IMPACTS OF PILGRIMAGE TOURISM FOR SUSTAINABLE TOURISM DEVELOPMENT: SPECIAL FOCUS ON LUMBINI

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Prof. Dr. Azaya Bikram Sthapit	Prof. Dr. Mrigendra Lal Singh
Supervisor	Supervisor
Central Department of Statistics, T.U.	Central Department of Statistics, T.U.
Kirtipur, Kathmandu, Nepal	Kirtipur, Kathmandu, Nepal
Date: September 12, 2013	Date: September 12, 2013

TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF STATISTICS
OFFICE OF HEAD OF DEPARTMENT,
Kirtipur, Nepal

☎ 01-4331710

Ref No.....

CERTIFICATE OF APPROVAL

On the recommendation of Prof. Dr. Mrigendra Lal Singh and Prof. Dr. Azaya Bikram Sthapit, this dissertation work of Mr. Him Lal Ghimire is forwarded for the examination and is submitted to the IOST, Tribhuvan University for the award of Doctor of Philosophy in Statistics.

Date: September 12, 2013

_____

Prof. Dr. Azaya Bikram Sthapit
Head
Central Department of Statistics,
Tribhuvan University
Kirtipur, Kathmandu, Nepal

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ABSTRACT

The history of modern tourism is not as old as pilgrimage tourism- the oldest concept or original art of traveling. Pilgrimage to the sacred and holy sites induced modern tourism. The origin and evolution of the *tirtha yatra* (pilgrimage) tradition of Hindus seems to be as old as their civilization or perhaps older than that. Nepal has become a decent destination for pilgrimage tourism with her large number of Hindu and Buddhist pilgrimage sites, shrines and temples. However, the stakeholders were not able to address the importance of Lumbini and develop in a professional ways. Today, Lumbini can be considered as a synonym of world peace center and a top class pilgrimage destination in the world. Lumbini Master Plan was a very ambitious plan for the overall development of Lumbini. However, the incompletion of the plan on time has been a great problem to develop tourism in Lumbini. Tourist arrivals in Lumbini has been fluctuated and affected by several reasons. Mega events in Lumbini have been helping to attract more tourists and enhance the Lumbini's status in the international market. Majority of the tourist visit Lumbini in a group. However, usually larger group of tourists/pilgrims make very short visit in Lumbini when they come via India. They are same day visitors and if Nepal can stop them at least for one day, it will have great impact in economy and employment. Beside pilgrimage purpose, Lumbini can be the attractive destination for the extra-religious activities such as sightseeing, cultural, historical. Nepal's share was very negligible with (0.06%) in tourist arrival in the world total in 2010.It is crucial to obtain accurate estimates of the uncertainty surrounding monthly international tourist arrivals based on time series data. The data series were analyzed in terms of the number of tourist arrivals, the corresponding logarithms, annual differences and log-differences in this research. It was argued that the preferred series to model the monthly tourist arrivals was one which has a distribution closer to a normal distribution. The monthly tourist arrivals

levels depicted very high coefficient of variation (CV) for the 11 tourist source countries. Likewise, monthly tourist arrivals to Nepal showed very strong seasonal patterns. Estimates of the conditional mean for the GARCH (1, 1) model for the level, logarithm, annual difference and log difference were obtained through a modeling procedure in which only significant variables were included until a parsimonious specification is achieved. The ten years armed conflict of Nepal (1997-2006) made clear that the devastating impacts such as loss of lives, damage of infrastructure, loss of livelihoods and an uncertain future in Nepal. After 2006 movement and peace process also did not solve the problem of continuous instability, and poor security situation of the country which has been affecting tourism badly. 10^{th} national plan for tourism development had expected US $ 60 per tourist per day income from tourists in 2006 where as the data shows US $ 55.0 per tourist per day in reality in 2006. The data shows that income per tourist per day is US$ 43.2, gross foreign currency earning in convertible currency is US$ 329.98 millions and length of stay is 12.67 days. Increase in per day income and length of stay can contribute significantly in economy and employment. This research demonstrates that Lumbini is the world top class destination, its development and sustainability can worth a lot economically for the country like Nepal. In a time of increasing competition and uncertainty in the tourism, stakeholders should explore many different avenues for sustainability within the sector.

Key Words: *Destination, pilgrimage, uncertainty, GARCH, economic contribution.*

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ACRONYMS AND ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AR	Auto Regressive
ARCH	Autoregressive Conditionally Heteroscedastic
ARMA	Autoregressive Moving Average
CCC	Constant Conditional Correlation
CV	Coefficient of Variance
DDC	District Development Committee
DRS	Destination Recovery Services
EGARCH	Exponential Generalized Autoregressive Conditionally Heteroscedastic
EITCDR	Euromonitor International's Top City Destinations Ranking
GDP	Gross Domestic Product
GARCH	Generalized Autoregressive Conditionally Heteroscedastic
GJR GARCH	Glosten, Jagannathan & Rukle Generalized Autoregressive Conditionally Heteroscedastic
HRD	Human Resource Development
HMG	His Majesty Government
INGO's	International Non-Governmental Organizations
IUCN	International Union for Conservation of Nature
IUOTO	International Union of Official Travel Organizations
LDO	Local Development Office
LDT	Lumbini Development Trust
LIRI	Lumbini International Research Institute
LMP	Lumbini Master Plan
MA	Moving Average

MICE	Meetings, Incentives, Conventions and Exhibitions
MoCTCA	Ministry of Culture, Tourism and Civil Aviation
MoTCA	Ministry of Tourism and Civil Aviation
MOF	Ministry of Finance
NGO's	Non-Governmental Organizations
NTB	Nepal Tourism Board
NTMP	Nepal Tourism Master Plan
OLS	Ordinary Least Squares
PADT	Pashupati Area Development Trust
PATA	Pacific Asia Travel Association
QMLE	Quasi Maximum Likelihood Estimate
RA	Nepal Airlines
RSS	Residual Sum of Square
SWOT	Strength Weaknesses Opportunities Threats
TRPAP	Tourism for Rural Poverty Alleviation Programme
TU	Tribhuvan University
U K	United Kingdom
UN	United Nations
UNDP	United Nation Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
USA	United States of America
VARMA	Vector Autoregressive Moving Average
WTO	World Tourism Organization
WTTC	World Travel and Tourism Council

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CHAPTER ONE

Introduction

1.1 General Background of Nepal

Nepal is the country where Lord Buddha was born with the highest mountain in the world, Mount Everest. The country's overwhelming majestic mountains, the Himalayas, splendidly adorned with natural flora and fauna are in never ending stories of her natural beauty and majestic existence on the map of the modern globe. This small country in South Asia is sandwiched between two big countries, China to the north and India to the south, east and west. Nepal occupies a land area of 147,181 sq. km at 96.21 and 30.27' north latitudes and 80.4 and 88.12 east longitudes. The average length of the country from east to west is 885 kilometers. The topography of the country varies from plain in the south to hills and high mountains towards the north. Nepal is divided into 5 developmental regions, 14 Zones and 75 districts.

1.2 Lumbini and Its Pose in the Global Pilgrimage Tourism

The history of modern tourism is not that old as of pilgrimage tourism. The pilgrimage to the sacred and holy places like Lumbini, Pashupatinath, Jerusalem, and Mecca induced modern tourism in the society. Nepal has become a decent destination for pilgrimage tourism with her large number of Hindu and Buddhist pilgrimage sites, shrines and temples (Ghimire, 2004 p. 95).

World Bank President James D. Wolfensolm noted that "physical and expressive culture is an undervalued resource in many developing countries. It can earn income through tourism, crafts and other cultural enterprises. And whether income earning or not, support

to cultural activities of the very poor can have a profound effect on their well-being, social organization, and social functioning" (Cultural Counts Conference, Florence, October 4, 1999). It has been a very important note in the context of Nepal. The benefits from tourism do not come automatically and are not an easy way to earn foreign currency. Every country needs strategies, plans and policies that can harness the fullpotential of tourism. Countries need to carefully formulate strategies, plansand policies that develop the tourism sector in a way that is economicallyviable, socially acceptable and environmentally sustainable. At the sametime, stakeholders have to be readyfor new opportunities and challenges that relate to sustainable development of tourism (UN, 2003b p.1).Tourism is an expanding worldwide phenomenon, and it has been observed that by the next century, tourism will be the single largest industry in the world (UN, 1996 p.6).

Lumbini is the birthplace of Lord Buddha and the importance of Lumbini is so great that the Buddha himself advised his followers to make the pilgrimage and explained the significance of Lumbini in the following words: "Lumbini should be (visited and) seen by person of devotion, and which would cause awareness and apprehension of the nature of impermanence …" (WBS, 1998). Lumbini is the foremost Buddhist pilgrimage site, in relationship to the other sacred Buddhist sites.Today, Lumbini can be considered as a synonym of world peace center and top class pilgrimage destination for the Buddhists in the world. Lumbini is equally popular among non-Buddhist in the world. Everyone can equivocally claim that Lumbini is one of the world's major holy land pilgrimage sites; however, this place has not been able to get the attention of global pilgrimage tourist and has been struggling compared to similar pilgrimage sites because of several reasons. There are several questions associated with Lumbini for discussion and research.

- What to do with that potential?
- How to tie together all the possible supremacy of Lumbini and utilize it?

- Is it a pilgrimage site or an international tourist destination? Or can it be both?
- Is it an archeological site where very limited visitors can go?
- Is it a faith tourism destination for all?
- Can it be free from politics?

1.3 Statement of the Problems

Nepal Living Standard Survey (NLSS) in 2003/04 found that 30.85% of the population of Nepal is living below the poverty line by assuming an average of Rs. 7,696 as the national poverty line (MOF, 2010 p. 79). Tourism plays an important role in the Nepalese economy, particularly in terms of foreign exchange earnings and employment creation. Reliable data on the number of people employed in tourism-related activities are not available (UN, 2003b p.40). MoCTCA (2010) shows that income per tourist per day is US$ 43.2, gross foreign currency earning in convertible currency is US$ 329.98 million and length of stay is 12.67 days.

The direct contribution of travel and tourism to GDP was Rs. 53.5 billion (4.0% of total GDP) in 2011, and is forecasted to rise by 4.7% in 2012, and to rise by 3.7% pa, from 2012-2022, to Rs. 80.8 billion in 2022 (in constant 2011 prices). The total contribution of travel and tourism to GDP was Rs. 119.1 billion (8.8% of GDP) in 2011, and is forecast to rise by 4.8% in 2012, and to rise by 4.1% pa to Rs. 185.5 billion in 2022 (in constant 2011 prices). Travel and tourism generated 412,500 jobs directly in 2011 (3.3% of total employment) and this is forecasted to grow by 3.7% in 2012 to 428,000 (3.4% of total employment) (WTTC, 2012).

Today, Lumbini holds a highly esteemed position in the world. Lumbini is the top priority pilgrimage destination for Buddhists, not only this; it is equally respected by Hindus. In

addition to this; it is also a very popular destination for non-Buddhist and non-Hindus. The potentiality of Lumbini can attract millions of pilgrims and the visitors from all over the world. Only 0.1 % of total Buddhists and Hindus visiting Nepal every year can contribute a lot in national economy. However, the statistics for the year 2009 shows that (EITCDR, 2011, LDT, 2009):

- Mecca was in 11th rank with 6985000 tourists/pilgrims
- Jerusalem was in 49th rank with 2215200 tourists/pilgrims
- Lumbini's rank couldn't be identified with negligible 82445 tourists/pilgrims

The expansion of pilgrimage network among the pilgrimage destinations around Lumbini and the other sites in Nepal can increase the number of pilgrims and tourists. It can lengthen the travelers' stay period which can play significant role to generate more foreign currency, contribute on GDP and employment opportunities. The activities carried out in Lumbini are not sufficient for the overall development of Lumbini. Despite the higher scope of pilgrimage tourism, the tourism policy of Nepal and tourism stakeholders have not been able to address to it effectively. Lumbini is struggling because of several reasons. This research study tried to explore those weaknesses and find possible solution.

