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Study on Disaster Resilient Transportation Network for Trade and Tourism Development in Gharapjhong Rural Municipality of Mustang District Nepal

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Abstract: The study was conducted during the period from December 2020 to May 2021 in the Gharapjhong Rural Municipality of Mustang district in Nepal. Both primary and secondary data have been used in this study. Secondary literatures were received from various sources such as published reports, papers, thesis, database, and manuals. And, primary data were collected from the field observation, in-depth interview, focus group discussion and questionnaire survey. The study found that sustainable transportation network is essential to enhance tourism development in Mustang District. Furthermore, insufficient agricultural product, and lack of exploration of tourist sites is affecting tourism growth. Similarly, inadequate awareness among the people of the society, improper sanitation system, inadequate investment from the private sectors, unfavourable weather condition, and weak and fragile soil are the problems for development of trade and tourism. Similarly, inadequate local tourist guides, inadequate schools and health facilities, as well as incompetent representatives are also the key factors for the development of tourism industry. This study would like to suggest that the construction of adequate road network, capacity building and skill development trainings in the tourism sector should be enhanced. Similarly, sufficient advertisement on tourism area should be managed, adequate exploration of tourist sites should be conducted, and local agricultural productivity should be increased along with provision of adequate educational and health institutions, proper water and sanitation facility should be available and adequate tourist guides should be trained.

Keywords: Evolution of Tourism in Nepal, Trade and Tourism Development, Disaster Resilient Transportation Network, Ministry of Culture Tourism and Civil Aviation

1. Introduction

The democratic republic of Nepal is not only the least developed country in Asia Pacific region, but also land-locked a double disadvantage in her efforts to fulfill development aspirations [1]. Mustang district is located in the Trans-Himalayan region just north of Central Greater Himalaya popularly known as Annapurna and Dhaulagiri ranges. The entire area of the district is drained by upper Kali Gandaki River and its various tributaries. The river Kali is the western most main tributary of Sapta Gandaki river system of central Nepal. The river Kali antecedent is originated from the Tibet Autonomous Region of China and flows towards south in the name of Agarchu Khola [2].

This part of fluvial run-off is also known as Mustang khola. The same khola ultimately named as Kali Gandaki only after the confluence of three tributaries as Mustang khola, Charang Khola, and Dhenchayan khola. Although, this river is seldom known as Kali Gandaki even beyond this confluence at Bhatti. This district is surrounded by Manang district to the east, Tibet Autonomous Region of China to the north-east, north and northwest, Dolpo district to the west [3]. Mustang, one of the rural tourism destinations, a part of Dhaulagiri zone of Nepal is situating in the western development region of Nepal. It covers the area of 3,573 sq.km and the population of this district is about 13,452 [4].

Mustang is remote sub-kingdom of Nepal where most of the people are ethnically Tibetan. Almost all of the people live in the bank of Kali Gandaki River. The whole place covered with the beautiful mountain range and snowy mountains. The purpose of this research is to examine the difficulties and visions of rural tourism in the Mustang district. Although, this is interrelated with the rural tourism, the aim is to highlight the potentiality of tourisms possibility, the development of local society and changes in their living standard. The research will base on the quantitative methodology where the questionnaire-based survey conducted among the tourists and the local entrepreneur. The structure questionnaire was sent to Prashidda Kharel (brother) who conducted the survey on the proposed site. Lastly, the author describes the current activities of rural tourism of this district and the further process that can be possible to develop the rural tourism [5].

Tourism is one of the essential parts of Nepalese economy. It is the major source of revenues as well as the main source of creating job opportunities. There are two main religions: Hinduism and Buddhism. The different cultural identity along with the favorable yearly weather is also the main attractions of Nepal. The highest mountain peak in the world, Mount Everest, the birthplace of Gautama Buddha – Lumbini, the most popular tourism place Pokhara, rural tourism center and one of the examples of beautiful attractions Mustang are some of the important attractions for visitors [5].

As the political and climatic condition is unstable, the business sector of Nepal face various challenges [6]. The country is challenged by human induced stressors such as frequent changes in government, ethnic clashes, shortages in key resources like water and energy, inflation, vulnerable to natural stress such as fires, floods, landslides, earthquakes and climate change. Despite its complex and dynamic context, Nepal has achieved a gradual growth of its tourism industry contributing around 8% to GDP and bringing in 25% of foreign exchange earnings [7].

The tourism sector now forms a key pillar of the Nepalese economy. It is estimated to have created over a million jobs and numerous business opportunities by trade and tourism throughout the country. Tourism is viewed as a contingent business, because variables continuously affect its functioning and operations directly or indirectly [8].

As Mustang district is beyond the high Himalayas the geographical difficulties is a major obstruction for developing transportation network. Thus, the general objective of this study is to find out the major problems, causes, effects and solution of the problem for the development of trade and tourism in Gharapjhong Rural Municipality in Mustang District of Nepal.

2. Literature Review

Tourism infrastructure is an important element in the development of tourism, contributed to the growth and efficiency of tourism destinations and products [9]. Tourism infrastructures are the foundation of raising tourism by using destination resources. It includes a large number of services required to fulfill the tourist requirement to rise the satisfaction in their staying during the journey [10]. They are the element of regional touristic creation [11]. The infrastructure consists of basic elements, building structure and facility organizations, whose importance is vital for the economy and society. Tourism infrastructure can be illustrated as technical, social, and demand driven.

The visitor budget would not function without appropriate investment in supporting infrastructure including our airport, road, rail, and ferry networks, as well as hotel accommodation. While this infrastructure may not form the core purpose of travel, the quality and delivery of these facilities significantly impact the visitor experience [12]. Similarly, Tourism infrastructure comprises the range of devices and institutions constituting material and organizational basis for tourism development. It consists of four fundamental elements: Settlement facilities, gastronomy facilities, complimentary facilities, and communication facilities [13].

Tourism infrastructure is the foundation of tourism development which has components i.e. environmental, transport and social, as well as a base for the utilization of destination resources. The significance of tourism infrastructure exists as it can add to developing the proficiency of the creation and circulation of the travel industry, and in some cases, such as remote destinations, even increases the supply of tourism services [10].

Infrastructure in the area of tourism is based largely on investment, coming from the private sector, and this share reaches 78% of the total investment in tourism [12]. Social infrastructure is funded mainly from the private sector, while environmental infrastructure goes to the state and includes public goods. Transport infrastructure is for the most part possessed by the state, and it is directly accountable for investment in this part, as well as development. The foundation of the travel industry framework discernibly adds to expanding the unpredictability of the travel industry exercises, which influences the expansion in utilitarian multifaceted nature and regional, goal, intensity [15].

