



**Impact of Renewable Resources on Tourism Industry: A Case of
Hotels in Lumbini**

Shreewatsha Nepal

**A Thesis Submitted in Fulfillment of the Requirements for the
Degree of Doctor of Philosophy in Sustainable
Energy Management
(International Program)
Prince of Songkla University
2023
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Thesis Title Impact of Renewable Resources on Tourism Industry: A Case of Hotels in Lumbini

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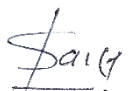
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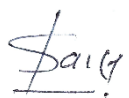
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I hereby certify that this work has not been accepted in substance for any degree, and is not being currently submitted in candidature for any degree.


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ABSTRACT

The objectives of this research are to analyze the trends of tourist arrival in Lumbini; to study the employment and investment patterns of tourism in Lumbini and to explore the impact of renewable energy in hotels in Lumbini. The researcher adopted qualitative and quantitative methods for this study using a survey questionnaire and open-ended questions as tools for data collection. Correlation and Multiple regression analysis methods were applied to find out the relationship between investment and employment opportunities in Lumbini hotels. The SPSS tool and descriptive method were used to find out the impact of renewable resources in hotels in Lumbini. I have visited 101 hotels out of 120 from February 2022 to October 2022 in Lumbini municipality of Nepal. The key respondents were more than 101 hotel entrepreneurs of Lumbini Hotels. Some of the hotels that I have visited are ‘The Lumbini Garden’, ‘The Hockey Hotel’, ‘Hotel Pawan’, etc. It was found that the flow of Indian tourists was more in Lumbini than tourists of other countries. February, May, October, and November months were more favorable months in terms of climate in Nepal. Similarly, winter and autumn are favorable seasons for Lumbini visits. It was found that there is a positive relationship between investment and hotel numbers with

employment level in Lumbini.

The contribution of renewable energy was found to be very low in the national demand for energy in Nepal. Most of the respondents agreed that renewable energy and green infrastructure helped to increase the flow of tourists arriving in Lumbini. It was also revealed that the use of greenery products is slowly rising in Lumbini hotels. It was also found that hotel entrepreneurs in Lumbini are unaware of the usefulness of renewable energy in the field of the tourism industry. This research paper helps local hotel owners to review the use of renewable energy. Moreover, they can attract more tourists to their hotels using renewable resources and making greenery there. In addition to that, it is equally useful to the provincial government and central government to review the energy policy for the appropriate promotion of the tourism industry.

Keywords: Tourism, hotels, renewable energy, Lumbini, Nepal

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Acronyms and Abbreviations

| | |
|--------------------|---|
| ADP= | Asian Development Bank |
| CBS= | Centre Bureau of Statistics |
| DDC= | District Development Committee |
| e.g. = | For example |
| etc. = | Etcetera (and so forth, and so on) |
| EKC= | Environmental Kuznets Curve |
| FMOLS= | Fully Modified Ordinary Least Square |
| FY= | Fiscal Year |
| GBLA= | Gautam Buddha International Airport |
| GDP= | Gross Domestic Product |
| GON= | Government of Nepal |
| INGO= | International Non-Government Organization |
| LG _s = | Local government |
| MOF = | Ministry of Finance |
| NET= | Nepal Electricity Authority |
| NGO _s = | Non -Government Organization |
| NPC= | National Planning Commission |
| NTB = | Nepal Tourism Board |
| PCI= | Per Capita Income |
| PP= | Passport holders |
| Ph.D. = | Philosophy of Doctorate |

| | |
|-------|---------------------------------|
| RE= | Renewable Resources |
| RETS= | Renewable Energy Technology |
| TIC = | Tourism Information Center |
| TIA= | Tribhuvan International Airport |
| VDCs= | Village Development Committees. |
| WB= | World Bank |
| WTO= | World Trade Organization |

CHAPTER-I

INTRODUCTION

1.1 Introduction

Tourism is one of the business activities associated with accommodation, amenities and entertainment for people who visit a leisure center and spend some time somewhere. Nepal is known as one of the top ten tourism destination in the world. Due to specific natural, religious and cultural heritage, there are possibility of growth in tourism industry in Nepal. This economic survey (2018/2019) clearly shows that a business or service that provides a variety of services to tourists is referred to as the tourism industry .Similarly, the tourism industry incorporates all the business activities of providing tourist hospitality such as hotel / room managers, tourism organizations, trekking agents, rafting, and many other services to tourists. Tourism's contribution to GDP is 0.6 % (*Economic survey, 2021/22*).In 2021, total number of tourists 150962 which is lowest since 1977.Foreign currency earned from tourism is Rs 1350 cores.

According to Nepal's 2020 tourism statistics, the number of tourists arriving for tourism is a major indicator of the emergence of the tourism industry. The year 2019 marked a high 65% visit to Nepal by celebrating holidays and leisure followed by hiking and mountain climbing 16.52 14.36 and another goal 4.12

On the basis of the second source, the study analyzed job creation trends due to the public and private sector tourism industries. Private sectors such as first hotels, Home Stay, Tracking Agency Travel Agency, and so on.

Bandari (2019) said the private sector offers more job opportunities than the public sector rather than only 11 government institutions that play a major role in the development of the tourism industry but there are more than 24 private companies established in Nepal for assisted tourists. Tourism is one of the largest industries in Nepal and rural tourism is also an emerging sector in the country. This proposal paper attempts to assess the hotel's energy consumption and exit and is included in the Lumbini area. According to Nepal's forest department more than 70% of the fuel is provided by the forest and only 30% of energy supplied by electricity (Shakya, 2016).

1.2 Background

The most important sources of income is tourism in Nepal. The Himalayas are a popular tourist's attraction as well. The country can gain benefit from international exchanges and job opportunities through tourism, contributing to global economic development, small-scale tourism development (Christie 2008). It is necessary to the full participation and the creation of an agreement that requires the development of promotional tourism. It is a continuous process of achieving sustainable tourism and requires constant nursing of it impacts, introducing the necessary procedures to prevent and therapy whenever necessary (UNEP & UNWTO, 2005) business travel, conferences, tourism and environmental tourism must be justifiable as sustainable tourism is defined as respect tourism and travelers, culture and heritage (UNESCO, 2010). It is important to maintain a high level of company, satisfaction to ensure a meaningful knowledge for tourists by increasing awareness of the problems of sustainability and indorsing sustainable tourism practices among them to maintain (UNEP & UNWTO, 2005).

Tourism has become one of the fastest growing industries in the world in the 20th century. Tourism is considered a major factor in the development of economic transformation in developing countries. The present stable political climate has provided a solid foundation for the development of the tourism industry in Nepal. The Republic government has strong programs and policies that promote sustainable tourism in Nepal. Government must improve infrastructure, conservation, and preserve cultural protection in religious and historical sites for developing tourist industry.

At the same time, it must respond to global threats such as power crisis, climate change, economic instability and war between different countries, and government must be able to use tourism as an effective tool for social and economic transformation and poverty reduction (UNWTO, 2012).

In many countries, the available natural resources are not adequate for the local population, that's why today's economy has recognized the need to manage this situation and save energy for future generations. Although one must use caution when harnessing natural resources, they are ultimately necessary for human well-being.

Muna singhe, (2007) argued that preservation is necessary in order to preserve ecosystems as it is necessary to preserve ecosystem not just the tourism sector. Additionally, pollution from society that affects things are significant to people and other living things can seriously harm a person's health, and environmental sustainability can be described in terms of durability and intensity.

The CEO, Hari Dhwoj Rai, Lumbini Development Trust made a statement that the visitors from 83 different countries in 2014 for visiting Lumbini and the number of visitors is increased by 40.57 percent in the same year. Moreover, the statistics taken from the Lumbini Development Trust shows that the number of visitors to Lumbini in 2013 and 2012 was 849,273 again 758,269 respectively. Indian tourists visit Lumbini in large number in comparison to others. Domestic tourists increased from 573,529 in 2013 to 902,621 in 2014. Similarly, 154,217 visitors from India visited in 2014 compared to 150,000 in 2013. The number from Sri Lanka, Thailand, China, Bhutan, Myanmar, South Korea, Vietnam Japan, US, Australia, UK, Germany Bhutan, Srilanka Barma, Switzerland and France are highly influential for many reasons as many people visit Lumbini compared to other countries. Thus, it can be stated that Asian countries are the largest producers of Lumbini markets. (Bhusal 2015)

Lumbini is a UNESCO World Heritage Site located in the Siwliks hills of Rupandehi district, Provence no .5 southwest of Nepal about 300 kilometers from the capital Kathmandu. About 22 miles [22 km] west of Bhairahawa. Rupandehi district headquarters in Lumbini district. Early inscriptions suggest that, in the 7th and 6th centuries BCE Lumbini in the region of Tarai in the southern part of Nepal, was a beautiful communal territory maintained by the Sakyas of Kapilbastu and the Kolivas of Devadaha or Ramgram.

1.3 Statement of the Problem

Tourism is one of the major sources of revenue for foreign exchange, it plays an important role in the economic development in a developing country such as Nepal. Tourists visit the country for a variety of reasons such as holiday entertainment, hiking and mountaineering, business, religious trips, research etc. among the popular tourist destinations in Nepal. Lumbini is one of the famous places where King Buddha is born.

In line with that it is important for archeology, biodiversity, etc. There is an opportunity to develop Lumbini as a tourist destination but the inconvenience of infrastructure in the wrong way towards the Lumbini area, an incomplete plan for some of the major problems of developing Lumbini as a tourist destination.

Most people in Lumbini are Madesi. Getting on the streets is not good for walking. Lack of safe drinking water is also a problem. Religious harmony with hospitality and friendliness is a hallmark of the local people. Lumbini is a potential site for a bright future for tourism in the region but that requires special efforts to do so.

Strong tourism is an emerging trend of global tourism. We see how energy helps to promote the tourism industry. The potentialities to drive tourism to country's economic development are electricity, heating, conveying the process of energy consumption in tourism. In the event of a Nepal Hydro power dam and its water storage facility it could be one of the leading tourist products for domestic and foreign tourists. Hunger is one of the biggest problems in Lumbini. Agriculture is the main source of income. Local people are unable to engage in skilled work due to lack of education. They are involved only in manual labor. Most of the tourism entrepreneurs are from Lumbini, few locals are involved in the tourism business. Therefore, I see the importance of learning about the impact of renewable energy from the two parameters on how it helps to promote the quality of life of the people living in that community and how it works for positive change in the tourism industry.

1.4 Objective/Purpose of the Study

In this section, I specify the general and specific objectives of my study.

General Objective: The general objective of my study is to explore the overall impact of tourism industry in the development of different aspects of Lumbini area and its people.

Specific Objectives: the specific objectives of my study are as follows.

1. To analyze the trend of tourist's arrival in Lumbini.
2. To study the employment and investment patterns of tourism in Lumbini
3. To explore the impact of renewable energy on hotels in Lumbini.

1.5 Research Questions

For my study, I have taken the following research questions as foundation for my study based on literature and objectives.

1. What are the trends of tourist arrival in Lumbini?
2. What are the employment and investment patterns of tourism in Lumbini?
3. How does renewable energy work to develop hotels in Lumbini?

1.6 Rationale/Significance of the Study

The study will be significant for those people who are working in different INGOs and NGOs especially in tourism sector considering renewable energy as one of the main components for the development of the country. Furthermore, it will be useful for the concerned authority of Nepal government to develop the policy in tourism sector. Along with that the study will be a good document for those researchers who work in the area of the relationship between energy and quality of life. It also helpful to Lumbini development Trust (LDT) to starts new plan.

Rai, (2020) argued that Lumbini is more popular than other tourist areas in Nepal for religious purpose. Most of the Buddhists in the world want to visit Lumbini at least once in their life. Achayra (2005) maintained that Lumbini people have directly and indirectly taken advantages from economic activities. Lumbini is also important economically as well as socially. Kunwar (2021) claimed after the covid -19, the visit rate of tourist suddenly decreased. Most of the research studies have only linked Lumbini with religious and economic aspect but I have tried my best to link how Lumbini is affected by tourists' activities relating the effects with renewable energy and less polluted tourist destination.

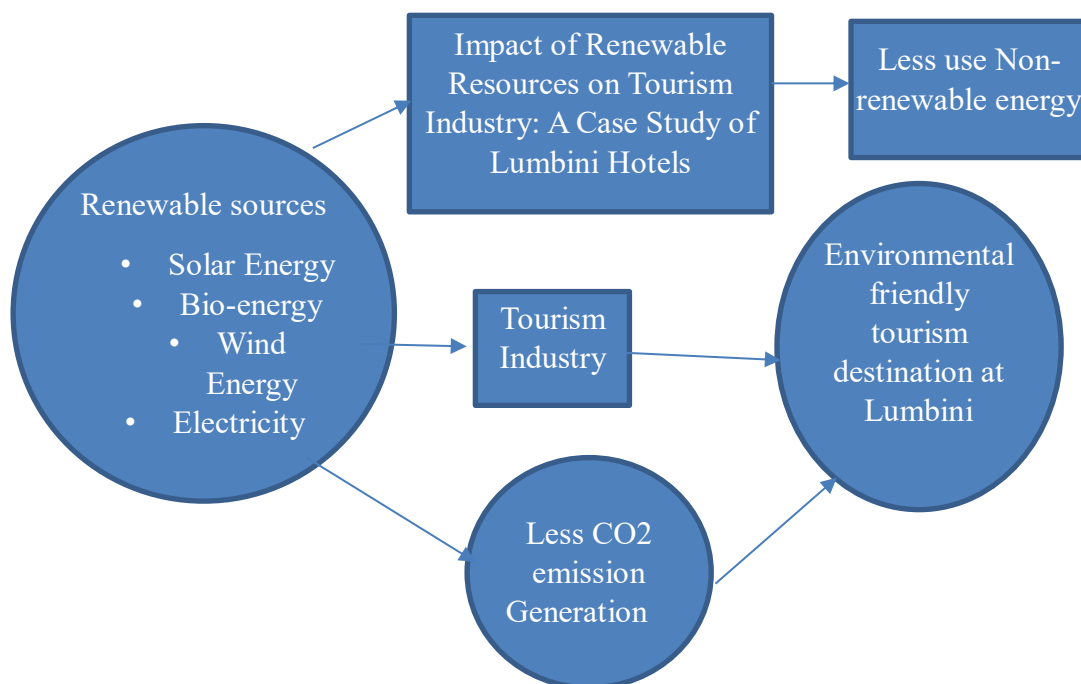
.1.7 New Body of Knowledge

This research study aims to demonstrate the importance of sustainable resources in the tourism sector in Lumbini area. The Lumbini Development Trust (LDT), in developing local tourist policy, may find this research work to be of considerable use. Due to their

distinctiveness, renewable energy sources can be seen as a crucial component of the tourism industry and can boost the local economy.

The continuous resources are also known to the locals. Lumbini Development Trust looks after a community forest that helps to attract tourists to the Lumbini area in collaboration with local community. Lumbini Development Trust is assumed as the single powerful government body for the overall development of resources of Lumbini so far has no local participation. The externalities alone could not attain the goal of micro-level management. Therefore, suggestions have been made to change the organizational structure of Commission of Council of Lumbini Development Trust.

1.8 Conceptual Framework



1.9 Expected Outcomes

Tourism industry plays a significant life in the lifestyle of people. It affects different aspects of human life such as business, environment, employment patterns, foreign

trade, social relationship, cultural and religious practices. Use of renewable resources plays the positive role on the tourism industry. I hope that using renewable resources tourism industries can reduce their expenditure. Nepal is very rich on the renewable resources such as water power, solar power and bio-gas etc. Such resources help to reduce the trade deficit of Nepal government. Renewable resources also help to protection of our resources, it plays the positive role to maintain the eco-balance. Use of modern means of renewable resources helps to raise revenue of Nepal government. Tourism industry helps to creates the employment opportunities in the surrounding area of the Lumbini. It is also help to development cottage and small industries. This industry also helps to generate an additional employment opportunity. We can increase the additional employment opportunities in the hotels located in Lumbini and its periphery by increase in the investment volume in hotel and lodges sector and others tourists related field. Lumbini can be sustainable tourist's destination by focusing sustainable tourism, sustainable planning, renewable energy, green product and materials, green infrastructure.

CHAPTER-II

LITERATURE OF REVIEW

The tourism sector is one of the important sectors of the Nepalese economy. Its impact on the economy is direct as well as indirect. The contribution of hotel and restaurant sector to GDP of Nepal was 1.5 percentage in the fiscal year 2019/20s. Tourism industry helps to uplift living standard of Nepalese people. Its contribution ratio in Nepalese GDP was increasing since few years, but Covid -19, its contribution ratio on National economy starts to decrease since 2019.

2.1 Thematic Review

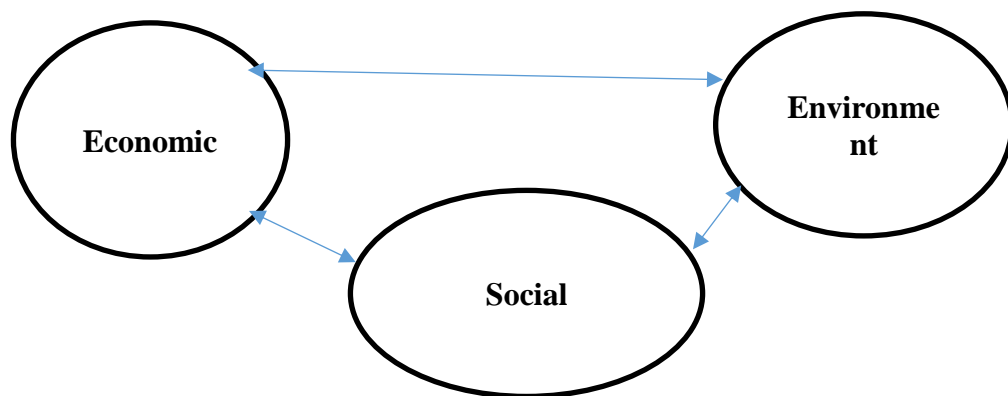
Under thematic review I reviewed the related literature based on different sub-headings

2.1.1 History of Tourism in Nepal

Chinese, Tibetans and Indians used to visit Nepal with various students, businessmen, religious people etc during the time of Lichhabi and Malla. It was a French alpine group; Maurice Herzog climbed Mount Annapurna and opened the door for Nepal passersby and tourists from different parts of the world. Edmund Hillary and Tenzing Norgay climbed a mountain in 1953 for the first time. The most important time in the development of tourism in Nepal in the 1950s as tourists from all over the world first came to visit Nepal. King Mahendra has invited Boris Lisanevich to Nepal, Russia. Boris, a well-known hotel and pioneer in the development of tourism in Nepal, founded the Royal Hotel. The first tourism and trade association were established in Nepal to promote tourism in 1966. Similarly, the first tourism program was planned in 1972 and 1978 by the Department of Tourism. Tourism supported economic development in the 1990's. The record shows that the number of tourists who arrived in 1964 of tourists flew 8435, with land 1099 and increased in 2018 in 969287 and overseas in 203785 (source: Tourism. Gov.np.)

2.2 Economic Impact

Tourism has both adverse as well as optimistic effects on the local environment and multitude community. It is the growing service industry in Nepali market. Tourism spreads into the diverse aspects of Nepalese life and it generates employment opportunities and helps in the upgrade and preservation of art and culture. Moreover, the tourism industry is a main source of earning foreign money and making revenue. It can be additional divided into three components: economic, social and environmental.



The above diagram shows the interrelation among economic, social and environmental components. When tourists travel, they spend money in each location they visit there on local goods and services. It enables the local people to generate income. At the same time, large-scale infrastructure and large parks have been built recently, which can fuel environmental problems. . Similar to this, tourists can enjoy nightlife at dance clubs, discos, and pubs in developing countries in southern Asia, but this promotes to the issue of child prostitution in such countries. Tourism encourages gambling through several casinos, which in turn encourages bad habits among the youth. (Thapa, 2012).

2.3 Tourism and Employment

According to Bandari (2019) the private sector offers more job opportunities than the public sector, with only 11 public institutions playing a key role in the development of the tourism industry. But there are more than 24 private companies established in Nepal to facilitate tourists.

Jones (2013) estimated that it was NR. 147.2bn (\$ 1.69 billion) in 2012, about 9.4% of gross domestic product (GDP) (WTTC, 2013). The 'direct' contribution from the tourism industry was NR. 67.2 billion (\$ 771 million, 4.3% of GDP), and the remainder was an indirect contribution such as tourism-related investments (e.g., airports and hotels), government spending, goods and services purchased from a trade list (e.g., food, petrol) and revenue " made 'and this entire contribution is anticipated to grow by 7.2% in 2013, and 4.5% per annum over the next ten years

Ghimire (2014) claimed tourism is one of the major funders to Nepali's economy. While there are many opportunities for tourism development in all regions and their natural environment, tourism in Nepal focuses on the Kathmandu, Chitawan, Pokhara, Khumbu, and Annapurna areas. In addition, it means that tourism has the potential to open the door to employment. Ghimire, said that tourism was not only an important financial source of foreign exchange but also a main producer of jobs. Through the tourism industry, they can exchange information and build considerate among the people of the world. Tourism gives us an opening to understand the community, customs, food and lifestyle of different nations. Directly and indirectly people get benefit from tourism areas, many people find employment in this sector. Due to the demands of local goods, people are encouraging to establish the cottage and small industry, tourism industry helps to protect traditional arts and human arts in Nepali society. Flock-lore, traditional festivals, arts and industries are being updated because guests love them. Culturally, socially, tourism is a product, which promotes curiosity between people and the nation and promotes a healthy respect for the beliefs of others and cultures.

Bhattarai (2017) states that if the central government and local government inducement their attention to the diversified industrial and tourism services, the level of human capital will be enlarged. Local culture, and a product based on the field of agriculture emerge as a major product in tourism. Beneficiaries can be females and deprived of people the knowledge and skills training that can support females and bring back people who are retained and bring them back to normal. In addition, Bhattarai talking about tourism today is the largest services industry in the world. World Travel and Tourism

Council (WTTC, 2013), reports shows that tourism generates directly and indirectly and supports 255 million jobs, a growth rate of 9 percent of global Gross Domestic Product or more than US \$ 6 trillion per year. It creates 328 or 1 million jobs in every 10 jobs worldwide equivalent to more than 10 percent of the world's labor force. It is, therefore, the highest force in the world economy and the most important work in the world. It plays an important role in the economic, social and cultural development of most countries. Throughout history, tourism continues to thrive as an important social and economic activity.

2.4 Tourism Growth

Pao .,(2005) argued that tourism is an emerging services industry since four decade, it helps to promote traditional industries such as handicrafts and cottage industries and so on. It is growing industry in SAARC. These industries help to increase in economic activities in Nepal. It has not only importance to generate foreign currency. Moreover, it also helps to create additional employment opportunities in all the countries. This industry helps to grow up hidden to all types industries.

There are many software and modeling which can be used to measure the causal relationship between tourism and economic growth such as Multiplier model, Input-output analysis computable General Equilibrium tools. Among various tools, Multiplier tool is used to measure the effect of expenditure of tourism industry into economy based on the number of visitors.

In economy multiplier tool is used to measure the determines factors changes in income, output, balance of payment, employment level due to the change of tourist's expenditure in the different field (Gautam ,2008)

Zortuk (2009) showed economic impact on tourism industry on Turkey's economy. On the observation the data of 1990 Q1 to 2008 Q₃ to investigate the relationship between two variable economic growth and tourism expansion. In turkey's Granger Causality Test depended on VECM, it showed that unidirectional causality in two variable tourism development and economic development. Similarly, Khalil et.al (2007) examined the importance of tourism sector on economic growth rate of Pakistan.

The data 1960 to 2005 showed that there is a unidirectional causal relationship between tourism and economic growth.

It has also equally more useful for Nepalese economy as Government of Nepal can increase its economic growth in tourism sectors. Tourism industry helps to increase the income level, national output, employment generation and poverty reduction. The above paper shows the causal relationship between tourism and economic expansion. Tourism sector has various effect on social, economic & cultural and environmental on tourism destinations (Vanhove, 2005), its effect might be negative as well as positive. Several research papers showed there was significance role of tourism industry in Nepalese economy. Government of different countries as well as private sectors have given more importance on tourism sector to earn foreign currency but the effort of Nepal government does not seem enough at current.

Tourism industry is going to grow in 2010-2019 worldwide as it was third largest export category in the world, when the cost of fuel and chemical starts to rise in all countries 2017 (UNWTO, 2020: UNWTO, 2021 a). However, the flow of tourists was rapidly decreased by 73.15 in the fiscal year 2020 than previous year 2019 (UNWTO, 2021b) due the corona virus or pandemic. As the effect of Corona Virus is decreasing, it helps to integrate the tourists of different countries at one places. It gives more contribution to increase employment opportunity, income level, the exports and earning foreign currencies which plays the effective role to increase the economic growth rate (Balaguer & Cantavella-Jorda, 2002; Cannonier & Burke, 2018; Gunduz & Hatemi-J, 2006; Neuts, 2019) of the country. Adding, Brida et al., (2014), by reviewing more than 100 empirical published paper, founded that developed countries have been taken more advantage from the tourism industry in comparison to developing countries.

The travel and tourism industries economic off shoots have drawn interest from every country in the world, possibly as a result of its great earning potential with just modest capital outlay. Therefore, it is not unexpected that many countries, if not all of them, have gotten on the tourism train. According to the data, the largest worldwide industry in the twenty-first century is travel and tourism. It produced 334 million (ten percent) jobs and US\$ 9.17 trillion revenue for global economy in 2019 (WTTC, 2021) but this

industry is badly affected by covid -19. According to the data, the largest worldwide industry in the twenty-first century is travel and tourism. It produced 334 million (ten percent) jobs and contribution of this service industry is rapidly decreased 10% to 5.5% ,and total income and job employment opportunity are also reduced US \$ 4.5 million and total employed person only 61.6 million (WTTC,2021).In 2019 Nepalese economy has received 11,97,191 tourists ,it helped to adding 247.5 billion (6.7%) for national income ,similarly this industry helped to Nepal government to reduce unemployment level at present as more than 1 million Labor's fully dependent in this industry. Due to Covid -19 Nepalese tourism industry is also badly inflicted. The tourists visit rate dropped by 80%in 2020 causing 46.6 % fall in national GDP contribution and loss of almost 2 lakhs Jobs (MoCTCA,2020).

2.5 Tourism and Sustainability

The concept of sustainability that there should be balance between ecology, economy, culture and society for the perpetual tourist destination. According to World Tourism Organization, ecological tourism development requires the balance between tourists and host region while conserving and promoting all natural resources retain cultural integrity, vital ecological processes, biological variety, and life support systems while meeting economic, social, and aesthetic needs. (UNWTO, 2020).The united Nations World Tourism Organization has also given several genres of indicators (UNWTO, 2004) and twelve principles (UNWTO, 2013) in association with United Nations Environmental project (UNEP0 for sustainable development of tourism in a destination .However, sustainability paradigm in tourism is a dichotomous and vague hypothesis for some scholars due to the lack of effective measurement system and analysis procedure. Sharpley (2009) aggressively expressed that sustainable tourism development is morally desirable but fundamentally idealistic and impractical alternative and therefore, it is time to move beyond sustainability since that academic study of sustainable tourism development has reached something of an impasse.

