating pollution and water degrading the environment. Moreover, along with the waste pollution, road and building construction to meet air increased population residence and mobility could not also be ruled out as propelling agents of degradation. District Swat, the study area, is comprised of diverse biophysical, social, and economic characteristics, and it is usually portrayed that forest cover has increased due to afforestation. However, contrary to the claims that deforestation has been taking place as specific other statistics also augmented it, the major deforestation factors are counted as the use in tourism. It has been concluded that increased tourism has unnaturally increased the population quickly with multifaceted results like poverty, loss of biodiversity, ecological disorder, and land degradation, respectively (Shahbaz, 2006; Rompaey, 2022; Qasim, 2013).

Table 4.3.2 shows a high-significant association ($p=0.000$) and positive ($Tb=0.585$) between tourism activity directly causing land degradation and tourism-influenced land conversion. Infrastructure development, such as roads, hotel construction, and the provision of other facilities, has proved to have seldom been used by the population. This surge in population requires extra resources to satiate their accommodated needs. However, to comply with these needs, there are a number of undesirable results, often in the form of property loss of biodiversity, disarray in the ecology, and land degradation. These findings were in line with Immacolata, (2018) results that infrastructural development results in the elimination of natural habitats along with soil erosion and deforestation, respectively. All these negative implications are directly related to the advent of tourism. Pressure on local resources in the shape of their overuse may also result in shortages of water, energy, and food, which are required in more quantities to address this growing population. Depletion of resources and land degradation are often associated with high quantities of waste generation, such as the use of plastic, bags, packing material, etc., which are frequently used, but proper

management and dumping are usually lacking. Moreover, consistent use in tourism also kept up the agricultural land conversion into residential units; all such trends pervasively existed with the proper emergence of commercialization of land, leading to lesser production in agriculture. Moreover, soil erosion, ecological disorder, and road congestion (Chang, 2022; Sevilla, 2019 and Mihai, 2020).

However, a high-significant ($p=0.000$) and positive ($T_b=0.532$) association was discovered between tourism's direct impact on natural resources, both degradable and non-degradable, and tourism-influenced land conversion. Rapid use in tourism feels around changes to the existing structural and functional dynamics. All activities arising out of tourism are new and to be accommodated within the spatial parameters while pushing apart the existing structure. The space to be occupied ought to put pressure on the denary, which certainly neglects the service value of the existing ecosystem. These findings were in close alignment with Deng, (2021), who said that urbanization in China is responsible for altering the existing landscape with construction activities. Such development is assessed as not compatible with the preservation of environmental drivers sans its economic importance as the relationship between land use and use in the economy is gaining a sound importance in the community (Haibo, 2020). Tourism has feelings behind the degradation of the environment, such as water and air pollution and land erosion. Moreover, prevalent ecosystems and biodiversity are also at stake due to pressure on energy use, food, and infrastructural requirements. Moreover, deforestation is yet another factor emerging in a holistic manner, affecting the natural environmental topography and marine water life negatively in an unprecedented manner. Moreover, the leftover waste adds further stress, and there are no proper disposal strategies (Das, 2018; Hammes, 1994; Adhikari, 2015).

Furthermore, a highly- significant ($p= 0.000$) and Positive ($T_b=0.471$) association was confirmed between Tourism causing deforestation and construction activities, which led to a reduction in agricultural land and Tourism influencing land conversion. These findings emanated that using tourism has comprehensively changed the physical, social, economic, and cultural map of the study area. The inception of tourism and its abrupt escalation is the major driver of land divergence as the commercial path with such prices particularly focuses on agricultural land conversion into commercial hubs. These findings were similar to those of Xiao, (2018) identified

similar drivers behind the land change patterns in China due to the host in its tourism industry. Tourism is primarily transporting rural land into urbanized housing. Moreover, the under-stressed ecosystem may also vanish if proper sustainable initiatives are not undertaken to protect the existing biodiversity and animal and plant species by proving a congenial co-existing milieu between them and human beings. Although the economic returns of tourism are more beneficial and seem to overshadow these initiatives of maintaining a balance still hopes are alive, as humans have succeeded in maintaining a balance between earning and protecting the environment, Raihan, (2022) has also alluded towards deforestation and agriculture land reduction as resultant factor tourism while destroying the natural habitats and vegetation (Corona, 2016).

A highly significant ($p=0.000$) and positive ($Tb=0.394$) association was found between tourism activity and demolishing cultivated land, and tourism influenced land conversion. These findings emanated a strong liaison with the aforementioned outcomes and were in consonance with Weaver, (2014) conclusion that the impact of city expansion emerges with its sprawls to usurp the adjustment. Mal areas, while extending the transport and structural development logo, are potentially endangering the mal setup. These are supposed to be the custodians of the preservation of rural life and the local ecosystem, preserving biodiversity. Moreover, a close and intimate land also prevailed between tourism and the degradation of the environment (Tyrväinen, et al., 2014) by destroying the clean air, water, and social fabrics, and new models of infrastructural growth are encouraged to replace the traditional local social system. These changes are deemed properly ideal by the local land owner to leave out their land on hefty, i.e., earning more from a limited piece of land due to land commercialization (Jarrah, 2019).

Likewise, a highly significant ($p=0.000$) and Positive ($Tb=0.460$) association was confirmed between agricultural lands that are gradually transformed by tourism due to the absence of non-existing of any relevant law and Tourism-influenced land conversion. Zhang, (2021) has also indicated a similar situation in the study area where land transportation was used; people were shifting from the agrarian culture to a more advanced commercialized culture for the sole purpose of earning more in China. These could be attributed to the prevalence of change based on economic return from lands at the cost of altering the prevailing social, cultural, and economic milieus. These changes

are rising as these site middle class who are participating as behavior, small scale businessmen, and also service providers in the shape of guides, etc. However, it has also been noted that the local historical indigenous ways of life are fading gradually and soon to be replaced with a more dynamic and urbanized value system where the source of production and consumption would both struggle to meet the rising challenges in their respective domains (Klosi, 2020, *and* Ocejó, 2011).

Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.553$) association was detected between Construction and reconstruction, infrastructure transformation, and landscape transformation, which has put immense pressure on the existing pattern of land and Tourism-influenced land conversion. These results highlighted the adverse effects of land transportation in light of tourism due to the advent of tourism as an industry; these dynamics of change pertaining to land use patterns are mostly socio-economic inclination in an industrialized way. Mahonge, (2015) has also discussed that development and growth (infrastructural) are the factors that result in a population boom and industry installation, leading to environmental degradation. This degradation is related to the production of wastes generated through these activities. Moreover, it has also been prone to be a harbinger of multifaceted miseries like poverty, loss of habitat and vegetation, and local degradation and disappearance of cultural norms of the local communities. This swim reality of diminishing local produce is adverse through reliance on imported goods. Moreover, indigenous food production has also started to further erode the traditional mechanism of social life by threatening the cultural traits of the local communities. A sustainable strategy with the preservation of local culture, production, and surge of the population is a needed synergy to cope with the situation on sustainable grounds (Lisle, 2000 *and* Yilmaz, 2016).

Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.459$) association was confirmed between the Economy due to tourism development, which poses a threat to the livelihoods of the Indigenous people who mostly work as farmers, and Tourism influenced land conversion. It also referred to a similar circumstance when he met with the emergence of situational realities in the light of the tourism industry. He further concluded that the gradation and development of new facilities for addressing the tourists' requirements had put the local culture at stake, diminishing the local professions by replacing them with sophisticated ways of earning (business). However, local cultural alternations are eminent, with the threat of wildlife elimination being a

major cause. Thus, tourism is intrusive with progression, such as transportation of profession, infrastructure, and land use patterns, to cope with the tourist needs and requirements (Zhang, 2021; Ogra, 2015). However, Sang, (2011) *and* Sun, (2009) have also pointed towards the loss of biodiversity due to a consistent influx of humans with demanded capacity in food provision, spatial accommodation, and other infrastructural facilities (Rasul, 2021) and commercialization has further put pressure on resources like land being with up ticking prices gradually eliminating the agriculture, forests, and mal based profession with active and profitable businesses along with associated perks (Smith, et al., 2016).

Meanwhile, a highly significant ($p=0.000$) and Positive ($T_b=0.493$) association was explored between Tourism's effect on land degradation and necessary land resources, including minerals, fossil fuels, fertile soil, forests, wetlands, and wildlife, and Tourism-influenced land conversion. Land degradation, which erodes biodiversity, natural habitats, and ecosystems, is eliminated soon after tourism emerged, as the respondents acknowledged. Moreover, this process is accelerated due to the need for more sustainable strategies devised by the policymakers. Gazta, (2018) has linked resource depletion with uncontrolled, unregulated, and unplanned activities (tourism). These activities entail habitat destruction in hotels, resorts, and road construction. Furthermore, water shortage and contamination are pressing hands for more water to satiate the population's growing needs (Calaretu, (2012). Tourism organizations all the significant economic activities in a particular area, shaping itself into a greater hub in which most investors participate; however, all these economic endeavors altered with social and ecological changes have gradually eroded the physical dynamics like grassland elimination and land scope disappearances. Moreover, the mountainous region was more prone to damaging outcomes after hiking, disturbing the wildlife, and trampling the social and vegetation loss (Chandel, 2022; Calaretu, 2012, Kumar, 2018).

Notwithstanding, a highly significant ($p=0.000$) and positive ($T_b=0.459$) association was established between frequent visits of tourists not only disturbing the ecosystem but also bringing other related miseries noise pollution, and tourism-influenced land conversion. Tourism development is regarded as a holistic endeavor containing economic returns, but damaging the local environment has also linked tourism to development initiatives. However, the public spots (scenic spots) are under constant pressure of damage due to the influx of human-based activities encouraged by

the tourism industry (Lanya, 2017). These civic activities require municipal or centralized patronage regulation to arrange to counsel tourists regarding different parts of a tourism resort. These may include mountainous tourism, where the surface ecosystem and vegetation preservation are essential to facilitate the existing flora and fauna in their survival efforts (Blaikie, 2015).

However, on the other hand, a non-significant ($p=0.053$) and Positive ($T_b=0.500$) association was established between Land degradation, which is also visible in the form of changing housing patterns like conversion to big farmhouses and Tourism-influenced land conversion. These results could be attributed to the particular type of topography in the study area. The study area is primarily mountainous, tourist spots are scattered, and big farmhouses could be better for the local physical environment. Moreover, loss of biodiversity (both animal and plant species) and ecosystem disturbance are apparent reasons for the non-existence of big farmhouses. However, the existence and prevalence of tourism and other altered activities are related as infused from the above findings and confirmed the loss of soil, water scarcity, and land inability to produce more to meet the rising requirement of the visitors (Raleigh, 2007). A sustainable and productive model that ensures all the needs in the existing and anticipative vision is essential to ensure its striving (Balsiger, 2015).

However, a significant ($p=0.006$) and positive ($T_b=0.585$) association was discovered between influential non-local agencies like law enforcement agencies that constructed their colony, further converting the existing land and tourism-influenced land conversion. These findings indicated the boom of tourism in the area and displacement of local communities as expensive land is mainly sold out to non-local investors. These investors, either civil or military, have not only required land but also generated business activities, mostly tourism-related, resulting in a social imbalance in the area (Safransky, 2014; Hayes, 2010). These locals feel marginalized and ignored in design, resulting in a dense soil environment. The label of soil congeniality and visitors' pressure on essential resources like food, energy, and infrastructure divert support the idea of congenial coexistence between the locals and non-locals and supply and demand of the local resources (Aung, 2007).

Table 4.3.2 Association between land degradation and tourism influenced land conversion

S.No	Independent Variable	Dependent variable	Statistics χ^2 , (p-value) & tau-b
1	Tourism activity directly causes land degradation	Tourism influenced land conversion.	$\chi^2=118.170$ P=0.000 Tau-b=0.585
2	Tourism impact directly on natural resources, both degradable and non-degradable	Tourism influenced land conversion.	$\chi^2=97.472$ P=0.000 Tau-b =0.532
3	Tourism causes deforestation.	Tourism influenced land conversion.	$\chi^2=76.522$ P=0.000 Tau-b =0.471
4	A tourism activity also demolishes cultivated land.	Tourism influenced land conversion.	$\chi^2=84.184$ P=0.000 Tau-b =0.494
5	Agricultural lands are gradually transforming by tourism due to absence of non-existing of any relevant law.	Tourism influenced land conversion.	$\chi^2=72.930$ P=0.000 Tau-b =0.460
6	Construction and reconstruction, infrastructure transformation, and landscape transformation has put immense pressure on the existing pattern of land.	Tourism influenced land conversion.	$\chi^2=105.547$ P=0.000 Tau-b =0.553
7	Economy due to tourism development, poses a threat to the livelihoods of the indigenous people who mostly work as farmers.	Tourism influenced land conversion.	$\chi^2=72.624$ P=0.000 Tau-b =0.459
8	Tourism affect land degradation and important land resources, including minerals, fossil fuels, fertile soil, forests, wetland and wildlife.	Tourism influenced land conversion.	$\chi^2=53.230$ P=0.000 Tau-b =0.393
9	Frequent visits of tourist has not only disturbed the eco-system but has also brought other related miseries the noise pollution.	Tourism influenced land conversion.	$\chi^2=24.394$ P=0.000 Tau-b =0.259
10	Land degradation is also visible in the form of changing housing patterns like conversion to big farm houses.	Tourism influenced land conversion.	$\chi^2=86.367$ P=0.000 Tau-b =0.500
11	Non-local influential like law enforcing agencies have also constructed their own colony, which further converted the existing land.	Tourism influenced land conversion.	$\chi^2=118.170$ P=0.000 Tau-b =0.585

Source: Field Survey, 2023

4.3.3 Association between threat to bio-diversity and tourism influenced land conversion

Every scenic spot is the prime source of attraction for tourists, and usually, its accessibility is ensured in order to pave the way for more visitors. The visitor's inspiration is usually provoked through medical advertisements and arranging short trips. Moreover, they are also facilitated by giving some perks and benefits to make the tourist spot a full-service business hub. Although new businesses are initiated through local and non-local investment, new accommodation and commercial sites are mapped and approved. These included shopping plazas, hotels, and restaurants to ensure a safe area for tourists regarding their accommodation and ease of movement. However, all these are usually noticed at the expense of local biodiversity and ecosystem. Moreover, land degradation and fragmentation are other silent features of tourism. People usually visit these spots, which are usually inaccessible, and they preserve the local indigenous vegetation, soil cover, and biodiversity. However, the frequent visits make them susceptible to the danger of its elimination. Malamjaba, one of the attractive points in the study area, has observed the changes in agricultural land and forest areas. The agricultural land and forest cover area has been shrunk due to expansion in the hotel business and establishment of human settlements from top to bottom. The total forest cover has decreased by almost 11.52%, while 7.2% has been converted into built-up areas (Bacha, 2021; FAO, 2005; Mahmood, 2017; Hammad, 2019).

Table 4.3.3 divulged a highly significant association ($p=0.000$) and positive ($Tb=0.144$) regarding its negative impact; tourism has the potential to over-consume natural resources and commercialize agriculture/rural lands for tourism. Tourism and sustenance of ecosystem co-existence are a paradoxical model. All living organisms could face an environmental threat of extraction once the increase in human activities is observed. Frequent interrupt time by human carries the breakdown in the natural cycle of growth and development of this organism and thus faces their total elimination with both plants and animal species either with graduation or instant mode of physical elimination. Kropinova, (2020) has emphasized the nature of human intervention, which determines the mode and speed of elimination, such as cultural, physical, and socio-economic imperatives. Moreover, from trade, population density does play an anchor role in the maintainability of the environment and protection of biodiversity (Hopkins, 2013 and Sadekin, 2020) has also intimated about the complete elimination of marine life in light of mass-scale tourism resulting in cover destruction in Tamil

Nadu, India. This sustainable tourism model and protective measures to ensure natural habitat and wildlife protection could play a pivotal role in preserving habitat and the environment (Mehta, 2016).

Contrary to the above, a non-significant ($p=0.076$) but negative ($T_b=0.96$) association was discovered between the natural, artificial, and cultural resources that tourism relies upon are liable to affect bio-diversity and Commercialization of agriculture/rural lands for tourism. These results alluded that all endeavors carried out for the establishment of the tourism industry are primarily responsible for the degradation of the environment and the elimination of biodiversity. These natural, artificial activities involve establishing commercial hubs, hotels, and restaurants. These activities disturb the natural cycles of organisms, biodiversity, and environmental relationships to maintain the ecosystem. The core of the loftiest mountainous reigns of Hindu Kush, Himalayas, and Karakoram are apparent examples of the rising number of tourists eroding the natural habitats. The northern areas of Pakistan are also experiencing the same conditions as the number used while putting pressure on local natural resources to cater to the rising needs of this influx of people (Khan et al., 2014; Hunziker, 2017). These peaks' topography and environmental conditions are very fragile and prone to ecosystem destruction due to exposure to increased human interventions. Moreover, water contamination, pollution in the air and non-disposal of waste with the boom in economic activities come up with negative consequences for these areas' social, cultural, and ecological composition (Buijs, 2008).

However, a significant ($p=0.002$) and Positive ($T_b=0.169$) association was confirmed between Tourism development, exploiting tourism resources, and constructing tourism infrastructure can change the surface structure, land, soil, and vegetation, posing a threat to bio-diversity Commercialization of agriculture/rural lands for tourism. The lives were found to be in times with the proceeding outcomes where the topsoil and mountainous biodiversity were in constant threat of elimination due to tourism. The infrastructural changes to meet the growing needs of visitors have been identified as propelling factors of land erosion, degradation, and destruction of biodiversity. Moreover, converting land into commercial hubs and urbanization decreased agricultural land (Balmford, 2009; Huang, 2019). Urbanization tends to encroach on the forest and agricultural land while eliminating the local natural resources and cultural heritage. The conversion of agricultural land into commercial

hubs increases the land values, and farms opt to sell a small chunk of land while earning more. This trend is consistently encouraged as it attracts small farms, and they want to sell this land to accommodate money beyond their imagination. Furthermore, the land diverted for other pro-tourism activities is usually devoid of a sustainable model of preservation but instead intended for exported activities, i.e., expansion in infrastructure inclination towards hotel and restaurant construction, forcing the local biodiversity to eliminate, i.e., catastrophic conditions for natural habitat and environment (Browne, 2022; Tabayashi, 2010).

A highly significant ($p=0.000$) and positive ($T_b=0.234$) association was explored between agricultural land in all scenic spots, showing a decreasing trend annually due to tourism and the commercialization of agricultural/rural lands for tourism. These trends of reduction in the land could be the outcome of the commercialization of land being purchased for business-related outfits. Construction and renovation of the scenic spots with a significant focus on accommodating more visitors had led to the hotels, restaurants, and parking establishments. This trend is moving dynamics that pressure agricultural land to get more economic benefits and vitalize each earning opportunity (Hiwasaki, 2006). These changing dynamics have led to the initiative of land conversion phenomena into commercial spaces with high-value additions to agricultural land. However, consequent upon these changes pollution, both air and water have uses in the area, making the lives of locals miserable as noise pollution with land degradation and local resources scarcity have further been explored as direct outcomes of these tourism-related activities (Huang, 2019).

However, a non-significant ($p=0.054$) and negative ($T_b=0.104$) association was confirmed between Tourists who need to protect the natural environment and resources due to ignorance or indifferences and the Commercialization of agriculture/rural lands for tourism. These results predicted the direct relationship between increases in tourism and decreases in agricultural land. These findings suggested that the market economy is less favorable to the prevention local environment, alluding to the non-sustainable of most tourism-related activities. Reeder, (2005) affirmed their relationship while concluding that use in the market economy diminishes the preservation of the local environment by impeding all the initiatives meant for the protection of biodiversity and ecosystem with the consistent rush to local cultural traits as well Balmford, (2009).

Similarly, a significant ($p=0.001$) and Positive ($T_b=0.186$) association was established between International and national level tourism is seen to have a potentially destructive relationship with the natural or scenic environment, and landscape transformation has put immense pressure on the existing pattern of land and Commercialization of agriculture/rural lands for tourism. These findings reflected a transformative phase of land tourism with negative consequences; tourism revolves around the scenic attraction of a particular geographic location and the influx of humans, either national or international visitors (Buijs, 2008). However, these visitors are potentially threatening the prevalent established natural dynamics in the preview of rising visitors destroying the natural resources while eliminating the biodiversity through trekkers activities, visitors generating wastes and non-sustainability in economic and cultural endeavors as least invests shown on put of various stake hold us for preservation (Zoomers, 2017). Due to their fragile nature, tourism endeavors mainly include maintaining, trekking, and other outdoor activities. Moreover, water contamination, air pollution, loss of agricultural land, and disruption of local ecology (Richards, 2019).

Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.226$) association was confirmed between Tourism, which is argued to be the prime threat to indigenous habitats and natural resources, and the Commercialization of agriculture/rural lands for tourism. Altman, (2018) concluded that tourism makes the above land attractive, attracting farmers to sell it for a handsome return. Land purchase usually initiates a business that is correctly suited to and endorses the tourism industry. The return is usually measured to be in the negative direction, with consequences detrimental to local biodiversity and ecosystems. Moreover, the local economy grows with a tremendous potential to generate employment and business opportunities for both local and non-local investors. However, this booming economy has facilitated the preservation of local culture, agriculture, environment, and biodiversity. Urbanization in the aftermath of tourism is seen through Google's environment preservation initiatives as harmful to local biodiversity (Cajee, 2014; Bhatawdekar, 2022 LopErena, 2017)

A highly significant ($p=0.000$) and optimistic ($T_b=0.229$) association was found between the existing ecosystem and biodiversity, which are under constant threat of perishing due to their threatening habitats and commercialization of agriculture/rural lands for tourism. The existing ecosystem and biodiversity both are under tremendous

pressure of elimination due to the destruction of the local environment facing degradation on the face of using human intervention in the factor of construction, infrastructure development, and loss of ecological balance along with alteration in the existing landscape, etc. are deemed not conducive to the survival of different ecosystem (Schunko, 2019). Moreover, other factors like water and air pollution further add to the elimination chances for the existing plants and animal species as the emerging environment could be better for survival (Sanderson, 2013). Moreover, the transportation of agricultural land, introduction of industry, non-disposal of waste, and excessive exploitation of local resources are dangerously affecting the local Mino organism with the disruptive ecosystem (Valbuena, 2021).

In addition to the above, a highly significant ($p=0.000$) and Positive ($Tb=0.181$) association was established between no law or measures have been taken on the part of the relevant departments to preserve bio-diversity and Commercialization of agriculture/rural lands for tourism. These results unearthed the pathetic behavior of the relevant departments in designing any sound strategy for the preservation of biodiversity. These findings are based on Ghosh, (2018) findings on infrastructural growth. Construction and poor management protocol regarding waste disposal have weakened the conservation chances of the local environment. A strategy based on awareness of the relevant stakeholders and devising preservation methodology while ensuring the input of all the relevant quarters can diminish the chance of eliminating wildlife and biodiversity (Khondker, 2015). The synergy of public sector and private inventions could be fruitful towards proper waste management of renewable energy through the involvement of local communities in a more excellent inclusive paradigm (Murshed, 2013).

Furthermore, a significant ($p=0.004$) and Positive ($Tb=0.099$) association was established between the Lack of a visitor calendar to import preservation instructions has further deteriorated the existing species in the area, and the Commercialization of agriculture/rural lands for tourism, the negative impacts of tourism on the environment and local communities. It is indeed noted with concerns that visiting periods every year must be included, and the visitors often violate the natural laws of preservation ignorance and no guiding instruction. These essential instruments turn the whole phenomenon ineffective in safeguarding and protecting the local environment and biodiversity and resisting the transformation of agricultural land into business hubs.

This ignorance has generated the commercialization drive on the use left behind to reach an effect on the local communities and sustainability drives for the natural habitats, albeit used for the economy and business activities (Caldwell, 2014). With the non-existence of proper sideline and regulation mechanics, visitors feel free to do anything by putting the local flora and fauna at stake, resulting in a decline in the respective population (Tambe, 2015).

Table 4.3.3 Association between threat to bio-diversity and tourism influenced land conversion

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	In terms of its negative impact tourism has the potential to over-consume natural resources.	Tourism influenced land conversion.	$\chi^2=7.145$ P=0.008 Tau-b =0.144
2	The natural, man-made and cultural resources that tourism relies upon are liable to affect bio-diversity.	Tourism influenced land conversion.	$\chi^2=3.147$ P=0.076 Tau-b =0.096
3	Tourism development, and exploiting tourism resources and constructing tourism infrastructure can change the surface structure, land, soil and vegetation, posing threat to bio-diversity.	Tourism influenced land conversion.	$\chi^2=9.891$ P=0.002 Tau-b =0.169
4	The agricultural land in all scenic spots shows a decreasing trend annually due to tourism.	Tourism influenced land conversion.	$\chi^2=18.848$ P=0.000 Tau-b =0.234
5	Tourists do not protect the natural environment and resources either due to ignorance or indifferences.	Tourism influenced land conversion.	$\chi^2=3.710$ P=0.054 Tau-b =0.104
6	International and national level tourism are seen to have a potentially destructive relationship with the natural or scenic environment.	Tourism influenced land conversion.	$\chi^2=11.954$ P=0.001 Tau-b =0.186
7	Tourism is argued to be the prime threat to indigenous habitats, and the natural resources.	Tourism influenced land conversion.	$\chi^2=17.667$ P=0.000 Tau-b =0.226
8	The existing ecosystem and biodiversity are under constant threat of perishing due to their threatening habitats.	Tourism influenced land conversion.	$\chi^2=18.079$ P=0.000 Tau-b =0.229
9	No any law or measures have been taken in part of the relevant departments to preserve bio-diversity	Tourism influenced land conversion.	$\chi^2=11.292$ P=0.001 Tau-b =0.181
10	Lack of visitor's calendar to import preservation instruction has further deteriorated the existing species in the area.	Tourism influenced land conversion.	$\chi^2=3.348$ P=0.004 Tau-b =0.099

Source: Field Survey, 2023

4.3.4. Association between population pressure and tourism influenced land conversion.

Overpopulation and natural resources grow geometrically, indicating a question of balance in the supply and demand of the resources to satiate the growing population. More significant population pressure is not only culminating the chances of protecting the environment but also extending its pyloric effects and ensuring sustenance on these resources. It is a widely accepted phenomenon that nature always pays off in terms of penalties for the rising population. The prevalence of natural equilibrium is always at stake in the aftermath of population growth, which results from the disorganization of the social equilibrium of a social system. The market negatively of the population explosion emanated in the shape of deforestation, loss of agricultural land and biodiversity, and alteration of the land scopes (Bryant, et al., 1997; FAO, 2005; Myers, 1988; Shehram, 1993).

Table 4.3.4 reveals a highly significant ($p=0.000$) and positive ($T_b=0.587$) association between understanding land use dynamics, which is essential in formulating proper policy for land use in the mountain regions to manage population pressure and Tourism-influenced land conversion. These findings revealed a sound mechanism of population control and people's awareness of carrying out their activities in the forests, which needed to be exhibited to direct and control human behavior in response to eliminating forests and their precious reserves. It was further discourse that local and non-local people were least bothered about the mitigation of forests, and this inability to mount a balanced relationship between the economic well-being of the locals and the preservation of the forest needed to be improved. Shen, (2022) reported the most recent example of such dynamics with regard to the Himalayas landscapes under threat of construction and population pressure. A population boom was witnessed soon after several companies started their business due to their use in tourism, which led to economic opportunities. The local arrangements regarding housing for the increased number of tourists often need to be revised to address the needs and requirements of the influx of visitors. Demissie, (2022) has also indicated such disarray in management and proposed a sound policy on the part of the government to commercialize the resources and control human behavior with regard to maintaining an equilibrium between population pressure and resource utilization while preserving nature (Balsiger, 2015). The balance between overpopulation and resource utilization necessitates checking into

the encroachment of precious land by not impacting the natural environment and biodiversity (Hall, 2009).

It was further divulged in Table 4.3.6. A highly significant ($p=0.000$) and Positive ($T_b=0.532$) association existed between Population pressure putting pressure on resources, causing them to deplete, and Tourism influencing land conversion. These findings aligned with the preceding results and disclosed the population pressure and resource depletion relations. The population explosion directly disturbed local communities in terms of arranging food, shelter, and health facilities for themselves, and the existing need to cater to anticipated population growth needs Schunko, (2019). People's poor vision to schmooze between the nature of the problem and the approach to resolve it by adopting a mid-approach is often lacking. Thus, this gap is primarily responsible for creating fissures in the social system to cater to the needs and requirements of the growing population in the elegance of a sustainable agenda. Infrastructural development, though, enhances the carrying out capacity but usually at the cost of destroying the local environment and biodiversity Santos, (2017). Moreover, efforts are made to materialize the existence of a quick transport system and installation of recreational facilities with efficient communication networks by bringing ease into social mobility. However, all these activities are at the expense of the natural environment, land degradation, and natural resource exhaustion (Gregg, 2010).

Moreover, a significant ($p=0.002$) and positive ($T_b=0.466$) association was confirmed between population, which is one of the major causes of pollution and the production of carbon dioxide, and Tourism-influenced land conversion. The pollution of the natural environment in the aftermath of excessive use of vehicles and the burning of fossil fuels by releasing CO₂ is directly responsible for the contamination of the environment (Baş, 2017). Moreover, the industrial release of waste and excursive use of energy is often associated with an increased population and pressure on natural resources like demand for firewood, ultimately ending in deforestation and loss of natural habitat (Shen, 2022). Furthermore, land commercialization drops with the problem of soaring land prices beyond the financial class only of the locals; thus, the non-local investors purchase the land and start their businesses. This gap based on resources between the local and non-local has also witnessed the process of acculturation, intimating an unfriendly environment for local ways of life to preserve

the use of other unfriendly components like chemical waste, etc., gradually contaminating the local freshwater springs (Otiman, 2008).

A highly significant ($p=0.000$) and optimistic ($Tb=0.234$) association was found between agricultural land in all scenic spots, showing a decreasing trend annually due to tourism and land conversion influenced by tourism. These results intimated about additive in agricultural land due to its conversion into commercial units, i.e., hotels, parks, restaurants, and business-oriented activities Cajee, (2014). This conversion trend could be linked to relative imperatives of agricultural land in terms of financial returns, i.e., the revenue generated through agricultural means was less than selling it out. These selling trends could be attributed to the mitigation of poverty prevalent in the area. These findings were in consonance with the Sub-Saharan situation where the poorest households rely on selling the products of forests and this agricultural land to meet their livelihood needs (Muhanna, 2007).

Furthermore, a high-significant ($p=0.000$) and Positive ($Tb=0.497$) association was confirmed between population due to tourism negatively affecting the development of housing, sanitation, and drainage, which changes in the form of diseases and affects the local environment negatively, and Tourism influenced land conversion. The vast population boom certainly pushed ahead with use in tourism and urbanization sans any formal housing construction strategy on regularized patterns ensuring the inclusion of all the approved standard parameters to avoid during and sanitation issues. These findings endured the conclusions of Bleu, (2019) that any strategies of physical change about new housing, if lacking the change and sanitation problem, may create health hazards (the sudden rise in population has also strained the prevalent infrastructure, resulting in human congestion and overcrowding which ultimately come up with poor housing facilities. A fully equipped house scheme composed of all necessities like sewerage disposal and waste management may mitigate health issues such as water contamination and other relevant diseases (McManus, 2013; Wallinga, 2009).

Similarly, a significant ($p=0.001$) and Positive ($Tb=0.186$) association was established between International and national level tourism is seen to have a potentially destructive relationship with the natural or scenic environment, and landscape transformation has put immense pressure on the existing pattern of land and Tourism influenced land conversion. With the increased volume of tourists, their patterns of utilizing resources like water energy and waste management require more

finances and technical know-how. However, it has been observed that tourism spots are often met with challenges in ensuring the provision of these resources Murshed, (2013). The existence of fragile biodiversity and landscape preservation are some of the critical aspects that need to be taken into account. However, the rising number of visitors vanishes all hopes of preservation with some other imminent threats of resource depletion and contamination of water. Bello, (2017) has also pointed out that these management constructions are meant to balance the preservation and consumption of resources. Forests and their products are mostly deemed to generate income for locals, providing wood (fire) and construction by selling and purchasing locally.

Moreover, tree logging puts pressure on fodder availability for animals. However, heavy logging eliminates the fertile top of the soil and diminishes the chances of species regeneration. Primary livelihood sources are linked to solid government governance through a candid policy based on consumption and resource preservation while considering local needs. The concept of commercial forestry as exercised in Western African nations could be the easy way forward to arresting tourism's destructive role in local resources (Muhanna, 2007).

Similarly, a significant ($p=0.001$) and Positive ($Tb=0.437$) association was confirmed between Population pressure on account of tourism causes, poor housing, and an unregulated informal economy leading to improper waste disposal with adverse health and environmental consequences and Tourism influenced land conversion. These findings suggested that a negative relationship between population pressure due to tourism forces the locals to develop haphazard, uncontrolled, poorly directed, and controlled housing patterns with no or little amenities for proper sanitation, narrow passages, and drainage with waste management (Ballesteros, 2010). It has been noticed (Alrawaf, 2022) that the rising number of visitors puts pressure on the local system regarding waste management disposal and drainage problems, and the concerned authorities struggle this level best to address on an urgent basis due to their incapacity. All such scenarios are projected to be resulting in health hazards, waterborne diseases, and other epidemics. Any economic growth initiative with no approach to addressing human-related issues may lead to payback by the locals regarding finances and health miseries (Mohanty, 2011; Ferronato, 2019).

A highly significant ($p=0.000$) and Positive ($Tb=0.547$) association was found between population due to tourism can create such negative aspects as crime, poverty,

and urbanization is conditioned and shaped by social, psychological, and environmental dynamics and Tourism influenced land conversion. These findings suggested the emergence of social evils like crimes, etc., due to the influx of tourists in a particular area besides contamination of the local physical environment. Meschkank, (2011) and Muhanna, (2007) have also included their studies that tourism puts pressure on local resources, leading to their depletion. Moreover, environmental contamination and landscape alteration also challenge the local's ways and means of livelihood, making the scenario more competitive for them to survive. Such situations demand a sustainable policy to keep a balance between local needs and rising tourism trends. However, the backing of such policy and the local inability to compete in the dynamic and competitive markets led to social evils like poverty, crimes of gambling, etc. (Agnew, 2012; Muggah, 2012).

Consistent with the above, a high-significant ($p=0.000$) and Positive ($T_b=0.463$) association was detected between The disordered and uncontrolled commercial activities and limited parking spaces and sanitation facilities hindering the natural environment functionality due to population pressure and Tourism influenced land conversion. These findings explained that tourism's effects on the environment are one of the biggest and fastest activities, leading to commercialization and surged business activities. Tourism entails two pronged effects, i.e., enhancing the relative incomes of the locals through a boost in local market provision of employment and destruction of biodiversity, environment degradation, and resource manipulation. Barbier, (2010) environment has also explored these harmful effects, i.e., environmental degradation, and uses these in people's incomes through enhanced business and employment provisions. It is considered a significant economic development and, if properly planned and directed in an anticipated manner, can ensure the preservation of biodiversity, environment, and use in per capita income (Getz, 2019). However, it has been noticed that tourism has also resulted in a scarcity of vital resources like water, energy, and food to cater to the needs of this rising number of people. The poor management policy, incapacity of the local environment to accommodate this massive influx of population, loss of natural habitats, and elimination of endangered species are converted as the most imminent vulnerabilities (Sousa, 2015; Graziano, 2021).

Similar to the above, a highly significant ($p=0.000$) and Positive ($T_b=0.388$) association was established between the survival of the rural atmosphere being threatened by population pressure and Tourism-influenced land conversion.

Maintainability of the rural environment is embodied in significant aspects, i.e., controlling population pressure and controlling and directing the anticipated mode of urbanization and commercialization of land, specifically its conversion from agriculture to commercial hubs. Corcoran, (2010) also supported these lives, saying that the growing population exerts pressure on rural setups, pushing them to extreme vulnerability, such as degradation of the environment, deforestation, and elimination of natural resources. People tend to migrate from urban areas to rural in search of peace and serenity. However, the rural set is compact, accessibility to resources is limited and there is little space for accommodation. An increased number of visitors exploits this situation, leading to resource scarcity and immense pressure on accommodation facilities. The facilities are incapacitated to cope with this large-scale burden and collapse under this pressure to negotiate back to a waste management problem, loss of biodiversity, and disappearance of landscape (Figuerola, 2016; Abd-Manaf, 2009).

Moreover, a significant ($p=0.001$) and Positive ($T_b=0.256$) association was established between population pressure putting enormous pressure on the existing road facilities not enough to cope with the demanding trend in the area and Commercialization of agriculture/rural lands for tourism. The increasing population pressure has indeed disturbed the existing road capacity and created road congestion, jams, and inadequacies (Havnevik, 2007). The frequent discharge of vehicular exhaust has also added to air pollution, resulting in respiratory hazards for locals and visitors (Blaikie, 2015). A sand strategy based on a sustainable basis to incorporate all the needs and unforeseen requirements in an anticipated mode is the only panacea (Káposzta, 2022).

Moreover, a highly significant ($p=0.000$) and Positive ($T_b=0.494$) association was confirmed between More visits' rise to more population and exerting pressure on the local dilapidated drainage system, and Tourism influenced land conversion. These findings explicitly supported the earlier findings and were connected to endorse them in a consistent manner. A strong correlation has been exhibited between using human numbers and the degradation of the natural environment. Tourism has been identified as a core reason for urbanization. This increased number of humans means exploiting the existing facilities, as seen in the shape of congestion on roads and hotel accommodations, and more resources like food, water, and energy are required to save them. However, poor services in negotiating this considerable burden harm local businesses and the prevalent cultural dynamics. It has been observed that a boom in the

local economy re-incorporated rising issues of food insecurity, poor management of waste disposal, and environmental degradation (Richards, 2019; Municipality, 2011; Barcus, 2022).

Table 4.3.4 Association between population pressure and tourism influenced land conversion

S.No	Independent Variable	Dependent Variable	Statistics χ^2, (p-value) & tau-b
1	Understanding land use dynamics is very important in formulating proper policy for land use in the mountain regions to manage population pressure.	Tourism influenced land conversion.	$\chi^2=118.965$ P=0.000 Tau-b=587
2	Population pressure has put pressure on resources causing them to deplete.	Tourism influenced land conversion.	$\chi^2=97.472$ P=0.000 Tau-b =0.532
3	Huge population is one of the major causes of pollution and the production of carbon dioxide.	Tourism influenced land conversion.	$\chi^2=75.001$ P=0.000 Tau-b =0.466
4	Huge population due to tourism negatively affects the development of housing, sanitation and drainage which changes in the form diseases and affect the local environment negatively.	Tourism influenced land conversion.	$\chi^2=85.260$ P=0.000 Tau-b =0.497
5	Population pressure on account of tourism causes, poor housing and unregulated informal economy lead to improper waste disposal with negative health and environmental consequences.	Tourism influenced land conversion.	$\chi^2=65.693$ P=0.000 Tau-b =0.437
6	Huge population due to tourism can create such negative aspect as crime, poverty and urbanization is conditioned and shaped by social, psychological environmental dynamics.	Tourism influenced land conversion.	$\chi^2=103.327$ P=0.000 Tau-b =0.547
7	The disordered and uncontrolled commercial activities and limited parking spaces and sanitation facilities hinder the natural environment functionality due to population pressure.	Tourism influenced land conversion.	$\chi^2=73.558$ P=0.000 Tau-b =463
8	The survival of the rural atmosphere is threatened by huge population pressure.	Tourism influenced land conversion.	$\chi^2=52.059$ P=0.000 Tau-b =0.388
9	Huge population pressure has put a big pressure on the existing road facilities not enough in cope with demanding trend in the area.	Tourism influenced land conversion.	$\chi^2=23.663$ P=0.000 Tau-b =0.256
10	More visits' rise to more population and exerting pressure on the local dilapidated drainage system.	Tourism influenced land conversion.	$\chi^2=84.303$ P=0.000 Tau-b =0.494

Source: Field Survey, 2023

4.3.5. Association between sand mining/extraction and tourism influenced land conversion.

Marine life is an integral component of the environment. Environmental assessment usually involves all physical, geographic, and topographic characteristics along freshwater life, i.e., rivers, springs, etc. Sand mining is shaping its position in the local economy in rural areas with rivers and springs where sand is extracted for construction activities. These extraction activities encourage other allied businesses, like cement, iron, bricks, etc., to become indispensable for the construction industry. All these activities contributed a lot in financial terms; a boom is seen in the use of per capita income and employment in the local market. However, negative consequences like water contamination, extinction of marine life, soil erosion, and environmental degradation are undesirable outcomes, which require special attention as part of policymakers to contain by ensuring the implementation of a sustainable model of growth and development. Ashraf, et al. (2019) has also attributed the mining and extraction activities as devastating for the sustenance of ecosystem cycles. It has been observed that constant extraction of sand from river streams exacerbates the erosion process of land around these rivers and streams, propelling the food with destructive effects for the areas as it disorganizes the natural configuration (Steinberger, et al. 2010 and Netterberg, 2014).

Table 4.3.5 disclosed a significant association ($p=0.003$) and Positive ($Tb=0.161$) association between Crushed rock, sand, and gravel, which account for the most crucial volume of solid material resources extracted by sand mining due to tourism from the local river for the construction and Tourism influenced land conversion. Increasing the number and frequency of visits is necessary to address their housing and infrastructural requirements. These constructions often require local materials like sand, rock, and labor, which are met around. However, these constructions have generated mining and sand activities to provide the required material. This wear and tear in the local environment has exacerbated unforeseen disorders like land degradation, soil erosion, rock falling, and elimination of marine life due to sand extraction. All these activities are human. Bhatawdekar, (2022) has attributed all the physical and topographic changes as adverse, artificial, artificial, and detrimental to the existing ecosystem. Local authorities must devise a sustainability

policy to ensure these construction activities but focus on the survival of natural habitats and preserving the local environment (Howe, 2019; Barcus, 2022).

Notwithstanding, a significant ($p=0.016$) and positive ($T_b=0.130$) association was discovered between sand mining, which can damage private and public properties and aquatic habitats, on account of the tourism industry and Tourism-influenced land conversion. These findings intimated the operation of sand extraction in the study areas. However, no particular norms and regulations are followed, often resulting in land erosion during the rainy season due to floods. Moreover, the flood can create havoc by destroying public and private properties, i.e., schools, colleges, houses, and other infrastructural facilities like roads, railways, etc. Pilkey, (2023) has also enumerated the negative consequences for social and physical structure in the light of excavation activities mainly reported from India, China, and African countries, with India and China in a leading role with damages to the environment, coastline, and river lakes viewed due to construction of infrastructure.

Moreover, land reclamation and development are claimed after the destruction of environments due to sand extraction. However, these initiatives are time-consuming and require huge finance. Some countries like Indonesia and Cambodia are significant suppliers of cement and gravel for these reclamation efforts. All these efforts could be attributed to economic aspects with livelihood involvement, which drastically affect biodiversity (Bendixen, 2021; Billon, 2022).

In addition, a significant ($p=0.013$) and Positive ($T_b=0.133$) association was confirmed between the Excessive removal of sand, which may significantly distort the natural equilibrium of a stream channel by tourism spots in the area, and Tourism-influenced land conversion. Fisheries, wildlife, and birds are the primary victims of land degradation and the loss of ecosystems and biodiversity. This loss has been acknowledged in excavating land and commercial activities like hoteling, business, and infrastructural growth Agnew, (2012). All new activities are financed based on people earning from businesses like hotels, restaurants, etc., and polluting the environment with improper waste management, contamination of river water, and soil erosion due to sand extraction (Gavriletea, 2017). The sand excavation drive negatively affects marine life and the occurrence of floods.

Moreover, sediment deposits soon after rains and floods are common phenomena. These deposits badly damage the fertile top by covering it. Moreover,

removing these sediments and restoring land to normalcy is an expensive business of finances and workforce. Environmental degradation usually occurs without a sustainable sand model and transformation of local areas into urban patterns (John, 2021).

A significant ($p=0.028$) and positive ($Tb=0.118$) association was explored between sand extraction destroying the habitats of living organisms and tourism influencing land conversion. Extraction of sand, gravel, and rocks disturbs the normal flow of river water, washing away minerals and massive life habitat, eliminating biodiversity and river and plant species. Bhatawdekar, (2021) has also discovered the after-effects of sand, gravel, and rock extraction as contamination of river water due to waste released from the crushing plants. Moreover, a considerable amount of rock maintainability in the cement factories to produce cement has created a severe loss of biodiversity and natural resources in the U.S.A. India and China respectively (Peduzzi, 2014 and Marschke, 2022).

Similar to the above, a highly significant ($p=0.000$) and Positive ($Tb=0.270$) association unrevealed conformed between Sand extraction as illegal and criminal activities and Tourism influenced land conversion. Most mining activities have been identified as illegal, and sand extraction is one of them. The study area has witnessed excursively unabated sand extraction due to the need for relevant departments' controlling mechanisms. It has become a lucrative business for constructing roads and, recently, motorways and room-building in the aftermath of tourism. The government should have devised vulnerable Sops to manage this new energy business. Excessive sand extraction has resulted in soil and river bank erosion and diversion of water flow. These developments have some devastating effects wherever the area is facing a flood-like situation, structural alteration without taking the topography into account are blooms found destruction to the environment, biodiversity, and loss of habitat. Plummeting of biodiversity serenity could also be attributed to these factors, as concluded Highfield, (2013) and Henman (2017).

Similarly, a highly significant ($p=0.000$) and positive ($Tb=0.412$) association was established between sand extraction as the only possibility of making a living in the short run for the local people and Tourism-influenced land conversion. These findings supported the providing inferences and intimated its economic return in cash and almost quickly. Thquicklyindings mounted the Fréguin-Gresh, (2014) cohesions

that sand extraction is turning to a significant change in the economic dynamics, leading to an uplift in the social life of humans, but the environment only unfriendly as it negatively impacts the depletion of land and main resources. Moreover, turbidity arising from the activities also harms them, and fresh water species cause their extinction. The discharge of wastewater into Fresh River and stream water is another dilemma that needs urgent attention for its plummeting on these activities lead to use in eliminating serenity esthetic qualities of the area, besides tarnishing the chances of survival of all living water species downstream (Ingram, 2006 and Tamunobereton-ari, 2011).