Construction is always associated with something destruction of resources as well. Thus, development needs to be done with great care to preserve the environment and future of living being. There is a notion that economic growth and associated infrastructure development to growth can occur without harming the environment and are popularly known as sustainable development [16].

Thus, infrastructure plays a vital role to develop the tourism spot like heritage sites, religious place and other tourism areas [17] articulated the significance of infrastructure that infrastructure acts as an integral part of the tourism package. For example, road infrastructure improves accessibility of visitors to different parts of the destination country whereas improved airport infrastructure ensures that tourists experience a cushy transition from the plane into the borders of the destination country and vice versa. Similarly, communication infrastructure permits speedy and inexpensive communication

between the source and destination country as well as provides maximum information about the target thereby reducing uncertainty, fear and asymmetric information. Else infrastructure such as waste-water and energy among others are also believed to result in more reliable services and consequently enhance the attractiveness of the destination.

Infrastructure developments are crucial to economic and social development. They provide the bases for economic activities virtually in every aspect of the modern era. It is mainly related to road, bridge, building, hydroelectric power generation, telecommunication network, transportation facilities, and safe drinking water facilities, etc. Similarly, establishing services such as a public house, school, universities, hospitals and industry or shopping complex, communication facilities such as mobiles, phones, Radio, Newspapers, Televisions and computer facilities are also included in the infrastructure [18]. Thus, infrastructure is fruitful while they are future-oriented and beneficial in terms of every aspect like economic, social, cultural, financial as well as sustainable.

Nepal is a developing country with its lower per capita GDP just reached 1,034.118 USD in Jul 2019 [19]. Similarly, Four-fifth of its landform comprises of hills and mountains and 80% of its population lives in rural areas.18.7% percent of the people live below the poverty line and 43% population are unable to read and write. The rural areas lack minimal facilities. The major challenge for the government is to provide adequate infrastructure.

The main roads of Nepal were of east-west and north-south highways. The longest highway was the Mahendra Highway/East-West Highway. Its total proposed length was approximately 1,050 km, of which 850 kilometers were completed in 1989. The 114-kilometer Arniko Highway, which connected Kathmandu with Kodari on the Chinese border, was constructed with Chinese support. The Siddhartha Highway was constructed with India's assistance and connected the Pokhara Valley with Sonauli in India's Uttar Pradesh state. Some of the other completed highways (Rajmarg) running east-west were the Tribhuvan-Rajpath, Prithvi, and Kodari highways. Concerning north-south highways, Gorkha-Narayangadh, Kohalpur-Surkhet, Sindhuli-Bargachi, and Dhangadhi-Dadeldhura roads were mostly completed in the early 1990s. The north-south roads were being constructed to connect with the east-west Mahendra Highway [20].

Nepal has a very short railway transportation facility linked with India. Raxual (India) to Amlekheganj (Nepal) route has been expanded until today, besides this feasibility of other routes is under study level [21]. Thus, the tourist industries and guides are growing in Nepal (Table 1).

Table 1. *Tourist industries and guide in Nepal.*

Year	Travel Agency	Trekking Agency	Rafting Agency	Tourist Transportation Service	Tour Guide	Trekking Guide	River Guide
2069/70	2239	1598	52	31	0	0	100
2070/71	2450	1761	60	50	3141	9741	131
2071/72	2611	1903	61	59	3335	10436	131
2072/73	2768	2018	66	67	3507	11358	187
2073/74	3444	2367	72	72	3717	13049	207
2074/75	3824	2637	73	72	3876	13831	230
2074/75	3508	2649	73	77	4126	16248	253

(MOTCA, 2019).

Health Care and Medical Services play the vital role for the growth of tourists in the region as well as in the country as a whole. The available health institutions are not sufficient for the growing number of tourists (Table 2).

Table 2. *Details of Health Institution in Nepal (up to Mid-March, 2019).*

Description	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
1. Total health facilities	4485	4505	4599	4503	4513	4517
A) Hospital	107	116	116	116	123	125
B) Primary health	215	215	216	200	203	203
C) Health Post	2175	3790	3883	3803	3803	3805
D)Aurvedic Aushadhalaya	293	384	384	384	384	384
E) Sub-health Post	1695	-	-	-	-	-
2. Hospital beds	7550	7640	7748	8172	8172	8172
3. Total human resource	93495	87290	88640	89243	90803	90946
A) Doctor	2154	2457	2550	2550	2640	2640
B) Nurse/ANM	9535	20346	20423	20510	20510	20653
C) Kabiraj	394	485	570	570	613	613
D) Baidhya	360	451	451	693	693	693
E) Health Assistant (HA/AH)	11551	11551	12646	12646	14347	14347
F) Female Health Volunteer	63326	52000	52000	52000	52000	52000

(MoF, 2018).

Theoretically, it is agreed that the infrastructure sector is the backbone of the economic growth of the country. The

study of various empirical examines, which use various methods and models for evaluation, has also confirmed the significant contribution of infrastructure to economic growth and development. Although all studies find the growth-enhancing effect of infrastructure in one or another way, the impact differs in different countries [22].

Studies show that percent increase in the stock of infrastructure results 1 percent increase in gross domestic production (GDP) [23]. He furthers suggests; one of the key ways through which infrastructure contributes to economic growth is by improving competitiveness and facilitating international and domestic trade by reducing the cost, according to the World Development Report. Though, the lack of basic infrastructure has forced Nepal to witness an average of below 4 percent economic growth over the past decade.

2.1. Spiritual/Religious/Pilgrimage Tourism

Spiritual tourism tourists who are seeking religious or spiritual settings for the aim of fulfilling their desire to travel, either in whole or in part, and to have some form of religious or spiritual experience whereas, religious tourism is more focused on holiday and cultural tourism. However, Bayih has also added that Spiritual tourism, pilgrimage tourism, and religious tourism are highly related and mostly used interchangeably as cited in [24].

So, it can be concluded that religious tourism can be considered a kind of Spiritual however spiritual tourism not necessarily fully religious tourism. Meanwhile, Pilgrimage is closer to religious tourism.

Pilgrimage tourism is that type of tourism that is exclusively or strongly motivated for religious reasons. It is one of the oldest forms of tourism and a worldwide phenomenon of religious history. Thus Pilgrimage tourism is now recognized as a source of diversifying the country's economy [25]. It has been perceived that its value and importance have been raised day by day in this modern scientific era too. The opinion that Religious sites are not only visited by the pilgrims but also visited by non-religious visitors since they have cultural, historical, and religious importance [26]. Spiritual tourism has been considered as a phenomenon in leisure travel. It can be defined as tourism characterized by a self-conscious project of spiritual betterment [27].

