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Impact of climate change on tourism in Nepal: Labour perspectives

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Abstract

This study investigates the impact of climate change on the tourism industry of Nepal, with a specific focus on its workforce. The study conducted in Kathmandu, Kaski (Pokhara), and Kapilvastu (Lumbini), the study gathered data from 168 respondents, including tourist guides, porters, trekkers, and hotel workers affiliated with trade unions. Embedded mixed method with a primary qualitative approach, the research aimed to identify the direct impacts on workers' livelihoods. The findings reveal that climate change is profoundly affecting Nepal's tourism, primarily through the rapid melting of the Himalayas—a key tourist attraction—and increased weather unpredictability. Workers have observed drastic changes over a decade, including the disappearance of established trekking routes, a higher frequency of avalanches and landslides, and shifts in natural events. These environmental changes have led to a significant decline in tourist numbers, shortened trekking seasons, and increased instability of trekking work. Consequently, tourism workers face reduced income, forcing many to seek alternative employment in agriculture or construction, live on savings or debt, and leave the industry entirely. The study highlights critical worker issues such as a lack of insurance, inadequate earnings, and the physical dangers of a more unpredictable mountain environment. Based on these findings, the report offers key recommendations for recovery and resilience. These include promoting local cuisine to enhance economic benefits, ensuring fair labour practices and social security for workers, enforcing transparent and ethical practices by trekking agencies, and investing in worker training.

Key words: Tourism, Climate change, Workers

1. Introduction

Climate change is the process of change in temperature, rainfall, and humidity of any place or region. According to NASA (2020), Climate change and global warming are normally used interchangeably but they have different meanings, Global warming means warming up of Earth's climate system due to human and naturally produced heat which has direct or indirect effects on the planet. Moreover, Climate Change is the long way change in the normal weather pattern which describes the Earth's local, regional and global climates. Climate Change is mainly perceived to be focused and observed due to the result of human activities (fossil fuel burning, heat-trapping greenhouse gas levels in Earth's atmosphere, etc.) and natural

activities (i.e., volcanic activity, cyclical ocean patterns, etc.). It is the result through both natural and anthropogenic ways but mostly in today's context unsustainable anthropogenic activities and excessive greenhouse gases emissions are leading to climate change (Sapkota & Rijal, 2016).

Climate change has been one of the major hindrances to development. It has been affecting from individual to that of broader level. People are standing and raising awareness regarding climate change since the past many years. According to Rätzzel and Uzzell, (2011) The major impact of climate change can be seen through the change in the ratio of production which has the relation in the changes in consumption where production and consumption will act in a vice versa manner, moreover, the ratio of production will also affect the workers involved in the job. Mainly the workers have been facing issues related to the job versus environment dilemma worldwide. We can analyse that climate change has affected each entity of society. A human being, a social animal, and someone who can reciprocate equally to the environment have been the ones who are highly affected and noticed, as we can see that the ratio of changes in the environment and climates has direct interaction and link with humans and their daily action. Likewise, Humans have equal say on the aspect of Climate Change. Due to their actions as well as a natural phenomenon we can rapidly see Climate Change. Climate change has been such a factor that has a severe impact on society.

Tourism is an activity which is greatly influenced by climate especially in the coastal and alpine regions. Tourism is the backbone of many of the emerging economies in the world. The tourism sector accounts for the 9% of the total world GDP and generates more than 6 trillion US dollars each year (Nicholls, 2014). The Intergovernmental Panel on Climate Change fifth assessment report (AR5) concludes that the climate change is unequivocal and the human activities particularly linked with carbon emissions are the root cause.

Nepal is a developing country that is full of bio-diversity and is surrounded by natural phenomena. It can be seen that Nepal is also prone to natural disasters and climate change. According to UNDP Globally Nepal is ranked fourth in the state of vulnerability to climate change. Being fourth in the rank shows how much Nepal is sensitive to climate change, likewise, the population here in Nepal which is highly dependent upon agriculture is mainly impacted due to climate change. Nepal is rich in geographical features with tall mountains and the Himalayas has equal risk of disaster due to climate change. As climate change emerges it highly affects the temperature in the mountain regions resulting in glacial melting which threatens the mountain dwellers as well as the tourism sector of Nepal which also undermines the development gains. It is seen that there has been changes in the temperature, weather, etc. here in Nepal which is leading to Climate change and all these situations of geographical location, rugged topography, social condition, lack of manpower, illiteracy, economic instability, etc. have been adding up to the Climate change (Gurung & Bhandari, 2009; K. C., et al., 2013 as cited in K.C., 2017). The changes in the situation of Nepal's weather are so critical that the history of the weather has changed drastically. According to Baidya, et al., (2007) as cited in K.C., (2017) Analysis of rainfall data from 1971 to 2005 has been seen that the change in rainfall pattern has increased by 2.08mm in annual rainfall whereas it is seen that the ratio of heavy rainfall events has been visible but on the other side it is distinct that the number of rainy days has been decreasing.

The tourism industry has been highly impacted and mainly affected the ones who are directly or indirectly involved in this sector. The direct impact has been seen highly to those individuals who are employed with the help of the tourism industry like tourist guides, porters, workers in the hotel, resorts, motel, and business holders, etc. Climate change has affected their lifestyle as their life is highly dependent on the tourism sector. According to ILO (2014), Climate change has a direct impact on tourism infrastructures and tourism-related natural resources (coral reefs and beaches), which is resulting in the aspect of loss of attractiveness of any region. Likewise, the countries which are highly dependent on tourism impacts the world of work where ones who are employed in the sector of tourism are also equally impacted. Due to changes in the tourism season it has changed the employment demand, the individual's ratio working casually had increased rather than the full-time workers. Due to the decrease in the profitability status, most of the local businesses like family-run businesses, micro-enterprises, and self-employed businesses are forcing themselves out of the business due to low capacity of income even to recover the insurance cost, etc. Sudden changes in the climate have led to the aspect of a decrease in tourism attraction and have been affecting the tourism industry for a long time.