In relationship to the above, a highly significant ($p=0.000$) and Positive ($T_b=0.708$) association was confirmed between Sand extraction areas, which have demonstrated the impact of mining with the prowess to destroy the cycle of ecosystems due to tourism and Tourism-influenced land conversion. These results could be attributed to sand extraction being one of the major businesses. Ruined the prevalent natural environment in terms of a direct threat to biodiversity and the ecosystem; it has been noticed that the study area as one of the tourist spots had generated construction activities like hotels, restaurants, and expansion in infrastructure like roads, etc., which had led to use in demand for construction material. As one of the essential ingredients, the local rivers and streams support sand. The extraction process has affected the smooth heavy water and has been critically used to address the fears of floods in rainy seasons. Moreover, natural habitats with plant and fish species are also under the direct threat of elimination. Moreover, increased turbidity, which resists the passing of sunlight to marine life, essential for their survival, could not be ruled out. This increased pollution, floods, and loss of biodiversity are the bleak returns associated with tourism (Sachedina, 2009; Read, 2020; Colson, 2013).

However, another highly significant ($p=0.000$) and optimistic ($T_b=0.333$) association was found between sand extraction, which also creates many pollutants, and tourism, which influences land conversion. Ecological disorders, land erosion, and pollution in the waste of sand extraction have been noticed in the study area. These findings supported Ratter, (2016) conclusion that sand is mainly extracted for bridges, hotels, and infrastructural establishments. These activities always boost the local economies, bringing considerable changes in the social milieu for the locals. However, the social and physical systems are also under tremendous shift with the use of

pollutants in water, air, and land erosion leading to negative consequences in local systems Duley, (2012).

Moreover, eliminating lost resources needs to be assessed while fixing the responsibilities of the concerned factor. Moreover, necessary arrangements for its plummeting are essential to backtrack regular initiatives. For this reason, all the critical stakeholders need to be taken on load to get the maximum benefits of sustainability (Mohammed, et al., 2022).

Likewise, a highly significant ($p=0.000$) and Positive ($Tb=0.287$) association was established between the sand extraction results and changes in the river flow direction and Tourism influenced land conversion. The natural water flow is essential in maintaining land erosion and ensuring safe havens for Indigenous species to thrive. Moreover, even in odd times like floods and droughts, the prevalent water flow extends a reasonable reprieve to these species in terms of space, temperature, and habitats; however, mining as sand, reported by Anokye, (2023), is a leading factor in degrading the environment with elimination to biodiversity and local species. Moreover, artificial materials, excessive use of transportation, and excavation of sand destroy the microorganisms due to lacking organic matter, waste, and turbidity have caused severe threats to riverbeds and water channels and damage to property in excessive rainfall, which usually terminate in high floods (Ratter, 2016 and Mohammed, 2022).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.447$) association was established between Changes in water flow direction detrimental to the local population, especially in the rainy seasons, and Tourism influenced land conversion. Consistent excavation of sand and gravel disturbs the natural process of water at rivers and streams with loss of direction, and water usually enters into human settlements by destroying property in settlements and standing crops. In the time of flood, natural process maintenance is imperative to avoid the negative consequences of sand mining. India's government has taken steps to control and channel sand extraction and tourism encouragement by curbing illegal mining in Telangana State (Qin, 2010) through a committee to monitor these activities. Later on, this model was extended to all other regions of tourism oriented to achieve maximum returns towards sustainability in a systematic manner of extraction (Keith–Diagne, 2022). Moreover, sand manufacturing is also encouraged through rock crushing, resulting in plummeting reliance on river sand (Warsame, 2021; Marsh, 2013).

Similarly, a significant ($p=0.001$) and Positive ($T_b=0.480$) association was established between the Study area, which witnessed considerable damages in the recent flood due to changing water flow in light of sand extraction and Tourism-influenced land conversion. These findings strongly supported the aforementioned inference, as the recent floods of 2010 and 2018 have caused havoc to the lives and property of the local areas. Standing crops were destroyed, and huge numbers of animals were washed away by gushing flood water, besides damages to buildings, infrastructure, roads, and highways. These findings strongly support Zachos, (2013), who stated that residential colonies, major city commercial hubs, and railway facilities are often the soft congest inflicting damages from the flood. District to Swat, the study area had the same situation of sand extraction for the sole purpose of construction (Thomas, 2007).

Table 4.3.5 Association between sand mining/extraction and tourism influenced land conversion

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	Crushed rock, sand and gravel account for the largest volume of solid material resources extracted by sand mining due to tourism from the local river for the construction.	Tourism influenced land conversion	$\chi^2=8.959$ $P=0.003$ $Tau-b=0.161$
2	Sand mining can damage private and public properties as well as aquatic habitats on the account of tourism industry.	Tourism influenced land conversion.	$\chi^2=5.851$ $P=0.016$ $Tau-b=0.130$
3	Excessive removal of sand may significantly distort the natural equilibrium of a stream channel by tourism spot in the area.	Tourism influenced land conversion.	$\chi^2=6.123$ $P=0.013$ $Tau-b=0.133$
4	Sand extraction destroys the habitats of living organism.	Tourism influenced land conversion.	$\chi^2=4.841$ $P=0.028$ $Tau-b=0.118$
5	Sand extraction is illegal and criminal activities.	Tourism influenced land conversion.	$\chi^2=25.064$ $P=0.000$ $Tau-b=0.270$

6	Sand extraction is the only possibility to make a living in the short run for the local people.	Tourism influenced land conversion.	$\chi^2=58.516$ P=0.000 Tau-b =0.412
7	Sand extraction areas have demonstrated the impact of mining with the prowess to destroy the cycle of ecosystems due to tourism.	Tourism influenced land conversion.	$\chi^2=173.138$ P=0.000 Tau-b =0.708
8	Sand extraction can also create lots of pollutants.	Tourism influenced land conversion.	$\chi^2=38.313$ P=0.000 Tau-b =0.333
9	The sand extraction results into changes in the direction of the river flow.		$\chi^2=28.409$ P=0.000 Tau-b =287
10	Changes in water flow direction detrimental to the local population especially in the rainy seasons.	Tourism influenced land conversion.	$\chi^2=69.015$ P=0.000 Tau-b =0.447
11	Study area has witnessed huge damages in the recent flood due to changing water flow in light of sand extraction.	Tourism influenced land conversion.	$\chi^2=79.473$ P=0.000 Tau-b =0.480

Source: Field Survey, 2023

4.3.6. Association between environmental pollution and tourism influenced land conversion

Tourism entails a dichotomous phenomenon of economic growth and property but at the cost of ecological and environmental disaster. Although human life standard is enhanced due to access to basic amenities of life like health, education, and other related dynamics, the miseries associated in the form of population influx (urbanization), road and traffic congestion, poor waste management, environmental degradation and loss of ecosystem and biodiversity could not be ruled out as well. The study area is one of the most attractive scenic spots in KP, Pakistan; its natural beauty of lush green mountain springs, river swat, temperature, and attitude attract visitors from across the country and international visitors who arrange trips to enjoy the gift of god. However, the frequent visits of tourists have some side effects that emanate from environmental pollution, like the use of plastic bags with no proper management, which creates problems of drainage, local streams, and river water pollution. Furthermore, according to the massive number of visitors yearly, it is also a gigantic task. That vast land is regularly transformed into building construction like hotels and restaurants, as

well as expensive roads and renovation of the existing road facilities (Rasul, 2021, and Rao, 2001).

Table 4.3.6 shows a significant association ($p=0.025$) and Positive ($T_b=0.120$) association between Tourism-related environmental pollution, e.g., solid and plastic wastes are an eyesore and are harmful to the environment due to their non-biodegradability, and Tourism-influenced land conversion. An increase in human activities being about disorder in the existing patterns of life variation in food hunts, in particular, is one of the biggest challenges to negotiate as people opt to each in public these litters and little bother about throwing in the stipulated places Kerber, (2021) has also pointed towards the indifferent attitude people are adopting in regards to used plastic bags as single-use to go purchasing in the world. Food like plastic utensils used in eating and drinks by locals and visitors life behind had odors beyond human capacity in some cases to afford. A harmful mixture of things surfaces which destroys the existing landscape, with little capacity for the local waste management infrastructure to dispose of the enormous burden of plastic waste (Nguyen, 2022; Thanh, 2014).

Moreover, a significant ($p=0.019$) and Positive ($T_b=0.126$) association was discovered between the emission of gases into the atmosphere leading to air pollution on account of tourism and Tourism-influenced land conversion. The tourism industry generates vast waste and vehicular exhaust on the roads, as well as plastic bottles and other food packing materials. The local tourist sites usually need more management capacity due to poor infrastructure, leading to a need for those waste bodies. These are usually piled in open public spaces, degrading the scenic beauty and adding air and water pollution. Moreover, its non-biodegradable nature decays the local environment, biodiversity, and ecosystem for a more extended period. Furthermore, agricultural land is being transformed due to its conversion into buildings like hotels, littering around plastic bags and other waste products (Bashir, 2013 Read, 2020).

Similar to the above, a significant ($p=0.041$) and positive ($T_b=0.110$) association was confirmed between noise pollution caused by transportation or when any work or construction is going on, leading to noise pollution by tourism and tourism-influenced land conversion. Usually stemming from earlier construction and industrial moments. Moreover, social events like marriage, death, and ceremonial activities pollute noise. It is an initiating event that creates discomfort and uneasiness for humans with some mental and psychological environments like depression,

insomnia, anxiety, etc. Anokye, (2023) has also commented on noise pollution by staking its links with construction and transport mania. According to (EPA) of the EPA, some 70 million people in the U.S. are exposed to this hazard of life. The instability in human cognitive activities and the decline in children's educational attainments, such as loss of memory and poor reading habits, are some of the negative aspects of noise pollution. Moreover, its economic impact also worries some and grappling with unbelievably appalling effects pertaining to health, resulting in between .3%–0.4% of GDP and 0.2% of GDP in So and Japan, respectively (Bijsterveld, 2008, Puig, 2017). Noise pollution is an annoying act with immiscible societal outcomes for a leading population segment whose mitigation strategies are always in the public interest (Bello, 2019).

A highly significant ($p=0.000$) and optimistic ($Tb=0.407$) association was found between discriminate littering and poor waste disposal, adding to the deterioration of the environment and Tourism-influenced land conversion. Uncontrolled and unnoticed human activities in cities with particular reference to public spots have ended up in the dumping of solid waste, plastic exercise, and road congestion by restricting human moments. Moreover, the emergence of dust and easy contact with humans with toxic material could further deteriorate the health domain in the shape of a pandemic and some known contagious. Land transformation, mainly agricultural land utility, is always at risk of poor production, construction of buildings, and water pollution, as people are exposed to waterborne diseases. Ecosystem destruction and local biodiversity have also been the resultant pollution factors. The spread of waste outside the brims with tax approach of people by ignoring it, its irregular collection to dump it outside localities after blocking the standard drainages resulting into massive blockage, contamination of rivers and surrounding areas turning these unsuitable for living (Givoni, 2006; Ghulam-Rabbany, 2013 *and* Butler, 2006).

A significant ($p=0.001$) and Positive ($Tb=0.187$) association was explored between Addressing the cause of pollution due to tourism is more time and money consumed ring and Tourism influenced land conversion. These findings revealed the negative impacts of tourism. These include population growth, pressure on existing resources, the use of unauthorized settlements like sprawl, and land elimination of natural habitats, which are the direct causes of generating pollution due to tourism. These findings were in the lives of Oteng-Ababio, (2019) who discovered rural and

urban migration as the root cause of poverty and destruction of the local environment and well-being of the local dwellers dispensing, waste generated by huge urban population is yet another task which needed fiancés, train human capital proper damping and waste disposal technical which are usually lacking the use of solid plastic and electronic waste are harmful to the environment as these are non-biodegradables and huge effects are needed waste struggling to overcome this issue. This example of grants in this respect is an eye-opener (Oteng-Ababio, 2012b; Collivignarelli, et al., 2004; Awumbila, et al., 2014).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.292$) association was established between environmental challenges affecting health and the environment at the cost of human energies and resources and Tourism influenced land conversion. In countries like Pakistan and other developing countries, laws and management of waste disposal are missing, and they usually confront environmental health issues. These may include waterborne disease, respiratory issues, rich land transformation patterns, landscaping, and blockage of drainage in South Africa. According to Brunori, (2004), Africa, Kenya, and other countries are changing the use of plastic bags to discourage plastic. These plastic bags have been found in the choking of water channels and drainage facilities. These plastic bags are identified as damaging tourism initiatives as these plastic and packing materials correctly contain contact with them, causing air pollution and respiratory involvements. Besides, it negatively affects the plants and animal species' conclusive environments (Omarkhanova, 2023; Mihai, 2020; and Browne, 2022).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.408$) association was confirmed between plastic usage for food packaging, which has become dominant in the study area and is ultimately a threat to the natural environment and Tourism-influenced land conversion. These findings could be attributed to the large-scale use of plastic; however, no control SOPs are designed regarding their use. This has flooded the local market and environment. People are used in every activity of life. The world uses 100 billion bags annually (Fang, 2014). This uncontrolled and undirected use has led to the contamination of the environment.

Moreover, agricultural land is becoming non- or least productive due to these plastic materials, negatively affecting soil fertility and destroying biodiversity and ecosystems. Moreover, food toxicity, water contamination, and flooding of natural

streams are also reported due to the rise in plastic use (Hovorka, 2005). Plastic non-degradability is another issue leading to soil infertility due to the loss of the fertile layer of the soil (Ghulam-Rabbany, 2013).

While, a highly-significant ($p=0.000$) and Positive ($T_b=0.579$) association was found between Polluting emissions are associated with accommodation facilities (hotels, guest houses etc. and Tourism influenced land conversion. These findings indicated the existence of huge population pressure on the relationship between local hotels and the transport industry. Moreover, the huge waste generated from their large number of visitors are also emerging with waste management and disposal (Wilson, 2012).

In contrast to the above, a highly significant ($p=0.000$) and Positive ($T_b=0.609$) association was established between Flora and fauna in a constant struggle for existence due to constant environmental threats and Tourism-influenced land conversion. Most countries of the world are facing emerging environmental threats. These emanate from climate change, droughts, or artificial materials used in daily life. Plastic is one of them. Rambodagedara, (2015) has pointed out plastic anti-environment impact, the spoiling of landscapes, and the choking of water channels. Choking animals and turning the agricultural land into an effective one due to its non-biodegradability (Stokowski, 2021). The case of Kenya (an African state) is no exception to such an unfriendly situation. Where hatches, markets, and streets are even flooded with plastic materials (McMichael, 2013).

Table 4.3.6 Association between environmental pollution and tourism influenced land conversion.

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	Tourism related environmental pollution e.g. Solid, plastic and electronic wastes are an eyesore and are harmful to the environment due to their non-biodegradability.	Tourism influenced land conversion.	$\chi^2=5.009$ $P=0.025$ $\text{Tau-b}=0.120$
2	The emission of gases into the atmosphere leads to air pollution on the account of tourism.	Tourism influenced land conversion.	$\chi^2=5.469$ $P=0.019$ $\text{Tau-b}=0.126$
3	The noise pollution is caused due to means of transportation or when any kind of work or construction is going on than too leads to noise pollution by tourism.	Tourism influenced land conversion.	$\chi^2=4.161$ $P=0.041$ $\text{Tau-b}=0.110$

4	Indiscriminate littering and poor waste disposal has further added to the deterioration of environment.	Tourism influenced land conversion.	$\chi^2=57.080$ P=0.000 Tau-b =0.407
5	Addressing the cause of pollution due to tourism is more time and money consuming.	Tourism influenced land conversion.	$\chi^2=12.029$ P=0.001 Tau-b =0.187
6	Environmental challenges affect health and environment at the cost of human energies and resources.	Tourism influenced land conversion.	$\chi^2=29.380$ P=0.000 Tau-b =0.292
7	Plastics usage for food packaging has become dominant in the study area and is ultimately threat to the natural environment.	Tourism influenced land conversion.	$\chi^2=57.490$ P=0.000 Tau-b =0.408
8	Polluting emissions are associated with accommodation facilities (hotels, guest houses etc.	Tourism influenced land conversion.	$\chi^2=115.547$ P=0.000 Tau-b =0.579
9	Flora and fauna are in constant struggle for existence due to existing constant environmental threat.	Tourism influenced land conversion.	$\chi^2=128.148$ P=0.000 Tau-b =0.609

Source: Field Survey, 2023

4.3.7. Association between hoteling/buildings and tourism influenced land conversion.

The construction of hotel markets and restaurants are integrated components of the tourism industry. Their sole purpose is to accommodate and facilitate the visitors' stay at the tourist spots. Moreover, a viable and consistent traffic flow should be warranted through wider roads to accommodate the rising number of vehicles without congestion and chocking. The tourism industry strives hard to provide facilitation and comfort but usually at the cost of surrounding the local biodiversity, ecosystem, and local cultural traits through acculturation. Moreover, earlier precautions and safeguards regarding weather patterns and seasonal cycles must be taken. Local agriculture produces while expanding the building industry in the tourist spots of Pakistan (Elsasser, 2002; Bahadar, et al., 2015).

Table 4.3.7 dismantled a significant association ($p=0.042$), and Positive ($T_b=0.110$) association between Hoteling th, a newly emerging lucrative business, and Tourism-influenced land conversion. Promotions of tourism rely on the construction of well-facilitated and spacious accommodations for visitors. This industry is thriving due

to the increase in the number of visitors and providing all sorts of facilities consistent with local and foreign tourist requirements. The study area is known for its scenic attractions, serenity reflected from its maintenance life and river and springs fall, and local cultural traits based on hospitality to welcome the tourists. It has been noticed that expansion in the hotel industry has brought economic prosperity and boosted social life in the area. Social development is visible through the construction of roads, and people are enjoying the local market with more opportunities for employment in both the short and long term. However, these findings were negative to Rambodagedara, (2015), that most rural areas communities do not avail maximum returns from tourism-based activities like social development, social inclusion, etc., while McMichael, (2013) has noticed that agriculture-based tourism emerged with the concept of demand for the local produce, providing inclusive opportunities for locals to participate in the market dynamics like developments have prone to be to harbingers to rural development primarily reflecting the improvement the livelihood of the rural communities through the paradigm of inclusive in the policy-making procedure. The case of Sri Lanka is a vivid example of how this perspective proved highly yielding in terms of social and economic uplift (Liang, 2020).

However, a significant ($p=0.011$) and Positive ($Tb=0.137$) association was discovered between Environmental impacts caused by tourism resulting from the dynamic interplay of socio-economic, institutional, and technological activities and the Commercialization of agriculture/rural lands for tourism. These inferences indicated tourism as a holistic activity through the interplay of significant actors pushing for socio-economic uplift under the orbit of institutional dynamism. These findings, however, were adverse to Maksimović, (2019), who said that tourism is primarily responsible for environmental degradation, destruction of natural habitats, biodiversity, and pollution with non-sustainability in resource congestion. Moreover, the generation of waste with the non-existence of proper waste management strategies has further deteriorated the local serenity and sustainability. These circumstances deeply display the struggle for existence by the local agrarian communities to overcome different socio-economic issues that, if not properly addressed, may end up in widespread property, social exclusion, and economic disparity (Mormino, 2008). The primary focus is near satiated to be on the uplift of rural communities through exploring the well-

being and socio-economic factors in agriculture as the primary livelihood source to achieve maximum benefits (Marcos, 2022; Nelson, 2000; Tiwari, 2022).

Contrary to the above, a non-significant ($p=0.186$) and Positive ($Tb=0.071$) association were confirmed between The tourism industry generally overusing water for hotels, swimming pools, golf courses, and personal use of tourists, which pollutes the spring nature and Tourism influenced land conversion. These findings alluded to the overuse of local resources on a non-sustainable basis. The local tourism industry was flourishing under no central laws or regulations about the use of the available local resources; water was one of them, but the excessive use, as reflected by the mild Taub results, explored the non-sustainability with significant concerns of pollutants being released in water through construction, urbanization and industrial waste (World Bank, 2009). Moreover, local cultural ways are also under tremendous pressure due to non-compatibility with visitors' norms, values, and traditions, demeaning the local cultural traits. Furthermore, intensive and hectic tourist activities have also devastated agricultural land and ecosystems (Renes, 2015; Antrop, 2005; Wester, et al., 2019).

A highly significant ($p=0.000$) and Positive ($Tb=0.485$) association was found between hoteling converting agricultural land into roads and buildings for tourism activities and Tourism-influenced land conversion. These findings endorsed the preceding results and indicated the trend of agricultural land conversion in hotels, restaurants, and road construction, as included by Johnson, (2009) that commercialization involved the generation of economic activities, leading to socio-economic development through the main participation of locals. However, the potential environmental threats of these activities need to be underscored while creating awareness amongst the local communities. Moreover, stress over adopting agricultural practices on sustainable grounds may be given the stimulus to obtain maximum returns from hotels without compromising agricultural land conversion (Rambodagedara, 2015; Shen, 2022).

Furthermore, a significant ($p=0.001$) and positive ($Tb=0.187$) association existed between addressing the cause of pollution due to tourism's more time and money consumption and tourism's influence on land conversion. The causes of pollution in the aftermath of tourism have steadily risen, and time is required to capture it. The efforts of eliminating pollution and both short and long-term strategies by

involving all the stakeholders to make it a success. Moreover, government patronage for this neglect may also be noticed. Instead, a centralized approach from top to bottom is primarily workable. In this regard Pham, (2023) has also intimated that this strategy is more time and money-consuming. Moreover, the enforcement of such strategies requires a centralized leadership to effectively Vito rate and channelized the relevant resources towards making it a successful local inclusion preserving of natural resources and cultural traits and turning this paradigm more sustainable and viable by replicating it to other parts of the country as well (Belliggiano, 2021).

Similarly, a significant ($p=0.004$) and Positive ($Tb=0.156$) association was established between Land use and structures in a particular scenic spot, which may greatly vary due to the demands of tourism and Tourism-influenced land conversion. Variations in land use patterns, both structural and functional perspectives, significantly occur in every tourist destruction and study. These variations are coined to cater to visitors' growing needs. These variations include landscaping construction, hotels and restaurants, commercial places, and environmental facilities. These developments encourage an influx of visitors to low-income people in falling the fatalities' insurance. Land conversion in the environment is a factor of this alteration, which embodies the clearing of land for building huge structures, diverting the natural outlook of the area. Moreover, agricultural land transformation may also cause this alteration, which can curb the increase in agriculture production. Maroto-Martos, (2020) has also attributed this variation to squeezing agriculture-based activities by transforming the traditional landscape and agriculture practices while turning them into commercial endeavors based on the market economy (Demko, 2020). All such alternations in structure may be coined out in close proximately to natural points of attraction like Forest Mountains and springs, etc., which badly damage the natural appearances of these species spots (Johnson, 2009).

Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.207$) association was confirmed between Scenic spot exploitation being subject to regional economic and social conditions on account of tourism and Tourism-influenced land conversion. The economic boom in the scenic spots could be attributed to the hustle and bustle of the visitors. These activities have not only boasted the local economy but also played a significant role in the social uplift of the area as well. Locals, exposure to achieve

visitors not only acquire certain cultured traits but also reciprocated in the same manner. Moreover, locals succeeded in running these economies in light of demand and supply and were forced to exploit local resources. Vágner, (2011) has also eluded towards resource mobilization to uplift tourist spots' socio-economic conditions. In this regard, local support of the locals to tourism has turned the tourism industry on the path of commercialization, and all efforts are to be implemented as these live. The assessment helps identify emerging opportunities on a priority basis with maximum inclusion of all the relevant stakeholders. These assumptions indeed balance economic development and resource mobilization on a sustainable basis (Crăciun, 2022; Sanada, 2023).

Meanwhile, a highly significant ($p=0.000$) and Positive ($T_b=0.607$) association was found between different regional conditions and features affecting the importance attached to the construction of buildings in scenic spots and Tourism-influenced land conversion. The effort to construct buildings like hotels and restaurants needs to consider the local conditions, both physical and topographic, locals', Indigenous, and tourists' nature, and the direction of visits to stay around the world, which turns into a factory. Inconsistency in designing strategies must consider the local dynamics to be fruitful in deliverance and sustainability (Bahadar, 2015). Moreover, the policy of preservation of nature, environment, and biodiversity needs to be kept high while planning for tourist site development. It included waste management and dumping methodologies to save the environment from threatening outcomes of total elimination of the ecosystem (Hovorka, 2005).

Furthermore, a highly significant ($p=0.000$) and Positive ($T_b=0.674$) association was established between Hoteling-induced economic growth in a scenic transformation of land due to tourism and Tourism-influenced land conversion. These economic in different scenic spots vary from position to position. These results pinpointed the local areas and socio-cultural conditions that have played a significant role in the transformation of the local economy. The various construction activities with higher earning rates for locals and their involvement in market activities through employment have raised their life standards. These findings were earlier in Jenberu, (2020) inferences when he found that urbanization and resource mobilization in the shadow construction activities have changed the topographic socio-economic conditions in

Ethiopia. The rise of tourism is embodied in infrastructural growth, which catalyzes growth drives and transforms local land use patterns from agriculture to hotels, commercial hubs, and restaurants. Such variations do impact the local environment, communities, and sustainable paradigm for the user need to keep a balance in an economic boom and preservation of nature is essential to run the affairs on sustainable grounds through assessing and reassessing strategies periodical grounds (Murzyn-Kupisz, 2013; Muzamil, 2021).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.231$) association was established between hoteling can convert Farmland along riverbanks through construction activity to tourism-related and Tourism-influenced land conversion. These findings had close similarities to the preceding inferences. Agricultural land, finance, and scenic spots are under tremendous chances of alternation through the construction of hotels and restaurants. This practice has been fruitful in extracting more money from tourists due to the close proximity between scenic spots and visitors while enjoying the natural panoramas. These results have a strong endorsement from Manomaivibool, (2015). The economic importance of hotels and restaurants in close proximity to natural and scenic spots could not be denied at any last. However, these constructions do carry negative impacts as well. These impacts included biodiversity loss, ecosystem, and land use pattern variation. Moreover, the chances of flood have been assessed as high due to the transformation of river bounds and land close to the river (Jiang, Y., 2022). Moreover, the economic growth and earning opportunities in return to scenic proximity have played a significant role in a cascading manner for the locals (Gunawan, 2015).

Similarly, a highly significant ($p=0.000$) and positive ($Tb=0.461$) association was confirmed between hoteling, which raised employment opportunities for the local youth, and Tourism-influenced land conversion. The consistent returns of tourism benefits necessitate the establishment of a sand construction industry to build hotels and other space facilities for visitors, which puts extra pressure on natural resources and changes the ecological balance. Water as a source (Suartika, 2019) is the first to face shortage or contain mentation and succumb to this pressure. The most vivid examples in this respect are Rajasthan, Gujarat, and Maharashtra (The Indian states), which emerged with adverse effects of uncontrolled tourist activities resulting in generating pollution and destroying the natural equilibrium of the areas while damaging the life

cycle of the local biodiversity, ecosystem, and environment respectively. The tourism industry needs to be more accurate in connecting the essential flaws to be entrained if sustainability is to be achieved. Eco-tourism is a concept that needs to be viewed throughout the generation of Goo phenomena rather than being a marketable earning force. Furthermore, an increase in traffic and vehicular movement generates economic activities resulting in more earnings, albeit a rise in greenhouses, toxicity in the air, and vehicular exhaust (Sunny, 2018; Wong, 2002).

A highly significant ($p=0.000$) and Positive ($T_b=0.510$) association was found between Hoteling employed locals at their doorsteps and Tourism-influenced land conversion. Krishna, (1993) has enumerated the strength of tourism from the local areas and communities. The boom in the economy is imperative, with a high rate of social inclusion for locals and foreign investors' generation of employment in the area. However, along with these improvements, racism also entails negative consequences like air and water pollution and waste disposal problems due to the non-existence of a reliable waste management system. Moreover, traffic increases, and surfaces with congestion block sides and cause respiration disease due to noise pollution and wildlife elimination, (Crăciun, 2022; GOI, 2009 and Shoval, 2006).

Table 4.3.7 Association between hoteling/buildings and tourism influenced land conversion.

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	Hoteling is the newly emerging lucrative business.	Tourism influenced land conversion.	$\chi^2=4.143$ P=0.042 Tau-b =0.110
2	Environmental impacts caused by tourism are a result of the dynamic interplay of socio-economic, institutional and technological activities.	Tourism influenced land conversion.	$\chi^2=6.455$ P=0.011 Tau-b =0.137
3	The tourism industry generally overuses water for hotels, swimming pools, golf courses and personal use of tourists which pollutes the spring nature.	Tourism influenced land conversion.	$\chi^2=1.750$ P=0.186 Tau-b =0.071
4	Hoteling is converting agricultural land into roads and building for tourism activities.	Tourism influenced land conversion.	$\chi^2=81.034$ P=0.000 Tau-b =0.485

5	Land use and structures in a particular scenic spot may greatly vary due to demands of tourism.	Tourism influenced land conversion.	$\chi^2=8.395$ P=0.004 Tau-b =0.156
6	Scenic spot exploitation is subject to regional economic and social conditions on the account of tourism.	Tourism influenced land conversion.	$\chi^2=14.715$ P=0.000 Tau-b =0.207
7	Different regional conditions and features affect the importance attached to construction of buildings in a scenic spots.	Tourism influenced land conversion.	$\chi^2=125.449$ P=0.000 Tau-b =0.603
8	Hoteling induced economic growth in a scenic transformation of land due to tourism.	Tourism influenced land conversion.	$\chi^2=157.607$ P=0.000 Tau-b =0.676
9	Hoteling can convert Farmland, along riverbanks, through construction activity to tourism related.	Tourism influenced land conversion.	$\chi^2=17.893$ P=0.000 Tau-b =0.228
10	Hoteling has raised the employment opportunities for the local youth.	Tourism influenced land conversion.	$\chi^2=76.547$ P=0.000 Tau-b =0.463
11	Hoteling has provided employment to locals at their door-steps.	Tourism influenced land conversion.	$\chi^2=89.835$ P=0.000 Tau-b =0.510

Source: Field Survey, 2023

4.3.8. Association between capitalist interest and tourism influenced land conversion

Eco-tourism” brings about positive changes in an area by “enhancing” local cultures. He discredits the assumption by proving that the accompanying capitalist interest that demands to benefit from such contacts results in systematically destroying indigenous people socially, economically, and culturally, who often lose their lands, homes, and livelihoods through fraudulent practices. Swat has been affected by multi-accident such as terrorism, floods, etc. Agriculture is the primary source of revenue in most of the terrorism-affected areas, including FATA and NWFP. People in these areas rely predominantly on agriculture as their main economic activity. Swat, Buner, Shangla, and Lower Dir districts, along with the Malakand Agency in the troubled region, are famous for their specialized agricultural produce all over the country. The area of Malakand division has earlier made a substantial contribution to the national production of various crops: peach 60 percent, pear 34 percent, tomato 18 percent, apple 15 percent, plum 14 percent, tobacco 11 percent, maize eight percent, onion eight percent, all vegetables five percent, apricot five percent, wheat one percent, and rice one percent Warsame, (2021).

The five districts are also the primary source of persimmon Japani fruit in local parlance. Swat leads the other four districts in producing fruits by a large margin. A survey by the National Agricultural Research Centre NARC shows that the NWFP produces nearly 48 percent of Pakistan's total fruit, with Swat district being a significant contributor. Swat has 98,100 hectares of arable land, while 408,175 hectares remain uncultivable (Jodar-Abellan, 2019). Agriculture is the primary source of livelihood for most households, accounting for 80 percent of the total population. It specializes in many commodities like peaches and contributes about 60 percent to the national production. Swat also produces 13 percent of the total national production of tomatoes. In the overall provincial production of vegetables in the NWFP, one-fourth comes from Swat. These commodities arrive in markets when supplies from other corners of the country are short. Typically, 500 to 600 trucks transport fruit from Swat to the rest of the country daily during the harvest seasonally. In addition, the Swat farming system was a model for the rest of the NWFP, particularly the country, during the pre-war period. It was a center of orchards, coupled with multi-utility processing industries, cold storage, massive dry storage, and an efficient transportation and marketing mechanism. Swat was a training center for budding and grafting plants, and the nursery industry was on the rise. The experienced farmhands worked in the rest of the province and even in Baluchistan, especially for olives growth (Termansen, (2013). Its plant nursery production ranked third in the country after Pathoki Lahore and Tarnab Peshawar, but due to the insurgency, the Swat valley has been subjected to continuous attacks since 2007. According to the government of Pakistan estimates, the loss to agriculture alone amounts to Rs. 35 billion. The local media, citing Swat-based agricultural officials, has reported that 55 to 70 percent of the total fruit produce has gone to waste. That has been due to various factors, including hostilities, artillery shelling, blowing of bridges in bomb blasts, blockade of roads, attacks, and curfews. The breakdown in law and order has damaged the district's fruit-based economy and rendered billions of rupees in losses to the landowners, laborers, dealers, and farmers who earn their livelihood from these orchards. Also, the Economic Survey of Pakistan report shows that the share of agriculture in the gross domestic product (GDP) has been constantly falling. It accounted for 25.9 percent of GDP in 1999-2000; however, gradually, its share shrank to 21.3 percent in 2007- 2008 but improved slightly to 21.8 percent in 2008-2009. Terrorism has decreased the productive capacity of agricultural activity in these regions and the entire country, and finally, due to tourism promotion,

the agricultural and natural resources have also been affected. The people of Swat are not against tourism. They are requesting or demanding better alternatives for increasing tourism and protecting natural resources in the future (Paramati, 2017).

Table 4.3.8 Disclosed a significant association ($p=0.042$) and Positive ($T_b=0.044$) association was found between Capitalist investment decreasing farmland as it is used to accommodate infrastructure for the development of tourism and Tourism influenced land conversion. The influx of non-local investors interested in investing and raising their business in the study area has been conspicuous. These investments include hotel and restaurant construction, widening the existing road facilities, and establishing new ways for communities to vividly transform local land into commercial endeavors. These findings encouraged the inferences of Azadi et al. (2011) that capitalists usually buy the land from the locals at maximum prices and develop it into more earning units like hotels, restaurants, etc. The end losers are the locals in this pursuit of development and growth (Macdonald, et al., 2000). These investment trends are the cause of a reduction in agriculture and farmland. Their agriculture productivity has declined, and new buildings like hotels are erected with more earnings in a limited time and space respectively Bashir, (2013). These activities have also portaged the loss of grassland wild areas and disruption of the natural mechanism of the ecosystem, which is primarily responsible for maintaining a balance between natural and artificial activities and avoiding social, economic, and environmental non-sustainability (Jarrah, et al., 2019).

Moreover, a highly significant ($p=0.000$) and Positive ($T_b=0.287$) association was discovered between The establishment of parks for pure profit, which can create harsh survival realities and deprive the people of their traditional use of land and natural resources due to tourism and Tourism-influenced land conversion. Tourism is slowly revolving around generating income through investment in the land by unnaturally converting its shape and topography. These findings supported the conclusion of Lambi, (2012) that the initiatives of mega projects in scenic and hilly areas have permanently displaced the local population by threatening the loss of their lifestyle, property, and cultural norms. The most vivid case of the Masai tribe losing their culture and land by encroaching on their lands, destroying their livelihood without giving them any returns generated for their land rather than local jobs awarded to the

non-local educated youth. These findings revealed that the capitalist's only agenda is to boost their wealth by exploiting the local people and resources with the least concern for the local environment and economy (Veijola, 2019).

Contrary to the above, a non-significant ($p=0.339$) and Positive ($T_b=0.052$) association was confirmed between Tourism can put immense pressure on local resources like energy, food, and other raw materials that may be scarce by the capitalist class due to construction and property selling and Tourism influenced land conversion. These results reflected the exhausting situation that emerged with capitalist investment in the study areas to attract tourists and generate money. This bleak picture indicated the local scarcity of energy, food, and water due to its consistent use of unsustainable approaches. Imminence pressure on local resources like food, energy, and raw materials is the probable outcome of increased tourist activities (Sharzer, 2012). This could be due to the rise in demand for the aforementioned commodities, which have limited accessibility and availability to these incomes. The chain of accessibility is usually shattered due to the constant pressure of demand, which results in shortage and subsequent soar prices phenomena (Pauli, 2010). The proper strategy is based on prioritizing these resources with their relative importance and generating and establishing them. The local paths of resource provision, encouraging the local resources in the market dynamics and spreading over the visitors to different parts at different findings to avoid congestion of humans will ensure the smooth chain of supply of the resources (Steinberger, 2010 *and* Robbins, 2008).

A highly significant ($p=0.000$) and Positive ($T_b=0.485$) association was found between hoteling converting agricultural land into roads and buildings for tourism activities and Tourism-influenced land conversion. Agriculture land is frequently converted in the construction of roads, buildings, and other commercial hubs. This transformation process is related to the sharp demand for infrastructural growth and demand to satiate the rising needs and requirements of the tourism industry (Johnson, 2009). This conversion of land can be either primitive or harmful. As an industry, it majorly contributes to the up-ticking of the socio-economic conditions of the local areas. New jobs are created, and people can easily access employment, thus shading property chances. However, on the other side, it may destroy natural habitats and biodiversity. Moreover, a decline in local agricultural products could also be imminent

due to the construction of agricultural land on sustainable grounds, which is the only key to protecting the natural environment, loss of biodiversity, securing the well-being of the locals, and preservation cultural norms, as disclosed by Belliggiano, (2021) in his findings.

Furthermore, a significant ($p=0.001$) and positive ($T_b=0.187$) association was established between addressing the cause of pollution due to tourism's more time and money consumption and tourism's influence on land conversion. These findings explained the negative consequences of pollution, which may have inevitable short- and long-term repercussions. Moreover, Pham, (2023) pointed out it is too money-consuming. Specific sound strategies of monitoring and evaluation on a scientific basis with sustainable infrastructural growth, waste management, and awareness regarding environments are the compact mitigating strategies that need to be initiated for converting commercialization drive and agriculture land can existence in a non-paradoxical manner (Sang, 2011). This may benefit from surveys based on environmental assessments, owning the sustainable practices preserving nature and the environment by empowering the locals' custodians to do so (Galli, 2010 and Shrestha, 2021).

Similarly, a significant ($p=0.004$) and Positive ($T_b=0.140$) association was established between profit-seeking Indigenous people while making a decision that affects investors irrespective of their locally Tourism-influenced land conversion. Environmental impact: Indigenous people's inclination towards deforestation for the purpose of their own needs has an antagonistic relationship with the environment. Moreover, their wish to earn money by selling out the agricultural land could be harmful and devastating to the ecosystem and biodiversity. These results aligned with Jamal, (2009) inferences that locals' decisions and environmental preservation are often paradoxical. Indigenous people's sustainable approach to resource consumption and environmental protection while curving ways and means for personal economic gains could yield results towards achieving more significant sustainability aims (Priatmoko, 2023). Moreover, for the sustainability environment and commercial activities, the Indigenous should orange special consultative sessions with all the stakeholders in a meaningful manner along with the local community so that a congested decision about

any intervention in the area takes place with the excellent aim of sustainability and maximum benefits on equitable grounds (Havnevik, 2007).

Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.301$) association was confirmed between Land being one of the most important inputs of production for indigenous people, but capitalists want to change the regime for personal benefits and Tourism-influenced land conversion. These results indicated the clash of interests revolving around agricultural land. The land is the local study area's source of income, prestige, and traditional power. However, investors believe it is a purchasable commodity, and they want to buy it at maximum loss while taking out maximum financial returns from it through its transformation into commercial activities (Wittman, 2009). Has also identified land possession with the characteristics of people's cultural identity as a source of livelihood and power exercising tools. Indigenous people might have some sensitivities attached to the land, which may be amicably resolved by converting land into commercial hubs while respecting the rights and privileges of these people. Moreover, if proper environmental safeguards are taken, it may contribute sustainably to the commencement of economic development. In addition, cultural identity with dignity and respect may also be attained (Fitting, 2010 Brookfield, 2015).

Meanwhile, a non-significant ($p=0.487$) and mild Positive ($Tb=0.063$) association was found between the rapid unplanned urbanization in mountain regions by capitalist interest poses a serious threat to the economic, social, and environmental sustainability and Tourism influenced land conversion. These results indicated that although rapid and unplanned urbanization was occurring in most mountainous points, the locals endorsed it. These results unauthenticated local people's involvement in the changing phenomena and could be attributed to the active involvement in the business flourishing or recovery and responsible profit. However, all these are achieved at the cost of surrounding local resources exposed to manipulation with unequal distribution. Moreover, the chance of entering poverty due to vast inequality may also be addressed. In addition, community integration through the lands of tradition and customary ways of life are also facing stand elimination, which ultimately leads to deforestation, destruction of natural habitat, and loss of ecosystem and biodiversity conservation of forest and wellbeing of people also an axe due to unchecked and unplanned commercialization (White, 2012; Yüksel, 2011).

However, in contrast to the above, a highly significant ($p=0.000$) and Positive ($T_b=0.037$) association was established between Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce, and Tourism influencing land conversion. The scarcity of resources is directly related to population enhancement. Tourism is the primary agent of urbanization. People move more quickly to areas where basic communities of life are ensured on an unabated basis. Immacolata, (2018) has also viewed tourism as a source of consumption. This puts pressure on the indigenous natural resources, and they fear they will diminish if they are not approached sustainably. Essential resources like water, food, and energy may need more due to consistent stress on their consumption in the face of the rising number of people. It could also emerge into a consumer struggle, resulting in soaring prices. Moreover, the local communities may also feel marginalized and usually succumb to the high-profile wish host of the visitors and the economics low profile of locals, leading to mismatching in food collection and consumption patterns (Ashworth, 2012; Bangash, 2012). A sand regulating mechanism to ensure a smooth supply of food, a predictable food consumption behavioral pattern, and vivid SOPs to protect natural habitats and ecosystems through vivid values on a sustainable basis is advocated (Sanada, 2023).

Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.193$) association was established between the local paradigm of the economy changing in the purview of capitalist invasive and Tourism-influenced land conversion. The local economy paradigm is subjected to transformation from its indigenous farm to a market economy. The local area has witnessed new patterns of business, like the tourist industry, which necessitated the construction of hotels and restaurants. Moreover, external food taste use also has led to national and international standards for eateries like McDonald's and KFC, etc. these changes have invaded the local cultural patterns of food consumption and are being replaced with a fast-growing pattern with tendencies to fast food, etc. (Sharpley, 2006 and Zapata, 2013). Moreover, structural transformations were also vivid, like expanding existing roads and establishing new roads. The construction of a motorway is yet another fast and safe source of transportation to the areas. All these developments have played an anchor role in establishing consequences like habitat and ecosystem destruction, loss of biodiversity, displacement of indigenous communities,

and land degradation were also noted in the aftermath of these development initiatives (Rasyidi, 2020; Suess-Reyes, 2016).

Furthermore, a significant ($p=0.003$) and Positive ($Tb=0.461$) association was confirmed between Local economic culture being under transformation with new emerging trends in light of foreign cultural innovations and Tourism-influenced land conversion. These findings augmented the preceding inferences and suggested a visible change in the economic perspectives prevalent in the areas. Transformation in this respect could be attributed to structural and functional changes and local communities' marginalization. Mody, (2016) has also advocated these changes in the local economic system through vibration in the cultural and social dynamics with relation to the invasion of the above behavioral patterns like food, mobility, and means of transportation. These changes have represented specific variations in the economic paradigm of the local areas. The creation of jobs and people's access to the market incredibly ignored them economically. However, all these changes also have some significant impacts. Variations in land use patterns of diminishing local produce exclude local communities with the threats to loss of cultural identity of the locals (Spillias, 2023; Jamal, 2009). Careful planning by ensuring community inclusion and taking the transformation to ultimate success is possible through a sustainable growth-based strategy (Omarkhanova, 2023).

A significant ($p=0.002$) and Positive ($Tb=0.510$) association was found between Locals being more inclined to the capitalist paradigm as it ensures more money and resources and Tourism influencing land conversion. These findings revealed the presence of transformation phenomena in the area. It could be attributed to the operationalization of the market economy, which has changed the whole economic system. People enjoyed easy access to the market, had jobs, and revering hefty returns in cash, which have altered the prevalent scenario altogether (Butler, 2006) has also enumerated the economic returns of the changed paradigm which has brought about the concept of prosperity and wellbeing to the locals. Moreover, people were more inclined to this change due to infrastructural growth, facilitating the mobility of both locals and non-locals. However, careful consideration focusing on local cultural preservation, Indigenous resource management, and natural environment protection may help sustain the grown-oriented initiatives for an extended period (Huber, 2018; Henning, 2011).

Table 4.3.8 Association between capitalist interest and tourism influenced land conversion

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	Capitalist investment decreases farmland as it is used to accommodate infrastructure for the development of tourism.	Tourism influenced land conversion.	$\chi^2=0.658$ P=0.417 Tau-b=0.044
2	The establishment of parks for purely profit can create harsh survival realities and deprive the people of their traditional use of land and natural resources due to tourism.	Tourism influenced land conversion.	$\chi^2=28.337$ P=0.000 Tau-b =0.287
3	Tourism can put immense pressure on local resources like energy, food, and other raw materials that may be scarce by the capitalist class due to constructing and property selling	Tourism influenced land conversion.	$\chi^2=0.920$ P=0.338 Tau-b =0.052
4	Profit seeking indigenous people while taking decision that has effects on investors irrespective to their local environment.	Tourism influenced land conversion.	$\chi^2=0.563$ P=0.053 Tau-b =0.040
5	Land is one of the most important inputs of production for indigenous people but capitalist want to change the regime for personal benefits.	Tourism influenced land conversion.	$\chi^2=31.031$ P=0.000 Tau-b =0.300
6	The rapid unplanned urbanization in mountain regions by capitalist interest possesses serious threat to the economic, social and environmental sustainability.	Tourism influenced land conversion.	$\chi^2=1.479$ P=0.224 Tau-b =0.065
7	Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce.	Tourism influenced land conversion.	$\chi^2=0.485$ P=0.486 Tau-b =0.037
8	Local paradigm of economy is changing in the purview of capitalist invasive.	Tourism influenced land conversion.	$\chi^2=12.812$ P=0.000 Tau-b =0.193
9	Local economic culture is under transformation with new emerging trend in light of foreign cultural innovations.	Tourism influenced land conversion.	$\chi^2=1.247$ P=0.264 Tau-b =0.060
10	Locals are more in claimed the capitalist paradigm as it is ensure more money and resources.	Tourism influenced land conversion.	$\chi^2=0.939$ P=0.333 Tau-b =0.052

Source: Field Survey, 2023

4.3.9. Association between unplanned residential sprawl and tourism influenced land conversion

The emergence of urban sprawl is the resultant factor of population growth within the urbanized settlements as people for the mal setup in search of basic communities of life. Sprawl contains the uncontrolled and unplanned settlements in the slums around the city premises. It is usually built on the clan tribe and regional land between the people living in the sprawl. The sprawl intimated a close relationship between the devastation of the local environment and the consumption of local resources at a fast speed with a threat of their elimination scarcity. The national governance model is prevalent as the organization is loose due to the dysfunctional performance of social institutions like schools, security, water supply, health sources, etc. The lack of any centralized paradigm of the economy and social control has turned this sprawl into a breeding hub of social evils like crimes and the loss of fertile land (Abebe, 2023; Fregolent, (2017) Jin, et al., 2022).