2.2. A Brief Introduction of Mustang District

Mustang, one of the rural tourism destinations, a part of Dhaulagiri zone of Nepal is situated in the western development region of Nepal. It covers the area of 3,573 sq.km and the population of this district is about 13,452 [28]. Mustang, also called the lost kingdom, is generally derived from the Tibetan term "Lomanthang" which means green meadowland. There is also the belief that the word Mustang has formed from the Tibetan word "Smongtang". The word Smong refers to the place for prayer and another word Tang denotes the place. Combining both, Smongtang becomes the place for the prayer. During the visit in Mustang, tourists can notice the sound of Buddhist prayer in many parts of the district [29].

Mustang has the division into two parts, Upper mustang and Lower Mustang. Upper Mustang, a region starts from south Tibetan border to Kagbeni whereas Lower Mustang covers the part of lower valley along with Kaligandaki River. Its district headquarter is Jomsom which is at Gharapjhong Rural Municipality. This region lies in the altitude of 2710m from the sea level. The temperature varies from - 9 to 26 degrees centigrade. Marpha, the popular wine of Nepal is also prepared in this district. The whole district is full of historical, cultural, religious tourism sites and famous lakes. Muktinath temple, Mount Dhaulagiri, Dhumba Lake are some of the few popular examples of tourism industry [30]. In Mustang, the development of tourism infrastructures is still insufficient. It is creating a huge problem in the development of tourism. Mustang is located from gentle low land basin to high Himalayan Mountain. Hence, there is some problem in order to make the smooth development of this district. Transportation is an important infrastructure for development in a developing country like Nepal. It makes people travel more cheaply and conveniently. Currently, Mustang district has the connection with Beni-Jomsom highway. However, the unmanaged construction and dusty road always has the risk of accident and pollution. There is only one roadway for mustang. Many parts of Mustang are still beyond these facilities. After the establishment of district headquarter in Mustang, the government raises the investment for the improvement in the services. There is one airport and tourists can reserve the helicopter from the big city to travel to this district. This is why Mustang is a very expensive destination to travel [31].

Electricity is another important tool for the development of rural tourism industry. Electricity services are still insufficient and unreliable in all parts of the district. There are a few communities benefited by local hydroelectricity in upper and lower Mustang. The services are limited within 6/7 months in a year due to freezing of rivers [32].

Communication facility is another big problem in this district. However, the majority of the community is distributed NTC mobile network and telephone facilities but small number of villages that can be part of tourism industry are still beyond the communication network. Postal services are available in all the rural municipalities but it is not the adequate means in this 21st century [32].

Mustang has limited numbers of health facilities services. Although, there are some health care centers, health posts, sub-health posts, hospitals but people have to come to the big city in case of emergency and major treatment. These services are also limited within the districts. The problem can be noticed in accommodation as well. There are limited numbers of hotels and teahouses. Big hotels are not available in this district [32].

3. Materials and Methods

3.1. Study Area

The survey on the research topic was conducted in

Gharapjhong Rural Municipality (R.M.) of Mustang district and the targeted respondents were the representatives from Gharapjhong R.M. of Mustang district, locals, and visitors coming in Mustang district. FGD was conducted with business persons & locals around the Mustang district territory, in-depth interview was conducted among social activists, local government representatives, and members of Mustang district. The questionnaire survey was conducted through visitors and locals.

Gharapjhong R.M. is tourist place and Jomsom the headquarter of Mustang District is also the R.M.'s center which is located 358.5 km North West from Kathmandu and at an altitude of about 2743 m AMSL is located in the North Western Himalayas at latitude 28° 7′ 16.68″ North and longitude 82° 40′ 24.55″ East. The Kaligandaki Corridor to Tibet's Corolla passes through the bazaar. The bazaar is surrounded by the Kali Gandaki River to the east and the Dhaulagiri Mountain to the west [20].

Gharapjhong R.M.'s total population is 3,184 and its area is 122 square kilometers.

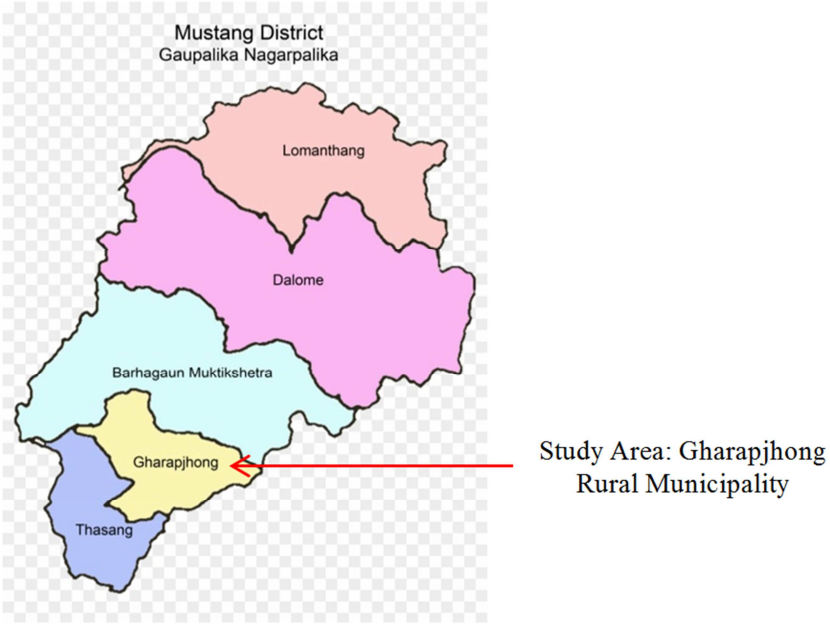

Figure 1. *Map of Study Area (Google Map, 2020).*

3.2. Sampling Techniques and Sample Size

Sample size was fixed using Slovin's formula:

$$\text{Sample size } (n)=N/(1+Ne^2),$$

where N=total no. of population and e=confidence error.

From a target of 148 respondents for questionnaire survey, 135 valid responses were collected from technical persons.

Hence, sample size was fixed at 135 for data analysis. Purposive sampling method was adopted for this purpose with a view to gather the views of the respondents, appropriate for the research objective.