Down the lane of the Tourism sector, it has come across a roller coaster ride, from facing the class difference in sectors of tourism during the history of Nepal to that of today where so many people have been employed and are freely able to be involved in the sector. According to Sherpa as cited in Ghimire (2021) COVID- 19 has severely impacted the tourism sector in Nepal where due to its impact more than 20- months

workers were frozen due to which they were compelled to leave the job of trekking guides or any tourism-related businesses and she even stated that during the hardship there was almost no help from any organizations or governments for tour guides and other workers related on the field of the tourism industry. Moreover, in the same article, it was mentioned the say by the deputy chairman of the tourism board Chandra Rijal where he mentioned how due to lack of proper organizational data it has been hard to find out the number of individuals who are directly impacted by COVID- 19. COVID- 19 is simply an example that has been highlighted here but these sorts of problems have been seen in many cases where individuals who are delved into the tourism sector fight for their rights and needs when it comes to crisis and needs. The case of Laws and policies here in Nepal is so strong which focuses on each aspect of individual workers but when in reality it's the other side of the coin wherein so many cases individual's rights are seen being violated likewise, focusing on the fulfilment of the needs is something absurd. According to Bhattarai, Khadka, and Khatri (2021), There has been set certain labour and employment regarding laws and policies of Nepal which focuses on the employment needs and rights of every Nepali citizen but during the time of implementation, it has been proven ambiguous and faulty, especially in the situation of Nepal where there is the high status of changes in political scenarios, availability of resources, bureaucratic failures in addressing needs of the workers, etc. In the case where formal sectors employed individual's rights has been recently recognized, protection of the needs and rights of informal workers in this issues are yet to be focused.

2. Objectives of the study

This study aims to identify the extent of impact of climate change on tourism in Nepal. The specific objectives are the following:

- To identify the direct impact of climate change on workers who are employed with the help of the tourism industry like tourist guides, porters, workers in the hotel, resorts, motel, and business holders;
- To map out the overall losses due to such as changes in the tourism season, employment demand and vulnerability; and
- To identify policy issues for recovering this sector in the long run by devising immediate areas of action for increasing profitability, dignity by way of enhancing workers 'capacity.

3. Methodology

The embedded mixed method of mainly qualitative approach was adopted for this study.

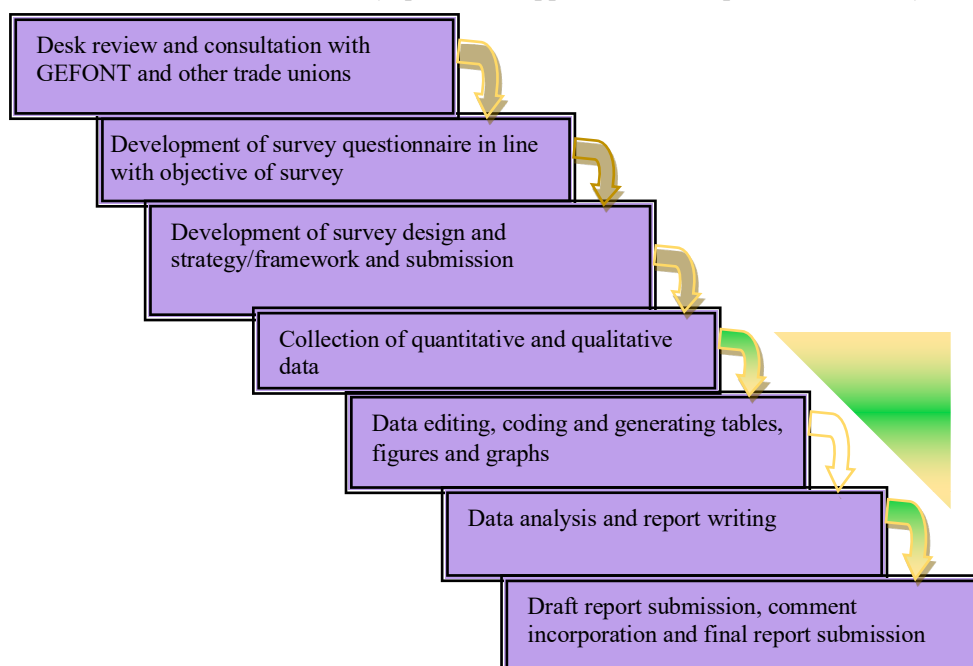


Figure 1: Method and study approaches

The existing situation and demand of workers, mainly those involved in trekking or as porter and tourist guide were assessed primarily through field survey reaching the targeted respondents and desk review. The survey is based mainly on conversation with the people involved in the tourism sector. To meet the objectives of the study, the following methodological approach was applied.