Table 4.3.9 disclosed a significant ($p=0.021$) and Positive ($T_b=0.118$) association between Unplanned residential sprawl's direct impacts on air, soil, and water are associated with manufacturing, production, and transportation of materials by tourism and Tourism influenced land conversion. These results in unauthenticated miseries and hazards like water and social contamination and air pollution due to vehicles' exhaust in the aftermath of people crowding around in the sprawl. These results were in accordance with Leonard, (2019) who assessed a strong bond between environmental degradation and the development of sprawl. The emergence of urban tourism has raised specific questions about garbage collection and promoting recycling as a policy determination towards altering cleaning with a proper waste management system (Lupu, 2018). Health hazards are the probable outcomes of non-collection of waste to properly dispose of it. The local communities were found to be on the verge of environments due to population growth. Although urbanization entails the economic activities boom, all security, sanitation, and preservation of local habitats are some challenges surfacing from these developments. The poor reflection of urban tourism could be attributed to adopting non-inclusive, non-resilience, and non-sustainable approaches to new kinds of tourism (Makinde, 2012; Lisheng, 2021).

Moreover, a significant ($p=0.004$) and Positive ($T_b=0.156$) association was discovered between solid waste and increased pollution associated with unplanned

residential sprawl in the tourism sector, causing serious damage to the local environment and Tourism-influenced land conversion. Lockwood, (2021) has similar findings and stresses that the ignorance of Co2 production should be acknowledged. Besides air pollution, land degradation is another major factor of great concern. Almost 0.34% of the global land is diverted into tourism-related pursuits that involve heavy energy consumption. Indigenous environment and local biodiversity ecosystems are under direct constant threats due to the non-disposal of waste, which increases with the rate of increase in tourism activities. Tourism as an industry has a great potential to raise revenue through proper planning based on study findings to be conducted upon the growth, and waste disposal may prove to be helpful to continue for a more extended period more efficiently and beneficially (Kropinova, 2020 and Charara, et al., 2011).

Similarly, a significant ($p=0.019$) and Positive ($Tb=0.126$) association was confirmed between residents constructing buildings without proper planning permission, which can cause massive damage to the natural environment and Tourism-influenced land conversion. The natural environment has been constantly threatened by irregular, unplanned construction. This construction is usually self-need-oriented and violates the established code of ethics by not considering the adverse effects on the environment. Humans live in agriculture production and the emergence of slums, which are the breeding places for social evils. Immacolata, (2018) and Stokowski, (2021) have also disclosed the loss of habitat biodiversity, resource degradation, and some other bleak sides caused by unauthorized construction. It has been noted that pollution, congestion, and poor scenarios were some other salient characteristics of this construction, which put pressure on the potential growth of agriculture and human access to basic amenities of life like health, education, and security (Aman, 2019; Johnson, 2009).

A highly significant ($p=0.000$) and Positive ($Tb=0.485$) association was explored between the depletion of natural resources like wood, water, and soil due to unplanned residential sprawl and Tourism-influenced land conversion. Unplanned residential sprawl is usually a threat of elimination to local wood, destroying the natural habitat. Yang, (2012) has also pinpointed the adverse effects, such as overuse of resources and degradation of the environment due to uncontrolled and unregulated phenomena of construction. Moreover, agricultural land is also due to conversion into housing units, resulting in putting pressure on the forests with a naked threat of losing

to create more space for agriculture and living purposes. All these activities are through the resultant factors of commercialization; however, they destroy the local ecosystem, biodiversity culminating in contamination depletion of local natural resources with rise to drastic dilemma cause issues Goodwin, (2011). A viable paradigm of force production and consumption, protection of land, and encouragement of tourism-related activities on sustainable approaches are the only panaches of this illness (Henning, 2011 and Kamwi, 2018).

Furthermore, a highly-significant ($p=0.000$) and Positive ($Tb=0.421$) association was confirmed between the adverse impacts of tourism in any area occur when the numbers of tourists, or visitors, cross the natural environment due to tourism and Tourism influenced land conversion. Loss of natural habitat is embodied in the rise of tourism, which burdens existing facilities like accommodation, roads, and transportation (Cajee, 2014). Forests and other natural resources that play an anchor role in preserving wildlife biodiversity are exposed to threats of elimination due to the rising number of visitors. If not properly handled, a sustainable approach to negotiating this huge agent of cause may result in a total environmental collapse (Jamal, 2009). Loss of cultural identity and traditional ways are also feared due to the invasion of these non-locals on the tourist spots. Local rural livelihood means could yet face some other threats of alternations on the basis of new practices of earning based on the market economy (Priatmoko, 2023) with new vistas of business about non-industrial of the local communities (Cao, 2019).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.184$) association was established between Unplanned residential sprawl, a naked, challenging environment, and social life, and Tourism influenced land conversion. Environmental degradation is the direct outcome of the emergence of sprawl, which affects the agricultural land laid out and destroys the social fabric of life due to human and vehicular congestion. Moreover, the burden of accommodating a considerable number of individuals in a limited space further deteriorates the natural habitat, vegetation, local flora, and fauna. Moreover, the local transport infrastructure needs to be more sufficient to accommodate the rising number of vehicles that may also succumb to the enormous pressure of human activities (Chandel, 2022; Bleu, 2019 Mohanty, 2011). Any residential plan without lacking solid efforts to ensure the local community has no chance of social cohesion. Moreover, the non-availability of recreational places,

schools, etc., further suffocates the social environment for locals to enjoy leisure activities. The conversion of agricultural land further deteriorates the smooth food supply chain to the locals, with an imminent threat of food insecurity (Muggah, 2012).

Similarly, a highly significant ($p=0.000$) and positive ($Tb=0.373$) association was confirmed between unplanned residential sprawl generating security risks in tourist areas and tourism influencing land conversion. Unplanned residential sprawl may lead to sprouting some social evils like crimes, theft, and robbery. Moreover, the rising demand for constructing houses beyond the limits concentrates on changing the land patterns of agricultural land, which is closely located within the city. Karl, (2018) and Yüksel, (2011) have determined a relationship between the rise of crime tendencies and the use of residential accommodation without planning. Such sprawl usually lacks proper policing surveillance and poor emergency response in times of need due to secondary relationships among the masses residing around it (Winter, 2009).

Meanwhile, a highly significant ($p=0.000$) and Positive ($Tb=0.466$) association was found between Locals being unaware of the negative consequences of the rapid sprawl in the area and Tourism-influenced land conversion. Locals enjoying proximity to city life with abundant employment opportunities are usually unaware of the negative consequences, as revealed by these findings. The ignorance regarding the loss of ecosystem biodiversity, and traffic congestion with over-bordered communication infrastructures negatively influence the social order in this sprawl (Wong, 2022). The conversion of agricultural land to tourist resort commercial plazas has also reduced agricultural land and its production, which leads to dependence on the products produced outside, like food items, energy, and even water. Such a situation may increase food insecurity risks (Kamwi, 2018; Huang, 2019; Connell, 2015).

In consonance with the above findings, a highly significant ($p=0.000$) and Positive ($Tb=0.650$) association was established between the local government organization's lack of anticipative vision to control unplanned sprawl and Tourism-influenced land conversion. The negative impact on the local community is significant, with institutional dysfunction and lack of coordination between different departments accelerating the process of land commercialization due to the rise of tourism. Czernek, (2013) referred to the negative consequences of environmental degradation, loss of biodiversity, and conversion of agriculture land, which has emerged with an imbalance

in the equitable distribution of resources. Moreover, human displacement of local communities was another disorder in the social order (Falcon, 2021). Lack of proper planning and regulating the land use patterns have also created fissures in the political, economic, and cultural perspectives in the prevalent social order (Bleu, 2019). Reversing short and long terms priorities may gain sustainable effort of agriculture land preservation and resistance to human displacement. It has also been adjudged that land commercialization usually lead to concentration of wealth in few hands while the majority is found to be sufferers. Moreover, tourism related activities also emerging into road congestion and loss cultural heritage (Wallinga, 2009, Mohanty, 2011 and Graziano, 2021).

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.643$) association was established between People opting for sprawl as it is more lucrative in terms of lesser land use and more earning and Tourism-influenced land conversion. The benefits of urban sprawl in providing new opportunities for business and employment are clear, but it often comes at a cost. Loss of agricultural land, deforestation, and stressful conditions for local resources to thrive are all significant issues. Any reprieve from such conditions could only be achieved through a sustainable model of resource distribution and consumption, which certainly serves as a catalyst in economic growth without compromising on the local community's social inclusion (Zahra, 2015, Whyte, 2017 and Wassie, 2020).

Table 4.3.9 Association between unplanned residential sprawl and tourism influenced land conversion.

S.No	Independent Variable	Dependent Variable	Statistics χ^2 , (p-value) & tau-b
1	Unplanned residential sprawl pose direct impacts on air, soil, water are associated with manufacturing, production and transportation of materials by tourism.	Tourism influenced land conversion.	$\chi^2=5.009$ P=0.025 Tau-b=0.120
2	Solid waste and increased pollution is associated with unplanned residential sprawl in the tourism sector causing serious damage to the local environment.	Tourism influenced land conversion.	$\chi^2=8.368$ P=0.004 Tau-b =0.156
3	Local residents construct buildings without proper planning permission which can cause huge damage to the natural environment.	Tourism influenced land conversion.	$\chi^2=5.469$ P=0.019 Tau-b =0.126
4	Depletion of natural resources like wood, water and soil due to unplanned residential sprawl.	Tourism influenced land conversion.	$\chi^2=8.368$ P=0.004 Tau-b =0.054
5	The adverse impacts of tourism in any area occur when the numbers of tourists, or visitors, cross the natural environment due to tourism.	Tourism influenced land conversion.	$\chi^2=61.000$ P=0.000 Tau-b =0.420
6	Unplanned residential sprawl is a naked challenges environment and social life.	Tourism influenced land conversion.	$\chi^2=11.720$ P=0.000 Tau-b =0.184
7	Unplanned residential sprawl generates security risks in tourist areas.	Tourism influenced land conversion.	$\chi^2=47.874$ P=0.000 Tau-b =0.373
8	Locals are unaware about the negative consequences of the rapid sprawl in the area.	Tourism influenced land conversion.	$\chi^2=74.810$ P=0.000 Tau-b =0.466
9	Local government organization lacks the anticipative vision to control unplanned sprawl.	Tourism influenced land conversion.	$\chi^2=145.517$ P=0.000 Tb=0.649
10	People opt to sprawl as it is more lucrative in terms of lesser land use and more earning.	Tourism influenced land conversion.	$\chi^2=141.762$ P=0.000 Tau-b =0.643

Source: Field Survey, 2023

4.3.10. Association between infrastructural changing and tourism influenced land conversion

The tourism industry entails structural and functional changes within the prevalent social system. These changes are either positive or negative, such as improvement in many people through economic development by raising the per capita income through maximum social inclusion, and are the negative consequences of

tourism like pressure on the local resources in a manipulated manner, development of hotels and restaurant with roads structurally affect the absorption capacity negatively. A considerable number of visitors in the area beyond the structural capacity curve down the existing system with environment collapse under the burden of this enormous pressure. Moreover, the prevalent ecosystem biodiversity faces the axe of elimination and cultural norms' inability to adopt and absorb the invading cultural traits. This factor may lead to the total exclusion of locals, and the chances of obtaining benefits from these changes are derived (Gomariz-Castillo, 2019; Bilal, 2016).

Table 4.3.10 disclosed a significant ($p=0.008$) and Positive ($T_b=0.142$) association between Problems related to the current property rights regime over land and the land conversion systems that have led to difficulties for Indigenous people due to the tourism development industry and tourism influenced land conversion. These results alluded to improper documentation of land ownership, land occupation by the influence of the poor, and lengthy land affairs litigation. This poor rules regime had pushed the local landlord, peasant, and small landlord into a headlock situation of disputes, enmities, and desire litigation. This situation has taught the whole scenario in a conflict where the local owners have reviewed no benefits. It could be attributed to the grim reality that the state owned the land in the previous regime of Wali Swat. The people had to work but with no ownership claims (Nguyen, 2022). Even after the kingdom collapsed and merged with the state of Pakistan, the study of Swat still has many ambiguities concerning land ownership, with vivid lacunae preventing non-local investors from investing.

Moreover, a race for land acquisition between private developers and local owners is always on the card. Moreover, the invasion of non-local investors has brought about changes in the ways of earning, with little dependence on the local economy, by pushing the locals to extreme corners with little chances for their livelihood. At the same time, ecology is also under threat of transformation in the race of tourism development (Mangione, 2010; Zoomers, 2017).

Furthermore, a highly significant ($p=0.000$) and Positive ($T_b=0.317$) association was discovered between ambiguous property laws causing infrastructural changing and tourism influenced land conversion. These findings strongly endorsed the preceding and affirmed the non-existence of proper documentary evidence behind the land

ownership rights. This dilemma has led to an uncertain situation where the users prefer to occupy others' land and subsequently sell it out at thrown-away prices. These incidents of illegal occupation and subsequent selling have accrued in the face of tourism, which has considerably raised land prices. Moreover, the local elites and non-local investors have manipulated ambiguity in the relationship to ownership rights in their favor and success in developing infrastructure like roads, hotels, and restaurants for tourists in connivance with the government and other allied departments. These developments have led to the marginalization of the local community and threatened the local environment, waters, and pollution. These findings were similar to those of Altman, et al. (2018), who stated that the local elites' ambiguous land use policy, land ownership rights, and illegal land occupation have accelerated agricultural land's selling and buying process. These developments negatively impact local biodiversity, ecosystems, and social integration of the local social system (Hunziker, 2017).

In addition, a highly significant ($p=0.000$) and Positive ($T_b=0.362$) association was confirmed between Lack of long-term planning and comprehensive master plan results in undesirable infrastructural changing and tourism influenced land conversion. These findings further augmented the non-existence of land control and management policy while lacking short and long-term planning as being envisaged in a master plan. These circumstances provide a conducive environment for the loss of agricultural land, vegetation cover, and water contamination due to increased tourism activities. Moreover, the transformation of land into commercial buildings has also led to the destruction of ecosystems and biodiversity, destruction, as reported by Zahra, (2015). The rise of different kinds of enterprises does affect the socio-cultural milieu. Disputes usually arise on the issue of land ownership, creating a tense situation and threatening the long-prevalent social fabrics of the society (Hjalager, 2013 Tuan, 2019 and Jamal, 2009) has also explored in his findings that tourism is creating some devastating effects on the local area about its people and ecology. Thus, the loss of landscape cannot be avoided at any cost (Utama, 2014; Murad, 2012) by badly affecting people's physical and psychological well-being.

A significant ($p=0.009$) and Positive ($T_b=0.141$) association was found between Newly built facilities like cafes, parks, hotels, and toilets having degrading effects on the environment and Tourism-influenced land conversion. Reports of UNEP, (1997) and ICAO (2001) have concluded in their reports that pollution and erosion of CO₂

from tourism activities could not be separated. Instead, both are indispensable for the study area and the world in this hazardous situation. Furthermore, Holloway, (2019) has also established a relationship between tourists seeking pleasure from the scenic beauty, which also contributes to the destruction of the same area. In some areas, new architectural development has also contributed to eliminating old buildings, once considered all cultural and archaeological heritage, which has been diminished (Thomas, 2019; Zhang, 2015).

Notwithstanding, a highly significant ($p=0.000$) and Positive ($T_b=0.314$) association was intimated between Changes in architectural styles reducing the charm of the area and tourism influencing land conversion. The rampant construction aimed to facilitate and accommodate the rising number of tourists has played havoc in the local infrastructure sector. New buildings are erected without considering the old buildings' local cultural and fiscal importance (Kamwi, 2018), which has changed the local topography, demography, and cultural identity (Tabayashi, 2010). The conversion of agricultural land has also transformed due to similar developments, which have visible degrading effects on the local landscape and environment (Waseq, 2020 HagHnazar, 2019). Moreover, alternation in topography and landscape has also accompanied the property's ownership change through selling and buying (Gebeyehu, 2022), generating population pressure in the area through urbanization (Gardien, 2014 Farah, 2022).

Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.512$) association was established between Changes in infrastructure disturbing population density, affected accessibility, and Tourism influencing land conversion. These results have strong support for the earlier inference consistency shown in table (4.3.16) and in line with Sanada, (2023) conclusion that frequent influx of visitors carries immense pressure on the existing resources, including water, energy, etc., along with the demographic profile of the local area also undergo variations. The changes in the aftermath of rising tourism are not conclusive. They usually lead to a loss of central identity, segregation of the local community, and vast displacement (Marcos, 2022).

Moreover, a highly-significant ($p=0.000$) and Positive ($T_b=0.455$) association was confirmed between Infrastructural changes have led the emergence of new business class as property dealing and Tourism influenced land conversion. Navarrete-Hernandez, (2018) had also explored in his study on Ghana about this newly emerging

class. The selling and buying activities of this class had worst negative effects like conversion of agricultural land. After tourism involving the tourism developers, local influence and experts have created a cycle of development at the cost of losing landscape while earning a lot, little has been focused on the tourist-related activities its management, like waste disposal, substitute for locals due to loss of their agricultural land and haphazard effects cruising out of infrastructural growth. Land has been notice with fast depleting rate with no any sustainable model in operation to care about indigenous people identity professions and their social exclusion (Oteng-Ababio, 2012, Otero, 2017, Qiongying, 2018, Rabotić, 2010). The need for sustainable models is crucial and should make the audience feel the importance of long-term planning.

Meanwhile, a high-significant $p=0.000$ and Positive $T_b = 0.530$ association was found between proper property businesses that encouraged non-locals to invest in the area and start their businesses and Tourism-influenced land conversion. These results affirm the inauthenticity of the earlier findings. Local people lost their land because they sold it out through non-local investors. A new pattern of property business has taken place, which benefited both the property dealers. The local landlords and the non-local users have led to the loss of agricultural land with a fast rate of transformation into infrastructural growth. It has been noticed that this business has thrived due to the non-existence of proper property laws, ambiguous ownership rights, and the hefty amount being offered. Moreover, the non-existence of a master plan for these infrastructural growths has also generated and accelerated the property business in the tourism spots (Zoomers, 2017; Tuan, 2019; Nguyen, 2022; and Mangione, 2010).

Table 4.3.10 Association between infrastructural changing and tourism influenced land conversion

S.No	Independent Variable	Dependent Variable	Statistics χ^2, (p-value) & tau-b
1	Tourist activities affects changes in the infrastructure of the study area.	Tourism influenced land conversion	$\chi^2=3.356$ P=0.067 Tau-b =0.099
2	Problems related to the current property rights regime over land and the land conversion systems have led to difficulties for indigenous people due to tourism development industry.	Tourism influenced land conversion	$\chi^2=6.979$ P=0.008 Tau-b =0.142
3	Ambiguous property laws cause infrastructure changing.	Tourism influenced land conversion	$\chi^2=35.177$ P=0.000 Tau-b =0.319
4	Lack of long-term planning and comprehensive master plan results in undesirable infrastructural changing.	Tourism influenced land conversion	$\chi^2=45.622$ P=0.000 Tau-b =0.364
5	Newly built facilities like cafes, parks, hotels and toilets have degrading effect on environment.	Tourism influenced land conversion	$\chi^2=6.718$ P=0.010 Tau-b =0.140
6	Change in architectural styles reduces the charm of the area.	Tourism influenced land conversion	$\chi^2=33.763$ P=0.000 Tau-b =0.313
7	Changes in infrastructure disturb population density and affect accessibility.	Tourism influenced land conversion	$\chi^2=90.017$ P=0.000 Tau-b =0.511
8	Infrastructural changes have led the emergence of new business class as property dealing.	Tourism influenced land conversion	$\chi^2=71.087$ P=0.000 Tau-b =0.454
9	Proper property business encouraged the non-locals to invest in the area and start their business.	Tourism influenced land conversion	$\chi^2=96.474$ P=0.000 Tau-b =0.529

Source: Field Survey, 2023

4.4. MULTI-VARIATE ANALYSIS

4.4.1. Association between effects on agricultural production and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.1 explains the relationship between effects on agricultural production and Tourism influenced land conversion while controlling the age of the respondent's results disclosed a non-significant ($P=0.896$) and negative ($T_b=-0.012$) association for the mentioned variable from the age group (25-35). However, a highly significant $P=0.000$ and positive $T_b=0.386$ association between effects on agricultural production while 46 to 55 ages non-spurious were discovered. A highly significant ($P=0.000$) and positive ($T_b=0.893$) association was further disclosed as related to all probability values. This association was also non-spurious due to identical values of T_b and level of significance. Explained the relationship between effects on agriculture production and Tourism influenced land conversion and disclosed that a non-significant and spurious relationship was unearthed between the aforementioned variables from the age group (25-35) from the group (36-45) this relationship was explored as highly significant ($P=0.000$) and non-spurious ($T_b=0.386$).

Furthermore, a highly significant and non-spurious relationship was intimated for the age group (46-55) as reflected by the relative ($P=0.000$) and ($T_b=0.386$) values. In addition, the results for the related a highly significant ($P=0.000$) and ($T_b=0.783$) non-spurious relationship between the variables above for the age group 56 years and above. It could be deduced from these findings that the age group (25-35) needed more information about the effects of land commercialization in the aftermath of tourism-related activities. The remaining age groups were aware of the dynamism of land and its related affairs concerning tourism. It could be informed from these results that the age group had control over land ownership rights and was willing to accept and accommodate on the grounds of realities with a high degree of participation while lacking the sustainability vision. These results were similar to the findings of Jönsson, (2008) that tourism practices usually damage the existing natural resources due to a lack of awareness and a centralized master place for developing these areas. It is wise to perpetuate the awareness of negative and positive effects with conspicuous reference to agricultural land conversion, as these practices usually exacerbate the management issues by damaging the structural and functional capacities of the local environments (Buffa, 2015).

Table 4.4.1 Association between effects on agricultural production and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Effects on agricultural production	Tourism influenced land conversion	25-35	$\chi^2 = 0.017$ P=0.896 Tau-b = -.012	$\chi^2 = 136.462$ P=0.000 Tau-b=0.616
		36-45	$\chi^2 = 14.150$ P=0.000 Tau-b = 0.386	
		46-55	$\chi^2 = 68.638$ P=0.000 Tau-b = 0.893	
		56 years and above	$\chi^2 = 26.980$ P=0.000 Tau-b = 0.783	

Source: Field Survey, 2023

4.4.2. Association between land degradation and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.2 explains the relationship between land degradation and Tourism influenced land conversion while controlling the age of the respondents, a non-significant (P= 0.708 and negative Tb= -.032) association between the mentioned variables while controlling for the age group (25-35). However, for the age group (35-45), a highly significant and positive (P=0.000 and Tb=0.492) was discovered between land degradation and Tourism-influenced land conversion. It was further unearthed that a highly significant and positive (P=0.000 and Tb=0.961) for the age group (46-55), respectively. It was highly significant and positive (P=0.000 and Tb=0.860) for the age group (56 years and above). The results indicated a non-spurious relationship between the age groups (36-45), (46-55), and 56 years due to identical probability values with moderate to high Tb values. It could be an inference from these results that respondents from younger age groups needed to be made aware of the deteriorating effects of land commercialization upon agricultural land. These results indicated that younger were less concerned about the negative changes, instead, they were more concerned about reviving and doing adventurous activities related to leisure and recreational adventures in

extra physical land as the results obtained were spurious and harmful for the age above group. The results were in the lives of Bramwell, (2016), who identified the young age groups, i.e., adults who had a high degree of inclination toward adventures and excursions with the sole objective of exploring new spots of natural attractions. Mitigation of degradation endeavors could be checked and controlled by involving communities in preserving nature and disposing of waste. All these efforts positively contribute towards minimizing the negative environmental distress (Karl, 2018).

Table 4.4.2 Association between land degradation and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
land degradation	Tourism influenced land conversion	25-35	$\chi^2=0.140$ P=0.708 Tau-b= -.032	$\chi^2=136.462$ P=0.000 Tau-b =0.629
		36-45	$\chi^2=14.407$ P=0.000 Tau-b =0.492	
		46-55	$\chi^2=79.489$ P=0.000 Tau-b =0.961	
		56years and above	$\chi^2=32.566$ P=0.000 Tau-b =0.860	

Source: Field Survey, 2023

4.4.3. Association between threat to bio-diversity and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.3 revealed the relationship between the threat to bio-diversity and Tourism influenced land conversion while controlling the age of the respondents. The data showed a non-significant (P= 0.708 and negative Tb= -.028) association between these variables for the age group (25 to 35) respondents, indicating a spurious nature of the relationship. However, the relationship between the aforementioned variables was highly significant and positive (P=0.000 and Tb=0.567) for the age group (36-45). In addition, it was also found significant (P=0.003) and positive Tb=0.319 for the age (46-

55) while were also significant ($P=0.012$) and positive ($T_b=0.380$) between threat to biodiversity and commercialization of land for above (56 years) of age while controlling age as intervening variable. These results affirmed the prevalence of a non-spurious relationship between the age groups 36-45, 45-55, and above 56 years due to identical probability and T_b values. It could be assumed from the above findings that the age group 25-35 needed more awareness of the importance of biodiversity. Instead, they were reviving the transportation of land from agriculture to the establishment of commercial entities either to earn more from limited space or they had the inclination to enjoy access to basic amenities of life associated with the prevalence of commercial environments, i.e., access to jobs, a dynamic market with chances to participate and establishing interaction with the non-locals to strengthen the process of acculturations. These findings closely resemble Santos, (2023), who states that personal interests, level of income, and pre-and free preference-based factors play an anchor role in the pursuit of the industry. The Youngers had high energy and preferences for travel and adventures, seeking comfort and interacting with non-locals (Cabras, 2014).

Table 4.4.3 Association between threat to bio-diversity and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Threat to bio-diversity	Tourism influenced land conversion	25-35	$\chi^2=0.108$ $P=0.743$ $Tau-b= -.028$	$\chi^2=27.368$ $P=0.000$ $Tau-b =0.282$
		36-45	$\chi^2=24.429$ $P=0.000$ $Tau-b =0.567$	
		46-55	$\chi^2=8.768$ $P=0.003$ $Tau-b =0.319$	
		56years and above	$\chi^2=6.362$ $P=0.012$ $Tau-b =0.380$	

Source: Field Survey, 2023

4.4.4. Association between population pressure and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.4 explains the relationship between population pressure and Tourism-influenced land conversion while controlling the age of the respondents with a non-significant ($P=0.746$ and negative $Tb=-0.029$) association was observed for the age (25 to 35) in respect of the fore mentioned and variables while controlling age contrary to it a significant ($P=0.000$ and positive $Tb=0.480$) was also discovered between these variables for the age group (36-45) and an important ($P=0.000$) and positive ($Tb=0.860$) for the age group (56years and above) respectively while controlling age. These results also initiated a spurious relationship between these variables for the age groups 36-45, 46-55, and 56 years and above, while there was a spurious relationship for the age group 25-35), respectively. These results alluded to a social imbalance during commercialization due to tourism use in tourist spots. The significant changes witnessed are an influx of migration due to the creation of more job opportunities, Indigenous people's high inclination to participate, and encourage free market mechanisms right from small-scale to medium-scale businesses. These developments embody a more significant population pressure over the local resources and infrastructure, leading to capitulation on the market and resources, which may turn into a shortage of space, resources, and dilapidated infrastructure. Furthermore, to cater to the rising needs, the local environment faces a massive alteration, such as eliminating old legacy, i.e., biodiversity and conservation drives being replaced with the destruction of biodiversity and ecosystem. These results were similar to Naidoo, (2015) that the influx of tourists does generate employment but also puts pressure on the locally existing operational frame, which usually has a limited capacity and is unable to accommodate such a vast number of people rendering to social congestion, blockage of drainage with an increase in density of population resulting into population growth with additional stress on the prevalent physical and social structure (Puig, 2017).

Table 4.4.4 Association between population pressure and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Population pressure	Tourism influenced land conversion	25-35	$\chi^2=0.109$ P=0.746 Tau-b = -.029	$\chi^2=141.905$ P=0.000 Tau-b=0.641
		36-45	$\chi^2=17.501$ P=0.000 Tau-b =0.480	
		46-55	$\chi^2=86.000$ P=0.000 Tau-b =1.000	
		56years and above	$\chi^2=32.566$ P=0.000 Tau-b =0.860	

Source: Field Survey, 2023

4.4.5. Association between sand mining/extraction and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.5. Unraveled the relationship between sand mining/extraction and Tourism influenced land conversion while controlling the age of the respondents while showing a non-significant (P= 0.165 and negative Tb= -.037) association between the variables from the age group (25 to 35) while controlling the age of the respondents. Moreover, a non-significant (P=0.188, but positive (Tb=0.151) correlation was further discovered between sand mining and tourism, which influenced land conversion for the age group (36-45) while controlling age. These results indicated a non-spurious relationship between these age groups and little effects of mining on commercializing agricultural land. It was further explored that the age group (46-55) and 56years and above had significant and positive associations between these mentioned variables (P=0.000 and Tb=0.919), (P=0.000 and Tb=0.860) respectively while controlling the age of the respondents. These results intimated the prevalence of non-spurious lands between the variables mentioned above for the groups 45-55 and 56 years. These indicated these groups' awareness of the close effects of sand mining on the role of tourism in

influencing land conversion in the study area. These results could be attributed to the non-abating construction activities being carried out in the farmhouse constructions, roads, highways, and commercial plazas to meet the area's use needs in light of increased tourism activities. Reasonable behavior is based on accommodating all age groups with no compromise on resource degradation and elimination of natural habitat at the expense of new development on the sustainable approach (Leary, 2004).

Table 4.4.5 Association between sand mining/extraction and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Sand mining/extraction	Tourism influenced land conversion	25-35	$\chi^2=0.165$ P=0.685 Tau-b= -.037	$\chi^2=119.005$ P=0.000 Tau-b =0.587
		36-45	$\chi^2=1.737$ P=0.188 Tau-b=0.151	
		46-55	$\chi^2=72.672$ P=0.000 Tau-b =0.919	
		56years and above	$\chi^2=33.943$ P=0.000 Tau-b =0.860	

Source: Field Survey, 2023

4.4.6. Association between environmental pollution and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.6 explains the relationship between environmental pollution and Tourism influenced land conversion while controlling the age of the respondents. The data intimated a non-significant (P= 0.904 and negative Tb= -.016) association between these variables for the age group (25 to 35) while controlling the age of the respondents. The findings indicated a spurious relationship between these variables, also reflected in the relative Tb and probability values. However, the data revealed a highly significant (P=0.000 and Tb=0.417) positive relationship for these variables for the age groups (36-45) while controlling the age of the respondents. Similarly, it was

also found to be highly significant ($P=0.000$ and positive $Tb=0.893$) for the age group (46-55) while for the age group 56 years above. It was found to be highly significant ($P=0.000$ and positive $Tb=0.864$) while controlling the age of the respondents. This relationship further intimated the prevalence of a non-spurious relationship between these variables from the age groups (36-45), (46-55), and above 56) years, as indicated by the relative probability and Tb values, respectively. These results were similar in conclusions to those of the younger age group, and they were also ignorant about the effect of environmental pollution due to its use in tourism activities. Instead, adventure, off-road driving as an extreme sport leads to air and environmental pollution in the shape of soil erosion and habitat loss. Moreover, these vehicular activities also frequently contribute to large-scale carbon emissions. In addition, non-disposal of waste, throwing waste, and use of plastic bags are significant contributors to water and air pollution and ecosystem destruction (Bendixen, 2021 Hall, 2009).

Table 4.4.6 Association between environmental pollution and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value & τ -b	Statistics χ^2 , (p-value) & τ -b for entire table
Environmental pollution	Tourism influenced land conversion	25-35	$\chi^2=0.016$ $P=0.904$ τ -b = -.011	$\chi^2=82.804$ $P=0.000$ τ -b =0.490
		36-45	$\chi^2=13.217$ $P=0.000$ τ -b =0.417	
		46-55	$\chi^2=68.638$ $P=0.000$ τ -b =0.893	
		56years and above	$\chi^2=33.935$ $P=0.000$ τ -b =0.864	

Source: Field Survey, 2023

4.4.7. Association between hoteling/buildings and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.7 fibbed the relationship between hoteling/buildings and tourism influenced land conversion while controlling the age of the respondents, which revealed a non-significant ($P= 0.834$ and negative $Tb= -.010$) association between hoteling and agriculture land commercialization for the age group (25-35) while controlling the age of the respondents. Moreover, the relationship between these variables was highly significant, with $P=0.000$ and positive ($Tb=0.717$), while the age of the respondents was controlled. Furthermore, for the age group (46-55), the data revealed a high significance ($P=0.000$ and highly positive $Tb=0.887$) between the variables above while controlling age. In addition, a highly significant ($P=0.000$) and highly positive ($Tb=0.869$) was intimated by the interaction between the variables, as mentioned earlier, for the age group (56 years and above) while controlling age. These results also revealed the prevalence of non-spurious relationships between these variables for the age groups (46-55), (35-45), and (56 years and above) as reflected by similar probability values and identical Tb values. However, this relationship was spurious for the age group category (25-35) due to its Tb values with the rest of the results. These results alluded to variations in reasons amongst the different age groups of people with their viewpoints towards tourism as an industry. The Youngers relived in more dynamism and wanted access to basic amenities of life to enjoy an honorable life standard without considering its unpleasant outcomes like environmental and resource degradation. Some apparent categories of people prioritize earning more profit over ecological preservation. A resilient policy on sustainable grounds to enjoy the benefits of tourism and keep the preservation strategies intact could be the only way forward while devising and establishing long-term strategies (Karl, 2018 Rentier, 2022).

Table 4.4.8 Association between hoteling/buildings and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Hoteling/buildings	Tourism influenced land conversion	25-35	$\chi^2=0.092$ P=0.904 Tau-b= -.011	$\chi^2=82.804$ P=0.000 Tau-b =0.490
		36-45	$\chi^2=13.217$ P=0.000 Tau-b =0.417	
		46-55	$\chi^2=68.638$ P=0.000 Tau-b =0.893	
		56years and above	$\chi^2=33.935$ P=0.000 Tau-b =0.864	

Source: Field Survey, 2023

4.4.9. Association between capitalist interest and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.9 explains the relationship between capitalist interest and Tourism-influenced land conversion while controlling the age of the respondents, which showed a non-significant (P= 0.709 and negative Tb= -.033) association between these variables for the age group of (25 to 35) respondents. These results were spurious due to variations in the probability and Tb values compared to the rest of the table. However, it was found to be highly significant (P=0.000 and positive (Tb=0.449) for the age group (35-45) while controlling age. Furthermore, a highly significant (P=0.000 and positive Tb=0.895) relationship was explored between these variables for the age group (46-55) while controlling age. Similarly, it was further found to be highly significant (P=0.000) and highly positive (Tb=0.866) for the age group (56 years and above) while controlling age. These results further intimated a non-spurious relationship between these variables for the age categories (35-45), (46-55), and (56 years) relatives. These results further validated Phillips, (2021) findings that wealthy youngsters' misuse of resources and indifferent attitudes towards local natural habitats and environment usually destabilize the existing climate of serenity due to their extra sports activities

and vehicular moments. Moreover, the business class's short-term approach to profit earning with no sustainable models has led to the exploitation of locals in terms of people and resources, as well as the contamination of water and road congestion. Developing holistic model incorporating the sustainable use of resources, the inclusion of locals, ecological significance, and local cultural perspectives may result in a long-term survival strategy (Muhanna, 2006 PhiLlips, 2021).

Table 4.4.9 Association between capitalist interest and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Capitalist interest	Tourism influenced land conversion	25-35	$\chi^2=0.141$ P=0.709 Tau-b= -.033	$\chi^2=146.839$ P=0.000 Tau-b=0.652
		36-45	$\chi^2=15.328$ P=0.000 Tau-b=0.449	
		46-55	$\chi^2=68.639$ P=0.000 Tau-b=0.895	
		56years and above	$\chi^2=26.980$ P=0.000 Tau-b=0.866	

Source: Field Survey, 2023

4.4.10. Association between unplanned residential sprawl and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.10 also explained the relationship between unplanned residential sprawl and tourism-influenced land conversion while controlling the age of the respondents, which showed a non-significant (P=0.904) and negative (Tb=-.012) association earlier these variables for the age group (25 to 35) of the respondents. However, a significant (P=0.002) and positive (Tb=0.360) relationship was unearthed between the variables above for the age group (35-45) while controlling age. Moreover, a highly significant (P=0.000) and positive (Tb=0.891) relationship was also discovered between residential sprawl and commercialization of agricultural land from the age group (46-55) while

controlling age. Likewise, a highly significant ($P=0.000$) and highly positive ($T_b=0.828$) was further detected between the variables above for the age group (< 56 years) while controlling age. Keeping into consideration the above inferences, a non-spurious relationship prevailed amongst the age groups (36-45, 46-55, < 56) due to identical probability and T_b values, while it was spurious from the category of age group (25-35) due to different in values based on probability and T_b values with rest of inferences derived from table 4.34. Unplanned residential sprawl included the construction of buildings, shops, and restaurants, with increased transport managers putting massive pressure on local ecology by damaging the environment and biodiversity through increased noise and physical pollution. These unplanned activities must be captured by devising a medical design incorporating the sustainable development logo to ensure maximum benefits without compromising the local ecosystem and natural habitat (Otiman, 2008 Lambi, 2012).

Table 4.4.10 Association between unplanned residential sprawl and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Unplanned residential sprawl	Tourism influenced land conversion	25-35	$\chi^2=0.017$ $P=0.904$ $Tau-b= -.012$	$\chi^2=140.585$ $P=0.000$ $Tau-b =0.638$
		36-45	$\chi^2=9.861$ $P=0.002$ $Tau-b =0.360$	
		46-55	$\chi^2=68.641$ $P=0.000$ $Tau-b =0.891$	
		56years and above	$\chi^2=30.171$ $P=0.000$ $Tau-b =0.828$	

Source: Field Survey, 2023

4.4.11. Association between infrastructural changing and tourism influenced land conversion (controlling age of the respondents)

Table 4.4.10 also explained the relationship between unplanned residential sprawl and tourism influenced land conversion while controlling the age of the respondents, which showed a non-significant ($P=0.904$) and negative ($Tb=-.012$) association earlier these variables for the age group (25 to 35) of the respondents. However, a significant ($P=0.002$) and positive ($Tb=0.360$) relationship was unearthed between the variables above for the age group (35-45) while controlling age. Moreover, a highly significant ($P=0.000$) and positive ($Tb=0.891$) relationship was also discovered between residential sprawl and commercialization of agricultural land from the age group (46-55) while controlling age. Likewise, a highly significant ($P=0.000$) and highly positive ($Tb=0.828$) was further detected between the variables above for the age group (< 56 years) while controlling age. Keeping into consideration the above inferences, a non-spurious relationship prevailed amongst the age groups (36-45, 46-55, < 56) due to identical probability and Tb values, while it was spurious from the category of age group (25-35) due to different in values based on probability and Tb values with rest of inferences derived from table 4.34. Unplanned residential sprawl included the construction of buildings, shops, and restaurants, with increased transport managers putting massive pressure on local ecology by damaging the environment and biodiversity through increased noise and physical pollution. These unplanned activities must be captured by devising a medical design incorporating the sustainable development logo to ensure maximum benefits without compromising the local ecosystem and natural habitat (Otiman, 2008, Lambi, 2012).

Table 4.4.11 Association between infrastructural changing and tourism influenced land conversion (controlling age of the respondents)

Index Independent variable	Index Dependent variable	Age of the respondents	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Infrastructural changing	Tourism influenced land conversion	25-35	$\chi^2=0.620$ P=0.431 Tau-b= -.062	$\chi^2=140.585$ P=0.000 Tau-b =0.635
		36-45	$\chi^2=28.378$ P=0.000 Tau-b =0.718	
		46-55	$\chi^2=68.639$ P=0.000 Tau-b =0.887	
		56years and above	$\chi^2=24.631$ P=0.000 Tau-b =0.831	

Source: Field Survey, 2023

4.4.12. Association between effects on agricultural production and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.12 shows the relationship between the effects of agriculture production and tourism's influence on land conversion while controlling families. The data revealed a highly significant (P=0.000) and positive (Tb=0.652) association observed between the effects on agriculture production and commercialization of land for the nuclear family setup. Moreover, a highly significant (P=0.000) and positive (Tb=0.653) association between impact on agriculture production and commercialization of land was also detected for the joint family system. An essential (P=0.000) and positive (Tb=0.396) difference between the variables above was also explored for the extended family system. The relationship between these variables was also non-spurious for all three categories, i.e., nuclear, joint, and extended family, as indicated by the identical probability values of the chi-squires. Moreover, the Tb values were also almost similar,

with slight variations. These results endured the outcomes of Camilleri, (2018) that nearly all family types had orientations and inclinations to be involved in business activities like hoteling, restaurant, and transportation services either to do their own business or get employment, albeit taking into consideration their negative effects of tourism on local production from agriculture land. A solid and viable policy needs to be devised by incorporating all the grey aspects of tourism in relation to its effects on local environments on a sustainable basis. This paradigm must encourage the inclusion of all the relevant stakeholders (Carter, 2014).

Table 4.4.12. Association between effects on agricultural production and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Effects on agricultural production	Tourism influenced land conversion	Nuclear Family	$\chi^2=50.532$ P=0.000 Tau-b=0.652	$\chi^2=131.093$ P=0.000 Tau-b =0.616
		Joint Family	$\chi^2=75.600$ P=0.000 Tau-b =0.653	
		Extended Family	$\chi^2= 7.546$ P=0.006 Tau-b =0.396	

Source: Field Survey, 2023

4.4.13 Association between land degradation and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.13 explains the relationship between land degradation and Tourism influenced land conversion while controlling the nuclear family of the respondents. The results revealed a highly significant (P=0.000) and positive (Tb=0.592) association between the variables above while controlling family type. Furthermore, a highly significant (P=0.000) and positive (Tb=0.657) association between land degradation for the joint family system while controlling family. It is further mentioned that a highly

significant ($P=0.000$) and positive ($Tb=0.607$) association was also ascertained between land degradation and Tourism-influenced land conversion while controlling family as variables extended family as well. The relationship between these variables, i.e., land degradation and tourism influenced land conversion, was found non-spurious for all the three mentioned categories, i.e., the nuclear, joint, and extended family set, due to similar probability and identical Tb values, respectively. These results conclude that all three family set representations were firmly convinced that land degradation resulted from tourism. Tourism is a complex whole containing several interventions like hiking, adventure skewing, etc., where several participants participate and a massive gathering of people like a place to watch and entertain themselves. All such activities may enter into harm by not taking care of the vegetation, road discipline, local values, and customs. The containment of such an emergency could be attained through strict enforcement of regulations to preserve the environment and culture, respectively (Kachniewska, 2015 and Kalhoro, 2022).

Table 4.4.13 Association between land degradation and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
land degradation	Tourism influenced land conversion	Nuclear Family	$\chi^2=41.775$ $P=0.000$ $Tau-b=0.592$	$\chi^2=136.462$ $P=0.000$ $Tau-b =0.629$
		Joint Family	$\chi^2=76.864$ $P=0.000$ $Tau-b =0.657$	
		Extended Family	$\chi^2= 17.695$ $P=0.006$ $Tau-b =0.607$	

Source: Field Survey, 2023

4.4.14. Association between threat to bio-diversity and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.14 further pointed out the relationship between the threat to bio-diversity and tourism-influenced land conversion while controlling the respondents' families. It revealed a highly significant ($P=0.000$) and positive ($Tb=0.334$) association was prevalent between the variables above for the nuclear family system. Moreover, a significant ($P=0.003$) and positive ($Tb=0.222$) association was further discovered between the threat to bio-diversity and tourism-influenced land conversion for the joint family system. In addition, a significant ($P=0.006$) and positive ($Tb=0.400$) association was also discovered between these variables and extended family. The results revealed a non-spurious relationship between these variables, i.e., a threat to biodiversity and tourism, influenced land conversion for all three family categories, i.e., nuclear, joint, and extended, as identical probability and Tb values were found while exploring the inferences. These results indicated that people in the study area belonging to each category based on family were aware of the loss of biodiversity, natural habitat, and ecosystem due to tourism-related activities. Tourism demands the construction of buildings, i.e., hotels and restaurants, to accommodate the rising number of respondents; moreover, extra pressure of vehicles on the road beyond the road capacity (James, 2013).