Thus, this is an effort to quantify and measure the sustainability aspect of tourism from stakeholder's cheerfulness perspective. Only the happiness of one significant actor—the public—who does not directly depend on tourism has been examined in this thesis

due to space and length constraints. It is apparent that the perception, response, happiness, and support of the local population and policy makers play a critical role in the sustainable development of a tourism destination. According to this argument, some local sources of income are entirely dependent on the tourism and hospitality industries. However, they cannot remain away from tourism's socio-culture as well as environmental impacts and limitations. There is no doubt, tourism industry helps to increase all countries economic activities such as generate additional employment, poverty reduction increases in economic growth of all countries now this sector directly concern with environment, this industry helps to rise to massive CO₂ emissions worldwide (Li et al. 2019). UNWTO studied report showed that tourism sector contributes minimum 5% of all anthropogenic CO₂, while between (50 to 60) percentage of Carbon emission are indirectly concerned to the industry (Dwyer et al. 2010; Calderon-Vargas et al. 2019; OMT-a 2019). So, sustainable tourism concept becomes emerging issue in tourism industry. So, protecting the current naturally environmental assets only each and every country can be taken beneficial from this industry in economically, socially and culturally (UNWTON 2021). Some researchers have added about it, creation of tourism products with specific features that match the current and coming needs of tourists (Michalena et al, .2009).

This thesis aims to show the importance of sustainable tourism using local resources as economy can grow the tourism industry. The importance of Sustainable resources is not only in tourism industry but also it has equally valuable all the sector such as economic, cultural, generate employment.

Huang (2009) argued that focuses on low carbon economic model helps to develop not only tourism industry but also it equally plays vital role to develop agricultural civilization and industrial civilization. According to supporters of sustainable development, development of new energy and other means, low carbon economy is to minimize the high-carbon energy consumption such as oil, coal and other vestige fuels, to minimize the greenhouse gas emission, and at the end successes to achieve win-win patterns of social and economic growth and protection of each and every country existing environment by the technical innovation

World Economic Forum is also playing the significant role on tourism industry in 2009 A.D with the slogan “Go to Low -carbon Travel and Tourism Industry “minimizing low carbon activities on tourism sector, each and every tourism country success to entering more tourists on their domestic country. Cai.et al., (2010) says through applying the Low -carbon technologies, setting up a mechanism for carbon bowl mechanism .Tourism institution should promote effective implementation of low -carbon tourism consumption.

2.6 Empirical Literature Review on Tourism and Sustainability

Apergis’s empirically study showed that there was long term equilibrium real gross fixed capital creation, consumption of renewable energy, and the human force. If 1% positive change in renewable resources consumption increases real GDP by 0.76%, 1% increase in gross real fixed capital formation increases real GDP by 0.7%; and a 1% increase in the Labor force increases real by GDP by 0.24% (Apergis and Payne 2010).Economic growth and sustainability is highly influenced by tourism industry, so tourism based countries should be aware about the interaction between pollution and renewable energy consumption (Sarpong et al., 2020). Tourism related industries CO2 emission can be reduced by use of energy. (Ali et al., 2021). Not yet all, Tourists are willing to pay more amount to those hotels and Lodges, which promotes environmental quality (Sarpong et al., 2020). Government of Central and South American countries and private company success to ge Real gross fixed capital creation, consumption of renewable energy, and the znerate 100% electricity from the renewable resources. (Ben Jebli et al., 2019)

In China, researches on qualitative study showed that international tourists consumed at least four time more than domestic tourists while travelling duration, Beckena et al. (2003) argued that transportation sector consumed 65-73 % of total energy consumption, by introducing renewable based vehicles only, this consumption percentage can be reduced. Currently Chinese government declared to provide some grants and subsidies to those institutions which fully mobilize their technicians doing work into introducing electricity-based vehicles. Similarly Peeters et al.(2010) added

due to the tourists activities in the overall country 4.4% global CO2 emissions increased simultaneously they are also projected to grow at an average rate 3.2% per annum up to coming 2035.

2.6.1 Empirical Review

Kunwar and Ghimire (2012) consider Lumbini as the destination to all the tourists around the globe. A dynamic industry that makes a big economic contribution to the nation and is constantly searching for new products, ideas, jobs, and attractions is an authentic and significant tourism destination.

In the Lumbini scenario, the purpose of this research work is to emphasize the importance of sustainable resources to the tourism sector. This thesis could provide significant backing for Tourists are drawn to Nepal by its beautiful landscapes, breathtaking mountains, ancient cultures, cheap accommodations, and diverse religious practices. Nepal offers unbounded potential in the tourist industry; tourism goods centered on social and cultural activities can be developed in novel ways, such as through recreational sports. The Nepalese government recently unveiled its tourism 2020 strategy, known as Vision 2020, which emphasizes the creation of jobs for women and other marginalized groups in rural areas. In the course of the Lumbini Development Trust (LDT). (MOCTCA 2009).

Kostakis and Sardianou (2012) presented details on intentions of tourists to pay for accommodation at a hotel with renewable energy sources and the analysis is based on estimates of logistic binary order models. Research continues to show that middle-aged people are more willing to pay for their hotel stay using renewable energy. In general, men are more likely to pay more for women in a “green” hotel. However, the results show that marital status and the level of education are not important factors in the willingness to pay more. Instead, nature-conscious and well-informed tourists are willing to pay for renewable energy than others. The authors are focused on consumer intent as those people are willing to pay for the right portion of the market to promote sustainable tourism in Greece.

Kelly & Williams (2007) identified a unique 'southern' approach to assessing impacts associated with various spatial planning strategies in the use of GHG energy and energy. Additionally, Whistler, British Columbia, which has some of the best mountain hiking paths in North America, is where a model of energy management tactics is thought to have been introduced. According to research, this model's strength makes it a very useful tool for evaluating the multiplicity of transportation to different locations, buildings, and public infrastructure development strategies that have a big impact on energy use and greenhouse gas emissions, impact on environmental planning, and impact on tourism development theory. The energy required for GHG production and extraction is then shown to be effective in the context of spatial planning procedures.

Zaman et al., (2016) studied the relationship between economic growth, carbon dioxide emissions, tourism development, energy demand, domestic investment and health costs with a view to verifying the authenticity of the Environmental Kuznets Curve (EKC) hypothesis in a panel of a diverse World region including East Asia and the Pacific, European Union and countries with high OECD and Non-OECD countries. In addition, they have used key performance analysis (PCA) to create an indicator of tourism development which is a combination of incoming visitors, tour receipts and global tourism costs. The results reinforce the following causal relationships, namely, i) carbon emissions caused by tourism, ii) energy emissions, iii) emissions-driven investments, iv) tourism-led growth, v) tourism-led tourism investments and vi) regional health-leading tourism development.

Liu et al., (2019) examined the close connection between international tourist receipts, economic growth, energy use, and atmospheric carbon dioxide (CO₂) in Pakistan between 1980 and 2016. Aiming to propose books on tourism and environmental quality, this study. Visitors' receipts did not significantly affect environmental quality, according to the authors' analysis of short- and long-term limits using backlog reporting (ARDL) and Granger risk to identify causative cues. Growth and energy consumption in Pakistan were contributors to CO₂. While tourism revenue has little impact on environmental quality, Granger causality research has revealed that unlawful causes

from GDP and energy use to CO₂ emissions exist. The finding of the study also added to the body of knowledge by providing fresh data on how tourism and wildlife may coexist. Given that tourism receipts have no adverse effects on the environment, it is crucial for policy makers and regulatory authorities to concentrate on the growth of the tourism sector (a service sector) rather than on energy saving efforts in the top quartiles. This study examined the significant correlation between visitor receipts, economic growth, energy consumption, and CO₂ emissions using data from Pakistan's 1980–2016 time series. Key words: CO₂ emissions, ARDL, tourism, economic expansion, and energy use Paper of this kind Research paper.

Ozturk (2016) examined various factors affecting tourism development in the category of 34 developed and developing countries, during the period 2005-2013. They said energy consumption, air pollution, health costs, and economic growth played a key role in changing the region's tourism development indicators and the results confirmed the long-standing organization among energy, environmental, growth and tourism indicators in a panel of 34 selected countries. The results of the fully converted square (FMOLS) squares show that health costs have a positive relationship with tourism indicators, while energy consumption has a negative association with regional tourism indicators. The effects of the declining power squares also confirmed the similar effects of FMOLS in terms of health costs and energy consumption, i.e., the positive and negative effects on tourism indicators. However, carbon dioxide emissions bring about better relations with regional tourism indicators.

Naradda et al., (2017) examined that energy consumption and tourism development provide evidence to support the Environmental Kuznets Curve (EKC) in Sri Lanka and research results show that carbon emissions, revenue, tourism development, and energy use are linked over time. Long-term estimates do not support the existence of the EKC hypothesis in Sri Lanka. Energy use contributes to short-term and long-term environmental degradation, and tourism development exacerbates environmental degradation over time. The authors recommend that Sri Lanka can reduce environmental degradation without hindering its economic growth; however, it should increase energy production from renewable sources as the country's environment

provides more efficient forms of wave energy and wind power in coastal provinces, while central provinces provide appropriate resources for small-scale power projects. Tourism also yields adverse impact in natural resources. Katircioglu (2014) investigates the long-standing negative relationship in Turkey, which invites more than 30 million visitors a year, making it the sixth furthest visited nation in the world. In a country as such tourism, energy use, and environment have been dilapidated by carbon dioxide (CO₂) emission. Researchers' results show that tourism and energy use are in antagonistic relationships each other in the long term with CO₂ emissions. In the tourism-driven model, CO₂ emissions translate into long-term goals of the equivalent of 91.01 percent annual adjustments through tourism channels, energy use, and aggregate revenue. In addition, the effects of strong responses and discrepancies in disclosure suggest that energy efficiency, therefore CO₂ emissions, is a shift in the development of positive and energy-efficient tourism over time. This means that the development of tourism in Turkey has led to a dramatic increase in climate change, as evidenced by the economic analysis of this study.

Nepal, et al., (2019) examined short-term and long-term relationships between immigrants, individual economic outcomes, embezzlement, power consumption and monetization, citing Nepal as a case study of ideological cases and assessing those who use economics based on the time lag model independently distributed and Granger status assessment.

The results provide strong evidence for a tourism-driven economy where the increase in productivity leads to an increase in the number of tourists and many other tourists, which in turn creates a positive impact on capital revenue. Energy consumption negatively affects the arrival of visitors, which requires increased attention to improving energy efficiency and energy diversity. Finally, they concluded that national immigration policies should be integrated with national energy and environmental policies to facilitate the transition to a sustainable tourism sector. Their recommendation is that maintainable tourism management strategies should aim to maximize economic advantages for tourists while minimizing negative environmental impacts.

2.7 Tourism and Pilgrimage

The oldest notion of travel for appreciating spiritual understanding and dedication is pilgrimage tourism (Kunwar & Ghimire, 2012). It is a voyage that has religious roots, externally leading to a holy place and internally serving spiritual, intellectual, or recreational purposes (Kunwar & Thapailya, 2021). It is estimated that between 300 and 330 million people travel to the most important religious sites globally each year, spending more than US\$3.5 trillion in total. (Daily Day, 2020 & UNWTO, 2011). The annual Hajj pilgrimage in Mecca, Saudi Arabia, and the Kumba Mela, which is celebrated in Haridwar, Uttaranchal, and Prayag, Allahabad, India every 12 years, are where the majority of mass pilgrimage tourism occurs worldwide. (Pathak, 2012). Mecca in Saudi Arabia, the Vatican City, and the Center of the Roman Catholic Church, Israel, and other places are therefore the most popular pilgrimage destinations worldwide. (Nhamo et al., 2020). Despite the significance, the tourism is also very complex to lives since early ages.

2.8 Pilgrimage Tourism in Nepal

Pilgrimage tourism has played key role in Nepal to protecting scared and religious places, its role equally importance to preservation culture of Nepalese people. Its role is very supporting to solve the burning issue to unemployment in Nepal as well as generating additional income in Nepali society (Daily Day, 2020). According to new constitution of Nepal, Nepal is not Hindu country but it is more popular for whole world Hinduism people. However, Nepal is also very famous places for worldwide Buddhists, it is the birth place of Lord Gautam Buddha (Adhakari, 2020). Tourism Department data showed that after the holiday entertainment and mountaineering tourism, pilgrimage tourism lies third position in Nepal (Magar, 2020). It is estimated around that around 20 to 30% percent tourists are visited from Neighboring countries India, China, Thailand, Bhutan Korea Myanmar, and European counties fall under the Pilgrimage purpose (Subedi, 2015). The following table showed that pilgrim's arrival last six years in Nepal.

Table 1: *Pilgrim's arrival last six years in Nepal.*

| Year's | Arrival number | % of pilgrims out of total arrival |
|--------|----------------|------------------------------------|
| 2015 | 14,996 | 2.78 |
| 2016 | 82,830 | 11 |
| 2017 | 141,633 | 15 |
| 2018 | 169,180 | 14.4 |
| 2019 | 171,937 | 14.36 |
| 2020 | 35,893 | 15.6 |

Sources: Economic Survey, 2020/21.

2.9 Environmental & Tourism

Air pollution is a burning issue of Nepal especially urban areas likes Kathmandu, Pokhara, Chitawan and Lumbini. The rank of Nepal was 177th out of 180 countries in the year 2016. Environmental performance index (Saud &paudel,2018).There are various factors increasing air pollution in Nepal but major factors is increasing the numbers of vehicles each and every fiscal year, another cause is increasing the density of population in Urban areas than Rural places in Nepal(Saud & Paudel , 2018). The number of transportation means is just double from 2012 to 2018 in the tourism sector in Nepal (Ministry of Culture and Tourism & Civil Aviation, 2020).

In Nepal increasing the number of vehicles is not only the cause of environment pollution there are several reasons among them brick kilns, brush fires and cooking stoves also contributed to it (Grove, 2017). In Urban areas likes Kathmandu capital city of Nepal, the demand of brick increases day to day due for building construction so that urban areas environment becoming more worse in comparison villages places of Nepal (Haack&Khatiwada,2007). To minimize the environment pollution, Nepal government declared not to give permission to establish new industries in Large Urban cities and Tourists places. To highlight the importance of tourism in Nepal, Nepal government decided to replace the 1995 policy and formulated an updated policy in 2007 named the Tourism policy 2008.It is the first tourism policy in Nepal which gives the lessons about

the conserving the Nepali environment as well as positive change the life style of the local's people. The long -term vision of the policy was to make Nepal an attractive tourists' destination by conservation and promoting of the natural, cultural, biological and human -made heritage (Johnson& Bahadar, 2016)

Additionally, we are utilizing a model of energy management techniques thought to have been introduced in Whistler, British Columbia, one of the best mountain towns in the world. The initial driving forces of a spiritual quest "Through conservation and promotion, Nepal's tourist industry has grown to be one of the country's most important contributors to a sustainable economy. This has resulted in a more equal distribution of the industry's advantages and more societal harmony." stated the Tourism Vision 2020, which was created by the Ministry of Culture, Tourism, and Civil Aviation in collaboration with the private sector."(Johnson &Bahada,2016) .This vision had also taken over ambitions to increase tourists arrival to two million and tourists related sector job opportunities increases minimum one million (Upadhyay,2020) but tourism department vision is failure due to the detailed action plan to support the effective implementation (johnson&Bahada ,2016).

To take more benefit from the tourism industry, Tourism Department of Nepal made National Tourism Strategic plan 2016-2025.there are six objective of this plan (Johnson&Bahadar , 2016)

1. Increase revenues and employment opportunities and contribution to GDP growth per capita through tourism
2. Diversify the country's tourism attractions and service.
3. Increase tourists' arrivals without compromising sustainability and environmental and cultural quality
4. Market and brand Nepal in Key generating markets.
5. Improve the quality of the product and tourism resources
6. Alleviation poverty and encourage community participation.

To achieve this vision, the contribution from the government is not sufficient so with the partnership with public, community and private sector only it can be achieved this vision (Upadhyay, 2020).

Taylor (2008) said in the U.K around one third travels agency and tour operators assumed that “the travel industry has a role to play in limiting global warming”. This institution knowing the value of sustainability environment so that they are used those vehicles and others means which playing minor role for increasing the environmental pollution.

2.10 Tourism and Environment in Lumbini

Lumbini has been facing some of the problems from the environmental point view. The level of under surface water is declining year by year due to the gradual development of tourism. To develop Lumbini, Construction on different sectors is required. The Lumbini was full of sal forest before the adoption of the Lumbini Development Master plan in 1978(Oada, 1980). Now, Lumbini has been converted to a concrete park in the name of developing the infrastructure development. Out of Lumbini Development Trust occupied areas, The small and mud-houses are converted into large cemented house, due to the increases the arrival trend rate of tourists, for taking direct and indirect advantages from tourists, many people are migrated from different districts for settlement and establishing the hotels and tourists related business. Due to this cause, the environment of Lumbini is going to worse day to day. To conservation and protection of Lumbini beauty and environment, in the initial of Lumbini development trust office, now inside the Lumbini areas minimum 100,000 plants are planted in 2021 (LDT Report,2021).

2.11 Tourism and Hotels

The tourism industry plays adverse effect on environment because it produces large amount of non-durable goods, wastewater which are very harmful for human being (Bohdanowicz & Martinac, 2003). Persic-Zivadinov (2010) argued that the scope of green and sustainability should be integrated in the tourism service industry .There are many literature which showing the importance of green and sustainability.

There are several causes that force enforcing industry to exercise green practices in their operation. One of the major reasons is negative influences of tourism industry on

the natural environment. Some negative effects are lots of natural habitats, pollution of the local water system, production of waste and contribution to global warming (Briguglio&Briguglio,1996;Kirk,1998).Imran Rahman(2012) added about it competitiveness situation will improve dividend in term of lowering expenses and return the saving to the customers. Nowadays the value of hotels and lodge is increased being green. Nowadays almost tourists' countries government declared to provide subsidy only those hotels, which are adopting greenery plantation and use renewable sources (Imran raham, 2012)

The owner of hoteliers start to made green hotels due to the pressure of customers and society (Kirk, 1998). The manager of Hotel Melia experienced that customers and visitors are more concern about the environment than wealth. Visitors like to visit to Eco destination and select a green hotel for their stay .According to Bulter (2008) also gave the importance of greenery hotel scope, if a hotels and lodge are fails to adoption environmental friendly practice, it may lose potential clients to other green operators. The main financial advantages shift to green hoteliers. The Department of Environment (DOE) UK published data showed that by using green methods can cut down on energy savings by up to 20%. By reducing the cost of energy, waste, water, emissions, operation, and maintenance, green hoteliers may make money (Butler, 2008).

2.12 Biodiversity and Tourism

Improper management policy of the government, 27000 species are going to disappear per year. It is predicated that approximately 25% world's species could become vanish in the coming decade (Wilson, 1992). To protect the loss of biodiversity, many countries government are established the Zoo, National parks, conservation areas. Most protected areas are established remote places especially in developing countries where most of poor people are lived (Sanderson, 2005)

In developing countries ,who are live in rural areas ,the protected areas might be the livelihood sources ,they brings wood, grass and timber, these commodities are necessities for them for survival/income sources. So, local people are not playing positive role to established for protected areas (Ghimire,1994; Matiku, 2008; Nepal &

Weber, 1993; sharma, 1990).Same case happing in Nepal ,as a result, now become great debate about the relationship between conservation and poverty alleviation among scholars and international agencies ,including the united Nations (Adams, et al., 2004; sanderson, 2005 ;sherbinin,2008).However, conservation and poverty alleviation are two distinct objective, there is a strong relationship between poverty and conservation because alleviation poverty only ,a communities can be established conservation areas so that especially developing countries government should be make effective strategies for poverty reduction (Adams et al.,2004).

The congress assembly suggested policy help to create positive economic advantages for local people give some percentage allowances and allocated certain percentage income for to uplift the life standard of local communities people so that they can play favorable role for conservation of protected areas in developing countries. They can create additional opportunities from the eco-tourism (Adams et .al., 2004). This thesis try to explore how tourism industry can help to link biodiversity conservation and livelihood improvement.

2.13 Ecotourism

Ecotourism focuses mainly three components; these are biodiversity protection by conservation of cultural and natural resources, reduce poverty size from the rural areas by establishment of small and medium size enterprise development by creational job opportunities and social equity and third is business capability by entr ee to capital, return of investment and return ability. Increasing environmental knowledge and easy means of transportation and communication has made ecotourism industry one of the leading services industries in rural parts in the world. Long -run ecotourism policy has needed to design for the development of tourism industry (Hawkins,2004)

Tourism is one of the leading service industries in rural parts of Nepal, Nepal is very beautiful country in south Asia but tourism sector contribution is minor in the Nepalese GDP, it gives only 0. 2 % contribution in national economy in fiscal year 2020/21 (Economic survey, 2021/22). Ecotourism has supported to increase job opportunities in village areas with the expansion of economic activities establishing of hotels, gift shope, restaurant, coffee shops grocery shops in Ghanddruk, Gorkha, Manakamana,

Chitwan and Lumbini etc. (K.C,et al,2015). It is an additional income sources of rural place people, who are directly and indirectly involved in eco-tourism in rural parts of Nepal (K.C&Thapa Parajuli, 2014). Before two decade more than 30 % people were fully lies below poverty line in Nepal,at current only 23 percentage people are lies below poverty line in Nepal due the output of increase in tourism activities in Nepal. It helps for the women empowerment, agriculture transformation, cultural exchange, experience sharing in Nepal (Bajracharya,et al ;2011)

It is mainly integrated community reform, environmental conservation, economic activities development through maintaining low-impact and low -consumption of local rural resources. Eco-tourism focuses mainly three things in the world- wise, these are business possibility, and bio diversity conservation and poverty minimize occupying sustainable principles and practices.Eco-Tourism is very importance in Nepal, Nepal is the favorable place for eco-tourism because Mount. Everest located the northern part of Nepal; more than 14 mountains (more than 8000m height) are also located in Nepal. Besides Himalayans, Nepal is also rich in multi-ethnic and multi-cultural nation with sixty different ethnic groups. Each ethnic group has its own cultural. Tourists enjoy cultural verities (Musa,et al.,2004).There are delicate , naturally and undistributed ordinary areas meeting on low-impact small scale tourism (Bajracharya ,et al ,.2011)

2.14 Renewable energy and Sustainable tourism (Issues)

Results from empirical research on the relationship between carbon dioxide emissions and tourism growth have been inconsistent. Tian et al. (2021) found that long-term improvements in tourism development tend to reduce carbon dioxide emissions, showing that travel does not have a detrimental impact on the environment and instead aids in lowering pollution in the G20 countries. These findings are the result of the G20 countries starting to switch from the use of fossil fuels to renewable energy. As a result, the tourism sector, which is more dependent on energy, is carrying out its operations using renewable energy .However, Yue et al. (2021) added asserted that a significant source of greenhouse gas emissions is tourism. As a result, nations are urged to switch from utilizing non-renewable energy to renewable energy sources, as these sources will

help reduce environmental degradation. Nations place a high priority on both economic development and environmental quality. In light of the fact that fossil fuels can be replaced by renewable energy sources and this should be the direction to go in order to increase GDP.

2.15 summarized previous study

| Researchers | Topic | Major finding |
|------------------------|--|--|
| (Li et.al 2019) | <i>Balancing Tourism's economic benefit and CO2 emissions</i> | This industry helps to rise to massive CO2 emissions worldwide. However, use modern of renewable energy can be reduce CO2 emissions. |
| Cai.et al., (2010) | <i>Low-carbon tourism: a new mode of tourism development</i> | <ul style="list-style-type: none"> • Through applying the Low -carbon technologies, setting up a mechanism for carbon bowl mechanism • Tourism institution promote effective implementation of low -carbon tourism consumption |
| (Sarpong et al., 2020) | <i>The impact of tourism arrivals, tourism receipts and renewable energy</i> | Tourists willing to pay more amount to those hotels and Lodges, which promotes environmental quality |

| | <i>consumption on quality of life</i> | |
|-------------------|---|--|
| (Oada,1980) | | Lumbini was full of sal forest before the adoption of the Lumbini Development Master plan in 1978 |
| (LDT Report,2021) | <i>Lumbini Report 2021</i> | Lumbini development trust office, now inside the Lumbini areas minimum 100,000 plants are planted in 2021 |
| (Kirk, 1998) | | <ul style="list-style-type: none"> • The owner of hotels start to make green hotels due to the pressure of customers and society • The manager of Hotel Melia experienced that customers and visitors are more concerned about |

Chapter- III

RESEARCH METHODOLOGY

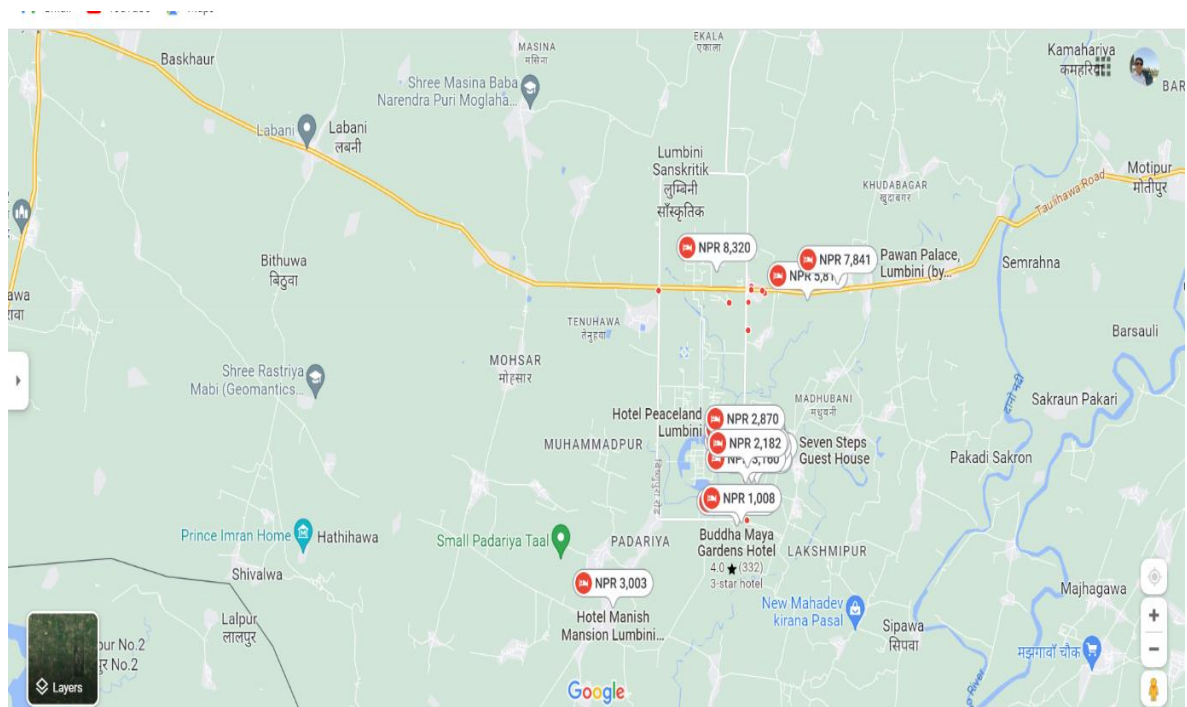
This chapter deals with the research methodology of the study. The study aims to examine the Role of Renewable Resources on Tourism Industry”. This chapter looks at the various methods and procedures of researcher adopted in conducting the study in order to address and answer the research problem raised in the first chapter. This chapter is organized in the following structure: the research design, study area, population, sample size, sampling technique, sources of data collection, data collection methods, tools used for data analysis.