1.4 Research Questions

This study attempts to explore the following fundamental questions:

- How capable and how well can tourism managers identify the importance of pilgrimage tourism?
- How capable and how well can tourism managers identify the importance of Lumbini?
- Are the services and facilities provided for pilgrimage enough and effective?
- Are the policies implemented on pilgrimage site effective enough?
- What is the average length of stay and per day income of tourists during their visit?

- How does tourism impact local level employment and the national economy?

The search of the answers to those questions is included in the study. The above questions were broken down to different sub-questions for the purpose of this study. The other essential parts of the study include field study, available data, interviews and observations.

1.5 Objectives of the Study

The basic objectives of this study are to assess the time series data and analyze the impacts of pilgrimage tourism with a special focus on Lumbini. This study is related to the following objectives:

- to assess the international tourist arrivals in Nepal
- to examine tourism policies focused on pilgrimage
- to explore the services, facilities and problems of the tourists in Lumbini
- to use appropriate tools and statistical models for uncertainty of monthly tourist arrivals in Nepal and forecast

1.6 Hypothesis of the Study

It is hypothesized that there are some important factors which attract tourists, as result of whether they will extend their length of stay, revisit or recommend others to visit the destination. It is better to test with the responses of the respondents. Here are some hypotheses related to this study.

1. Nepal, as a whole, is like a pilgrimage destination for Hindus and Buddhists
2. Pilgrimage tourism has positive effects in socio-economic development
3. If more people travel to the pilgrimage sites internationally, the world would be a better place to live in
4. In Lumbini, one gains a sense of self confidence
5. In Lumbini, one hopes to gain a new perspective on life

6. Rating of importance and level of satisfaction of weather and scenery, culture, preservation and development works, Lumbini Master Plan, facilities, policies, hotel/guest house, sightseeing tours, tourist information office, darshan and pray, safety, and shopping in Lumbini

1.7 Limitations of the Study

The field surveys were carried out in different timings from 2005-2007mostly based on Lumbini. The survey covers those pilgrims/tourists who visited Lumbini as a tourist and is recorded in official document.

The following points are the limitations of the study:

1. Time frame: some of the tourists visited Lumbini for a very short time and left the same day. Time constrain was one of the many limitations because they just come and rush and did not have time to interact. Some just visit certain areas rather than seeing all of Lumbini.
2. Mode of travels: due to this, some of the Indian visitors who visit Lumbini by land are not recorded in the official records of the visitor's book. Only those who traveled by plane were recorded in the official documents as a tourist.
3. Domestic visitors are just considered as pilgrims and not counted officially as visitors, who largely contribute to economic growth.
4. The unclear records of spending by most of the visitors as they do not like to disclose about their budget and spending.
5. Lack of Lumbini promoting official staff guides and language translators, because some of the visitors have language difficulties due to which the respondents could not respond to the questions asked to them about Lumbini.
6. Respondents did not like to talk about or respond on the questions related to financial matters.

7. Not enough facilities to meet the needs of the visitors for instance: pilgrims experience hardship, fasting, walking, and bathing in cold water and do not care about these problems and difficulties.

Due to the limitations listed above did not provide general information about Lumbini and were unable to answer all the questions included in the questionnaire (Appendix). Especially, guided tourists visiting via India, however, stay in Lumbini only one day or went back on same day, and thus could not respond to the questionnaire completely. That is why; reliability and accuracy of data depends heavily on the respondents' ability to recall the relevant information. Judging, however, from the author's personnel knowledge of the study area, information on the other aspects was deemed satisfactory. The results from this study cannot be generalized to different pilgrimage sites. In the case of earning from tourism, there may have variation in calculation as the US$ value changes.

1.8 Organization of the Study

The dissertation is divided into five chapters.

Chapter 1: It covers the background, research problems, objectives of the study and the limitations of the study. It also describes about "The literature on tourism which includes theoretical foundation on tourism," literature review of pilgrimage tourism and mathematical models used in tourism, and a general description of the study area Lumbini.

Chapter 2: It deals with "The Research Methodology" with sub units such as research design, source of data, data collection procedures; sample size, analytical tools and the use of non-linear models.

Chapter 3: Presents the results analysis of primary and secondary data.

Chapter 4: Covers the discussion and conclusions of the study.

Chapter 5: Includes the summary and recommendation of the study.

At last, this dissertation contains references and appendices.

1.9 Literature Review

An examination of the available literature on pilgrimage tourism is relatively limited. The available research dissertations, books, journal articles, case studies and other relevant research works are reviewed in this study.

1.9.1 Dimension of Tourism

The word tour is derived from the Latin word ‘tornare’ and the Greek word ‘tornos’, and means‘a lathe or circle; the movement around a central point or axis’. The suffix ‘ism’ is defined as ‘an action or process; typical behavior or quality’, while the suffix ‘ist’ denotes ‘one that perform a given action’. When the word tour and the suffixes ‘ism’ and ‘ist’ are combined, they suggest the action of movement around a circle. Like a circle, a tour represents a journey that it is a round-trip, i.e., the act of leaving and the returning to the original starting point, and therefore, one who takes such a journey can be called a tourist (Theobald, 1997 p.6; Kunwar, 2002 p.15).Tourism has no universally accepted definition. It is a business which is the largest and is a fast growing service oriented industry all over the world. It generates significant opportunities in its array of allied sectors (Shrestha, 2000 p.33).

In Sanskrit literature, there are three terms for tourism derived from the root ‘*atan*’ which means going or leaving home for some other place. The three terms are:

Paryatan: It means going out for pleasure and knowledge.

Desatana: It means going out of the country primarily for economic gain,

Tirthatana: It means going out to places of religious merits (Negi, 2004).

Tourism is an education about sharing by different kinds of people as well asunderstanding those aspects of history and art which connect not only people living

close to eachother, but also those coming from a long way(Galli and Guerzoni, 2002 p.3). Tourism is an activity generating a number of economic and social benefits to the country with foreign exchange earnings, and creating employment directly and indirectly (Gautam, 2008_a p.6). Today, tourism is also the subject of great media attention and the media obviouslypromotes tourism. Tourism is a socio-economic phenomenon comprised of the activities and experiences of tourists away from their home environment and serviced by the stakeholders of the host destinations (UN, 2003 p.7). People started to travel from one place to another, leaving their dwelling place, with different motives. However, historical records show that people traveled for trade, and religious rites in the ancient world. They were impelled by the innate human desire to explore their surroundings, discover the unknown and seek near experiences. Other motivations like curiosity, health, sports and knowledge made them travel for pleasure to renewed places (Tewari, 1994 p.2).

1.9.2 Destination and Carrying Capacity

Destination is the place where tourists visit. Sometime the term destination is quite complex to some people. It may be a hotel, a city, a region, a mountain, a heritage site or a country. Destination management has to address the needs of the tourists and develop a quality assurance programme that guarantees visitors' satisfaction, protestation, and enhances the communities and the environment (UN, 2003 p.18). Bierman (2003) defines destination as “a country, state, region, city or town which is marketed or markets itself as a place for tourists to visit.” Destination management issues are important in every destination. Some of the sites are very special places and these can get damaged easily. Pilgrimage, cultural or historical sites are very valuable and irreplaceable; one has to take a good care of these sites and maintain their cultural significance. Usually, those sites are in constant danger from both natural and man-made threats. Major threats of cultural and

pilgrimage destination are ignorance, negligence, illegal trade, theft, fire, development work and war. A good site management system aims for prevention rather than cure (UN, 2008 p.13-14).

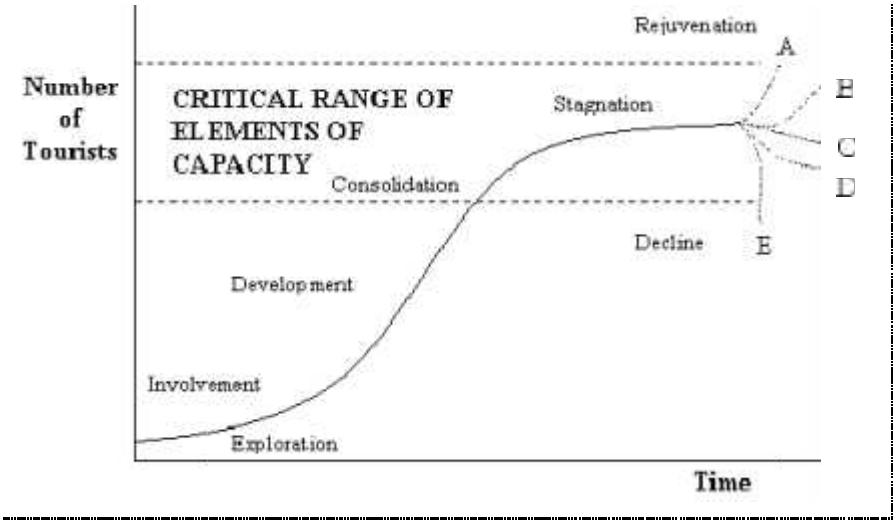


Figure 1.1 Hypothetical Evolution of a Tourist Area(Source: Miller & Gallucci, 2004)

Tourism destinations have a lifecycle like other products. Butler(1980) proposed a widely-accepted model of the lifecycle of a destination. The Tourism Area Life Cycle (TALC) model is that in which a destination begins as a relatively unknown location and visitors initially come in small numbers restricted by lack of access, facilities, and local knowledge, which is labeled as exploration in Figure 1.1.

When more people discover the destination, the word spreads about its attractions and the amenities are increased and developed. Then the numbers of visiting tourists begin to grow rapidly towards some theoretical carrying capacity (Stagnation), which involves social and environmental limitations. The rise from exploration to stagnation time and again happens very rapidly, as implied by the exponential nature of the growth curve. The possible trajectories are indicated by dotted lines A-E which are examples of a subset of possible outcomes beyond stagnation. Factors that could cause a destination to follow

trajectories A and B toward rejuvenation are technological developments or infrastructure improvements leading to increased carrying capacity. Factors that could cause a destination to follow trajectories C and D are increased congestion and unsustainable development, causing the resources that originally drew visitors to the destination to become corrupted, or no longer exist. The trajectory E in the figure is the most interesting part which is the likely path of a destination following a disaster or crisis. The likely path of a destination following a disaster or crisis is trajectory. Trajectory E is the most interest to this research. It is important to point out that the Law of Diminishing Returns could cause a destination to follow trajectories similar to those of C or D, and that the concepts and practices of destination recovery, as applied to destinations recovering from a disaster, could easily be applied to a destination in decline as a result of Law of Diminishing Returns (DRS, 2010 p.1).

WTO defines tourism carrying capacity as the maximum number of people that may visit a destination at the same time, without causing destruction to the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction. Existence of tourism depends on the natural and human environment. Hosting larger numbers of visitors and providing them a satisfactory experience are challenges of a destination. It has to cope with high demand and pressure on infrastructures and basic services. Carrying capacity is the management tool to identify the limits of growth of tourism and a step towards preventing negative visitor impacts and limit the degree of change that can be safely accommodated without altering the special character of the destination. The UNWTO guidelines developed a basic equation for calculating visitor carrying capacity:

$$\textit{Carrying capacity} \ \mathrm{X} \frac{\text{Area used by tourists}}{\text{Average individual standard}} \qquad (1)$$

The average individual standard (often measured in square meters per person) is the space a tourist requires for an acceptable experience in the protected area, which will vary depending on the area, activity, and management. Despite the objective appearance of the square-meters per-person figure, its calculation is based on subjective factors (Davis, 2004 p.1).