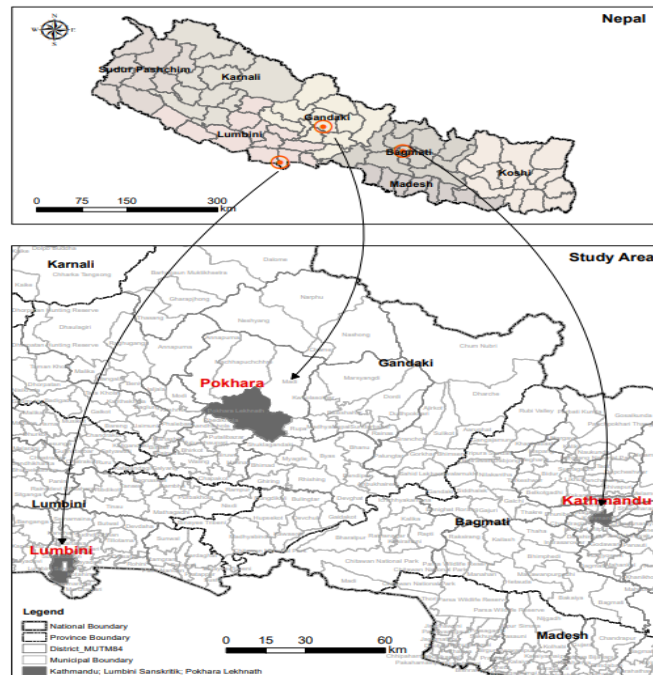
3.1 Desk review and consultation

All the relevant literatures, documents, reports and information were reviewed intensively. Primarily, the review of secondary data and information which consist of climate action, impacts on tourism were collected and reviewed from Ministry of Culture, Tourism and Civil Aviation (MoCTCA), Ministry of Forest and Environment and National Statistic Office. Different trade unions: General Federations of Trade Unions (GEFONT), All Nepal Federations of Trade Unions (ANTUF), and Nepal Trade Union Congress (NTUC) as major actors in representing Nepalese workers were consulted. Similarly, consultations were made with private sectors involved in tourism sector such as Federation of Nepalese Chambers of Commerce and Industry (FNCCI). The initiatives they have been carrying out, any study or concerns on the research area were also be reviewed from these organisations.

The desk review further attempts to use references from international experiences, emerging best practices, particularly, in the context of workers' reintegration and support mechanisms for the recovery and immediate needs. This exercise is expected to concentrate more on the willingness of the workers to involve in entrepreneur activities', government's retaining strategies and utilization of skills, expertise and knowledge as a means of social cohesion. The study design, tools and work plan were finalized in close consultation with GEFONT.

3.2 Study area

The three districts viz. Kaski (Pokhara), Kapilvastu (Lumbini) and Kathmandu were selected in consultation with GEFONT.



Map of Nepal showing Kathmandu, Kaski and Kapilvastu

3.3 Development of indicators and tools

The review of documents gives the ideas in developing indicators which is classified in terms of mainly quantitative and qualitative arenas as cross verification of data. Based on the classification, questionnaire for the sample survey and required questions for qualitative study were employed.

3.4 Sample size

The sample size of this study was determined in consultation with GEFONT and other experts in this field. As such, the total number of sample proposed earlier for this study was around 200 which is later 168.

3.4 Development of study questionnaire and checklists

Semi-structured questionnaire were constructed in line with the objectives of the study. A checklist for the local representatives, trade unions, persons involved in trekking, porter and tourist guide.

3.5 Data editing, coding and generating tables, figures and graphs

The data collected from the field survey were edited and coded using statistical software. Two levels of data editing (i.e. data editing by research assistant and by supervisor) were used to ensure the reliability and quality of the data. After editing and coding the data, the required tables, graphs and figures were generated in line with the objectives.

4. Results

Respondents Profile

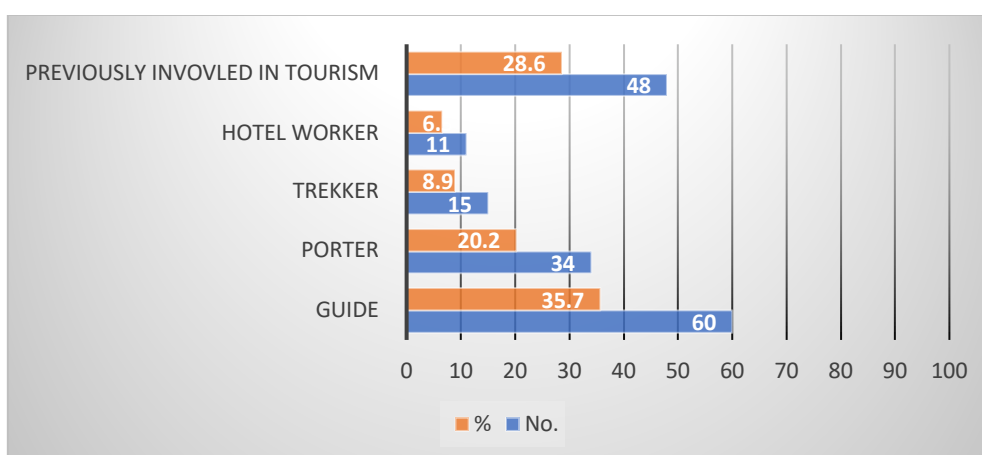
Out of the total 168 respondents, over two-fifths (42.3%) were from Kathmandu followed by 29% from Kaski and 29% from Kapilvastu. Slightly over one in every 10 (11.9%) were female respondents whereas the overwhelming majority (88.1%) were males (Table 2.1).

Table 2.1 Distribution of respondents by districts and sex

District	Male		Female		Total	
	No.	%	No.	%	No.	%
Kathmandu	67	94.4	4	5.6	71	42.3
Kaski	38	77.6	11	22.4	49	29.2
Kapilvastu	43	89.6	5	10.4	48	28.5
Total	148	88.1	20	11.9	168	100.0

Nearly two-fifths (35.7%) of them were the tourist guides followed by 29% now turned passive but were involved in tourism sector in the past and one-fifth (20.2%) being the porters. Very few of them were trekkers (8.9%) and hotel workers (6.5%) (Figure 2.1).

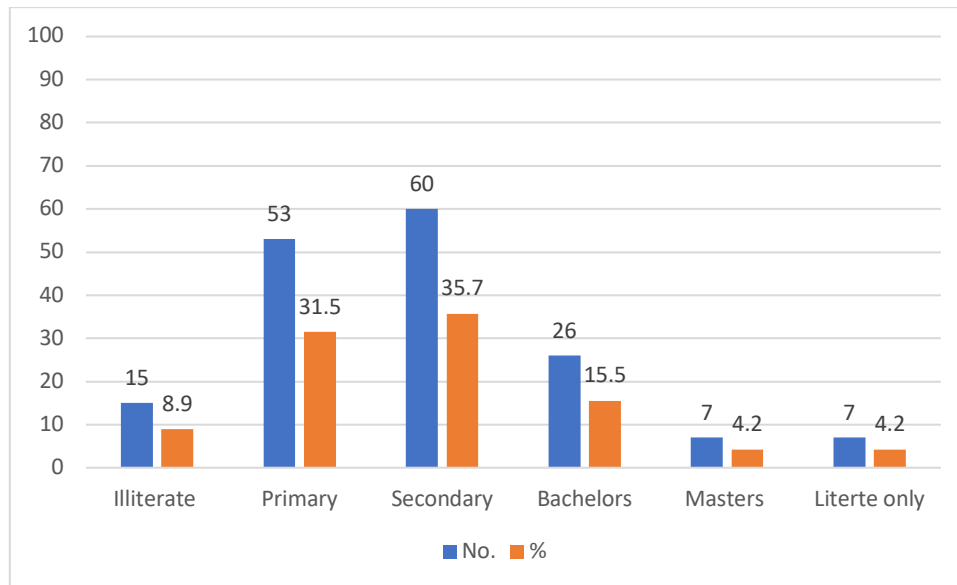
Figure 2.1 Distribution of respondents by type of association