3.1 Research Design

This study have employed descriptive research design which is a design which attempts to describe or define a subject, often by creating a profile of a group of problems, people, or events, through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated by Cooper and Schindler (2003). Thus, this approach is appropriate for this study as it will help to describe the state of affairs as they exist without manipulation of variables which is the aim of the study. Moreover, a causal-comparative design has also been used in this study. It is used to find relationships between independent and dependent variables after an action or event has already occurred. The researcher's goal is to determine whether the independent variable affected the outcome, or dependent variable, by comparing two or more groups of individuals i.e. based on demographic variable. In this method, researcher has used survey method to collect the data from the respondent.

3.2 Rationale for the Selection of the Study Area

Figure 1: Study Area



The research area is Lumbini, the birth place of Lord Gautam Buddha, lies in the western part of Nepal. I chose this area as the research study area because it is one of the potential areas for the research study. The basic reasons for selecting the study site can be justified as follows:

- The study area is one of the famous places of the world.
- It is equally important for all religions not only Buddhists.
- The investment volume of hotel /lodge is growing year by year due to the rise in the tourist visiting trends in the area.
- Researcher tries to study micro level analysis regarding renewable resources linking with sustainable tourism development.
- The researcher is quite familiar with the energy sources and ecological balance of the study area.

3.3 Population and Sample and Sampling Method

According to Kothari (2004) in Statistics, the term population or universe refers to the all totality of case (or items) under the investigation. In others words a population is the entire group of items or members or individual of interest in a study. Mugenda and Mugenda (2008), explain that it is a population from which a sample with actually be taken as determined by the sampling frame. Research area for the study is Lumbini the birth place of Budhha. In this regard, all the hotel owners of Lumbini is the population of the study. The total hotel owner of Lumbini is 101. Thus, the population of the study is 101.

Some units selected from the population is known as sampling and the process of selecting some units from the population in order to draw conclusion about the population is known as sampling .Thus, sampling is a process of choosing a representative portion of a population .The selected units are completely enjoyed and the information are used to draw conclusion about the entire population. It is the process of selecting a number of individuals for a study in such a way that the individuals selected represent the large group from which they were selected. Sample is a small amount of something that shows you what the rest is or should be like. The study follows census study. Thus the sample of the study is 101.

3.4 Nature and Sources of Data Collection and Research Instrument

The data for the study has been collected from the primary source which is as mentioned below:

a) Primary Source:

Primary data means original data that has been collected specially for the purpose in mind. It means someone collected the data from the original source first hand. The Primary data for the study has been collected through questionnaire method to approach the sample respondent of the research study.

Questionnaire has been as a research instrument for primary data collection. The reason for choosing questionnaire as the data collection instruments is primarily due to its practicability, applicability to the research problem and the size of the population. A self-administered questionnaire with closed ended questions has been developed and administered to obtain information from the 111 respondents. Similarly, the questionnaire has been used to collect data on different independent and dependent variable by using five point likert scale where 5= Strongly Agree, 4=Agree, 3=Neutral, 2= Disagree and 1=Strongly Disagree.

b) Secondary sources

To attempt the first objective, the researcher collected data from various government and non-government organizations likes Nepal tourism Board, Tourism Ministry of Nepal, Lumbini Development Trust office, Hotels association Lumbini etc

3.5 Instruments of Research Deigns

The instruments used for the process of various statistical tests interaction effect model, questionnaires, inventories, interview schedule, survey plans, export opinion ,policy makers, authorizes personalities ,goggle class etc.

3.6 Method for Data Analysis

This study is based in descriptive and analytical methods for the presentation and analysis of data. Tables, simple percentages, mean, SD, Correlation and regression have been used for the purpose of presentation and analysis of data. The correlation is used for measuring relationship among variables and regression is used as a statistical tool to examine the effect of independent variable on dependent variable. The explanations of the statistical tools are given below:

(A) Arithmetic Mean or Average (\bar{X})

Arithmetic mean or average is the set of observation that present the entire data, its value lies somewhere in between the extremes. For this reason and average is frequently referred to as a denoted by \bar{X} . Symbolically,

$$\bar{X} = \frac{X_1 + X_2 + X_3 + \dots + X_n}{N} = \frac{\sum X}{N}$$

Where,

\bar{X} = Arithmetic mean or Average

X_1, X_2, X_3, X_n = Values of variables

$\sum X$ = Sum of the values of variables

N = Total number of observation

(B) Standard Deviation (δ)

Dispersion is the measurement of the scatter required of the data from mass of figure in a series capable of an average. The absolute dispersion is measured by the standard deviation. The standard deviation will likewise be higher if the degree of dispersion is higher. A low standard deviation indicates a high level of observational uniformity as well as series homogeneity, and vice versa. It is denoted by δ . Symbolically,

$$\delta = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where,

δ = Standard deviation

$\sum (X - \bar{X})^2$ = Sum of the mean deviation squared

N = Total number of observation

(C) Coefficient of Variation (C.V.)

The C.V. is the relative measure of dispersion, comparable across which is defined as the ratios of the standard deviation to the mean expressed percent. Symbolically,

$$C.V. = \frac{\delta}{\bar{X}} \times 100 \%$$

Where,

C.V. = Coefficient of variation

δ = Standard deviation

\bar{X} = Arithmetic mean or Average

(D) Correlation Coefficient (r)

Correlation analysis is the statistical tools that can be used to describe the degree to which one variable is linearly related to another. In this study, correlation coefficient is used to determine the relationship between different factors, It is denoted by r. Symbolically,

$$r = \frac{n \sum XY - \sum X \sum Y}{\sqrt{n \sum X^2 - (\sum X)^2} \sqrt{n \sum Y^2 - (\sum Y)^2}}$$

(E) Regression Analysis

A collection of statistical techniques known as regression analysis is used to estimate the associations between a dependent variable and one or more independent variables. It can be used to simulate the long-term link between variables and gauge how strongly the relationships between them are related.

Models that evaluate the connection between a dependent variable and an independent variable include simple linear regression. The following equation represents the simple linear model:

$$Y = a + bX + \epsilon$$

Where:

- Y – Dependent variable
- X – Independent (explanatory) variable
- a – Intercept
- b – Slope
- ϵ – Residual (error)

(F) Multiple Regression Analysis

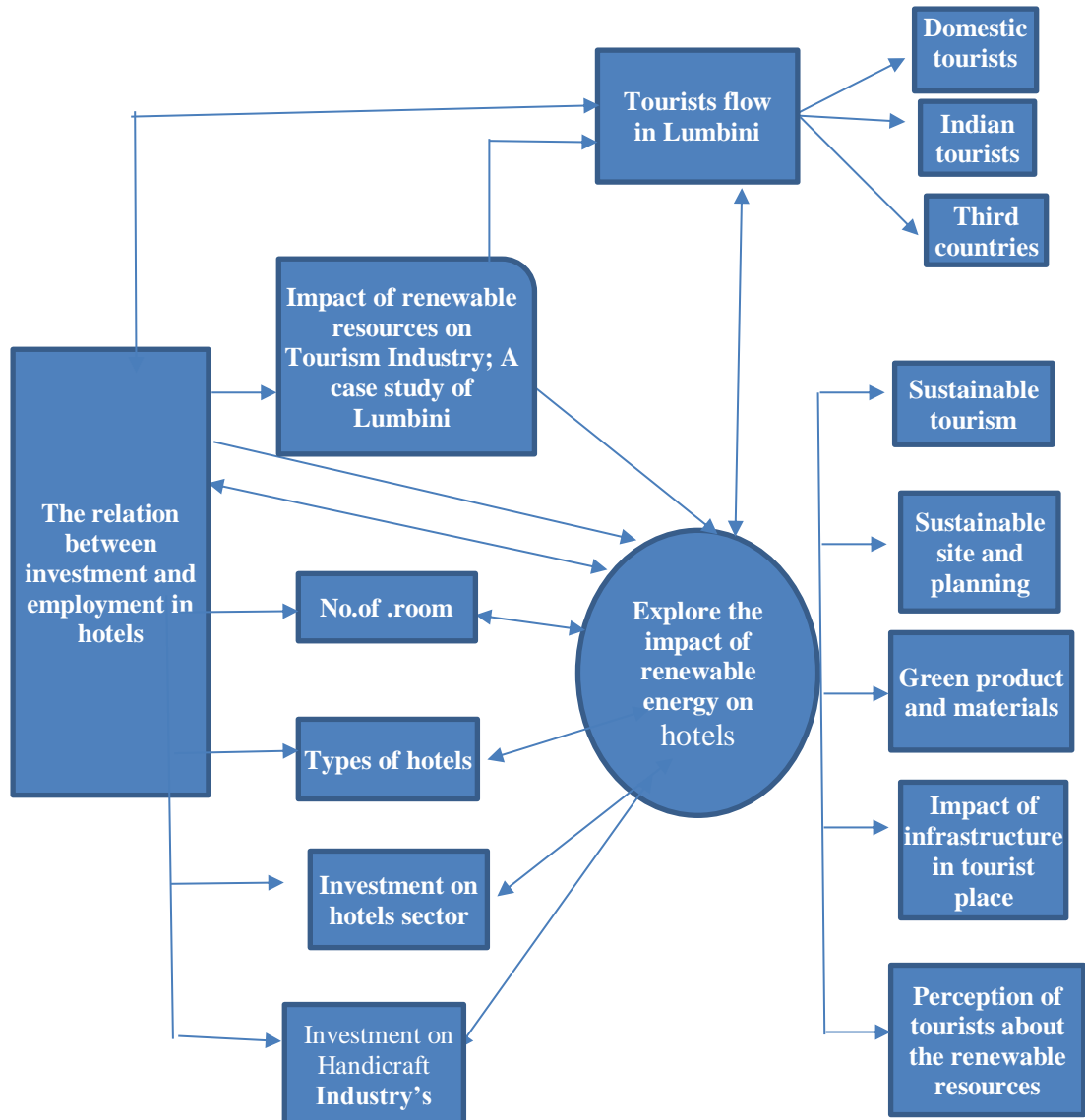
Multiple linear regression analysis is essentially similar to the simple linear model, with the exception that multiple independent variables are used in the model. The mathematical representation of multiple linear regression is:

$$Y = a + bX_1 + cX_2 + dX_3 + \epsilon$$

Where:

- Y – Dependent variable
- X_1, X_2, X_3 – Independent (explanatory) variables
- a – Intercept
- b, c, d – Slopes
- ϵ – Residual (error)

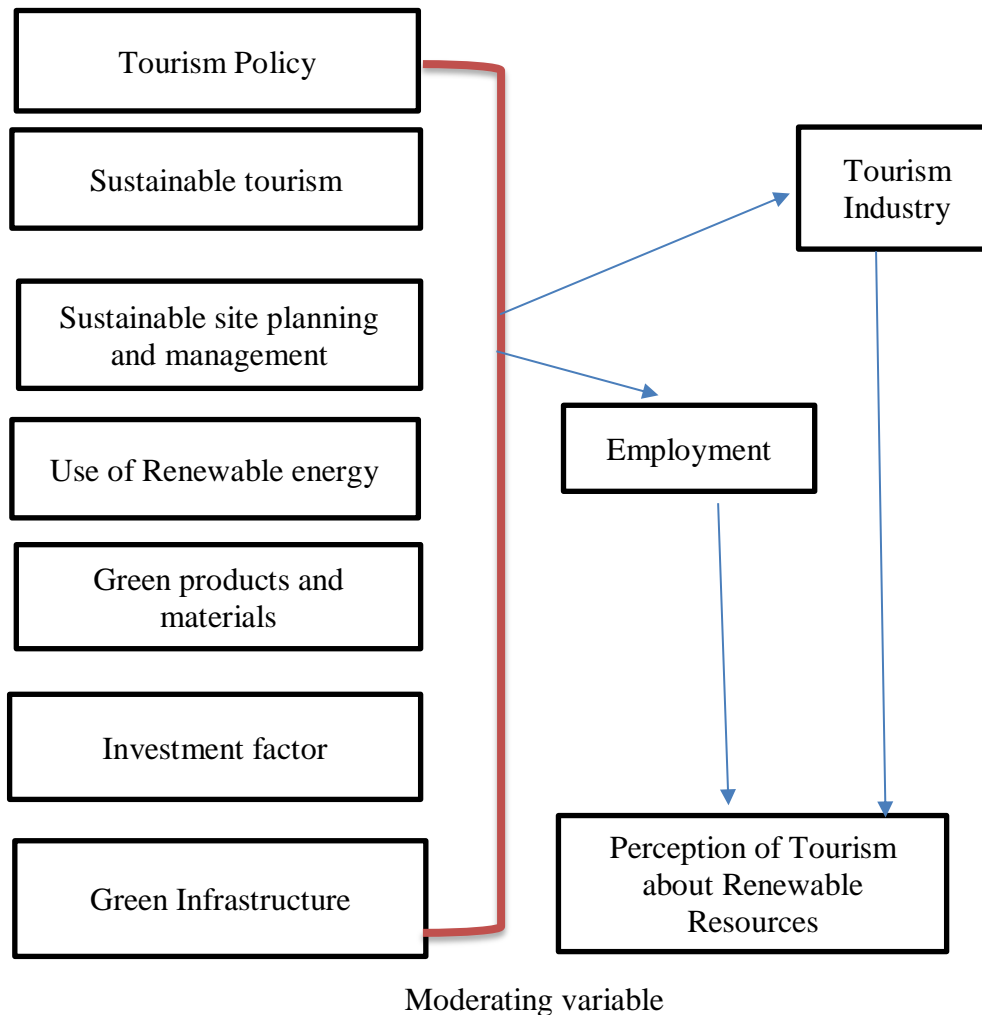
3.7 Research Methodology Framework



3.8 Theoretical and Framework Equation

Independent Variable

Dependent Variable



Moderating variable is a one type of variable that connected the relationship between a dependent variable and independent variable.

3.9 Data Analysis & Procedure

Numerous statistical methods and approaches are used in this study to explore potential research hypotheses. The reliability and validity tests, frequency analysis, independent sample t-tests, descriptive statistics, correlation matrices, linear regression, and simple regression are some of the approaches mentioned above. Statistical Package for Social Sciences was used to estimate every statistical method (SPSS).

3.10 Reliability Test

The information Primary source data are very trustworthy. It has undergone repeated testing with the same successful outcomes, demonstrating how trustworthy

CHAPTER-IV

RESULTS AND DISCUSSION

In this chapter, the researcher has presented the tourists flow in Lumbini in various years as well as on monthly base. It has also described the investment and employment patterns in Lumbini, especially in hotels & lodges. Nepalese Entrepreneurs are feeling more secured to investing in tourism sector in comparison to others' investment areas. This chapter slightly describes the major tourism destination areas of Lumbini. Mainly, it tries to show the relation between renewable resources and hotels in Lumbini. The consumption patterns of renewable energy, cost analysis and comparative study between the renewable resources and non-renewable resources, satisfaction level of hotel entrepreneurs towards the use of renewable resources and obstacles for the use of renewable resources. It has also described the perception of renewable resources towards tourism industry.

4.1 Study Area

Nepal is a smaller country than its neighboring countries China and India. But it has a lot off potential areas in Tourism industry. Mount Everest is located in province number one in Nepal, which is highest Mountain in the world. There are several Himalayans in the northern side in Nepal such as Annapurna, Machhapuchre and so on. Nepal is also rich in ancient art and culture. Kathmandu, Bhaktapur, Gorkha, Palpa are major historical places of Nepal. The main tourism places of Nepal are Pokhara, Chitawan, Lumbini, Muktinath etc. Among the various tourists' places, the value of Lumbini is quite different. Lumbini is the birth place of Gautam Buddha. Gautam Buddha was born 623 B.C.in Lumbini. Asoka Pillar was established in 249 B.S. During that period, Lumbini became popular for national as well international tourists. Now it is not only famous for religious purpose, it has borrowed plenty of potentials. It is located in western region of Nepal (Province number Five). The total distance of capital city of Nepal Kathmandu to Lumbini is 127.4 miles or 205 Km.

Figure 2: The Map of Lumbini



4.2 Lumbini is a spiritual Destination of the world

People enjoy traveling for a variety of reasons. Some aspects include spiritual tourism, yoga tourism, peace tourism, and religious tourism. Lumbini may be the ideal location for meditation tourism, which might be very fruitful for the development of the individual, the society, and the country. The general public and other interested parties are still unaware of this fact. Lumbini is the top location for meditation in Buddhism (Sharma, 2020). The development of Lumbini as the top tourist attraction is a goal shared by the public and private sectors. People from around the globe visited Lumbini for various reasons. LDT report (2022) showed approximately 2 million tourist visited Lumbini for the last few years.

Table 2: Purpose of visit of tourists in Nepal (in %)

| Year | Entertainment | Trekking and mountaineering | Pilgrim | Others |
|------|---------------|-----------------------------|---------|--------|
| 2010 | 43.8 | 11.6 | 16.8 | 27.8 |
| 2011 | 57.8 | 11.7 | 8.7 | 21.8 |
| 2012 | 47.3 | 13.1 | 13.7 | 25.9 |
| 2013 | 54.9 | 12.2 | 5.1 | 27.8 |
| 2014 | 50.1 | 12.3 | 12.5 | 25.1 |
| 2015 | 71.6 | 1.70 | 2.78 | 23.89 |
| 2016 | 65 | 8.83 | 11.0 | 15.17 |
| 2017 | 70 | 8.0 | 15.0 | 7 |
| 2018 | 60 | 16 | 14.4 | 9.6 |
| 2019 | 65 | 17 | 14 | 4 |
| 2020 | 60.5 | 12.4 | 15.6 | 11.5 |
| 2021 | 66.8 | 10.3 | 7.4 | 15.5 |

Sources =Department of tourism, 2078

Nepal is a natural beautiful country. So more than 60 percentage tourists visited for entertainment purpose. Approximately, 15 percentage tourists visited Nepal for climbing different mountains like Mt.Everest, Annapurna etc. Nepal is equally popular for religious purposes likes Hindus and Buddhists etc.

4.3 The trend of tourist travel

Table 3: Tourist Travel Trend in Lumbini from 2010 to 2021

| Year | Total Number of Tourists | Change Number of Tourist | Change Growth of tourists arrival Rate (%) |
|------|--------------------------|--------------------------|--|
| 2010 | 426250 | - | |
| 2011 | 395570 | -30680 | -7.7559 |
| 2012 | 539210 | 143640 | 26.63897 |
| 2013 | 573529 | 34319 | 5.98383 |
| 2014 | 902621 | 329092 | 36.4596 |
| 2015 | 488852 | -413769 | -84.641 |
| 2016 | 1015158 | 526306 | 51.84474 |
| 2017 | 1251346 | 236188 | 18.87472 |
| 2018 | 1170571 | -80775 | -6.90048 |
| 2019 | 1178140 | 7569 | 0.642453 |
| 2020 | 210033 | -968107 | -460.931 |
| 2021 | 463963 | 253930 | 54.73066 |

Sources =Lumbini Development Trust (2022)

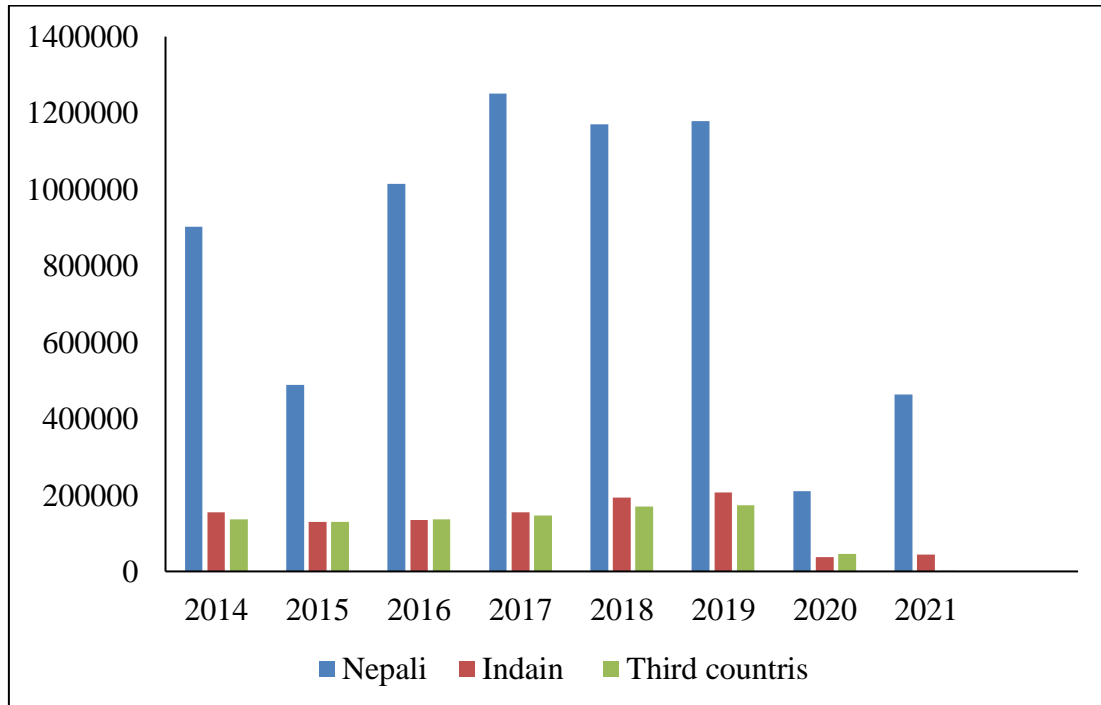
The above tables shows the analysis of the domestic tourists' visitors in Lumbini from 2010 to 2021 .2017 year become more favorable year for Lumbini because 12, 51,346 domestic tourists visited in 2017, but 2020 year became unfavorable as only 2,10,033 tourists visited Lumbini.

4.4 Trend of tourist's arrival in Lumbini by Nepalese, Indians and Third countries

Table 4:Tourist arrival by Domestic,Indian and third countries

| Years | Nepali | Indain | Third countris | Total | Change rate of percent |
|--------------|----------------|---------------|-----------------------|----------------|-------------------------------|
| 2014 | 902621 | 154216 | 136991 | 1193828 | - |
| 2015 | 488852 | 130262 | 129180 | 748294 | -37.32 |
| 2016 | 1015158 | 134269 | 136253 | 1285680 | 71.81 |
| 2017 | 1251346 | 155444 | 145796 | 1552586 | 20.80 |
| 2018 | 1170571 | 193635 | 169904 | 1534110 | -1.19 |
| 2019 | 1178140 | 206171 | 174015 | 1558326 | 1.58 |
| 2020 | 210033 | 37206 | 45329 | 292568 | -81.22 |
| 2021 | 463963 | 43732 | 1197 | 508892 | 0.73 |

Figure 3: The trend of tourists arrival in Lumbini by Nepalese, Indian and third countries



The above mentioned table 4 and figure 3 clearly indicate that Nepalese tourists visiting numbers is more in Lumbini than the Indian and third countries. The rate of Indian tourists is more than third countries because Indian tourists visit Nepal without passport. There is open border facilities between Nepal and Indian so that they can visit any season in Nepal. The total tourists visited rate gradually increasing than 2014 and 2021 A.D. 2015 year was badly effected earthquake in Nepal and the tourist visited flow was very minimum in 2020 due the impact of Covid-19.

4.5 Seasonal Variation of Tourists Arrival

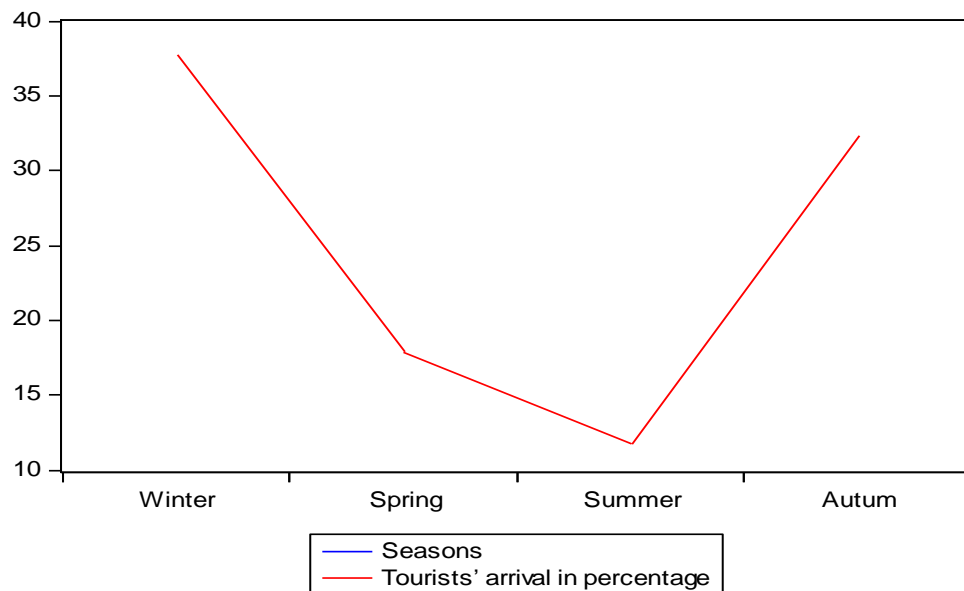
Seasonal variation of tourists' arrival is important from the point of view of its impact on income generation. Hence, an attempt has been made to analyze the seasonal distribution of tourists in Lumbini which is shown in the following table.