1.9.3 Tourism Development in Nepal

Nepal Tourism Master Plan (1972) was the first comprehensive guideline for the development of tourism. The plan was intended to provide a basis for integrated growth in tourism. It identified the major tourism products of Nepal, suggested the potential places and suitable activities. It also identified the key potentials of Nepal as a tourist destination. The plan was designed as an instrument of action based on the long-term perspective of future tourism activities. The plan recommended the expansion of the accommodation and facilities. The plan proposed five different types of tourism such as International Pilgrimage, Nepalese Style, Trekking, and Sightseeing and Recreational tourism. Priority was given on the development of pilgrimage center at Lumbini, Muktinath, Barahachhetra and Janakpur. Kathmandu was seen as the nerve center of tourism activities. The plan has given priority to develop Lumbini as an international pilgrimage destination and one of the important sightseeing destinations for the tourists in Nepal (Dhital, 1995, Ghimire, 2011 p.49). The Master plan reviewed in 1984 noted that the main impediment of the implementation of plan was due to the fact that the government at large failed to share its responsibilities in directing and promoting tourism in a planned manner. The Tenth Plan (2003-2007) also gave high priority with the objectives of effective promotion of the tourism sector achieving sustainable development by enhancing public participation for poverty alleviation, people participation in the conservation of historical, cultural,

religious and archaeological heritage, establishing international airports and improving aviation service with adequate infrastructure development. The major strategies comprise of establishing a regional tourist hub center; creating a pollution-free environment for the tourists. The main policies are promoting quality tourism; enhancing internal tourism which will strengthen the economy; generate more employment opportunities especially to the rural women and deprived communities through cottage and handicrafts industries. Visit Nepal Year 1998 had been the instrumental program to identify different tourist destination in Nepal and project Nepal's image in the international market. There was big hope from this event. However, the ten years (1996-2006) armed conflict in Nepal and unstable political situation of the country did not help grow tourism in Nepal as expected.

1.9.4 Pilgrimage Tourism: An Old but New Phenomena

The terms *tirthayatra* (pilgrimage) and tourism are both related to travel. The word 'Pilgrimage' was derived from the Latin word 'peregrinus', i.e. stranger, which means visit to a sacred place. Tourism is secular while pilgrimage is a sacred act. Tourists derive mental relaxation from novel sights whereas the devout perceive spiritual enlistment from pilgrimage (Gurung, 1998 p. 32). The history of modern tourism is not as old as pilgrimage tourism- the oldest concept or original art of traveling. Pilgrimage tourism is a significant type of tourism and the pilgrimage to sacred and holy places like Lumbini for Buddhists, Pashupatinath for Hindus, Jerusalem for Christians, Mecca – Medinafor Muslims etc. induced modern tourism in society (Ghimire, 2004 p.95). Religious tourism is among the least explored tourist activities in the world of modern tourism (Vukonic, 1998 p.1). Pilgrimage is one of the well-known phenomena in religion and culture and itexists in all the main religions of the world (Collins-Kreiner et al., 2006).The ideal pilgrimage is an expression of human aspiration for perfection, and those myths and

legends associated with sacred journeys define the ideal and structured symbols for its enactment (Kunwar, 2006 p 245). A pilgrimage phenomenon is a complex term and the following definitions help to clarify it. It is not surprising that a human activity as complex and varied as a pilgrimage has no universally accepted definition. Barber (1993, p.1) defines pilgrimage as: "A journey resulting from religious causes, externally to a holy site, and internally for spiritual purposes and internal understanding". The difficulties in defining this term become apparent by examining the following definitions.

> Pilgrimage is a journey to a sacred place made for religious reasons/ regions. It is undertaken in order to gain a greater sense of closeness to the sacred or as a means of affirming one's faith. Pilgrimage is made to sites associated with the founders of particular religions, such as Jerusalem and Mecca, or to places where important religious events have taken place (Goring, R., 1992).

> Pilgrimage is the literal or metaphorical movement to a condition or place of holiness or healing. Pilgrimage can be both interior and exterior. Interior pilgrimage is the movement of a life from a relatively abject condition to the goal (ultimate or proximate) in a particular religion. Exterior pilgrimage is ajourney to some place which is either itself associated with the resources or goals of a religion, or which is the location of object which may assist the pilgrim-e.g. relics. The reasons for pilgrimage are extremely varied. They may, for example, be for healing, holiness, cleansing penance, education, gratitude, in response to a vow, to recapitulate an event which occurred at the pilgrimage centre (as for example, to see for oneself a reported vision; or , somewhat differently, to reenact events in the past) (Bowker, 1997).

> Pilgrimage is a religious custom that is both ancient and wide spread. Pilgrimage involves three factors: a holy place; attraction of individuals or crowds to this place; a specific aim, i.e. to obtain some spiritual material benefits. (…..) Places of pilgrimage are various: tombs of holy personages' location of a holy object or relic, places connected with miraculous healing (Barandon, 1970).

These three definitions possess common elements, although there are different perspectives involved. There is a general agreement that the motivation of the traveler must be religious for the event to qualify as a pilgrimage. Site plays an important role in pilgrimage as it is the trigger for people deciding to go on a sacred journey. One can refer pilgrimage as the total set of symbols, history, rituals, legends, behavior, deities, locations, specialists etc. that center in those sites (Behera, 1995 p.43; Roy, 2000 p.8; Stoddard and Morinis, 1997 p. 41-49).

The origin and evolution of the *tirtha yatra* - tradition of Hindus seems to be as old as their civilization or perhaps older than that (Kaur, 1985 p.27). Hinduism is the world's oldest religion and the art of traveling was a part of life. The *tirthayatra* is aimed at securing coordination between pious life and the highest *gyanam* (Kunwar-1997 p.161-65). Atourist is half a pilgrim, if a pilgrim is half a tourist (Turner and Turner, 1978; Collins-Kreiner et al., 2006). The Encyclopedia of America (1829) explains pilgrimage as an institutionalized journey by individuals or groups to the holy places. Pilgrimages are based on the belief that a deity or saint can best be approached in a place in which they are associated. Pilgrims travel long distances, and they often meet hardship and dangers to reach a shrine. Pilgrims have tended to travel in groups, both for safety and economic reasons, especially when travel was difficult, and for moral support. At the site, usually

marked by a temple, church or other structure, they pray and perform other rituals, such as bathing, praying and worshipping, walking around the shrine or mounting a flight of stairs on their knees. Pilgrims also carry home some tangible proof of their visit such as *Tika* and *Parsad* from temples, oil from a Church lamp, dust from a tomb, water (*jal*) from a sacred river and ponds. *Jala* is generally attached with Hindu sacred sites in different form. Water sources in the high Himalaya have always been a strong attraction for pilgrims since prehistoric times. Bathing (*snana*) at pilgrimage sites is always meritorious to the Hindus. Purification by bathing and drinking sacred *jala*from the holy river or pond or spout is a principal part of each pilgrim's quest.Besides regular worship, Hindus perform rituals such as*sharadha,tarpan and pinda dan* in pilgrimage site (Khanal, 2008; Messerschmidt, 1989 p. 99).The greatest pilgrimage sites are often a combinationof a number of sacred elements like temple, pond, Holy River, and/or holy tree. Hindus believes that places of pilgrimage yield a special advantage for a devotee in quickly advancing his spiritual life.

Pilgrimage sites have their unique character andambience. The concept of *tirtha* in Hindu religion originates from the time when *Puranas*began to be composed around 4th century A.D.*Tirtha* is asacred place charged with the power of Godsand Goddesses and resonant with purity. Because of three elements such as *suchi (*pure), *punya (*merit andgoodness) and *shubha* (auspicious) pilgrimage becomes so sacred. *Ttirtha*is a place where one can gain enlightenment (*Nirvana*) and achieve liberation (*Moksha*).Pilgrims aspire to achieve salvation by visiting holyshrines for release from the temporal world (Patnaik, 2008 p.101).

In Buddhism, Lord Buddha advises for pilgrimage without which there is no release from grief and unless the end of the world isto be reached. So let a man be a world-knower,

wise, world-ender (Kunwar, 1997). It was the Buddha himself who enshrined pilgrimage as an important act in the life of a practitioner. In answer to Venerable Ananda's concern that the monks would no longer be able to see the Buddha and pay their respects after His Mahaparinirbana, Lord Buddha mentioned four places which a pious disciple should visit and look upon with feelings of reverence.

They are:

- Lumbini: "Here the Tathagata was born!
- Buddhagaya: "Here the Tathagata became fully enlightened, in unsurpassed, Supreme Enlightenment!
- Sarnath: "Here the Tathagata set rolling the unexcelled Wheel of the Law!
- Kusinagara: "Here the Tathagata passed away into Nirvana.

Further Lord Buddha said, "And whosoever, Ananda, should die on such a pilgrimage, with his heart established in faith, he at the breaking up of the body, after death, will be reborn in a realm of heavenly happiness" (Mahaparinirbana Sutra Chapter V; in San, 2002p 15; Ghimire, 2011 p.47).There are other important sites as well where the Buddha performed his great miracles and those where he and the *sangha* held their rain retreats.

Pilgrimage to the holy places mentioned by the Buddha is a once-a-lifetime undertaking by Buddhists. A pilgrimage is a journey to a sacred place as an act of devotion and faith (*shraddha*). A strong desire stems from one's devotion to undertake a pilgrimage in order to heed the Buddha's advice. When the mind or will is strong, it is not discouraged by the rigorousness of the journey. Pilgrimage is also an act of renunciation whereby pilgrims do not crave luxury but are contented with simple, clean accommodation, food and transportation. In the course of visiting the sacred places, pilgrims feel the need to be in

the Master's presence and this fullness of faith conduces to joy and the observance of morality and the foundation of all merit. The holy shrines are also conducive places for pilgrims to reflect on the Buddha's virtues and practice mindfulness to develop wisdom. Indeed, one can develop the perfections and earn much merit by pilgrimage and it should not end when one has returned home. After the journey is over, one should always try to recollect the joyful moments spent at holy places to keep them vivid in one's memory. A pilgrimage in a group to the great places is one of the best ways to cultivate Buddhist fellowship. The bonds of comradeship formed through the performance of meritorious actions together will endure long after the pilgrimage is over and members will cherish fond memories of each other whenever they recollect the happy moments spent at the holy places (San, 2002 p.11; Ghimire, 2011 p.47).

The sight of the holy shrines, say the texts on pilgrimage, should not arouse craving, nor the pleasure and excitement of sightseeing, but rather the awakening of virtuous potential in our mind stream. His Holiness the Dalai Lama, commenting on Buddhist pilgrimage, or *dharma yantra*, says:

> The *dharma yantra* is very important for Buddhists. When we visit these sacred sites, we are reminded of the Master, Lord Buddha. It develops in us a strong sense of compassion. Ideally, one should be a better person when one returns, otherwise it is not useful, a waste of money and time (ibid).

After the death *parinirvana* of the Buddha, the relics of His body were collected from the funeral pyre and divided into eight parts. These were distributed to the claimants and *stupas*, were erected on the relics. The practice of pilgrimage in Buddhism probably started with visits to these places, and the purpose could be to achieve personal advantages such as rebirth in a good location, as well as to honour the great master. Thus the custom

of pilgrimage has been widespread among Buddhist for many centuries. Buddha had emphasized about the importance of pilgrimage. "*Bhikkhus*, after my passing away, all sons and daughters who are of good family and are faithful should go to the four holy places and remember. New *Bhikkhus* who come and ask of the doctrine should be advised for pilgrimages which help to purify their previously accumulated Karmas or actions" (Buddhanet, 2010). The early Buddhist pilgrims endured tremendous hardship, and some of them changed the course of history (Szostak, 2007).

In Islam, the Holy city of Mecca in Saudi Arabia is considered as the center of the Islamic world and is the burial place of the Islamic prophet, Mohammed. Mohammed modified a traditional pilgrimage of Pagan Arab tribes to Mecca and adapted it as one of the Five Pillars of the faith. Every Muslim who is physically and financially able is required to make at least one journey to Mecca in order to walk around the sacred stone in the Kaaba and perform other rituals based on the Quaran. Every year, millions of Muslim pilgrims visit to Mecca during the Islamic month of Dhu al-Hijjah. They have to wear white clothing and fast during the day. It is interesting to note that women under 45 are required to travel with a “mahram,” or a male who is considered the head of her family. Once the pilgrims arrive in Mecca, there are traditional rituals called Umrah that Muslims must follow. The rituals are quite complex and last over a week. Pilgrims with traditional clothing only can walk around the Kabaa in a counterclockwise direction several times. 'Sa’ey’ literally means to run is the next ritual that the pilgrims have to perform that involves walking back and forth between the hills of Safa and Marwah, the spot where the Prophet Abraham’s wife ran frantically in search of water for her son. After that pilgrims have to go to Arafat, the place where Mohammed gave his final sermon and drink water from the Zamzam well inside of the Great Mosque. Muslims believe that this well is the place where God once provided water to Hajar and Ismail, two central figures of Islam,

when they were wandering out in the desert for water. A pilgrim having returned from the pilgrimage is entitled Hajj ("pilgrim"). A Muslim may hire a substitute to go to Mecca.Mecca travel is forbidden for non-Muslims (Mecca, 2008; The Encyclopedia America, 1829).