Nearly two-fifths (35.7%) had a secondary level of education followed by almost equal (31.5%) with primary and below one-fifth (19.7%) had higher education which ranges from 16% for bachelors and 4% for

masters. Very few (4.2%) had a literacy status without taking formal education whereas 9% were completely illiterate (Figure 2.2).

Figure 2.2 Distribution of respondents by level of education



Whereas one-third of the respondents belonged to over 46 years of age almost equal (30.4%) were from the age group 20-39 years followed by 26% who belonged to 40-45 years. An overwhelming majority (86.9%) were married.

Table 2.2 Distribution of respondents by age group, marital status, housing and family status, family size and major source of income (N =168)

Age group	No.	%
20-29	18	10.7
20-39	51	30.4
40-45	44	26.2
46 and above	55	32.7
Marital status		
Married	146	86.9
Unmarried	21	12.5
Divorced	1	0.6
Housing status		
Own house	72	42.9
Rented	96	57.1
Type of family		

Nuclear	108	64.3
Joint	56	33.3
Extended	4	2.4
Average family size		
Minimum size	2	
Maximum size	19	
Average family size		5.53
Major source of income in the family		
Agriculture	75	44.6
Formal job	35	20.8
Informal job	36	21.4
Business	22	13.2

Nearly three-fifths (57.1%) were in a rented house which is because of migration from their birthplace. During the discussion, almost all of them expressed of having houses in their places of origin. This fact is further justified by the status of family; nearly two-thirds (64.3%) fell in the nuclear family status followed by one-third (33.3%) in the joint family. However, the average family size was 5.53. Nearly half (44.6%) of the respondents expressed their main source of income in the family being agriculture followed by one-fifth each for formal and informal jobs respectively. Some of them (13.2%) were also found in the business sector (Table 2.2).

5. Findings

5.1 Climate Condition

Clayton (2009, cited in ECLAC 2011), had identified three major reasons why the Caribbean should be concerned about the potential effects of climate change on tourism; as we can see that there is high dependence on tourism for the aspect of foreign exchange and employment, likewise, the vulnerability of small island and their infrastructure e.g., hotels and resorts to sea level rise and extreme climatic events, for example, hurricanes and floods and the dependence of regional tourist industry on carbon-based fuels (both to bring tourist to the area as well as to provide support services in the region. Compared to that also most of the participants in this research also responded that the Tourism industry has a high dependence on Climatic conditions and if the climate is not in a good state it leads to an imbalance in the situation of the whole industry from nature to that of the economic condition of an individual.

Tourism has a deeper link with the environment and it is considered to be a highly climate-sensitive economic sector (Rayamajhi, 2012). Due to its link with the environment the level of climate-induced environmental changes will have maximum impact on the local and regional destinations? Various levels of changes such as changes in water availability, Biodiversity loss, reduced landscape aesthetics, increased natural hazards, erosions, damage to the infrastructure, an increasing number of vector-borne diseases, etc. will have a direct and indirect impact on the tourism sector. These various level of changes has also been recorded during the interview as well. Maximum participants have stated that these various issues have been interrupting entities during the time of tourism.

Moreover, participants responded that climate change is leading to problematic conditions in the environment, leading to hindrances in their travel journey. In many stances, many participants responded that in past 10 years they have seen a drastic shift in the weather pattern, also many have seen the changes in the natural beauty, likewise, some have even faced crisis situations during the journey due to challenges like avalanches leading to the death of the travellers, lack of proper infrastructure, lack of information about the destination leading to being lost in the pathway, etc. Climate change has led to the situations of changes in weather patterns like unseasonal rainfall which is, directly and indirectly, affecting the ones who are involved in the field of tourism. Some also pointed out the changes in the infrastructures due to climate change which has been leading them in the wrong directions.

Respondents stated that the changes in the climatic condition over the past 10 years have affected them from the aspect of lifestyle. Maximum participants from the research were involved in the sector of tourism as a full-time employer due to which the problems and unfavourable situations in the tourism sector have directly impacted them. For example, one of the participants responded that the unexpected seasonal changes have been shifting the time and seasons of tourism which is leading to the fewer tourists intake in that particular time resulting in their loss of income. Likewise, some stated about unseasonal heavy rainfall which has been resulting in situations like landslides, floods, etc., therefore, leading to the death of some individuals during the journey, also most of the participants said that growth in pollution is leading to climate change. Whereas cases of Global warming is also being visible. Participants poured their sadness about how unexpected rise in temperature has been visible during summer seasons, and less amount of snowfall in winter due to which it is resulting into cases such as avalanches, glacier melting in an excessive manner that is being a part of hindrance in the journey of climbers, and everyone involved in the tourism industry.

Climate change has led to so many issues in the sector of tourism. Where most of the participants mentioned that the change in climate is leading to a decrease in the ratio of tourist visits in Nepal. In most cases, fewer tourists visit which is leading to problematic cases in the employment sector of the ones who are employed with the help of the tourism industry. In most cases, most of the participants responded that climate change has been a great disadvantage to the tourism industry which is leading to the economic instability of an individual. The Ratio of unemployment has been increasing which is resulting in a shift in the profession. Some respondents in this research stated that they have been involved in business activities, whereas some responded they have been involved in agriculture, moreover some even have changed their profession to construction activities. The situation of climate change has been affecting the economic condition of an individual.