Table 4.4.14 Association between threat to bio-diversity and tourism influenced land conversion (controlling family of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Threat to bio-diversity	Tourism influenced land conversion	Nuclear Family	$\chi^2=13.314$ $P=0.000$ $Tau-b=0.334$	$\chi^2=27.447$ $P=0.000$ $Tau-b=0.282$
		Joint Family	$\chi^2=8.745$ $P=0.003$ $Tau-b=0.222$	
		Extended Family	$\chi^2= 7.680$ $P=0.006$ $Tau-b=0.400$	

Source: Field Survey, 2023

4.4.15. Association between population pressure and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.15 explains the relationship between population pressure and Tourism influenced land conversion while controlling family as variables, A highly significant ($P=0.000$) and positive ($Tb=0.334$) association was observed between these variables for the nuclear family system. Furthermore, a substantial ($P=0.003$) and positive ($Tb=0.222$) association between population pressure and commercialization of land was discovered for the joint family system. Additionally, an important ($P=0.006$) and positive ($Tb=0.400$) association between population pressure and Tourism influenced land conversion with respect to extended was further delineated. These results further intimated a non-spurious relationship amongst all the three categories, i.e., nuclear, joint, and extended family structure, concerning the interaction between the variables above, i.e., population pressure and Tourism influenced land conversion. These results revealed the awareness and knowledge of respondents of all three categories that the increase in human numbers puts pressure on the existing resources, such as accommodation, which is required for more people. Road capacity is also violated due to traffic jams and congestion demand for food is a high priority as feeding a considerable number of people is a demanding job etc. All such situations allude to the expansion of accommodation and infrastructural facilities, which itself is very costly (Ghadami, 2022).

Table 4.4.15 Association between population pressure and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Population pressure	Tourism influenced land conversion	Nuclear Family	$\chi^2=13.314$ $P=0.000$ $Tau-b=0.334$	$\chi^2=27.447$ $P=0.000$ $Tau-b =0.282$
		Joint Family	$\chi^2=8.745$ $P=0.003$ $Tau-b =0.222$	
		Extended Family	$\chi^2= 7.680$ $P=0.006$ $Tau-b =0.400$	

Source: Field Survey, 2023

4.4.16. Association between sand mining/extraction and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.16 further deliberates upon the relationship between sand mining/extraction and tourism-influenced land conversion while controlling family as a variable and intimated a highly significant ($P=0.000$) and positive ($Tb=0.634$) association was observed between these variables from the joint family setup. In addition, a highly significant ($P=0.000$) and positive ($Tb=0.593$) association between sand mining/extraction and Tourism-influenced land conversion was further explored for family setup. In addition, a significant ($P=0.001$) and positive ($Tb=0.472$) was also revealed between these aforementioned variables from the extended family based on the above results for all three categories, a non-spurious relationship prevented as reflected by the similar probability and Tb values respectively. These results intimated the respondent's opinion from all the three mentioned categories with unanimity that sand extraction/mining had detrimental effects on the local biodiversity as these commodities mainly were based on the construction of buildings and roads the use in construction activities may be liked with demand for accommodating the rising number of tourists. Although people in tourist destinations are profiting more from new business energies, people (locals) participate in market activities and get employment. Still, all are the costs of the local environment being threatened by the elimination of vegetation, biodiversity, and ecosystems (Dang, 2015, Zoomers, 2017).

Table 4.4.17 Association between sand mining/extraction and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Sand mining/extraction	Tourism influenced land conversion	Nuclear Family	$\chi^2=40.313$ $P=0.000$ $Tau-b=0.634$	$\chi^2=119.005$ $P=0.000$ $Tau-b =0.587$
		Joint Family	$\chi^2=62.612$ $P=0.000$ $Tau-b =0.593$	
		Extended Family	$\chi^2= 10.691$ $P=0.001$ $Tau-b =0.472$	

Source: Field Survey, 2023

4.4.18. Association between environmental pollution and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.18 revealed the relationship between environmental pollution and tourism influenced land conversion while controlling family as a variable and disclosed that a highly significant ($P=0.000$) and positive ($Tb=0.633$) association was observed between the aforementioned variables for nuclear family. Furthermore, it was also found highly substantial ($P=0.000$) and positive ($Tb=0.436$) between these variables for the joint family system while controlling the family. Moreover, the data also tabbed a highly significant and positive ($P=0.001$ and $Tb=0.396$) for extended family about the relationship between environmental pollution and Tourism influenced land conversion while controlling family type as a variable. These results were in line with the conclusion of Wang, (2021) that increased transportation in light of the uptick in tourism activities in the shape of vehicular pressure had revealed the high quantity of carbon emissions, which are the main contributions of air pollution and global warming. Moreover, increased tourism has also been noticed with the surge in construction activities like hotels and restaurants, usually animating at deforestation and transportation of agricultural land for commercial purposes due to limited space in light of the existing topography of the area (Chandel, 2022). The study findings depicted a non-spurious relationship between these variables for all the three mentioned family categories, i.e., nuclear, joint, and extended, due to identical probability and Tb values, respectively.

Table 4.4.18 Association between environmental pollution and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Environmental pollution	Tourism influenced land conversion	Nuclear Family	$\chi^2=47.619$ $P=0.000$ $Tau-b=0.633$	$\chi^2=82.804$ $P=0.000$ $Tau-b =0.490$
		Joint Family	$\chi^2=33.787$ $P=0.000$ $Tau-b =0.436$	
		Extended Family	$\chi^2= 7.546$ $P=0.006$ $Tau-b =0.396$	

Source: Field Survey, 2023

4.4.19. Association between hoteling/buildings and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.19 intimated the relationship between hoteling/buildings and tourism influenced land conversion while controlling family variables. The study found that a highly significant ($P=0.000$) and positive ($T_b=0.522$) association prevailed between the variables above for the nuclear family. Moreover, this relationship was further found to be highly significant ($P=0.000$ and positive $T_b=0.487$) for the joint family and again highly significant ($P=0.000$ and $T_b=0.507$) and positive from the extended family between the variables above while controlling the family. The results revealed a non-spurious relationship between these mentioned variables for all the three mentioned categories, i.e., nuclear, joint, and extended family set up in light of the acquired probability and relative T_b values, respectively. Building construction like hotels, restaurants, and other residential compounds reciprocates the demand of accommodating a high number of tourists but always at the cost of huge alternations. These alternations, usually in topographic characteristics, entail the fear of enormous population pressure leading to blockage of commercialization like roads, etc. Moreover, the local flora and fauna have also been identified as the significant cause of these developments due to the loss of natural habitat and biodiversity. In addition, scarcity of food, water, and other necessities of life is deemed a reality due to the fear of the unsustainable supply chain from outside the local production is often considered as limited to the incapacitated production potential and shortage (Guisan, 2013 and Haibo, 2020).

Table 4.4.19 Association between hoteling/buildings and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Hoteling/buildings	Tourism influenced land conversion	Nuclear Family	$\chi^2=32.483$ P=0.000 Tau-b =0.522	$\chi^2=86.676$ P=0.000 Tau-b =0.501
		Joint Family	$\chi^2=42.158$ P=0.000 Tau-b =0.487	
		Extended Family	$\chi^2= 12.343$ P=0.000 Tau-b =0.507	

Source: Field Survey, 2023

4.4.20. Association between capitalist interest and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.20. also explained the relationship between capitalist interest and tourism influenced land conversion while controlling the respondent's family and found a highly significant (P= 0.000 and positive (Tb=0.652) association was delineated between these variables, i.e., capitalist interest and tourism influenced land conversion. Moreover, it was further disclosed that a highly significant (P=0.000 and Tb=0.697) positive association prevailed between these variables for joint families. The study further intimated a highly substantial (P=0.001 and Tb=0.472) association between these variables for the extended family. Considering consideration, it was concluded that a non-spurious relationship existed between these variables for all three categories of family, i.e., nuclear, joint, and extended, d, due to similar probability values and identical results of the Tb, respectively. , These results alluded to the local approach of earning more from tourism as an industry. Their level of participation in this market-oriented economy has pushed them to enjoy access to new vistas of business.

Moreover, tourism has also brought main chances of employment for locals. Shaalan, (2005) has also alluded to this attitude of the locals of the tourism area to capitalize on more resources by ticking their earnings. These included mining through the exploitative approach to the local resources, representing all family types ' set with business inclinations. However, it has been noticed that all such exploitative activities are usually based on uncapping the potentially hidden resources through the involvement of machinery and enormous main power, often endangering the scenic beauty, ecosystem, and existing topography (Strickland-Munro, 2010).

Table 4.4.20 Association between capitalist interest and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Capitalist interest	Tourism influenced land conversion	Nuclear Family	$\chi^2=50.532$ P=0.000 Tau-b =0.652	$\chi^2=146.838$ P=0.000 Tau-b =0.652
		Joint Family	$\chi^2=86.550$ P=0.000 Tau-b =0.697	
		Extended Family	$\chi^2= 10.691$ P=0.001 Tau-b =0.472	

Source: Field Survey, 2023

4.4.21. Association between unplanned residential sprawl and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.21. explained the relationship between unplanned residential sprawl and tourism influencing land conversion while controlling the family system, and it was found that a highly significant (P=0.000 and positive Tb=0.686) association prevailed between these variables for the nuclear family. Moreover, it was further explored that a highly significant and positive (P=0.000 and Tb=0.652) relationship prevailed between

unplanned residential sprawl and tourism influenced land conversion for the joint family while controlling family as a variable. It was further learned from the results that a highly significant Tb positive ($P=0.002$ and $Tb=0.472$) association existed for the extended family on the basis of interaction between the aforementioned variables, i.e., unplanned residential sprawl and tourism-influenced land conversion. The results further validated a non-spurious relationship between unplanned residential sprawl and tourism-influenced land conversion for all the three family categories, i.e., nuclear, joint, and extended based on acquired probability and Tb value due to their identicalness in contributing to urban sprawl due to uncontrolled and unauthorized construction of buildings into order to satiate the growing needs of tourist. These constructions are often demanded due to locals' and international tourists' tourists' power into scenic spots, which also demand basic amenities of life like shelter, food, scarcity, and smooth and timely access to various places. However, it, in turn, endangers the pristine environment due to erosion, loss of habitat, and ecosystem use in air pollution and water contamination (Cocola-Gant, 2018 Lisboa, 2011).

Table 4.4.21. Association between unplanned residential sprawl and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Unplanned residential sprawl	Tourism influenced land conversion	Nuclear Family	$\chi^2=56.013$ $P=0.000$ $\text{Tau-b}=0.686$	$\chi^2=140.585$ $P=0.000$ $\text{Tau-b}=0.638$
		Joint Family	$\chi^2=75.600$ $P=0.000$ $\text{Tau-b}=0.652$	
		Extended Family	$\chi^2=10.690$ $P=0.002$ $\text{Tau-b}=0.472$	

Source: Field Survey, 2023

4.4.22. Association between infrastructural changing and tourism influenced land conversion (controlling family type of the respondents)

Table 4.4.22 explains the association between infrastructural changing and tourism-influenced land conversion while controlling family system as a highly significant ($P=0.000$) and positive ($Tb=0.650$) association was observed between these variables for controlling nuclear family. It was further learned from these results that a highly significant ($P=0.000$ and $Tb=0.652$) association was also prevalent between infrastructure changes and tourism-influenced land conversion land for the joint family as well. It was further acknowledged that a highly significant ($P=0.000$ and $Tb=0.618$) was also derived between the aforementioned variables for the extended family. The result further intimated a non-spurious relationship between these variables for all the three mentioned categories of the family based on similar probability outcomes and identical Tb values, respectively. James, (2013) had similar findings from his study that individuals from all the three categories of family, i.e., nuclear, joint, and extended, are directly contributing to the degradation of the environment, loss of natural habitat, and less of resources by encouraging the increased tourism endeavors these surge in activities often demanding more energy, space, transportation and other services which are usually met with at the cost of deterioration of local environment due to its fragile ecosystem mostly in references to coastal areas (Santos, 2017).

Table 4.4.22 Association between infrastructural changing and tourism influenced land conversion (controlling family type of the respondents)

Index Independent variable	Index Dependent variable	Family type	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Infrastructural changing	Tourism influenced land conversion	Nuclear Family	$\chi^2=50.536$ $P=0.000$ $Tau-b =0.650$	$\chi^2=131.092$ $P=0.000$ $Tau-b =0.618$
		Joint Family	$\chi^2=75.608$ $P=0.000$ $Tau-b =0.652$	
		Extended Family	$\chi^2= 7.548$ $P=0.005$ $Tau-b =0.397$	

Source: Field Survey, 2023

4.4.23. Association between effects on agricultural production and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.23. provided information regarding the relationship between effects on agricultural production and tourism influenced land conversion while controlling the monthly income of the respondents and intimated a highly significant ($P=0.000$) and positive ($T_b=0.545$) association was observed between effects on agricultural production and tourism influenced land conversion for the low-income group. Moreover, the middle-income group has a highly significant and positive ($P=0.000$ and $T_b=0.614$) relationship between these variables. In addition, the results also revealed a highly important and positive ($P=0.000$ and $T_b=0.653$) association between the variables mentioned above for the high-income group while controlling income as a variable. Based on these inferences, a non-spurious relationship was detected between effects on agriculture production and tourism influenced land conversion for all three income categories, i.e., low, middle, and high, on the basis of some probability and identical T_b values. These results endorsed the findings of (Kachniewska, 2015) that almost all income groups, i.e., low, middle, and high, have tourism tendencies with variations in choices and preferences. The high-income group could opt for frequent visits to costly destinations, while the low and middle might prefer to adopt budget-friendly traveling options. The high-income groups mainly invest in purchasing and spending lavishly, alloying and boasting of the local economies. However, all such endeavors based on frequent visits could also be measured negatively in terms of the preservation of the local environment, i.e., biodiversity and ecosystem. The intensive construction of buildings to accommodate a considerable number of visitors mostly takes place on agricultural land and forest covers, which results in the reduction of forest and agricultural land while damaging the existence of local flora and fauna. A sustainable model of expansion in activities and preservation of the environment is the only key to a stable co-existence (Sanderson, 2013).

Table 4.4.23 Association between effects on agricultural production and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Effects on agriculture production	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=30.332$ P=0.000 Tau-b=0.545	$\chi^2=131.093$ P=0.000 Tau-b =0.617
		25000-35000	$\chi^2=67.017$ P=0.000 Tau-b =0.614	
		And above 35000	$\chi^2=34.128$ P=0.000 Tau-b =0.653	

Source: Field Survey, 2023

4.4.24. Association between land degradation and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.24 explained the relationship between land degradation and Tourism influenced land conversion while controlling the monthly income of the respondents with inferences like a highly significant (P=0.000) and positive (Tb=0.563) association was detected between the land degradation and Tourism influenced land conversion for the low-income group. Moreover, a highly significant and positive relationship (P=0.000 and Tb=0.599) for the middle-income group in terms of ascertaining the relationship between land degradation and Tourism also influenced land conversion. It was further deduced from the results that a highly significant and positive association (P=0.000 and Tb=0.764) was further prevalent between the aforementioned variables for high-income groups. It was ascertained from the above results that a non-spurious relationship existed between land degradation and tourism, which influenced land conversion for all three income groups due to similar probability and Tb values. It is evident from these inferences that all three income groups had in-depth knowledge and

awareness about the adverse effects of land degradation with tourism-influenced land conversion in light of increased tourism initiatives. Holmes (2006) has also pointed towards land degradation due to consistent pressure on local resources in light of frequent human interventions. These interventions included visits to scenic spots, building and road construction, and uncontrolled vehicular moments. Containment of such initiatives could only be made possible through sustainable practices (Schutter, 2011).

Table 4.4.24 Association between land degradation and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Land degradation	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=32.297$ P=0.000 Tau-b=0.563	$\chi^2=136.462$ P=0.000 Tau-b =0.629
		25000-35000	$\chi^2=58.407$ P=0.000 Tau-b =0.599	
		And above 35000	$\chi^2=46.682$ P=0.000 Tau-b =0.764	

Source: Field Survey, 2023

4.4.25. Association between threat to bio-diversity and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.25. elucidated the relationship between the threat to bio-diversity and tourism influenced land conversion while controlling the monthly income of the respondents, it was found that a significant (P= 0.003) and positive (Tb=0.295) association prevailed between the threat to biodiversity and tourism-influenced land conversion for the low-income group while on other inference with significant and positive association (P=0.025) and (Tb=0.175) was ascertained between these fore mentioned variables for

middle-income group. Similarly, a highly significant ($P=0.000$) and ($T_b=0.483$) positive association was also derived for the high-income group between these variables, i.e., a threat to biodiversity and tourism influenced land conversion. Based on these results, a non-spurious relationship existed between the threat to biodiversity and tourism-influenced land conversion in light of identical results with inference to probability and T_b values. Regarding the negative consequences for tourist spots in light of increased human intervention Zoomers, (2017) has explored the overconsumption patterns as the primary threat to local biodiversity. These overconsumption patterns may lead to the construction of buildings for the accommodation of tourists on agricultural and forest lands, exhaustion of natural resources, and loss of habitats with imminent threats of deforestation, pollution, and water contamination (Hunziker, 2017).

Table 4.4.25 Association between threat to bio-diversity and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b)	Statistics χ^2 , (p-value) & tau-b for entire table
Threat to bio-diversity	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=8.897$ $P=0.003$ $Tau-b=0.295$	$\chi^2=27.447$ $P=0.000$ $Tau-b=0.282$
		25000-35000	$\chi^2=5.014$ $P=0.025$ $Tau-b=0.175$	
		And above 35000	$\chi^2=18.655$ $P=0.000$ $Tau-b=0.483$	

Source: Field Survey, 2023

4.4.26. Association between population pressure and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.26 highlighted the relationship between colossal population pressure and tourism influenced land conversion while controlling the monthly income of the respondents. A highly significant ($P=0.000$) and positive ($T_b=0.595$) association was discovered between these two variables for the low-income group. Furthermore, a highly significant and positive ($P=0.000$) and ($T_b=0.611$) relationship was further intimated between population pressure and commercialization of agricultural land for tourism for the middle-income group, and a highly significant and positive ($P=0.000$) and ($T_b=0.756$) association was discovered between these fore mentioned variables for the high-income group as well. All three groups' relative probability and T_b values intimated a non-spurious relationship due to their identicalness. Stress on infrastructural entities with the surge in population cannot be ruled out as its ramifications effects, like increased transportation use in demand for accommodation and other public services, are some factors associated with establishing tourism as an industry. Its implications in terms of overcrowding, road congestion, and elimination of natural resources along with the ecosystem are some sensitive issues that need to be accounted for. Moreover, cultural variations in light of the influx of population pressure (achieve), usually living variations and through the process of cultural assimilation, are some other silent features of this phenomenon that push for variations in traditional ways of life and cultural heritage (Hall, 2009 and Lavers, 2012).

Table 4.4.26 Association between population pressure and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Population pressure	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=36.177$ $P=0.000$ $T^b=0.595$	$\chi^2=141.905$ $P=0.000$ $T^b=0.641$
		25000-35000	$\chi^2=60.755$ $P=0.000$ $T^b=0.611$	
		And above 35000	$\chi^2=45.675$ $P=0.000$ $T^b=0.756$	

Source: Field Survey, 2023

4.4.27. Association between sand mining/extraction and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.27 also explains the relationship between sand mining/extraction and tourism influenced land conversion while controlling the monthly income of the respondents. The study revealed a highly significant ($P=0.000$) and positive ($Tb=0.526$) association between these variables for the low-income group. It was also discovered that a highly significant and positive relationship ($P=0.000$) and ($Tb=0.599$) was also prevalent for the middle-income group in terms of the relationship between sand mining and tourism influenced land conversion due to tourism. Likewise, a highly significant and positive association ($P=0.000$) and ($Tb=0.644$) was also unearthed between these variables for the high-income group. Mining and sand extraction damages the environment and marine life and could also harm the community. Its residential effects, like noise pollution and loss of natural habitats, are globally admitted with dire consequences. Moreover, ignoring the ethical considerations in such activities throws out sustainable pathways while protecting the environment and community (Rangel-Buitrago, 2023; Belsoy, 2012).

Table 4.4.27 Association between sand mining/extraction and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b)	Statistics χ^2 , (p-value) & tau-b for entire table
Sand mining/extraction	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=28.260$ $P=0.000$ $Tau-b=0.526$	$\chi^2=119.005$ $P=0.000$ $Tau-b=0.587$
		25000-35000	$\chi^2=58.418$ $P=0.000$ $Tau-b=0.599$	
		And above 35000	$\chi^2=33.157$ $P=0.000$ $Tau-b=0.644$	

Source: Field Survey, 2023

4.4.28. Association between environmental pollution and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.28 intimated the relationship between environmental pollution and tourism influenced land conversion while controlling the monthly income of the respondents. A highly significant ($P=0.000$) and positive ($Tb=0.616$) association was observed between these variables for low-income groups of the respondents. Similarly, a highly significant and positive ($P=0.000$) and ($Tb=0.477$) association was also mentioned between environmental pollution and tourism-influenced land conversion concerning the middle-aged group. In addition, a highly significant and positive relationship was further depicted between these variables for the high-income group ($P=0.000$) and ($Tb=0.594$). Smith, (2017) has also discovered the detrimental effects of the relationship to the environment by increased human activities. These activities embody the littering and throwing of garbage and plastic bags, more consumption of food and energy, which usually destroy the serene environment, destroy the local nature and biodiversity with little awareness about waste management and conflicting scenarios for cultural perspectives while interacting with representation from other culture (Smith, 2020). These results validated a non-spurious relationship between environmental pollution and Tourism-influenced land conversion due to similar probability and Tb values, respectively.

Table 4.4.28 Association between environmental pollution and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Environmental pollution	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=17.657$ $P=0.000$ $Tau-b=0.616$	$\chi^2=82.804$ $P=0.000$ $Tau-b=0.490$
		25000-35000	$\chi^2=37.109$ $P=0.000$ $Tau-b=0.477$	
		And above 35000	$\chi^2=28.208$ $P=0.000$ $Tau-b=0.594$	

Source: Field Survey, 2023

4.4.29. Association between hoteling/buildings and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.29 explained the relationship between hoteling/buildings and tourism influenced land conversion while controlling the monthly income of the respondents and found a significant ($P=0.001$) and positive ($Tb=0.341$) association was observed between these variables for the low-income group of the respondents. Furthermore, a highly significant association ($P=0.000$) and ($Tb=0.482$) was also explored in light of the interaction of the variables mentioned above for the middle-income group. Similarly, a highly significant and positive ($P=0.000$) and ($Tb=0.710$) association was also ascertained between hotel/building construction and Tourism influenced land conversion from the high-income group. Building hotels and building construction in tourism areas needed infrastructural growth, such as expanding existing roads and constructing new ones, to establish connectivity and ensure smooth human mobility and an unabated supply of food and other necessities of life. However, all such efforts must involve ethical consideration by protecting the local environment and safeguarding the tourist's interests (Wilson, 2012; Mormino, 2008). These results established a non-spurious relationship between the hotel/building construction and land commercialization for all income groups, i.e., low, middle, and high, on the basis of similarities in relative probability and Tb values.

Table 4.4.29 Association between hoteling/buildings and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Hoteling/Buildings	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=11.864$ $P=0.001$ $Tau-b=0.341$	$\chi^2=86.676$ $P=0.000$ $Tau-b=0.501$
		25000-35000	$\chi^2=37.876$ $P=0.000$ $Tau-b=0.482$	
		And above 35000	$\chi^2=40.289$ $P=0.000$ $Tau-b=0.710$	

Source: Field Survey, 2023

4.4.30. Association between capitalist interest and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.30 reproduced below the relationship between capitalist interest and tourism-influenced land conversion while controlling the monthly income of the respondents, which revealed a highly significant ($P=0.000$) and positive ($T_b=0.674$) association was observed between the aforementioned variables for the low-income group. In addition, the study further intimated a highly significant ($P=0.000$ and $T_b=0.641$) positive association between capitalist interest and Tourism influenced land conversion for the middle income while controlling income as a variable. Furthermore, a high significant ($P=0.000$) and ($T_b=0.653$) positive association was also discovered between these variables, i.e., capitalist interest and commercialization of agricultural land for tourism for the high-income group. These results validated a non-spurious relationship amongst all three income categories, i.e., low, middle, and high, for the association between capitalist interest and tourism-influenced land conversion based on similarities in probability and T_b values, respectively. These results unearthed hidden phenomena based on investment in local enterprises by the visiting tourists to capitulate on the available opportunities. These interventions usually revolve around real estate, hoteling, and the establishment of shopping plazas. This tourism investment entails the philosophy of a tourism economy with potential economic benefits for both locals and non-locals, such as the provision /creation of job opportunities and stimulating local business (Gregg, 2010; Tambe, 2015).

Table 4.4.30 Association between capitalist interest and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Capitalist interest	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=46.295$ P=0.000 Tau-b =0.674	$\chi^2=146.838$ P=0.000 Tau-b =0.652
		25000-35000	$\chi^2=67.017$ P=0.000 Tau-b =0.641	
		And above 35000	$\chi^2=34.128$ P=0.000 Tau-b =0.653	

Source: Field Survey, 2023

4.4.31. Association between unplanned residential sprawl and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.31 explained the relationship between unplanned residential sprawl and tourism-influenced land conversion while controlling the monthly income of the respondents, which intimated a highly significant (P=0.000) and positive (Tb=0.626) association was observed between these variables for the low-income group. Moreover, it was also intimated with a highly significant and positive association (P=0.000) and (Tb=0.640) for the variables above from the middle-income group. In addition, a highly significant and positive (P=0.000) and (Tb=0.659) association was also reflected from the above inferences for the high income of the respondents. These results further augmented the existence of non-spuriousness between the unplanned residential sprawl and tourism-influenced land conversion as reflected from the relative probability and Tb values amongst all the three income categories, i.e., low, middle, and high, respectively. Determinant and occasional travel, either rich or from middle-class trading, forces the local infrastructural for expansion in order to cater to the residential vehicular moments, fuel, and other necessities of life for expansion, which in return violates the ethical and local aspects of the tourism industry. Sand management for the provision of services with sustainable use of the resources for adequately taking the

group number of visitors while not compromising on the preservation of the environment and satisfaction of visitors (Ghosh, 2019; Murshed, 2013).

Table 4.4.31 Association between unplanned residential sprawl and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Unplanned residential sprawl	Tourism influenced land conversion	Less than 25000PRs	$\chi^2=39.994$ P=0.000 Tau-b=0.626	$\chi^2=140.585$ P=0.000 Tau-b =0.638
		25000-35000	$\chi^2=67.018$ P=0.000 Tau-b =0.640	
		And above 35000	$\chi^2=34.128$ P=0.000 Tau-b =0.659	

Source: Field Survey, 2023

4.4.32. Association between infrastructural changing and tourism influenced land conversion (controlling monthly income of the respondents)

Table 4.4.32 also explained the relationship between infrastructural changing and tourism-influenced land conversion while controlling the monthly income of the respondents, which was a highly significant (P=0.000) and positive (Tb=0.546) association observed between these variables for the low-income group. Moreover, it was further explored that a highly significant and positive (P=0.000) and positive (Tb=0.643) between infrastructural changing and tourism influenced land conversion in the middle-income group. In addition, a highly significant and positive (P=0.000) and (Tb=0.651) association was also prevalent for the aforementioned variable with

reference to the high-income group as well. Overcrowding and strain on the existing resources like water, energy, food, etc., with traffic congestion not only put heavy pressure on the local environment while degrading it but also some conflicting cultural scenarios between the locals, including cultures. Consistent physical maintenance and an established process of acculturation and assimilation create the smooth structural and functional abilities of the tourist areas on an enduring approach Gladstone, (2013 and Acuto, 2010).

Table 4.4.32 Association between infrastructural changing and tourism influenced land conversion (controlling monthly income of the respondents)

Index Independent variable	Index Dependent variable	Monthly Income	Statistics χ^2 , (p-value) & tau-b	Statistics χ^2 , (p-value) & tau-b for entire table
Infrastructural changing	Tourism influenced land conversion	Less than 25000PRs	$\chi^2 = 30.331$ P=0.000 Tau-b=0.546	$\chi^2 = 140.582$ P=0.000 Tau-b =0.635
		25000-35000	$\chi^2 = 67.019$ P=0.000 Tau-b =0.643	
		And above 35000	$\chi^2 = 33.128$ P=0.000 Tau-b =0.651	

Source: Field Survey, 2023

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In the present study, 345 respondents were randomly interviewed from fourteen union councils of seven tehsils in District Swat. The study analyzed socio-environmental factors contributing to tourism-influenced land conversion in district Swat-Pakistan. This chapter summarizes the results, conclusions, and recommendations for controlling agricultural land conversion into commercial use due to tourism, as given below.

5.1 Summary

Descriptive statistics of the demographic profile of selected respondents are summarized in Table 5.1 disclosed the age of the respondents, and it was found that majority i.e. 34.8% of the respondents, were aged between 25-35 years, 27.5% following ages ranged between 36-45 years; similarly, 24.9% ages were ranged between 46-55 years. The majority, 70.7%, were literate, while 29.3% were illiterate of the respondents. The table indicated that most respondents, i.e., 58.3%, were unmarried, followed by 41.7% who were married. The majority of the respondents, 51.6%, were from joint families. 34.5% of disclosed had belonged to nuclear families. The table indicated the monthly income of the respondents in Pakistan currency. It was found that 47.2% of income was Rs (above 35000). Similarly, 29.6 % had income between (Rs 25000-350000, whereas 23.2% had above income of (15000-25000) respectively.

The majority of the respondents, 61.% Supported the statement that The development process of tourism activities is essentially a land use process, which is also one of the major causes of changes in land use patterns. Moreover, most respondents, 59.4%, agree that Tourism development directly or indirectly impacts land use or conversion. In addition, most % of the respondents, 74.8%, favored the statement that the rapid expansion of tourism and construction activities had led to reduced agricultural rural land. Most respondents, 78.5%, showed that Tourism activities could destroy flora and fauna. In addition, 80.6% of the respondents, 80.6%, supported the statement that Tourism, especially mass tourism, causes degradation and loss of natural landscapes, historic sites, and monuments.

Further, it was mentioned that most of the respondents, 79.4%, supported the idea that tourism developments harm the environment, especially changes in land use. The majority of the respondents, 71.9%, had viewed the statement that mountain tourism development has led to continuous encroachment on the adequate habitats of species in natural reserves. Moreover, 80.6% of the respondents supported the statement that Tourism and land forestation are paradoxes in nature.

Moreover, the majority of the respondents, 74.8%, supported the statement that People are willing to land conversion as tourism is more profitable than ordinary agriculture. In consonance with the above, the majority of the respondents, 76.5%, supported the statement that tourism entails development but at the cost of existing agriculture. Most respondents, 78.3% sorted the statement that Tourism activity directly causes land degradation. Moreover, 81.1% of the respondents, 81.1% were, agreed that tourism directly impacts both degradable and non-degradable natural resources. In addition, most of the respondents, 75.1%, favored the statement that tourism causes deforestation.

Moreover, a significant majority of 80.9% of the respondents supported the statement that agricultural lands are gradually transforming due to tourism, highlighting the need for immediate action. This concern is further echoed by 82.3% of the respondents who reported that construction and reconstruction, infrastructure transformation, and landscape transformation have put immense pressure on the existing pattern of land, emphasizing the urgency of the situation.

Notwithstanding, most of the respondents, 75.9%, agreed with the statement that Frequent visits of tourists have not only disturbed the eco-system but have also brought other related miseries like noise pollution. The majority of the respondents, 80.9.% supported that land degradation is also visible through changing housing patterns, such as conversion to big farmhouses. Moreover, % of the respondents, 78.3%, agree that Non-local influential like law enforcement agencies have also constructed their colonies, which further converted the existing land. While 55.7% supported the statement while studying scenic spots, it was observed that a rise in tourism entails gradation and improvement of civic facilities.

Furthermore, the majority of the respondents, 54.8%, showed that agricultural land in all scenic spots decreases annually due to tourism. However, the majority of the respondents, 66.6%, supported the statement that International and national-level tourism is seen to have a potentially destructive relationship with the natural or scenic environment. Further, the table shows that most respondents favored tourism, which is argued to be the prime threat to Indigenous habitats and natural resources.

The majority of the respondents, 64.4% supported the statement that the Lack of a visitor calendar to import preservation instructions has further deteriorated the existing species in the area. The majority of the respondents, 77.4%, did not support the statement that understanding land use dynamics is very important in formulating proper policy for land use in the mountain regions to manage population pressure. Moreover, the majority of the respondents, 84.1% reported that Population pressure has put pressure on resources, causing them to deplete. Likewise, the majority of the respondents, 79.7%, supported the statement that Population pressure on account of tourism causes poor housing and an unregulated informal economy leads to improper waste disposal with adverse health and environmental consequences.

However, a significant majority of respondents, 81.2%, highlighted the potential negative aspects of a large tourist population, including crime, poverty, and urbanization. Complex social, psychological, and environmental factors influence these issues. Additionally, 80.6% of respondents agreed that increased tourism leads to a larger population, which strains the local drainage system.

The majority of the respondents, 59.1%, did not support the statement that crushed rock, sand, and gravel account for the most significant volume of solid material resources extracted by sand mining due to tourism from the local river for construction. Moreover, most respondents, 68.1% reported that Sand mining could damage private and public properties and aquatic habitats because of the tourism industry. In addition, most of the respondents, 68.1%, favored the statement that Excessive removal of sand may significantly distort the natural equilibrium of a stream channel by tourism spots in the area. Moreover, the majority of the respondents, 76.8%, had the opinion regarding the statement that Sand extraction areas have demonstrated the impact of mining with the prowess to destroy the cycle of ecosystems due to tourism.

Furthermore, the % of the respondents, 81.7%, supported the statement that Sand extraction can also create many pollutants. Moreover, most % of the respondents, 81.4%, agree that sand extraction results in changes in the direction of the river flow. In addition, most of the respondents, 65.8%, favored the statement that noise pollution is caused by using transportation or when any work or construction is happening, leading to noise pollution by tourism.

Moreover, the majority of the respondents, 77.4%, expressed their opinion regarding the statement that Addressing the cause of pollution due to tourism is more time and money-consuming. Likewise, the majority of the respondents, 84.1%, supported the statement that Environmental challenges affect health and the environment at the cost of human energies and resources. In addition, 80.3% of the respondents, 80.3%, supported the statement that plastic usage for food packaging has become dominant in the study area and is an ultimate threat to the natural environment.

In addition, most % of the respondents, 61.7%, favored the statement that the tourism industry generally overuses water for hotels, swimming pools, golf courses, and tourists' personal use, which pollutes the spring nature. Notwithstanding, the majority of the respondents, 74.8%, responded to the statement that Hoteling is converting agricultural land into roads and buildings for tourism activities.

The majority of the respondents, 74.2%, had viewed the statement that Hoteling induced economic growth in a scenic land transformation due to tourism. The majority of the respondents, 80.3%, supported the statement that Hoteling can convert Farmland along riverbanks through construction activity to tourism activities. Moreover, most % of the respondents, 74.8%, agree that Hoteling has raised employment opportunities for the local youth. In addition to the above, most % of respondents, 83.2%, favored the statement that Hoteling has employed locals at their doorsteps. The majority of the respondents, 62.3% support, supported the statement that Capitalist investment decreases farmland as it is used to accommodate infrastructure for tourism development.

It is urgent to address the majority of the respondents' concerns, as 62.9% have supported the statement that rapid unplanned urbanization in mountain regions by capitalist interest poses a serious threat to economic, social, and environmental sustainability. Similarly, 63.3% of the respondents have highlighted the need to address

the transformation of local economic culture due to foreign cultural innovations. Moreover, 61.4% of the respondents have emphasized the urgency of addressing the locals' inclination towards the capitalist paradigm for more money and resources.

It is crucial to understand the negative impact on the environment, as 60% of the respondents have supported the statement that unplanned residential sprawl directly impacts air, soil, and water. This impact is associated with the manufacturing, production, and transportation of materials by tourism. Furthermore, 58.6% of the respondents agreed on the urgent need to address the solid waste and increased pollution associated with unplanned residential sprawl in the tourism sector, causing serious damage to the local environment.

In addition, a leading majority of the respondents, 72.8%, supported the statement that Unplanned residential sprawl is a naked challenge to the environment and social life. Furthermore, % of the respondents, 78.3%, supported the idea that Unplanned residential sprawl generates security risks in tourist areas. The majority of the respondents, 81.2%, had viewed the statement that Locals are unaware of the negative consequences of the rapid sprawl in the area.

It is essential to stress the need for comprehensive planning, as 58.8% of the respondents have agreed that problems related to the current property rights regime over land and the land conversion systems have led to difficulties for indigenous people due to tourism development industry. Furthermore, 74.8% of the respondents have favored the statement that ambiguous property laws cause infrastructure changing. Similarly, 76.5% of the respondents have responded to the statement that lack of long-term planning and comprehensive master plan results in undesirable infrastructural changing.

In addition, 80.6% of the respondents, 80.6%, supported the statement that Changes in architectural styles reduce the area's charm. Furthermore, the majority of the respondents, 79.4%, endorsed the idea that Changes in infrastructure disturb population density and affect accessibility.

Moreover, the majority of the respondents, 71.9%, agreed that tourism destinations have the potential to become overcrowded, making traffic worse and creating parking problems, which ultimately cause problems for local people. In addition, most of the respondents, 77.1%, favored the statement that natural areas,

including parks and protected lands, may be affected directly by the introduction of the commercialization of the tourism industry.

In addition, the majority of the respondents, 81.2%, supported the statement that the Commercialization of local agricultural land leads to unplanned and unsustainable exploitation of natural resources of the tourist area. Furthermore, the majority of the respondents, 82%, supported the idea that the Commercialization of agricultural land affects social and economic relations as non-locals become land-owners in a tourist area. The majority of the respondents, 78.3%, had viewed the statement that the Commercialization of agricultural lands in a tourist area should be conducted through proper planning in consultation with local people.

However, a significant ($p=0.006$) and Positive ($T_b=0.148$) association was discovered between Tourism development having a direct or indirect impact on land use or land conversion and tourism-influenced land conversion. In addition to the above, a highly significant ($p=0.000$) and Positive ($T_b=0.319$) association was detected between the rapid expansion of tourism activities and construction activities that had led to a reduction in agricultural land and tourism-influenced land conversion.

Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.313$) association was established between Tourism and especially mass tourism, which causes degradation and loss of natural landscape, historic sites, and monuments, and tourism influences land conversion. Similarly, a high-significant ($p=0.000$) and Positive ($T_b=0.511$) association was confirmed between Tourism developments harming the environment, especially changes in land use and tourism-influenced land conversion. Inconsistent with the above, a highly significant ($p=0.000$) and Positive ($T_b=0.458$) association was found between the development of mountain tourism has led to continuous encroachment on the adequate habitats of species in natural reserves and tourism-influenced land conversion.

Notwithstanding, a highly significant ($p=0.000$) and Positive ($T_b=0.535$) association was established between Tourism and land forestation, a paradox in nature and tourism influenced land conversion. Contrary to the above, a non-significant ($p=0.051$) but Positive ($T_b=0.103$) association was established between Land reduction in agriculture and reduced production due to the application of the latest know-how in land cultivation and tourism influencing land conversion.

In support of the above, a highly significant ($p=0.000$) and Positive ($Tb=0.319$) association was confirmed between People who are willing to land conversion as tourism is more profitable than ordinary agriculture and tourism influenced land conversion. AA high-significant ($p=0.000$) and positive ($Tb=0.364$) association was found between tourism entailing development but at the cost of existing agricultural land and tourism-influenced land conversion. Table 4.3.1 shows a high-significant association ($p=0.000$) and positive ($Tb=0.585$) between tourism activity directly causing land degradation and tourism-influenced land conversion.

However, a high-significant ($p=0.000$) and Positive ($Tb=0.532$) association was discovered between tourism's direct impact on natural resources, both degradable and non-degradable, and tourism-influenced land conversion. Furthermore, a highly-significant ($p= 0.000$) and Positive ($Tb=0.471$) association was confirmed between Tourism causes deforestation and construction activities, which led to a reduction in agricultural land and tourism-influenced land conversion. Likewise, a highly significant ($p=0.000$) and Positive ($Tb=0.460$) association was confirmed between agricultural lands gradually transformed by tourism due to the absence of non-existing of any relevant law and tourism-influenced land conversion.

Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.553$) association was detected between Construction and reconstruction, infrastructure transformation, and landscape transformation, which has put immense pressure on the existing land and tourism-influenced land conversion pattern. Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.459$) association was confirmed between the economy due to tourism development, which poses a threat to the livelihoods of the Indigenous people who primarily work as farmers and tourism-influenced land conversion.

Meanwhile, a highly significant ($p=0.000$) and Positive ($Tb=0.493$) association was explored between Tourism's effect on land degradation and necessary land resources, including minerals, fossil fuels, fertile soil, forests, wetlands, and wildlife, and tourism-influenced land conversion. Notwithstanding, a highly significant ($p=0.000$) and Positive ($Tb=0.459$) association was established between Frequent tourist visits not only disturbing the eco-system but also bringing other related miseries, noise pollution, and tourism-influenced land conversion.

Table 4.3.6 divulged a highly significant association ($p=0.000$) and positive ($Tb=0.144$) between terms of its negative impact: tourism has the potential to over-consume natural resources and tourism-influenced land conversion. However, a significant ($p=0.002$) and Positive ($Tb=0.169$) association was confirmed between tourism development, and exploiting tourism resources and constructing tourism infrastructure can change the surface structure, land, soil, and vegetation, posing a threat to bio-diversity tourism influenced land conversion.

Similarly, a significant ($p=0.001$) and Positive ($Tb=0.186$) association was established between International and national level tourism, which is seen to have a potentially destructive relationship with the natural or scenic environment, and landscape transformation has put immense pressure on the existing pattern of land and tourism influenced land conversion. Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.226$) association was confirmed between Tourism is argued to be the prime threat to indigenous habitats, and the natural resources and tourism influenced land conversion. A highly significant ($p=0.000$) and Positive ($Tb=0.229$) association was found between the existing ecosystem and biodiversity, which are constantly threatened by perishing due to their threatening habitats and tourism-influenced land conversion.

In addition to the above, a highly significant ($p=0.000$) and Positive ($Tb=0.181$) association was established between no law or measures have been taken on the part of the relevant departments to preserve bio-diversity and tourism-influenced land conversion. Furthermore, a significant ($p=0.004$) and Positive ($Tb=0.099$) association was established between the Lack of a visitors' calendar to import preservation instructions, has further deteriorated the existing species in the area and tourism-influenced land conversion. Table 4.3.6 reveals a highly significant ($p=0.000$) and positive ($Tb=0.587$) association between understanding land use dynamics, which is essential in formulating proper policy for land use in the mountain regions to manage population pressure and tourism-influenced land conversion.

It was further divulged in Table 4.3.6. A highly significant ($p=0.000$) and Positive ($Tb =0.532$) association existed between how Population pressure has put pressure on resources, causing them to deplete, and tourism-influenced land conversion. A highly significant ($p=0.000$) and Positive ($Tb=0.234$) association was

found between The agricultural land in all scenic spots, showing a decreasing trend annually due to tourism and tourism-influenced land conversion. Furthermore, a high-significant ($p=0.000$) and Positive ($Tb=0.497$) association was confirmed between Huge population due to tourism negatively affecting the development of housing, sanitation, and drainage, which changes in the form of diseases and affects the local environment negatively and tourism influenced land conversion.

Similarly, a significant ($p=0.001$) and Positive ($Tb=0.437$) association was confirmed between Population pressure on account of tourism causes, poor housing, and an unregulated informal economy leading to improper waste disposal with adverse health and environmental consequences and tourism-influenced land conversion. Meanwhile, a highly significant ($p=0.000$) and Positive ($Tb=0.547$) association was found between the Huge population due to tourism can create such negative aspects as crime, poverty, and urbanization are conditioned and shaped by social and psychological, environmental dynamics and tourism-influenced land conversion.

Similar to the above, a highly significant ($p=0.000$) and Positive ($Tb=0.388$) association was established between the survival of the rural atmosphere being threatened by population pressure and tourism-influenced land conversion. Moreover, a significant ($p=0.001$) and Positive ($Tb=0.256$) association was established between huge population pressure, which has put enormous pressure on the existing road facilities, which are not enough to cope with the demanding trends in the area and tourism-influenced land conversion.

Table 4.3.6 disclosed a significant association ($p=0.003$) and Positive ($Tb=0.161$) association between Crushed rock, sand, and gravel, which account for the most crucial volume of solid material resources extracted by sand mining due to tourism from the local river for the construction and tourism-influenced land conversion. Notwithstanding, a critical ($p=0.016$) and positive ($Tb=0.130$) association was discovered between sand mining, which can damage private and public properties and aquatic habitats, on account of the tourism industry and tourism-influenced land conversion.

A significant ($p=0.028$) and positive ($Tb=0.118$) association was explored between sand extraction destroying the habitats of living organisms and tourism-influenced land conversion. Similar to the above, a highly significant ($p=0.000$) and

Positive ($T_b=0.270$) association unrevealed conformed between Sand extraction as illegal and criminal activities and tourism-influenced land conversion. Similarly, a highly significant ($p=0.000$) and positive ($T_b=0.412$) association was established between sand extraction as the only possibility of making a living in the short run for the local people and tourism-influenced land conversion.

Yet another, a highly significant ($p=0.000$) and optimistic ($T_b=0.333$) association was found between sand extraction, which also creates lots of pollutants and tourism-influenced land conversion. Likewise, a highly significant ($p=0.000$) and Positive ($T_b=0.287$) association was established between the sand extraction results and changes in the river flow direction and tourism-influenced land conversion. Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.447$) association was established between Changes in water flow direction detrimental to the local population, especially in the rainy seasons, and tourism-influenced land conversion.

Table 4.3.11 shows a significant association ($p=0.025$) and Positive ($T_b=0.120$) association between Tourism-related environmental pollution, e.g., plastic wastes are an eyesore and are harmful to the environment due to their non-biodegradability and tourism-influenced land conversion. Moreover, a significant ($p=0.019$) and Positive ($T_b=0.126$) association was discovered between the emission of gases into the atmosphere leading to air pollution on the account of tourism and tourism-influenced land conversion. Similar to the above, a significant ($p=0.041$) and Positive ($T_b=0.110$) association was confirmed between noise pollution caused by means of transportation or when any work or costs leading to noise pollution by tourism and tourism-influenced land conversion.

A highly significant ($p=0.000$) and Positive ($T_b=0.407$) association was found between Indiscriminate littering and poor waste disposal, which has further added to the deterioration of the environment and tourism-influenced land conversion. A significant ($p=0.001$) and Positive ($T_b=0.187$) association was explored between Addressing the cause of pollution due to tourism is more time and money consumed ring and tourism influenced land conversion. Similarly, a highly significant ($p=0.000$) and Positive ($T_b=0.292$) association was established between environmental challenges affecting health and the environment at the cost of human energies and resources and tourism influenced land conversion.