3.3. Data Analysis and Presentation

The RII is used to evaluate the ratings of the respondents. In this research, Liker 5-point scale has been used to determine relative importance index (RII) for the factors causing delay, effects of delays and strategy to minimize risk of delays. The value of RII is given by the equation:

$$\text{Relative Importance Index (RII)}=(\sum W)/AN=(5n_5+4n_4+3n_3+2n_2+1n_1)/5N.$$

The appropriate computer application that is MS Excel was used for coding numbers to the respondents' answers for data analysis.

In this study, the results were presented in the forms of bar charts and pie charts.

3.4. Study Period

The total study period for this thesis was about 7 months starting from Nov. 2020 to May, 2021? During the period, research topic finalization, literature review, questionnaire preparation, data collection, data analysis, and report finalization were performed.

4. Results and Discussion

4.1. Problems of Resilient Transportation Network for Trade and Tourism Development in Mustang District

There were fourteen options for ranking. The value of lack of good road network received highest rank (RII=0.87) whereas incompetent representatives received the lowest rank (RII=0.58). All options and their respective value is presented in figure (Figure 2).

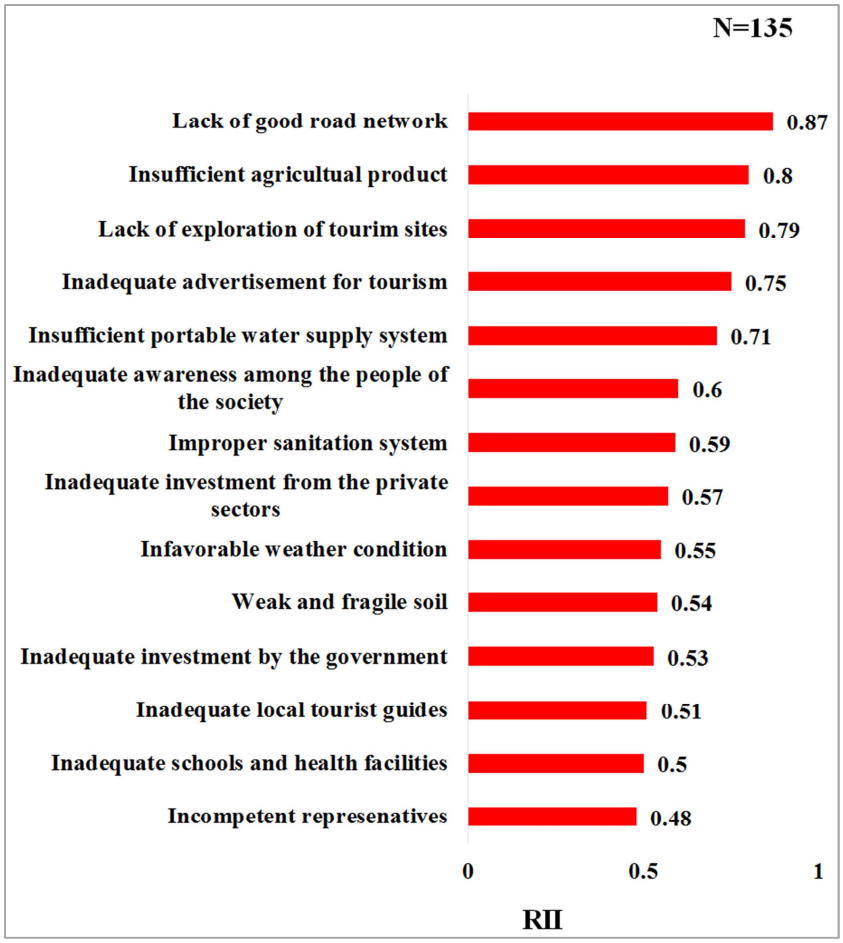

Figure 2. *PROBLEMS of Resilient Transportation Network for Trade and Tourism Development in Mustang District (Field Survey, 2021).*

4.2. Major Causes and Effects of Resilient Transportation Network for Trade and Tourism Development in Mustang District

4.2.1. Causes and Effects of Lack of Good Road Network

There were six options for ranking. The value of lack of investment from central, province and local government received highest rank (RII=0.58) whereas unfavorable soil structure, inadequate technical studies and labor along with lack of awareness for road maintenance received the lowest rank (RII=0.54). All options and their respective value is presented in figure (Figure 3).

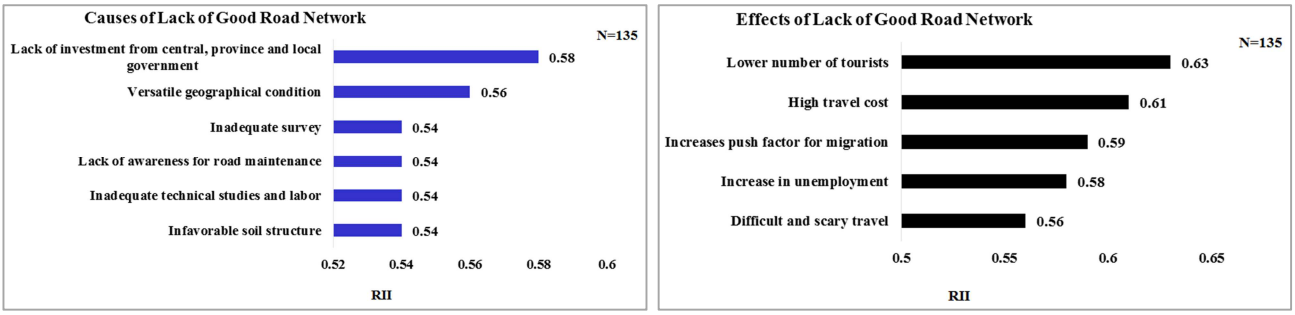

Figure 3. *Causes and effects of lack of good road network (Field Survey, 2021).*

There were five options for ranking. The value of lower number of tourists received highest rank (RII=0.63) whereas difficult and scary travel received the lowest rank (RII=0.56). All options and their respective value is presented in figure (Figure 3).

4.2.2. Causes and Effects of Weak and Fragile Soil

There were five options for ranking. The value of weathering due to rainfall and wind along with deforestation received the highest rank (RII=0.58) whereas unstable soil profile received the lowest rank

(RII=0.54). All options and their respective value is presented in figure (Figure 4).