Table 5 : Seasonal variation of tourist's arrival in Lumbini

| Seasons | Tourists' arrival in percentage |
|---------|---------------------------------|
| Winter | 37.73 |
| Spring | 17.9 |
| Summer | 11.8 |
| Autum | 32.5 |
| Total | 100 |

Sources =Hotel Association Lumbini,2021

Figure 4: Seasonal variation of tourist's arrival in Lumbini



The peak seasons of tourist's arrival is in winter whereas summer is the lean one. The largest number of tourists (37.73%) arrival in winter seasons in Lumbini which is followed by autumn seasons (32.5%). Spring seasons (17.9 %) and only (11.87%) of visitors over visited Lumbini in summer seasons. The climate in the winter seasons is very favorable for tourists. In this season, there neither very cold and nor very hot. Therefore, many tourists like to visit in the winter seasons.

4.6 Length of Stay of Tourists in Lumbini

Few years ago, tourist stay days was not more than 1 day but now a days due to well infrastructure development of Lumbini side, tourists stay days is increasing year to year. In the context of third countries' tourists, they want to visit side places such as; Karma,

Dohani, Tilaurkot-Kapilavastu, Niglihawa, Araurakot, Sagarhawas, Chatradei ,Kudan ,Gotihawa ,Sisaniya and Rama gram. Currently, tourist stay duration by tourists visiting in Lumbini is more than 3 days.

4.7 The Major Attraction of Lumbini are:

Mayadevi Temple

Mahadevi temple is the main attraction of Lumbini which is the birth place of Gautam Buddha. All the pilgrim activities are performed near the Mahadevi temple. The holy site witnessed the construction of Maya Devi temple known as heart of all monuments at this site. There are three Ashokan pillars in Nepal. They were erected by the Maurya Emperor Asoka. He arrived in the Terai region of Nepal in 249 B.C, erected a stone pillar, and built a temple. Lumbini, the birth place of Gautam Buddha, was discovered in 1896 and Keshar Shumsher re-constructed the Maya Devi temple in late 1930's

Nativity Sculpture

Nativity sculpture is the stone idol, which depicts the birth essence of the lord Buddha. In the image, Mayadevi is seen holding a branch of nativity tree. Prajapati, the foster mother the Buddha is supporting to Mayadevi. Two celestial divinities one seen at the service of the queen, and baby Buddha is seen starting up right on the pedestal of lotus flower. The sculpture was inside the early Mayadevi temple in 7th century. Mukharji identified it in 1899 during his excavation. The sculpture is defaced as it was buried under debris of demolished earlier mayadevi temple and affected by salt reaction.

Lumbini Askoa Pillar

The Asokan pillar of Lumbini is the most important historical object to prove that the Lord Buddha was born in Lumbini. The total height of the Asokan pillar is 30' 10.5" of which 13'8.5" is buried underground & remained erect in place for more than 2600 years. Its weight 37 tons ,it bears inscription engraved in Brahmin script and pali language .The inscription engraved by Asoka in 249 B.C gives us the most authentic

proof the birth place of the Lord Buddha. The text written pali language and Brahmin script is translated as follows.

Twenty years after his coronation, King privadarsi, Beloved of Gods visited this spot in person and offered worship at this worship at this place, because the Buddha the sage of the Sakyas, was born here. He caused to be built a stonewall around the place and also erected this stone pillar to commemorate his visit. Because the Lord Buddha was born here. He made the village of Lumbini free from taxes and subject to pay only one-eighth of the produce as land revenue instead of the usual rate.

Market Stone

The market stone is the stone, which pinpoints exact place of the lord Buddha. It is deeply buried in the sanctum. It was discovered during the meticulous excavation jointly conducted by LDT/DOA of tourism in 1996. It was discovered after a great effort and careful excavation under the three layers in the Sanctum on the site of Maya Devi temple in 1996, the stone slab foundation pinpoints the precise location of the original place. Hiven Tsang mentions in his travels account that he saw market stone it well protected in a brick chamber and the stone is 25 steps north from the sacred pond. The market stone with size of 70x40x10 cm is well protected with bullet proof glass.

Puskarini Holy Pond

The famous and most sacred pond known as Puskarini lies on the southern side of Maya Devi Temple and Asokan Pillar. It is believed that Maya Devi took a holy dip just before giving the birth to the Lord Buddha and also where the infant Buddha was given his first purificatory bath. The devotees feel proud and purified from evil effects in the life by washing their face in the pond and some of them take water (*jala*) with them. It is also known that there are two wells with hot water and cold water for Supplying water in the pond, terraced steps and is riveted by beautifully layered bricks in 1933-39.

The Sacred Garden

It is home to the Maya Devi temple, The Ashokan pillar and the sakyas Bathing pond. It is central point of Lumbini including several factors like historical archaeological monuments around the Maya Devi shrine. It looks very peaceful sacred look preserved & restored to its legendary beauty can function as a management to attract more pilgrims & tourists Lumbini development Trust more serious about the preservation of this sacred garden at current. Its form, consisting of a circle enclosing a square, embodies the mystic symbol of the universe in its purity and simplicity. The square area is formed with a network of raised walkways between the landscaped area and the archaeological remains. A beautiful garden and the circular levee with a large water body is the new attraction in this shrine complex.

The Central Canal

It is connected between the Sacred Garden southern part and the New Lumbini village in the northern part of Lumbini Master Plan. It divides Monastic Zone into two areas. It is established taking the objective supply as means of water transport from Attachment Bridge to the unending peace flame, added beauty to the area and be a habitat for aquatic plants and animals. It is 16 m. wide and 1.5 km. long.

The Eternal flame (Shantideep)

It is the eternal peace flame in Lumbini which is burning as a symbol of world peace

International Monastic Zone

The International Monastic Zone is located between the New Lumbini Village and the Sacred Garden Zone. The Monastic Zone is divided by Central Canal. There are east and west monastic enclaves having 42 (29 Mahayan & 13 Theravada) plots of land allocated for the construction of new monasteries -Mahayana and Theravada sects of Buddhism. Within these areas, land will be available for the construction of facilities by religious traditions. Buildings of various styles will coexist inside this zone, owing to that fact that they will be built by groups from various countries and will reflect the traditional style of their nation or religious traditional. In order to unity further the

various styles; landscaping will be coordinated according to the Master plan. A space known as a Monastic Plaza, made up circular or semicircular steps, will be located in the center of each monastic zone. Each plaza will be served as a central gathering point and will have a symbolic sculpture placed in its center.

The Lumbini Museum

It is very important that Building for researcher, explore persons about the Lumbini, archeologist etc. There are many scarce means are available. Under this building, all the tourists easily can be estimated, what type of goods were used during Buddhist period. It is relating religious manuscript, ancient coins, paintings, terra-cotta fragments, beads, stone and metal sculptures, dresses of different Buddhists sects etc. These goods are related Buddhists and history of his birth place Lumbini. This building was designed by used modern techniques where office, lab, seminar hall is available.

Other important Sides of Lumbini

Besides Lumbini, there are many related places which are associated with Gautam Buddha's Life. Each and all places have their own values relating authenticity, historical, sightseeing and pilgrimage aspect.

Ramgrama

It lies in north –eastern part from the birth place of Gautam Buddha Lumbini. This place has unique importance. It is found in the tentative list for UNESCO World Heritage Status, and has attracted archaeological interest since 1896. The most striking characteristics of the site is its massive stupa, which is in ten meters height and 23.5 m in diameter. This stupa was made by king Ramagram who was the eighth king to obtain the Buddha's vestiges.

Tilaurakot

This site was first introduced by P.C Mukherji in 1899 A.D, Who traced the journey of the Chinese pilgrim Xuanzang from Sravasti. Gautam Buddha spent 29 years of his valuable time in Kapilvastu .From Kapilvastu, Buddha left on his journey of spiritual

enlightenment, departing by the eastern Gateway. Geophysical survey of subsurface archaeological features revealed the buried street plan of the city with roads running north-south and east-west and punctuated by small squares or plazas.

Devdaha

It is the capital city of Koliya Kingdom. It is located 45 K.M Far East from the Lumbini. It lies near the Rohini River. It is the motherly of Queen Mayadevi where Buddha spent his childhood time. After his enlightenment, Gautam Buddha visited Devadaha and designed the flowers of Jani Sadhu Nigrantha Nathputra.

Niglihawa

It lies 7 km northern side from the Headquarter of kapilvastu Taulihawa. It is equally important for archaeological and pilgrimage. In this place, there is a big pond, which is known as Niglisagar and cracked Asokan pillar. According the archaeologists, it is the natural city of Kanakmuni Buddha where Buddha Enlighted and met his father. Emperor Asoka visited during the time of his pilgrimage, built a stupa and set his up a pillar. The total length of pillar is 15 feet.

Sagrahawa

It also lies 12 northern side from kapilvastu. It encompasses of an expanse of large and small mounds, clustered around a water tank. Indian archaeological exposed the remains of a large brick monument and smaller buildings at the western edge of the tank, as well 17 small brick stupas to its southeast.

Chatradei

At presented is covered by heavy by vegetation and forest so that it is very difficult to travelling to view of large mound. Indian archaeologist Mukherji was found it in 1899. He suggested that the extensive ruins were most likely contemporary with Tilaurakot.

Kudan

It means “to jump”, referring to the local legend of a giant, who could jump from one mound to another. It was also introduced by Mukherji in 1899, who recorded a row of four ancient mounds.

Gothihawa

This site was explored in the 1890s and stupa partially excavated by Major Waddell in 1898. Some early archeologists believed that the monuments marked the birthplace of Krakkuchanda Buddha, one of the earlier Buddha's. The stupa was re-excavated by the Italian archaeologist Giovanni Verardi in the 1990s, who identified two construction phases.

Sisaniya

It comprises of a 260 meters long mound and a small circular mound 200 meters to its north. Archologist sites were first undertaken in 1899 by the Indian archaeologist P.C Mukherji, who identified the foundations of a town with brick structures, mounds and a well.

The trend of visit is influenced by many factors among them following factors present condition in Nepal is mentioned in the following table;

Table 6: Number of Hotels and Beds, tourist's agency and Guides

| S. N | Headings | 2076/77 | 2077/78 | 2078/79 |
|------|--|-----------------|---------|---------|
| 1 | No. of star hotels | 137 | 142 | 162 |
| 2 | No. of hotels and beds in start hotels | 132000 | 13900 | 15775 |
| 3 | Total number of hotels | 1289 | 1171 | 1345 |
| 4 | Total number of beds | 43999 | 45850 | 48412 |
| 5 | Number of travel agencies | 3680 | 3743 | 3801 |
| 6 | Number of trekking agencies | 2764 | 2797 | 2821 |
| 7 | No. of rafting agencies | 81 | 82 | 87 |
| 8 | No. of tour guides | 4200 | 4241 | 4557 |
| 9 | No. of trekking guides | 17625 | 17766 | 19166 |
| 10 | No. of community home stay | 389 (1088 beds) | - | - |

Sources: Economic Survey, 2078/79 MOF.

In the context of Nepal, all most tourism related institutions are located in limited urban areas. Due to this cause, people living in the rural areas cannot take more advantages from tourism industry.

Although it is difficult to create decent job and productive employment could be one of Nepal's options for achieving for the Sustainable Development Goals (SDGs) by the expected date. More than 500,000 working people look for full-time productive jobs on the labor market each year. Due to slow increase rate of economic growth of Nepalese economics, unemployment problem has become serious problem in Nepalese society. CBS (2018) report shows that in the Nepalese labor market, only 7.1 million labors were employed out of 20.7 million people of the working -age group while 908 thousand workers were unemployed. The rate of unemployed was 11.4 percentage. The unemployment rate of female workers is 15.3 whereas male workers is of 13.1 percentage. Various government and non-government report and research show that all unskilled manpower and semi-skilled manpower are far from the job opportunities. For solving the unemployment problem and increase in the economic activities, tourism industry plays the supporting role. Tourism industry is regarded as one of the major sources of foreign exchange earnings. This sector contributes around 5% of the total foreign currency earnings. In the fiscal year 2078 B.S. the foreign exchange earning of this sector was Rs 1350 crores. Nepal has a serious problem of unemployment, underemployment and seasonal unemployment. Tourism helps to generate employment opportunities directly or indirectly to the people in different tourism related activities such as in hotels, lodges, travel agency, mountaineering business, etc. According to *Economic survey* 2014/15, 178,000 persons are employed in this sector. This industry is also playing key role to reduce the inequality in Nepalese society. An important aspect of tourism industry is income generation for both public as well as for private sectors. Similarly, unskilled people, semi-skilled people, women and backward class people directly or indirectly are benefitted from high income levels.

4.5.1 The Table Shows the Number of Hotels, Which are Located Lumbini Surrounding.

Table 7: Table Shows the Number of Hotels

| Grade of Hotels | No.of hotels | No.of Rooms | Total number of employees |
|-----------------|--------------|-------------|---------------------------|
| Non-start | 75 | 699 | 140 |
| One start | 11 | 342 | 121 |
| Three start | 6 | 150 | 90 |
| Five start | 9 | 452 | 110 |
| Total | 101 | 1643 | 461 |

Sources:Field study

Obviously, The economic condition of all the samples differs but their locality, working environmental, perception on tourism industry, culture is all most same so that researcher has designed the same nature questions for all level hotels entrepreneurs for data or information collection. They have facing all most same nature issues on their industry.

4.5.2 The Relation between Investment and Employment Pattern in Lumbini Sides Hotels.

From the field survey, researcher has collected more than 101 hotels and lodges investment and employment pattern level, it is clearly explained in the following output table.

Table 8: Relation between Investment and Employment Pattern in Lumbini Sides Hotels

| <i>Regression Statistics</i> | | | | | | | | |
|------------------------------|---------------------|-----------------------|---------------|----------------|-----------------------|------------------|--------------------|--------------------|
| Multiple R | 0.9517 | | | | | | | |
| R Square | 0.9057 | | | | | | | |
| Adjusted R Square | 0.9028 | | | | | | | |
| Standard Error | 0.3093 | | | | | | | |
| Observations | 102 | | | | | | | |
| <i>ANOVA</i> | | | | | | | | |
| | <i>df</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>Significance F</i> | | | |
| Regression | 3 | 90.0324 | 30.0108 | 313.7575 | 0.0000 | | | |
| Residual | 98 | 9.3737 | 0.0956 | | | | | |
| Total | 101 | 99.4060 | | | | | | |
| | <i>Coefficients</i> | <i>Standard Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i> | <i>Upper 95%</i> | <i>Lower 95.0%</i> | <i>Upper 95.0%</i> |
| Intercept | -0.7081 | 0.1658 | 4.2697 | 0.0000 | -1.0372 | 0.3790 | 1.0372 | 0.3790 |
| X1 | -0.0504 | 0.0845 | 0.5959 | 0.5526 | -0.2180 | 0.1173 | 0.2180 | 0.1173 |
| X2 | 0.6849 | 0.0700 | 9.7817 | 0.0000 | 0.5459 | 0.8238 | 0.5459 | 0.8238 |
| X4 | 0.3974 | 0.0349 | 11.3840 | 0.0000 | 0.3281 | 0.4667 | 0.3281 | 0.4667 |

The above table shows that the positive relationship between the employed number of workers and Investment amount in the hotel and Lodge in Lumbini because the value of R^2 is 0.9057. It also depicts the demand of workers also depends the number of the room of hotels and the restaurant. The standard error is only 0.3093. X_1 shows type of hotels, whole hotels is divided into two group non-start and start. Zero (0) indicates the number of non-star hotel and One (1) refers the star hotel number. Similarly, X_2 refers the number of room in lumbini periphery hotels and X_4 shows the investment amount in hotel and lodge in Lumbini.

During the data collecting period, researcher has got chances to visit different personalities for different fields who spent long time in the tourism field in Lumbini. The respondents focused that the tourist's arrival trend is increasing in each and every year. For them, tourists are increasing due to the facilities availability and changes in all the sectors as in hotels, lodges, transportation, environment, tourists guide, system of tourist's management welcome and so on. According to them, these changes in tourists' arrival trends have come due to several efforts but major causes were the heavy uses of locally available goods, renewable resources as well as well management of tourists welcome in all the tourism sectors. Moreover, according to WTTC (2017) report, more than 4, 27,000 labors were directly dependent on tourism. The report also revealed that approximately 2.9 percentage active workers directly involved under the tourism industry in Nepal.

4.5.3 Employment Impact by Tourism Industry in Lumbini.

Tourism industry helps to generate employment opportunities directly or indirectly to the people in different tourism related fields such as in hotels, lodge, travel agency, mountaineering business, etc. According to Economic survey 2014/15, 1, 78,000 persons are employed in this sector. Similarly, tourism industry has helped to create job opportunities in Lumbini. Such as local people are involved to produce handcraft goods to sell to the internal as well as external tourists. Some local people are earning money by carrying tourists by their auto-mobiles. Some are being busy as tourists' guides, some are running fast foods café. Some are selling locally produced agricultural items and some are busy on construction of Lumbini. Some are performing cultural programs. Some are selling handmade product and so on. So that a large number of people of Lumbini area are directly and indirectly generating their additional income. Moreover, due to the arrival of internal and external tourists in Lumbini, the local people are directly or indirectly familiarizing the outer culture (the way they speak, the dress they put on, their interest, their behavior etc.) from tourists and vice-versa. It means both local people of Lumbini and tourists are beneficial to exchange their culture each other.

More than 60 percent of the tourists who visit Nepal come for recreational /pleasure purpose (*Economic survey, 2019/20*). According to Lumbini Development Trust report of 2019 A. D, the total number of tourists arrived in Nepal were 11,97,191 whereas in Lumbini were only 1,74,015(only 14.53% out of total tourists). The statistical data has shown that the number of the tourist's arrival in Nepal from 1994 to 2019 is increasing in order except in some of the unfavorable years. In Lumbini the information has shown that the trend of tourist's arrival is increasing each year from 2015 to 2019. Similarly, regarding energy consumption is also increasing in order in Nepal. According to local respondents of Lumbini, average staying days is less than other tourists' area of Nepal like Pokhara and Chitwan. There are several factors behind it. Some of them are unfavorable temperature, lack of security, lack of recreational centers, lack of physical facilities and environment, lack of tourists guides and transportation and lack of proper sanitation etc., though they have been changing more positively than before.

The local respondents' view was that in the past the roads were narrow and advanced vehicles were less in number. The surrounding of Lumbini was not so beautiful and clean in the past but now they said that has been changed due to planation of trees, construction of swimming pools, gumbas and temples and buildings in a new design than in past. The hotels facilities and excellent. Guides facilities have been better than previous years so that tourists lure to stay many days nowadays. Similarly, the beautiful gardens, parks and shops have been developed targeting to tourists. Beautiful scene and sights have been developed in the later days. According to local respondents' tourists enjoy to take photos in attractive setting of environment. Several cultural activities have been started to perform so that they could share the culture of each other's by which local people are beneficial to generate income .For them, locally produced or grown goods are easily accessible for tourists .Thus ,the renewable energy has been consumed sufficiently by the tourists and in the same way the renewable energy such as vegetation's ,parks, gardens ,land, water resources ,clean environment ,electricity, biogas etc. have played significant role for increasing tourists arrival in Lumbini.

With references to Lumbini Development Trust, the government of Nepal has planned to establish Lumbini area as one of the famous and visitable tourist's sites. For this

purpose, the physical environment, culture environment, facilities, etc., should lure the tourists to stay more days. To develop such condition, the Lumbini site should be pollution less (air pollution, sound pollution, land pollution, water pollution) by removing old industries, by removing outdated vehicles etc. The government of Nepal mainly has focused that whatever the developmental activities are carried out to this area must be sustainable since they should consume renewable resources for the sound environment so that development of tourism industries directly and indirectly should incorporate the renewable resources.

Hence, by examining the above-mentioned reports, it can be considered that tourism development and sustainable development of renewable resources are interrelated to each other. Therefore, it can also be considered that the development of renewable resources have the positive correlation for development of tourism and vice -versa.

In Lumbini some workers got the opportunities to sell /show their skill, experience, ideas in different hotels and lodges so hotels and lodges help to generate employment opportunity especially unskilled and semi-skilled human resources. Nowadays, Lumbini is becoming the attractive place for the skill and highly qualified manpower for getting job opportunities. Under the supervision of the Nepal government, LDT plays the important role for the infrastructure development of Lumbini. Currently, many workers are working under the LDT office, some workers are involving to the development of infrastructure developing project, which are run by different INGO/NGO. Some workers are involved for caring and protecting activities of monastery.

4.5.4 Economic Impact

Tourism has played the positive impact on economic condition of people in Lumbini areas. It plays the vital role to change the economic condition of people .The development of tourism may be the means of promoting the economic advancement of less development/rural area. The beautiful but underdeveloped areas of the country can greatly receive the benefits from the tourism development. Tourism provides the employment opportunities directly and indirectly. In the direct way, people will get the employment opportunity such as manager, coordinator, and administrative officer, secretly guide as well as guide etc. Tourism provides a large number of opportunities

for the technical and non-technical workers. There are many construction works going on in Lumbini. A large number of villagers are busy in construction workers in Lumbini. Many monastics as well as hotels. The villagers of Lumbini are engaged in the construction works, which is very helpful for their livelihood. The villagers were transformed in the new village. All the affected people were given liberal compensation as well as job opportunities for them. Thus, we can say that tourism has helped to improve the economic condition of local people as well as the national. Most of the villagers opine that advancement of tourism can substantiate cottage industries in the village. There are a variety of industries and businesses in Lumbini area among which hotel business is one of the most reliable one. It is instrumental in promoting tourist trade. The other industries of this area also contribute to the growth of tourism. Most of the villagers in Lumbini rely on agriculture, through which they can sell their products. Some of them are engaged in animal husbandry and fisheries, while others drive rickshaw for their livelihood. They are also benefited by tourism. Tourism has benefitted also the people living in the adjacent parts of Lumbini. If tourism industry is promoted in Lumbini, the tourist's trade makes the good impact not only in the Lumbini area but also surrounding areas as well.

4.5.5 Socio-Cultural Impact

Tourism has played a key role in social and cultural condition around the Lumbini. The development of tourism industry in this emerging area has brought a number of changes on the lifestyle of local people. People got many jobs to engage, land has become more expensive, and change occurred in traditional and life style. Local people's mind has become border than traditional period mind of the people.

The villagers have got opportunities to learn many things from the tourists. Villagers observed the life style of tourists, who came from the different countries. Third countries tourists have frequently used the electronics and mechanical goods such as camera, transistor, mobile etc. so that local people also start to use such a thing in their life. When the tourists arrive in Lumbini, the villagers observe their activities. But there may be the problem of language as the tourists come from the different parts of world to visit Lumbini. They speak different kinds of language to communicate. They can

exchange their views, social beliefs and cultural things with the help of language. We generally use English which is spoken all over the world. So, the tourists can understand English language. Local people explain about our customs and religions with the help of the English language.

Most of the visitors who come to Lumbini are Buddhists. But, the villagers around the Lumbini are Hindus and Muslims. They can exchange their view about the religion. In this way, one can transmit our religious faiths as well as know something about Buddhism. Another activity of the villager is to cooperate to the tourists by providing them some necessary goods and services. It helps to think about co-operation and coordination with the people of different parts of world.

The villagers might learn the bad things from the tourists also. Especially children and teenagers might be affected by the bad habit such as smoking, drinking etc. We have to take care of our teenagers so that they will not learn the bad habit from the tourist. We have observed only the positive things from the tourists. Therefore, the tourism helps to spread the social interaction, cooperation and cultural transmission in the different parts of the world with our country. The social and cultural impact helps to feel the brotherhood and sisterhood in the world.

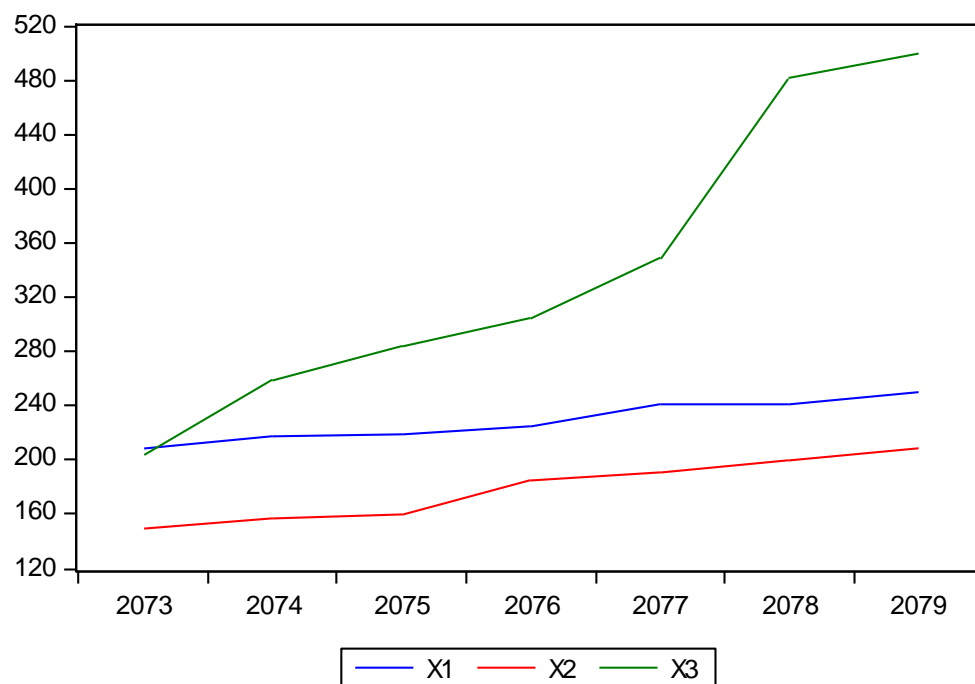
4.5.6 Lumbini Development Trust

It was formed by Nepal government under the Lumbini development Trust Act 2042 B. S (1985 A. D) for implement Lumbini Master plan, explore, preservation, excavate and archaeological sites scattered Rupandehi (including Lumbini), Nawaparisi district and Kapilavastu .In the early years, Nepal government had been allocated minimum budget , so the role of Lumbini Development Trust was not very significant in the development of Lumbini site . After 2073 B.S, each and every year, Nepal government allocating some part of National budget for the rapid development, exploring and preservation of Lumbini areas.

Table 9 : Relationship between Investment and Employment

| Years | Investment in crore (RS) (Y) | Number of workers under the LDT(x1) | Number of workers under Monastery(x2) | Number of workers under construction field(x3) |
|---------|------------------------------|-------------------------------------|---------------------------------------|--|
| 2079/80 | 155 | 250 | 200 | 500 |
| 2078/79 | 150 | 242 | 200 | 482 |
| 2077/78 | 135 | 242 | 192 | 350 |
| 2076/77 | 80 | 225 | 185 | 305 |
| 2075/76 | 75 | 220 | 160 | 285 |
| 2074/75 | 72 | 218 | 158 | 260 |
| 2073/74 | 70 | 210 | 150 | 205 |

Figure 5: Employment Trends



The above diagram shows the positive relationship between time period and number of employed number of the workers, where Y refers the total investment in Crore, X1 shows the number of workers, who are working under Lumbini Development Trust, X2

represents the number of workers, who are involving under Monastery, similarly X3 shows the number of workers who are involved for the in fractured development task.