A highly significant ($p=0.000$) and Positive ($Tb=0.579$) association was found between Polluting emissions associated with accommodation facilities (hotels, guest houses, etc. and tourism-influenced land conversion. In contrast, a highly significant ($p=0.000$) and positive ($Tb=0.609$) association was established between flora and fauna, which constantly struggle for existence due to the constant environmental threat and tourism-influenced land conversion. Table 4.3.11 dismantled a significant association ($p=0.042$) and Positive ($Tb=0.110$) association between Hoteling, the newly emerging lucrative business, and tourism-influenced land conversion.

However, a significant ($p=0.011$) and Positive ($Tb=0.137$) association was discovered between environmental impacts caused by tourism due to the dynamic interplay of socioeconomic, institutional, and technological activities and tourism-influenced land conversion. Contrary to the above, a non-significant ($p=0.186$) and Positive ($Tb=0.071$) association were confirmed between the tourism industry generally overusing water for hotels, swimming pools, golf courses, and the personal use of tourists, which pollutes the spring nature, and tourism-influenced land conversion.

Furthermore, a significant ($p=0.001$) and Positive ($Tb=0.187$) association existed between addressing the cause of pollution due to tourism is more time and money consumed ring and the Commercialization of agriculture/rural lands for tourism. Similarly, a significant ($p=0.004$) and Positive ($Tb=0.156$) association was established between land use and structures in a particular scenic spot, which may greatly vary due to tourism demands and the Commercialization of agriculture/rural lands for tourism. Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.207$) association was confirmed between Scenic spot exploitation being subject to regional economic and social conditions on the account of tourism and Commercialization of agriculture/rural lands for tourism.

Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.674$) association was established between Hoteling-induced economic growth in a scenic land transformation due to tourism and the Commercialization of agriculture/rural lands for tourism. Similarly, a highly significant ($p=0.000$) and Positive ($Tb=0.231$) association was established between hoteling can convert Farmland along riverbanks through construction activity to tourism-related and Commercialization of agriculture/rural lands for tourism.

Table 4.3.13 Disclosed a significant association ($p=0.042$) and Positive ($Tb=0.044$) association between Capitalist investment decreasing farmland as it is used to accommodate infrastructure for the development of tourism and Commercialization of agriculture/rural lands for tourism. Moreover, a highly significant ($p=0.000$) and Positive ($Tb=0.287$) association was discovered between The establishment of parks for pure profit, which can create harsh survival realities and deprive the people of their traditional use of land and natural resources due to tourism and the Commercialization of agriculture/rural lands for tourism. A highly significant ($p=0.000$) and Positive ($Tb=0.485$) association was found between hoteling converting agricultural land into roads and building for tourism activities and Commercializing agriculture/rural lands for tourism.

Similarly, a significant ($p=0.004$) and Positive ($Tb=0.140$) association was established between profit-seeking Indigenous people while making decisions that affect investors irrespective of their local environment and the Commercialization of agriculture/rural lands for tourism. Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.301$) association was confirmed between land being one of the most critical production inputs for indigenous people, but capitalists want to change the regime for personal benefits and the Commercialization of agriculture/rural lands for tourism. Table 4.3.15 disclosed a significant ($p=0.021$) and Positive ($Tb=0.118$) association between unplanned residential sprawl posing direct impacts on air, soil; water is associated with manufacturing, production, and transportation of materials by tourism and the Commercialization of agriculture.

Furthermore, a highly significant ($p=0.000$) and Positive ($Tb=0.317$) association was discovered between Ambiguous property laws causing infrastructure change and the Commercialization of agriculture/rural lands for tourism. A significant ($p=0.009$) and Positive ($Tb=0.141$) association was found between newly built facilities like cafes, parks, hotels, and toilets degrading the environment and the Commercialization of agriculture/rural lands for tourism. While a high-significant $p=0.000$ and Positive $Tb=0.530$ association was found between Proper property business encouraged the non-locals to invest in the area and start their business and commercialization of agriculture/rural lands for tourism.

A multivariate analysis of indexed independent and dependent variables controlling the respondents' age, family type, and monthly income was carried out.

Age of the respondents as a control variable explained a highly significant $P=0.000$ and positive $Tb=0.386$ association between effects on agriculture production while 46 to 55 ages non-spurious were discovered. A highly significant ($P=0.000$) and positive ($Tb=0.893$) association was further disclosed as related to all probability values. This association was also non-spurious due to identical values of Tb and level of significance. Explained the relationship between effects on agriculture production and Commercialization of agriculture/rural lands for tourism and disclosed that a non-significant and spurious relationship was unearthed between the variables above from the age group (25-35) from the group (36-45). This relationship was explored as highly significant ($P=0.000$) and non-spurious ($Tb=0.386$).

Furthermore, a highly substantial and non-spurious relationship was intimated for the age group (46-55) as reflected by the relative ($P=0.000$) and ($Tb=0.386$) values. In addition, the results for the related a highly significant ($P=0.000$) and ($Tb=0.783$) non-spurious relationship between the variables above for the age group 56 years and above. It could be deduced from these findings that the age group (25-35) needed more information about the effects of land commercialization in the aftermath of tourism-related activities.

However, for the age group (35-45), a highly significant and positive ($P=0.000$ and $Tb=0.492$) was discovered between land degradation and commercialization of agricultural land. It was further unearthed that a highly significant and positive ($P=0.000$ and $Tb=0.961$) for the age group (46-55) respectively. At the same time, it was further highly significant and positive ($P=0.000$ and $Tb=0.860$) for the age group (56 years and above). The results indicated a non-spurious relationship between the age groups (36-45), (46-55), and 56 years due to identical probability values with moderate to high Tb values.

However, the relationship between the aforementioned variables was highly significant and positive ($P=0.000$ and $Tb=0.567$) for the age group (36-45). In addition, it was also found significant ($P=0.003$) and positive $Tb=0.319$ for the age (46-55) while were also substantial ($P=0.012$) and positive ($Tb=0.380$) between threat to biodiversity and commercialization of land for above (56 years) of age while controlling age as

intervening variable. These results affirmed the prevalence of a non-spurious relationship between the age groups 36-45, 45-55, and above 56 years due to identical probability and Tb values.

While controlling age contrary to it, a significant ($P=0.000$ and positive $Tb=0.480$) was also discovered between these variables for the age group (36-45) and an important ($P=0.000$) and positive ($Tb=0.860$) for the age group (56years and above) respectively while controlling age. These results also initiated a spurious relationship between these variables for the age groups 36-45, 46-55, and 56 years and above, while there was a spurious relationship for the age group 25-35) respectively. It was further explored that the age group (46-55) and 56years and above had significant and positive associations between these mentioned variables ($P=0.000$ and $Tb=0.919$), ($P=0.000$ and $Tb=0.860$) respectively while controlling the age of the respondents. These results intimated the prevalence of non-spurious lands between the above-mentioned variables for the group 45-55 and 56 years and above, which indicated these groups' awareness pertaining to the sand mining close effects on the role of commercialization of agricultural land in the study area.

However, the data revealed a highly significant ($P=0.000$ and $Tb=0.417$) positive relationship for these variables for the age groups (36-45) while controlling the age of the respondents. Similarly, it was also found to be highly significant ($P=0.000$ and positive $Tb=0.893$) for the age group (46-55) while for the age group 56 years above. It was found to be highly substantial ($P=0.000$ and positive $Tb=0.864$) while controlling the age of the respondents. This relationship further intimated the prevalence of a non-spurious relationship between these variables from the age groups (36-45), (46-55), and above 56) years, as indicated by the relative probability and Tb values, respectively.

Moreover, the relationship between these variables was highly significant, with $P=0.000$ and positive ($Tb=0.717$), while the age of the respondents was controlled. Furthermore, for the age group (46-55), the data revealed a high significance ($P=0.000$ and highly positive $Tb=0.887$) between the aforementioned variables while controlling age. In addition, a highly significant ($P=0.000$) and highly positive ($Tb=0.869$) was intimated by the interaction between the variables above for the age group (56 years and above) while controlling age. However, it was found highly significant ($P=0.000$

and positive ($T_b=0.449$) for the age group (35-45) while controlling age. Furthermore, a highly significant ($P=0.000$ and positive $T_b=0.895$) relationship was explored between these variables for the age group (46-55) while controlling age. Similarly, it was further found to be highly significant ($P=0.000$) and highly positive ($T_b=0.866$) for the age group (56 years and above) while controlling age. These results further intimated a non-spurious relationship between these variables for the age categories (35-45), (46-55) and (56 years).

Moreover, a highly significant ($P=0.000$) and positive ($T_b=0.891$) relationship was also discovered between residential sprawl and commercialization of agricultural land from the age group (46-55) while controlling age. Likewise, a highly significant ($P=0.000$) and highly positive ($T_b=0.828$) was further detected between the variables above for the age group (< 56 years) while controlling age. Keeping into consideration the above inferences, a non-spurious relationship prevailed amongst the age groups (36-45, 46-55, < 56) due to identical probability and T_b values, while it was spurious from the category of age group (25-35) due to different in values based on probability. Similarly, the data further explored a highly significant ($P=0.000$ and $T_b=0.887$) positive relationship between the infrastructural changes and commercialization of agricultural land for the age group (46-55). At the same time, another highly significant ($P=0.000$ and $T_b=0.831$) positive was also found between the variables above for the age group 56 years and above.

While controlling the family, the data revealed a highly significant ($P=0.000$) and positive ($T_b=0.652$) association between the effects on agriculture production and commercialization of land for the nuclear family setup. Moreover, a highly significant ($P=0.000$) and positive ($T_b=0.653$) association between impact on agriculture production and commercialization of land was also detected for the joint family system. An essential ($P=0.000$) and positive ($T_b=0.396$) difference between the variables above was also explored for the extended family system. Furthermore, a highly significant ($P=0.000$) and positive ($T_b=0.657$) association between land degradation for the joint family system while controlling family.

It is mentioned that a highly significant ($P=0.000$) and positive ($T_b=0.607$) association was also ascertained between land degradation and commercialization of agricultural land from tourism while controlling family as variables extended family.

The relationship between these variables, i.e., land degradation and commercialization of agricultural land, was found non-spurious for all the three mentioned categories, i.e., nuclear, joint, and extended family sets due to similar probability and identical Tb values, respectively.

Moreover, a significant ($P=0.003$) and positive ($Tb=0.222$) association was further discovered between the threat to biodiversity and the commercialization of land for the joint family system. In addition, a significant ($P=0.006$) and positive ($Tb=0.400$) association was also discovered between these variables and extended family.

While controlling family as variables, a highly significant ($P=0.000$) and positive ($Tb=0.334$) association was observed between these variables for the nuclear family system. Furthermore, a significant ($P=0.003$) and positive ($Tb=0.222$) association between colossal population pressure and commercialization of land was discovered for the joint family system. Additionally, a significant ($P=0.006$) and positive ($Tb=0.400$) association between colossal population pressure and the Commercialization of agriculture/rural lands for tourism with respect to extended was further delineated.

While controlling family as a variable and intimated, a highly significant ($P=0.000$) and positive ($Tb=0.634$) association was observed between these variables from the joint family setup. In addition, a highly significant ($P=0.000$) and positive ($Tb=0.593$) association between sand mining/extraction and commercialization of agricultural land was further explored for family setup. In addition, a significant ($P=0.001$) and positive ($Tb=0.472$) was also revealed between these aforementioned variables from the extended family based on the above results for all three categories, a non-spurious relationship prevented as reflected by the similar probability and Tb values respectively.

A highly significant ($P=0.000$) and positive ($Tb=0.633$) association was observed between the variables above for the nuclear family. Furthermore, it was also found highly substantial ($P=0.000$) and positive ($Tb=0.436$) between these variables for the joint family system while controlling the family. Moreover, the data also tabbed a highly significant and positive ($P=0.001$ and $Tb=0.396$) for the extended family regarding the relationship between environmental pollution and land commercialization. The study found that a highly significant ($P=0.000$) and positive

($T_b=0.522$) association prevailed between the variables above for the nuclear family. Moreover, this relationship was further found to be highly significant ($P=0.000$ and positive $T_b=0.487$) for the joint family and again highly significant ($P=0.000$ and $T_b=0.507$) and positive from the extended family between the aforementioned variables while controlling the family.

A highly significant ($P= 0.000$ and positive ($T_b=0.652$) association was delineated between these variables, i.e., capitalist interest and commercialization of agricultural land. Moreover, it was further disclosed that a highly significant ($P=0.000$ and $T_b=0.697$) positive association prevailed between these variables for joint families. The study further intimated a highly substantial ($P=0.001$ and $T_b=0.472$) association between these variables for the extended family.

Controlling the family system, it was found that a highly significant ($P=0.000$ and positive $T_b=0.686$) association prevailed between these aforementioned variables for the nuclear family. Moreover, it was further explored that a highly significant and positive ($P=0.000$ and $T_b=0.652$) relationship prevailed between unplanned residential sprawl and commercialization of agricultural land for the joint family while controlling family as a variable. It was further learned from the results that a highly significant T_b positive ($P=0.002$ and $T_b=0.472$) association existed for the extended family on the basis of interaction between the aforementioned variables, i.e., unplanned residential sprawl and commercialization of agricultural land.

While controlling the family system, a highly significant ($P=0.000$) and positive ($T_b=0.650$) association was observed between these variables for controlling the nuclear family. These results further revealed that a highly significant ($P=0.000$ and $T_b=0.652$) association was also prevalent between infrastructure changes and the commercialization of agricultural land for the joint family. It was further acknowledged that a highly significant ($P=0.000$ and $T_b=0.618$) association was also derived between the foregoing variables for the extended family.

Controlling the monthly income of the respondents and intimated a highly significant ($P=0.000$) and positive ($T_b=0.545$) association was observed between effects on agriculture and commercialization of agricultural land for the low-income group. Moreover, the middle-income group also had a highly significant and positive ($P=0.000$ and $T_b=0.614$) relationship between these variables. In addition, the results

also revealed a highly significant and positive ($P=0.000$ and $Tb=0.653$) association between the above-mentioned variables for the high-income group while controlling income as a variable.

A highly significant ($P=0.000$) and positive ($Tb=0.563$) association was detected between land degradation and commercialization of agricultural land for the low-income group. Moreover, a highly significant and positive relationship ($P=0.000$ and $Tb=0.599$) was also detected for the middle-income group in terms of ascertaining the relationship between land degradation and commercialization of agricultural land.

Monthly income of the respondents, it was found that a significant ($P= 0.003$) and positive ($Tb=0.295$) association prevailed between the threat to biodiversity and commercialization of land for the low-income group, while on other inference with significant and positive association ($P=0.025$) and ($Tb=0.175$) was ascertained between these fore mentioned variables for the middle-income group. A highly significant ($P=0.000$) and positive ($Tb=0.595$) association was discovered between these two variables for the low-income group.

Furthermore, a highly important and positive ($P=0.000$) and ($Tb=0.611$) relationship was further intimated between colossal population pressure and commercialization of agricultural land for tourism for middle-income group and a highly significant and positive ($P=0.000$) and ($Tb=0.756$) association was discovered between these fore mentioned variables for high-income group as well.

The study revealed a highly significant ($P=0.000$) and positive ($Tb=0.526$) association between these variables for the low-income group. It was also discovered that a substantial and positive relationship ($P=0.000$) and ($Tb=0.599$) was also prevalent for the middle-income group regarding the relationship between sand mining and the commercialization of agricultural land due to tourism. Likewise, a highly significant and positive association ($P=0.000$) and ($Tb=0.644$) was also unearthed between these fore mentioned variables for the high-income group as well.

Monthly income of the respondents: A highly significant ($P=0.000$) and positive ($Tb=0.616$) association was observed between these variables for the low-income groups of the respondents. Similarly, a highly important and positive ($P=0.000$) and

($T_b=0.477$) association was also mentioned between environmental pollution and commercializing agricultural land for tourism concerning the middle-aged group.

Controlling the respondents' monthly income and finding a significant ($P=0.001$) and positive ($T_b=0.341$) association was observed between these variables for the low-income group of the respondents.

Furthermore, a highly significant association ($P=0.000$) and ($T_b=0.482$) was also explored in light of the interaction of the above-mentioned variables for the middle-income group. A highly significant ($P=0.000$) and positive ($T_b=0.674$) association was observed between the variables above for the low-income group. In addition, the study further intimated a highly significant ($P=0.000$ and $T_b=0.641$) positive association between capitalist interest and commercialization of agricultural land for tourism for the middle income while controlling income as a variable. The monthly income of the respondents intimated a highly significant ($P=0.000$) and positive ($T_b=0.626$) association was observed between these variables for the low-income group.

Moreover, it was also intimated with an essential and positive association ($P=0.000$) and ($T_b=0.640$) for the aforementioned variables from the middle-income group. While controlling the respondents' monthly income, a highly significant ($P=0.000$) and positive ($T_b=0.546$) association was observed between these variables for the low-income group. Moreover, it was further explored that a highly important and positive ($P=0.000$) and positive ($T_b=0.643$) between infrastructural changes and commercialization of agricultural land for tourism in respect of the middle-income group. In addition, a highly significant and positive ($P=0.000$) and ($T_b=0.651$) association was also prevalent for the variable above concerning the high-income group.

5.2 Conclusions

The existing study titled "Analysis of socio-environmental factors contributing to tourism influenced land conversion in district Swat-Pakistan" was conducted cross-sectional through a perceptual assessment approach. The community respondents were assessed through a study of major variables, namely (effects on agriculture production, land degradation, threat to bio-diversity, population pressure, sand mining/

extraction, environmental pollution, hoteling/ building, capitalist interest, unplanned residential sprawl, infrastructural changes with commercialization of agricultural land for tourism through the major domains namely local ecological environment and cultural erosion. The study dilated on responses secured from the respondents accrued that land conversion was primarily exploring the tourism phenomena as the major driving force.

Tourism had dilated upon the construction of the building infrastructure while reducing the agricultural land, resulting in land and soil degradation and deforestation, respectively. It was further noticed in the study findings that local biodiversity and ecosystem were at stake due to changing soil, cultural, and structural dynamics. The locals had access to a market economy, and an up ticking on the economic profile of the locals was explored; however, at the cost of local culture, degradation of the environment, soil erosion, and loss of natural resources like scenic beauty and serenity was found being compromised upon. Moreover, the expansion in population with the influx of non-locals deteriorated the centuries-old cultural dynamics of the area. The process of cultural assimilation had strong roots, with locals being secluded due to their orthodox thinking and low economic abilities to participate in these rapidly changing circumstances. In contrast, the non-locals who had possession of money and invested in local businesses had the edge in enjoying social influence in the area by providing jobs to locals. They tended to control the prevalent social system by using the economy as a major driving force.

These developments had intimated the total social and cultural isolation of the locals who did not bother participating. It was further found that constructing infrastructural buildings like hotels, restaurants, and inns was only meant to earn money by facilitating the accommodation for visitors. However, it was found erratic, lacking strategies to preserve the resources while lacking the political, environmental, and social safeguards to ensure agricultural productivity and preservation of the environment in the face of unabated land conversion practices. The study further disclosed a profoundly confounded relationship between agriculture production and land commercialization as the development of tourism, infrastructure construction, loss of biodiversity, destruction of local flora and fauna with the ecosystem, and degradation of land along with locals' displacement were the dire outcomes of the rise in tourism industry. Agricultural land transformation, lack of land possession laws, loss of locals'

Indigenous livelihood patterns, exhaustion of local resources by least consciousness about natural environmental preservation by the huge population pressure from inside and outside had also surfaced as the major instruments of creating pollution and up surging in crimes with same new manifestation in the aftermath of the rise of the tourism industry. It was also accrued from the study inferences that crushing and extraction of sand had also put at stake the marine life. At the same time, the imminent occurrence of floods in rainy seasons had confounding effects on the local social and physical structure due to changes in the direction of water flow and subsequent inundation of human settlements.

Environmental pollution and related agonies like respiratory diseases in light of huge vehicular moment due to increased visitors were other reciprocal effects of commercializing land due to tourism. Although structural changes like the development of hotels, restaurants, and other commercial buildings were raised to cater to the growing needs of the visitors, albeit with a rise in life standards in terms of social terms and economic ambit, there is a paradox about the preservation of the environment and local culture.

The non-local investors had a success story of controlling and manipulating the local masses in their favor while exhausting the local resources and, energy, local production to sway the whole scenario in their favor without taking into consideration and the unplanned growth of buildings infrastructure and posing a major threat the preservation initiatives while encompassing of the sprawl like activities as well in the shadows of tourism influenced land conversion. At the multivariate level, the study explored that age was the most contributing factor in assessing the responses stemming from the preview of the commercialization of rural land for tourism. It was found that middle age and high age groups had the knowledge and effect of tourism for the rural land as these age groups were found in reinforcing mode of intimating the degradation threat to biodiversity in the advent of high population and commercialization of land for tourism-related activities.

Moreover, while investing by the capitalist class, residential sprawl, infrastructural changes, sand mining, environmental pollution, and hotel construction reinforced the commercialization of land in rural areas. Taking into effect the role of family, it was found that all family types, i.e., nuclear, joint, and extended, had

confounded expressions about the commercialization of land for tourism and degradation of land while affecting the agricultural productivity along with posing a threat to biodiversity in the aftermath of huge population influx and mining of sand further deteriorated the smooth flow of water while creating environmental pollution as well. It was further jibed from the study findings that capitalists were served in building hotels and restaurants.

However, as reported by all family types, this led to residential sprawl and alternations in the existing infrastructure. Furthermore, based on income as a controlled variable, all income groups, i.e., low, middle, and high, had awareness about the reinforcing relationship between the commercialization of land had negatively affected agricultural productivity, caused land degradation, and threatened the existing biodiversity in the essence of population pressure of the visitors. Likewise, all income groups were convinced that sand mining had led to environmental pollution in the area being further propelled by hotel construction as capitalists invested in profit-oriented hoteling business, which encouraged the sprawling activity.

The study unfolded its major inferences under the collaboration of the works of tourism titled "Rethinking impact of tourism in tourism development pioneered by Wall (1997). The study major interventional domains, i.e., local ecological environment and cultural erosion, supplemented by variables like effects on agriculture production, land degradation, threat to bio-diversity, population pressure, sand mining/ extraction, environmental pollution, hoteling/ building, capitalist interest, unplanned residential sprawl, infrastructural changing with tourism influenced land conversion and tourism positively responded in upholding the main postulates of the theory.

The data acquired through the present study convincingly elaborated the theory application regarding the consequences associated with interventions in an area based on promoting tourism by not considering the major climate-related realities. Furthermore, Wall's theory was comprehensive enough in its adjudicating its application to the socio-cultural economic dynamics prevalent in the area. The application of the theory was apparent in elaborating the study results while predicting the major implications afterward.

5.3 Recommendations

1. Agriculture is the primary profession in the area. It is widely recognized for fulfilling food requirements and served as a platform for providing jobs to the local community. However, the advent of tourism, along with the rise in the number of visitors, has made the future of this profession bleak. Agriculture land is constantly transformed into commercial entities to earn more from a specified chunk of land. In order to contain this uncontrolled phenomenon, the government needs to focus on establishing a sustainable model of growth and development for local areas through significant social inclusion of the locals. The market economy needs to be promoted through the opening of new vistas of business by avoiding the local land transformation with primary focus on maintaining ecological balance.
2. Promoting tourism entailed the development of the local economy and bringing prosperity through business and job opportunities. However, it has been noticed that the influx of tourism has threatened local biodiversity and ecosystems due to land degradation. In order to avert this situation, all business, tourism, and job activities need to be scrutinized through Google's international yardsticks, which are designed to introduce such an intervention. This approach would protect the local natural environments and ensure a smooth development process in the area, not at the cost of each other.
3. The increase in population, both locals and that of visitors, tends to threaten preservation initiatives. Control of people's activities by specifying periods, proper entry and exit, marketing management for their basic requirements, and building hotels and restaurants far from the tourist spot may significantly minimize the conversion of agricultural land into commercial entities.
4. Sand mining and extraction were found to be another threat to biodiversity and enhanced the chances of flooding during the rainy seasons. Strict vigilance by the local government representatives through enforcement of relevant rules and imposition of taxes, to be collected by locals, ought to serve to develop these river beds/banks and serve as a major rehabilitation initiative. Moreover, yardsticks like the establishment of spurs, if enacted, may also work towards the containment of floods in the rainy season.

5. Environmental pollution, including air and water, was rising in the study area. The major contributing factors were vehicular exhausts in the shape of CO₂ and methane releases. Moreover, the litter the visitors throw away also contaminates the local environment, i.e., water springs. To avoid this unpleasant activity, a comprehensive code of ethics entailing an awareness campaign in local media, bill-boarding on the significant entries and at hotels, etc., is the need of the day. Moreover, the imposition of fines upon violation entries may further strengthen the mitigation of environmental pollution.
6. Capitalists, both locals and non-locals, were also found to stick to their own profiteering. Their investment in tourist enterprises are more driven by earning instantly rather than caring for the local preservation initiative. A comprehensive code of ethics, prevailing around moral, legal, and spatial considerations with significant inclusion of locals, needs to be devised and strictly implemented. It would steadily contribute towards the expansion of investors while protecting the local environment/land.
7. Changes in infrastructure, like the construction of roads, expansion in the existing facilities, and unplanned and uncontrolled establishment of human settlements, were found on the rise, which had converted mainly the agricultural land into commercial purposes. The local cultural perspectives were a primary victim due to the invasion of non-locals as investors and visitors. A process of cultural assimilation was noticed; however, it felt unhealthy if left unregulated. Cultural identity preservation, recognition, and respect for each other's cultural traits through a central umbrella of accommodation may give the tourism industry a sound footing in the areas to flourish on sustainable grounds.

REFERENCES

- Aall, C., Klepp, I. G., Engeset, A.B., Skuland, S.E., Støa, E. (2011). Leisure and sustainable development in Norway: Part of the solution and the problem. *Leisure Studies*, 30(4), 453–476.
- Abalo, E. M., Peprah, P., Nyonyo, J., Ampomah-Sarpong, R., & Agyemang-Duah, W. (2018). A review of the triple gains of waste and the way forward for Ghana. *Journal of Renewable Energy*, 2018(1), 9737683.
- Abd-Manaf, L., Samah, M. A. A., & Zukki, N. I. M. (2009). Municipal solid waste management in Malaysia: Practices and challenges. *Waste Management*, 29(11), 2902-2906.
- Abdulazeez, A. (2016). *A Review on the Impact of River and Inland Sand Mining on Nigerian River Basins*. [Unpublished doctoral dissertation]. Federal University Dutsinma, Katsina State Nigeria.
- Abdul-Aziz, M. H., Hammond, N. E., Brett, S. J., Cotta, M. O., De Waele, J. J., Devaux, A., ... & Roberts, J. A. (2024). Prolonged vs intermittent infusions of β -lactam antibiotics in adults with sepsis or septic shock: a systematic review and meta-analysis. *JAMA*. 332(8). doi:10.1001/jama.2024.9803
- Abdullah, L. O. D., Dewi, I. K., Gurusi, L., Abdullah, R., Pratiwi, E. T., Ilyas, A., & Rado, R. H. (2019, October). *The role of buton polres in completing illegal sand criminal actions in kamelanta village*. In IOP Conference Series: Earth and Environmental Science (Vol. 343, No. 1, p. 012131). IOP Publishing.
- Abebe, S. Deribew KT, Alemu G, Moisa MB. 2023. Modeling Eragrostis tef Zucc and Hordeum vulgare L cropland in response to food insecurity in the Southwestern parts of Ethiopia. *Heliyon*. 9(3): e14535. doi: 10.1016/j.heliyon.2023.e14535.
- Abrahams, D. (2019). Transformation of the tourism sector in South Africa: A possible growth stimulant? *Geo Journal of Tourism and Geosites*, 26(3), 821-830.

- Abul, S. (2010). Environmental and health impact of solid waste disposal: A Mangwaneni dumpsite in Manzini, Swaziland. *Journal of Sustainable Development in Africa*, 12(7), 64–78.
- Abul, S. (2010). Environmental and health impact of solid waste disposal at Mangwaneni dumpsite in Manzini: Swaziland. *Journal of Sustainable development in Africa*, 12(7), 64-78.
- Acuto, M. (2010). High-rise Dubai urban entrepreneurialism and the technology of symbolic power. *Cities*, 27(4), 272-284.
- Adamu, G.K and Abdulazeez, A. (2019). Properties and Fertility Potentials of Alluvial Fadama Soils in Kano State of Northern Nigeria. *Journal of Soil Salinity and Water Quality*, 11(2), 152-160. ISSN: 0976-0806. Published by Indian Society of Soil Salinity and Water Quality.
- Addaney, M., & Oppong,, R. A. (2015). Critical issues of municipal solid waste management in Ghana. *Journal of Energy and Natural Resource Management*, 2(1), 30–36.
- Addo, I. B., Adei, D., & Acheampong, E. O. (2015). Solid waste management and its health implications on the dwellers of Kumasi metropolis, Ghana. *Current Research Journal of Social Sciences*, 7(3), 81–93.
- Adhikari, K. (2015). Prospect and Problem of Sustainable Tourism Development A Case Study of" Sworgadwari", Pyuthan (Doctoral dissertation, Department of Rural Development).
- Adla, K., Dejan, K., Neira, D., & Dragana, Š. (2022). Degradation of ecosystems and loss of ecosystem services. In Prata, J. C., Ribeiro, A. I. and Rocha-Santos, T. (Eds). *One health: Integrated Approach to 21st Century Challenges to Health* (pp. 281-327). Academic Press. <https://doi.org/10.1016/C2019-0-04850-9>
- Agarwal, B. (2019). *The gender and environment debate: Lessons from India*. In Arizpe, L., Stone, M. P., Major, D. & Stone, P. (Eds.) *Population and environment: Rethinking The Debate* (pp. 87-124). Routledge. <https://doi.org/10.4324/9780429302602>

- Agnew, R. (2012). Dire forecast: A theoretical model of the impact of climate change on crime. *Theoretical Criminology*, 16(1), 21-42.
- Ahmad, H., Öztürk, M., Ahmad, W., & Khan, S. M. (2015). *Status of natural resources in the uplands of the Swat Valley Pakistan*. In Öztürk, M., Hakeem, K., Faridah-Hanum, I., Efe, R. (Eds.) *Climate Change Impacts on High-Altitude Ecosystems* (pp. 49-98). Springer. https://doi.org/10.1007/978-3-319-12859-7_2
- Ahmed, A., & Dinye, R. D. (2011). Urbanisation and the challenges of development controls in Ghana: A case study of Wa Township. *Journal of sustainable development in Africa*, 13(7), 210-235.
- Ahmed, R., & Mahmood, K. (2017). Tourism potential and constraints: an analysis of tourist spatial attributes in Pakistan. *Pakistan Perspectives*, 22(2).
- Ahmed, S. M. S., & Alrawaf, T. I. (2022). Environmental sustainability impacts of solid waste management practices in the global South. *International Journal of Environmental Research and Public Health*, 19(19), 12717.
- Ainooson, O. (2023). *Rapid Urbanization and its Impact on Municipal Solid Waste Management in the Greater Accra Region of Ghana* [Unpublished Master's thesis]. Auburn University, Ghana.
- Akande, J. M. (2021). On the application of drones: a progress report in mining operations. *International Journal of Mining, Reclamation and Environment*, 35(4), 235-267.
- Akbar, J., Shah, S. T., Khan, M. N., & Naeem, A. (2017). Role of facilities available and un-available in attracting of tourist in Swat Valley Pakistan. *Journal of Landscape Ecology*, 10(1), 5-19.
- Akinyele, J. A., Garman, C., Miers, I., Pagano, M. W., Rushanan, M., Green, M., & Rubin, A. D. (2013). Charm: a framework for rapidly prototyping cryptosystems. *Journal of Cryptographic Engineering*, 3, 111-128.
- Alabbad, Y., Mount, J., Campbell, A. M., & Demir, I. (2021). Assessment of transportation system disruption and accessibility to critical amenities during flooding: Iowa case study. *Science of the total environment*, 793, 148476.

- Alam, M. M., Morshed, M. D., Siwar, C., & Murad, M. W. (2012). Initiatives and challenges of agricultural crop sector in East Coast Economic Region (ECER) development projects in Malaysia. *American-Eurasian Journal of Agricultural & Environmental Sciences*, 12(7), 922-931.
- Alam, M. N., Chakrabarti, S., & Ghosh, A. (2018). Networked microgrids: State-of-the-art and future perspectives. *IEEE Transactions on Industrial Informatics*, 15(3), 1238-1250.
- Albrecht, G. (2011). *Chronic environmental change: Emerging 'psychoterratic' syndromes*. In I. Weissbecker (Ed.), *Climate change and human well-being: Global challenges and opportunities* (pp. 43–56). Springer Science+Business Media. https://doi.org/10.1007/978-1-4419-9742-5_3 43-56.
- Alegre, J., Mateo, S., & Pou, L. (2010). An analysis of households' appraisal of their budget constraints for potential participation in tourism. *Tourism Management*, 31(1), 45-56.
- Ali, B., & Gul, P. (2020). The Environmental Impacts of Tourism: A Critical Evaluation. *JL & Soc'y*, 51, 23.
- Ali, I. (2020). The covid-19 pandemic: Making sense of rumor and fear: Op-ed. *Medical anthropology*, 39(5), 376-379.
- Ali, I., Rehman, K. U., Ali, S. I., Yousaf, J., & Zia, M. (2010). Corporate social responsibility influences, employee commitment and organizational performance. *African journal of Business management*, 4(13), 2796.
- Sadiq, N. (2021), "COVID-19, Adaptive Capacity and Tourism Governance: The Case of Pakistan's Tourism Industry", Seabra, C., Paiva, O., Silva, C. and Abrantes, J.L. (Ed.) *Pandemics and Travel (Tourism Security-Safety and Post Conflict Destinations)*, Emerald, pp. 49-66. <https://doi.org/10.1108/978-1-80071-070-220211004>
- Ali, S., Jan, B. H., Ali, A., & Tariq, M. (2024). Sociological analysis of threat to biodiversity and agricultural land conversion into commercial use due to tourism in district Swat, Khyber Pakhtunkhwa. *Remittances Review*, 9(2), 355-376.

- Ali, S., Jan, B. H., Khan, M. N., Tariq, M., & Gohar, F. (2024). An Analysis of Land Degradation Resulting from the Conversion of Agricultural Land to Commercial Use Due to Tourism in Swat District, Khyber Pakhtunkhwa. *Kurdish Studies*, 12(5), 08-19.
- Ali, T., Shahbaz, B., Suleri, A. (2006). Analysis of myths and realities of deforestation in northwest Pakistan! Implications for forestry extension. *International Journal of Agriculture and Biology*, 8(1), 107-110.
- Allemand, D. (2021). Noise pollution on coral reefs?—A yet underestimated threat to coral reef communities. *Marine Pollution Bulletin*, 165, 112129.
- Allemand, D., Anthony, K., Baker, A. C., Beck, M. W., Hale, L. Z., Kleypas, J., ... & Gattuso, J. P. (2021). Designing a blueprint for coral reef survival. *Biological Conservation*, 257, 109107.
- Almeida, A., & Machado, L. P. (2021). Rural development and rural tourism: the impact of infrastructure investments. *Peripheral territories, tourism, and regional development*, 1-16.
- Almeida-García, F., Peláez-Fernández M.Á., Balbuena-Vázquez A., Cortés-Macias R. 2016. Residents' perceptions of tourism development in Benalmádena (Spain). *Tourism Management*, 54: 259–274.
- Alshuwaikhat, H.M. (2005). Strategic environmental assessment can help solve environmental impact assessment failures in developing countries. *Environmental Impact Assessment Review*, 25(4). 307–317.
- Altman, J., Larsen, L., & Buchanan, G. (2018). The environmental significance of the Indigenous estate: natural resource management as economic development in remote Australia. Canberra, ACT: Centre for Aboriginal Economic Policy Research (CAEPR), The Australian National University.
- Aman, J., Abbas, J., Mahmood, S., Nurunnabi, M., & Bano, S. (2019). The influence of Islamic religiosity on the perceived socio-cultural impact of sustainable tourism development in Pakistan: A structural equation modeling approach. *Sustainability*, 11(11), 3039.

- Amare, A. (2015). Wildlife resources of Ethiopia: Opportunities, challenges and future directions: From ecotourism perspective: A review paper. *Natural Resources*, 6(06), 405.
- Ameraldo, F., Saiful, S., & Husaini, H. (2019). Islamic Banking Strategies in Rural Area: Developing Halal Tourism and Enhancing the Local Welfare. *Ikonomika*, 4(1), 109-136.
- Amin, G. Us, Saqib, N., Yaqub, A., Khan, I., Ajab, H., Zeb, I., & Ahmad, D. (2019). The impact of tourism on local communities and their environment in Gilgit Baltistan, Pakistan: a local community perspective. *Environmental & Socio-economic Studies*, 7(3), 24-37.
- Amit, G., Zamare, G., Renge, V. C., Saurabh, T., & Bharsakale, G. (2012). An overview on waste plastic utilization in asphaltting of road. *Journal of Engineering Research and Studies*, 3(2), 1-5.
- Amoah, S. T., & Kosoe, E. A. (2014). Solid waste management in urban areas of Ghana: Issues and experiences from Wa. *Journal of Environment Pollution and Human Health*, 2(5), 110–117.
- Amoako, C., & Inkoom, D. K. B. (2018). The production of flood vulnerability in Accra, Ghana: Re-thinking flooding and informal urbanization. *Urban Studies*, 55(13), 2903–2922.
- Ampofo, S., Evans, Kumi, E., & Ampadu, B. (2015). Investigating solid waste management in the Bolgatanga Municipality of the Upper East Region, Ghana. *Environment and Pollution*, 4(3), 27–41.
- Amuquandoh, F. E. (2010). Residents' perceptions of the environmental impacts of tourism in the Lake Bosomtwe Basin, Ghana. *Journal of sustainable tourism*, 18(2), 223-238.
- Andereck, K. L., & Becker, R. H. (1993). Perceptions of carry-over crowding in recreation environments. *Leisure Sciences*, 15(1), 25-35.
- Andereck, K.L., Valentine K.M., Knopf R.C., Vogt C.A. (2005). Residents' perceptions of community tourism impacts. *Annals of Tourism Research*, 32, 4: 1056–1076

- Anderson, V. (2015). Research methods in human resource management: investigating a business issue. Chartered Institute of Personnel and Development.
- Anokye, N. A., Mensah, J. V., Potakey, H. M. D., Boateng, J. S., Essaw, D. W., & Tenkorang, E. Y. (2023). Sand mining and land-based livelihood security in two selected districts in the Central region of Ghana. *Management of Environmental Quality: An International Journal*, 34(1), 21-36.
- Antrop, M. (2005). Why landscapes of the past are important for the future. *Landscape and Urban Planning*, 70(1–2), 21–34.
- Apostolopoulou, E. (2023). Navigating neoliberal natures in an era of infrastructure expansion and uneven urban development. *Investigaciones Regionales= Journal of Regional Research*, (55), 113-126.
- Arjun, M. S., Panda, B. P., & Arun, P. R. (2023). Sand mining as a contemporary threat to sandbar nesting birds: A review. *Contemporary Problems of Ecology*, 16(2), 189-204.
- Aronson, R. B., Thatje, S., McClintock, J. B., & Hughes, K. A. (2011). Anthropogenic impacts on marine ecosystems in Antarctica. *Annals of the New York Academy of Sciences*, 1223(1), 82-107
- Arora, V., Moriates, C., & Shah, N. (2015). The challenge of understanding health care costs and charges. *AMA journal of ethics*, 17(11), 1046-1052.
- Arshad, M. I., Iqbal, M. A., & Shahbaz, M. (2018). Pakistan tourism industry and challenges: a review. *Asia Pacific Journal of Tourism Research*, 23(2), 121-132.
- Asgary, A., & Ozdemir, A. I. (2020). Global risks and tourism industry in Turkey. *Quality & Quantity*, 54(5-6), 1513-1536.
- Ashley, C., De Brine, P., Lehr, A., & Wilde, H. (2007). The role of the tourism sector in expanding economic opportunity. Cambridge, MA: John F. Kennedy School of Government, Harvard University.
- Ashworth, G. J., & Voogd, H. (2012). Marketing of tourism places: What are we doing? In *Global tourist behavior* (pp. 5-19). Routledge.

- Athukorala, K., & Navaratne, C. M. (2008, July). Shifting sands in Sri Lanka—mobilizing and networking for collective action by river sand mining affected communities. In The 12th Biennial Conference of the International Association for the Study of Commons, Cheltenham, UK (Vol. 1418).
- Atik, M, Altan T, and Artar, M., (2010). Land Use Changes in Relation to Coastal Tourism Developments in Turkish Mediterranean. *Polish Journal of Environmental Studies*. 19, 21–33.
- Aung, U. M. (2007). Policy and practice in Myanmar's protected area system. *Journal of Environmental Management*, 84(2), 188-203.
- Awan, U., Sroufe, R., & Shahbaz, M. (2021). Industry 4.0 and the circular economy: A literature review and recommendations for future research. *Business Strategy and the Environment*, 30(4), 2038-2060.
- Awumbila, M., Owusu, G., & Teye, J. K. (2014). Can rural–urban migration into slums reduce poverty? Evidence from Ghana. Migrating out of poverty. Working Paper 13. Brighton: University of Sussex
- Azadi, H., Ho, P., & Hasfiati, L. (2011). Agricultural land conversion drivers: A comparison between less developed developing and developed countries. *Land Degradation and Development*, 22(6), 596–604.
- Bacha, M. S., Muhammad, M., Kılıç, Z., & Nafees, M. (2021). The dynamics of public perceptions and climate change in Swat valley, Khyber Pakhtunkhwa, Pakistan. *Sustainability*, 13(8), 4464.
- Bahadar, I, Shafique M, Khan T, Tabassum I, Ali MZ (2015) Flood hazard assessment using hydro-dynamic model and GIS/RS tools: a case study of Babuzai-Kabal Tehsil Swat Basin. *Journal of Himalayan Earth Sciences* 48(2):129–138.
- Ballesteros, M. M. (2010). Linking poverty and the environment: Evidence from slums in Philippine cities (No. 2010-33). PIDS Discussion Paper Series.
- Balmford, A., Beresford, J., Green, J., Naidoo, R., Walpole, M., & Manica, A. (2009). A global perspective on trends in nature-based tourism. *PLoS Biology*, 7(6), e1000144.

- Baloch, Q. B., Shah, S. N., Iqbal, N., Sheeraz, M., Asadullah, M., Mahar, S., & Khan, A. U. (2023). Impact of tourism development upon environmental sustainability: a suggested framework for sustainable ecotourism. *Environmental Science and Pollution Research*, 30(3), 5917-5930.
- Balsiger, J., & Debarbieux, B. (2015). Should mountains (really) matter in science and policy? *Environmental Science and Policy*, 49, 1–7. 03.015
- Bangash, S. (2012). Socio-economic conditions of post-conflict Swat: A critical appraisal. *J Peace Dev*, 2, 66-79.
- Bangash, U. H., Irfan, M., & Alam, M. M. (2018). Statistical Analysis of Extremes of Temperature, Precipitation and Humidity in Swat Region. *Sindh University Research Journal-SURJ (Science Series)*, 50(4), 495-406.
- Barbier, E. B., Burgess, J. C., & Grainger, A. (2010). The forest transition: Towards a more comprehensive theoretical framework. *Land use policy*, 27(2), 98-107
- Barcus, H., Jones, R., & Schmitz, S. (Eds.). (2022). Rural Transformations: Globalization and Its Implications for Rural People, Land, and Economies. Routledge.
- Baş, M. (2017). Approach to tourism in rural development programs: the case study of Basilicata region Italy. *ASOS J*, 5(41), 400-421.
- Bashir, N. H. (2013). Plastic problem in Africa. *Japanese Journal of Veterinary Research*, 61(Supplement), S1-S11.
- Beddington, J. R., Asaduzzaman M., Fernandez, A., Clark, M. E., Guillou, M., Jahn, M. M., ... & Wakhungu, J. W. (2011). Achieving food security in the face of climate change: Summary for policy makers from the Commission on Sustainable Agriculture and Climate Change.
- Beeharry, Y., Bekaroo, G., Bussoopun, D., Bokhoree, C., & Phillips, M. R. (2021). Perspectives of leisure operators and tourists on the environmental impacts of coastal tourism activities: a case study of Mauritius. *Environment, Development and Sustainability*, 23, 10702-10726.

- Beiser, V. (2018). *The world in a grain: The story of sand and how it transformed civilization*. Riverhead Books.
- Belay, K. T., Van Rompaey, A., Poesen, J., Van Bruyssel, S., Deckers, J., & Amare, K. (2014). Spatial Analysis of Land Cover Changes in Eastern Tigray (Ethiopia) from 1965 till 2007: Are There Signs Of A Forest Transition? *Land Degradation & Development*, 26, 680-689.
- Bellard, C., Marino, C., & Courchamp, F. (2022). Ranking threats to biodiversity and why it doesn't matter. *Nature Communications*, 13(1), 1-4.
- Belliggiano, A., Bindi, L., & Ievoli, C. (2021). Walking along the sheeptrack... rural tourism, ecomuseums, and bio-cultural heritage. *Sustainability*, 13(16), 8870.
- Bello, F. G., Neil, C. A. R. R., Lovelock, B., & Feifei, X. U. (2017). Local residents' perceptions of socio-cultural impacts of tourism in Mangochi, Malawi. *Advances in Hospitality and Tourism Research (AHTR)*, 5(1), 1-22.
- Bello, J. P., Silva, C., Nov, O., Dubois, R. L., Arora, A., Salamon, J., ... & Doraiswamy, H. (2019). Sonyc: A system for monitoring, analyzing, and mitigating urban noise pollution. *Communications of the ACM*, 62(2), 68-77.
- Belsoy, J., Korir, J., & Yego, J. (2012). Environmental impacts of tourism in protected areas. *Journal of Environment and Earth Science*, 2(10), 64-73.
- Bendixen, M., Iversen, L. L., Best, J., Franks, D. M., Hackney, C. R., Latrubesse, E. M., & Tusting, L. S. (2021). Sand, gravel, and UN Sustainable Development Goals: Conflicts, synergies, and pathways forward. *One Earth*, 4(8), 1095-1111.
- Berg, G. (2009). Plant-microbe interactions promoting plant growth and health: perspectives for controlled use of microorganisms in agriculture. *Applied microbiology and biotechnology*, 84(1), 11-18.
- Bernai, R. R. (2013). Managing the risks of extreme events and disasters to advance climate change adaptation. *Economics of Energy & Environmental Policy*, 2(1), 101-113.
- Bernstein, H. (2010). *Class dynamics of agrarian change (Vol. 1)*. Kumarian Press.