Christian pilgrimages to Jerusalem and other biblical sites in Palestine were considered to be established in the third century. They greatly increased after the supposed discoveries of the tomb of shrines that are adorned with ex-votos which are small metal images, crutches or pictures representing miraculous cures or rescues. Protestants generally do not make pilgrimages (The Encyclopedia America, 1829). Christianity was a religion without temples, sanctuaries, and ceremonies. The saying of Johannine Gospel – which God is to be adored neither in Jerusalem nor on Gerizim, but that his true worshipper must worship him in spirit and in truth, is in complete harmony with the old Christian piety. In the ancient Christian literature, there is no trace of a conception that a believer should visit a definite place in order to pay homage to his Master. However, Christians of the third and fourth centuries were in the habit of visiting Jerusalem for prayer. It demonstrates that the non-Christian conception of the religious pilgrimage had already entered the sphere of Christian thought. Traveling for purposes of prayer implies the acceptance of the heathen theory of sanctuaries which it is an act of piety to visit (The Encyclopedia Britannica, 1911).

Collins-Kreiner et al. (2000) gave the tourism-pilgrimage axis. This continuum is composed ofsecularism versus sacredness and tourism versus pilgrimage.On the one side, near the sacred and pilgrimage end, there are 'pure' pilgrims who are interested only in holiness andworship, and on the other side there are 'pure' tourists whoare interested

mainly in the modern tourist aspects of theirvisit. Each visitor may be ranked on this scale according tohis motivations and interests.

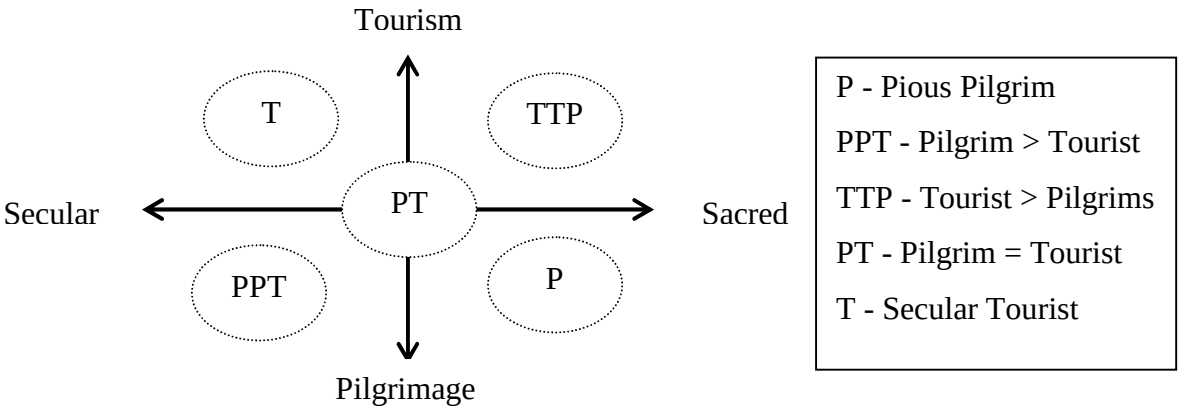


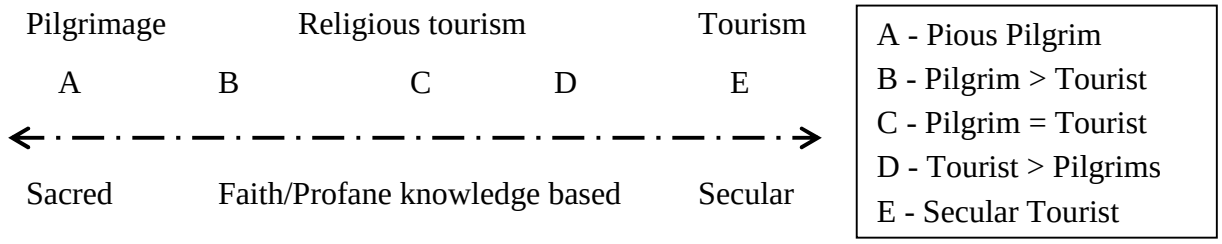
Figure 1.2 the Tourism - Pilgrimage Axis

The 'pure' pilgrim is located near the sacred edge, while the tourist is located near the tourism edge. A visitor who reveals the self-image of a tourist but expresses religious motivations, feelings and wishes is located near the tourism-sacred side where as a visitor who defines him/herself as a pilgrim but expresses a wish to visit non-religious sites and whose motives are not entirely religious is located near the pilgrimage-secular side. The differences that were noted among the visitors' attitudes to the tourist content and their 'world perception 'were found to be dependent mainly on their church affiliations and not on their age, country of origin, socio-economic status and self-perception. Every pilgrim's world perception and his/her self-image on the pilgrim-tourist continuum were ranked according to their beliefs.

Likewise, Smith cited on Collins-Kreiner et al. (2000) identified tourism and pilgrimage on opposite end points on a continuum of travel. The polarities on the pilgrimage-tourism axis are labeled as sacred vs. secular and between the extremities lie almost infinite possible sacred-secular combinations, with the central area (c) now generally termed

'religious tourism'. These positions reflect the multiple and changing motivations of the traveler whose interests and activities may switch from tourism to pilgrimage and vice versa, even without the individual being aware of the change.

Figure 1.3 The Pilgrimage -Tourism Continuum (Collins-Kreiner et al., 2000)



Jackowski and Smith cited on (ibid) used the term 'knowledge-based tourism' as synonymous with religious tourism. Most researchers identify 'Religious Tourism' as an individual's quest for shrines and locales where, in lieu of piety, the visitors seek to experiences sense of identity with sites of historical and cultural meaning.

Kaur (1985) assembled the facts on recreational and religious geography in different environments for preparing an inventory of tourism resources. The study also made an attempt at collecting facts on visitors' demographics, behaviorist patterns, life styles and motivations which by large should shape the 'product' and infrastructure. Physical service and field traverses were considered the best and safest method to approach to this work, as reliable accounts of the region were hard to find. Cultural facts relating to folk traditions were gathered from folklorists, aged people and published literature. The book starts with an introduction, a conceptual approach on the philosophy of modern tourism and old pilgrimage, a historical perspective on pilgrimages and tourism, reviling 'cultural moorings ' and a pilgrim ethos in Vedic, ancient and mediaeval times. It discusses the modernization process of pilgrimages, and the phenomena of new tourism.

Ghimire (2002/03) did a study on tourism policies formulated and adopted in Nepal. Very little priority was given for pilgrimage tourism and the stakeholders could not address it adequately. As the Nepalese tourism industry is highly affected by incidents inside or outside the country, the tourism policies could not address the scope of pilgrimage and other (regional and domestic) tourism which could be the better alternative for the international tourists. The author recommended to having policies and programmes to attract the regional tourists from Asian countries which could be less affected by the international incidents, and also suits in religious, cultural, environmental factors. Further, the pilgrimage network in the famous pilgrimage sites can increase the length of stay and number of pilgrims. Domestic tourism is contributing a lot in the national economy which is not planned and developed properly

Ghimire (2004a) was a study about pilgrimage tourism and Pashupatinath Temple in Nepal. The significance of Pashupatinath is so great that Pashupati Chhetra is a place where one can get a daily dose of *dharma* (religion), *artha* (wealth), *kama* (pleasure) and *mokshya* (liberation or salvation). The research found that tourists visiting with other purposes also visit the pilgrimage sites. Hindus visiting Nepal with other purposes normally visit Pashupatinath and other popular Hindu shrines and Buddhist visiting Nepal with other purposes normally visit Lumbini, Swayambhunath, Boudhanath and other Buddhist sites which are not recorded yet. Thousands of Indians visit major pilgrimage sites such as Pashupatinath, Muktinath and Manakamana in Nepal every year but are not recorded as pilgrims if they come via land. The research gave emphasis for a dynamic statistical recording system so that advance statistical analysis and modeling can be done. As per survey, 10% of the respondents visiting Nepal with other purposes visited pilgrimage sites. Various problems were addressed by the respondents which are included in the summary of this thesis.

1.9.5 Pilgrimage Tourism in Nepal

Nepal has become a decent destination for pilgrimage tourism with her large number of Hindu and Buddhist pilgrimage sites, shrines and temples. Nepal, the whole country is like a country of temples and pilgrimage sites (Ghimire, 2004b p. 95). Nepalese people have religious tolerance and communal harmony among Hindus, Buddhists and other religions. A tourist who had visited Nepal long ago called it a home of gods and land of festivals. Nepalese pilgrims not only go to holy places in their own country but also famous holy places in India.

Nepal is the place where the Hindu and Buddhist religions originated and the only country in the world with unique blend of diverse religions living side by side in peace and harmony. There are many common pilgrimage sites and festivals commonly celebrated. Religious syncretism has been a special characteristic from generation to generation. So there are thousands of pious places of pilgrimage in Nepal. Everywhere there are temples, gumbas, stupas, and kundas famous for pilgrimage purposes. That is why, Nepal, as a whole, can be considered a country of pilgrimage destinations.

Nepal can benefit from both of her neighbors i.e. India and China for having the largest number of both Hindus and Buddhist pilgrimage tourists. Nepal predominantly being the habitat of some of the most hospitable people in the world can provide the best venue and services for those who visit this country in search of total spiritual satisfaction. The pristine mountains of Nepal are believed to be the home of gods and goddesses. The blend of these majestic mountains and beautiful landscapes offers a complete peace of mind and soul to any visitor choosing Nepal as pilgrimage destination. Pashupatinath provides an ultimate pilgrimage and salvation for Hindus and Lumbini provides an ultimate nirvana for the Buddhists.

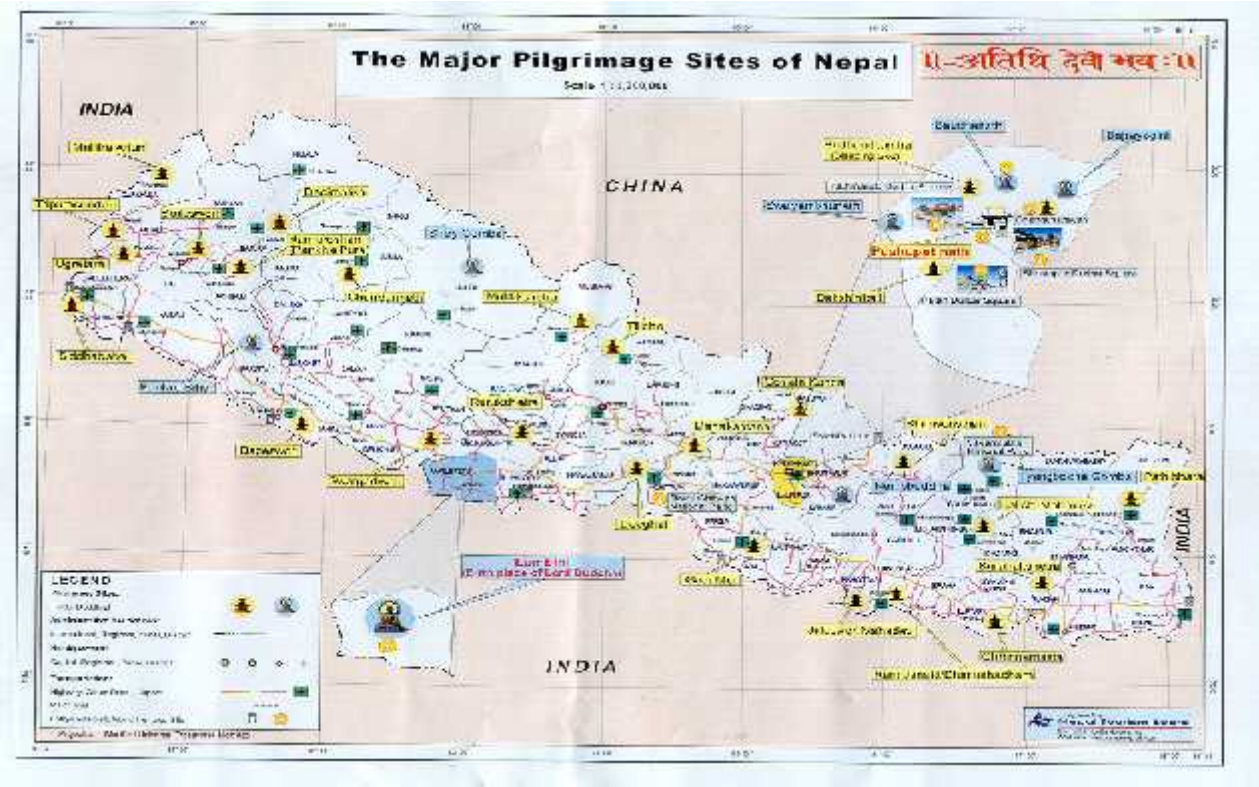


Figure 1.4 The Major Pilgrimage Sites of Nepal (Source: NTB)