Table 10: Correlation Relationship between Investment Amount and Employees

| | Y | X1 | X2 | X3 |
|----|--------|-------|------|----|
| Y | 1 | | | |
| X1 | 0.9655 | 1 | | |
| X2 | 0.913 | 0.962 | 1 | |
| X3 | 0.934 | 0.935 | 0.93 | 1 |

There is high correlation relationship between Investment amount (Y) and employees workers in X1, X2 and X3 respectively, the correlation between investment and employees under the LDT is 0.9655. Similarly the correlation between investment and employees workers under the monastery is 0.913. Similarly the correlation between the investment and employees workers under the construction is 0.934.

4.6.1 Present Situation of Renewable Resources in Nepal

By the end of 2021/22, 2022 MW of hydroelectricity has been generated from all projects in Nepal. Today, electricity is available in all districts of Nepal. However, only 94% of the total population get benefits from hydroelectricity. We are able to generate only around 1.5% of the total potentiality of Nepal. The demand for electricity in Nepal is increasing by about 7%-9% per year. Nepal has also generated electricity from solar power and wind power, but its contribution in the national renewable energy is minimum i.e .54.8 MW from solar system and around 6,0522021 GWh from wind energy. The Nepal government and various departments have been providing energy sources for lighting, cooking, industrial purpose and others. New Renewable energy subsidy policy 2012 has maintained in transporting down cost of RETs, ensuring quality and raising beneficiary trust on technologies.

Nepal is a least developing country. More than 70 % percentage people live in rural areas. So, most of the rural areas people use traditional energy ie. Forest resources. According to economic survey, 2021/22, more than 62 % of the total energy demand is fulfilled by the forest resources. Forest contribution around 15% of GDP of Nepal.

Current situation of energy in Nepal

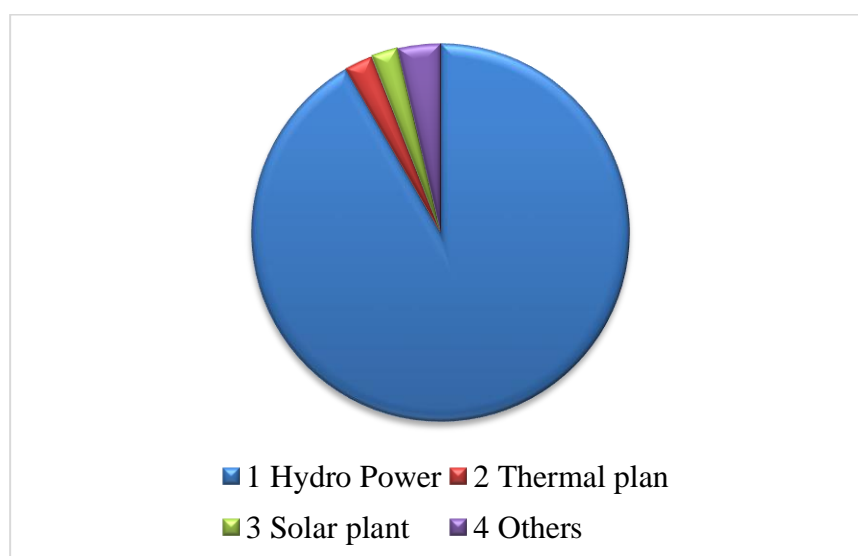
Table 11: Types of Energy in Lumbini

By the end fiscal year from the various sources, Nepal produce only 2205 MW electricity.

| S.N | Types of energy | Total capacity |
|-----|-----------------|----------------|
| 1 | Hydro Power | 2022 |
| 2 | Thermal plan | 53.4 |
| 3 | Solar plant | 49.76 |
| 4 | Others | 80 |
| | Total | 2205 |

Sources :Economic survey 2021/22

Figure 6: Types of Energy in Lumbini



According to Economics survey 2021/22 , the contribution of electricity play more significant role in renewable energy side in Nepal than renewable sources of other countries.

4.6.1.1 Future Energy's sector vision of Nepal 2050 A.D

The vision of future energy was designed in 2013 A.D in Nepal. The main goal is to explore potential energy resources available in the country to manage emerging energy

demand of sustainably. Its main vision is reducing the dependency on petroleum products by substituting them with micro-hydropower and others renewable resources.

Traditional Energy's

➤ Fuel wood

It is traditional and cheapest energy of Nepal, specialty's rural areas of Nepali societies. At present, more than 60% Nepalese energy is supplied by forest in rural areas of Nepal (Economics survey-2012/22).

➤ Agricultural Resides

Nepal is a agricultural country in the national GDP. It gives 23.5 percentage contribution in the economy. Agricultural residues of crops likes paddy, wheat, millet etc are also used as a sources of energy's particular cooking and heating in village's side in Nepal.

➤ Animals Waste

Animals waste is another sources of traditional biomass energy largely used in village areas for cooking and heating purposes, who lies in low income group. Animals waste is also used to produce biogas plants as a clean renewable energy sources.

(b) Commercial Fuels

(1) Petroleum product

Lack of deep explore research in petroleum products, at current Nepal is 100 percentage depends on petroleum product into international market. More than 95% petroleum product, Nepal imports from India and remaining part is supplied by Chinese market.

(2) Coal

It is used to manufacturing industries to produce its production the coal. Nepal is fully depended with the international market.

(3) Electricity

One decade ago, 40 percentage national scarce electricity was supplied by Indian market. But, at current Nepal has fully become

independent state in Electricity.

(4) Biogas

It is more reliable energy source of Nepal especially in hilly and mountain region in Nepal.

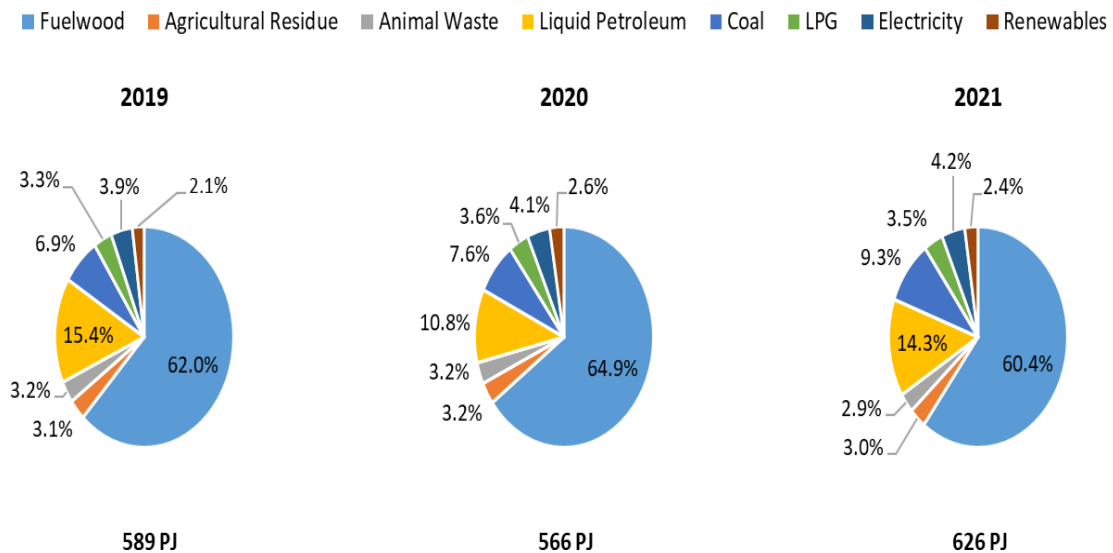
(5) Solar power

It is burning energy sources supply of Nepal. At present, Nepalese market private sector entrepreneurs are showing more interesting in investment in solar plant in Nepal.

Table 12: Consumption energy pattern in Nepal

| Category | Fuel Type | Energy (000 GJ) | 000 TOE | GWh | % of National Total |
|-------------|-------------------------|-----------------------|-----------|------------|---------------------------|
| Traditional | Fuelwood | 377,790.36 | 9,023.37 | 104,941.77 | 60.38% |
| | Agricultural Residue | 18,782.36 | 448.61 | 5,217.32 | 3.00% |
| | Animal Waste | 17,967.02 | 429.14 | 4,990.84 | 2.87% |
| | | 414,539.75 | 9,901.11 | 115,149.93 | 66.26% |
| Commercial | Kerosene | 831.03 | 19.85 | 230.84 | 0.13% |
| | Petrol | 19,560.86 | 467.20 | 5,433.57 | 3.13% |
| | Diesel | 63,465.44 | 1,515.85 | 17,629.29 | 10.14% |
| | ATF | 2,218.29 | 52.98 | 616.19 | 0.35% |
| | LPG | 21,802.75 | 520.75 | 6,056.32 | 3.48% |
| | Furnace Oil | 3,399.09 | 81.19 | 944.19 | 0.54% |
| | Coal | 58,445.58 | 1,395.95 | 16,234.88 | 9.34% |
| | Electricity | 26,373.39 | 629.92 | 7,325.94 | 4.22% |
| | 196,096.43 | 4,683.68 | 54,471.23 | 31.34% | |
| Renewable | Biogas | 9,756.95 | 233.04 | 2,710.26 | 1.56% |
| | Solar | 4,759.67 | 113.68 | 1,322.13 | 0.76% |
| | Wind | 1.87 | 0.04 | 0.52 | 0.00% |
| | Micro/Pico Hydro | 514.96 | 12.30 | 143.05 | 0.08% |
| | | 15,033.46 | 359.07 | 4,175.96 | 2.40% |
| Total | | 625,669.64 | 14,943.86 | 173,797.12 | 100.00% |

Figure 7: Consumption energy pattern in Nepal



Above pie- chart diagram (2021) clearly depicts the energy condition in Nepalese market. Forest resources is the main energy supply in Nepalese economy. The dependency in the petroleum energy is increasing each and every year's in the Nepalese market. The main causes is increasing petroleum depended vehicles in the Nepalese market.

4.6.1 .2The following Table Shows the Energy Consumption of Lumbini (in percentage)

Table 13: Energy Consumption of Lumbini

| Kerosene/Diesel | Electricity | Solar | Others |
|-----------------|-------------|-------|--------|
| 30 | 50 | 15 | 5 |

\Sources =District Energy Report, 2021 Rupandehi

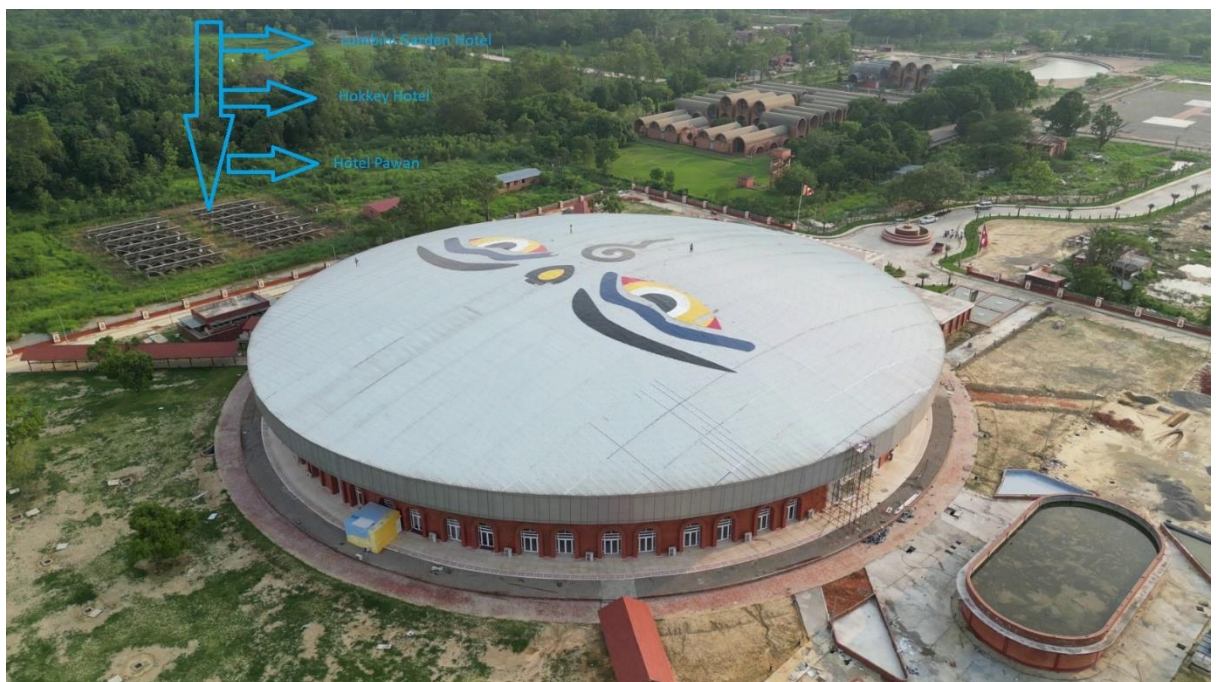
The above table shows, energy consumption pattern of Lumbini of household sector, business sector, hotel sector and others. Few decades ago, Lumbini sides hotels and residents' people were fully depend on wood -energy. Now all most hotels and travel sectors daily need energy are supplied by electricity authority and solar energy

association. Lumbini is located in terai region. So production of wind energy is became more costly, due to this cause government as well as private sector are not showing interesting to production of the wind energy. Master plan of Lumbini development trust gives more importance replace non-renewable energy by renewable energy.

With the collaboration with hotel association of Lumbini, Lumbini development trust started electricity 5 buses, 14 electricity cars and 50 electric E-rekshas carrying and receiving tourists from the international Gautam Buddha airport and nearing border sides. Lumbini Development Trust occupied 1155 Bigha hectare land for the overall development of Lumbini sides. Among 1155 bigha land, more than 60 % (777) hector land is allocated for the planation .During period birth place of Gautam Buddha, Lumbini was covered by heavy forest. In the Lumbini development Master plan, government make strategy convert Lumbini into green.

The following Google picture shows the solar energy connecting Lumbini periphery hotels

Figure 8: Google picture of solar energy generation in Lumbini



4.6.2 Attitude about the Hotels Entrepreneurs about the Renewable resources

Table 14: Hotels Entrepreneurs about the Renewable Resources

| <u>Attitudes</u> | <u>No. of entrepreneurs</u> | <u>Percentage</u> | <u>Annual income</u> |
|------------------|-----------------------------|-------------------|----------------------|
| Positive | 110 | 91.66 | 150000 |
| Natural | 10 | 8.34 | 300000 |
| Negative | 0 | 0 | |
| Total | 120 | 100 | |

Sources=Field survey, 2022 September

The above table depicts, about 90 % hotels entrepreneurs had positive attitude about the renewable resources and remaining 10 percentage entrepreneurs had neutral attitude about the renewable energy. No respondents had negative towards to use of renewable sources of energy. Although all required need of energy cannot supply from the renewable energy. The contribution of renewable energy can be increased if NOG provide 100 percentage on the renewable energy production.

4.6.3 Relationship between Energy Consumption and Tourists Arrival in Lumbini

Observation of twelve years of energy consumption pattern in the Lumbini periphery hotels and tourists' arrival data showed the positive correlation between the consumption unit of electricity and number of tourists number, which Cleary depicted by the following output data.

Table 15: Durbin-Watson test
 Dependent Variable: CONE
 Method: Least Squares
 Date: 12/06/22 Time: 20:20
 Sample: 2066 2074
 Included observations: 9

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|-----------------------|-------------|----------|
| C | 55879984 | 44971620 | 1.242561 | 0.2540 |
| NT | 161.2421 | 38.12664 | 4.229118 | 0.0039 |
| R-squared | 0.718711 | Mean dependent var | | 2.37E+08 |
| Adjusted R-squared | 0.678527 | S.D. dependent var | | 73142600 |
| S.E. of regression | 41470828 | Akaike info criterion | | 38.11201 |
| Sum squared resid | 1.20E+16 | Schwarz criterion | | 38.15584 |
| Log likelihood | -169.5040 | Hannan-Quinn criter. | | 38.01743 |
| F-statistic | 17.88544 | Durbin-Watson stat | | 2.024762 |
| Prob(F-statistic) | 0.003892 | | | |

Value of R-squared is 0.7189, which indicates that 71.87 % consumption of electricity is explained the number of tourists arrival in Lumbini.

Value of Durbin-Watson test is 2.0247, so there is no auto correlation between electricity consumption and tourist's number

This model is statistically significant because value of P value is 0.0039 which is less than 5%.

The above output table shows the positive relationship between the tourist arrival number and the consumption of electricity in the Lumbini areas, the day-to-day number of tourists are increasing in Lumbini, so private sector is also ready to invest their fund to generate energy such as electricity, solar energy and Bio-Gas energy in the Lumbini. The report of UNEP (2011) indicates that the use of renewable energy technology (RET), a tourism country could reduce poverty and reduce reliance on fossil fuels. Greenery environment of the hotels attract tourists in the country.

4.6.4 Environmental Impact

Nepal is a mountainous country. Nepal has got different climate in the different seasons. We can divide Nepal into three geographical regions i'e the Himalayas, the Hills and narrow valley, and the terai. Lumbini, which situated in the terai region is in the westerns part of Nepal. There is very hot in the summer reasons and cold in the winter reasons. Many tourists come to visit Lumbini in the winter seasons.

Many tourists visit Lumbini each and every year. Lumbini is rich or natural scene and scenery. There is vegetation in Lumbini. In order to make the greenery forests, many trees are planted. The afforested areas have attracted many birds including migratory and animals. Thus, the area has created a favorable natural environment. But they are many animals which left careless by the villagers. They make the environment bad. The animals graze here and there on the field. The animals can be seen on the road. Thus, the land is polluted. Some of the tourists come here for picnic purpose. They carry the ready-made food. They eat that food and throw the rubbish road; therefore, the surrounding becomes polluted. There are some industries around Lumbini producing smoke that make the air pollution.

To save the environment of Lumbini, people awareness program should be carried out. The people and tourists should be made aware of the importance of environment. Therefore, the conversation of the natural beauty must be published. So that environment of Lumbini should be preserved.

4.6.5 Environmental Protection Strategy in Lumbini.

Tourism sectors play the significant role to increase the economic growth of country when it improves the air quality by mitigation CO₂ emission. In the context of South Asian countries like Pakistan and Nepal, there is positive correlation ship between the improved air quality and arrivals of tourists. Government of Nepal makes the strong environmental policy for protecting the environment of Lumbini sides since Lumbini is one of the top tourist places of Nepal. However, the industries located around the periphery of Lumbini makes the environment pollution producing CO₂. Considering this as a serious problem, Nepal Government makes strong policy by imposing environment tax and these industries are to be shifted to other places within five years of time. Moreover, the cabinet has passed the bill that no industries will be established within the 18 km. of Lumbini site. In addition to that, Plantation of Tress on both sides of the main high way from Bhairahawa to Lumbini is in action for improving the condition of pollution so that number of tourists may increase in the days to come.

Section A

4.6.6 Demographic Profile

Table 16: Types of hotel

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------|-----------|---------|---------------|-----------------------|
| five-star | 9 | 8.9 | 8.9 | 8.9 |
| three-star | 6 | 5.9 | 5.9 | 14.9 |
| Valid one star | 11 | 10.9 | 10.9 | 25.7 |
| non-Star | 75 | 74.3 | 74.3 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

As shown in the Table 16, among total respondents, 75 percent of owners are involved in non-star hotel business followed by 11 percent of owners are involved in one-star hotel business, 9 percent of owners are involved in five star business and 6 percent of owners involved in three star- business. Thus, it can be inferred that majority of business owners run non star hotel business in Lumbini zone.

Table 17: Age Group of respondents

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------|-----------|---------|---------------|-----------------------|
| under 21 | 2 | 2.0 | 2.0 | 2.0 |
| 21-30 | 47 | 46.5 | 46.5 | 48.5 |
| Valid 31-40 | 41 | 40.6 | 40.6 | 89.1 |
| 41-50 | 11 | 10.9 | 10.9 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

Source: Field survey, 2022

As shown in the above Table 17 among all the respondent 46.5 percent of respondents were in the Age Group of 21-30 followed by 40.6 percent, 10.9 percent and 2.0 percent in the age group of 31-40, 41-50 and under 21 respectively. Hence, it can be inferred that majority of hotel owner belongs to younger generation.

Table 18: Gender of respondents

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------|-----------|---------|---------------|--------------------|
| Valid Male | 75 | 74.3 | 74.3 | 74.3 |
| Valid female | 26 | 25.7 | 25.7 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

Source: Field survey, 2022

As shown in the above Table 18 among total respondent 74.3 percent were male respondent and 25.7 percent were female respondent. Hence, it can be inferred that the male respondent are more engaged as an owner in hotel industry.

Table 19: Relationship Status/Marital Status

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------|-----------|---------|---------------|--------------------|
| Valid married | 58 | 57.4 | 57.4 | 57.4 |
| Valid unmarried | 43 | 42.6 | 42.6 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

Source: Field survey, 2022

As shown in the Table 19 among total respondent 57.4 percent were married respondent and 42.6 percent were unmarried respondent. Hence, it can be inferred that married and unmarried hotel owners are near about same.

Table 20: Hotel Earning

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------------------------|-----------|---------|---------------|--------------------|
| up to 5,00,000 | 28 | 27.7 | 27.7 | 27.7 |
| 5,00,000 to 10,00,000 | 30 | 29.7 | 29.7 | 57.4 |
| Valid 10,00,000 to 15,00,000 | 19 | 18.8 | 18.8 | 76.2 |
| Above 15,00,000 | 24 | 23.8 | 23.8 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

Source: Field survey, 2022

As shown in the Table 20, among total respondents, 29.7 percent were from income group of 500000 to 1000000 followed by 29.7 percent in the income group of up to 500000, 23.8 percent in the income group of 10,00000 and 18.8 percent of respondents were in the income group of 10,00000 to 1500000. Thus, it can be inferred that majority of hotel owners are in the income group of 5 to 10 lakhs.

Table 21: place of stay/Live in

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------|-----------|---------|---------------|--------------------|
| Kathmandu | 4 | 4.0 | 4.0 | 4.0 |
| Lumbini | 53 | 52.5 | 52.5 | 56.4 |
| Valid Butwal | 41 | 40.6 | 40.6 | 97.0 |
| Bhirahawa | 3 | 3.0 | 3.0 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

Source: Field survey, 2022

As shown in the Table 21, among total respondents, 52.5 percent resides in Lumbini followed by 40.6 percent resides in Butwal, 4 percent resides in Kathmandu and 3

percent resides in Bhairahawa. Thus, it can be inferred that majority of hotel owners resides in Lumbini and Butwal.

Table 22: Work Status

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------|-----------|---------|---------------|--------------------|
| Homemaker | 2 | 2.0 | 2.0 | 2.0 |
| service class | 33 | 32.7 | 32.7 | 34.7 |
| Business | 46 | 45.5 | 45.5 | 80.2 |
| self-employed | 15 | 14.9 | 14.9 | 95.0 |
| Student community | 5 | 5.0 | 5.0 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

As shown in the Table 22, among, total respondents, 45.5 percent are engaged in business sector followed by 32.7 percent engaged in service class, 14.5 percent are self-employed, 5 percent engaged in student community and 2 percent are homemakers. Thus, it is inferred that majority of respondents are engaged in business and service class.

Table 23: Income of Employees in Hotel sector

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------------|-----------|---------|---------------|--------------------|
| up to 1,00,000 | 40 | 39.6 | 39.6 | 39.6 |
| 1,00,000 to 5,00,000 | 38 | 37.6 | 37.6 | 77.2 |
| 5,00,000 to 10,00,000 | 14 | 13.9 | 13.9 | 91.1 |
| Above 10,00,000 | 9 | 8.9 | 8.9 | 100.0 |
| Total | 101 | 100.0 | 100.0 | |

As shown in the Table 23, among total respondents, 39.6 percent were having own income up to 100000 followed by 37.6 percent were having income of 100000 to 500000 13.9 percent were having income of 500000 to 1000000 and 8.9 percent of respondents were having income of above 1000000. Thus, it can be inferred that majority of hotel owners are having income from 100000 to 500000.

Section B

4.6.7 Descriptive Statistics

Most of the questions related to tourism industry are concerned with the hotel owners because hotel owners of Lumbini are more familiar with the tourists and their activities. Mean and Standard Deviation The mean and standard deviation value of different dimensions of Renewable Resources and its effect on Tourism Industry has been calculated in this section to know the response of respondents.

Table 24: Tourism Policy

| Particulars | N | Mean | Std. Deviation |
|---|-----|------|----------------|
| You are familiar with the tourism policy of Nepal. | 101 | 3.30 | 1.063 |
| Current tourism policy is favorable to promote your hotels & lodge. | 101 | 3.38 | 1.148 |
| There is any need to reform tourism policy in Nepal. | 101 | 3.68 | 1.122 |
| You are satisfied with local level tourism policy. | 101 | 2.73 | 1.272 |
| Lumbini sakirtik municipality is made any local level policy to promote tourism activities. | 101 | 2.93 | 1.235 |
| Tourism Policy | 101 | 3.27 | .669 |
| Valid N (listwise) | 101 | | |

The Table 24 depicts that the mean value of tourism policy is 3.27 which shows that the response of respondents towards tourism policy are inclined towards neutral. This means the respondent are neutral towards tourism policy. The standard deviation of tourism policy is lower than other influences variable of tourism industry because during the covid -19, hotel and lodge (Tourism industry) sector entrepreneurs did not get any subsidy /grants from Nepal government. Nepalese tourism policy is not fully favorable for hotel /tourism industry so most respondents are neutral about Nepalese tourism policy so this variable mean value is lower than other independent variables.

Sustainable Tourism

The Table 25 depicts that the mean value of sustainable tourism is 3.88 which shows that the response of respondents towards sustainable tourism are inclined towards agree. This means the respondents agree towards sustainable tourism.

Table 25: Sustainable Tourism

| Particulars | N | Mean | Std. Deviation |
|---|-----|------|----------------|
| In my view, natural resources protection & tourism can be compatible. | 101 | 3.92 | .744 |
| Researchers showed that protection of local heritage & tourism can be compatible. | 101 | 4.00 | .775 |
| Local community can be taken more benefit developing a sustainable tourism framework. | 101 | 4.07 | .908 |
| I think, there is correlation between demand for sustainable tourism in and around our MPA (marine protected Area). | 101 | 3.90 | .933 |
| I believe a demand for sustainable tourism could be developed for our MPA. | 101 | 3.77 | 1.182 |
| Sustainable Tourism | 101 | 3.88 | .511 |
| Valid N (listwise) | 101 | | |

Sustainable Site Planning and Management, The Table 26, depicts that the mean value of sustainable site planning and management is 4.08 which shows that the response of respondents towards sustainable site planning and management are inclined towards agree. This means the respondents agree towards sustainable site planning and management .In the context of Nepal MPA means restrict human activity for a conservation purpose, it is typically protect natural resources area.