- Bhadouria, R., Singh, S., Tripathi, S., & Singh, P. (Eds.). (2023). *Understanding Soils of Mountainous Landscapes: Sustainable Use of Soil Ecosystem Services and Management*. Elsevier.
- Bhatawdekar, R. M., Singh, T. N., Mohamad, E. T., Jha, R., Armagahni, D. J., & Hasbollah, D. Z. A. (2022). Best river sand mining practices vis-a-vis alternative sand making methods for sustainability. In *Risk, Reliability and Sustainable Remediation in the Field of Civil and Environmental Engineering* (pp. 285-313). Elsevier.
- Bhatawdekar, R. M., Singh, T. N., Tonnizam Mohamad, E., Armaghani, D. J., & Binti Abang Hasbollah, D. Z. (2021). River sand mining vis a vis manufactured sand for sustainability. In *Proceedings of the International Conference on Innovations for Sustainable and Responsible Mining: ISRM 2020-Volume 1* (pp. 143-169). Springer International Publishing.
- Bhuiyan, M. R. A. (2022). Overcome the future environmental challenges through sustainable and renewable energy resources. *Micro & Nano Letters*, 17(14), 402-416.
- Bijsterveld, K. (2008). *Mechanical sound: Technology, culture, and public problems of noise in the twentieth century*. MIT press.
- Bilal, H., Quraishi, R., Khan, F. A., & Ghufraan, M. A. (2016). Plastic Waste Management! A Step towards Climate Change Adaptation and Sustainable Development in District Swat, Kpk, Pakistan. *International Journal of Science and Research*, 5, 2319-7064.
- Black, R. D. (1991). *The Aggregate Handbook*. National Stone Association, Washington, DC.
- Blaikie, P., & Brookfield, H. (Eds.). (2015). *Land degradation and society*. Routledge.
- Bleu, P. (2019). State of the Environment and Development 2019: Preliminary version of Chapter 6: Food and water security. Plan Bleu's National Focal Points Meeting, Marseille, France, 27-29 May 2019. https://planbleu.org/wp-content/uploads/2019/02/PBRAC_Inf.5.6_Chapter-6_REV1.pdf

- Boavida-Portugal, I., Rocha, J., & Ferreira, C. C. (2016). Exploring the impacts of future tourism development on land use/cover changes. *Applied Geography*, 77, 82-91.
- Boiral, O., & Heras-Saizarbitoria, I. (2017). Managing biodiversity through stakeholder involvement: why, who, and for what initiatives? *Journal of Business Ethics*, 140(3), 403-421.
- Bolt, R. R., Leitch, J. A., Jones, A. C., Nicholson, W. I., & Browne, D. L. (2022). Continuous flow mechanochemistry: reactive extrusion as an enabling technology in organic synthesis. *Chemical Society Reviews*, 51(11), 4243-4260.
- Boonstra, R. (2013). Reality as the leading cause of stress: rethinking the impact of chronic stress in nature. *Functional Ecology*, 27(1), 11-23.
- Boori M S, Voženílek V, and Choudhary K. (2015) Land use/cover disturbance due to tourism in Jeseníky Mountain, Czech Republic: A remote sensing and GIS-based approach. *Egyptian Journal of Remote Sensing & Space Sciences*. 18, 17–26
- Boori, M S, Voženílek V, and Choudhary K. (2015) Land use/cover disturbance due to tourism in Jeseníky Mountain, Czech Republic: A remote sensing and GIS-based approach. *Egyptian Journal of Remote Sensing & Space Sciences*. 18, 17–26
- Bowley, A. L. (1926). The influence on the precision of index-numbers of correlation between the prices of commodities. *Journal of the Royal Statistical Society*, 89(2), 300-319.
- Bramwell, B., & Lane, B. (2011). *Tourism and collaboration: Contemporary issues and concepts*. Channel View Publications.
- Brooks, S. J., Spierenburg, M. J., & Wels, H. (2012). The organization of hypocrisy? Juxtaposing tourists and farm dwellers in game farming in South Africa. In W. van Beek, & A. Schmidt (Eds.), *African Hosts & their guests. Cultural dynamics of tourism* (pp. 201-222). James Currey.

- Browne, A. L., & Iossifova, D. (2022). Liu, Q. Creating water demand: bathing practice performances in a Chinese hot spring tourist town. *Journal of Sustainable Tourism*, 30(4), 685-703
- Brunori, G., & Wiskerke, J. S. C. (2004). Marketing sustainable agriculture: an analysis of the potential role of new food supply chains in sustainable rural development. SUSCHAIN deliverables, (20).
- Bruwer, J., & Rueger-Muck, E. (2019). Wine tourism and hedonic experience: A motivation-based experiential view. *Tourism and Hospitality Research*, 19(4), 488-502.
- Bryant, D., Nielsen, D., Tangle, L. (1997). The last frontier forests- ecosystems and economies on the edge. World Resource Institute, Washington DC.
- Buckley, R. (2011). Tourism and environment. *Annual Review of Environment and Resources*, 36: 397–416.
- Budiasa, I W, Setiawan B I, Kato H, Sekino N and Kubota J (2015) The Role of the Subak System and Tourism on Land Use Changes Within the Saba Watershed, Northern Bali, Indonesia 21 18 IOP Conf. Series: Materials Science and Engineering 662 (2019) 042016 IOP Publishing doi:10.1088/1757-899X/662/4/042016
- Buffa, F. (2015). Young tourists and sustainability. Profiles, attitudes, and implications for destination strategies. *Sustainability*, 7(10), 14042-14062.
- Buhalis, D., & Amaranggana, A. (2015). Smart tourism destinations enhancing tourism experience through personalisation of services. In *Information and Communication Technologies in Tourism 2015: Proceedings of the International Conference in Lugano, Switzerland, February 3-6, 2015* (pp. 377-389). Springer International Publishing.
- Buijs, A. E., Fischer, A., Rink, D., & Young, J. C. (2008). Looking beyond superficial knowledge gaps: Understanding public representations of biodiversity. *The International Journal of Biodiversity Science and Management*, 4(2), 65-80.
- Bukowski, R. W., & Tubbs, J. S. (2016). Egress concepts and design approaches. *SFPE handbook of fire protection engineering*, 2012-2046.

- Bunruamkaew, K.; Murayama, Y. (2012). Land use and natural resources planning for sustainable ecotourism using GIS in Surat Thani, Thailand. *Sustainability*, 4, 412–429.
- Burlakovs, J., Jani, Y., Kriipsalu, M., Grinfelde, I., Pilecka, J., & Hogland, W. (2020, March). Implementation of new concepts in waste management in tourist metropolitan areas. In *IOP Conference Series: Earth and Environmental Science* (Vol. 471, No. 1, p. 012017). IOP Publishing.
- Bush, M. J. (2018). Climate change adaptation in small island developing states. John Wiley & Sons.
- Butler, T. (2006). A walk of art: the potential of the sound walks as practice in cultural geography. *Social & cultural geography*, 7(6), 889-908.
- Cabras, I., & Bosworth, G. (2014). Embedded models of rural entrepreneurship: The case of pubs in Cumbria, North West of England. *Local economy*, 29(6-7), 598-616.
- Cajee, L. (2014). Eco-cultural tourism: a tool for environmental, cultural and economic sustainability (a case study of Darap Village, West Sikkim). In *SHS Web of Conferences* (Vol. 12, p. 01029). EDP Sciences.
- Calaretu, B., & Bulin, D. (2012). Environmental threats for tourism development. *Calitatea*, 13(1), 79.
- Caldwell, W., & Lang, K. (2014). Perspectives on Planning for Agriculture and Food Security in the Commonwealth. Commonwealth Association of Planners.
- Camilleri, M. A., & Camilleri, M. A. (2018). The tourism industry: An overview (pp. 3-27). Springer International Publishing.
- Campbell, F., Archer, B., Laurenson-Schafer, H., Jinnai, Y., Konings, F., Batra, N., ... & De Waroux, O. L. P. (2021). Increased transmissibility and global spread of SARS-CoV-2 variants of concern as at June 2021. *Eurosurveillance*, 26(24), 2100509.

- Cao, J.; Zhang, Z.D.; Cui, F. (2021). Response of ecosystem services to landscape pattern change in New York Bay area from 1996 to 2015. *World Regional Studies*, 30(4), 826–838.
- Cao, W, Huang L, Xiao, T, Wu, D. (2019) Effects of human activities on the ecosystems of China's national nature reserves. *Acta Ecologica Sinica* 39, 1338-1350.
- Cao, Y., Jian, F., Wang, J., Yu, Y., Song, W., Yisimayi, A., ... & Xie, X. S. (2023). Imprinted SARS-CoV-2 humoral immunity induces convergent Omicron RBD evolution. *Nature*, 614(7948), 521-529.
- Carter, N. H., Viña, A., Hull, V., McConnell, W. J., Axinn, W., Ghimire, D., & Liu, J. (2014). Coupled human and natural systems approach to wildlife research and conservation. *Ecology and Society*, 19(3).
- Carvalho, A. V. R. D. F. D. (2021). *Impact of recreational trails in flora distribution and composition: study case in Brijuni National Park, Croatia* [Unpolished Doctoral dissertation]. University of Lisboa.
- Cassimeris, L., Safer, D., Nachmias, V. T., & Zigmond, S. H. (1992). Thymosin beta 4 sequesters the majority of G-actin in resting human polymorphonuclear leukocytes. *The Journal of cell biology*, 119(5), 1261-1270.
- Castanho, R. A., Santos, C., & Couto, G. (2023). Creative tourism in islands and regional sustainable development: What can we learn from the pilot projects implemented in the Azores territory? *Land*, 12(2), 498
- Castellani, V., & Sala, S. (2010). Sustainable performance index for tourism policy development. *Tourism management*, 31(6), 871-880.
- Chai, Y.; Qiao, W.; Hu, Y.; He, T.; Jia, K.; Feng, T.; Wang, Y. (2021). Land-Use Transition of Tourist Villages in the Metropolitan Suburbs and Its Driving Forces: A Case Study of She Village in Nanjing City, China. *Land MDPI*, 10(2), 168.
- Chakravarty, S., Ghosh, S. K., Suresh, C. P., Dey, A. N., Shukla G. (2012). Deforestation: causes, effect and control strategies. Department of Forestry. Pomology & Post Harvest Technology, Faculty of Horticulture Uttar Banga

Krishi Viswavidyalaya, Pundibari. ICAR Research Complex for Eastern Region, Research Center, Plandu Ranchi India.

Chandel, S. P. K. (2022). Impacts of Tourism on Environment. *Central Asian Journal of Innovations on Tourism Management and Finance*, 3(10), 90-98.

Chandel, S. P. K. (2022). Impacts of tourism on environment. *Central Asian Journal of Innovations on Tourism Management and Finance*, 3(10), 90-98.

Charara, N., Cashman A., Bonnell R., Gehr R. (2011). Water use efficiency in the hotel sector of Barbados. *Journal of Sustainable Tourism*, 19(2), 231–245.

Chaudhary, A. K., Nokubo, M., Reddy, G. R., Yeola, S. N., Morrow, J. D., Blair, L. A., & Marnett, L. J. (1994). Detection of endogenous malondialdehyde-deoxyguanosine adducts in human liver. *Science*, 265(5178), 1580-1582.

Chaudhary, R. P., Uprety, Y., & Rimal, S. K. (2016). Deforestation in Nepal: Causes, consequences and responses. In Shroder, John F., and Sivanpillai, R. (Eds.), *Biological and environmental hazards, risks, and disasters* (pp. 335-372). Elsevier.

Chaudhry, S. M., & Kamal, S. (1996). Introduction to Statistical Theory Part1& Part 2. *Illmi Kitab Khana, Urdu Bazar, Lahore*, 106.

Chávez-Cortés, M., & Maya, J. A. A. (2010). Identifying and structuring values to guide the choice of sustainability indicators for tourism development. *Sustainability*, 2(9), 3074-3099.

Chen, H., Pinkham, B., & Peng, M. W., Sun, S. L., (2009) The institution-based view as a third leg for a strategy tripod. *Academy of management perspectives*, 23(3), 63-81.

Chen, Y., Wang, Y., Zhang, Y., Luan, Q., & Chen, X. (2020). Flash floods, land-use change, and risk dynamics in mountainous tourist areas: A case study of the Yesanpo Scenic Area, Beijing, China. *International Journal of Disaster Risk Reduction*, 50, 101873.

- Chevallier, R. (2014). Illegal sand mining in South Africa. *South African Institute of International Affairs (SAIIA). South Africa.*
<https://coillink.org/20.500.12592/3rhtsf>
- Chow, C. K., Teo, K. K., Rangarajan, S., Islam, S., Gupta, R., Avezum, A., ... & Yusuf, S. (2013). Prevalence, awareness, treatment, and control of hypertension in rural and urban communities in high-, middle-, and low-income countries. *Jama*, 310(9), 959-968.
- Chu, X., Morcos, J., Ilyas, I. F., Ouzzani, M., Papotti, P., Tang, N., & Ye, Y. (2015, May). Katara: A data cleaning system powered by knowledge bases and crowdsourcing. In *Proceedings of the 2015 ACM SIGMOD international conference on management of data* (pp. 1247-1261).
- Clams, G. (2017). Oceanography and Marine Biology. *Oceanography and marine biology: An annual review*, 55, 2-303.
- Cobbinah, & Agyeman, K. O., (2017). Locating the role of urbanites in solid waste management in Ghana. *Environmental Development* (24), 9–21.
- Cocola-Gant, A. (2018). 17. Tourism gentrification. L. Lees, & M. Philips, M.(Eds.), *Handbook of gentrification studies*, 281-293.
- Collivignarelli, C., Sorlini, S., & Vaccari, M. (2004). Solid waste management in developing countries. *Proceedings of the ISWA 2004 World Congress*, 17–21 October, Rome, Italy
- Colson, A. B. (2013). Dug Out, Dried Out or Flooded Out? Hydro Power and Mining Threats to the Indigenous Peoples of the Upper Mazaruni District, Guyana.
- Connell, J. (2011). A new inequality? Privatisation, urban bias, migration and medical tourism. *Asia Pacific Viewpoint*, 52(3), 260-271
- Connell, J. (2011). Elephants in the Pacific? Pacific urbanisation and its discontents. *Asia Pacific Viewpoint*, 52(2), 121-135.
- Connell, R. (2015). An iron ManM: The body and some contradictions of hegemonic masculinity. In *Sociological perspectives on sport* (pp. 141-149). Routledge.

- Corcoran, E. (2010). Sick water? the central role of wastewater management in sustainable development: a rapid response assessment. UNEP/Earthp
- Coria, J., & Calfucura, E. (2012). Ecotourism and the development of indigenous communities: The good, the bad, and the ugly. *Ecological Economics*, 73, 47-55.
- Corona, R., Galicia, L., Palacio-Prieto, J. L., Bürgi, M., & Hersperger, A. (2016). Local deforestation patterns and driving forces in a tropical dry forest in two municipalities of southern Oaxaca, Mexico (1985-2006). *Investigaciones Geográficas, Boletín del Instituto de Geografía*, 2016(91), 86-104.
- Crăciun, A. M., Dezs, Ș., Pop, F., & Cecilia, P. (2022). Rural Tourism—Viable Alternatives for Preserving Local Specificity and Sustainable Socio-Economic Development: Case Study— “Valley of the Kings” (Gurghiului Valley, Mureș County, Romania). *Sustainability*, 14(23), 16295.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *psychometrika*, 16(3), 297-334.
- Cukier, J. (2013). Tourism employment and shifts in the determination of social status in Bali: The case of the “guide”. In *Destinations* (pp. 63-79). Routledge.
- Czernek, K. (2013). Determinants of cooperation in a tourist region. *Annals of Tourism Research*, 40, 83-104.
- D’Odorico, P., Bhattachan, A., Davis, K. F., Ravi, S., & Runyan, C. W. (2013). Global desertification: drivers and feedbacks. *Advances in Water Resources*, 51, 326-344.
- Da, S., & Le Billon, P. (2022). Sand mining: Stopping the grind of unregulated supply chains. *The Extractive Industries and Society*, 10, 101070.
- Darji, K. (2012). Consumer and retailers awareness, perception, and preferences towards alternatives to plastic carry bags. *International Journal for Research in Management and Pharmacy (IJRMP)*, 1(1), pp 1.
- Das, B. (2018). Medical Tourism, Biomedical Wastes and Health Hazard. In *Advances in Human Factors and Ergonomics in Healthcare and Medical Devices: Proceedings of the AHFE 2017 International Conferences on Human Factors*

- and Ergonomics in Healthcare and Medical Devices, July 17–21, 2017, The Westin Bonaventure Hotel, Los Angeles, California, USA 8 (pp. 397-405). Springer International Publishing.
- Das, K. B., Pro-Vice-Chancellor, I. G. N. O. U., Sorsa, K., Lähteenmäki-Uutela, A., Jayashree, M., & Arora, M. M. (2015). the 21st Century”.
- Davenport, J., & Davenport, J. L. (2006). The impact of tourism and personal leisure transport on coastal environments: a review. *Estuarine, coastal and shelf science*, 67(1-2), 280-292.
- De Freitas, I. V., & Koskowski, M. R. (2021). Heritage and sustainable development: capacity building through tourism. In *Capacity Building Through Heritage Tourism* (pp. 113-131). Apple Academic Press.
- De Schipper, M. A., Ludka, B. C., Raubenheimer, B., Luijendijk, A. P., & Schlacher, T. A. (2021). Beach nourishment has complex implications for the future of sandy shores. *Nature Reviews Earth & Environment*, 2(1), 70-84.
- De Schutter, O. (2011). How not to think of land-grabbing: three critiques of large-scale investments in farmland. *The Journal of Peasant Studies*, 38(2), 249-279.
- Del Rosario, J. G. S. (2020). Comprehensive study of local ecotourism implementation for the Banaue Rice Terraces in addressing the adverse effects of imbalanced employment leading to environmental degradation (Doctoral dissertation, De La Salle University–Manila).
- Demianenko, S. G., & Vartanian, A. (2014). Means of Sustainable Tourism Development in Rural Areas of the Ukrainian Danube Delta.
- Demissie, B., Amsalu, A., Tesfamariam, Z., Nyssen, J., Meaza, H., Asfaha, T. G., ... & Van Eetvelde, V. (2022). Landscape changes in the semi-closed Raya agricultural graben floor of Northern Ethiopia. *Earth Systems and Environment*, 6(2), 1-16.
- Demko, V. (2020). Innovative clustering of the region in the context of increasing competitive positions of the enterprises of the tourist-recreational destination. *Geojournal of Tourism and Geosites* 31(3):1126-1134

- Deng, J. S., Wang, K., Hong, Y.; Qi, J.G. (2009). Spatio-temporal dynamics and evolution of land use change and landscape pattern in response to rapid urbanization. *Landscape & Urban Planning*, 92, 187–198.
- Deng, N., & Liu, J. (2021). Where did you take those photos? Tourists' preference clustering based on facial and background recognition. *Journal of Destination Marketing & Management*, 21, 100632.
- Dhiaulhaq, A., & McCarthy, J. F. (2020). Indigenous rights and agrarian justice framings in forest land conflicts in Indonesia. *The Asia Pacific Journal of Anthropology*, 21(1), 34-54.
- Diedrich, A., García-Buades E. (2009). Local perceptions of tourism as indicators of destination decline. *Tourism Management*, 30(4), 512–521.
- Duley, C., Agent, B. C. A., & Deller, S. (2012). The Economics of Sand Mining and Buffalo County. University of Wisconsin-Extension. Executive Summary, submitted to the Buffalo County Board.
- Dunlap, R. E., and W. R. Catton, Jr. 1979. Environmental sociology. *Ann. Rev. Social.* 5: 243.273.
- Dursun, A., & Caber, M. (2016). Using data mining techniques for profiling profitable hotel customers: An application of RFM analysis. *Tourism management perspectives*, 18, 153-160.
- Eberhardt, S., & Pospisil, M. (2021). EP heritage value assessment method proposed methodology for assessing heritage value of load-bearing structures. *International Journal of Architectural Heritage*, 16(11), 1-21.
- Echeverri, A., Smith, J. R., MacArthur-Waltz, D., Lauck, K. S., Anderson, C. B., Monge Vargas, R., ... & Daily, G. C. (2022). Biodiversity and infrastructure interact to drive tourism to and within Costa Rica. *Proceedings of the National Academy of Sciences*, 119(11), e2107662119.
- Egercioğlu, Y., Yakıcı, N., & Ertan, T. (2016). Urban decline and revitalization project in IzmirTire historical city center. *Procedia-Social and Behavioral Sciences*, 216, 330-337.

- Eggers, F. (2020). Masters of disasters? Challenges and opportunities for SMEs in times of crisis. *Journal of Business Research*, 116, 199–208.
- Egresi, I. (2016). Tourism and sustainability in Turkey: Negative impact of mass tourism development. *Alternative Tourism in Turkey: Role, Potential Development and Sustainability*, 35-53.
- Elsasser, H, Burki R (2002) Climate change as a threat to tourism in the Alps. *Climate Res* 20:253– 257.
- Etter, A., McAlpine, C., & Possingham, H. (2008). Historical patterns and drivers of landscape change in Colombia since 1500: a regionalized spatial approach. *Annals of the Association of American Geographers*, 98(1), 2-23.
- Eugenio-Martin, J. L., & Campos-Soria, J. A. (2014). Economic crisis and tourism expenditure cutback decision. *Annals of tourism Research*, 44, 53-73.
- Evans KL, Greenwood JJD, Gaston, KJ (2007) The positive correlation between avian species richness and human population density in Britain is not attributable to sampling bias. *Global Ecology and Biogeography*, 16: 300-304.
- Everett, S., & Slocum, S. L. (2013). Food and tourism: An effective partnership? A UK-based review. *Journal of Sustainable Tourism*, 21(6), 789-809.
- Everingham, P., & Chassagne, N. (2021). Post COVID-19 ecological and social reset:: moving away from capitalist growth models towards tourism as Buen Vivir. In *Global Tourism and COVID-19* (pp. 101-112). Routledge.
- Falcucci, A., Maiorano, L., & Boitani, L. (2007). Changes in land-use/land-cover patterns in Italy and their implications for biodiversity conservation. *Landscape ecology*, 22, 617-631.
- Fang J, Shen Z, Cui M (2004) Ecological characteristics of mountains and research issues of mountain ecology. *Biodiversity Science*, 12: 10-19.
- Fang, F. C. (2004). Antimicrobial reactive oxygen and nitrogen species: concepts and controversies. *Nature Reviews Microbiology*, 2(10), 820-832.
- Fang, Y., Qureshi, I., Sun, H., McCole, P., Ramsey, E., & Lim, K. H. (2014). Trust, satisfaction, and online repurchase intention. *MIS quarterly*, 38(2), 407-A9.

- FAO, 2005. State of World's Forests, <http://news.mongabay.com/2005/1115-forests.html>, Rome.
- FAO. 2009. Country support tool for scaling-up Sustainable Land Management in Sub-Saharan Africa. Version 1.0. A TerrAfrica partnership publication.
- Farah, M. Y., & Ineke, W. R. (2022). The Succession Patterns of Agricultural Lands in the Special Region of Yogyakarta Province, Indonesia. *Journal of Population and Social Studies [JPSS]*, 30, 625-639.
- Fatima, N., & Akhtar, M. (2021). Maritime Tourism: Global Success Stories and the Case of Pakistan. *P-JMR*, 2(1), 1-1.
- Fernández, A. S. (2019). La enseñanza de las Ciencias Sociales a partir de problemas sociales o temas controvertidos: estado de la cuestión y resultados de una investigación. *El Futuro del Pasado: revista electrónica de historia*, (10), 57-79.
- Ferronato, N., & Torretta, V. (2019). Waste mismanagement in developing countries: A review of global issues. *International journal of environmental research and public health*, 16(6), 1060.
- Figueroa, B. E., & Rotarou, E. S. (2016). Sustainable development or eco-collapse: Lessons for tourism and development from Easter Island. *Sustainability*, 8(11), 1093.
- Firman, T. (1997). Land conversion and urban development in the northern region of west Java Indonesia. *Urban Studies*, 34(7), 1027–1046.
- Fischer, C. (2019). Agriculture and tourism sector linkages: Global relevance and local evidence for the case of South Tyrol. *Open Agriculture*, 4(1), 544-553.
- Fitting, E. (2010). The struggle for maize: campesinos, workers, and transgenic corn in the Mexican countryside. Duke University Press.
- Fletcher, R. (2022) Pandya, R., Dev, H. S., & Rai, N. D., Rendering land touristifiable:(eco) tourism and land use change. *Tourism Geographies* 25(60), 1-17

- Fonarow, G. C. S., Xian, Y., Holmes, D. N., Matsouaka, R. A., Saver, J. L., Smith, E. E., ... & Man, (2020). Association between thrombolytic door-to-needle time and 1-year mortality and readmission in patients with acute ischemic stroke. *Jama*, 323(21), 2170-2184.
- Frantál, B., & Kunc, J. (2011). Wind turbines in tourism landscapes: Czech experience. *Annals of tourism research*, 38(2), 499-519.
- Fraser, N. (2008). Social justice in the age of identity politics: Redistribution, recognition, and participation. In *Geographic Thought* (pp. 72-89). Rutledge
- Fregolent, L., & Vettoretto, L. (2017). Land use regulation and social regulation: an unexplored link. Some reflections on the origins and evolution of sprawl in the Veneto “città diffusa”. *Land Use Policy*, 69, 149-159.
- Fréguin-Gresh, S., White, C. W., López, J. C. F., Oporta, P. E. M., Huybrechs, F., & Pikitle, A. (2014). Mapping institutions that govern access and uses of natural resources in the Nicaragua-Honduras sentinel landscape (No. hal-03078254).
- Fu, L., & Sanada, J. (2023). Spatial Patterns and Influencing Factors of Rural Land Commodification at Township Scale: A Case Study in Shijiazhuang City, North China. *Land*, 12(6), 1194.
- Galli, M., Bonari, E., & Lardon, S. (2010). Agricultural management in peri-urban areas. The experience of an international workshop. In *Agricultural management in peri-urban areas. The experience of an international workshop* (pp. 166-p). Felici.
- Gao, J., Wang, Y., Zou, C., Xu, D., Lin, N., Wang, L., & Zhang, K. (2020). China's ecological conservation redline: A solution for future nature conservation. *Ambio*, 49, 1519-1529.
- Garau-Vadell, J.B., Gutierrez-Taño D., Diaz-Armas, R. (2018). Economic crisis and residents' perception of the impacts of tourism in mass tourism destinations. *Journal of Destination Marketing & Management*, 7: 68–75.

- Gardien, P., Djajadiningrat, T., Hummels, C., & Brombacher, A. (2014). Changing your hammer: The implications of paradigmatic innovation for design practice. *International Journal of Design*, 8(2).
- Gavriletea, M. D. (2021)., Hunt, J., Lingos, A., Platje, J., Vieira, L. W., Will, M., & Leal Filho, W. The unsustainable use of sand: Reporting on a global problem. *Sustainability*, 13(6), 3356.
- Gavriletea, M.D. (2017). Environmental Impacts of Sand Exploitation. Analysis of Sand Market. *Sustainability*. 9, 1118; doi:10.3390/su9071118.
- Gawande, A. (2011). The hot spotters. *The New Yorker*, 86(45), 40-51.
- Gazta, K. (2018). Environmental impact of tourism. *AGU International Journal of Professional Studies & Research*, 6(6), 7-17.
- Gebeyehu, Z. H. (2022). Access to Land and Tenure Security in Ethiopia's Ethnic-Based Administration System. *African Journal of Land Policy and Geospatial Sciences*, 5(3), 521-541
- Gedik, S., & Mugan-Ertugral, S. (2019). The effects of marine tourism on water pollution. *Fresenius Environ. Bull*, 28(2), 863-866.
- General-Social, Survey 2014, Cross Section and Panel Combined Smith, T. W. (2019, February 10). 10.17605/OSF.IO/KB9S6
- Gentry, K. M. (2007). Belizean women and tourism work: Opportunity or impediment?. *Annals of Tourism Research*, 34(2), 477-496.
- Gerber, N., Nkonya, E., & von Braun, J. (2014). Land Degradation, Poverty and Marginality. In *Marginality* (pp. 181-202). Springer Netherlands.
- Gessese, B. H., (2018). Drivers of Land Use/Land Cover Change in the Guraferda District of Bench Maji Zone, Southwestern Ethiopia. *Journal of Ecology and Environmental Sciences*, 6(1).
- Getz, D., & Page, S. J. (2019). Event studies: Theory, research and policy for planned events. Routledge.

- Ghadami, M., Dittmann, A., Pazhuhan, M., & Aligholizadeh Firouzjaie, N. (2022). Factors affecting the change of agricultural land use to tourism: A case study on the Southern Coasts of the Caspian Sea, Iran. *Agriculture*, 12(1), 90.
- Ghani, S. (2020, March 30). Importance of tourism industry and its economic value.
- Ghosh, S. (2019). Role of joint forest management and eco development committees in the bio-diversity conservation of jaldapara national park in alipurduar district of West Bengal. *International Journal of Research and Analytical Reviews*, 6(1), 155-165.
- Ghulam-Rabbany, M., Afrin, S., Rahman, A., Islam, F., & Hoque, F. (2013). Environmental effects of tourism. *American Journal of Environment, Energy and Power Research*, 1(7), 117-130.
- Gibson, H., & Yiannakis, A. (2002). Tourist roles: Needs and the life course. *Annals of tourism research*, 29(2), 358-383.
- Girard, L. F., & Nijkamp, P. (Eds.). (2009). Cultural tourism and sustainable local development. Ashgate Publishing, Ltd.
- Givoni, M. (2006). Development and impact of the modern high-speed train: A review. *Transport reviews*, 26(5), 593-611.
- Gladstone, D. L. (2013). From pilgrimage to package tour: Travel and tourism in the third world. Routledge.
- Gobster, P. H., Nassauer, J. I., Daniel, T. C., & Fry, G. (2007). The shared landscape: what does aesthetics have to do with ecology? *Landscape ecology*, 22, 959-972.
- GOI, 2009, Market Research Division, Ministry of tourism, "Tourism Statistics 2008."
- Goodwin, H. (2011). Taking responsibility for tourism (pp. 1-256). Goodfellow.
- GOP, 2002. Economic Survey of Pakistan. Ministry of Finance, Government of Pakistan, Islamabad.
- Gössling, S. 2002. Global environmental consequences of tourism. *Global Environmental Change*, 12(4), 283–302.

- Gössling, S., Scott, D., & Hall, C. M. (2014). *Tourism and water: Interactions and impacts*. Channel View Publications.
- Government, of Ghana. (2010a). *Environmental Sanitation Policy*. Accra: Ministry of Local Government and Rural Development.
- Granatstein, D., & Sánchez, E. (2009). Research knowledge and needs for orchard floor management in organic tree fruit systems. *International journal of fruit science*, 9(3), 257-281.
- Graziano, M., Giorgi, A., & Feijoó, C. (2021). Multiple stressors and social-ecological traps in Pampean streams (Argentina): a conceptual model. *Science of the Total Environment*, 765, 142785.
- Greene, S. (2017). Indigenous People Incorporated? Culture as Politics, Culture as Property in Pharmaceutical Bioprospecting 1. In *Intellectual Property* (pp. 451-477). Routledge.
- Gregg, S. M. (2010). *Managing the mountains: Land use planning, the New Deal, and the creation of a federal landscape in Appalachia*. Yale University Press.
- Guisan, A., Tingley, R., Baumgartner, J. B., Naujokaitis-Lewis, I., Sutcliffe, P. R., Tulloch, A. I., & Buckley, Y. M. (2013). Predicting species distributions for conservation decisions. *Ecology letters*, 16(12), 1424-1435.
- Gumus, F., Eskin, I., Veznikli, A., & Gumus, M. (2007). Availability of rural tourism for Gallipoli villages: The potentials and attitudes, 157.
- Gunawan, I., Sagala, S., Amin, S., Zawani, H., & Mangunsong, R. (2015). City risk diagnostic for urban resilience in Indonesia.
- Gupta, G. S. (2019). Land degradation and challenges of food security. *Rev. Eur. Stud.*, 11, 63.
- Gupta, S., & Gupta, S. K. (2019). Abstractive summarization: An overview of the state of the art. *Expert Systems with Applications*, 121, 49-65.
- Haghnazar, H., & Saneie, M. (2019). Impacts of pit distance and location on river sand mining management. *Modeling Earth Systems and Environment*, 5, 1463-1472.

- Haibo, C., Ayamba, E. C., Udimal, T. B., Agye-Man, A. O., & Ruth, A. (2020). Tourism and sustainable development in China: A review. *Environmental Science and Pollution Research*, 27, 39077-39093.
- Hall, C. M., & Page, S. J. (Eds.). (2017). The Routledge handbook of tourism in Asia (pp. 3-24). London: Routledge.
- Hall, C. M., Johnson, G., Cambourne, B., Macionis, N., Mitchell, R., & Sharples, L. (2009). Wine tourism: an introduction. In Wine tourism around the world (pp. 1-23). Routledge.
- Hall, M.C. (2001), "Trends in Ocean and Coastal Tourism: The End of the Last Frontier?", *Ocean & Coastal Management*, 44, 601-61.
- Hamanaka, R.B.; Mutlu, G.M. Particulate Matter Air Pollution: Effects on the Cardiovascular System. *Front. Endocrinol.* 2018, 9, 680.
- Hamidi, S., Sabouri, S., & Ewing, R. (2020). Does density aggravate the COVID-19 pandemic? Early findings and lessons for planners. *Journal of the American Planning Association*, 86(4), 495-509
- Hammad, H. M., Ashraf, M., Abbas, F., Bakhat, H. F., Qaisrani, S. A., Mubeen, M., ... & Awais, M. (2019). Environmental factors affecting the frequency of road traffic accidents: a case study of sub-urban area of Pakistan. *Environmental Science and Pollution Research*, 26, 11674-11685.
- Hammes, D. L. (1994). Resort development impact on labor and land markets. *Annals of Tourism Research*, 21, 729–744
- Han, S.S.; Vu, K.T. Land Acquisition in Transitional Hanoi, Vietnam. *Urban Stud.* 2008, 45, 1097–1117.
- Hancock, J. (2019). Environmental human rights: Power, ethics and law. Rutledge.
- Hansen, A. J., & DeFries, R. (2007). Ecological mechanisms linking protected areas to surrounding lands. *Ecological applications*, 17(4), 974-988.
- Hardy, A., Beeton, R. J., & Pearson, L. (2002). Sustainable tourism: An overview of the concept and its position in relation to conceptualizations of tourism. *Journal of sustainable tourism*, 10(6), 475-496.

- Harris, A., Carr, A. S., & Dash, J. (2014). Remote sensing of vegetation cover dynamics and resilience across southern Africa. *International Journal of Applied Earth Observation and Geoinformation*, 28, 131-139.
- Harris, J. M., & Roach, B. (2017). *Environmental and natural resource economics: A contemporary approach*. Routledge.
- Hatt, B. E., Fletcher, T. D., & Deletic, A. (2009). Hydrologic and pollutant removal performance of stormwater biofiltration systems at the field scale. *Journal of Hydrology*, 365(3-4), 310-321.
- Havnevik, K., Bryceson, D., Birgegård, L. E., Matondi, P., & Beyene, A. (2007). African agriculture and the World Bank: development or impoverishment? Nordiska Afrikainstitutet.
- Hayes, T., & Persha, L. (2010). Nesting local forestry initiatives: Revisiting community forest management in a REDD+ world. *Forest Policy and Economics*, 12(8), 545-553.
- Henman, P. (2017). The computer says' DEBT': Towards a critical sociology of algorithms and algorithmic governance.
- Henman-Weir, F. (2017). Audit tools to assess, quantify, monitor and report on impacts on water resources at a catchment unit level. University of Johannesburg (South Africa).
- Henning, B. (2011). Standing in livestock's "long shadow": the ethics of eating meat on a small planet. *Ethics & the Environment*, 16(2), 63-93.
- Henson, J. N., Guy, B. S., & Dotson, M. J. (2015). Should I stay or should I go?: Motivators, decision factors, and information sources influencing those predisposed to medical tourism. *International Journal of Healthcare Management*, 8(1), 4-14.
- Hezbollah, Şoimaru, D. (2021) –between Myth and Reality. *Strategic Impact*, (79), 93-109.

- Highfield, W. E., Norman, S. A., & Brody, S. D. (2013). Examining the 100-year floodplain as a metric of risk, loss, and household adjustment. *Risk Analysis: An International Journal*, 33(2), 186-191.
- Hikmawan, M. D., Hamid, A., Nurrohman, B., Ramadhan, G., & Maâ, Y. (2020). Collaborative Governance Model on Agricultural Business in Banten, Indonesia. *Journal Transformative*, 6(2), 176-201.
- Hiwasaki, L. (2006). Community-based tourism: A pathway to sustainability for Japan's protected areas. *Society and Natural Resources*, 19(8), 675-692
- Hjalager, A. M., & Johansen, P. H. (2013). Food tourism in protected areas—sustainability for producers, the environment and tourism? *Journal of Sustainable Tourism*, 21(3), 417-433.
- Hjalager, A.M. (2020). Land-use conflicts in coastal tourism and the quest for governance innovations. *Land Use Policy*, 94, 104566.
- Holloway, J. (2019). *We are the crisis of capital: A John Holloway reader*. PM Press.
- Holmes, J. (2006). Impulses towards a multifunctional transition in rural Australia: Gaps in the research agenda. *Journal of rural studies*, 22(2), 142-160.
- Hopkins, D. M. (2013). The social phenomenon of climate change: contextual vulnerability, risk perception and adaptation in the ski industry of Queenstown, New Zealand (Doctoral dissertation, University of Otago).
- Hossain, A., Krupnik, T. J., Timsina, J., Mahboob, M. G., Chaki, A. K., Farooq, M., ... & Hasanuzzaman, M. (2020). Agricultural land degradation: processes and problems undermining future food security. In *Environment, climate, plant and vegetation growth* (pp. 17-61). Cham: Springer International Publishing.
- Hossain, M. S., Alam, G. M., Fahad, S., Sarker, T., Moniruzzaman, M., & Rabbany, M. G. (2022). Smallholder farmers' willingness to pay for flood insurance as climate change adaptation strategy in northern Bangladesh. *Journal of Cleaner Production*, 338, 130584.
- Hou, L., & Cai, Y. (2004). An essential analysis and review on land use/cover change research. *Progress in Geography*, 23(6), 96–104.

- Hovorka, A. J. (2005). The (re) production of gendered positionality in Botswana's commercial urban agriculture sector. *Annals of the Association of American Geographers*, 95(2), 294-313.
- Howe, J., Richards, P., & Howe, J. D. G. F. (2019). Rural roads and poverty alleviation. Routledge.
- Huang, H. (2019). Post-rural urbanization in China: learning from university engagements in village transformation processes (Doctoral dissertation, Dissertation, Berlin, Technische Universität Berlin, 2018).
- Huang, L., Zhao, X., & Huang, K. (2019). Got-10k: A large high-diversity benchmark for generic object tracking in the wild. *IEEE transactions on pattern analysis and machine intelligence*, 43(5), 1562-1577.
- Huber, D., Milne, S., & Hyde, K. F. (2018). Constraints and facilitators for senior tourism. *Tourism management perspectives*, 27, 55-67.
- Hulme, P. E. (2011). Addressing the threat to biodiversity from botanic gardens. *Trends in Ecology & Evolution*, 26(4), 168-174.
- Hunziker, M. (2017). Linking demand and supply factors in identifying cultural ecosystem services of urban green infrastructures: A review of European studies. *Urban forestry & urban greening*, 21, 48-59.
- Hussain, T., Tan, B., Yin, Y., Blachier, F., Tossou, M. C., & Rahu, N. (2016). Oxidative stress and inflammation: what polyphenols can do for us? *Oxidative medicine and cellular longevity*, 2016(1), 7432797.
- Ibrahim, I., Aziz, N. A., & Hanifah, N. A. (2012). The laws of wetness: the legislative framework in Malaysia regarding wetlands conservation. *Procedia-Social and Behavioral Sciences*, 50, 574-581.
- Immacolata, V. (2018). Agriculture, Rural Tourism and Circular Paradigm. *Quality-Access to Success*, 19.
- Inatimi, S. A. (2023). The Need to Conserve and Protect Forest Resources: African Perspective. In *Sustainable Utilization and Conservation of Africa's Biological*

Resources and Environment (pp. 203-233). Singapore: Springer Nature Singapore.

Ingram, J. C., Franco, G., Rumbaitis-del Rio, C., & Khazai, B. (2006). Post-disaster recovery dilemmas: challenges in balancing short-term and long-term needs for vulnerability reduction. *Environmental science & policy*, 9(7-8), 607-613.

International Civil Aviation Organization (ICAO) (2001), "CAEP recommends further measures for reducing aircraft noise, engine exhaust emissions", ICAO, Update, January/February.

Irungu, S. (2016). Actors in Environmental Crime in City Slums of Kenya; the Case of Illegal Dumping in Mathare Slum of Nairobi (Doctoral dissertation, University of Nairobi).

Islam, M. M., Karim, M. R., Zheng, X., & Li, X. (2018). Heavy metal and metalloid pollution of soil, water and foods in bangladesh: a critical review. *International journal of environmental research and public health*, 15(12), 2825.

Jadhav, E. B., Sankhla, M. S., Bhat, R. A., & Bhagat, D. S. (2021). Microplastics from food packaging: An overview of human consumption, health threats, and alternative solutions. *Environmental Nanotechnology, Monitoring & Management*, 16, 100608.

Jafari, F. (1990). On bounded and compact composition operators in polydiscs. *Canadian Journal of Mathematics*, 42(5), 869-889.

Jamal, A. C. (2018). Coworking spaces in mid-sized cities: A partner in downtown economic development. *Environment and Planning A: Economy and Space*, 50(4), 773-788.

Jamal, T., & Stronza, A. (2009). Collaboration theory and tourism practice in protected areas: Stakeholders, structuring and sustainability. *Journal of Sustainable tourism*, 17(2), 169-189.

James, P., Holden, M., Lewin, M., Neilson, L., Oakley, C., Truter, A., & Wilmoth, D. (2013). 217 Managing metropolises by negotiating urban growth. In *Institutional and social innovation for sustainable urban development* (pp. 217-232). Routledge.

- Jarah, S. H. A., Zhou, B., Abdullah, R. J., Lu, Y., & Yu, W. (2019). Urbanization and urban sprawl issues in city structure: A case of the Sulaymaniah Iraqi Kurdistan Region. *Sustainability*, 11(2), 485.
- Jarah, S., Zhou, B., Abdullah, R., Lu, Y., & Yu, W. (2019). "Urbanization and urban sprawl issues in city structure: A case of the Sulaymaniah Iraqi Kurdistan region". *Sustainability*, 11(2), 1–21.
- Jehan, Y., Batool, M., Hayat, N., & Hussain, D. (2022). Socio-Economic and Environmental Impacts of Tourism on Local Community in Gilgit Baltistan, Pakistan: A Local Community Prospective. *Journal of the Knowledge Economy* 14(4):1-20
- Jenberu, A. A., & Admasu, T. G. (2020). Urbanization and land use pattern in Arba Minch town, Ethiopia: driving forces and challenges. *GeoJournal*, 85(3), 761-778.
- Jiang, L., Deng, X., & Seto, K. C. (2013). The impact of urban expansion on agricultural land use intensity in China. *Land use policy*, 35, 33-39.
- Jiang, Y., Long, H., Ives, C. D., Deng, W., Chen, K., & Zhang, Y. (2022). Modes and practices of rural vitalisation promoted by land consolidation in a rapidly urbanising China: A perspective of multifunctionality. *Habitat International*, 121, 102514.
- Jin, F., Qian, Z. S., Chu, Y. M., & ur Rahman, M. (2022). On nonlinear evolution model for drinking behavior under Caputo-Fabrizio derivative. *J. Appl. Anal. Comput*, 12(2), 790-806.
- Jin, G., Chen, K., Wang, P., Guo, B., Dong, Y., & Yang, J. (2019). Trade-offs in land-use competition and sustainable land development in the North China Plain. *Technological Forecasting and Social Change*, 141, 36-46.
- Jodar-Abellan, A., Valdes-Abellan, J., Pla, C., & Gomariz-Castillo, F. (2019). Impact of land use changes on flash flood prediction using a sub-daily SWAT model in five Mediterranean ungauged watersheds (SE Spain). *Science of the Total Environment*, 657, 1578-1591.