1.9.6 Review of the Mathematical Models in Tourism

Several researchers had used various mathematical models in tourism. As a result of time-varying effects, such as changes in economic fortunes abroad, natural disasters, ethnic and political conflicts, crime, terrorist incidents, and other exogenous factors, there have been periods of considerable fluctuation in international tourism demand from Nepal. These fluctuations in demand can and do have a significant impact on the solvency of hotels, airlines, travels, employment in the industry and overall economic activity. It is therefore very important that tourism planners and policymakers have an understanding of volatility and models to forecast volatility of tourist arrivals.

The Autoregressive Conditionally Heteroscedastic (ARCH) model is a non-linear model that is used widely in econometrics. Engle (1982) in his model assumes that the conditional variance is a positive function of the value of the previous error terms instead

of a fixed constant. In other words, the error variance depends on p lags of squared errors, and the ARCH (p) model is specified as follows:

$\pm_t^2 \; X\sim_0 \Gamma \quad \sim_i £_{tZi}^2$, where $\sim_0 \Psi 0, \sim_i \mid 0$ (i = 1,2, …p) (2)

Here, $\pm_t^2$ is the conditional variance at time t, α_0 is a constant parameter, α_i are coefficients, and $£_{tZi}^2$ are the ARCH terms. Since $\pm_t^2$ is a conditional variance, its value must always be positive. In order to ensure that the equation is meaningful, all the coefficients in the RHS of the equation, namely, α_i are required to be non-negative. Since the conditional variance, $\pm_t^2$, is affected by the past error terms, $£_{tZi}^2$ and $\alpha_i$are always non-negative, the present volatility is positively correlated with the past error terms, which is known as volatility clustering.

Bollerslev (1986) incorporated the concept of the Auto-Regressive Moving Average (ARMA) model in the ARCH model by adding the conditional variance of the previous lags and prepossessed the Generalized ARCH (GARCH) model. The GARCH (p, q) model specification for the conditional variance equation is:

$\pm_t^2 \; X\sim_0 \Gamma \quad \sim_i £_{tZi}^2 \; \Gamma \quad {}_j £_{tZj}^2$, (3)

where $\sim_0 \Psi 0, \sim_i \mid 0$, ${}_j \mid o$ (i = 1,2, …p, j = 1, 2 , … , q)

Here, $\pm_t^2$ is the conditional variance at time t, α_0 is a constant parameter, α_i are coefficients, $£_{tZi}^2$ are the ARCH terms, and $£_{tZj}^2$, the last period's forecast conditional variances, are the GARCH terms. Just like the ARCH model, all the coefficients in the RHS of the equation, namely α_i and β_j, are required to be non-negative so that the equation would not be meaningless. In the GARCH model, $\Sigma\alpha_i + \Sigma\beta_j$ must be less than 1 to satisfy the stationary condition. If $\Sigma\alpha_i + \Sigma\beta_j$ is close to 1, the impact of news on volatility will last for a long time.

Glosten et at., (1993) proposed Glosten, Jagannathan & Rukle GARCH (GJR GARCH) model, for capturing the asymmetric effect in regard to the conditional volatility, which is what the GARCH model cannot explain.

The GJR GARCH model is specified as follows:

$$\pm_t^2 \; X\sim_0 \Gamma \quad \sim_i £_{tZi}^2 \Gamma \quad {}_j£_{tZj}^2 \Gamma ¥ £_{tZi}^2 I_{tZi} \text{ , where } I_{t-i} = 1 \text{ if } £_{tZi} \Phi 0 \tag{4}$$

$I_{t-i} = 0$ if $£_{tZi} \mid 0$

$\sim_0 \Psi 0, \sim_i \mid 0, \quad {}_j \mid o$ (i = 1,2, …, p, j = 1, 2 ,…, q)

I_{t-1} is a dummy variable. If I_{t-1} = 1, it means there is an impact from negative news on tourism environment. On the other hand, If I_{t-1} = 0, the tourism environment is facing a positive news impact. This model captures the asymmetrical effect with the dummy variable, I_{t-1}. That is, if $\gamma \neq 0$, it means an asymmetric effect occurs, and if $\gamma > 0$, there is a leverage effect.

Exponential GARCH (EGARCH) Model was proposed by Nelson (1991). There are various ways to express the conditional variance equation, but one possible specification is given by:

$$\ln(\pm_t^2) \; X\mu \; \Gamma \quad \ln(\pm_{tZ1}^2) \; \Gamma ¥ \frac{«_{tZ1}}{\sqrt{\pm_{tZ1}^2}} \Gamma \sim \quad \frac{|«_{tZ1}|}{\sqrt{\pm_{tZ1}^2}} Z \sqrt{\frac{2}{®}} \tag{5}$$

The model has several advantages over the pure GARCH specification. First, since the log $(\pm_t^2)$ is modeled, then even if the parameters negative $\pm_t^2$ will be positive. There is thus no need to artificially impose non-negativity constraints on the model parameters. Second, asymmetries are allowed for under the EGARCH formulation, since if the relationship between volatility and returns is negative, ¥ will be negative.

Modeling the volatility of tourism demand is a relatively new area of study. Nevertheless, there have been some attempts in this area, most notably Chan, Lim and McAleer (2005), Chan et al. (2005) and Shareef and McAleer (2005). In Chan, Lim and McAleer (2005), the authors modeled the conditional mean and conditional variance of the logarithm of the monthly tourist arrivals from the four leading source countries to Australia. The main utility of the multivariate volatility models used is that they explicitly take into account volatility correlation between markets. A wide range of other univariate and multivariate conditional volatility models can be used in estimation. The authors estimated three multivariate models such as Constant Conditional Correlation GARCH (CCC-GARCH) approach of Bollerslev (1990), Vector Autoregressive Moving Average GARCH (VARMA-GARCH) of Ling and McAleer (2003)and VARMA Asymmetric GARCH (VARMA-AGARCH)of Hoti et al (2002). Chan, Lim and McAleer found the presence of interdependent effects in the conditional variances between the four leading source countries, and asymmetric effects in tourist arrivals. The authors reported that their estimates were robust to the alternative specifications of the multivariate conditional variance. Chan et al. (2005) used several techniques to investigate the conditional volatility in monthly international tourist arrivals in Barbados, Cyprus and Fiji. They estimated a constant volatility linear regression model by Ordinary List Square (OLS) as a baseline for comparison with three time-varying conditional volatility models - ARCH, GJR and EGARCH. Overall, the authors reported evidence of short run persistence, and occasionally long run persistence, of shocks to international tourist arrivals.

Shareef and McAleer (2005) modeled both the volatility in monthly international tourist arrivals and the volatility in the growth rate of monthly tourist arrivals for six small island tourist economies: Barbados, Cyprus, Dominica, Fiji, Maldives and Seychelles using

GARCH (1, 1) and GJR (1, 1). While estimates for the conditional mean and variance in monthly international tourist arrivals for a particular country are similar using both the GARCH (1, 1) and GJR (1, 1), estimates varied somewhat across countries. This was similarly obtained when the growth rate of monthly tourist arrivals was modeled. Using the log-moment and second moment conditions, they obtained support for the statistical adequacy of the GARCH (1, 1) and GJR (1, 1) models.

Hoti, et al (2004) modeled the level and uncertainty in monthly international tourist arrivals from the 14 leading source countries, as well as total monthly international tourist arrivals, to the Canary Islands. The specification and properties of the Constant Conditional Correlation (CCC) GARCH model of Bollerslev (1990) was used to estimate the correlations between all pair's of tourist arrivals shocks, and discussed.

Following specification was considered:

$$\begin{aligned} y_t &= E(y_t / F_{t-1}) + \varepsilon_t \\ \varepsilon_t &= D_t \eta_t \end{aligned} \tag{6}$$

Where $y_t = (y_{1t},...,y_{mt})$ measures the tourist arrivals from the 14 leading source countries and total tourist arrivals, $\eta_t = (\eta_{1t},...,\eta_{mt})$ is a sequence of independently and identically distributed (iid) random vectors that was obtained from standardizing the tourist arrivals shocks, ε_t, using the standardization $D_t = diag(h_{1t}^{1/2},...,h_{mt}^{1/2})$, F_t is the past information available to time *t*, *m* (=15) is the number of tourism source countries, including total tourist arrivals, and *t* = 1,…168 monthly observations for the period 1990(1) to 2003(12).

The CCC model assumed the uncertainty in tourist arrivals shocks from source *i*, *it h*,*i* = 1, …,*m* follows a univariate GARCH process, that is,

$$h_{it} = \mu_t + \sum_{j=1}^{r} \alpha_{ij} \varepsilon_{ij,t-1}^2 + \sum_{j=1}^{s} \beta_{ij} h_{ij,t-1} \tag{7}$$

where $\sim_{ij}$ represented the ARCH effects, or the short-run persistence of shocks to tourist source *i*, and $_{ij}$ represented the GARCH effects, or the contribution of shocks to tourist source *i* to long-run persistence.

When the number of tourist source country is set to $m = 1$, the univariate model is specified as:

$$h_t \text{ X}\mu \Gamma \sum_{j\text{X}1}^{r} \sim_j \pounds_{t\text{Z}j}^2 \Gamma \sum_{j\text{X}1}^{s} {}_j h_{t\text{Z}j}, \quad (8)$$

And $\mu \Psi 0, \sim_i | 0$ for j= 1,…, r and $_j | 0$ for j = 1, …, sare sufficient regularity conditions to ensure that uncertainty is defined sensibly, namely $h_t \Psi 0$. The decomposition in (8) permits the uncertainty in the tourist arrivals shocks, $\pounds_t$, to be modeled by h_t, on the basis of historical data. Using results from Nelson (1990),Ling and Li (1997) and Ling and McAleer (2002a, 2002b), the necessary and sufficient regularity condition for the existence of the second moment of tourist arrivals shocks, $\pounds_t$, for the case $r = s = 1$ is given by $\sim_1 \Gamma \ _1 \Phi 1$. This result ensured that the estimates were statistically adequate.

Equation (8) assumed that a positive shock $(\pounds_t \Psi 0)$ to monthly tourist arrivals has the same impact on uncertainty, h_t, as a negative tourist arrivals shock $(\pounds_t \Phi 0)$, but this assumption is typically violated in practice. In order to accommodate the possible differential impact on uncertainty from positive and negative tourist arrivals shocks,Glosten, Jagannathan and Runkle (1992) proposed the following specification for h_t:

$$h_t \text{ X}\mu \Gamma \sum_{j\text{X}1}^{r} (\pounds_j \Gamma ¥_j I(\pounds_{t\text{Z}j}))\pounds_{t\text{Z}j}^2 \Gamma \sum_{j\text{X}1}^{s} {}_j h_{t\text{Z}j} \quad (9)$$

When $r = s = 1$, $\mu \Psi 0$, $\sim_1 | 0, \sim_1 \Gamma ¥_1 | 0$ and $_1 | 0$ are sufficient conditions to ensure that uncertainty is positive, namely $h_t \Psi 0$. The short-run persistence of positive (negative) monthly tourist arrivals shocks was given by $\sim_1 (\sim_1 \Gamma ¥_1)$. Under the assumption that the standardized shocks, $¦_t$, follow a symmetric distribution, the average short-run persistence of tourist arrivals shocks was $\sim_1 \Gamma ¥_1 / 2$, and the contribution of tourist arrivals shocks to average long-run persistence was $\sim_1 \Gamma ¥_1 / 2$. Ling and McAleer (2002a) showed that the necessary and sufficient regularity condition for the second moment of tourist arrivals shocks to be finite, and hence for sensible statistical analysis were $\sim_1 \Gamma ¥_1 / 2 \Gamma \ _1 \Phi 1$.