Table 26: Sustainable Site Planning and Management

| Particulars | N | Mean | Std. Deviation |
|---|-----|------|----------------|
| Use of green roof to attract the tourists. | 101 | 3.79 | .973 |
| Herbs garden to increase the stay day of tourists. | 101 | 3.99 | .900 |
| Green transportation strategies to reduce expenditure on non-renewable means of vehicles. | 101 | 3.97 | 1.024 |
| Use of green materials for building envelopes to be unique. | 101 | 3.87 | .956 |
| Making greenery garden by hotel owner can attract more tourists in his hotel than his competitive partner's hotels. | 101 | 4.21 | .828 |
| Sustainable site Planning and Management | 101 | 4.08 | .426 |
| Valid N (listwise) | 101 | | |

Use of Renewable resources

The Table 27, depicts that the mean value of use of renewable resources is 4.16 which shows that the response of respondents towards use of renewable resources are inclined towards agree. This means the respondents agree towards use of renewable resources.

Table 27: Use of Renewable resources

| Particulars | N | Mean | Std. Deviation |
|--|-----|------|----------------|
| Renewable resources are used better lighting quality. | 101 | 4.27 | .706 |
| It helps to economic saving. | 101 | 4.31 | .674 |
| It helps to environmental preservation. | 101 | 4.35 | .699 |
| It helps to increase attraction for tourists. | 101 | 4.36 | .701 |
| It helps to increase awareness of importance of renewable resources. | 101 | 4.38 | .719 |
| Use of Renewable Energy | 101 | 4.16 | .523 |
| Valid N (listwise) | 101 | | |

Green Products and Materials

The Table 28, depicts that the mean value of green products and materials is 3.97 which shows that the response of respondents towards green products and materials are inclined towards agree. This means the respondents agree towards green products and materials.

Table 28: Green products and Materials

| Particulars | N | Mean | Std. Deviation |
|---|-----|------|----------------|
| Use recycled materials and product help to use wastage commodities. | 101 | 4.00 | .800 |
| Use local product from the community, save the traditional skill & art. | 101 | 4.27 | .835 |
| Buy products from green vendor, increase the total revenue of a company. | 101 | 3.90 | .781 |
| Used green chemical products, increase the productivity of cultivated land. | 101 | 4.03 | .877 |
| Green product consumption pattern slowly rising in this locality. | 101 | 3.94 | .822 |
| Green Product and Materials | 101 | 3.97 | .513 |
| Valid N (listwise) | 101 | | |

Employment

The Table 29 depicts that the mean value of employment is 3.98 which shows that the response of respondents towards employment are inclined towards Agree. This means the respondent are agree towards employment.

Table 29: Employment

| Particulars | N | Mean | Std. Deviation |
|---|-----|------|----------------|
| Establishing start hotels help to increase employment opportunities in Lumbini. | 101 | 4.15 | .817 |
| Establishing non-start hotels also help to increase job opportunity. | 101 | 4.08 | .924 |
| Now, home stay concept also helps the creation in employment opportunities in special village areas. | 101 | 4.20 | .837 |
| Travel agency is playing effective role to generate job opportunities for skilled and unskilled manpower. | 101 | 4.01 | .889 |
| Many workers are dependent on tourists' transportation agency. | 101 | 3.88 | .983 |
| Employment | 101 | 3.98 | .524 |
| Valid N (listwise) | 101 | | |

Green Infrastructure

The Table 30, depicts that the mean value of green infrastructure is 3.85 which shows that the response of respondents towards green infrastructure are inclined toward agree. This means the respondents agree towards green infrastructure. For this, Dietz et al.(2012) argued that use green materials, sustainable site management, green infrastructure, renewable energy, hotels industry can be reduce greenhouse gas emission.

Table 30: Green Infrastructure

| Particulars | N | Mean | Std. Deviation |
|---|-----|------|----------------|
| I think GI has the potential to enhance the increase the tourism activities in your city. | 101 | 3.57 | 1.126 |
| Urban citizens' is GI help to tourist's flow spending time in green spaces | 101 | 3.65 | 1.108 |
| I would support policies in favor of the environment, even if that means higher taxes, etc. | 101 | 3.59 | 1.051 |
| In rising temperatures, replacing grey infrastructure with green infrastructure can lower temperatures and minimize the risk of heat exhaustion. | 101 | 3.82 | 1.090 |
| Green infrastructure can help mitigate the effects of climate change, such as flooding, storm surges, and sea-level rise, by increasing tolerance to environmental disasters. | 101 | 3.94 | 1.018 |
| Green Infrastructure | 101 | 3.85 | .526 |
| Valid N (list wise) | 101 | | |

Investment Factor

The Table 31, depicts that the mean value of investment factor is 3.57 which shows that the response of respondents towards investment factor are inclined towards agree. This means the respondents agree towards investment factor.

Table 31: Investment factor

| Particular | N | Mean | Std. Deviation |
|--|-----|------|----------------|
| The investment in the infrastructure development is not enough in Nepal to up lift tourism industry. | 101 | 3.69 | 1.362 |
| There should be investment on human being for awareness about the significance of tourism industry. | 101 | 3.69 | 1.206 |
| Nepal government should allocate additional capital to preserve local cultural program, skill etc. | 101 | 3.66 | 1.395 |
| INGO and NGO sectors 'investment in tourism activities is sufficient in Lumbini. | 101 | 3.29 | 1.438 |
| This year allocated budget on tourism department is enough to Lumbini area. | 101 | 3.49 | 1.309 |
| Investment Factors | 101 | 3.57 | .586 |
| Valid N (listwise) | 101 | | |

Tourism Industry

The Table 32, depicts that the mean value of tourism industry is 4.20 which shows that the response of respondents towards tourism industry are inclined towards agree. This means the respondent are agree towards Tourism Industry.

Table 32: Tourism Industry

| Particulars | N | Mean | Std. Deviation |
|--|-----|------|----------------|
| The tourism industry helps to increase to GDP of Nepal. | 101 | 4.41 | .737 |
| This industry helps to reduce inequality in Nepalese society. | 101 | 4.00 | .800 |
| Tourism industry is helping to protect handicrafts in Nepal. | 101 | 4.16 | .784 |
| Tourism industry is emerging service industry in Nepal. | 101 | 4.19 | .758 |
| Tourism industry is become more powerful especially to generate additional economic benefit to tourist's areas like Lumbini. | 101 | 4.17 | .813 |
| Tourism Industry | 101 | 4.20 | .449 |
| Valid N (list wise) | 101 | | |

4.6.8 Reliability

Table 33: Reliability

| S.No | Variables | Cronbach Alpha |
|------|--|----------------|
| 1 | Tourism Industry | .838 |
| 2 | Tourism Policy | .815 |
| 3 | Sustainable Tourism | .818 |
| 4 | Sustainable site Planning and Management | .838 |
| 5 | Use of Renewable Energy | .811 |
| 6 | Green Product and Materials | .837 |
| 7 | Employment | .858 |
| 8 | Green Infrastructure | .895 |
| 9 | Perception of Tourists about the Renewable Resources | .887 |
| 10 | Investment Factors | .901 |

From the Table 33, it is found that the value of Cronbach Alpha for tourism industry, tourism policy, sustainable tourism, sustainable site planning and management, use of renewable energy, green product and materials, employment, green infrastructure,

perception of tourists about the renewable resources and investment factors are .838, .815, .818, .838, .811, .837, .858, .895, .887 and .901 respectively which indicates that the cronbach alpha value for different variable is greater than 80 percent. Thus, it can be inferred that research instrument i.e. questionnaire is reliable.

Table 34: How much do you spend on renewable energy in a month?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------------|-----------|---------|---------------|--------------------|
| Valid | less than 5000 | 33 | 32.7 | 32.7 | 32.7 |
| | less than 10000 | 38 | 37.6 | 37.6 | 70.3 |
| | less than 15000 | 9 | 8.9 | 8.9 | 79.2 |
| | More than 15000 | 21 | 20.8 | 20.8 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 34, among total respondent 37.6 percent of respondents spend less than 10000 followed by 32.7 percent spend less than 5000, 20.8 percent spend less more than 15000 and 8.9 percent spend less than. Thus, it is inferred that majority of respondents spend less than 10000 on renewable energy in a month.

Table 35: When did you start the use renewable resources at your hotel?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------|-----------|---------|---------------|--------------------|
| Valid | for 10 years | 10 | 9.9 | 9.9 | 9.9 |
| | for 5 years | 61 | 60.4 | 60.4 | 71.0 |
| | for 1 years | 16 | 15.8 | 15.8 | 87.0 |
| | for 6 months | 14 | 13.9 | 13.9 | 100.0 |
| Total | | 101 | 100.0 | | |

As shown in the Table 35, among total respondents, 60.4 percent of respondents use renewable resources for 5 years followed by 15.8 percent use renewable resources for

one year 13.9 percent of respondents use renewable resources for 6 months and 9.9 percent of respondents use renewable resources for 10 years. Thus, it is inferred that majority of respondents use renewable resources at their hotel for 5 years.

Table 36: Tourists visit Lumbini for pilgrim purpose

In your opinion, how much percentage tourists visit Lumbini for pilgrim purpose?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------|-----------|---------|---------------|--------------------|
| Valid | more than 90% | 18 | 17.8 | 17.8 | 17.8 |
| | more than 50% | 49 | 48.5 | 48.5 | 66.3 |
| | more than 25% | 20 | 19.8 | 19.8 | 86.1 |
| | less than 25% | 14 | 13.9 | 13.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 36, among total respondents, 48.5 percent of respondents stated that more than 50 percent of tourists visit Lumbini for pilgrim purpose followed by 19.8 percent, 17.8 percent and 13.9 percent of respondents stated that more than 25 percent, more than 90 percent and less than 25 percent of tourist respectively visit Lumbini for pilgrim purpose. Thus, it is inferred that majority of respondents stated that more than 50 percent of tourist visit Lumbini for pilgrim purpose.

Table 37: Number of Workers in Lumbini Hotels

How many workers are working at your hotel?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|----------------|-----------|---------|---------------|--------------------|
| Valid | More than10000 | 3 | 3.0 | 3.0 | 3.0 |
| | more than 500 | 4 | 4.0 | 4.0 | 6.9 |
| | 100 to 500 | 12 | 11.9 | 11.9 | 18.8 |
| | less than 100 | 82 | 81.2 | 81.2 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 37, among total respondents, 81.2 percent of respondents stated that less than 100 workers are working in our hotel followed by 11.9 percent stated that 100 to 500 workers are working in our hotel. Likewise, 4.0 percent of hotel owners stated that more than 500 workers are working in our hotel. Moreover, 3.0 percent stated that more than 10000 workers are working in our hotels. Thus, it is inferred that majority of respondents stated that less than 100 workers are working in our hotels

Table 38: Types of Renewable Energy in Lumbini

What types of renewable energy do you use in your hotel?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------------|-----------|---------|---------------|--------------------|
| Valid | Electricity | 63 | 62.4 | 62.4 | 62.4 |
| | Solar | 37 | 36.6 | 36.6 | 99.0 |
| | wind energy | 1 | 1.0 | 1.0 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 38, among total respondents, 62.4 percent of respondents stated that they use electricity in their hotel followed by 36.6 percent stated that they use solar energy and 1 percent stated that they use wind energy in their hotel. Thus, it is inferred that majority of respondents stated that they use electricity in their hotel in the form of renewable energy.

Table 39: Grant on Lumbini in Renewable energy

Did you get any subsidy to join renewable energy?

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Valid | Always | 9 | 8.9 | 8.9 |
| | Never | 56 | 55.4 | 64.4 |
| | Sometimes | 34 | 33.7 | 98.0 |
| | Usually | 2 | 2.0 | 100.0 |
| | Total | 101 | 100.0 | 100.0 |

As shown in the Table 39, among total respondent 55.4 percent of respondents stated that they never get subsidy to join renewable energy in their hotel followed by 33.7 percent stated that they get subsidy sometime. Likewise, 8.9 percent stated that they get subsidy always. Moreover, 2.0 percent stated that they get subsidy usually to join renewable energy in their hotel. Thus, it is inferred that majority of respondents stated that they never get subsidy to join renewable energy in their hotel.

Table 40: Cost Reduction

Has the use of renewable resources reduced your cost than the use of non-renewable resources?

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------|---------|---------------|--------------------|
| Valid | Yes | 38 | 37.6 | 37.6 |
| | No | 10 | 9.9 | 47.5 |
| | somehow | 38 | 37.6 | 85.1 |
| | I don't know | 15 | 14.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 |

As shown in the Table 40, among total respondent 37.6 percent of respondents said yes and somehow regarding role of use of renewable resources in reducing your cost than

the use of non-renewable resources. Likewise, 14.9 percent of respondents stated that they don't know about the role of use of renewable resources in reducing your cost than the use of non-renewable resources. Thus, it is inferred that majority of respondents agreed the role of use of renewable resources in reducing your cost than the use of non-renewable resources. The view of Kongbuamai et al.,(2020) have presented the suitable role of hotel industry and environmental quality .Using renewable resources ,hotels industry could be protect its surrounding environmental friendly. Micro –level studied of ASEAN countries from 1995 to2020 showed that the impact of natural resources, NI, tourism and energy use, natural resources can be utilized properly to improve air quality. Finally renewable resources help to reduce the operating expenditure on hotels fuel expenditure heading.

Table 41: Use of Renewable Resources helps tourist arrivals in Lumbini

Does the use of renewable resources increase the flow of tourists in your view?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------|-----------|---------|---------------|--------------------|
| Valid | Yes | 56 | 55.4 | 55.4 | 55.4 |
| | No | 9 | 8.9 | 8.9 | 64.4 |
| | somehow | 20 | 19.8 | 19.8 | 84.2 |
| | I don't know | 16 | 15.8 | 15.8 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 41, among total respondent 55.4 percent of respondents agreed that the use of renewable resources increase the flow of tourists. Thus, it is inferred that majority of respondents agreed that the use of renewable resources increase the flow of tourist. In Lumbini, The star hotel owners used renewable energy on their hotel and all most respondents argued that using renewable energy helps tourists increasing in number. Yet, non-star hotel owners/entrepreneurs are unable to join the advance renewable energy, so, the attraction in non-star hotels of tourists is lower than star hotels. In addition that to the renewable energy resources depend on where the tourist

attraction is located. For example, biomass and wind energy in a rural hotel could be good choices, whereas solar energy in a city hotel could be used karabuga et al(.2015).

Table 41: Sufficient renewable in your locality

Do you find sufficient renewable in your locality?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 23 | 22.8 | 22.8 | 22.8 |
| | No | 52 | 51.5 | 51.5 | 74.3 |
| | somehow | 18 | 17.8 | 17.8 | 92.1 |
| | can't say | 8 | 7.9 | 7.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 41, among total respondent, more than 50% (51.5) percent of respondents disagreed that there is sufficient renewal energy in their locality. Thus, it is inferred that majority of respondents believe the renewable energy in their locality is not sufficient.

Table 42: Renewable energy generation in Lumbini

Could you make plan to producing renewable resources in your hotel?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 59 | 58.4 | 58.4 | 58.4 |
| | No | 19 | 8.9 | 8.9 | 67.3 |
| | somehow | 18 | 17.8 | 17.8 | 85.1 |
| | can't say | 15 | 14.9 | 14.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 42, among total respondents, 58.4 percent of respondents agreed that they can make plan to producing renewable resources in their hotel. Thus, it is

inferred that majority of respondents agreed that they are aware of producing and using renewable resource in the hotel.

Table 43: Consumption of non-renewable in Lumbini

Will you replace non-renewable resources by renewable resources at your hotel?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 53 | 52.5 | 52.5 | 52.5 |
| | No | 10 | 9.9 | 9.9 | 62.4 |
| | somehow | 26 | 25.7 | 25.7 | 88.1 |
| | can't say | 12 | 11.9 | 11.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 43, among total respondents, 52.5 percent of respondents agreed that they are willing to replace the non-renewable resources by renewable resources in their hotel whereas only minority that is 9.9 percent want to stick with the traditional non-renewable energy.

Table 44: Renewable helps to protect Environment

Do you believe renewable resources help to protect your surrounding environment?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 84 | 83.2 | 83.2 | 83.2 |
| | No | 3 | 3.0 | 3.0 | 86.1 |
| | Somehow | 7 | 6.9 | 6.9 | 93.1 |
| | can't say | 7 | 6.9 | 6.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in The table 44, among total respondents, maximum respondents (83.2%) believe that renewable resources will help to protect the surrounding environment. This indicates that majority of population are aware of positive impact of renewable resources on surrounding environment.

Table 45: Private sector perception investment in Lumbini

Are private sector entrepreneurs interesting to invest capital to generate renewable energy in your locality?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 29 | 28.7 | 28.7 | 28.7 |
| | No | 27 | 26.7 | 26.7 | 55.4 |
| | Somehow | 33 | 32.7 | 32.7 | 88.1 |
| | can't say | 12 | 11.9 | 11.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

From the Table 45, it can be seen that there is a mix response of respondents regarding interest of private sector entrepreneurs to invest capital to generate renewable energy in the locality. 28.7 percent are willing to invest in renewable energy whereas 26.7 percent have no interest at all and 32.7 percent are in dilemma.

Table 46: Renewable resources help to increase tourists flow in Lumbini

Are you sure using renewable resources help to increase tourists flow in Lumbini?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 59 | 58.4 | 58.4 | 58.4 |
| | No | 5 | 5.0 | 5.0 | 63.4 |
| | Somehow | 27 | 26.7 | 26.7 | 90.1 |
| | can't say | 10 | 9.9 | 9.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

As shown in the Table 46, among total respondents, maximum respondents (58.4%) believe that renewable resources will help to increase tourists flow in Lumbini. This indicates that majority of population have positive view regarding using renewable resources to increase tourism in Lumbini.

Table 47: Local government contribution on renewable resources

Did you get grant to increase tourism activities from local government?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 34 | 33.7 | 33.7 | 33.7 |
| | No | 42 | 41.6 | 41.6 | 75.2 |
| | Somehow | 17 | 16.8 | 16.8 | 92.1 |
| | can't say | 8 | 7.9 | 7.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

From the Table 47, it can be seen that 41.6 percent of respondents believe that local government are not providing grants for increasing the tourism activities whereas 33.7 percent of respondents believe that the local government are providing grants and rest are not sure. This infers that the local government is passive in providing grants to promote tourism activities.

Table 48: Perception on renewable resources of Local body

Is local government serious to protect Lumbini community forest?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Yes | 20 | 19.8 | 19.8 | 19.8 |
| | No | 46 | 45.5 | 45.5 | 65.3 |
| | Somehow | 27 | 26.7 | 26.7 | 92.1 |
| | can't say | 8 | 7.9 | 7.9 | 100.0 |
| | Total | 101 | 100.0 | 100.0 | |

From the above Table 48, the majority of respondents (45.5 percent) are sure that the local government involvement in protecting Lumbini community forest is very weak whereas only 19.8 percent respondents believe that the local government have active participation in protecting community forest of Lumbini.

4.8.9 Correlation Analysis

The table of correlation matrix explains correlation coefficients between dependent and independent variables. Correlation coefficient could range between -1.00 and +1.00. An increase in one variable increases another variable then it is called direct or positive correlation. If increase in one variable decreases another variable then it is called indirect or negative correlation. A correlation of 0.0 is an indication of the absence of a linear association between two variables. 1.00 means that there is a perfect linear relation and that the two variables change or vary in the same way. -1.00 means that there is perfect linear negative correlation (Pant, 2016).

From the table no. 4.9.1, the p-value of sustainable tourism, sustainable planning, renewable energy, green product and materials, green infrastructure, perception of tourists about renewable resources with regard to tourism industry are less than 0.01. This infers that there is a significant relationship between these variables and tourism industry at one percent level of significance. The value of correlation coefficients between tourism industry and independent variables sustainable tourism, sustainable planning, renewable energy, green product and materials, green infrastructure, perception of tourists about renewable resources are 0.469, 0.311, 0.422, 0.295, 0.347 respectively. This statistics indicates that there is moderate uphill relationship of sustainable tourism and renewable energy with tourism industry, whereas there is weak uphill relationship of sustainable planning, green product and materials, green infrastructure and perception of tourists about renewable resources with tourism industry.

However, the p-value of tourism policy and investment factor with regard to tourism industry are more than 0.05 which infers that there is no significant relationship of tourism policy and investment factor with tourism industry.

Table 49: Correlation Analysis

| | Tourism Policy | Sustainable Tourism | Sustainable Planning | Renewable Energy | Green Product and Materials | Investment Factors | Perception of Tourists | Tourism Industry | Employment |
|-----------------------------|----------------|---------------------|----------------------|------------------|-----------------------------|--------------------|------------------------|------------------|------------|
| Tourism Policy | 1 | .305** | .444** | .317** | .185 | .195 | .404** | .104 | .296** |
| Sustainable Tourism | | 1 | .457** | .530** | .489** | .328** | .442** | .375** | .260** |
| Sustainable Planning | | | 1 | .348** | .448** | .194 | .326** | .469** | .331** |
| Renewable Energy | | | | 1 | .482** | .206* | .302** | .311** | .370** |
| Green Product and Materials | | | | | 1 | .151 | .298** | .422** | .468** |
| Green Infrastructure | | | | | | .267** | .471** | .295** | .494** |
| Investment Factors | | | | | | 1 | .307** | .099 | .050 |
| Perception of Tourists | | | | | | | 1 | .347** | .389** |
| Tourism Industry | | | | | | | | 1 | .287** |
| Employment | | | | | | | | | 1 |

** Correlation is significant at the 0.01 level (2-tailed).

Similarly, the p-value of tourism policy, sustainable tourism, sustainable planning, renewable energy, green product and materials, green infrastructure, perception of tourists about renewable resources with regard to employment are less than 0.01. This infers that there is a significant relationship between these variables and employment at one percent level of significance. The value of correlation coefficients between employment and independent variables tourism policy, sustainable tourism, sustainable planning, renewable energy, green product and materials, green infrastructure, perception of tourists about renewable resources are 0.296, 0.260, 0.331, 0.370, 0.468, 0.494, 0.389 and 0.287 respectively. This statistics indicates that there is moderate uphill relationship of green product and materials and green infrastructure with employment, whereas there is weak uphill relationship of tourism policy, sustainable tourism, sustainable planning, and perception of tourists about renewable resources with employment.

However, the p-value of investment factor with regard to employment is more than 0.05 which infers that there is no significant relationship of investment factor with employment. Highlighting the importance, Renewable energy sources offer a low level of GHG emission and are abundantly available globally (IPCC, 2014) .

4.6.10 Multiple Regression Analysis of Tourism Industry

Dependent variable : Tourism Industry (Y)

Independent variables :

1. Tourism Policy (X₁)
2. Sustainable Tourism (X₂)
3. Sustainable site Planning and Management (X₃)
4. Renewable Energy (X₄)
5. Green Product and Materials (X₅)
6. Green Infrastructure (X₆)
7. Investment Factors (X₇)

R Square value : .307
 F value : 5.898
 P value : <0.001**

Table 50: Multiple Regression Analysis of Tourism Industry

| Variables in the Multiple Regression Analysis of Tourism Industry | | | | | |
|---|---------------------------------|---------|----------------------------------|---------|---------|
| Variables | Unstandardized co-efficient (B) | SE of B | Standardized co-efficient (Beta) | t value | P value |
| Constant | 1.647 | .451 | | 3.647 | .000 |
| Tourism Policy | .104 | .067 | .154 | 1.554 | .124 |
| Sustainable Tourism | .116 | .106 | .131 | 1.089 | .279 |
| Sustainable site Planning and Management | .395 | .116 | .374 | 3.398 | .001 |
| Renewable Energy | .068 | .094 | .079 | .718 | .475 |
| Green Product and Materials | .165 | .096 | .188 | 1.722 | .088 |
| Green Infrastructure | .006 | .094 | .007 | .062 | .951 |
| Investment Factors | .023 | .071 | .030 | .320 | .749 |

The multiple regression equation is

$$Y = 1.647 + 0.104 X_1 + 0.116 X_2 + 0.395 X_3 + 0.068 X_4 + 0.165 X_5 + 0.006 X_6 + 0.023 X_7 \quad \text{Equ}^n$$

.....(1)

From the regression analysis, the f-value is found to be 5.898 with p-value <0.001 which infers that the regression model is significant at one percent level of significant. The value of coefficient of determination (R^2) is 0.307 which depicts that 30.7 percent variation in dependent variable is explained by tourism policy, sustainable site planning and Management, renewable energy, green product and materials, green infrastructure, perception of tourists about renewable resources and investment factors. Rest 69.3 percent are explained by other factors.

Further, from the Table 50, it is identified that unstandardized beta coefficients of tourism policy is 0.104 which infers that 1 unit change in tourism policy will cause 0.104 unit change in tourism industry keeping other variables constant. Likewise, unstandardized beta coefficients of sustainable site planning and management,

renewable energy, green product and materials, green infrastructure, perception of tourists about the renewable resources and investment factors are 0.116, 0.395, 0.068, 0.165, 0.006 and 0.023 respectively. These data indicates every unit change in the respective variables will cause the tourism industry to change by 0.116, 0.395, 0.068, 0.165, 0.006 and 0.023 keeping other variables constant. Moreover, the standardized beta coefficient of sustainable site planning and management is 0.374 which is greater than the standardized beta coefficient of other variables which indicates that sustainable site planning and management has high effect on tourism industry compared to other variables .In the EU, 8% of all energy consumption is derived from renewable sources, with a 2020 goal of 20%. The EU has access to more than one-third of the world's renewable energy capacity, giving hotels a competitive advantage. EU supply the renewable energy specially hotels and tourism industry setor. The Energy Department of the United States reports that RE supplied 12% of energy out of total demand, 5% of the electricity used has come from solar and wind energy, and 7% from hydroelectric plants.(SSTDI,2013)

4.6.11 Multiple Regression Analysis of Employment

Dependent variable : Employment (Y)

Independent variables :

1. Tourism Policy (X_1)
2. Sustainable Tourism (X_2)
3. Sustainable site Planning and Management (X_3)
4. Renewable Energy (X_4)
5. Green Product and Materials (X_5)
6. Green Infrastructure (X_6)
7. Investment Factors (X_7)

R Square value : .388

F value : 8.426

P value : <0.001**

Table 51: Multiple Regression Analysis of Tourism Industry

Variables in the Multiple Regression Analysis of Employment

| Variables | Unstandardized co-efficient (B) | SE of B | Standardized co-efficient (Beta) | t value | P value |
|---|---------------------------------------|------------|--|---------|------------|
| Constant | 1.304 | .495 | | 2.634 | .010 |
| Tourism Policy | .138 | .073 | .176 | 1.891 | .062 |
| Sustainable Tourism | .220 | .116 | .214 | 1.888 | .062 |
| Sustainable site Planning and Management | .015 | .127 | .013 | .121 | .904 |
| Renewable Energy | .107 | .103 | .107 | 1.033 | .304 |
| Green Product and Materials | .332 | .105 | .325 | 3.174 | .002 |
| Green Infrastructure | .404 | .104 | .406 | 3.901 | .000 |
| Investment Factors | .086 | .078 | .096 | 1.105 | .272 |

The multiple regression equation is

$$Y = 1.304 + 0.138 X_1 + 0.220 X_2 + 0.015 X_3 + 0.107 X_4 + 0.332 X_5 + 0.404 X_6 + 0.086 X_7$$

Equⁿ.....(2)

From the regression analysis, the f-value is found to be 8.426 with p-value <0.001 which infers that the regression model is significant at one percent level of significance. The value of coefficient of determination (R^2) is 0.388 which depicts that 38.8 percent variation in employment is explained by tourism policy, sustainable site planning and Management, renewable energy, green product and materials, green infrastructure, perception of tourists about renewable resources and investment factors. Rest 61.2 percent are explained by other factors.