- John, R. (2021). Sand geographies: Disentangling the material foundations of the built environment. *Geography Compass*, 15(5), e12560.
- Jonathan, P. (Ed.). (2008). Local Economic and Employment Development (LEED) Entrepreneurship and Higher Education (No. 18). OECD Publishing.
- Jönsson, C., & Devonish, D. (2008). Does nationality, gender, and age affect travel motivation? A case of visitors to the Caribbean island of Barbados. *Journal of Travel & Tourism Marketing*, 25(3-4), 398-408.
- Jovanović, S., & Ilić, I. (2016). Infrastructure as important determinant of tourism development in the countries of Southeast Europe. *Ecoforum journal*, 5(1), 288-294.
- Joy, A., & Gopinath, A. (2021). The application of reefs in shoreline protection. *Handbook of ecological and ecosystem engineering*, 295-315.
- Kachniewska, M. A. (2015). Tourism development as a determinant of quality of life in rural areas. *Worldwide Hospitality and Tourism Themes*, 7(5), 500-515.
- Kala, C. P., & Maikhuri, R. K. (2011). Mitigating people-park conflicts on resource use through ecotourism: A case of the Nanda Devi Biosphere Reserve, Indian Himalaya. *Journal of Mountain Science*, 8(1), 87-95.
- Kalchenko, S. V., Hutorov, A. O., Bezuhla, L. S., Leushina, O. A., Popova, T. V., & Dorokhov, O. V. (2021). Managing the SOCIO-economic development OF small forms OF green tourism. Bulletin of the Transilvania University of Brasov. Series II: Forestry• Wood Industry• Agricultural Food Engineering, 141-152
- Kalhor, Z. A., & Abbas, M. (2022). Impact of tourism on the lifestyle of local community in the SWAT Valley. *Pakistan Journal of Social Research*, 4(2), 668-682.
- Kamwi, J, Cho M, Kaetsch C, Manda S, Graz F and Chirwa P., (2018). Assessing the Spatial Drivers of Land Use and Land Cover Change in the Protected and Communal Areas of the Zambezi Region, Namibia. *Land*, 7 131

- Káposzta, J., & Nagy, H. (2022). The Major Relationships in the Economic Growth of the Rural Space. *European Countryside*, 14(1), 67-86.
- Karl, M. (2018). Risk and uncertainty in travel decision-making: Tourist and destination perspective. *Journal of Travel Research*, 57(1), 129-146.
- Katori, (1996), Kodama, R., Ikeda, N., Kato, Y., Y., Iwai, T., & Takeshi, K.. Development of an advanced Kirkpatrick–Baez microscope. *Optics Letters*, 21(17), 1321-1323.
- Kattara, H. S., Weheba, D., & Ahmed, O. (2015) The impact of employees' behavior on customers' service quality perceptions & overall satisfaction. *African Journal of Hospitality, Tourism & Leisure*. 4(2). pp. 1-14.
- Keith–Diagne, L. (2022). How Might Climate Change Affect the Ethology and Behavioral Ecology of Dugongs and Manatees?. In *Ethology and behavioral ecology of Sirenia* (pp. 351-406). Cham: Springer International Publishing.
- Kerber, H., & Kramm, J. (2021). On-and offstage: Encountering entangled waste–tourism relations on the Vietnamese Island of Phu Quoc. *The Geographical Journal*, 187(2), 98-109.
- Khan, A. A., & Arshad, S. A. N. A. (2014). Wetlands of Pakistan: distribution, degradation and management. *Pakistan Geographical Review*, 69(1), 28-45.
- Khan, A., Khan M. Ayaz, Said A., Ali Z., Khan H. Ahmad N. And Garstang, R. (2010). Rapid Assessment of Flood Impact On The Environment In Selected Affected Areas Of Pakistan. Pakistan Wetlands Programme and Undp Pakistan. Pp 35.
- Khan, I., (2023), Alharthi, M., Zafar, M. W., Jie, H., & Saeed, A. Sustainable energy policy, socio-economic development, and ecological footprint: The economic significance of natural resources, population growth, and industrial development. *Utilities Policy*, 81, 101490.
- Khan, I., Shah, D., & Shah, S. S. (2021). COVID-19 pandemic and its positive impacts on environment: An updated review. *International Journal of Environmental Science and Technology*, 18(2), 521–530.

- Khan, S.; Qureshi, S.F.; Hasan, M.-U. (2019). Climate change and hazards risk management, community capability, resilience and vulnerability in Swat, Shangla, and Kohistan District, Northwest Pakistan. *Int. J. Econ. Environ. Geol.* 10, 69–77
- Khondker, B. H., & Ahsan, T. (2015). Background paper on tourism sector. Background Paper for the 7th Five Year Plan.
- Klaric, M. & Kopric, I., (2015). New developments in local democracy in Croatia. *Croat. & Comp. Pub. Admin.*, 15, 389.
- Klosi, I. (2020). World Heritage, Tourism and Rural Sustainable Development in the Lake Ohrid Region: Discourses, Approaches and Challenges. (1), 186-199.
- Knight, J. (2009). Making wildlife viewable: habituation and attraction. *Society & Animals*, 17(2), 167-184.
- Kondolf, G.M. (1998). Environmental Effects of Aggregate Extraction from River Channels and Floodplains, Aggregate Resources: A Global Perspective. A.A, Balkema, Rotterdam, Netherlands, pp. 113-129.
- Kondolf, GM. (1997) Hungry water: Effects of dams and gravel mining on river channels. *Environmental Management*, 21(4), 533-551.
- Koop, S. H., & Van Leeuwen, C. J. (2017). The challenges of water, waste and climate change in cities. *Environment, development and sustainability*, 19(2), 385-418.
- Krishna, A.G., (1993). Case study on the effects of tourism on culture and the environment: India; Jaisalmer, Khajuraho and Goa In Honey.
- Kropinova, E. G. (2020). Tourism and the sustainable development of the Baltic Sea Region. In Decent Work and Economic Growth (pp. 1051-1066). Cham: Springer International Publishing.
- Kuklina, M., Trufanov, A., Gurevskaya, A., Krasnoshtanova, N., & Kobylkin, D. (2021, October). Problems of tourism infrastructure development (on the example of Olkhon Island). In *IOP Conference Series: Earth and Environmental Science* (Vol. 885, No. 1, p. 012052). IOP Publishing.
- Kumar, Kanga, S., Singh, S. K., Meraj, G., A., Parveen, R., Kranjčić, N., & Đurin, B. (2022). Assessment of the impact of urbanization on geoenvironmental settings

- using geospatial techniques: a study of Panchkula District, Haryana. *Geographies*, 2(1), 1-10.
- Kumar, Ph D, S. S., & V Ph D, A. B. (2018). Impact Of Climate Changes On Tourism Development In India. *International Review of Business and Economics*, 1(3), 34.
- Kurniawan F, Adrianto L, Bengen D G and Prasetyo L B (2016). Patterns of Landscape Change on Small Islands: A Case of Gili Matra Islands, Marine Tourism Park, Indonesia. *Procedia - Social and Behavioral Sciences*, 227, 553–9
- Labadi, S., Giliberto, F., Rosetti, I., Shetabi, L., & Yildirim, E. (2021). Heritage and the sustainable development goals: Policy guidance for heritage and development actors. *International Journal of Heritage Studies*.
- Labbé, D.; Musil, C. Periurban, (2015). Land Redevelopment in Vietnam under Market Socialism. *Urban Stud.*, 51, 1146–1161.
- Ladan, S. I. (2014, March). Examining human wild life conflict in Africa. In International conference on biological, civil and environmental engineering (pp. 102-5).
- Lal, R., Safriel, U., & Boer, B. (2012). Zero Net Land Degradation: A New Sustainable Development Goal for Rio+ 20. [A report prepared for the Secretariat of the United Nations Convention to Combat Desertification.
- Lambi, C. M., Kimengsi, J. N., Kometa, C. G., & Tata, E. S. (2012). The management and challenges of protected areas and the sustenance of local livelihoods in Cameroon. *Environment and Natural Resources Research*, 2(3), 10.
- Lanya, I, Dibia, I. N, Diara, I. W. and Suarjaya, D. G., (2017). Analysis of Subak Landuse Change Due to Tourism Accommodation Development in North Kuta Sub-district, Badung Regency, Indonesia. IOP Conf. Ser. *Earth Environmental Sciences*. 98 012024
- Laurance, W.F.; Goosem, M.; Laurance, S. (2009). Impacts of roads and linear clearings on tropical forests. *Trends Ecol. Evol.* 24, 659–669

- Lavers, T. (2012). 'Land grab' as development strategy? The political economy of agricultural investment in Ethiopia. *Journal of Peasant Studies*, 39(1), 105-132.
- Le, M. K., Zhu, J., & Nguyen, H. L. (2020). Land redevelopment under ambiguous property rights in transitional Vietnam: A case of spatial transformation in Hanoi city center. *Land Use Policy*, 120, 106290.
- Leal Filho, W., Hunt, J., Lingos, A., Platje, J., Vieira, L. W., Will, M., & Gavrilletea, M. D. (2021). The unsustainable use of sand: Reporting on a global problem. *Sustainability*, 13(6), 3356.
- Leal Filho, W., Hunt, J., Lingos, A., Platje, J., Vieira, L. W., Will, M., & Gavrilletea, M. D. (2021). The unsustainable use of sand: Reporting on a global problem. *Sustainability*, 13(6), 3356.
- LeFevre, G. H., Paus, K. H., Natarajan, P., Gulliver, J. S., Novak, P. J., & Hozalski, R. M. (2015). Review of dissolved pollutants in urban storm water and their removal and fate in bioretention cells. *Journal of Environmental Engineering*, 141(1), 04014050.
- Leonard, Musavengane, R., Siakwah, P., & L. (2019). The nexus between tourism and urban risk: Towards inclusive, safe, resilient and sustainable outdoor tourism in African cities. *Journal of Outdoor Recreation and Tourism*, 29, 100254.
- Leote, P., Cajaiba, R. L., Moreira, H., Gabriel, R., & Santos, M. (2022). The importance of invertebrates in assessing the ecological impacts of hiking trails: A review of its role as indicators and recommendations for future research. *Ecological Indicators*, 137, 108741.
- Letoluo, M. L., & Wangombe, L. (2018). Exploring the socio-economic effects of the community tourism fund to the local community, Maasai Mara National Reserve. *Universal Journal of Management*, 6(2), 51-58.
- Li Y, Yang M, Liang L (2010) Dynamic analysis of land use in county-level tourist areas based on RS and GIS. *Mapping and Spatial Geographic Information*, 33: 21-24.

- Li, J., Zou, B., Yeo, Y. H., Feng, Y., Xie, X., Lee, D. H., ... & Nguyen, M. H. (2019). Prevalence, incidence, and outcome of non-alcoholic fatty liver disease in Asia, 1999–2019: a systematic review and meta-analysis. *The lancet Gastroenterology & hepatology*, 4(5), 389-398.
- Li, W., Liu, Y. J., & Yang, Z. (2012). Preliminary strategic environmental assessment of the Great Western Development Strategy: safeguarding ecological security for a new western China. *Environmental management*, 49, 483-501.
- Li, Y., Liu, Y., & Solangi, Y. A. (2024). Analysis of factors and strategies for the implementation of sustainable tourism in a green economic structure in China. *Journal of Cleaner Production*, 434, 140011.
- Li, Z., & Ito, K. (2006). *The immersed interface method: numerical solutions of PDEs involving interfaces and irregular domains*. Society for Industrial and Applied Mathematics.
- Lia Tavaréz, 2020, the Impact of Tourism on Cultural Identity in Peru Cover Page
Footnote Lia Tavaréz graduated from Franklin and Marshall College with a B.A. in Government and Political Science.
- Liang, L., Cao, X (2003) Landscape ecology and tourism development and management of nature reserves. *Tropical Geography* 23: 289-293
- Liang, L., & Schwartz, M. D. (2009). Landscape phenology: an integrative approach to seasonal vegetation dynamics. *Landscape Ecology*, 24, 465-472.
- Liang, X. (2020), & Shi, H., Li, X., Yang, Z., Li, T., Ren, Y., Liu, T. Tourism land use simulation for regional tourism planning using POIs and cellular automata. *Transactions in GIS*, 24(4), 1119-1138
- Lindberg, K., Johnson R.L. 1997. Modeling resident attitudes toward tourism. *Annals of Tourism Research*, 24(2), 402–424.
- Linderman, M. A., An, L., Bearer, St., He, G., Ouyang, Z., & Liu, J. (2005). Modeling the spatial-temporal dynamics and interactions of households, landscapes, and giant panda habitat. *Ecological Modelling*, 183(1), 47–65.
- Lisboa, A., Skarmeas, D., & Lages, C. (2011) Entrepreneurial orientation, exploitative & explorative capabilities, & performance outcomes in export markets: a

resource based approach. *Industrial Marketing Management* 40(8). pp. 1274-1284.

Lisheng, Zhang, (2021). Study on changes in tourism land and influence factors in mountain areas: A case study of Luanchuan country, China. In, Yanna, Xie, Qingxiao, Zhu, Genghe, Gao, Lisheng, Zhang, College of Tourism and Exhibition, Henan University of Economics and Law, Zhengzhou 450046, China.

Lisle, T. E., Nelson, J. M., Pitlick, J., Madej, M. A., & Barkett, B. L. (2000). Variability of bed mobility in natural, gravel-bed channels and adjustments to sediment load at local and reach scales. *Water Resources Research*, 36(12), 3743-3755.

Liu, Y., F. Fang, and Y. Li, Key issues of land use in China and implications for policy making. *Land Use Policy*, 2014. 40: p. 6-12.

Lo, A. S., & Lee, C. Y. (2011). Motivations and perceived value of volunteer tourists from Hong Kong. *Tourism management*, 32(2), 326-334.

Lockwood, Lok Lam, M. M., Hung Li, E. P., & Liu, W. S. (2021). Dissociative fashion practices and identity conflicts: local resistance as a response to clothing acculturation in the context of rural–urban migration. *Journal of Fashion Marketing and Management: An International Journal*, 25(4), 723-747.

Loperena, C. A. (2017). Honduras is open for business: extractivist tourism as sustainable development in the wake of disaster? *Journal of Sustainable Tourism*, 25(5), 618-633.

Lupu, C, Xie P, and Muntele I. (2018). Using cellular automata to simulate tourism growth. Case study: Iași city. *Human Geography*, 12 115–28

Lutz, W., Sanderson, W. C., & Scherbov, S. (2013). The end of world population growth in the 21st century: New challenges for human capital formation and sustainable development. Routledge.

M., Petzold, J., & Sinane, K. (2016, August). Considering the locals: coastal construction and destruction in times of climate change on Anjouan, Comoros.

In Natural Resources Forum (Vol. 40, No. 3, pp. 112-126). Oxford, UK: Blackwell Publishing Ltd.

- MacDonald, D., Crabtree, J., Wiesinger, G., Dax, T., Stamou, N., Fleury, P., Lazpita, J. G., & Gibon, A. (2000). Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *Journal of Environmental Management*, 59(1), 47–69
- Madanaguli, A., Srivastava, S., Ferraris, A., & Dhir, A. (2022). Corporate social responsibility and sustainability in the tourism sector: A systematic literature review and future outlook. *Sustainable Development*, 30(3), 447-461.
- Mahonge, C.P., et al., (2015), “Participatory land-use planning: Integrating expert-oriented and community-based tools for sustainable land management in Kilimanjaro Region”, *Journal of Environment and Earth Science*, 2(10), 2012.
- Makinde, O. O. (2012). Urbanization, housing and environment: Megacities of Africa. *International Journal of Development and Sustainability*, 1(3), 976-993.
- Maksimović, G., Ivanović, T., Milošević, B., & Sekulić, D. (2019). Factors of the rural tourism development of Sirinicka Zupa in Kosovo and Metohija. *Економика пољопривреде*, 66(4), 1187-1199
- Makwara, E. C., & Snodia, S. (2013). Confronting the reckless gambling with people’s health and lives: Urban solid waste management in Zimbabwe. *European Journal of sustainable development*, 2(1), 67-67.
- Man, M. A., Toma, C., Motoc, N. S., Necrelescu, O. L., Bondor, C. I., Chis, A. F., ... & Rajnoveanu, R. M. (2020). Disease perception and coping with emotional distress during COVID-19 pandemic: a survey among medical staff. *International journal of environmental research and public health*, 17(13), 4899.
- Mandeli, K. (2019). Public space and the challenge of urban transformation in cities of emerging economies: Jeddah case study. *Cities*, 95, 102409.

- Mandić, A. (2020). Structuring challenges of sustainable tourism development in protected natural areas with driving force–pressure–state–impact–response (DPSIR) framework. *Environment Systems and Decisions*, 40(4), 560-576.
- Mangione, V. The evolution of the Public Purpose Rule in compulsory acquisition. *Prop. Manag.* 2010, 28, 93–103.
- Mangunsong, N. I. (2018). Factors affecting quality of social interaction park in Jakarta. In *IOP Conference Series: Earth and Environmental Science* (Vol. 106, No. 1, p. 012055). IOP Publishing.
- Manomaivibool, P. (2015). Wasteful tourism in developing economy? A present situation and sustainable scenarios. *Resources, Conservation and Recycling*, 103, 69-76.
- Mansour, S., Al-Belushi, M., & Al-Awadhi, T. (2020). Monitoring land use and land cover changes in the mountainous cities of Oman using GIS and CA-Markov modelling techniques. *Land use policy*, 91, 104414.
- Marcos, J. C. P. (2022). Internship report in agriturismo beatilla: assistant hotel manager (Doctoral dissertation).
- María Martín-Martín, J., Ostos-Rey, M. S., & Salinas-Fernández, J. A. (2019). Why regulation is needed in emerging markets in the tourism sector. *American Journal of Economics and Sociology*, 78(1), 225-254.
- Marković, I., & Klarić, Z. (2015). Attitudes of local population of tourism impacts on destination sustainability: Case of Croatia. *Turizam*, 19(3), 98-110.
- Markwell, K. (Ed.). (2015). *Animals and tourism: Understanding diverse relationships* (Vol. 67). Channel View Publications.
- Maroto-Martos, J. C., Voth, A., & Pinos-Navarrete, A. (2020). The importance of tourism in rural development in Spain and Germany. *Neoendogenous Development in European Rural Areas: Results and Lessons*, 181-205.
- Marschke, M., & Rousseau, J. F. (2022). Sand ecologies, livelihoods and governance in Asia: a systematic scoping review. *Resources Policy*, 77, 102671.

- Marsh, D. (2013). Content a Language Integrated Learning (CLIL). A Development Trajectory.
- Martha, and Gilpin, Raymond, Special Report (2009). "Tourism in the Developing World - Promoting Peace and Reducing Poverty"
- Martinez-Alier, J. (2013). Social metabolism, ecological distribution conflicts and languages of valuation 1. In *Beyond Reductionism* (pp. 9-35). Routledge.
- Martiniello, G. (2017). Social struggles in Uganda's Acholiland: Understanding responses and resistance to Amuru sugar works. In *Global Land Grabbing and Political Reactions' from Below'* (pp. 187-204). Routledge.
- McCabe, A. S. (2021). Worlds of reason: The praxis of accounting for'day visitor'behaviour in the Peak National Park. A qualitative investigation. University of Derby (United Kingdom).
- McCool, S. F., Eagles, P. F., Skunca, O., Vukadin, V., Besancon, C., & Novosel, A. (2021). Integrating marketing and management planning for outstanding visitor experiences in a turbulent era: The case of Plitvice lakes national park. *Mediterranean Protected Areas in the Era of Overtourism: Challenges and Solutions*, 221-240.
- McDowell, L., Batnitzky, A., & Dyer, S. (2007). Division, segmentation, and interpellation: The embodied labors of migrant workers in a greater London hotel. *Economic geography*, 83(1), 1-25.
- McElwee, P., Calvin, K., Campbell, D., Cherubini, F., Grassi, G., Korotkov, V., ... & Smith, P. (2020). The impact of interventions in the global land and agri-food sectors on Nature's Contributions to People and the UN Sustainable Development Goals. *Global Change Biology*, 26(9), 4691-4721.d
- McManus, P., & Connor, L. H. (2013). What's mine is mine (d): Contests over marginalisation of rural life in the Upper Hunter, NSW. *Rural Society*, 22(2), 166-183
- McMichael, P. (2013). Globalization: A project in crisis. In *Global Political Economy* (pp. 75-87). Routledge.

- McMichael, P. (2013). The land grab and corporate food regime restructuring. In *The New Enclosures: Critical Perspectives on Corporate Land Deals* (pp. 63-83). Routledge.
- Mcmurry, K.C. (1930). The Use of Land for recreation. *Annals of Association of American Geography*, 1930, 20, 7–20.
- Mehta, g. (2016). changing pattern of tribal livelihood: a case study of kinnaur district in himachal pradesh (doctoral dissertation, dr. yashwant singh parmar university of horticulture and forestry).
- Meidinger, E., & Schnaiberg, A. (1980). Social impact assessment as evaluation research: Claimants and claims. *Evaluation Review*, 4(4), 507-535.
- Meschkank, J. (2011). Investigations into slum tourism in Mumbai: poverty tourism and the tensions between different constructions of reality. *GeoJournal*, 76, 47-62.
- Mihai, F. C., & Iatu, C. (2020). Sustainable rural development under Agenda 2030. Sustainability Assessment at the 21st century, 9-18.
- Milenkovski, A., Gjorgievski, M., & Nakovski, D. (2020). The impact of the traffic infrastructure on the tourist destination. *UTMS Journal of Economics*, 11(1), 43-47.
- Miše, S. (2021). Sustainable Tourism: A Conflict of Interest. In *Partnerships for the Goals* (pp. 1222-1234). Cham: Springer International Publishing.
- Mody, R. K. (2016), Benedict, K., Chiller, T. M., &. Invasive fungal infections acquired from contaminated food or nutritional supplements: a review of the literature. *Foodborne pathogens and disease*, 13(7), 343-349.
- Mohammed, I. B., Okechuku, M., & Okindele, M. D. (2022). environmental impact of sand harvesting in niger state, nigeria. *African Journal of Emerging Issues*, 4(1), 18-26
- Mohanty, A. (2011). State of environment: Kathmandu Valley, Kathmandu Nepal: a special review. *Journal of the Institute of Engineering*, 8(1), 126-37.

- Mohd Ghazali, N. A. (2008). Voluntary disclosure in Malaysian corporate annual reports: views of stakeholders. *Social Responsibility Journal*, 4(4), 504-516.
- Mohyeldin, A., Suliman, T., Budhwar, P., & Mellahi, K. (2006). Human resource management in the United Arab Emirates. P. Budhwar and K. Mellahi, *Managing Human Resources in the Middle East*. London: Routledge.
- Möller, I. (2017). Stormy geomorphology: geomorphic contributions in an age of climate extremes. *Earth Surface Processes and Landforms*, 42(1), 166-190.
- Moraci, F., Errigo, M. F., Fazia, C., Campisi, T., & Castelli, F. (2020). Cities under pressure: Strategies and tools to face climate change and pandemic. *Sustainability*, 12(18), 7743.
- Mormino, G. R. (2008). *Land of sunshine, state of dreams: a social history of modern Florida*. University Press of Florida.
- Mottaleb, K.A. 2007. Determinants of foreign direct investment and its impact on economic growth in developing countries. MPRA Paper 9457, University Library of Munich, Germany
- Mousa, S. K., & Oth-Man, M. (2020). The impact of green human resource management practices on sustainable performance in healthcare organisations: A conceptual framework. *Journal of cleaner production*, 243, 118595.
- Muggah, R. (2012). *Researching the urban dilemma: Urbanization, poverty and violence*.
- Muhanna, E. (2006). Sustainable tourism development and environmental management for developing countries. *Problems and Perspectives in Management*, 4(2), 14-30.o
- Muhanna, E. (2007). The contribution of sustainable tourism development in poverty alleviation of local communities in South Africa. *Journal of Human Resources in Hospitality & Tourism*, 6(1), 37-67.
- Municipality, M. L. (2011). *Spatial development framework*. MSDF 2011.

- Münster, D., & Münster, U. (2012). Consuming the forest in an environment of crisis: nature tourism, forest conservation and neoliberal agriculture in South India. *Development and Change*, 43(1), 205-227.
- Murphy, P. E. (2013). *Tourism: A community approach* (RLE Tourism). Routledge.
- Murshed, M. M. (2013). Cutting of hills and human tragedy: An example of law enforcement loophole in the southeastern region of Bangladesh. *International Journal of Geomatics and Geosciences*, 4(2), 410.
- Murzyn-Kupisz, M. (2013). The socio-economic impact of built heritage projects conducted by private investors. *Journal of Cultural heritage*, 14(2), 156-162.
- Muthui, Z. W. (2010). Determination of the mechanical properties of a biodegradable thermoplastic–polylactic acid and comparison with those of polyethylene (Doctoral dissertation, Egerton University).
- Mwaura, B. (2019). *Role of Environmental Governance in the Management of Land Degradation in the East Mau Forest Complex, Kenya* (Doctoral dissertation, University of Nairobi).
- Myers, N. (1988). Threatened biotas: “Hot spots” in tropical forests. *Environmentalist*, 8, 187-208. Myers, N. (1992). *The primary source: tropical forests and our future*. Norton, W.W., New York, Second Edition, ISBN: 0-393-30828-6, 416p.
- Naidoo, P., Ramseook-Munhurrin, P., Seebaluck, N. V., & Janvier, S. (2015). Investigating the motivation of baby boomers for adventure tourism. *Procedia-Social and Behavioral Sciences*, 175, 244-251.
- Navarrete-Hernandez, P., & Navarrete-Hernandez, N. (2018). Unleashing waste-pickers’ potential: Supporting recycling cooperatives in Santiago de Chile. *World Development*, (101), 293–310.
- Nazir, F., Caldeira, A. M., & Seabra, C. (2023). Heritage tourism and terrorism: media coverage of the destruction and rebuilding of Jahanabad Seated Buddha in Pakistan. *Journal of Heritage Tourism*, 18(4), 504-530.

- Nengroo, Z. A., Bhat, M. S., & Kuchay, N. A. (2017). Measuring urban sprawl of Srinagar city, Jammu and Kashmir, India. *Journal of Urban Management*, 6(2), 45-55.
- Netterberg, F. (2014) Review of Specifications for the Use of Laterite in Road Construction. AFCAP. Council for Scientific and Industrial Research, 10, 247-253.
- Ng'ayu, M. M. (2015). What are the drivers of growth on the rural-urban fringes? A Case Study of the Nairobi-Kiambu Corridor. *Journal Emerging Trends in Economics & Management Sciences*, 6(6), 414–431.
- Nigar, N. (2018). Ecotourism for sustainable development in Gilgit-Baltistan. *Strategic Studies*, 38(3), 72–85.
- Niu, L., Cheng, Z., & Zhao, M. (2012). Ecological characteristics of species in the different vegetation landscape districts with tourism disturbance in Wutai Mountains. *Journal of Mountain Science*, 30(3), 282–289.
- Nkonya, E. M., Pender, J. L., Kaizzi, K. C., Kato, E., Mugarura, S., Ssali, H., & Muwonge, J. 2008. Linkages between land management, land degradation, and poverty in Sub-Saharan Africa: The case of Uganda (No. 159). International Food Policy Research Institute (IFPRI).
- Nkonya, E., Gerber N, Baumgartner P, von Braun J, De Pinto A, Graw V, Kato E, Kloos J, Walter T. 2011. The Economics of Land Degradation: toward an integrated global assessment, Development Economics and Policy Series vol. 66, Heidhues F, von Braun J and Zeller M (eds), Frankfurt A.M., Peter Lang GmbH.
- Nunkoo, R., Sharma, A., Rana, N. P., Dwivedi, Y. K., & Sunnassee, V. A. (2023). Advancing sustainable development goals through interdisciplinarity in sustainable tourism research. *Journal of Sustainable Tourism*, 31(3), 735-759.
- Nyaligu, M. O., & Weeks, S. (2013). An elephant corridor in a fragmented conservation landscape: preventing the isolation of Mount Kenya National Park and National Reserve. *Parks*, 19(1), 91-101.

- Nyaupane, G. P., Morais, D. B., & Dowler, L. (2006). The role of community involvement and number/type of visitors on tourism impacts: A controlled comparison of Annapurna, Nepal and Northwest Yunnan, China. *Tourism management*, 27(6), 1373-1385.
- Obersteiner, G., Gollnow, S., & Eriksson, M. (2021). Carbon footprint reduction potential of waste management strategies in tourism. *Environmental Development*, 39, 100617.
- Ocejo, R. E. 2011 The early gentrifier: Weaving a nostalgia narrative on the lower east side City Community 10 285–310
- Odhiambo, G. O. (2017). Water scarcity in the Arabian Peninsula and socio-economic implications. *Applied Water Science*, 7(5), 2479-2492
- Ogra, M. V., & Badola, R. (2015). Gender and climate change in the Indian Himalayas: Global threats, local vulnerabilities, and livelihood diversification at the Nanda Devi Biosphere Reserve. *Earth System Dynamics*, 6(2), 505-523.
- Oh, J. Y. J., Cheng, C. K., Lehto, X. Y., & O’Leary, J. T. (2004). Predictors of tourists’ shopping behaviour: Examination of socio-demographic characteristics and trip typologies. *Journal of Vacation marketing*, 10(4), 308-319.
- Okello, M. M., Manka, S. G., & D’Amour, D. E. (2008). The relative importance of large mammal species for tourism in Amboseli National Park, Kenya. *Tourism Management*, 29(4), 751-760.
- Oliver, K. M., Russell, J. A., Moran, N. A., & Hunter, M. S. (2003). Facultative bacterial symbionts in aphids confer resistance to parasitic wasps. *Proceedings of the National Academy of Sciences*, 100(4), 1803-1807.
- Omarkhanova, Z. (2023). Socio-Economic Consequences of the Transition to Organic Agriculture and Its Impact on Ecotourism. *Journal of Environmental Management & Tourism*, 14(2), 477-490.
- Omwenga, M. (2010). Nairobi-emerging metropolitan region: Development planning and management opportunities and challenges. In ISOCARP CONGRESS (Vol. 46, pp. 1-5).

- Oteng-Ababio, M. (2012a). The role of the informal sector in solid waste management in the Gama, Ghana: Challenges and opportunities. *Tijdschrift voor Economische en Sociale Geografie*, 103(4), 412–425
- Oteng-Ababio, M., Owusu, G., & Asafo, D.M. (2019). Following the footsteps: Urbanisation of Wa Municipality and its synergism in risk accumulation, uncertainties and complexities in urban Ghana. *Jàmbá: Journal of Disaster Risk Studies*, 11(1), 479.
- Otero, M. D. M., Numa, C., Bo, M., Orejas, C., Garrabou, J., Cerrano, C., ... & Cattaneo-Vietti, R. (2017). Overview of the conservation status of Mediterranean anthozoans. International Union for Conservation of Nature and Natural Resources (IUCN).
- Othman, M. F. B., Amir, N. B., Mansu, M. B., & Zeki, A. M. (2015, December). Developing Mobile E-Groceries Model. In 2015 4th International Conference on Advanced Computer Science Applications and Technologies (ACSAT) (pp. 30-34). IEEE.
- Otiman, P. I. (2008). Rural development and agriculture: opportunities to attenuate the economic and financial crisis and to resume economic growth. *Agricultural Economics and Rural Development*, 5(3-4), 97-128.
- Padmalal, D., & Maya, K. (2014). Sand mining: environmental impacts and selected case studies. Springer.
- Pan, S. Y., Gao, M., Kim, H., Shah, K. J., Pei, S. L., & Chiang, P. C. (2018). Advances and challenges in sustainable tourism toward a green economy. *Science of the total environment*, 635, 452-469.
- Pan, S. Y., Gao, M., Kim, H., Shah, K. J., Pei, S. L., & Chiang, P. C. (2018). Advances and challenges in sustainable tourism toward a green economy. *Science of the total environment*, 635, 452-469.
- Paramati, S. R., Mo, D., & Gupta, R. (2017). The effects of stock market growth and renewable energy use on CO2 emissions: evidence from G20 countries. *Energy economics*, 66, 360-371.

- Passeri, D. L., Hagen, S. C., Medeiros, S. C., Bilskie, M. V., Alizad, K., & Wang, D. (2015). The dynamic effects of sea level rise on low-gradient coastal landscapes: A review. *Earth's Future*, 3(6), 159-181
- Pauli, G. A. (2010). *The blue economy: 10 years, 100 innovations, 100 million jobs*. Paradigm publications.
- Pavkovic, I., Lawrie, A., Farrell, G., Huuskes, L., & Ryan, R. (2018). *Inclusive tourism: Economic opportunities*.
- Pearce, D. (1989) *Tourist Development*. Wiley, New York.
- Pedrono, M., Locatelli, B., Ezzine-de-Blas, D., Pesche, D., Morand, S., & Binot, A. (2016). Impact of climate change on ecosystem services. In E. Torquebiau (Ed.), *Climate Change and Agriculture Worldwide* (pp. 251–261). Springer.
- Peduzzi, P. (2014). Sand, rarer than one thinks. *Environmental Development*, 11(208-218), 682.
- Peduzzi, P. (2014). Sand, rarer than one thinks. *Environmental Development*, 11(208-218), 682.
- Perrings, C., & Halkos, G. (2015). Agriculture and the threat to biodiversity in sub-Saharan Africa. *Environmental Research Letters*, 10(9), 095015.
- Petrişor, A. I., Hamma, W., Nguyen, H. D., Randazzo, G., Muzirafuti, A., Stan, M. I., ... & Ianoş, I. (2022). Degradation of coastlines under the pressure of urbanization and tourism: Evidence on the change of land systems from Europe, Asia and Africa. *Land*, 9(8), 275.
- Pettijohn, F. J. (1975). *Sedimentary Rocks*. New York: Harper & Row.
- Pham, L. (2012). Tourism Impacts and Support for Tourism Development in Ha Long Bay, Vietnam: An examination of residents' perceptions. *Asia Social Science*, 8.
- Pham, T. T. H., Cao. H. S., & Lapointe, D. (2023). Agrotourism and fast urbanisation: The double pressure of development on peri-urban agriculture in Hôi An, a small city of central Vietnam. *Asia Pacific Viewpoint*
- Pham, Thi, N., Kappas, M., & Faust, H. (2021). Impacts of agricultural land acquisition for urbanization on agricultural activities of affected households: a case study in

- Huong Thuy Town, Thua Thien Hue Province, Vietnam. *Sustainability*, 13(15), 8559.
- Pierce, G., & Shoup, D. (2013). Getting the prices right: an evaluation of pricing parking by demand in San Francisco. *Journal of the American planning association*, 79(1), 67-81.
- Pilkey, O. H., Longo, N. J., & Neal, W. J. (2023). *Vanishing Sands: Losing Beaches to Mining*. Duke University Press.
- Pincetti, L. (2023). Sustainable coastal development: a comparative analysis of environmental impacts between floating platforms and dredging (Doctoral dissertation, Politecnico di Torino).
- Pingali, P., Schneider, K., & Zurek, M. (2014). Poverty, Agriculture and the Environment: The Case of Sub-Saharan Africa. In *Marginality* (pp. 151-168). Springer Netherlands.
- Pomfret, G., & Bramwell, B. (2016). The characteristics and motivational decisions of outdoor adventure tourists: A review and analysis. *Current Issues in Tourism*, 19(14), 1447-1478.
- Porter, M. E., Hills, G., Pfitzer, M., Patscheke, S., & Hawkins, E. (2011). Measuring shared value. How to unlock value by linking social and business results, 10-11.
- Povoroznyuk, O. (2021). Ambiguous entanglements: infrastructure, memory and identity in indigenous Evenki communities along the Baikal–Amur Mainline. *Social Anthropology/Anthropologie sociale*, 29(4), 1064-1080
- Prabhakar, r., Singh, m., & nagapavan, c. (2015). ensuring energy security in rural india-a case study on rajiv gandhi gramian lpg vitrak (rgglv) yojana. *Global Management Review*, 9i(3), 20.
- Prasad, A. S., Pandey, B. W., Leimgruber, W., & Kunwar, R. M. (2016). Mountain hazard susceptibility and livelihood security in the upper catchment area of the river Beas, Kullu Valley, Himachal Pradesh, India. *Geoenvironmental Disasters*, 3(1), 1-17.

- Právělie, R. (2021). Exploring the multiple land degradation pathways across the planet. *Earth-Science Reviews*, 220, 103689.
- Priatmoko, S., Kabil, M., Akaak, A., Lakner, Z., Gyuricza, C., & Dávid, L. D. (2023). Understanding the complexity of rural tourism business: Scholarly perspective. *Sustainability*, 15(2), 1193.
- Pucher, J., Peng, Z. R., Mittal, N., Zhu, Y., & Korattyswaroopam, N. (2007). Urban transport trends and policies in China and India: impacts of rapid economic growth. *Transport reviews*, 27(4), 379-410
- Puig, R., Kiliç, E., Navarro, A., Albertí, J., Chacón, L., & Fullana-i-Palmer, P. (2017). Inventory analysis and carbon footprint of coastland-hotel services: A Spanish case study. *Science of the total environment*, 595, 244-254.
- Qasim, M., Hubacek, K., & Termansen, M. (2013). Underlying and proximate driving causes of land use change in district Swat, Pakistan. *Land use policy*, 34, 146-157.
- Qasim, M., Hubacek, K., Termansen, M., Khan, A., 2010. Spatial and temporal dynamics of land use pattern in District Swat, HinduKush Himalayan region of Pakistan. *Applied Geography*,
- Qin, B., Zhu, G., Gao, G., Zhang, Y., Li, W., Paerl, H. W., & Carmichael, W. W. (2010). A drinking water crisis in Lake Taihu, China: linkage to climatic variability and lake management. *Environmental management*, 45, 105-112.
- Qiongying, L. (2018). Review of research on characteristic tourism resources exploitation in sichuan province. *Journal of Resources and Ecology*, 9(5), 471-476.
- Rabbany, M. G. Hossain, M. S., Alam, G. M., Fahad, S., Sarker, T., Moniruzzaman, M., & (2013). Smallholder farmers' willingness to pay for flood insurance as climate change adaptation strategy in northern Bangladesh. *Journal of Cleaner Production*, 338, 130584.
- Rabotić, B. (2010, March). Tourist guides in contemporary tourism. In International conference on tourism and environment (pp. 353-364).

- Rafique, A., Irfan, M., Mumtaz, M., & Qadir, A. (2020). Spatial distribution of microplastics in soil with context to human activities: a case study from the urban center. *Environmental Monitoring and Assessment*, 192, 1-13.
- Rahman A, Khan A (2011) Analysis of flood causes and associated socio-economic damages in the Hindukush region. *Nat Hazards* 59(3):1239–1260
- Raihan, A., & Tuspekova, A. (2022). Dynamic impacts of economic growth, energy use, urbanization, tourism, agricultural value-added, and forested area on carbon dioxide emissions in Brazil. *Journal of Environmental Studies and Sciences*, 12(4), 794-814.
- Raihan, A., Begum, R. A., Nizam, M., Said, M., & Pereira, J. J. (2022). Dynamic impacts of energy use, agricultural land expansion, and deforestation on CO2 emissions in Malaysia. *Environmental and Ecological Statistics*, 29(3), 477-507.
- Rajmohan, K. V. S., Ramya, C., Viswanathan, M. R., & Varjani, S. (2019). Plastic pollutants: effective waste management for pollution control and abatement. *Current Opinion in Environmental Science & Health*, 12, 72-84.
- Raleigh, C., & Urdal, H. (2007). Climate change, environmental degradation and armed conflict. *Political geography*, 26(6), 674-694.
- Rambodagedara, R. M. M. H. K., Silva, D. A. C., & Perera, S. (2015). Agro-tourism development in farming community: Opportunities and challenges. Hector Kobbekaduwa Agrarian Research and Training Institute.
- Rangel-Buitrago, N., Neal, W., Pilkey, O., & Longo, N. (2023). The global impact of sand mining on beaches and dunes. *Ocean & Coastal Management*, 235, 106492.
- Rao, K. S., Pant, R. (2001). Land use dynamics and landscape change pattern in a typical micro watershed in the mid elevation zone of central Himalaya, India. *Agriculture, Ecosystems and Environment*, 86 (2), 113-124.
- Rasul, G., Nepal, A. K., Hussain, A., Maharjan, A., Joshi, S., Lama, A., ... & Sharma, E. (2021). Socio-economic implications of COVID-19 pandemic in South Asia: emerging risks and growing challenges. *Frontiers in sociology*, 6, 629693.

- Ratter, B. M., Petzold, J., & Sinane, K. (2016, August). Considering the locals: coastal construction and destruction in times of climate change on Anjouan, Comoros. In *Natural Resources Forum* (Vol. 40, No. 3, pp. 112-126). Oxford, UK: Blackwell Publishing Ltd.
- Read, J. L. (2020). *Red Sand Green Heart: Ecological Adventures in the Outback*. Wakefield Press.
- Rebollo, J. F. V., & Baidal, J. A. I. (2003). Measuring sustainability in a mass tourist destination: pressures, perceptions and policy responses in Torrevieja, Spain. *Journal of Sustainable Tourism*, 11(2-3), 181-203
- Reeder, R. J., & Brown, D. M. (2005). Recreation, tourism, and rural well-being (No. 7). Washington, DC: US Department of Agriculture, Economic Research Service.
- Renes, H. (2015). Historic landscapes without history? A reconsideration of the concept of traditional landscapes. *Rural Landscapes: Society, Environment, History*, 2(1), 1–11.
- Rentier, E. S., & Cammeraat, L. H. (2022). The environmental impacts of river sand mining. *Science of The Total Environment*, 838, 155877.
- Rentier, E. S., & Cammeraat, L. H. (2022). The environmental impacts of river sand mining. *Science of the Total environment*, 838, 155877.
- Rewathy, K., & Hettiarachchi, H. A. N. (2023). An Analysis of Factors Causing Socio-Economic Impacts of The Urban Sprawl: A Case Study on Wattala-Mabole Urban Council Area and its Outskirts, Sri Lanka. *Vidyodaya Journal of Humanities and Social Sciences*, 8(01).
- Rice, C. J. (2009). Attitudes of undergraduate students toward people with intellectual disabilities: considerations for future policy makers. *College Student Journal*, 43(1), 207-216.
- Ristić, D., Vukoičić, D., & Milinčić, M. (2019). Tourism and sustainable development of rural settlements in protected areas-Example NP Kopaonik (Serbia). *Land use policy*, 89, 104231.

- Ritzer, G. (1993). The McDonaldization thesis: Is expansion inevitable?. *International sociology*, 11(3), 291-308.
- Robbins, R. H., & Dowty, R. (2008). Global problems and the culture of capitalism. Pearson/Allyn & Bacon.
- Robert, J. S. (2004). *Embryology, epigenesis and evolution: Taking development seriously*. Cambridge University Press.
- Roberts, R. O. B. E. R. T., Henry, P. D., & Sobel, B. E. (1975). An improved basis for enzymatic estimation of infarct size. *Circulation*, 52(5), 743-754.
- Rockson, G. N. K., Kemausuor, F., Seasey, R., & Yanful, E. (2013). Activities of scavengers and itinerant buyers in Greater Accra, Ghana. *Habitat International*, (39), 148–155.
- Rogerson, C. M. (2002). Urban tourism in the developing world: The case of Johannesburg. *Development Southern Africa*, 19(1), 169–190.
- Rogerson, C. M. (2015). Tourism and regional development: The case of South Africa's 'distressed areas'. *Development Southern Africa*, (32), 277–291.
- Rompaey, A. (2022). Water erosion monitoring and prediction in response to the effects of climate change using RUSLE and SWAT equations: case of R'Dom watershed in Morocco. *Land*, 11(1), 93.
- Rondhi, M, Pratiwi P, Handini V, Sunartomo A, and Budiman S 2018 Agricultural Land Conversion, Land Economic Value, and Sustainable Agriculture: A Case Study in East Java, Indonesia *Land*, 7 148.
- Ruder, S. L. (2019). A digital agricultural revolution: Ontario grain farmer perceptions of digital farming and big data (Master's thesis, University of Waterloo).
- Rusu, R., Bodocan, V., & Man, T. (2020). Urban sprawl and its impact on urban tourism in Romania. *Journal of Balkan and Near Eastern Studies*, 22(4), 521-533.
- Ruswandi, A, Rustiadi E and Mudikdjo K 2016 Dampak Konversi Lahan Pertanian terhadap Kesejahteraan Petani dan Perkembangan Wilayah: Studi Kasus di Daerah Bandung Utara *J. Agro Ekon.* 25 207–19

- Saarinen, J. (2018). *Tourism and regional development: New pathways*. Routledge.
- Sachedina, H., & Trench, P. C. (2009). Cattle and crops, tourism and tanzanite: Poverty, land-use change and conservation in Simanjiro District, Tanzania. Staying Maasai? livelihoods, conservation and development in East African rangelands, 263-298.
- Sadekin, M. N., Ahamad, K. M. U., & Chowdhury, N. F. H. (2020). Technical and Vocational Education and Training (TVET) in South Asia. In *Decent Work and Economic Growth* (pp. 1039-1050). Cham: Springer International Publishing.
- Sadiq, M., Othman, Z., & Keong, O. C. (2019). A study of interaction effects of political influences and earnings management on organisational performance. *Asian Economic and Financial Review*, 9(5), 642–653.
- Saenz-de-Miera, O., & Rosselló, J. (2014). Modeling tourism impacts on air pollution: The case study of PM10 in Mallorca. *Tourism Management*, 40, 273-281.
- Safo-Adu, G., & Owusu-Adzorah, N. (2023). Solid waste characterisation and recycling potential: A study in secondary schools in Kumasi Metropolis, Ghana. *Cleaner Waste Systems*, 4, 100065.
- Safransky, S. (2014). Greening the urban frontier: Race, property, and resettlement in Detroit. *Geoforum*, 56, 237-248.
- Saha, J.; Paul, S. An insight on land use and land cover change due to tourism growth in coastal area and its environmental consequences from West Bengal, India. *Spat. Inf. Res.* 2020, 29, 577–592.
- Sajid, M., Hashim, M., & Aziz, F. (2024). Temporal Dynamics of Tourism Growth in Pakistan: Patterns and Trends. *Annals of Human and Social Sciences*, 5(2), 617-626.
- Sanches-Pereira, A., Onguglo, B., Pacini, H., Gómez, M. F., Coelho, S. T., & Muwanga, M. K. (2017). Fostering local sustainable development in Tanzania by enhancing linkages between tourism and small-scale agriculture. *Journal of Cleaner Production*, 162, 1567-1581.