The parameters in equations (6), (8) and (9) were typically obtained by Maximum Likelihood Estimation (MLE) using a joint normal density for the standardized tourist arrivals shocks, $¦_t$, after uncertainty has been modeled. When $¦_t$ does not follow a joint multivariate normal distribution, the parameters are estimated by Quasi-MLE(QMLE). The conditional log-likelihood function is given as follows:

$$\underset{t\mathrm{X}1}{l_t^{n}} \mathrm{XZ} \underset{t\mathrm{X}1}{\frac{1}{2}^{n}} \log h_t \Gamma \frac{£_t^2}{h_t} \quad . \qquad (10)$$

Ling and McAleer (2003) showed that the QMLE for GARCH(r,s) is consistent if the second moment regularity condition is finite. Jeantheau (1998) showed that the log moment regularity condition given by:

$$E(\log(\sim_1 ¦_t^2 \Gamma \ _1)) \Phi 0 \qquad (11)$$

is sufficient for the QMLE to be consistent for the GARCH (1,1) model of uncertainty, while Boussama (2000) showed that the QMLE is asymptotically normal for GARCH(1,1) under the same condition. It is important to note that (11) is a weaker regularity condition

than the second moment condition, namely $\sim_1 \Gamma_1 \Phi 1$. However, the log-moment condition is more difficult to compute in practice as it is the expected value of a function of an unknown random variable and unknown parameters.

McAleer, Chan & Marinova (2002) established the log-moment regularity condition for the GJR(1,1) model of uncertainty, namely

$$E(\log((\sim_1 \Gamma ¥_1 I(¦_t))¦_t^2 \Gamma_1)) \Phi 0 \quad (12)$$

and showed that it is sufficient for the consistency and asymptotic normality of the QMLE for GJR(1,1). Moreover, the second moment regularity condition, namely $\sim_1 \Gamma ¥_1 / 2 \Gamma_1 \Phi 1$, is also sufficient for consistency and asymptotic normality of the QMLE for GJR(1,1).

In empirical examples, the parameters in the regularity conditions (11) and (12) were replaced by their respective QMLE, the standardized residuals, $¦_t$, were replaced by the estimated residuals from the GARCH and GJR models of uncertainty, respectively, for t = 1,…,n, and the expected values in (11) and (12) were replaced by their respective sample means.

Using the monthly data on international tourist arrivals, univariate and multivariate uncertainty models were estimated. There was a distinct seasonal pattern in each series. Although there are several alternative methods for modeling seasonality, twelve seasonal dummy variables were included for simplicity in the respective models of monthly international tourist arrivals from source i = 1,…,15,TA_{ij}, as follows:

$$TA_{ij} \text{ X} \sum_{j \text{X} 1}^{12} ¤_{ij} D_{ijt} \Gamma £_{it} \quad (13)$$

where D_{ijt} = 1 in months = 1,..,12, and D_{ijt}= 0 elsewhere.

In addition to estimating the tourist arrivals for each source country, the univariate ARCH(1), ARCH(2), GARCH(1,1) and GJR(1,1) models of uncertainty were used to estimate the uncertainty associated with tourist arrivals. As the estimated GARCH(1,1) model was always found to be preferable to the ARCH(1) and ARCH(2) models, and also generally superior to the asymmetric GJR(1,1) model, in what follows the empirical results was discussed only for the GARCH(1,1) model of uncertainty.

On the basis of the univariate estimates of the standardized tourist arrivals shocks, the CCC model was used to estimate the correlation coefficients of the monthly international tourist arrivals shocks between all pairs of tourism source countries. Estimates of the parameters of the tourist arrivals and uncertainty for the univariate showed that there is highly significant seasonality in tourist arrivals for each country and each month, except for Finland for the months of May through September inclusive. The persistence of shocks to the uncertainty in monthly tourist arrivals shocks was an important aspect of modeling volatility. Total tourist arrivals, as well as tourist arrivals from UK, Ireland and Sweden, have only short run persistence in tourist arrivals shocks that is for about one month. On the other hand, Germany had only long run persistence in tourist arrivals shocks rather than short run persistence, which means that the tourist arrivals shocks from Germany do not have an immediate impact but tend to accumulate over several months.

Regarding the regularity conditions of the GARCH(1,1) model, both the log-moment and second moment conditions were satisfied for Austria, Belgium, France, Germany, Italy and Switzerland. Although the log-moment condition could not be calculated for Finland, Norway and Sweden, the second moment condition was satisfied, so that the QMLE were consistent and asymptotically normal. Such results suggested that the empirical estimates were statistically valid for these tourism source countries. Overall, these univariate results

suggested that, in general, the GARCH(1,1) model was an accurate measure of the uncertainty in international monthly tourist arrivals shocks in the Canary Islands.

The univariate estimates suggested that the GARCH (1, 1) conditional volatility model provides an accurate measure of uncertainty in monthly international tourist arrivals. The estimated conditional correlation coefficients indicated whether there is specialization, diversification or independence in the international tourism demand shocks to the Canary Islands. At the multivariate level, the conditional correlations in the monthly tourist arrivals shocks were generally positive, varying from small negative to large positive correlations. These estimates suggested that the shocks from alternative tourist sources were independent or specialized rather than diversified.

Shareef and McAleer (2007) estimated monthly international tourist arrivals and the associated uncertainty for the eight principal tourist source countries. Univariate and multivariate time series models of conditional volatility (or uncertainty) were estimated and tested by the researchers. The conditional correlations were estimated and examined to discover whether there is specialization, diversification or segmentation in the international tourism demand shocks from the major tourism source countries to the Maldives. The estimated static conditional correlations for monthly international tourist arrivals, as well as for the respective transformed series, were found to be significantly different from zero, but also relatively low. These estimates gave an indication of the relationship between shocks to the growth rate of monthly international tourist arrivals, as well as the direction of causality in the monthly international tourist arrivals across the eight major international tourist sources to the Maldives. The research also recommended the government and major tour operators to emphasize their marketing efforts independently of each tourist source country.

The data series was analyzed in terms of the number of tourist arrivals, the corresponding logarithms (logs), annual differences, log-differences, and associated uncertainties. Monthly tourist arrivals to the Maldives showed very strong seasonal patterns and were imperative to identify and incorporate these patterns into the conditional mean.

The researchers used following general form:

$$TA_t \; X\, ARMA(p,q)\, \Gamma \sum_{i X 1}^{12} \text{¤}_i D_{it} \; \Gamma \sum_{i X 1}^{12} \_{}_i D_{it} t \; \Gamma £_t \qquad (14)$$

Conditional Volatility = GARCH (1,1) or GJR (1,1)

Further, this general form was transformed to log and log differences.

Conditional Volatility = GARCH (1,1) or GJR (1,1) where TA_t, $\log TA_t$, $\zeta_{12} TA_t$, and $\zeta \log TA_t$ are monthly tourist arrivals, logarithm of monthly tourist arrivals, the annual difference of monthly tourist arrivals, and the log-difference of monthly tourist arrivals at time t. D_{it}(= 1, 2, …,12 and is equal to zero elsewhere) denotes seasonal dummies; t = 1 to T, where T = 120 for all eight series. D_{it} is the seasonal dummy multiplied by the deterministic time trend to capture the trend effect of the seasonal dummies. Several models have been tested and fitted to determine the most appropriate ARMA process to describe monthly international tourist arrivals from the eight major tourist originating countries to Maldives. The choice of model that best explains monthly tourists to Maldives was chosen on the basis of the statistical significance (at the 5% level) of the AR and MA coefficients, of the seasonal dummy variables, and the absence of serial correlation in the unconditional shocks.

The fundamental assumption was that a moving average expressed the trend and cyclical component of the times series adequately. The original monthly international tourist arrivals series (TA_t) was divided by the respective moving average figure for each month

(MA_t), and expressed as a percentage to produce the ratio-to-moving average. These ratios were averaged over months and then isolated the seasonal and cyclical components.

Song et al (2003_a) had focused on identifying the factors which contribute to the demand for Hong Kong tourism with the aid of econometric models and generated forecasts of international tourist arrivals. The general-to- specific modeling approach was used in the model and forecasted the demand for Hong Kong tourism by residents from the 16 major countries/regions of origins. The empirical results revealed that the most important factors that determine the demand were the costs of tourism in Hong Kong, and the economic condition (measured by the income level) in the countries/regions of origin. The demand elasticity and forecasts of tourist arrivals obtained from the demand models.

According to standard economic theory, the most important factors that influence demand for a consumer are the own price of the good, the price of a substitute good and consumer's income. In a study the following mathematical function was proposed to model the demand for Hong Kong tourism by residents from a particular origin country/ region i:

$$Q_{it} = A P_{it}^{\ 1} Y_{it}^{\ 2} P_{st}^{\ 3} e_{it}, \quad (15)$$

where, Q_{it} is the tourism demand variable measured by tourism arrivals from country/ region i to Hong Kong at time t; P_{it} is the price of tourism in Hong Kong at time t, P_{st} is the price of tourism in the substitute destination at time t and Y_{it} is the income level of the origin country/ region i at time t, and e_{it} is the residual term and it is used to capture the influence of all other factors that are not included in the demand model. This last term is important as tourism demand is influenced by many economic and non-economic factors and we could not include them all because of data un-availability.

The definition of the own price variable in the study is:

$$P_{it} \text{ X} \frac{(CPI_{hk} / EX_{hk})}{(CPI_i / EX_i)}, (16)$$

where, CPI_{hk} and CPI_i are the consumer price index for Hong Kong and origin country i respectively; EX_{hk} and EX_i are the exchange rate indexes for Hong Kong and origin country i respectively.

The substitute price variable P_{st} was defined as a weighted index of selected countries/ regions.

$$P_{st} \text{ X} \sum_{j\text{X}1}^{5} (CPI_j / EX_j) w_j, \quad (17)$$

where, j= 1,2,3,4,5 representing Singapore, Taiwan, Thailand, Korea and Japan respectively; w_j is the share of international tourism arrivals for country/ region j, which is calculated from $W_j \text{ X } TTA_j / \sum_{j\text{X}1}^{5} TTA_j$, and TTA_j = Total international tourist arrivals in country/ region j.

Other factors that may influence tourism demand include the marketing expenditure in the country/ region of origin and the change of consumer taste toward Hong Kong tourism. The data on these variables were either unavailable or difficult to measure. As such, they had been excluded in the study. However, the exclusion of these variables did not appear to affect the overall goodness of fit of the estimated demand models which were highly significant according to the models' R^2 parameters.