Case study 1: Drastic change in climatic conditions in Nepal

Mr Kirat Kulung Rai who was involved as a Trekking Guide for past more than 10 years responded that he has seen a drastic change in the climatic condition in past days. In past days he has himself seen snowfall in the capital of Nepal i.e., Kathmandu but with the passing days, he pours sadness about how the temperature has been increasing due to Global warming. He mentioned that even the quantity of snowfall has been decreasing in the Himalayans as well. He stated that in past days' individuals were supposed to be well protected with all the equipment while trekking like the proper sunglasses, etc. to watch the mountain for protecting the eyes but today we can view that the condition is opposite, as due to climate change the amount of snowfall is decreasing which is also leading to one being able to view the sparkle of the mountains without any protection. From his personal experience, he mentioned that due to climate change it has been impacting seasonal changes, as we can observe unseasonal rainfall, unexpected seasonal changes, etc. He mentioned that all these factors have been impacting his profession. Likewise, he also mentioned how climate change has highly impacted his lifestyle. The daily income that used to happen has been decreasing due to climatic conditions. He poured out the sadness that due to the unstable weather conditions and changes individuals who are involved in the tourism industry are searching for an alternative source of income, i.e., migrating abroad, being involved in agriculture, etc. Also, Mr Rai personally have faced a decrease in the rate of his income due to the weather situation. As he also stated that the overall trip date which used to be the longest up to 1 month has been decreasing and ending up being a trip of 15 days due to climatic conditions, which has been direct harm to the individual source of income. He mentioned that the major impact due to climate change was on the road conditions as it was seen that heavy unseasonal rainfall has been leading to various problems that are directly or indirectly affecting the road conditions. The roads that are meant for the travel purpose have been destroyed which is resulting into the hindrances in the travel journey due to which most of the tourist guide and the ones travelling are taking another way around that is leading to the cases of being lost and diverted. So, these are a few issues that were mentioned by Mr Rai, one of the participants of this research. Moreover, most of the other participants have also stated the above-mentioned issues.

5.2 Nature of Tourism in Nepal

The tourism in Nepal is seasonal in nature. Huge inflow of tourists for trekking in higher mountains is usually seen in spring and autumn seasons. Rest of the year there are not many tourists. So, the workers have to earn enough for whole year in 4-5 months. But in reality, the money earned isn't enough alone for the

trekking season. The foods and accommodations in the trekking trails are gone over the roof, because of which they aren't being able to save any money. We found many guides and porters working on part-time jobs even during the trekking season. They were mostly engaged in construction site works and other agriculture works like poultry rearing, vegetable farming, goat rearing etc. and some of them have left the tourism industry for good. Some of them were living on past savings and borrowed money from friends and relatives.

Tourism in Nepal is mostly seasonal in nature. The spring and autumn are regarded as best seasons for tourists. So, the people engaged in tourism industry don't earn same money throughout the year. The money earned during the tourist's season is not enough to run livelihood.

5.3 Mapping Overall Loss

While the question related to aspect of control over the issues related to climate change for the point of long term ways of control of climate change, participants stated that it is really essential for proper management of old and traditional vehicles. Many participants pointed out the necessity of Afforestation and less utilization of fuel vehicles and mentioned the effectiveness of utilization of electric vehicles. Likewise, some even stated the importance of proper waste and sewage management. The highlight about the proper management of Industrial sites was also stated by some of the participants.

For the case of an immediate solution, many participants mentioned the importance of afforestation and some have even kept a motif to plant more than 80 trees on each journey they take during the trekking pathway. Some participants highlighted less use of plastic materials as they focused on how less utilization of plastic will lead to a cleaner environment. Participants mentioned how more use of plastics in the trip has been polluting the environment. Also, some participants stated that due to a lack of proper waste management in the trekking journey the surroundings and the natural habitats have been polluted with plastics, cans materials, etc.

When it comes to the aspect of individual perspective about what can be done to improve the business aspect of the employer, many participants mentioned the importance of proper advertisement in the tourism industry of Nepal. Whereas, some even mentioned developing more opportunities for the youth group to foster in the sector of tourism. More or less when it came to the point of workers maximum participants stated that each individual who is involved in this tourism sector lack training due to which in order for the proper skill development of individuals it is really essential for proper training facilities. Likewise, some even stated about proper implementation of laws and policies related to workers which includes fulfilment of rights related to social security to the workers, etc.

The effects of climate change can be seen in all age groups, irrespective of gender and from different employment sectors. Climate change is a global phenomenon and it requires a coordinated effort from different governments, private sectors and individual level to keep a check on it.

The majority of respondents stated that the labours are the major victims of climate change. There are different measures which we can undertake to control the loss caused by climate change.

Case Study 2: Strong policies to ban greenhouse gases

Samir Sapkota, a student and a licensed guide from Kathmandu says, "There are small measures which we all can undertake to tackle climate change. Government should introduce strong policies to ban greenhouse gases and should conduct mass awareness campaign regarding climate change and its effects. Tourists, guides and porters, as well as travel agencies, should be responsible because change should start at individual level."

Case Study 3: Developed countries are responsible for climate change.

Dayahang Lawati, a tourist guide from Sankshuwashaba says "We cannot control climate change on our own. We need help from developed countries. I don't think we are responsible for climate change. The big countries around us are responsible for it. They have huge industries and they are polluting the air we breathe in. For example, the war between Russia and Ukraine will also add to the climate change. On individual level we cannot make much difference but, we can play our role in this such as safe garbage disposal, no burning of tyres, reduce unnecessary burning of fuel, replace or maintain old vehicles promote electric

vehicles." In this context, Wangta Sherpa, a guide from Kathmandu says "All the countries need to act all at once. Individual effort from one or two countries cannot bring out desired change." Prem Bahadur Tamang, a porter from Dolakha says "Government policies on climate change shouldn't affect the labours of factories and industries." The majority of respondents stated that pollution should be reduced and afforestation programs should be carried out to combat climate change.