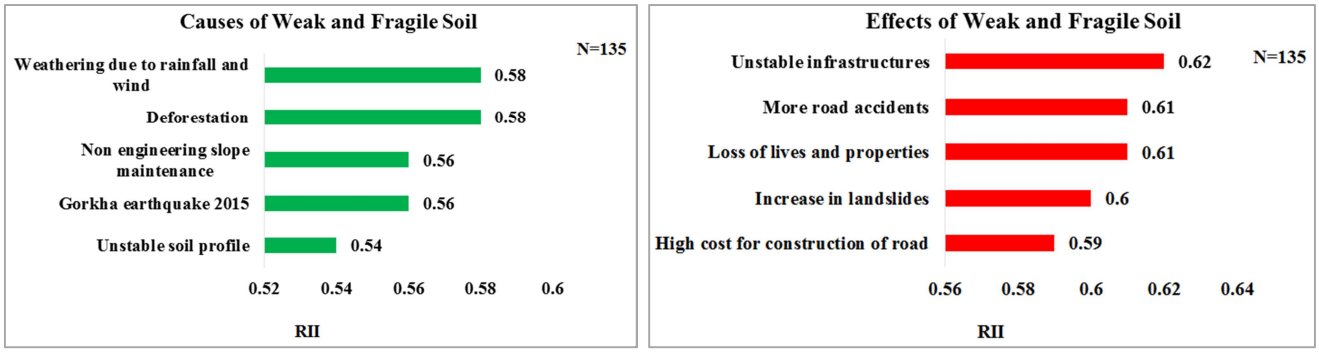

Figure 4. *Causes and effects of Weak and Fragile Soil (Field Survey, 2021).*

There were five options for ranking. The value of unstable infrastructures received the highest rank (RII=0.62) whereas high cost for construction of road received the lowest rank (RII=0.59). All options and their respective value is presented in figure (Figure 4).

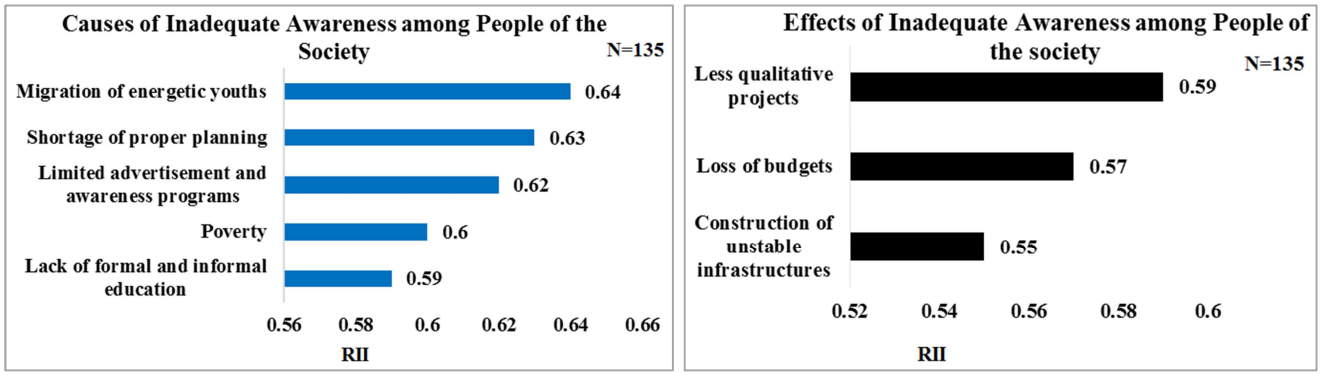

Figure 5. *Causes and effects of Inadequate Awareness among People of the society (Field Survey, 2021).*

4.2.3. Causes and Effects of Inadequate Awareness Among People of the Society

There were five options for ranking. The value of migration of energetic youths received the highest rank (RII=0.64) whereas lack of formal and informal education received the lowest rank (RII=0.59). All options and their respective value is presented in figure (Figure 5).

There were three options for ranking. The value of less qualitative projects received the highest rank (RII=0.59) whereas construction of unstable infrastructures received the lowest rank (RII=0.55). All options and their respective value is presented in figure (Figure 5).

4.2.4. Causes and Effects of Inadequate Investment by the Government

There were four options for ranking. The value of unstable government and over politics received the highest rank (RII=0.6) whereas lack of budgets received the lowest rank (RII=0.55). All options and their respective value is presented in figure (Figure 6).

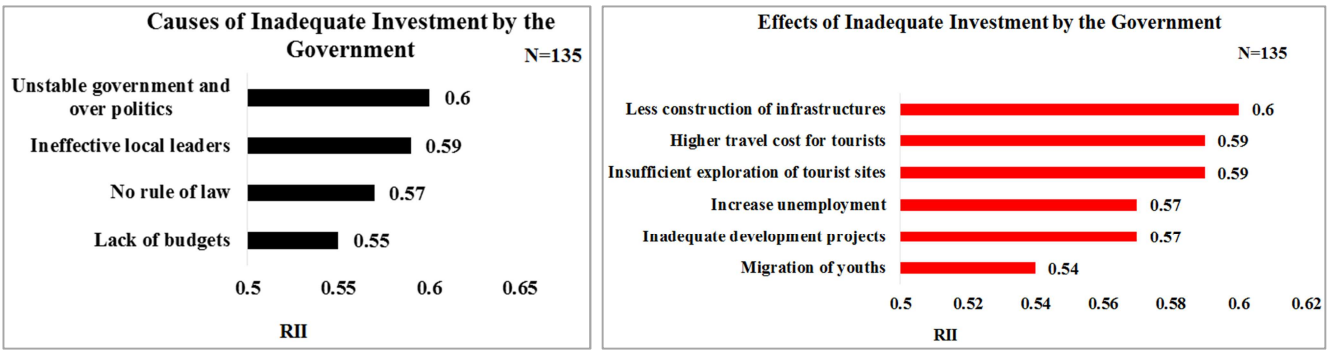

Figure 6. *Causes and effects of Inadequate Investment by the Government (Field Survey, 2021).*

There were six options for ranking. The value of less construction of infrastructures received the highest rank (RII=0.6) whereas migration of youths received the lowest rank (RII=0.54). All options and their respective value is presented in figure (Figure 6).