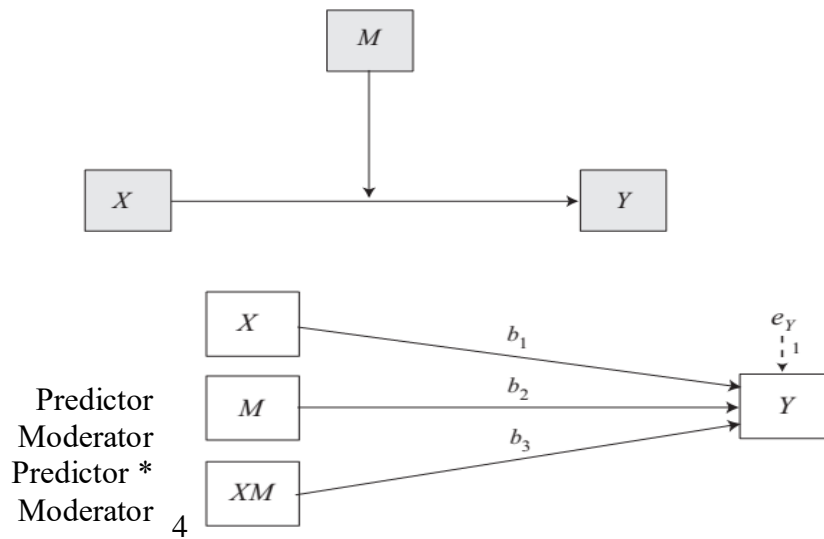
Further, from the Table 51, it is identified that unstandardized beta coefficients of tourism policy is 0.138 which infers that 1 unit change in tourism policy will cause

0.138-unit change in employment keeping other variables constant. Likewise, unstandardized beta coefficients of sustainable site planning and management, renewable energy, green product and materials, green infrastructure, perception of tourists about the renewable resources and investment factors are 0.220, 0.015, 0.107, 0.332, 0.404 and 0.086 respectively. These data indicate every unit change in the respective variables will cause the employment to change by 0.220, 0.015, 0.107, 0.332, 0.404 and 0.086 keeping other variables constant. Moreover, the standardized beta coefficient of green infrastructure is 0.406 which is greater than the standardized beta coefficient of other variables which indicates that green infrastructure has high effect on employment compared to other variables. In this issue, when Annapurna periphery hotels owner started use renewable energy and green material, rapidly tourist arrival rate was increased by more than 15 percentage per years. Authors themselves stayed more than 180 days on Annapurna Himalayan side ,final they found that who use renewable energy on their hotels ,they save more than 10 percentage capital than non-renewable energy Nepal(2008)

4.6.12 Moderation

A moderator is a variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable. In the figure below, the effect of X on Y can be said to be moderated if its strength or direction is dependent on some third variable M.

Figure 9 : Moderation



Interaction Effect model

$$Y = a + b_1X + b_2M + b_3XM + e \dots \dots \dots equ^n(3)$$

The moderator hypothesis is supported if the interaction (Path b_3) is significant.

(Source: Baron and Kenny, 1986)

Table 52: Moderating effect of Perception of Tourists about the Renewable Resources
 Moderating effect of Perception of Tourists about the Renewable Resources in the
 relation between tourism policy and tourism industry

OUTCOME VARIABLE:
Total_TI

Model Summary

| R | R-sq | MSE | F | df1 | s df2 | p |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .3536 | .1250 | .1822 | 4.6190 | 3.0000 | 97.0000 | .0046 |

Model

| | coeff | Se | T | p |
|-----------------|---------------|---------------|---------------|--------------|
| Constant | 1.9169 | 1.8304 | 1.0473 | .2976 |
| Total_TP | .3031 | .5740 | .5281 | .5987 |
| Total_PT | .6023 | .4693 | 1.2835 | .2024 |
| Int_1 | -.0841 | .1443 | -.5829 | .5613 |

Product terms key:

Int_1 : Total_TP x Total_PT

From the Table 52, it is found that the interaction term Int_1 has the p-value 0.5613, which infers that perception of tourists about the renewable resources has no any moderation effect in the relationship between tourism policy and tourism industry.

Table 53: Moderating effect of Perception of Tourists about the Renewable Resources in the relation between Sustainable tourism and tourism industry.

OUTCOME VARIABLE:

Total_TI

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .4724 | .2232 | .1618 | 9.2897 | 3.0000 | 97.0000 | .0000 |

Model

| | coeff | Se | t | p |
|-----------------|----------------|---------------|----------------|--------------|
| Constant | -2.5076 | 2.2015 | -1.1391 | .2575 |
| Total_ST | 1.5189 | .5670 | 2.6790 | .0087 |
| Total_PT | 1.4810 | .5668 | 2.6130 | .0104 |
| Int_1 | -.3267 | .1434 | -2.2784 | .0249 |

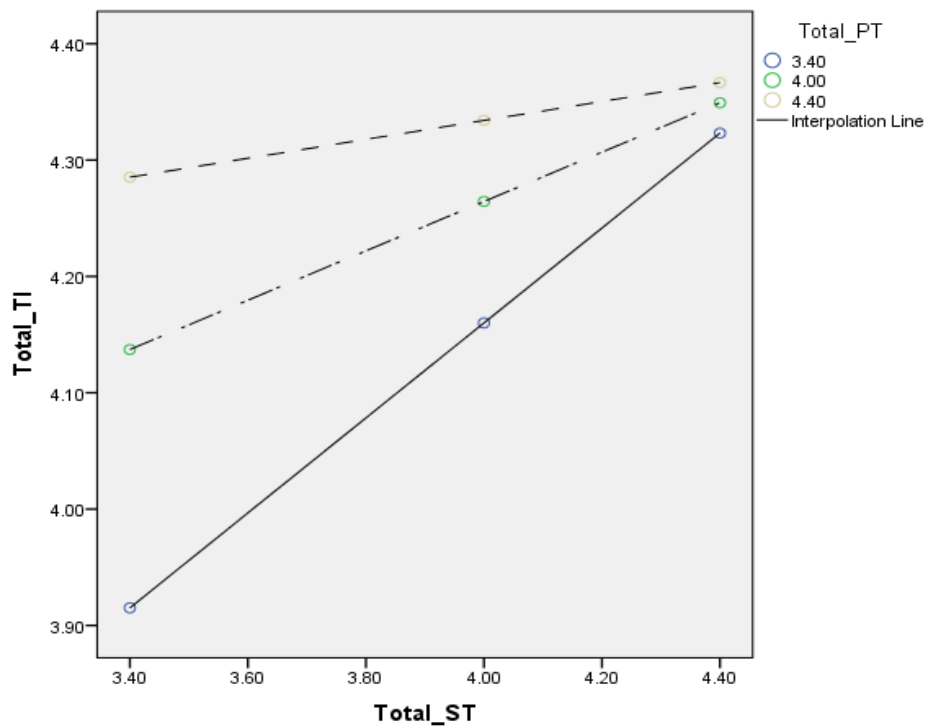
Product terms key:

Int_1 : Total_ST x Total_PT

From the above Table 53, it is found that the interaction term Int_1 has the p-value 0.0249, which is less than 0.05. This infers that Perception of Tourists about the Renewable Resources has significant moderation effect in the relationship between sustainable tourism and tourism industry.

Figure 10: Moderating effect of Perception of Tourists about the Renewable Resources

Illustration of moderating effect of Perception of Tourists about the Renewable Resources in the relation between Sustainable tourism and tourism industry.



From the above figure 10, it can be noted that there is a significant difference in the strength of relationship between sustainable tourism and tourism industry for different state (low, medium and high) of Perception of Tourists about the Renewable Resources. When the state of moderating variable is low, there is a significant positive increase in the strength of relationship between sustainable tourism and tourism industry. Similarly, when the state of moderating variable is medium and high the effect is positive as well. However, the strength of effect is less as compared to the state of moderating variable when it is low. These statistics shows that when the perception of tourists about These statistics shows that when the perception of tourists about renewable energy is low, medium and high, the effect of sustainable tourism on tourism industry is positive. However, the difference in strength of effect is very high when sustainable tourism is low and almost no difference in the effect when sustainable tourism is high.

Table 54: Renewable Resources in the relation between Sustainable site planning and management and tourism industry.

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between Sustainable site planning and management and tourism industry.

OUTCOME VARIABLE:

Total_TI

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|----------------|---------------|----------------|--------------|
| .5473 | .2995 | .1459 | 13.8231 | 3.0000 | 97.0000 | .0000 |

Model

| | coeff | Se | t | p |
|-----------------|----------------|---------------|----------------|--------------|
| Constant | -4.1767 | 2.6088 | -1.6010 | .1126 |
| Total_PM | 1.8699 | .6430 | 2.9081 | .0045 |
| Total_PT | 1.7008 | .6636 | 2.5630 | .0119 |
| Int_1 | -.3692 | .1619 | -2.2801 | .0248 |

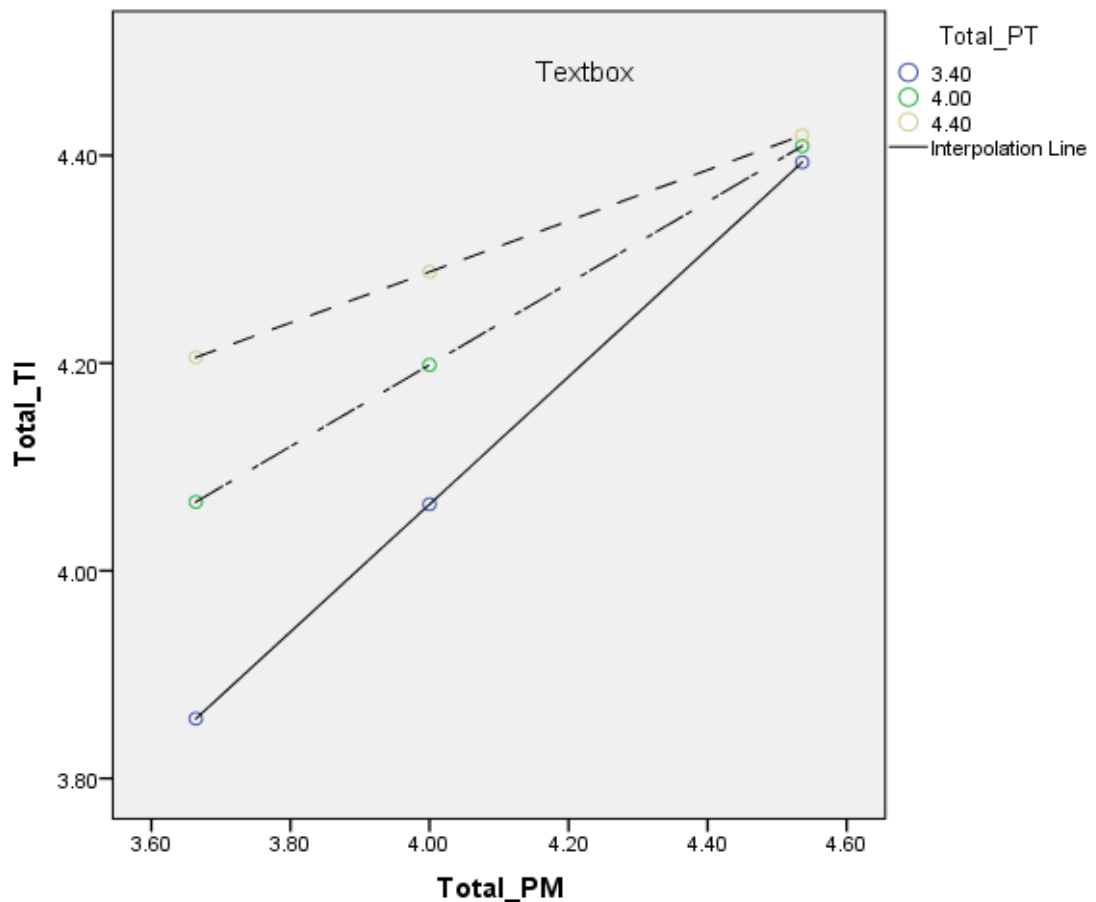
Product terms key:

Int_1 : Total_PM x Total_PT

From the above table, it is found that the interaction term Int_1 has the p-value 0.0248, which is less than 0.05. This infers that Perception of Tourists about the Renewable Resources has significant moderation effect in the relationship between sustainable site planning and management and tourism industry. Danshi and Wang (2018) argued that sustainable and sustainable site management tourism is improving the air quality in the tourism countries.

Figure 11: Moderation effect of sustainable site planning and management and tourism industry

Illustration of Moderating effect of Perception of Tourists about the Renewable Resources in the relation between Sustainable site planning and management and tourism industry.



From the above figure 11, it can be noted that there is a significant difference in the strength of relationship between sustainable site planning and management and tourism industry for different state (low, medium and high) of Perception of Tourists about the Renewable Resources. When the state of moderating variable is low, there is a significant positive increase in the strength of relationship between sustainable site planning and management and tourism industry. Similarly, when the state of moderating variable is medium and high the effect is positive as well. However, the strength of effect is less as compared to the state of moderating variable when it is low. These statistics shows that when the perception of tourists about renewable energy is low, medium and high, the effect of sustainable site planning and management on tourism industry is positive. However, the difference in strength of effect is very high

when sustainable site planning and management is low and almost no difference in the effect when sustainable site planning and management is high.

Table 55: Moderation effect of renewable resources in the relation between use of renewable energy and tourism industry

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between use of renewable energy and tourism industry.

OUTCOME VARIABLE:

Total_TI

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .4268 | .1821 | .1703 | 7.2003 | 3.0000 | 97.0000 | .0002 |

Model

| | coeff | Se | T | p |
|-----------------|----------------|---------------|----------------|--------------|
| Constant | -1.1080 | 2.6543 | -.4174 | .6773 |
| Total_RE | 1.0359 | .6390 | 1.6212 | .1082 |
| Total_PT | 1.1390 | .6719 | 1.6952 | .0933 |
| Int_1 | -.2125 | .1602 | -1.3265 | .1878 |

Product terms key:

Int_1 : Total_RE x Total_PT

From the above Table 55, it is found that the interaction term Int_1 has the p-value 0.1878, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between renewable energy and tourism industry.

Table 56: Moderating effect of Perception of Tourists about the Renewable Resources in the relation between green products and materials and tourism industry.

OUTCOME VARIABLE:

Total_TI

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|----------------|---------------|----------------|--------------|
| .4883 | .2385 | .1586 | 10.1247 | 3.0000 | 97.0000 | .0000 |

Model

| | Coeff | Se | t | p |
|-----------------|---------------|---------------|---------------|--------------|
| Constant | -.0546 | 2.3228 | -.0235 | .9813 |
| Total_GP | .8529 | .5874 | 1.4520 | .1497 |
| Total_PT | .7745 | .5933 | 1.3055 | .1948 |
| Int_1 | -.1395 | .1485 | -.9396 | .3498 |

Product terms key:

Int_1 : Total_GP x Total_PT

From the above Table 56, it is found that the interaction term Int_1 has the p-value 0.3498, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between renewable energy and tourism industry.

Table 57: Moderation effect of renewable resources in the relation between green infrastructure and tourism industry.

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between green infrastructure and tourism industry.

OUTCOME VARIABLE:

Total_TI

Model Summary

| Adjusted R | R-sq | MSE | F | df1 | df2 | p |
|------------|-------|-------|--------|--------|---------|-------|
| .4345 | .1888 | .1689 | 7.5231 | 3.0000 | 97.0000 | .0001 |

Model

| | Coeff | Se | T | p |
|----------|---------|--------|---------|-------|
| Constant | -4.0327 | 2.8762 | -1.4021 | .1641 |
| Total_Gr | 1.9367 | .7680 | 2.5216 | .0133 |
| Total_PT | 1.9326 | .7244 | 2.6679 | .0089 |
| Int_1 | -.4478 | .1906 | -2.3493 | .0208 |

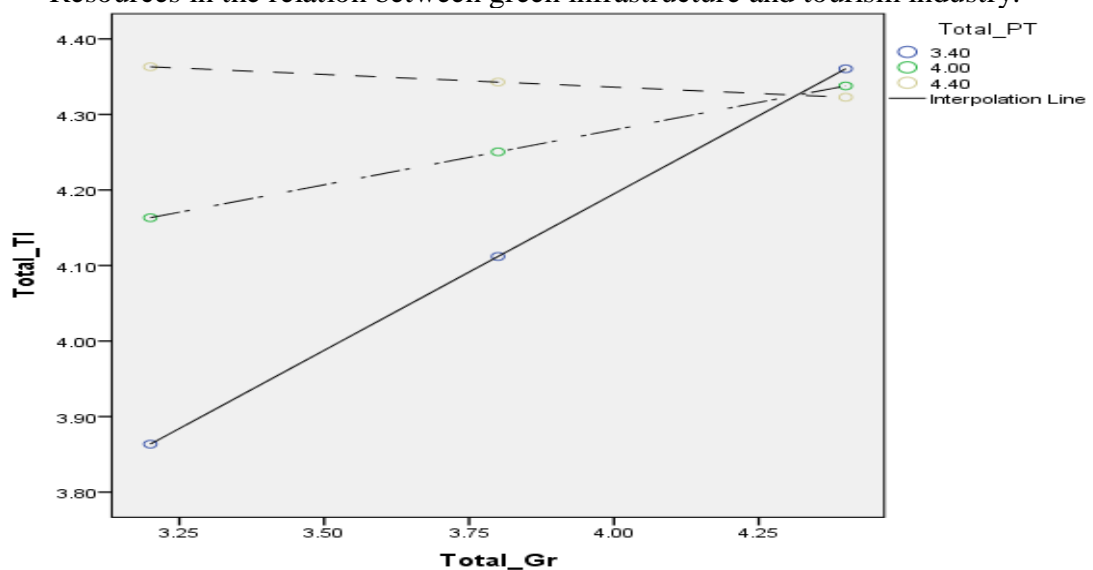
Product terms key:

Int_1 : Total_Gr x Total_PT

From the above Table 57, it is found that the interaction term Int_1 has the p-value 0.0208, which is less than 0.05. This infers that Perception of Tourists about the Renewable Resources has significant moderation effect in the relationship between green infrastructure and tourism industry.

Figure 12: Moderation effect of renewable resources in the relation between green infrastructure and tourism industry.

Illustration of moderating effect of Perception of Tourists about the Renewable Resources in the relation between green infrastructure and tourism industry.



From the above figure 12, it can be noted that there is a significant difference in the strength of relationship between green infrastructure and tourism industry for different state (low, medium and high) of Perception of Tourists about the Renewable Resources. When the state of moderating variable is low, there is a significant positive increase in the strength of relationship between green infrastructure and tourism industry. Similarly, when the state of moderating variable is medium, the effect is positive as well. However, the strength of effect is less as compared to the state of moderating variable when it is low. Further, when the state of moderating variable is high, the effect of moderating variable is negative, i.e, as green infrastructure increases, tourism industry decreases gradually. These statistics show that when the perception of tourists about renewable energy is low and medium, the effect of green infrastructure on tourism industry is positive. But when the perception of tourists about renewable energy is high the effect of green infrastructure on tourism industry is negative.

Table 58: Moderating effect of renewable resources in the relation between investment factors and tourism industry.

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between investment factors and tourism industry.

OUTCOME VARIABLE:

Total_TI

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .3725 | .1388 | .1793 | 5.2095 | 3.0000 | 97.0000 | .0022 |

Model

| | coeff | se | T | p |
|-----------------|---------------|---------------|----------------|--------------|
| Constant | .3842 | 1.8245 | .2106 | .8337 |
| Total_IF | .7183 | .5106 | 1.4069 | .1626 |
| Total_PT | .9831 | .4699 | 2.0923 | .0390 |
| Int_1 | -.1862 | .1296 | -1.4363 | .1541 |

Product terms key:

Int_1 : Total_IF x Total_PT

From the above Table 58, it is found that the interaction term Int_1 has the p-value 0.1541, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between investment factors and tourism industry.

Table 59: Moderating effect of renewable resources in the relation between tourism policy and employment.

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between tourism policy and employment.

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .4551 | .2071 | .2245 | 8.4443 | 3.0000 | 97.0000 | .0000 |

Model

| | coeff | se | t | P |
|-----------------|----------------|---------------|----------------|--------------|
| Constant | -1.8027 | 2.0316 | -.8873 | .3771 |
| Total_TP | 1.3952 | .6371 | 2.1898 | .0309 |
| Total_PT | 1.3643 | .5209 | 2.6194 | .0102 |
| Int_1 | -.3203 | .1602 | -2.0002 | .0483 |

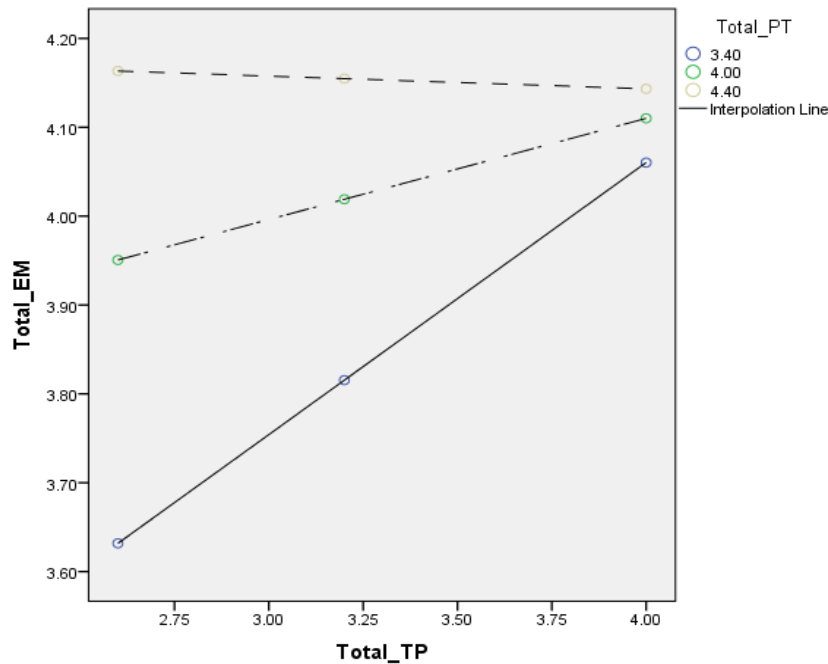
Product terms key:

Int_1 : Total_TP x Total_PT

From the above Table 59, it is found that the interaction term Int_1 has the p-value 0.0483, which is less than 0.05. This infers that Perception of Tourists about the Renewable Resources has significant moderation effect in the relationship between tourism policy and employment.

Figure 13: Moderating effect of renewable resources in the relation between tourism policy and employment.

Illustration of moderating effect of Perception of Tourists about the Renewable Resources in the relation between tourism policy and employment.



From the above figure 13, it can be noted that there is a significant difference in the strength of relationship between tourism policy and employment for different state (low, medium and high) of Perception of Tourists about the Renewable Resources. When the state of moderating variable is low, there is a significant positive increase in the strength of relationship between tourism policy and employment. Similarly, when the state of moderating variable is medium, the effect is positive as well. However, the strength of effect is less as compared to the state of moderating variable when it is low. Further, when the state of moderating variable is high, the effect of moderating variable is negative, i.e, as tourism policy increases, employment decreases gradually. These statistics shows that when the perception of tourists about renewable resources is low, employment increases rapidly when tourism policy increases, and when perception of tourists about renewable resources is medium, employment increases gradually as tourism policy increases. But when perception of tourists about renewable resources is high, employment decreases gradually as tourism policy increases.

Table 60: Moderating effect of renewable resources in the relation between sustainable tourism and employment

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between sustainable tourism and employment

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | P |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .4013 | .1610 | .2375 | 6.2049 | 3.0000 | 97.0000 | .0007 |

Model

| | coeff | se | t | p |
|-----------------|---------------|---------------|--------------|--------------|
| Constant | 2.4503 | 2.6677 | .9185 | .3606 |
| Total_ST | .0197 | .6870 | .0287 | .9772 |
| Total_PT | .2722 | .6868 | .3964 | .6927 |
| Int_1 | .0237 | .1738 | .1362 | .8920 |

Product terms key:

Int_1 : Total_ST x Total_PT

From the above Table 60, it is found that the interaction term Int_1 has the p-value 0.8920, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between sustainable tourism and employment.

Table 61: Moderating effect of renewable resources in the relation between sustainable site planning and management and employment

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between sustainable site planning and management and employment

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | P |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .4450 | .1980 | .2271 | 7.9820 | 3.0000 | 97.0000 | .0001 |

Model

| | Coeff | se | T | p |
|-----------------|---------------|---------------|--------------|--------------|
| Constant | 2.0513 | 3.2548 | .6302 | .5300 |
| Total_PM | .1431 | .8022 | .1784 | .8588 |
| Total_PT | .1943 | .8279 | .2347 | .8149 |
| Int_1 | .0350 | .2020 | .1733 | .8628 |

Product terms key:

Int_1 : Total_PM x Total_PT

From the above Table 61, it is found that the interaction term Int_1 has the p-value 0.8628, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between sustainable site planning and management and employment.

Table 62: Moderating effect of renewable resources in the relation between renewable energy and employment

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between renewable energy and employment

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|----------------|---------------|----------------|--------------|
| .4923 | .2424 | .2145 | 10.3438 | 3.0000 | 97.0000 | .0000 |

Model

| | Coeff | se | T | p |
|-----------------|----------------|---------------|----------------|--------------|
| Constant | -3.2855 | 2.9788 | -1.1030 | .2728 |
| Total_RE | 1.4401 | .7171 | 2.0082 | .0474 |
| Total_PT | 1.5469 | .7541 | 2.0514 | .0429 |
| Int_1 | -.2936 | .1798 | -1.6330 | .1057 |

Product terms key:

Int_1 : Total_RE x Total_PT

From the above Table 62, it is found that the interaction term Int_1 has the p-value 0.1057, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between renewable energy and employment.