5.4 Impact of Climate Change on Workers

Climate change has been a major factor behind the hindrance in the business of tourism. Many individuals are involved in the tourism industry as a guide, Hotel workers, porters, etc. The ones who have full reliability in the tourism sector are the ones who are mainly impacted as their whole family are dependent on tourism hence the full-time workers are the ones who are impacted heavily. Climate change leads to unseasonal changes, weather misbalance, etc. We can view that rapid climate change has been impacting the economy as well the lifestyle of the ones who are directly or indirectly involved in the field of tourism. According to USAID (2021), scientists have predicted that among all the vulnerable countries in the world Nepal has been ranked one of them as they have seen that over time problems like droughts, heatwaves, river floods and glacial outbursts increase rapidly. Among these problems most of the participants of this research has responded that they also have faced such cases once in a while which have interrupted their lifestyle and have negatively impacted the situation. Many participants included that they have personally faced various kinds of changes in climatic conditions which is leading to the situation like unexpected rainfall, Avalanche, Glacier Melting, the situation of damage to infrastructure, Death of the workers, etc. Also, many participants stated that due to Climate change there have been drastic changes in the weather conditions of Nepal. Likewise, the beauty of Nature is also vaporizing. Sudden situations like less snowfall are leading to the change in the structure of the nature like the visibility of hard rock pavements in the path of tourist journeys, and less amount of seasonal plants and animals due to climatic changes. Participants stated that climate change results in situations that have been leading to damage in the climatic conditions and impacting nature in a wider manner.

The tourism sector has been a positive aspect of the growth and development of the countries. As it gives a high priority to 3 major goals of any developing country: Income, employment and foreign- exchange earnings. The aspect of tourism has been a major part of the economic development of any country. Many individuals from the interview portrayed that the climatic condition has been worst compared to that in past decades and it can be visible that the scenario has been affecting their business directly and indirectly. Nepal is one of the lands of beauty that has been attracting tourism in a wide manner. As many individuals are directly and indirectly involved in the field of tourism as a source of sustaining their life or for daily functioning, climate change has not only affected nature but has also been impacting the ones who are highly relying on the sector. According to World Bank Group (2021), In 2017 World Travel and Tourism Council suggested that tourism as a whole contributed about 8% to Nepal's GDP whereas, helped up to 7% of the total in the employment aspect. Tourism is such a factor which influences one individual's lifestyle in a wide manner. Most of the participants responded that their economic status has affected due to climate change and it has influenced their status of earning. Likewise, some responded that their economic situation was rather impacted by COVID - 19 pandemics than climate change. In the case of Nepal, we can analyse from the change in climatic conditions that it has a direct impact on the economic condition of an individual who's directly involved in this field. Due to the climatic hindrance, they are trying out new approaches to sustain their lifestyle besides the tourism industry i.e., being involved in business, Agriculture, etc.

Climate change has not only impacted the situation of the tourism industry but has also been impacting the lives of the ones who are directly or indirectly involved in the tourism industry. Maximum participants of this research have responded that they have faced problems due to COVID – 19 Pandemic.

5.5 Ways to Reduce the Impact

The selected respondents were asked what could be done to increase the profit margin and increase the capacity of labours working in tourism industry. Samir Sapkota, a tourism's student and a licensed guide from Kathmandu says, "Nepal lacks sufficient advertisement to attract tourists from all around the globe. Training and incentives should be provided to guides and porters. Government should introduce different insurance scheme to guides and porters." Ram Chandra Adhikari, a city guide in Kathmandu says, "Attractive

packages should be introduced by travel agencies for tourists and tax on guides should be reduced by government. The city guides always have some kind of language barrier. They lack sufficient cultural knowledge of historical places so; they need language training and detailed information about the historical places."

The higher mountain areas of Nepal don't have uniform topography throughout the region. So, there is difficulty in transportation of necessary food items. The respondents stated that the food items in hotels and tea houses lack diversity. Same thing is served everywhere and hotel owners give little priority to local cuisine. The promotion of local cuisine will improve the income of the hotels and also promote Nepalese cuisine in the world.

There are many trekking routes and destinations yet to be explored in Nepal. Majority of respondents stated that the tourists are concentrated on famous destinations and trekking routes. Birkha Bahadur Magar, a mountain guide says "There are many beautiful places where tourists would love to travel but those places are not given enough priority. Government and travel agencies should emphasize on exploring new routes and relocate the unemployed labour to these new routes."

The private sectors have great role to play in development of tourism sector in Nepal. Some of the respondents mentioned that they aren't doing their quite well. One of the respondents (Harka Bahadur Rai) mentioned "The agencies sometimes send the porter as guide to save money. The porter will not be able to communicate well with the tourist and trouble will arise for both tourist and the porter. Trekking association Nepal (TAN) charges money in the name of the rescue in case of any accidents that may occur during trekking but the accounts aren't made public. Private sectors should be involved much more but they should stop providing false information to tourists, porters and trekkers. The porters and guides should be given license based on the education and years of experience. The guides should be given education on culture, landscapes and different historical destinations. The labours should be given timely salary by the agencies. The money should be less to the agencies and more to the labour."

The political instability of country is another roadblock in the development of tourism sector in Nepal. Wangta Sherpa, a mountain guide working in Nepal and China says "Frequent protests send wrong message to the rest of the world and tourists don't want to come to Nepal as they feel they will be stranded here."

The guides and trekkers cannot work for large period of their life. Most of the respondents we interviewed were aged between 35 -55. After that they are left without anything. Ngawang Gel Sherpa, a mountain guide says "We should be provided with retiring benefits. We cannot work our whole life. We can work until 50-60 years of age. After that we will not have anything." Badri Thapa Magar, a mountain guide says "The wages of guides and porters isn't enough for savings. Porters' wages are way too low. The guides are paid around 2500 to 3000 rupees per day but most of it is spent during the trek itself. There is no safety assurance and insurance for porters and guides neither from agencies nor from the government." Prem Bahadur Tamang a mountain guide from Dolakha says "It should be made mandatory for tourist to take a guide and a porter for trekking and government should set a permanent rate for guides and porters. Guides should learn to respect porters."