Further equation (15) was transformed to logarithm form:

$$\ln Q_{it} \text{ X } _0 \Gamma \ _1 \ln P_{it} \Gamma \ _2 \ln Y_{it} \Gamma \ _3 \ln P_{st} \Gamma u_{it} \quad (18)$$

where, $_0$ = ln A, u_{it} = ln e_{it} and $_1$, $_2$ and $_3$ are price, income and substitute price elasticity respectively; expected that $_1 < 0$ (the price of tourism will have a negative

influence on tourism demand) while $_2$ and $_3 > 0$ (the income level of the origin country and the price of tourism in the substitute destination would have positive impact on tourism demand). Further, the simplest autoregressive distributed lag model (ADLM) is:

$$\ln Q_{it} \; X\sim_0 \Gamma\sim_1 \ln Q_{it\,Z1} \Gamma\sim_2 \ln P_{it} \Gamma\sim_3 \ln P_{it\,Z1} \Gamma\sim_4 \ln Y_{it} \Gamma\sim_5 \ln Y_{it\,Z1} \Gamma\sim_6 \ln P_{st} \Gamma\sim_7 \ln P_{st\,Z1} \Gamma £_{it}. \quad (19)$$

If the long run equilibrium is assumed: $\ln Q_{it} = \ln Q_{it\,Z1}$, $\ln P_{it} = \ln P_{it\,Z1}$, $\ln P_{st} = \ln P_{st\,Z1}$, and $£_{it} = 0$ then the equation was written as:

$$\ln Q_{it} \; X\frac{\sim_0}{(1 Z\sim_1)} \Gamma \frac{(\sim_2 \Gamma\sim_3)}{(1 Z\sim_1)} \ln P_{it} \Gamma \frac{(\sim_4 \Gamma\sim_5)}{(1 Z\sim_1)} \ln Y_{it} \Gamma \frac{(\sim_6 \Gamma\sim_7)}{(1 Z\sim_1)} \ln P_{st} \quad (20)$$

where, $\frac{(\sim_2 \Gamma\sim_3)}{(1 Z\sim_1)}$, $\frac{(\sim_4 \Gamma\sim_5)}{(1 Z\sim_1)}$ and $\frac{(\sim_6 \Gamma\sim_7)}{(1 Z\sim_1)}$ are price, income and substitute price elasticity.

The estimated demand models presented in the previous section were used to forecast tourist arrivals. The initial observation in the forecast sample used the actual value of lagged Q_{it}.

Song et al (2003_b) had evaluated the forecasting accuracy of six different econometric models in the context of the demand for international tourism in Denmark. These econometric models were special cases of a genera autoregressive distributed lag specification. Likewise, the forecasting accuracy of two univariate time series models was evaluated for benchmark comparison purposes. The forecasting competition was based on annual data on inbound tourist arrivals to Denmark. Individual models were estimated for each of the six major countries and forecasting performance was assessed by using time series data. Rankings of these forecasting models over different time perspectives were

established based on mean absolute percentage error and root mean square percentage error.

Initially, tourism demand function was:

$$Q_{it} \text{ X } f(Y_{it}, P_{it}, P_{ist}, C_{it}, T, DummyVariables) \quad (21)$$

where, Q_{it} is the quantity of tourism consumed per capita measured by the expenditure-weighted number of nights spent by tourists from country i in Denmark; Y_{it} is real private consumption expenditure per capita in country i; P_{it} represents the real cost of living for tourists in Denmark and was measured by the Denmark CPI relative to the CPI in country i adjusted by the exchange rate in order to transform the price variable in to the origin country currency; P_{ist} represents tourism prices in substitute destination was measured by the tourists' cost of in living Denmark relative to a weighted average calculated for a set of alternative destinations for origin i; C_{it} was the travel cost from country i to Denmark; T is a time trend defined as T= (year -1980)/100; and the dummy variables comprise two oil crisis dummies DOIL 1 and DOIL 2 (DOIL 1=1 in 1974 -75, = 0 otherwise; DOIL 2=1 in 1979, =0 otherwise), a Gulf war dummy (DGULF =1 in 1990-91, = 0 otherwise), a dummy for German reunification (DGERM = 1 in 1991, = 0 otherwise), and a dummy for Chernobyl/USA bombing of Libya (DCHERNO =1 in 1986, = 0 otherwise).

For standard practice a log linear function was adopted for modeling tourism demand to Denmark by the six origin countries.

Shrestha (2000) made an assumption in his research that the tourist flow in Nepal was influenced many factors. The model was developed as:

$$T_t = f(W_t, S_t, P_t, I_t, \ldots, U_t) \quad (22)$$

Where, T_t -Tourist arrivals, W_t-World tourist flow, S_t -South Asian tourist flow, P_t - Promotional expenditure and I_t - Income (Per capita) of the major tourist originating countries at time t, and U_t - Stochastic disturbance term

The expected relation between dependent and independent variables included in the model provided the equation:

$$\hat{T} \mathrm{X}\ {}_0\Gamma\ {}_1W_1\Gamma\ {}_2S_t\Gamma\ {}_3P_t\Gamma\ {}_4I_t\Gamma...\Gamma U_t \qquad (23)$$

The simple linear equation between tourist arrivals in Nepal (T_t) and the world tourist flow (W_t) was found to be highly significant with $\bar{R}^2$ of 0.9121 which indicated that 91.21% of variation in tourist arrivals in Nepal is explained by world tourist arrivals.

The proposed static model was transformed into log linear functional form.In the log linear equation also, the relationship was found to be significant with $\bar{R}^2$ of 0.9060 indicating 90.60% of variation in tourist arrival was explained by the world tourist flow. The estimated coefficient showed that 1% increase in world tourist flow would increase 1.075% of the tourist arrivals in Nepal. The model also showed that tourist arrivals in Nepal are substantially influenced by tourist arrivals in South Asia (S_t). The log linear model also showed strong influence of the independent variable tourist arrivals in South Asia on the tourist arrivals in Nepal. Likewise the general model and log linear model showed a strong relationship with promotional expenses (E_t) and income level of originating market (I_t).

1.9.7 Socio-Economic Impact of Tourism

Most studies that specifically measured the impacts of pilgrimage tourism agree that sacred destinations are strongly affected by the stream of pilgrimage tourists visiting them (Collins-Kreiner et al., 2006; Rinschede, 1992; Vukonic, 1996; Din, 1989; Walpole and

Goodwin, 2000; in Vijayanand, 2012 p. 333). Tourism expenditure is the total expenditure made by a tourist during his/her trip and stay at the destination. This concept encompasses a wide range of consumption, travel expenses, purchase of consumer goods and services inherent in travel and purchase of small durable goods for personal use, souvenirs and gifts for family and friends. Tourism expenditure is not only restricted to payments made during the visit. Furthermore, it also includes advance outlays required for the preparation and undertaking of the tour and travel-related purchases made in the place of residence after returning from a trip.

Holy sites are often surrounded by religiously orientated businesses and facilities, such as souvenir shops, travel agencies, hotels and even hospitals, providing employment for the host community (Evans, 1998; in Vijayanand, 2012 p. 333). Pilgrimage tourism also affects the population in the vicinity of the pilgrimage site. The influence consists first of all in employment opportunities, which leads to a total demographic growth of the settlement. Almost all shrines, including the largest demonstrate this fact unambiguously (Vukonic, 1998 p. 8). Tourism has a variety of economic impacts directly or indirectly. It contributes to sales, profits, jobs, tax revenues, and income. The direct impacts occur within the primary tourism site for lodging, restaurants, transportation, amusements, and retail trade. Whereas indirect impacts occur in agriculture, industry and media. It is hard to discuss and support with arguments the size of the phenomenon of pilgrimage tourism because statistical data are insufficient and not readily available, then to speak of the economic aspects of religious tourism is almost impossible (Vukonic, 1998 p. 4). The receipts from international tourism can provide a valuable source of earnings for many countries both developed as well as developing. Visitor spending generates income for both public and private sector besides affecting wages and employment opportunities.

Although tourism is sensitive to the level of economic activity in the tourist generating countries, it provides more fixed earnings than primary products. The income from tourism has tended to increase at a higher rate than merchandise export in a number of countries especially in countries having a low industrial base. Definitely, the marketers would get benefit out of the booming religious tourism as they could find new territories to sell their products and services (Vijayanand, 2012 p. 335).

1.10 Lumbini: An International Pilgrimage Destination

Lumbini is the birthplace of the greatest, the brightest, and the light of peace and indeed the most illustrious son of Nepal (Guruge, 1998 p. 26) where the newly born Prince Siddartha (later distinguished as Lord Buddha) took his seven steps and uttered an epoch-making message to the suffering humanity. Geographically; Lumbini, the birthplace of Lord Buddha which has been internationally recognized, is situated in Rupandehi District of Southern Terai at an altitude of 105m above the sea level and around 300 Kmsouthwest of Kathmandu-the capital of Nepal. Despite the richness of Buddhist heritage, Lumbini is located in one of the country's poorest regions. Around the site, there are seven village development committees. They are Ekala, Khudabagar, Tenuhawa, Madhuwani, Lumbini, Bhagawanpur and Aama. Interestingly, the popular Buddhist site is surrounded by a predominantly Hindu (67%) and Muslim population (32%), with only 1% of the population being Buddhist (CBS, 2005).

The grove of Lumbini had changed into a pilgrimage site soon after the *Parinirvana* of the Lord Buddha. The importance of Lumbini is so great that the Buddha himself advised his followers to make the pilgrimage to Lumbini. Lord Buddha explained the significance of Lumbini in the words: "Lumbini should be (visited) seen by person of devotion, and which

would cause awareness and apprehension of the nature of impermanence ……"because Lumbini is the foremost Buddhist pilgrimage site in relationship to the other sacred sites. The pilgrimage visits of famous Indian Maurya Emperor Atoka guided by his spiritual teacher Upagupta in 249 B.C, Chinese pilgrims Tseng Tsai (4th century), Fa-Hsien (5th century) and Hiuen-Tsang (7th century) were important in Lumbini. The visits of the Chinese travelers brought more records out about Lumbini. Hiuen Tsang's records are the most informative of all for he not only traveled to see Lumbini and other Buddhist sites, but he also maintained a detailed description of his travel. After an interregnum of about 600 years, another prominent visitor left a mark in Lumbini. Khasa King Ripu Malla from Sinja in far western Nepal paid a visit to the holy site. He engraved his name on the Asoka Pillar dated 1312 (*saka era*). UN Secretary General U Thant's pilgrimage to Lumbini in 1967 was taken as milestone in the history of Lumbini. The historic events held in Lumbini reconfirmed and enhanced Lumbini's status as the Fountain of World Peace and sacred pilgrimage shrine of the Buddhists and peace-loving people and a symbol of international brotherhood, peace and prosperity, and helped to project it as a World Peace City and important touristic destination in the world.

Today, Lumbini can be considered as a synonym of world peace center and a top class pilgrimage destination in the world. Lumbini is one of the most important and the greatest holy site for the Buddhists. Buddhists around the world as well as domestic ones feel pride and satisfaction, fulfillment of life while visiting Lumbini. It is equally popular among non-Buddhist visitors. Lumbini has the potential to attract millions of pilgrims and visitors around the world. Further, Lord Buddha said: "After I am no more, O Ananda! Men of belief will visit the place with faith, curiosity and devotion…… Lumbini, the place where I was born. The path to ultimate peace is spiritual discipline". The terms "*hida budhe jate*" (here Lord Buddha was born) and "*hida bhagavan jateti*" (because Bhagwan-Lord Buddha

was born here) mentioned in the pillar inscription of Emperor Asoka seem to have been uttered by Upagupta to explain the importance of the site to the emperor. Buddhist text *Divyavadana* also refers to almost the same version i.e. the royal preceptor was uttering these words while pointing to the exact birthplace of the Buddha to Emperor Asoka.

After a prolonged slumber, Lumbini rose to the sacred site of devotees. Due to the efforts of General Khadga Shamsher Rana, the then Governor of Palpa, and Dr. A. Fuhrer, the Asokan Pillar was discovered on December 1, 1896. Archaeologist P.C. Mukherjee conducted excavations of Lumbini in 1899 and published the details in the form of book. Then after the Buddhists and peace lovers from the world began to be attracted to this holy and important place. The idea of developing Lumbini as an important site originated during the 4th General Conference of the World Fellowship of Buddhists held in Kathmandu, Nepal in 1956.

1.10.1 Lumbini Chronology

The historic events held in Lumbini reconfirmed and enhanced its status as the fountain of World Peace and sacred pilgrimage shrine of the Buddhists and a symbol of international brotherhood, peace and prosperity, and helped to project it as a World Peace City.