Table 63: Moderating effect of renewable resources in the relation between green products and materials and employment

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between green products and materials and employment

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|----------------|---------------|----------------|--------------|
| .5390 | .2905 | .2009 | 13.2391 | 3.0000 | 97.0000 | .0000 |

Model

| | Coeff | Se | T | p |
|-----------------|---------------|---------------|---------------|--------------|
| Constant | 2.9747 | 2.6142 | 1.1379 | .2580 |
| Total_GP | -.0449 | .6611 | -.0679 | .9460 |
| Total_PT | -.1510 | .6677 | -.2262 | .8216 |
| Int_1 | .1123 | .1671 | .6719 | .5033 |

Product terms key:

Int_1 : Total_GP x Total_PT

From the above Table 62, it is found that the interaction term Int_1 has the p-value 0.5033, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between renewable energy and employment.

Table 64: Moderating effect of renewable resources in the relation between green infrastructure and employment

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between green infrastructure and employment

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|----------------|---------------|----------------|--------------|
| .5460 | .2982 | .1987 | 13.7363 | 3.0000 | 97.0000 | .0000 |

Model

| | coeff | se | T | p |
|-----------------|----------------|---------------|----------------|--------------|
| Constant | -3.8471 | 3.1193 | -1.2333 | .2204 |
| Total_Gr | 1.8530 | .8330 | 2.2247 | .0284 |
| Total_PT | 1.5839 | .7856 | 2.0162 | .0465 |
| Int_1 | -.3634 | .2067 | -1.7580 | .0819 |

Product terms key:

Int_1 : Total_Gr x Total_PT

From the above Table 63, it is found that the interaction term Int_1 has the p-value 0.0819, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between renewable energy and employment.

Table 65: Moderating effect of renewable resources in the relation between investment factors and employment

Moderating effect of Perception of Tourists about the Renewable Resources in the relation between investment factors and employment

OUTCOME VARIABLE:

Total_EM

Model Summary

| R | R-sq | MSE | F | df1 | df2 | p |
|--------------|--------------|--------------|---------------|---------------|----------------|--------------|
| .3957 | .1566 | .2388 | 6.0015 | 3.0000 | 97.0000 | .0009 |

Model

| | Coeff | se | T | p |
|-----------------|---------------|---------------|---------------|--------------|
| Constant | 2.5247 | 2.1053 | 1.1992 | .2334 |
| Total_IF | -.0849 | .5891 | -.1442 | .8857 |
| Total_PT | .4265 | .5422 | .7867 | .4334 |
| Int_1 | .0042 | .1496 | .0280 | .9777 |

Product terms key:

Int_1 : Total_IF x Total_PT

From the above Table 64, it is found that the interaction term Int_1 has the p-value 0.9777, which infers that Perception of Tourists about the renewable resources has no any moderation effect in the relationship between investment factors and employment.

4.6.13 Lumbini Province energy policy

Lumbini province lies in the mid part of Nepal. This province government gives more preference to production of solar as well as electricity to replace the non-renewable resources such as thermal plant and so on. This province main objective is to provide electricity to all needy households as well as to business sector. This year (2021/22) government declares to give 80 percentage subsidies to those hotel and travel institution who want to joint solar plant. Especially in Lumbini areas, to join bio-gas and for repairing others source of renewable energies, local government bears 100 percentage economic burden.

The following table shows the budget allocation on renewable resources in Lumbini.

Table 66: The annual progress report of energy development (amount in thousand)

| S.N | Sources of budget | Total project number | Annually allocated amount | Annual expenditure | Annual progress | |
|-----|------------------------|----------------------|---------------------------|--------------------|-----------------|-------|
| | | | | | | |
| 1 | Equalization grant | 22 | 26000 | 20238.3 | 100 | 77.84 |
| 2 | With condition subsidy | 12 | 8000 | 6522.1 | 100 | 81.53 |
| | Total | 34 | 34000 | 26760.4 | 100 | 78.71 |

Source =Lumbini province energy department,2021/22

To preserve the environment, province government effectively implements the improved stove.

In the following places, province government started the improved stove connection function project

Table 67: Province government started the improved stove connection function project

| S.N | Places | Number of joint stove connection | Received training (numbers) | Remarks |
|-------|--|----------------------------------|-----------------------------|---------|
| 1 | Rivdikote VDC - 1 palpa | 140 | 8 | 2021/22 |
| 2 | Bhumikasthan municipality -4 Argrakhachi | 135 | 8 | “ |
| 3 | Jimruk VDC-4 phudhan | 135 | 16 | “ |
| 4 | Sunilmitri-4 Rolpa | 138 | 8 | “ |
| 5 | Canchan VDC -4 rupandehi | 145 | 8 | “ |
| 6 | Resungha municipilty-6 Ghulmi | 138 | 8 | “ |
| Total | | | 831 | 56 |
| 7 | Ishma VDC-6 Ghulmi | 150 | 12 | 2021/22 |
| 8 | Sarwal VDC Nawalprasi | 160 | 10 | “ |
| 9 | Ribdehikot VDC Palpa | 140 | 8 | “ |
| Total | | | 450 | 30 |

Sources Lumbini province energy department 2021/22

Few decades ago, in the areas of Lumbini, hotels and restaurants owners used to use the wood stove for preparing food which had caused the environment worst for all specially to tourists' health so that average stay day was less than 1 days. Nowadays all most hotel are joined with improved stove so that Lumbini area's environment has become cleaner and fresher.

The local as well as province government jointly play the key role produce energy through the solar plant

The following tables shows the various places solar plant its production quantity in K.W

Table 68: Various places solar plant its production quantity in K.W

| S.N | Places | System capacity | Remarks |
|-----|--|-----------------|---------|
| 1 | Shree aadarsh Ma.vi sarwal Nalparasi | 10 KWP | 2021/22 |
| 2 | Tansen municipality palpla | 12 kwp | |
| 3 | Julkey drinking water project,Tansen -4 | 17 kwp | |
| 4 | Ministry of energy ,irrigation ministry office ,Butwal | 17 kwp | |
| 5 | Shree Resungha Ma.vi Resungha Municipality,Ghulmi | 3 KWP | |
| 6 | Dauneydevi ma.vi Bardhaghat,nawlparsi | 3 kwp | |
| 7 | Sarvodaya ma.vi Dangh | 3kwp | |
| 8 | Buannesor Ma.vi Phuthan | 4 kwp | |
| 9 | Bhuansesor Ma.vi ,Kapilvastu | 3 kwp | |
| 10 | Majakote health post,phuthan | 5 kwp | |
| 11 | Muktinath temple Butwal | 6 kwp | |
| 12 | Sardha ma.vi ,ribdikote ,palpla | 7kwp | |
| 13 | Deurali health post office ,palpa | 2 kwp | |

| | | | |
|----|-------------------------------------|----------|--|
| 14 | Laxmi Ma.vi Kolpur,Bakey | 3 kwp | |
| 15 | Paruhawa temple ,Rupandehi | 3.5 kwp | |
| 16 | Tirvuban campus ,palpa | 4.8 kwp | |
| 17 | Yagodeya campus,rupandehi | 3.6 kwp | |
| 18 | Radhakrishna Ma.vi palpa | 3 kwp | |
| 19 | Holari health post ,Dolpa | 2 kwp | |
| 20 | Wakahamangala health post ,palpa | 3 kwp | |
| 21 | Janjoti ma.vi ,Rukum | 2 kwp | |
| 22 | Drgba bhudik school.Rupandehi | 2 kwp | |
| 23 | Kanighu Health post ,palpa | 2 kwp | |
| 24 | Energy department office,Dang | 1.2 KWp | |
| 25 | Sardha ma.vi ,puthan | 2.25 kwp | |
| 26 | Sarsawati ma vi,palpa | 2.25 kwp | |
| 27 | Barwali hospital.phuthan | 2.25 kwp | |
| 28 | Rolpa hospital.rolpa | 3 kwp | |
| 29 | Kapilvastu,Multiple campus | 3 kwp | |

Sources =Lumbini province energy department, 2021/22

CHAPTER-V

CONCLUSION

5.1 The major conclusions I have derived has been presented under three headings on the basis of the objectives of the study.

It is concluded that the number of domestic tourists visiting Lumbini is found to be the highest and the Indian tourists are rated second highest due to open boarder facility and the third country tourist is found to be the lowest .May, October and November months are more favorable months in terms of climate in Lumbini. So the flow of tourists is high in these months. May month is the best month in Lumbini for domestic outing as it is the most suitable climate for visiting. Increasing the spiritual thought of Lord Buddha worldwide, Nepal government could attract more tourists in Lumbini in the coming years. Analyzing one decade tourist's arrival data in Lumbini, the trend of tourists arrival rate is rising by more than 15 percentage in average every fiscal year.

There is positive correlation between the employment level in Lumbini and investment volume. The R^2 value is 0.9057 and its meaning is that 90 percentage employment level in hotels sectors are dependent on three independent variables. They are X1(types of hotels),X2 (the total numbers of room) and X3 (Investment amount in hotels). Besides this, LDT office implemented plan is also helpful to increase the employment opportunities.

The study concludes that renewable energy saving cost is 20 % more than non-renewable on their hotels. There is high correlation between dependent variable (tourism industry) and independent variables (sustainable tourism (0.375), sustainable planning (.469), renewable energy (.311), Green product Materials (.422) and Green infrastructure (.471)). Recently, star hotels owner are going to transfer their hotels into greenery form so that they could attract more guests on their hotels.

5.2 Recommendation

The major recommendations I have made has been presented under three headings on the basis of the objectives of the study.

The flow of domestic tourists and Indian tourists is more than the third country tourists. To attract more Indian tourists in Lumbini, entry fee should be reduced and the concerned authority should make a policy to establish direct bus transportation facility from Lumbini to major cities of India to encourage them to visit Lumbini. Knowledge of Buddhism is becoming more valuable day to day for current as well as future generation. It should be developed as the destination of pilgrimage Buddhist. Out of whole entered tourist in Nepal, in average only 20 % (third countries) tourists visited Lumbini. Increasing number of tourists by plane from Kathmandu to Bhairahwa, we can attract more tourists in lumbini. Tourism Ministries and LDT offices should allocate more budget for growth of Lumbini.They should make it affordable road and air transport access in Lumbini from various parts of Nepal. Lumbini should be made more accessible by means of transportation. The road should be wide. The vehicles should be provided on time for the tourists from Bhairahawa and other part of the country. Gautam Buddha international airport quality should be improved for the development of tourism in Lumbini. The air service should be made sufficient for large number of tourist's arrival in Lumbini.

To increase the employment opportunities in Lumbini, Hotel association of Lumbini should rise investment in their hotels. There is high correlation between investment and employment in Lumbini i.e.its R^2 value is 0.9057. There is significant relationship between employment and number of room(X2) and investment amount(X3) in hotels in Lumbini. X2 and X3 correlation value are 0.6849 and 0.3974 respectively. Besides this, we can rise the employment opportunities in Lumbini by increasing capital expenditure on transportation, energy generation, infrastructure development,

exploration and research of many related Buddhist places etc. LDT should increase the relationship between World Bank, ADB and donor countries. Foreign country government to develop the overall development of Lumbini \which directly helps to increase the additional employment in Lumbini. Skillful staff and trained guides are essential factors for tourism development in Lumbini. The tourist guides should be improved in every hotel by hiring trained people or experts in the field. The employer should be provided the job training facilities conveying the good knowledge of history, culture and economic status of the country.

Adequate and up-to-date information should be made available to the tourists.

Similarly wide publicity should be made so as to popularize Lumbini among the tourists.

Hotels should be hygienic and clean enough to attract the tourists. Sight-seeing areas also need to be improved.

Some other recreation facilities together with sports, fields need to be constructed in Lumbini. Besides, the areas should be developed as picnic spots by offering sufficient shelter against sun and rain.

Birds' sanctuary centered should be developed. So that the tourists get the pleasure from it.

To make environmental friendly tourism destination at Lumbini, surrounding hotels of Lumbini should start to use renewable energy such as electricity, bio-Gas, solar energy and wind energy in their hotels. The Standardized co-efficient (Beta) value of sustainable size planning & management (.374), green product and materials (.188), sustainable tourism (.137) and tourism policy (.154) respectively. Hotel association and concerned authorities should be serious about the given variable. If they give more importance to above mentioned variables, they will take more advantages from their hotels in future and Lumbini can be developed as one of the sustainable tourism destinations. The government should apply effective long term strategies which help to mitigate the effects of climate change. The government should assess the environmental impacts when making tourists site more accessible i.e. road. Hotel and private travel agencies should provide greenery options ie electricity vehicles when

receiving and trekking tourists. Local government should make clean environment, penalize tourists that pollute areas. Include educational portion on tours to teach tourists about environmental conservation and threat in tourist areas like Lumbini. The government should collaborate with Lumbini Development trust to develop and implement effective plan and policy for not to overarch Lumbini area for the construction purpose rather should encourage to develop the area green and peaceful.

5.3 Recommendation about the Renewable Resources

Recommendation for hotels owners

- The cost of fuel-wood should be increased so local people cannot afford to use such forest-based energy. In this way local government should protect local community forest with a clear planning of forest conservation.
- Effective scientific training should be provided to the local hotels as well as people and mass awareness campaign should be launched in the locality to make RETs more reliable and sustainable.
- Use electric-based vehicles, while receiving and sending their guests or tourists.

Recommendation for province government

- Province as well as local government should accept to enhance more affordable cost-effective RETs in order to decrease the use of non-renewable sources of energy in the area.
- Province government should provide subsidy to the poor people so that they could use renewable resources.
- The legal procedures should be made clear and demand of the hotel

entrepreneurs while joining RETs so that poor entrepreneurs would also be benefited.

Recommendation for Central level government

- Widely renewable energy (solar energy) has been using only for traditional function i.e. lighting due to its less supply according the present demand it. Thus, there is recently need to increase the supply of RE so that it would be used for multi -purpose such as heating rooms, driving electrical appliances and cooking.
- More micro-level studies are necessary on renewable energy and sustainable tourism, principally for increasing micro-hydro and bio-gas plants and solar energy, should be launched in the regional level so that it requires feedback that the policy makers and planners to implement their plans and programs in the days to come.

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APPENDIX

QUESTIONNAIRE

Under this section, the researcher intends to uncover the level of “impact of Renewable Resources on Tourism Industry”. You are requested to tick the check box that best indicates the degree to which you agree or disagree with each of the following statements using rating scale.

Section A

This section comprises statements about your ‘Demographic Profiles’. Please tick the appropriate option to you to complete them:

1. What type of your hotel is?
 a) five-star b) three-star c) one star d) non-Star
2. My age is (in years):
 (a) under 21 (b) 21-30 (c) 31-40

 (c) 41-50 (d) 51-60 (e) above 60
3. My gender category is:
 (a) male (b) female
4. My relationship status is:
 (a) married (b) unmarried
5. My hotel earning is (Rs. per annum):
 (a) up to 5,00,000/- (b) 5,00,000/- < 10,00,000/-
 c) 10,00,000/- < 15,00,000 (d) Above 15,00,000/-
6. Currently, I live in
 (a) Kathmandu (b) Lumbini (c) Butwal

 (d) Bhirahawa (e) any other place.....
7. My work status is:
 (a) homemaker (b) service class (c) business
 (d) Self-employed (e) Student community

8. My own income is (Rs. Per annum):

(a) up to 1,00,000/-

(b) 1,00,000/- < 5,00,000/-

(c) 5,00,000/- < 10,00,000

(d) Above 10,00,000/-

Section B

Under this section, the researcher intends to uncover the level of “Role of Renewable Resources on Tourism Industry”. You are requested to tick the check box that best indicates the degree to which you agree or disagree with each of the following statements using rating scale.

| Dependent Variable | Tourism Industry | SD 1 | D 2 | Neutral 3 | Agree 4 | SA 5 |
|--------------------|---|---------|--------|--------------|------------|---------|
| A ₁ | The tourism industry helps to increase to GDP of Nepal | | | | | |
| A ₂ | This industry helps to reduce inequality in Nepalese society | | | | | |
| A ₃ | Tourism industry is helping to protect handicrafts in Nepal | | | | | |
| A ₄ | Tourism industry is emerging service industry in Nepal | | | | | |
| A ₅ | Tourism industry is become more powerful especially to generate | | | | | |

| | | | | | | |
|--|---|--|--|--|--|--|
| | additional economic benefit to tourists areas like Lumbini. | | | | | |
|--|---|--|--|--|--|--|

| Independent Variable | Tourism policy | SD 1 | D 2 | Neutral 3 | Agree 4 | SA 5 |
|----------------------|--|---------|--------|--------------|------------|---------|
| B ₁ | You are familiar with the tourism policy of Nepal. | | | | | |
| B ₂ | Current tourism policy is favorable to promote your hotels& lodge | | | | | |
| B ₃ | There is any need to reform tourism policy in Nepal | | | | | |
| B ₄ | You are satisfied with local level tourism policy. | | | | | |
| B ₅ | Lumbinisakirtik municipality is made any local level policy to promote tourism activities. | | | | | |

| Independent variable | Sustainable tourism | SD 1 | D 2 | Neutral 3 | Agree 4 | SA 5 |
|----------------------|---|---------|--------|--------------|------------|---------|
| C ₁ | In my view, natural resources protection & tourism can be compatible | | | | | |
| C ₂ | Researchers showed that protection of local heritage & tourism can be compatible. | | | | | |

| | | | | | | |
|----|---|--|--|--|--|--|
| C3 | Local community can be taken more benefit developing a sustainable tourism framework | | | | | |
| C4 | I think, there is correlation between demand for sustainable tourism in and around our MPA(marine protected Area) | | | | | |
| C5 | I believe demand for sustainable tourism could be developed for our MPA | | | | | |

| Independent Variable | Sustainable site planning and management | SD 1 | D 2 | Neutral 3 | Agree 4 | SA 5 |
|----------------------|---|---------|--------|--------------|------------|---------|
| D1 | Use of green roof to attract the tourists | | | | | |
| D2 | Herbs garden to increase the stay day of tourists. | | | | | |
| D3 | Green transportation strategies to reduce expenditure on non-renewable means of vehicles | | | | | |
| D4 | Use of green materials for building envelop to be unique | | | | | |
| D5 | Making greenery garden by hotel owner can attract more tourists in his hotel than his competitive partner's hotels. | | | | | |

| Independent Variable | Use of Renewable energy | SD 1 | D 2 | Neutral 3 | A 4 | SA 5 |
|----------------------|--|------|-----|-----------|-----|------|
| E1 | Renewable resources are used better lighting quality. | | | | | |
| E2 | It helps to economic saving. | | | | | |
| E3 | It helps to environmental preservation. | | | | | |
| E4 | It helps to increase attraction for tourists. | | | | | |
| E5 | It helps to increase awareness of importance of renewable resources. | | | | | |

| Independent Variable | Green product and materials | SD 1 | D 2 | Neutral 3 | A 4 | SA 5 |
|----------------------|---|------|-----|-----------|-----|------|
| F1 | Use recycled materials and product help to use wastage commodities. | | | | | |
| F2 | Use local product from the community, save the traditional skill & art. | | | | | |
| F3 | Buy products from green vendor, increase the total revenue of a company | | | | | |
| F4 | Used green chemical products, increase the productivity of cultivated land. | | | | | |
| F5 | Green product consumption pattern | | | | | |

| | | | | | | |
|--|----------------------------------|--|--|--|--|--|
| | slowly raising in this locality. | | | | | |
|--|----------------------------------|--|--|--|--|--|

| Dependent variable | Employment | SD 1 | D 2 | Neutral 3 | A 4 | SA 5 |
|--------------------|---|---------|--------|--------------|--------|---------|
| G1 | Establishing start hotels help to increase employment opportunities in Lumbini. | | | | | |
| G2 | Establishing non-start hotels also help to increase job opportunity. | | | | | |
| G3 | Now, home stay concept also helps the creation in employment opportunities in special village areas. | | | | | |
| G4 | Travel agency is playing effective role to generate job opportunities for skilled and unskilled manpower. | | | | | |
| G5 | Many workers are dependent on tourists' transportation agency | | | | | |

| | Impact of Green Infrastructure in Urban Areas | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|----|--|--------------------------|-----------------|----------------|--------------|-----------------------|
| H1 | I think GI has the potential to enhance the increase the tourism activities in your city | | | | | |
| H2 | Urban citizens' is GI help to tourist's flow spending time in green spaces | | | | | |
| H3 | I would support policies in favor of the environment, even if that means higher taxes, etc. | | | | | |
| H4 | In rising temperatures, replacing grey infrastructure with green infrastructure can lower temperatures and minimize the risk of heat exhaustion. | | | | | |

| | | | | | | |
|----|---|--|--|--|--|--|
| H5 | Green infrastructure can help mitigate the effects of climate change, such as flooding, storm surges, and sea-level rise, by increasing tolerance to environmental disasters. | | | | | |
|----|---|--|--|--|--|--|

| Mode rate variable | Perception of Tourists about the Renewable Resources | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|--------------------|--|-----------------------|--------------|-------------|-----------|--------------------|
| I1 | The use of renewable resources helps to increase your stay duration. | | | | | |
| I2 | The use of renewable resources might decrease your transportation cost. | | | | | |
| I3 | The use of renewable resources help to balance ecosystem in our society. | | | | | |
| I4 | The government is not doing enough to protect renewable resources. | | | | | |
| I5 | Do you believe community forest of Lumbini to uplift tourism industry? | | | | | |

| Independent variable | Investment factors | SD (1) | D (2) | Neutral (3) | A (4) | SA (5) |
|----------------------|---|--------|-------|-------------|-------|--------|
| J1 | The investment in the infrastructure development is not enough in Nepal to uplift | | | | | |

| | | | | | | |
|----|--|--|--|--|--|--|
| | tourism industry. | | | | | |
| J2 | here should be investment on human being for awareness about the significance of tourism industry. | | | | | |
| J3 | Nepal government should allocate additional capital to preserve local cultural program, skill etc. | | | | | |
| J4 | INGO and NGO sectors' investment in tourism activities is sufficient in Lumbini. | | | | | |
| J5 | This year allocated budget on tourism department is enough to Lumbini area. | | | | | |

Section C

Following are the general statements relating to your "Adaptation options on renewable resources". You are requested to tick the appropriate option(s) against the suitable alternative(s) in your case:

1. How much do you spend on renewable energy in a month?
 - a) Less than 5000
 - b) less than 10,000
 - c) less than 15000
 - d) more than 15000
2. When did you start the use renewable resources at your hotel?
 - a) For 10 years
 - b) for 5years
 - c) for 1 years
 - d) For 6 months
3. In your opinion, how much percentage tourists visit Lumbini for pilgrim purpose?
 - a) More than 90%
 - b) more than 50 %
 - c) More than 25 %
 - d) less than 25 %
4. How many workers are working at your hotel?

- a) More than 10000 b) more than 500
c) 100 to 500 d) less than 100
5. What types of renewable energy do you use in your hotel?
a) Electricity b) solar
c) bio-gas d) wind energy
6. Did you get any subsidy to join renewable energy?
a) Always b) never
c) Sometimes d) Usually
7. Has the use of renewable resources reduced your cost than the use of non-renewable resources?
a) Yes b) no
c) Somehow d) I don't know
8. Does the use of renewable resources increase the flow of tourists in your view?
a) Yes b) no
c) Somehow d) I don't know
9. Do you find sufficient renewable in your locality?
a) Yes b) no
c) Somehow d) can't say
10. Could you make plan to producing renewable resources in your hotel?
a) Yes b) No
c) Somehow d) can't say
11. Will you replace non-renewable resources by renewable resources at your hotel?
a) Yes b) No
c) Somehow d) can't say
12. Do you believe renewable resources help to protect your surrounding environment?
a) Yes b) no

- c) Somehow d) can't say
13. Are private sector entrepreneurs interesting to invest capital to generate renewable energy in your locality?
- a) Yes b) no
- c) Somehow d) can't say
14. Are you sure using renewable resources help to increase tourists flow in Lumbini?
- a) Yes b) no
- c) Somehow d) can't say
15. Did you get grant to increase tourism activities from local government?
- a) Yes b) no
- c) Somehow d) don't know
16. Is local government serious to protect Lumbini community forest?
- a) Yes b) no
- c) Somehow d) I don't know

Opened Ended Questions

1. Do you believe renewable resources help to increase tourists flow in Lumbini?
 Ans
2. How local government is playing role for protecting the sustainability resources in Lumbini?
 Ans
3. What types of policy /plans of Nepal government are useful to promote your tourism business?
 Ans
4. In your experience, which countries tourists are more familiar about the renewable resources?
 Ans
5. Which type of renewable energy is appropriate in your locality?

Ans

The importance sites of Lumbini are;

- Madhuni Village Tour
- Lumbini Adarsha Village Tour
- Tenuhawa Village Tour
- Khudabagar Village Tour
- Ekala Village Tour

Buddhist Monasteries in Lumbini

The central canal 1.6 km. divides the Monastic Zone into two enclaves such as East Monastic Zone and West Monastic Zone. The East Monastic Zone is for the construction of monasteries belonging to the Theravada sect and West Monastic Zone for Mahayana sect of Buddhism. There are 42 plots (13 east and 29 west) allocated for the construction of monasteries in Lumbini.

Monasteries in Scarred Zone

- Rajkiya Buddha Vihara, Nepal
- Dharmaswami Maharaja Buddha Vihara, Nepal

Under West Enclave, there are fifteen Monasteries. These are as Follows;

- i. The Great Lotus Stupa, Germany
- ii. Laddakh Meditation Centre
- iii. The World Linh Son Buddhist Congregation, France
- iv. Vietnam Phat Quoc Tu, Vietn
- v. Geden International Monastery, Austria
- vi. Chinese Monastery, China
- vii. Mahabodhi Society Monastery, Korea
- viii. Manang Sewa Samaj Monastery, Nepal

- ix. Drubgyud Choeling Monastery, Nepal
- x. Panditarama Lumbini International Centre ,Myanmar
- xi. Karma Sheling Monastery, Nepal
- xii. Swayambhu, Mahavihara,Nepal
- xiii. Karma Lekshey Ling Institute, Nepal
- xiv. United Tungaram Monastery, Nepal
- xv. Sokyo Monastery, Japan

Under the east sides, there are only seven monasteries, these are as follows

- a) Dhamma Janani Vipassana Centre
- b) Sri -Lankan Monastery, Sri-Lanka
- c) International Gautami Nuns Temple, Nepal
- d) Myanmar Golden Monastery,Myanmar
- e) Cambodian Monastery,Combodia
- f) Mahabodhi Society Vihara, India
- g) The Royal Thai Monastery, Thailand

VITAE

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|-------------------|---|---------------------------|
| Master Degree | Tribhuvan University, Kathmandu, Nepal | 2006 |
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Scholarship Awards during Enrolment

1. **Graduate School Research Grant Award**, Prince of Songkla University for Doctor of Philosophy, 2020

List of Publication and Proceeding

1. The Relation between Tourism Industry and CO2 Emission in Nepal.(International Journal of Mechanical Engineering, ISSN: 0974-5823)