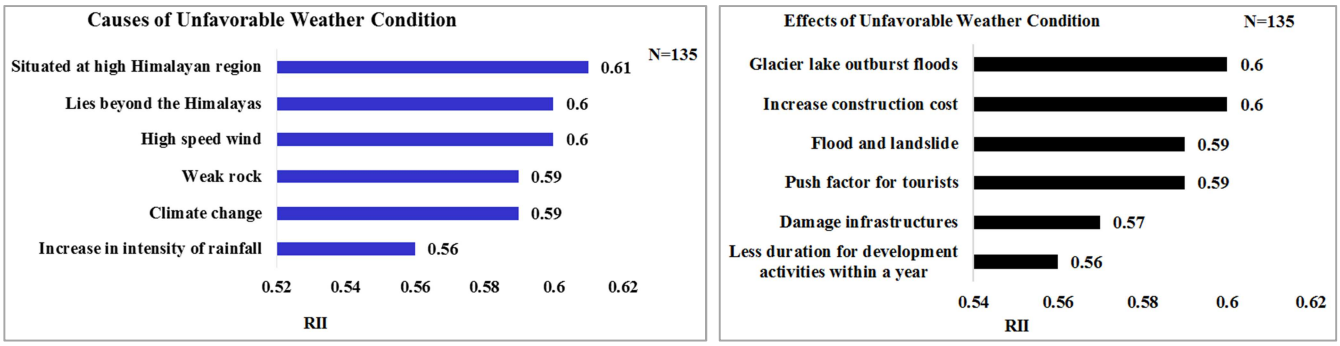

Figure 7. *Causes and effects of Unfavorable Weather Condition (Field Survey, 2021).*

4.2.5. Causes and Effects of Unfavorable Weather Condition

There were six options for ranking. The value of situated at high Himalayan region received the highest rank (RII=0.61) whereas increase in intensity of rainfall received the lowest rank (RII=0.56). All options and their respective value is presented in figure (Figure 7).

There were six options for ranking. The value of glacier lake outburst floods and increase construction cost received the highest rank (RII=0.6) whereas less duration for development activities within a year received the lowest rank (RII=0.56). All options and their respective value is presented in figure (Figure 7).

4.2.6. Causes and Effects of Lack of Exploration of Tourist Sites

There were six options for ranking. The value of inadequate awareness received the highest rank (RII=0.62) whereas less access of road and uninterested people and their representatives received the lowest rank (RII=0.59). All options and their respective value is presented in figure (Figure 9).

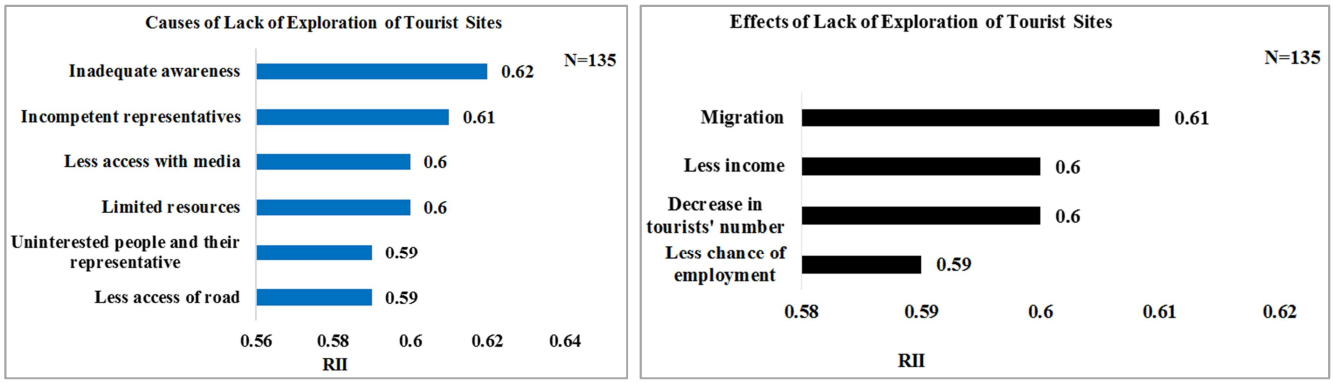

Figure 8. *Causes and effects of Lack of Exploration of Tourist Sites (Field Survey, 2021).*

There were four options for ranking. The value of migration received the highest rank (RII=0.61) whereas less chance of employment received the lowest rank (RII=0.59). All options and their respective value is presented in figure (Figure 9).

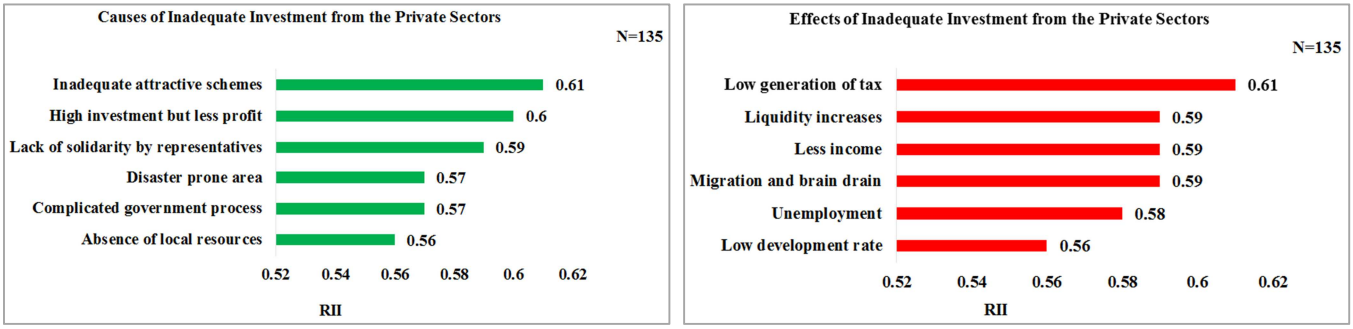

Figure 9. *Causes and effects of Inadequate Investment from the Private Sectors (Field Survey, 2021).*

4.2.7. Causes and Effects of Inadequate Investment from the Private Sectors

There were six options for ranking. The value of inadequate attractive schemes received the highest rank (RII=0.61) whereas absence of local resources received the lowest rank (RII=0.56). All options and their respective value is presented in figure (Figure 10).

There were six options for ranking. The value of low generation of tax received the highest rank (RII=0.61) whereas low development rate received the lowest rank (RII=0.56). All options and their respective value is presented in figure (Figure 10).

4.2.8. Causes and Effects of Insufficient Agricultural Product

There were five options for ranking. The value of insufficient irrigation received the highest rank (RII=0.63) whereas migration of youths received the lowest rank (RII=0.57). All options and their respective value is presented in figure (Figure 11).