The guides and porters are little short on safety guidance and necessary trainings. They even lack necessary equipment. The language barrier is another difficulty mostly in case of porters. Hitman Bhujel, a guide in higher mountain says "Most of the problem arise due to language problem between porters and tourist. Most of the time, there are no conversations between tourists and porters. They should be provided with language training and knowledge on foreign cultures."

Unnecessary interference from legal authorities and high entry fees in the protected areas such as national parks are other problems for guides. Aite Tamang, a guide of Dolakha says "I was interrupted by police while trekking in Langtang. They stop you even if you have all the legal papers, just to get some money from tourist. This is a very bad culture. "Language problem was apparent while we were interviewing the porters from Rusuwa. They even had problem while communicating with us in Nepali language.

6. Discussions

Climate change has a huge impact all over the world. Whereas, due to Climate change various sectors are affected i.e. Agriculture, forestry, fisheries, tourism, etc. Various kinds of situations like temperature rise, sea-level rise, and extreme weather will damage property as well as infrastructures which will have a direct and indirect impact on human health, and productivity, and also it will affect various sectors. When it comes to the intensity of loss and damages each field gets equally impacted. The collected data from the field shows

tourism industry in Nepal is highly dependent on Climate. There are many impacts that Climate change has been resulting in Nepal. It has affected various sectors including agriculture, hydropower, tourism and livelihood as a whole. Each sector has a major role in climatic conditions in it. Most of the group of individuals in Nepal is linked with agriculture so they are directly or indirectly linked with the various climatic situation, in such conditions change in climatic conditions can turn into a disaster, likewise, various weather-related hazards, epidemics, and diseases are most likely to add up the sufferings of the population and damage of the national infrastructure. Climate Change has a direct link with the environment. Mainly talking from the perspective of the Tourism Sector we can see that it is highly dependent on the Climatic condition.

Tourism is mainly perceived from the viewpoint of tourists and the ones who are employed by the tourism industry. Focusing from the perspective of the tourists it has been a sector which is a condition of traveling to various places for business, vacation, and other activities. Likewise, when it comes to the employer they are linked in the tourism industry from the aspect of their income to that of sustaining their lifestyle and culture. The workers and professionals selected in this study further express that tourism directly links the environment, economy, culture, tradition, etc. The tourism sector not only affects the employer and the tourist but also affects the livelihood of local individuals. When it comes to tourism we have several images in our mind among which the most is the aspect of mountaineering and trekking. And those kinds of tourism paths are directly or indirectly linked with the dynamics of climate. These findings are further summarized by scholars who say tourism helps in generating income for the youths as tourist guides and many more opportunities which will help the unemployed get employment.

Tourism is a field which drags so many aspects along with it from Natural point of view to that of individual's perspective. But during the path of the tourism industry, we can view the perspective of Climate making a huge impact on it. The respondents suggest these sectoral impacts being employment, economy, nature, culture, etc. These findings are justified by literature which claim tourism is a sector that has been rising in quantity and fostering for economic purposes.

The respondents in this study viewed that climate change is not only affecting the tourism industry from a natural perspective but also the risk of decreasing the country's economy. This finding is further elaborated by the World Travel & Tourism Council which claimed in 2019, decline of the total economy was contributed by travel and tourism which reduced to 3.6% in 2020 due to sudden changes in situations and rapid impact of COVID-19.

The respondents put their lively notation climate change in Nepal has affected the decrease in the ratio of snow in the Himalayas which has impacted the natural phenomena as well as the mountain climbers. These days' quantity of rock has been observed in the mountain regions which is resulting in more amount of rock fall than that of snowfalls, which is affecting the aspect of mountain climbers and their journey of mountaineering. He also stated that new climbers will face difficulties along the way of mountain climbing as the amount of snow is decreasing. The melting glaciers have a huge impact on climbers, likewise, it is also resulting in a massive socio-economic impact on the region. Agriculture and tourism are such a factor that gets highly impacted through climate change which directly affects a family's source of income that leads to the impact on other systems of an individual's life. As a whole, climate change has a direct impact on the tourism industry which drags along the 20% of the total population who are seasonally employed due to tourism along with the additional incomes for villagers.

Down the lane of the Tourism sector, it has come across a roller coaster ride, from facing the class difference in sectors of tourism during the history of Nepal to that of today where so many people have been employed and are freely able to be involved in the sector.

While talking about the policy issues, the selected respondents viewed that there has been set certain labour and employment laws and policies in Nepal. These policies mainly focus on the employment needs and rights of every Nepali citizen. The respondents critique that during the time of implementation, it has been proven ambiguous and faulty, especially in the situation of Nepal where there is the high status of changes in political scenarios, availability of resources, bureaucratic failures in addressing needs of the workers. In the case where formal sectors employed individual's rights has been recently recognized, protection of the needs and rights of informal workers in this issues are yet to be focused.

The respondents viewed negligence and lack of care of the government regarding climate change which is so harsh that it might turn the page upside down. As each system of society is linked to each other, environment and the individual is linked and impacted equally. With that, we can see that Climate change

impacts each sector of society and it questions the aspect of an individual's life to that of the country's laws and policies.