- Sandbrook, C., Nelson, F., Adams, W. M., & Agrawal, A. (2010). Carbon, forests and the REDD paradox. *Oryx*, 44(3), 330-334.
- Sang, L., Zhang, C., Yang, J., Zhu, D., & Yun, W. (2011). Simulation of land use spatial pattern of towns and villages based on CA–Markov model. *Mathematical and Computer Modelling*, 54(3-4), 938-943.
- Santos, G. (2017). Road transport and CO2 emissions: What are the challenges? *Transport Policy*, 59, 71-74.
- Santos, V., Sousa, B., Ramos, P., & Valeri, M. (2022). Emotions and involvement in tourism settings. *Current Issues in Tourism*, 25(10), 1526-1531.
- Satterthwaite, D. (2017). The impact of urban development on risk in sub-Saharan Africa's cities with a focus on small and intermediate urban centres. *International Journal of Disaster Risk Reduction*, (26), 16–23.
- Schroth, G., Laderach, P., Dempewolf, J., Philpott, S., Haggard, J., Eakin, H., ... & Ramirez-Villegas, J. (2009). Towards a climate change adaptation strategy for coffee communities and ecosystems in the Sierra Madre de Chiapas, Mexico. *Mitigation and adaptation strategies for global change*, 14, 605-625.
- Schunko, C., Lechthaler, S., & Vogl, C. R. (2019). Conceptualising the factors that influence the commercialisation of non-timber forest products: the case of wild plant gathering by organic herb farmers in South Tyrol (Italy). *Sustainability*, 11(7), 2028.
- Seabloom, R. W., & Allen, S. H. (1989). Trevor, J. T. Food habits in relation to sex and age of bobcats from southwestern North Dakota. *Prairie Nat*, 21(3), 163-168.
- Searchinger, T. D., Wiersenius, S., Beringer, T., & Dumas, P. (2018). Assessing the efficiency of changes in land use for mitigating climate change. *Nature*, 564(7735), 249-253.
- Sechi, L., Moscarelli, R., & Pileri, P. (2020). Planning tourist infrastructures to regenerate marginalised territories: the study case of North Sardinia, Italy. *City, Territory and Architecture*, 7, 1-12.

- Sekaran, S., Foster, R. G., Lucas, R. J., & Hankins, M. W. (2003). Calcium imaging reveals a network of intrinsically light-sensitive inner-retinal neurons. *Current biology*, 13(15), 1290-1298.
- Sekovski, I., Newton, A., & Dennison, W. C. (2012). Megacities in the coastal zone: Using a driver-pressure-state-impact-response framework to address complex environmental problems. *Estuarine, Coastal and Shelf Science*, 96, 48-59.
- Sevilla, N. P. M., Adeath, I. A., Le Bail, M., & Ruiz, A. C. (2019). Coastal development: Construction of a public policy for the shores and seas of Mexico. In *Coastal Management* (pp. 21-38). Academic Press.
- Shaalán, I. M. (2005). Sustainable tourism development in the Red Sea of Egypt threats and opportunities. *Journal of Cleaner Production*, 13(2), 83-87.
- Shaffer, N. R. (2006). The Time of Sands: Quartz-rich Sand Deposits as a Renewable Resource. *Electronic Green Journal*, 1(24). ISSN 1076-7975. eScholarship. org. Powered by the California Digital Library. University of California.
- Shahbaz, B. (2021)., Tschakert, P., Boruff, B., & Muzamil, M. R. An extreme climatic event and systemic vulnerabilities in the face of conflict: insights from the Taliban insurgency in Swat, Pakistan. *Regional Environmental Change*, 21, 1-13.
- Shahbaz, M. (2013). Linkages between inflation, economic growth and terrorism in Pakistan. *Economic modelling*, 32, 496-506.
- Shahbaz, M., Lean, H. H., & Shabbir, M. S. (2012). Environmental Kuznets curve hypothesis in Pakistan: cointegration and Granger causality. *Renewable and Sustainable Energy Reviews*, 16(5), 2947-2953.
- Shahzad, L., Tahir, A., Dogar, M., & Saeed, S. (2021). A metric-based assessment of climate and tourism in major cities of Pakistan. *Environment, Development and Sustainability*, 1-21.
- Shahzad, L., Tahir, A., Sharif, F., Khan, W. U. D., Farooq, M. A., Abbas, A., & Saqib, Z. A. (2019). Vulnerability, well-being, and livelihood adaptation under changing environmental conditions: a case from mountainous region of Pakistan. *Environmental Science and Pollution Research*, 26, 26748-26764.

- Shao, Z., Sumari, N. S., Portnov, A., Ujoh, F., Musakwa, W., & Mandela, P. J. (2021). Urban sprawl and its impact on sustainable urban development: a combination of remote sensing and social media data. *Geo-Spatial Information Science*, 24(2), 241-255.
- Sharma, S., Kelly, T. K., & Jones, P. A. (2010). Epigenetics in cancer. *Carcinogenesis*, 31(1), 27-36.
- Sharpley, R., & Telfer, D. J. (Eds.). (2015). *Tourism and development: Concepts and issues*. Channel View Publications
- Sharpley, R., & Vass, A. (2006). Tourism, farming and diversification: An attitudinal study. *Tourism management*, 27(5), 1040-1052.
- Sharzer, G. (2012). *No local: why small-scale alternatives won't change the world*. John Hunt .
- Shehram, K. (1993). *The environmental data book: a guide to statistics on the environment and development* (English). Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/867611468763475997/The-environmental-data>.
- Shen, Z., Wang, S., Boussemart, J. P., & Hao, Y. (2022). Digital transition and green growth in Chinese agriculture. *Technological Forecasting and Social Change*, 181, 121742.
- Shindel, D., Faluvegi, G., Seltzer, K., & Shindel, C. (2018). Quantified, localized health benefits of accelerated carbon dioxide emissions reductions. *Nature climate change*, 8(4), 291-295.
- Shoid, M. S. M., Kassim, N. A., & Salleh, M. I. M. (2011) Organisational learning capabilities (OLC) towards knowledge performance of librarians: A research model. In *Proceedings of the 8th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning (ICICKM)*, Bangkok.
- Shoval, N. (2006). The geography of hotels in cities: An empirical validation of a forgotten model. *Tourism Geographies*, 8(1), 56-75.

- Shrestha, N. (2021). The Potential of Agritourism in Nepal (Doctoral dissertation, Pulchowk Campus).
- Shujahi, A. H., & Hussain, A. (2016). Economic and environmental costs of tourism: Evidence from District Abbottabad. Islamabad: Pakistan Institute of Development Economics (PIDE).
- Silver, J. (2015). Disrupted infrastructures: An urban political ecology of interrupted electricity in Accra. *International Journal of Urban and Regional Research*, 39(5), 984-1003.
- Simoncini, R., Ring, I., Sandström, C., Albert, C., Kasymov, U., & Arlettaz, R. (2019). Constraints and opportunities for mainstreaming biodiversity and ecosystem services in the EU's Common Agricultural Policy: Insights from the IPBES assessment for Europe and Central Asia. *Land use policy*, 88, 104099.
- Simonelli, J. (2014). Home rule and natural gas development in New York: civil fracking rights. *Journal of Political Ecology*, 21(1), 258-278.
- Singgalen, Y. A. (2022). Tourism infrastructure development and transformation of vegetation index in Dodola Island of Morotai Island Regency. *Journal of Information Systems and Informatics*, 4(1), 130-144.
- Singh, S. (2023). Khurana, D., Koli, A., Khatter, & KNatural. language processing: state of the art, current trends and challenges. *Multimedia tools and applications*, 82(3), 3713-3744.
- Skinner, J. (2011). Causes and consequences of regional variations in health care. In *Handbook of health economics* (Vol. 2, pp. 45-93). Elsevier.
- Smith, R. A. J., & Rhiney, K. (2016). Climate (in) justice, vulnerability and livelihoods in the Caribbean: The case of the indigenous Caribs in northeastern St. Vincent. *Geoforum*, 73, 22-31.
- Smith, Röö, E., Bajželj, B., P., Patel, M., Little, D., & Garnett, T. (2017). Greedy or needy? Land use and climate impacts of food in 2050 under different livestock futures. *Global Environmental Change*, 47, 1-12.

- Snijders, D. (2012). Wild property and its boundaries—on wildlife policy and rural consequences in South Africa. *Journal of Peasant Studies*, 39(2), 503-520.
- Snyman, S. L. (2012). The role of tourism employment in poverty reduction and community perceptions of conservation and tourism in southern Africa. *Journal of Sustainable Tourism*, 20(3), 395-416.
- Sofronov B. 2017. Impact of Sustainable Tourism in The Travel Industry. Annals of Spiru Haret University. Economic Series, 17, 4: 85–94.
- Sofronov, B. (2017). Impact of sustainable tourism in the travel industry. Annals of Spiru Haret University Economic Series, 4.
- Sousa, S., & Pinho, P. (2015). Planning for shrinkage: Paradox or paradigm. *European planning studies*, 23(1), 12-32.
- Spalding, A. K. (2013). Environmental outcomes of lifestyle migration: land cover change and land use transitions in the Bocas del Toro Archipelago in Panama. *Journal of Latin American Geography*, 179-202.
- Sparks, B. (2007). Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions. *Tourism management*, 28(5), 1180-1192.
- Spillias, S., Valin, H., Batka, M., Sperling, F., Havlík, P., Leclère, D., ... & McDonald-Madden, E. (2023). Reducing global land-use pressures with seaweed farming. *Nature Sustainability*, 6(4), 380-390.
- Stanchev, H., Stancheva, M., & Young, R. (2015). Implications of population and tourism development growth for Bulgarian coastal zone. *Journal of coastal conservation*, 19, 59-72.
- Steenwerth, K. L., Hodson, A. K., Bloom, A. J., Carter, M. R., Cattaneo, A., Chartres, C. J., ... & Jackson, L. E. (2014). Climate-smart agriculture global research agenda: scientific basis for action. *Agriculture & Food Security*, 3, 1-39.
- Ștefănică, M., Sandu, C. B., Butnaru, G. I., & Haller, A. P. (2021). The nexus between tourism activities and environmental degradation: Romanian tourists' opinions. *Sustainability*, 13(16), 9210.

- Steinberger, J.K., Krausmann, F., Eisenmenger, N. (2010) Global patterns of materials use: a socioeconomic and geophysical analysis, *Ecological Economics*, 69, 1148-1158.
- Stoffelen, A., Adiyia, B., Vanneste, D., & Kotze, N. (2020). Post-apartheid local sustainable development through tourism: an analysis of policy perceptions among 'responsible'tourism stakeholders around Pilanesberg National Park, South Africa. *Journal of Sustainable Tourism*, 28(3), 414-432.
- Stokowski, P. A., Kuentzel, W. F., Derrien, M. M., & Jakobcic, Y. L. (2021). Social, cultural and spatial imaginaries in rural tourism transitions. *Journal of Rural Studies*, 87, 243-253.
- Strickland-Munro, J. K., Allison, H. E., & Moore, S. A. (2010). Using resilience concepts to investigate the impacts of protected area tourism on communities. *Annals Tourism Research*, 37(2), 499–519.
- Su, C., Fu, B., Lu, Y., Lu, N., Zeng, Y., He, A., & Lamparski, H. (2011). Land use change and anthropogenic driving forces: A case study in Yanhe River Basin. *Chinese Geographical Science*, 21, 587-599.
- Su, M. M., Wall, G., & Xu, K. (2016). Heritage tourism and livelihood sustainability of a resettled rural community: Mount Sanqingshan World Heritage Site, China. *Journal of Sustainable Tourism*, 24(5), 735-757.
- Suartika, G. A. M., Ledysianty, I. A. S. O., & Saputra, K. E. (2019, November). Land Use Change Along Lebih Coastal Line, Entailing Its Designation as A Zone for Tourist Development. In IOP Conference Series: Earth and Environmental Science (Vol. 396, No. 1, p. 012014). IOP Publishing.
- Suess-Reyes, J., & Fuetsch, E. (2016). The future of family farming: A literature review on innovative, sustainable and succession-oriented strategies. *Journal of rural studies*, 47, 117-140.
- Sun R, Chen, L, Zhang B, Fu B (2009) Vertical zonation of mountain landscape: A review. *Chinese Journal of Applied Ecology* 20: 1617-1624.

- Sun Y, Zhao D, Wu T, Wei B, Gao S, et al. (2012) Temporal and spatial dynamic changes and landscape pattern response of Hemeroby in Dayang estuary of Liaoning province China. *Acta Ecologica Sinica* 32: 3645-3655.
- Sunlu, U. 2003. Environmental impacts of tourism. [in:] Camarda D., Grassini L. (ed) Local resources and global trends: Environments and agriculture in the Mediterranean region, Ciheam, Bari: 263–270.
- Sunny, A. (2018). *Surface Energy fluxes over irrigated maize-wheat using Bowen Ratio Energy Balance Method* (Doctoral dissertation, Division of Agricultural Physics ICAR-Indian Agricultural Research Institute New Delhi-11001).
- Surya Suamba, I. B., Anom Wiryasa, N. M., Acwin Dwijendra, N. K., & Diasana Putra, I. (2022). Characteristics and deviation patterns of agricultural land use in tourism area of Canggu, Bali, Indonesia. *Caspian Journal of Environmental Sciences*, 20(2), 423-430.
- Surya, B., Hadijah, H., Suriani, S., Baharuddin, B., Fitriyah, A. T., Menne, F., & Rasyidi, E. S. (2020). Spatial transformation of a new city in 2006–2020: perspectives on the spatial dynamics, environmental quality degradation, and socio—economic sustainability of local communities in Makassar City, Indonesia. *Land*, 9(9), 324.
- Surya-Suamba, I. B., Anom Wiryasa, N. M., Acwin Dwijendra, N. K., & Diasana Putra, I. (2022). Characteristics and deviation patterns of agricultural land use in tourism area of Canggu, Bali, Indonesia. *Caspian Journal of Environmental Sciences*, 20(2), 423-430.
- Swarbrooke, J., & Horner, S. (2007). *Consumer behaviour in tourism*. Routledge.
- Tabayashi, A. (2010). Regional development owing to the commodification of rural spaces in Japan. *Geographical review of Japan series B*, 82(2), 103-125.
- Tambe, r. m. (2015). a baseline assessment of land use and livelihood practices of in-park villages in the korup national park (knp), south west region, cameroon.
- Tamunobereton-ari, I., & Omubo-Pepple, V. B. (2011). The Ecological Effects of Instream Sand Mining of Okulu and Odido Rivers in Eleme Local Government

Area, Rivers State, Nigeria. *Trends in Advanced Science and Engineering*, 2, 22-28.

Tang, X. (2022). The protection planning of small and micro habitats in urban fringe areas: Enlightenment from the management of high natural value farmland in the EU to the maintenance of bio-diversity in urban areas in China. *City Diversity*, 2(1), 18.

Tapper, R. (2006). Wildlife watching and tourism: a study on the benefits and risks of a fast growing tourism activity and its impacts on species. UNEP/Earthprint.

Telfer, D. J., & Sharpley, R. (2015). Tourism and development in the developing world. Routledge.

TerrAfrica. 2006. Assessment of the Nature and Extent of Barriers and Bottlenecks to Scaling Sustainable Land Management Investments throughout Sub-Saharan Africa. Unpublished TerrAfrica report.

Thanh, Nien News (2014, October 13). Untreated waste threatens Vietnam's 'pearl island'. Thanh Nien News. Retrieved from <http://www.thanhniennews.com/travel/untreated-waste-threatens-vietnams-pearl-island-32444.html>

Theobald, (1994) suggested that etymologically, the word "tour" is derived from the Latin 'tornare' and the Greek 'tornos,' meaning 'a lathe or circle; the movement around a central point or axis.'

Thomas, D. S., Twyman, C., Osbahr, H., & Hewitson, B. (2007). Adaptation to climate change and variability: farmer responses to intra-seasonal precipitation trends in South Africa. *Climatic change*, 83(3), 301-322.

Thomas, K., Hardy, R. D., Lazrus, H., Mendez, M., Orlove, B., Rivera-Collazo, I., ... & Winthrop, R. (2019). Explaining differential vulnerability to climate change: A social science review. Wiley Interdisciplinary Reviews: *Climate Change*, 10(2), e565.

Tien, N. H., & Thuan, T. T. H. (2019). Analysis of Strategic Risk of Domestic and Foreign Real Estate Enterprises Operating in Vietnam's Market. *International journal of commerce and management research*, 5(5), 36-43.

- Tilman, D., Clark, M., Williams, D. R., Kimmel, K., Polasky, S., & Packer, C. (2017). Future threats to biodiversity and pathways to their prevention. *Nature*, 546(7656), 73-81.
- Tisdell, C. A., & Wilson, C. (2012). *Nature-based tourism and conservation: New economic insights and case studies*. Edward Elgar Publishing..
- Tiwari, S. P. (2022). *Locals' perceptions of rural tourism impacts in Methlang, Pokhara* (Doctoral dissertation, Department of Sociology).
- Tobin, D., & Anderson, T. (2015). Northeast and northern forests regional climate hub assessment of climate change vulnerability and adaptation and mitigation strategies.
- Tödting, F., & Trippel, M. (2013). 14 Transformation of regional innovation systems. *Re-framing regional development: Evolution, innovation, and transition*, 62, 297.
- Tohid, F. (2011). Economic Impacts of Tourism Industry. *International Journal of Business and Management*, 6.
- Toro, F. J., de la Torre, G. B., Weier, J., & Falcon, J. (2021). *Anarchist Geographies and Epistemologies of the State*.
- Tourism and Culture Partnership in Peru Models for Collaboration between Tourism, Culture and Community,” (UNWTO Publication, 2016): 18.
- Tse-Ring, K., Sharma, E., Chettri, N., & Shrestha, A. B. (2010). Climate change vulnerability of mountain ecosystems in the Eastern Himalayas. *International centre for integrated mountain development (ICIMOD)*.
- Tsilimigkas, G., Gourgiotis, A., & Derdemezi, E. T. (2022). Spatial planning incompetence to discourage urban sprawl on Greek Islands. Evidence from Paros, Greece. *Journal of Coastal Conservation*, 26(2), 11.
- Tuan, V.K.; Rajagopal, P. Analyzing factors affecting tourism sustainable development towards vietnam in the new era. *Eur. J. Bus. Innov. Res.* 2019, 7, 30–42.

- Tyrväinen, L., Uusitalo, M., Silvennoinen, H., & Hasu, E. (2014). Towards sustainable growth in nature-based tourism destinations: Clients' views of land use options in Finnish Lapland. *Landscape and Urban Planning*, 122, 1-15.
- UNEP, (1992), *Tourism Focus*, quarterly bulletin included in the Industry and Environment review and issue of the Industry and Environment review on Sustainable Tourism.
- UNEP, (1995), *Environmental Action Pack for Hotels* (jointly with IHRA and IHEI).
- UNEP, (1997), *Environmental Good Practice in Hotels, Case Studies* (jointly with IHRA).
- UNEP, and UNESCO, (1993), *Managing Tourism in World Heritage Sites*.
- UNWTO, United Nations World Tourism Organization, Blomberg-Nygard, A., & Anderson, C. K. (2016). United Nations world tourism organization study on online guest reviews and hotel classification systems: an integrated approach. *Service Science*, 8(2), 139-151.
- Usman, M., Anwar, S., Yaseen, M. R., Makhdum, M. S. A., Kousar, R., & Jahanger, A. (2022). Unveiling the dynamic relationship between agriculture value addition, energy utilization, tourism and environmental degradation in South Asia. *Journal of Public Affairs*, 22(4), e2712.
- Ustaoglu, E., & Williams, B. (2017). Determinants of urban expansion and agricultural land conversion in 25 EU countries. *Environmental management*, 60, 717-746.
- Utama, I. G. B. R. (2014). *Agrotourism as an alternative form of tourism in Bali Indonesia*. Summary of Paperback:, Scholars' Press (October 22, 2014), ISBN-10: 3639667123, ISBN-13, 978-3639667127.
- Vágner, J., Müller, D. K., & Fialová, D. (2011). Second home tourism in light of the historical-political and socio-geographical development of Czechia and Sweden. *Geografie*, 116(2), 191-210.
- Valbuena, D., Chenet, J. G., & Gaitán-Cremaschi, D. (2021). Options to Support Sustainable Trajectories in a Rural Landscape: Drivers, Rural Processes, and Local Perceptions in a Colombian Coffee-Growing Region. *Sustainability*, 13(23), 13026.

- Van Suu, N. Industrialization and Urbanization in Vietnam: How Appropriation of Agricultural Land Use Rights Transformed Farmers' Livelihoods in a Peri-Urban Hanoi Village? Final Report of an EADN Individual Research Grant Project, EADN Working Paper; Vietnam National University: Hanoi, Vietnam, 2009.
- Van, De Steeg, Verburg, P. H., , J., Veldkamp, A., & Willemen, L. (2009). From land cover change to land function dynamics: A major challenge to improve land characterization. *Journal of environmental management*, 90(3), 1327-1335.
- Van, S. R. (2009). Barnacles. In *Marine Biodiversity of Costa Rica, Central America* (pp. 283-289). Dordrecht: Springer Netherlands.
- Vehbi, B. O. (2012). A model for assessing the level of tourism impacts and sustainability of coastal cities. *Strategies for tourism industry-Micro and Macro Perspectives*, 99-114.
- Veiga, C., Santos, M. C., Águas, P., & Santos, J. A. C. (2017). Are millennials transforming global tourism? Challenges for destinations and companies. *Worldwide Hospitality and Tourism Themes*, 9(6), 603-616.
- Veijola, S., & Strauss-Mazzullo, H. (2019). Tourism at the crossroads of contesting paradigms of Arctic development. *The GlobalArctic Handbook*, 63-81.
- Velichkina, A. V. (2014). The assessment of the regional tourism infrastructure development. *Ehkonomicheskie i sotsialnye peremeny: fakty, tendentsii, prognoz*, 239-250.
- Verbong, G. P., & Geels, F. W. (2010). Exploring sustainability transitions in the electricity sector with socio-technical pathways. *Technological Forecasting and Social Change*, 77(8), 1214-1221.
- Vlek, P. L., Khamzina, A., & Tamene, L. D. (2017). Land degradation and the sustainable development goals: Threats and potential remedies.
- Vrooman, J. (2007). Economics of sport. *Scottish Journal of Political Economy*, 54(3), 309-313.

- Vu, Q. M., Le, Q. B., Frossard, E., & Vlek, P. L. (2014). Socio-economic and biophysical determinants of land degradation in Vietnam: An integrated causal analysis at the national level. *Land use policy*, 36, 605-617.
- Vyas, L., & Yu, B. (2018). An investigation into the academic acculturation experiences of Mainland Chinese students in Hong Kong. *Higher Education*, 76, 883-901.
- Wall, G. (1997). Is ecotourism sustainable?. *Environmental management*, 21(4), 483-491.
- Wall, G. (1997). Is ecotourism sustainable?. *Environmental management*, 21(4), 483-491.
- Wallinga, D. (2009). Today's food system: how healthy is it?. *Journal of hunger & environmental nutrition*, 4(3-4), 251-281.
- Wallis, V. (2010). Beyond" green capitalism. *Monthly Review*, 61(9), 32-48.
- Wang, (2021), Wang, G., Lau, J. Y. N., Zhang, K., & Li, W. COVID-19 in early 2021: current status and looking forward. *Signal Transduction and Targeted Therapy*, 6(1), 1-14.
- Wang, H., Yang, Z., Chen, L., Yang, J., & Li, R. (2010). Minority community participation in tourism: A case of Kanas Tuva villages in Xinjiang, China. *Tourism Management*, 31(6), 759-764.
- Wang, J., Lin, Y., Glendinning, A., & Xu, Y. (2018). Land-use changes and land policies evolution in China's urbanization processes. *Land use policy*, 75, 375-387.
- Wang, L. E., Cheng, S. K., Zhong, L. S., Mu, S. L., Dhruba, B. G., & Ren, G. Z. (2013). Rural tourism development in China: Principles, models and the future. *Journal of mountain science*, 10, 116-129.
- Wang, W., Liu, W., Zeng, Y., Han, Y., Yu, M., Lu, X., & Tong, Y. (2015). A Novel Exfoliation Strategy to Significantly Boost the Energy Storage Capability of

Commercial Carbon Cloth. *Advanced Materials (Deerfield Beach, Fla.)*, 27(23), 3572-3578.

Warlina L 2009 Land Use Change Modeling (With Special Reference to Bandung Region) 2009 Second International Conference on Environmental and Computer Science (ICECS 2009)(ICECS) pp 293–7

Warlina L 2016 Pemodelan Perubahan Guna Lahan (Kasus Kabupaten Majalengka) *Tataloka* 13 235–47

Warsame, A. A., Sheik-Ali, I. A., Ali, A. O., & Sarkodie, S. A. (2021). Climate change and crop production nexus in Somalia: an empirical evidence from ARDL technique. *Environmental Science and Pollution Research*, 28(16), 19838-19850.

Waseq, W. M. (2020). The impact of air pollution on human health and environment with mitigation measures to reduce air pollution in Kabul Afghanistan. *Int J Healthc Sci*, 8(1), 12.

Wassie, S. B. (2020). Natural resource degradation tendencies in Ethiopia: a review. *Environmental systems research*, 9(1), 1-29.

Waters, T. F. (1995). Sediment in streams: sources, biological effects, and control. *Am. Fish. Soc. Monogr.* 7, Bethesda, MD.

Weaver, S., Challies, E., Howson, P., McGregor, A., Astuti, R., & Haalboom, B. (2014). Practical critique: Bridging the gap between critical and practice-oriented REDD+ research communities. *Asia Pacific Viewpoint*, 55(3), 277-291.

Wei F, Nie Y, Miao H, Lu H, Hu Y (2014) Advancements of the researches on biodiversity loss mechanisms. *Chinese Science Bulletin* 59: 430-437.

Wei, Y., Liu, S., Huntzinger, D. N., Michalak, A. M., Viovy, N., Post, W. M., ... & Shi, X. (2014). The North American carbon program multi-scale synthesis and terrestrial model intercomparison project–Part 2: Environmental driver data. *Geoscientific Model Development*, 7(6), 2875-2893.

Weiskopf, S. R., Rubenstein, M. A., Crozier, L. G., Gaichas, S., Griffis, R., Halofsky, J. E., ... & Whyte, K. P. (2020). Climate change effects on biodiversity,

- ecosystems, ecosystem services, and natural resource management in the United States. *Science of the Total Environment*, 733, 137782
- Wen L, Li Z, (2006) The effects of disturbance on maintaining mechanism of species diversity. *Journal of Northwest Normal University: Natural Science* 12: 87-91.
- Wendmu, y. t. (2020). assessment of scrap tires and recycling using pyrolysis.
- Westen, A. C. Phuc, N.Q., M., and Zoomers, A., (2014). Agricultural land for urban development: The process of land conversion in Central Vietnam. *Habitat International*, 2014. 41: p. 1-7
- Wester, P., Mishra, A., Mukherji, A., & Shrestha, A. B. (2019). *The Hindu Kush Himalaya assessment: Mountains sustainability and people*. Springer International Publishing.
- White, M., Myers, A. D., Ross, N. P., Schlegel, D. J., Hennawi, J. F., Shen, Y., ... & Weaver, B. A. (2012). The clustering of intermediate-redshift quasars as measured by the Baryon Oscillation Spectroscopic Survey. *Monthly Notices of the Royal Astronomical Society*, 424(2), 933-950.
- Whitehead, P. G., Wilby, R. L., Battarbee, R. W., Kernan, M., & Wade, A. J. (2009). A review of the potential impacts of climate change on surface water quality. *Hydrological sciences journal*, 54(1), 101-123.
- Whyte, K. (2017). Indigenous climate change studies: Indigenizing futures, decolonizing the Anthropocene. *English Language Notes*, 55(1), 153-162.
- Wijesekara, G. N., Gupta, A., Valeo, C., Hasbani, J. G., Qiao, Y., Delaney, P., & Marceau, D. J. (2012). Assessing the impact of future land-use changes on hydrological processes in the Elbow River watershed in southern Alberta Canada. *Journal of Hydrology*, 412–413, 220–232.
- Williams, A.M.; Shaw, G. Future play: Tourism, recreation and land use. *Land Use Policy* 2009, 26, 326–335.
- Winter, T. (2009). Asian tourism and the retreat of anglo-western centrism in tourism theory. *Current Issues in Tourism*, 12(1), 21-31

- Wittemyer, G., Elsen, P., Bean, W. T., Burton, A. C. O., & Brashares, J. S. (2008). Accelerated human population growth at protected area edges. *Science*, 321(5885), 123-126.
- Wittman, H. (2009). Reworking the metabolic rift: La Vía Campesina, agrarian citizenship, and food sovereignty. *The journal of peasant studies*, 36(4), 805-826.
- Wondirad, A., & Ewnetu, B. (2019). Community participation in tourism development as a tool to foster sustainable land and resource use practices in a national park milieu. *Land use policy*, 88, 104155.a
- Wong, P. P. (2002). Tourism as a global driving force for environmental change. In I. Douglas (ed.), *Causes and Consequences of Global Environmental Change* (Encyclopedia of Global Environmental Change, vol. 3, pp. 609–23). Chichester: John Wiley.
- World Bank, (2009). *The World Bank Annual Report 2009: Year in Review*. The World Bank.
- World Wildlife Fund (WWF) (1992), *Tourism Concern: Beyond the Green Horizon: Principles for sustainable Tourism*.
- World Wildlife Fund (WWF) (1994), *Tourism Concern: Sustainable Tourism: Moving from Theory to Practice*, www.unepie.org/tourism/ (site developed by UNEPIE with the support of the UNEP).
- Xiao, T., Liu, Y., Zhou, B., Jiang, Y., & Sun, J. (2018). Unified perceptual parsing for scene understanding. In *Proceedings of the European conference on computer vision (ECCV)* (pp. 418-434).
- Xu, H.; Xiang, Z.; Huang, X.J. Land policies, tourism projects, and tourism development in Guangdong. *J. China Tour. Res.* 2017, 13, 161–177.
- Yagi, H., & Garrod, G. (2018). The future of agriculture in the shrinking suburbs: The impact of real estate income and housing costs. *Land Use Policy*, 76, 812-822.

- Yalew, A. W. (2014). Natural resources management and agriculture in sub-saharan Africa. *Research Journal of Agriculture and Environmental Management*. Vol, 3(1), 004-010.
- Yang, G. (2019). Wide feedforward or recurrent neural networks of any architecture are gaussian processes. *Advances in Neural Information Processing Systems*, 32.
- Yang, J., Ge, Y., Ge, Q., Xi, J., & Li, X. (2016). Determinants of island tourism development: The example of Dachangshan Island. *Tourism Management*, 55, 261-271.
- Yang, S. (2022), Chang, Y., Li, D., & Simayi, Z., Ren, Y., Spatial distribution of leisure agriculture in xinjiang and its influencing factors based on geographically weighted regression. *Sustainability*, 14(22), 15002.
- Yang, Y., Liu, Y., Li, Y., & Du, G. (2018). Quantifying spatio-temporal patterns of urban expansion in Beijing during 1985–2013 with rural-urban development transformation. *Land use policy*, 74, 220-230
- YILMAZ, G. Ö. (2016). The Role of Rural Tourism in Rural Development. *Global Issues and Trends in Tourism*, 120.
- Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. (2008). Corporate governance in emerging economies: A review of the principal–principal perspective. *Journal of management studies*, 45(1), 196-220.
- Yüksel, A. S. (2011). Rescaled localities and redefined class relations: Neoliberal experience in South-East Turkey. *Journal of Balkan and Near Eastern Studies*, 13(4), 433-455.
- Zachos, J. C. (2013). Assessing “dangerous climate change”: Required reduction of carbon emissions to protect young people, future generations and nature. *PloS one*, 8(12), e81648.
- Zaei, M. E., & Zaei, M. E. (2013). The impacts of tourism industry on host community. *European journal of tourism hospitality and research*, 1(2), 12-21.

- Zaheer, F., Mubariz, S., & Alvi, A. S. (2020). Religious tourism backing for economic salvation: A study of Kartarpur corridor between Pakistan and India. *Journal of Indian Studies*, 6(01), 139-148.
- Zahra, P. (2015). Ecological crisis: Underground water resource depletion in Ranchi.
- Zapata, M. J., Hall, C. M., Lindo, P., & Vanderschaeghe, M. (2013). Can community-based tourism contribute to development and poverty alleviation? Lessons from Nicaragua. In *Tourism and the Millennium Development Goals* (pp. 98-122). Routledge.
- Zeng, E. Y. (2020), Hale, R. C., Seeley, M. E., La Guardia, M. J., & Mai, L.,. A global perspective on microplastics. *Journal of Geophysical Research: Oceans*, 125(1), e2018JC014719.
- Zhai, B., & Ng, M. K. (2013). Urban regeneration and social capital in China: A case study of the Drum Tower Muslim District in Xi'an. *Cities*, 35, 14-25.
- Zhang, (2021).., Bengio, S., Hardt, M., Recht, B., & Vinyals, O. Understanding deep learning (still) requires rethinking generalization. *Communications of the ACM*, 64(3), 107-115.
- Zhang, A., Zhong, L., Xu, Y., Wang, H., & Dang, L. (2015). Tourists' perception of haze pollution and the potential impacts on travel: Reshaping the features of tourism seasonality in Beijing, China. *Sustainability*, 7(3), 2397-2414.
- Zhao G, Liu J, Kuang, W, Ou Y (2014) Disturbance impacts of land use change on biodiversity conservation priority areas across China during 1990-2010. *Acta Geographica Sinica* 69: 1640-1650.
- Zhu P, Huang L, Xiao T, Huang B, (2018) Dynamic changes of habitats in China's typical nature reserves on spatial and temporal scales. *Acta Geographica Sinica* 73: 778-790.
- Zhu X, Xu Z, Liu Z, Liu M, Yin Z, Yin L, Zheng W. 2022. Impact of dam construction on precipitation: a regional perspective. *Mar Freshw Res.* 74(10):877–890. doi: 10.1071/MF22135.

- Ziervogel, G. (2016). Addressing the risk of maladaptation to climate change. Wiley Interdisciplinary Reviews: Climate Change, 7(5), 646-665.
- Zimmerer, K. S. (2006). Cultural ecology: at the interface with political ecology-the new geographies of environmental conservation and globalization. *Progress in Human Geography*, 30(1), 63-78.
- Zolghadr, M., Zomorodian, S. M. A., Sha'bani, R., & Azamatulla, H. M. (2021). Migration of sand mining pit in rivers: an experimental, numerical and case study. *Measurement*, 172, 108944.
- Zoomers, A., Van Noorloos, F., Otsuki, K., Steel, G., & Van Westen, G. (2017). The rush for land in an urbanizing world: From land grabbing toward developing safe, resilient, and sustainable cities and landscapes. *World Development*, 92, 242-252.
- Zucca, C., Biancalani, R., Kapur, S., Akça, E., Zdruli, P., Montanarella, L., & Nachtergaele, F. (2014). The Role of Soil Information in Land Degradation and Desertification Mapping: A Review. In *Soil Security for Ecosystem Management* (pp. 31-59). Springer International Publishing.
- Zukin, S. (2009). *Naked city: The death and life of authentic urban places*. Oxford University Press.

ANALYSIS OF SOCIO- ENVIRONMENTAL FACTORS CONTRIBUTING TO TOURISM INFLUENCED LAND CONVERSION IN DISTRICT SWAT-PAKISTAN

QUESTIONNAIRE

Section A. Demographic Profile

1. Tehsil name of the Respondents_____
2. Age of the respondents_____ a) 25-35years b) 36-45years
c) 46-55years d) 56 years and above
3. Literacy status_____ a) Literate b) Illiterate
4. Educational level_____ a) Primary 5years b) Middle 8years c) Metric
10years d) Intermediate 12years e) Above intermediate
5. Marital status_____ a) Married b) Un married
6. Family type of the respondent_____ a) Nuclear b) Joint c) Extended
7. Family size_____ a) 1-5 b) 6-10 c) Above 10
8. Occupation_____ a) Self-employed b) Agriculture
c) Government servant d) Private business
9. Monthly income_____ a) 15000-25000 b) 25000-35000 c) And above 35000

Section B. Effects on agricultural production

S.No	Attribute	Yes	No
1	The development process of tourism activities is essentially a process of land use, which is also one of the major causes for changes in land use patterns.		
2	Tourism development has a direct or indirect impact on land use or land conversion.		
3	The rapid expansion of tourism activities and construction activities had led to reduction in agriculture land.		
4	Tourism activities can destroy the flora and fauna.		
5	Tourism results in the destruction of ecosystems and extinction of multiple species of the fauna due to the massive presence of visitors.		
6	Tourism and especially mass tourism causes degradation and loss of natural landscape, historic sites, and monuments.		
7	Tourism developments harm the environment, especially changes in land use.		
8	The development of mountain tourism has led to continuous encroachment on the effective habitats of species in natural reserves.		
9	Tourism and land forestation are paradox in nature		
10	Land reduction in agriculture has not reduced the production due to application of latest know how in the land cultivation.		
11	Orchards and other local fruits are diminished due to replacement by tourism sites.		
12	People are willing to land conversion as tourism is more profitable than ordinary agriculture.		
13	Tourism entails development but at the cost of existing agriculture land.		

Section C. Land degradation

S.No	Attribute	Yes	No
1	Tourism activity directly causes land degradation		
2	Tourism impact directly on natural resources, both degradable and non-degradable		
3	Tourism causes deforestation.		
4	A tourism activity also demolishes cultivated land.		
5	Agricultural lands are gradually transforming by tourism due to absence of non-existing of any relevant law.		
6	Construction and reconstruction, infrastructure transformation, and landscape transformation has put immense pressure on the existing pattern of land.		
7	Economy due to tourism development, poses a threat to the livelihoods of the indigenous people who mostly work as farmers.		
8	Tourism affect land degradation and important land resources, including minerals, fossil fuels, fertile soil, forests, wetland and wildlife.		
9	Frequent visits of tourist has not only disturbed the eco-system but has also brought other related miseries the noise pollution.		
10	Land degradation is also visible in the form of changing housing patterns like conversion to big farm houses.		
11	Non-local influential like law enforcing agencies have also constructed their own colony, which further converted the existing land.		

Section D. Threat to bio-diversity

S.No	Attribute	Yes	No
1	In terms of its negative impact tourism has the potential to over-consume natural resources.		
2	The natural, man-made and cultural resources that tourism relies upon are liable to affect bio-diversity.		
3	Tourism development, and exploiting tourism resources and constructing tourism infrastructure can change the surface structure, land, soil and vegetation, posing threat to bio-diversity.		
4	The agricultural land in all scenic spots shows a decreasing trend annually due to tourism.		
5	Tourists do not protect the natural environment and resources either due to ignorance or indifferences.		
6	International and national level tourism are seen to have a potentially destructive relationship with the natural or scenic environment.		
7	Tourism is argued to be the prime threat to indigenous habitats, and the natural resources.		
8	The existing ecosystem and biodiversity are under constant threat of perishing due to their threatening habitats.		
9	No any law or measures have been taken in part of the relevant departments to preserve bio-diversity		
10	Lack of visitor's calendar to import preservation instruction has further deteriorated the existing species in the area.		

Section E. Population pressure

S.No	Attribute	Yes	No
1	Understanding land use dynamics is very important in formulating proper policy for land use in the mountain regions to manage population pressure.		
2	Population pressure has put pressure on resources causing them to deplete.		
3	Population is one of the major causes of pollution and the production of carbon dioxide.		
4	Population due to tourism negatively affects the development of housing, sanitation and drainage which changes in the form diseases and affect the local environment negatively.		
5	Population pressure on account of tourism causes, poor housing and unregulated informal economy lead to improper waste disposal with negative health and environmental consequences.		
6	Population due to tourism can create such negative aspect as crime, poverty and urbanization is conditioned and shaped by social, psychological environmental dynamics.		
7	The disordered and uncontrolled commercial activities and limited parking spaces and sanitation facilities hinder the natural environment functionality due to population pressure.		
8	The survival of the rural atmosphere is threatened by huge population pressure.		
9	Population pressure has put a big pressure on the existing road facilities not enough in cope with demanding trend in the area.		
10	More visits' rise to more population and exerting pressure on the local dilapidated drainage system.		

Section F. Sand mining/extraction

S.No	Attribute	Yes	No
1	Crushed rock, sand and gravel account for the largest volume of solid material resources extracted by sand mining due to tourism from the local river for the construction.		
2	Sand mining can damage private and public properties as well as aquatic habitats on the account of tourism industry.		
3	Excessive removal of sand may significantly distort the natural equilibrium of a stream channel by tourism spot in the area.		
4	Sand extraction destroys the habitats of living organism.		
5	Sand extraction is illegal and criminal activities. `		
6	Sand extraction is the only possibility to make a living in the short run for the local people.		
7	Sand extraction areas have demonstrated the impact of mining with the prowess to destroy the cycle of ecosystems due to tourism.		
8	Sand extraction can also create lots of pollutants.		
9	The sand extraction results into changes in the direction of the river flow.		
10	Changes in water flow direction detrimental to the local population especially in the rainy seasons.		
11	Study area has witnessed huge damages in the recent flood due to changing water flow in light of sand extraction.		

Section G. Environmental pollution

S.No	Attribute	Yes	No
1	Tourism related environmental pollution e.g. Solid, plastic and electronic wastes are an eyesore and are harmful to the environment due to their non-biodegradability.		
2	The emission of gases into the atmosphere leads to air pollution on the account of tourism.		
3	The noise pollution is caused due to means of transportation or when any kind of work or construction is going on than too leads to noise pollution by tourism.		
4	Indiscriminate littering and poor waste disposal has further added to the deterioration of environment.		
5	Addressing the cause of pollution due to tourism is more time and money consume ring.		
6	Environmental challenges affect health and environment at the cost of human energies and resources.		
7	Plastics usage for food packaging has become dominant in the study area and is ultimately threat to the natural environment.		
8	Polluting emissions are associated with accommodation facilities (hotels, guest houses etc.		
9	Flora and fauna are in constant struggle for existence due to existing constant environmental threat.		

Section H. Hoteling/ buildings

S.No	Attribute	Yes	No
1	Hoteling is the newly emerging lucrative business.		
2	Environmental impacts caused by tourism are a result of the dynamic interplay of socio-economic, institutional and technological activities.		
3	The tourism industry generally overuses water for hotels, swimming pools, golf courses and personal use of tourists which pollutes the spring nature.		
4	Hoteling is converting agricultural land into roads and building for tourism activities.		
5	Land use and structures in a particular scenic spot may greatly vary due to demands of tourism.		
6	Scenic spot exploitation is subject to regional economic and social conditions on the account of tourism.		
7	Different regional conditions and features affect the importance attached to construction of buildings in a scenic spots.		
8	Hoteling induced economic growth in a scenic transformation of land due to tourism.		
9	Hoteling can convert Farmland, along riverbanks, through construction activity to tourism related.		
10	Hoteling has raised the employment opportunities for the local youth.		
11	Hoteling has provided employment to locals at their door-steps.		

Section I. Capitalist interest

S.No	Attribute	Yes	No
1	Capitalist investment decreases farmland as it is used to accommodate infrastructure for the development of tourism.		
2	The establishment of parks for purely profit can create harsh survival realities and deprive the people of their traditional use of land and natural resources due to tourism.		
3	Tourism can put immense pressure on local resources like energy, food, and other raw materials that may be scarce by the capitalist class due to of constructing and property selling		
4	Profit seeking indigenous people while taking decision that has effects on investors irrespective to their local environment.		
5	Land is one of the most important inputs of production for indigenous people but capitalist want to change the regime for personal benefits.		
6	The rapid unplanned urbanization in mountain regions by capitalist interest possesses serious threat to the economic, social and environmental sustainability.		
7	Tourism development can put pressure on natural resources when it increases consumption in areas where resources are already scarce.		
8	Local paradigm of economy is changing in the purview of capitalist invasive.		
9	Local economic culture is under transformation with new emerging trend in light of foreign cultural innovations.		
10	Locals are more in claimed the capitalist paradigm as it is ensure more money and resources.		

Section J. Unplanned residential sprawl

S.No	Attribute	Yes	No
1	Unplanned residential sprawl pose direct impacts on air, soil, water are associated with manufacturing, production and transportation of materials by tourism.		
2	Solid waste and increased pollution is associated with unplanned residential sprawl in the tourism sector causing serious damage to the local environment.		
3	Local residents construct buildings without proper planning permission which can cause huge damage to the natural environment.		
4	Depletion of natural resources like wood, water and soil due to unplanned residential sprawl.		
5	The adverse impacts of tourism in any area occur when the numbers of tourists, or visitors, cross the natural environment due to tourism. `		
6	Unplanned residential sprawl is a naked challenges environment and social life.		
7	Unplanned residential sprawl generates security risks in tourist areas.		
8	Locals are unaware about the negative consequences of the rapid sprawl in the area.		
9	Local government organization lacks the anticipative vision to control unplanned sprawl.		
10	People opt to sprawl as it is more lucrative in terms of lesser land use and more earning.		

Section K. Infrastructural changing

S.No	Attribute	Yes	No
1	Tourist activities affects changes in the infrastructure of the study area.		
2	Problems related to the current property rights regime over land and the land conversion systems have led to difficulties for indigenous people due to tourism development industry.		
3	Ambiguous property laws cause infrastructure changing.		
4	Lack of long-term planning and comprehensive master plan results in undesirable infrastructural changing.		
5	Newly built facilities like cafes, parks, hotels and toilets have degrading effect on environment.		
6	Change in architectural styles reduces the charm of the area.		
7	Changes in infrastructure disturb population density and affect accessibility.		
8	Infrastructural changes have led the emergence of new business class as property dealing.		
9	Proper property business encouraged the non-locals to invest in the area and start their business.		

Section L. Tourism influenced land conversion

S.No	Attribute	Yes	No
1	Commercializations of agricultural land for tourism have an effect on local customs, socio-cultural characteristic, social life and religious beliefs of the community.		
2	Tourism destinations have the potential to become overcrowded, making traffic worse and creating parking problems which ultimately cause problems for local people		
3	Natural areas including parks and protected lands may be affected directly with the introduction by commercialization of tourism industry		
4	Land conversion, more often from cultivated and arable lands to commercial uses is driven by economic, political, environmental and social factors, and such conversion has significant opportunity cost in terms of biodiversity loss and land fragmentation and low agricultural productivity due to tourism		
5	Different investment strategies are applied by foreign and domestic investors to develop new hotels.		
6	Commercialization of local agricultural land leads to unplanned and unsustainable exploitation of natural resources of the tourist area.		
7	Commercialization of agricultural land affects social and economic relations as foreigners become land-owners in a tourist area.		
8	Commercialization of agricultural lands in a tourist area should be conducted through proper planning in consultation with local people.		
9	Frequent construction activities and influence of people have threatened both above and below the land reserves.		
10	Commercialization of local and has brought the local and non-local cultures with frequent process of acculturation and assimilation.		