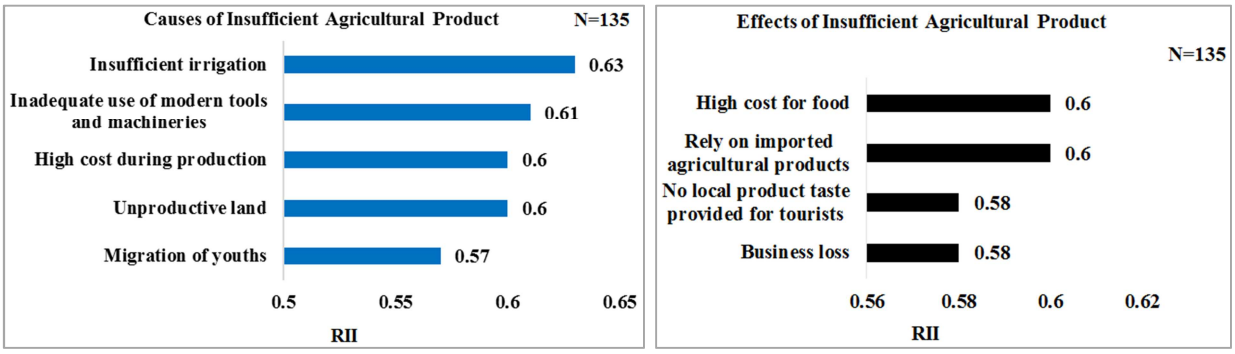

Figure 10. *Causes and effects of Insufficient Agricultural Product (Field Survey 2021).*

There were four options for ranking. Both high cost for food and rely on imported agricultural products received the highest rank (RII=0.6) whereas both business loss and no local product taste provided for tourists the lowest rank (RII=0.58). All options and their respective value is presented in figure (Figure 11).

4.2.9. Causes and Effects of Inadequate Schools and Health Facilities

There were four options for ranking. The value of unfair politics received the highest rank (RII=0.59) whereas low population received the lowest rank (RII=0.55). All options and their respective value is presented in figure (Figure 12).

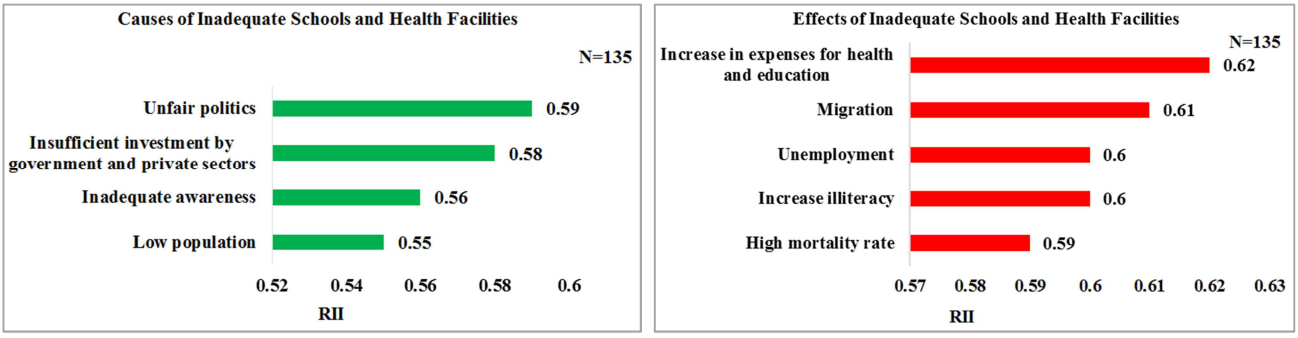

Figure 11. *Causes and effects of Inadequate Schools and Health Facilities (Field Survey, 2021).*

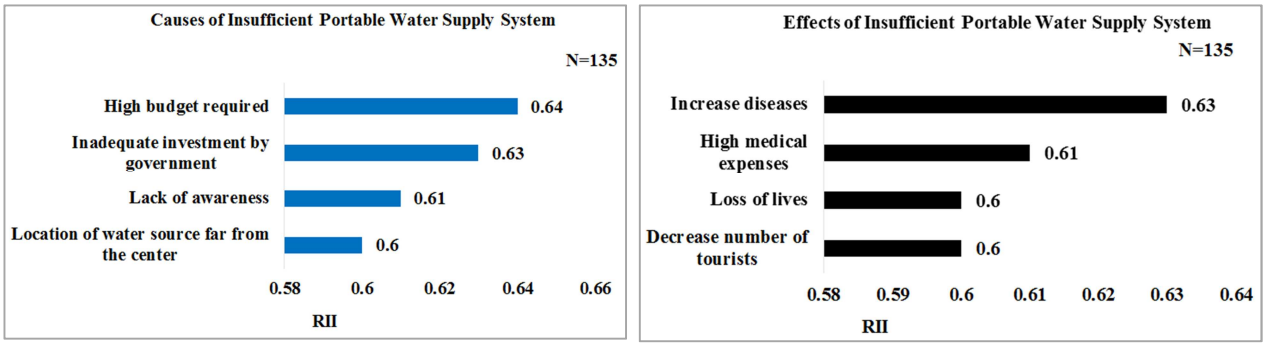

Figure 12. *Causes and effects of Insufficient Portable Water Supply System (Field Survey, 2021).*

There were five options for ranking. The value of increase in expenses for health and education received the highest rank (RII=0.62) whereas high mortality rate received the lowest rank (RII=0.59). All options and their respective value is presented in figure (Figure 12).

4.2.10. Causes and Effects of Insufficient Portable Water Supply System

There were four options for ranking. The value of high budget required received the highest rank (RII=0.64) whereas location of water source far from the center received the lowest rank (RII=0.6). All options and their respective value is presented in figure (Figure 13).

There were four options for ranking. The value of increase diseases received the highest rank (RII=0.63) whereas decrease number of tourists and loss of lives both received the lowest rank (RII=0.6). All options and their respective value is presented in figure (Figure 13).

There were three options for ranking. The value of insufficient tourism business received the highest rank (RII=0.6) whereas no training available received the lowest rank (RII=0.54). All options and their respective value (causes and effects of inadequate local tourist guide) is presented in figure (Figure 15).

There were three options for ranking. The value of less chance of employment for local people received the highest rank (RII=0.61) whereas both causes decrease in income and difficult to attract tourists received the lowest rank (RII=0.6). All options and their respective value is presented in figure (Figure 15).

4.3. Solution and Strategies to Improve Resilient Transportation Network for Trade and Tourism Development in Mustang District

There were thirteen options for ranking. The value of adequate educational and health institution should be provided received the highest rank (RII=0.78) whereas investigation of soil bearing capacity for the construction of required infrastructures received the lowest rank (RII=0.7). All options and their respective value is presented in figure (Figure 16).