7. Conclusion

Tourism as a vast industry includes individuals who work in the field, i.e., Porters, tourist guides, etc. Climate playing an important role influences tourism industry and the ones who are involved in this sector in many ways, from affecting individual's lifestyle to that of family's lifestyle. Tourists come to Nepal which holds world's unique landscape such as Himalayas, heritage like Lumbini, the birth place of Buddha, Pashupati Nath temple, wild life reserves like Chitwan Nepal Park, Langtang National Park, Kanchanjanga Park Area and so forth. The most beautiful and most unique in the world among them is the Himalaya Series which is being melted due to the rapid effect of climate change. These mountains once looked all the year round like the full of silver during the day and golden like copper in the morning and evening are being turned as black rocks these days. They have started turning less appealing as we can see less snow in the mountains. Due to lack of snow, the climbing trails have been more dangerous due to which Nepal is going to be a zone with less attraction for tourists. Massive infrastructures in the Himalaya region is further losing hope for the trekkers and porters to continue their job as the traditional porters in the foot trails which are being converted into motorable roads during these days. These professionals working in the field further need the new skills on how to cope with the changing environment who need to be taught about how to rescue and evacuate in case of extreme weather events as it is essential to help the tourists and save their lives during the time of difficulty as the weather has been unpredictable.

Each sector related to the tourism industry is facing hardship within, likewise, porters are also groups of individuals who have been one of the major affected ones in the industry. They are facing severe hardship in their lifestyle like deprivation in society, also due to the inclination of porter's lifestyle into traditional aspect porters are facing problems in their health due to lack of proper training and required technologies. Climate change has been leading the porters to face major problems like facing difficulties in climbing the trails due to lack of equipment and other resources, lack of proper guidance and training, etc. Most of the trekkers and porters are included in the jobs to earn and provide good education to their children as they wish that their children won't be in the jobs as porters in the future. The trekker's and porter's health is neglected due to which it is leading the ratio of increase in mortality rate. In areas like Solukhumbu, trekking equipment are needed who were required for good boots, jackets, hats, etc. Due to the growing risk in the region, labour shortages around Solukhumbu may arise soon. The number of seasonal workers was found to be decreasing due to these risks. Furthermore, the younger individuals are moving to the city to find the alternatives.

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Reference

- Shaftel, Holly. "Overview: Weather, Global Warming and Climate Change." *NASA Global Climate Change*, <https://climate.nasa.gov/resources/global-warming-vs-climate-change/> (2020).
- Sapkota, R., & Rijal, K. (2016). Climate change and its impacts in Nepal. Tribhuvan University. http://dpnet.org.np/public/uploads/files/ClimatechangeandNepal_ReganSapkota%202020-02-04%2006-16-55.pdf
- Räthzel, N., & Uzzell, D. (2011). Trade unions and climate change: The jobs versus environment dilemma. *Global Environmental Change*, 21(4), 1215-1223. <https://www.sciencedirect.com/science/article/abs/pii/S0959378011001154?via%3Dihub>
- Nicholls, M. (2014). *Key findings from intergovernmental panel for climate change*. cambridge university. <https://www.np.undp.org/content/nepal/en/home/energy-environment-climate-and-disaster-risk-management/in-depth.html>
- K.C., A. (2017). Climate Change and its Impact on Tourism in Nepal. *Journal of Tourism and Hospitality Education*, 7, 25–43. <https://doi.org/10.3126/jthe.v7i0.17688>
- K.C., A. (2017). Climate Change and its Impact on Tourism in Nepal. *Journal of Tourism and Hospitality Education*, 7, 25–43. <https://doi.org/10.3126/jthe.v7i0.17688>

https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/meetingdocument/wcms_312150.pdf

Ghimire, R. (2021, June 14). *Nepal must support its tourism sector or face losing a critical workforce*. Friedrich Ebert Stiftung. <https://asia.fes.de/news/nepal-tourism>

Khatri., (2021) *Amid the Pandemic and Beyond: Status of Informal Workers in Nepal*. Centre for Social Change <https://socialchange.org.np/wp-content/uploads/2021/05/Amid-the-Pandemic-and-Beyond-Status-of-the-Informal-Workers-of-Nepal.pdf>

<https://www.cepal.org/en/publications/38611-assessment-economic-impact-climate-change-tourism-sector-montserrat>

Rayamajhi, S. (2012). Linkage between tourism and climate change: A study of the perceptions of stakeholders along the Annapurna trekking trail. *Nepal tourism and development review*, 2(1), 60-86.

<https://www.nepjol.info/index.php/NTDR/article/view/7380/5984>

<https://www.climatelinks.org/blog/linking-air-pollution-and-climate-change-nepal>

<https://www.adb.org/sites/default/files/publication/677231/climate-risk-country-profile-nepal.pdf>

Cho, R. (2019). How climate change impacts the economy. *State of the Planet*. <https://news.climate.columbia.edu/2019/06/20/climate-change-economy-impacts/#:~:text=Warmer%20temperatures%2C%20sea%20level%20rise,%2C%20forestry%2C%20fisheries%20and%20tourism>.

Sharma, K. P. (2009). Climate change trends and impacts on livelihood of people. *Kathmandu, Nepal: Jalsrot Vikas Sanstha/Nepal Water Partnership*. <https://jvs-nwp.org.np/wp-content/uploads/2018/07/Number-56.pdf>

K. C., A., Thapa Parajuli, R.B. Tourism and its impact on livelihood in Manaslu conservation area, Nepal. *Environ Dev Sustain* 16, 1053–1063 (2014). <https://doi.org/10.1007/s10668-013-9512-7>

Viner, D., & Agnew, M. (1999). *Climate change and its impacts on tourism* (p. 49). Norwich: Climatic Research Unit, University of East Anglia. http://awsassets.panda.org/downloads/tourism_and_cc_full.pdf

World Travel & Tourism Council. (2020). *Economic Impact Reports*. World Travel & Tourism Council (WTTC). <https://wttc.org/Research/Economic-Impact>

Shrestha, P. M. (2022, February 6). Highest glacier on Mt Everest is melting at a rapid pace, a new study shows. *The Kathmandu Post*. <https://kathmandupost.com/climate-environment/2022/02/06/highest-glacier-on-mt-everest-is-melting-at-a-rapid-pace-a-new-study-shows>
https://www.climatecentre.org/wp-content/uploads/RCRC_IFRC-Country-assessments-NEPAL-3.pdf

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