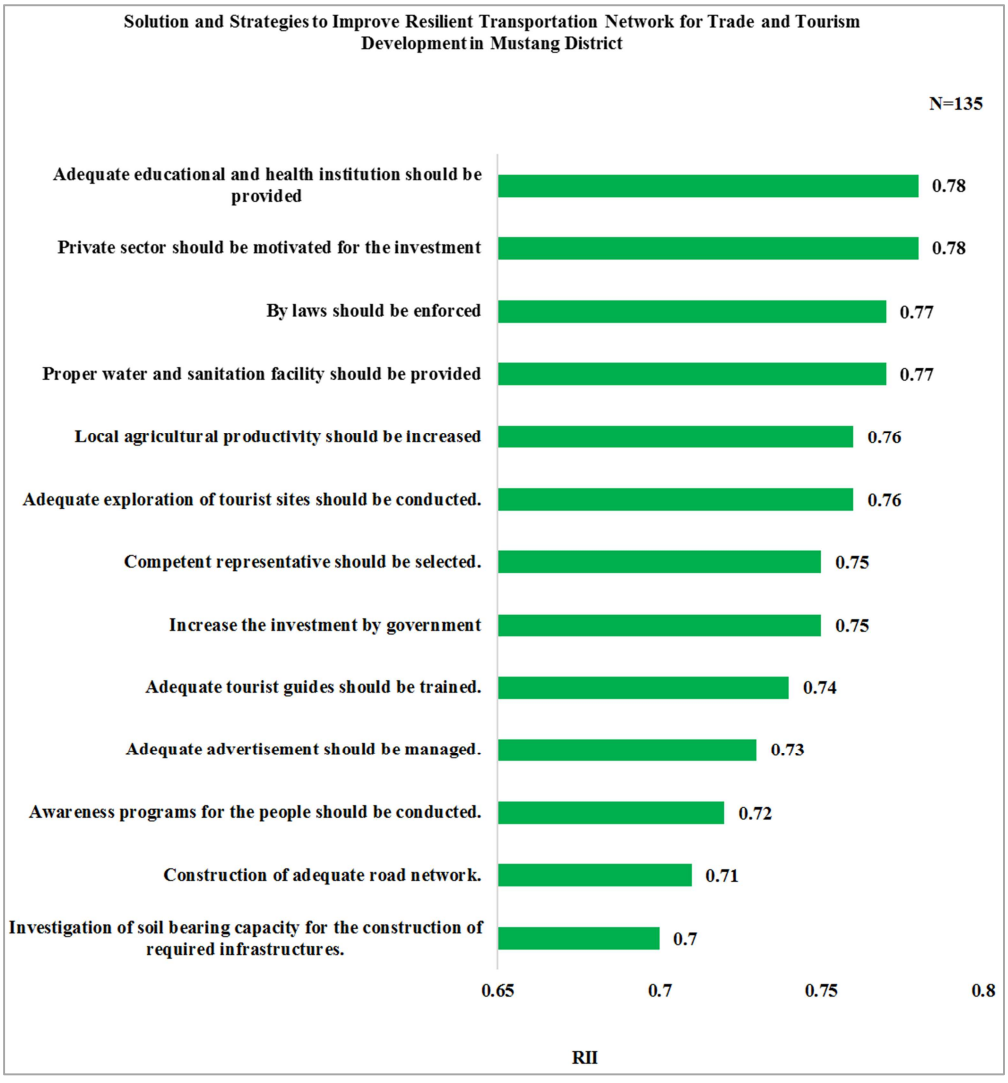

Figure 13. *Solution and Strategies to Improve Resilient Transportation Network for Trade and Tourism Development in Mustang District (Field Survey, 2021).*

4.4. Discussions

The field observation was done with the residents, representatives, teachers, students, contractors, hotel owners, government employees and farmers of the Gharapjhong R. M located in the Mustang district. Respondents who are interviewed during the survey represent different 19 districts of Nepal. Among them, some are government authorities, social activists, local politician, journalist as well as persons those are fully involved in the development of Gharapjhong R.M. The following are the summary of the finding during the field observation;

1) Most of the tourists return in the same day after visiting the Muktinath temple due to various causes such as lack of tourist-friendly infrastructure (hotels, cafes, recreational and education center), high and costly lodging and fooding facilities. Similarly, it seems that the lack of mechanism or vision of further tourist destination circuits linked with tourism.
2) Hospitality business conducted by using no sufficient facility of a restrooms, sanitation, as well as lack of meditation centers seems to be a weakness of tourism business.
3) Road connectivity is also in poor condition (not all weathered) in the territory.
4) Gharapjhong R.M. is still facing a lack of market, health care center, and other security measures targeted to tourists.
5) Lack of ICT infrastructure such as Wi-Fi, cyber around the area is another problem perceived by tourists.
6) Limited production of local agriculture product also lacks the local food taste for the tourists.

During the field observation it was found that road transportation is not feasible for Mustang district due to its weak and fragile soil, unfavorable natural conditions and natural calamities. Other means of transportation like airways and ropeways may be better options for means of transportation. The waterway and railway may be impossible due to lack of sea and difficulties of terrain.

During in-depth interview, the experts of this field also expressed their views as listed hereunder.

1) The master plan made for Tourism is not implemented effectively, political interest also seems to be a hindrance to the development of transportation and tourism.
2) Large investments by the private sector is needed for the trade and tourism development.
3) To get optimum benefit from tourism, it seems necessary to arrange a tourist circuit connecting other local tourist destinations e.g. Dhumba Lake, Yharju view tower, Thakali homestays, Kutsebtrenga along with other monasteries and other places.
4) More needs to be done on tourism infrastructure such as advanced roads, information technology, banking services, insurance, personal security and travel agencies.
5) Gharapjhong R.M.'s transportation, trade and tourism development has felt uncomfortable due to the government's negligence and non-cooperation for the investment.
6) The revenue distributed to the Gharapjhong R.M. seems insufficient in comparison to total collected revenue. The development of disaster resilient roads and infrastructure is inadequate.

5. Conclusions

The study found that sustainable transportation network is essential to enhance tourism development in Mustang District. Furthermore, insufficient agricultural product, lack of exploration of tourism sites is affecting tourism growth. Similarly, inadequate awareness among the people of the society, improper sanitation system, inadequate investment from the private sectors, unfavourable weather condition, and weak and fragile soil are the problems for development of trade and tourism. Similarly, inadequate local tourist guides, inadequate schools and health facilities, as well as incompetent representatives are also the key factors for the development of tourism industry.

The study would like to suggest that the construction of adequate road network, capacity building and skill development trainings in the tourism sector should be enhanced. Increase the investment by the government along with private sector should be increased. Furthermore, sufficient advertisement on tourism area should be managed, adequate exploration of tourist sites should be conducted, and local agricultural productivity should be increased. Similarly, adequate educational and health institutions should be provided, proper water and sanitation facility should be available and adequate tourist guides should be trained as Relative Importance Index (RII) value is high enough.

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