The Lumbini chronology is as follows:

623 BC	Birth of Gautam Buddha
249 BC	Pilgrimage visit of Maurya Emperor Ashoka
3rd Century	Pilgrimage visit of Tseng Tsai
403 AD	Pilgrimage visit of Fa-hien (Fa-Xian)
636 AD	Pilgrimage visit of Hiuen Tsiang (Xuan Zang)
312	Pilgrimage visit of Ripu Malla
1896	Excavation of Ashoka pillar by Khadga Shamsher and A. Fuhrer

1899	Excavation work by P.C. Mukherji
1930	Petition of Mahadan Upasak to Prime Minister for restoration work
1932-39	Excavation work by Kaiser Shamsher
1956	King Mahendra's proposal for development at the Fourth Assembly of World Federation of Buddhists
1967	Pilgrimage visit of U.N. Secretary General U Thant
1970	Formation of U.N. International Committee for Lumbini Development
1978	Preparation of the Master Plan by Kenzo Tange
1985	Lumbini Development Committee changed to Lumbini Development Trust
1996	Excavation of marker stone at the Nativity site
1997	Lumbini included as a World Heritage Site
1998	1st World Buddhist Summit: Theme "Lumbini as Fountain of World Peace" and sacred pilgrimage shrine of the peace-loving people of the world
1998	"Visit Nepal Year 1998" helped to promote Lumbini in international market
2001	International Buddhist Conference: Theme "Lumbini in the New Millennium: The Role of Youth and the Community"
2003	Restoration of Maya Devi Temple- reconfirmed and enhanced the status of Lumbini in the international level as a touristic destination
2004	2nd World Buddhist Summit: Theme "Lumbini: A symbol of Unity in Diversity-the Fountain of World Peace" and declared Lumbini as "World Peace City"
2006	Research scholar Him Lal Ghimire proposed Visit Lumbini Year 2007 to mark the 2550th birth of Lord Buddha
2011	Nepal Tourism Year and Visit Lumbini Year 2012 proposed
2012	Nepal celebrated “Visit Lumbini Year"

1.10.2 Review of the Studies about Lumbini

As far as the study of Lumbini and other important sites related to Buddha and his life around Lumbini are concerned, majority of the scholars carried out their research from the view point of history and archeology (Fuhrer, 1972; Mukherji, 1969; Tange,& Urtec, 1998; Kwaak,& Brenes, 2002; Bidari, 1990; 2002; 2004; Pradhan, 1979; Pandey, 1985; Rijal, 1979; 1996). The contributions made by them have highlighted the past of Lumbini. The studies brought by another group of scholars (Ghimire, 2004; 2005a; 2005b; 2005c; 2006; 2009; 2011; 2012a; 2012b; 2012c; 2012d; 2013a; 2013b; Kunwar & Ghimire, 2012; Gurung, 1998; Hewage, 2010; Rai, 2010; Roy, 2000; Giri, 2007; Vaidya, 1999) made an attempt to draw a picture of Lumbini in the view point of sacred complex as an international pilgrimage as well as touristic destination.

Nepal Tourism Master Plan (1972) has given priority to develop International Pilgrimage and develop Lumbini as an international pilgrimage destination and one of the important sightseeing destinations for the tourists in Nepal. The plan focused on opening up of westward tour route Kathmandu-Gorkha-Pokhara-Tansen-Lumbini-Chitwan-Kathmandu. Lumbini holds the greatest significance, and it could play pivot role for the promotion of tourism in Nepal. The plan also gave direction for the formation of Lumbini Master Plan (LMP) for the overall development of Lumbini. The plan identified that Lumbini is remote and isolated for pilgrims and tourists. If the LMP had been completed on time, Lumbini could increasingly attract pilgrims/tourists from the world.

LMP (1978) is an ambitious and integrated plan for conservation and development of history, geography, archaeology, culture and tradition of Lumbini and Buddhist philosophy. It is like a nervous system of animals for the development of Lumbini. It has

given very comprehensive indications for overall development and conservation of Lumbini. The plan has definitely projected Lumbini's significance and potential nationally and internationally. Besides Lumbini's pilgrimage importance, in broader sense, it is a destination for faith based theological studies, historical, natural, archaeological, art and cultural studies. It is hub for the millions of people of this generation and for the generations to come. The total area covered by LMP is 3 square miles (2.56 sq. Km.). LMP has divided the site into three zones and each zone stretches over 1 sq. miles. Zones are categorized under the following headings Sacred Garden Zone, Monastic Zone and New Lumbini Village. The plan has prohibited building of concrete establishments around Sacred Garden Zone for retaining its natural atmosphere, an ambiance. The sacred garden shelters the ancient monuments at the centre in a recently renovated atmosphere of serene and lush forest all around the Lumbini complex. Furthermore, Monastic zone is situated in the centre within the forest area, north of the Sacred Garden which is divided into two halves East and West Monastic Zone. The northern part of the site is being developed for New Lumbini Village, which is also a gateway to the outer world where visitors can find comfortable lodges, restaurants, a crane sanctuary and a Peace Pagoda.

Asian Development Bank (2000) had discussed about Lumbini's role on tourism, socio-economic conditions of Lumbini and surrounding areas, environment conservation and heritage condition of Lumbini, priorities and proposals for environmental and tourism infrastructure upgrading, involvement of the local community, proposed environmental awareness and tourism training programme and tourism planning. Gurung (1998) discussed the pilgrimage, historical and archaeological aspects of Lumbini. Furthermore, he had discussed current status and benefits of speedy completion of LMP, LDT's role in continuity of conservation and development of Lumbini the paper. Roy (2000) made a research with the aim to examine the current status of Lumbini as a pilgrimage site and to

investigate whether Lumbini has the potentiality to develop into a center of spiritual identification for Buddhist worldwide. The research focused that Lumbini basically has the potential to develop into a thriving, international pilgrimage center. Asian and Western Buddhist and Hindu pilgrims visit the place hoping that they can find a 'Right path'. However, the researcher further wrote that as information about the site, the basic infrastructure and touristic facilities are limited, Lumbini is still relatively unknown.

Lumbini Visitors' Survey (2004) explored various aspects of the visits in Lumbini such as purpose of visit, source of information, planned period for the visit, mode of transport, services used for accommodation and travel, length of stay, expenses incurred, visitor's satisfaction, repeat of visit, security situation, potential products that attract tourists and the willingness to repeat their visit. The important recommendations were need of more publicity of Lumbini and its attractions, trained guides in different languages, extra religious activities such as cultural show and local products development, easy access in local transportation, active and leading role of NTB for tourism development in Lumbini.

Ghimire (2006) had objectives to assess the trend of tourist flow in Lumbini, examine services and facilities for tourists, identify and analyze the ways to improve tourism, assess the marketing strategies, official plan to develop tourism and involvement of local people. Methodologically, the author made several field visit and observations around Lumbini. The study was focused on both primary and secondary sources. The opinions of respondents were presented in the paper. The study discussed about tourist attractions of Lumbini, institutions involved to develop tourism in Lumbini, capacity enhancement of locals, potential markets, and accommodation in and around Lumbini for the development of tourism.

Lumbini has its huge potential, greatness and significance. Mega events such as World Buddhist Summit in Lumbini and Visit Nepal Year 1998 have been organized to attract more tourists. Likewise, effective implementation of the LMP also played positive role in attracting tourists / pilgrims in Lumbini. However, Lumbini has been facing fluctuation in tourist arrivals. There was a heavy decline in tourist arrivals in 2002 because of the peace and security situation in the country, incompletion of the Maya Devi Temple, Royal massacre, Rhityik Roshan rumor, September 11 incident in USA, lack of sufficient facilities of transportation and accommodation, lack of information. A positive inclination in tourist arrivals can be seen after 2003 because of the completion and restoration of the MayaDevi Temple and Second World Buddhist Summit 2004. The research has given high priority for budgets class hotels and guesthouses, need of better and more comfortable access to the sites, international marketing, establishment of tourist information centers in and around Lumbini, more trained staff in tourism organizations, development of package programmes including different pilgrimage sites and sightseeing destinations of Nepal.

Ghimire (2005a) projected Lumbini as a faith destination. The concept of faith tourism and its practice has been significant in Nepal since long, however, it lacks the publications, discussions and interactions. The faith tourism is one of the most important aspects of tourism contributing to the feelings and thoughts such as tolerance, dilaogue and peace. The essential part of it is more coordination among religions in the global context. The research had emphasized on important agenda such as acquaintance of the members of different religions with each other, exchange information among them, find commonalities in different religions and to continue to live in peace. The indispensable task is to respect the faiths and preserve the holy places belonging to other peopleand/or religion.The gathering of the divine religions in Lumbini may be considered as a part of the faith

tourism. This is an activity which enable us to establish closer relationship and be acquainted with each other with different origin or religion.

Ghimire (2005b) discussed about tourist attractions of Lumbini and outlined various weaknesses in developing Lumbini as an international touristic destination. Ghimire (2005c) was a proposal for Visit Lumbini Year 2006. The years 25, 50, 100 have special names and are special occasions for the celebration. Year 2007 had been 2550th birth year of the Lord Buddha. This year could be a reason to visit Lumbini. Tourism is the dynamic industry that needs always new things, ideas, activities and attractions. This programme could be an appropriate platform to publicize Lumbini and Nepal in the international market as well as create awareness among the domestic tourists. The concept had recommended need of various infrastructural development activities and publicity in the international market to project Lumbini as an important touristic and pilgrimage destination. Because of the political instability and lack of interest of the tourism stakeholders in Lumbini, the programme could not be launched. This programmed could be an effective platform to revive the status of Lumbini and increase number of tourists.

1.10.3 Tourist Attractions of Lumbini

Lumbini is the hub for many attractions and is abuzz with religious, archeological, historical and natural activities. Major attractions are Mayadevi temple, Nativity sculpture, Asokan Pillar, Puskarini pond, Marker stone, other structural remains, The Sacred garden, The Eternal flame, The Monastic Zone, The Lumbini Museum, The Lumbini International Research Institute, natural biodiversity and Lumbini village tour. Besides Lumbini, there are many sites associated with the life of the Buddha around Lumbini. Other important sites around Lumbini are Tilaurakot, Niglihawa, Sagarhawa, Araurakot, Kudan,

Gotihawa,Devdaha and Ramgrama. They have their own importance for pilgrimage, sightseeing, historical and archaeological purposes.

1.10.4 Package Tour

Visits to Lumbini are sold in package tours by operators in Kathmandu and India. The operators' of Kathmandu sell Lumbini tour packages mostly combined with sightseeing to Pokhara, Tansen, Chitwan, and Gorkha while those coming from India do pilgrimage tour to Buddhist circuit involving Bodhgaya, Sarnath, Kusinagar and other Buddhist sites with Lumbini. The Indian tours enter Nepal mostly on a half-day trip to Lumbini and exit same day. Their contribution to tourism income of Bhairahawa-Lumbini area is negligible except paying Lumbini conservation and entrance fee. Indian tour guides mostly do not follow any code of conduct while interpreting at the main heritage site of Lumbini. The tours organized in Kathmandu mostly stay overnight at hotels either at Bhairahawa or at Lumbini itself. Most packages thus comprise either three days or at most five days, depending on degree of devotion and interest of the tourist in Buddhism, culture, archaeology and history of Lumbini and other sites around it (Ghimire, 2006, p.106)

1.10.5 Potential Markets

The market of Lumbini is so massive. Lumbini is the nerve center for the Buddhists around the world and a center of attraction for others. It can attract millions of tourists every year. NTB (2008/09) writes that 8 million Indians, 69.53 million British, 17.5 million Japanese, 40.9 million Chinese, 8.8 million Korean, 22.4 million French, 71.2 million German; 16.69 million Dutch people travel abroad every year**.** Likewise, millions of the pilgrims and tourists from USA, Sri Lanka, Thailand, Myanmar, Spain, Italy, and Russia holiday abroad every year. The people traveling from those countries are in top

rank of in Nepal's tourists' arrival and this can contribute towards Lumbini's better marketing and promotion. For instance, Thailand has 90% of Buddhist population, Sri Lanka has a huge percentage of Buddhist population, there are about 47% Buddhists in Korea and China is the largest neighbouring market, which has declared Nepal as touristic destination. People from these areas would definitely like to see the holy birthplace of Lord Buddha so that they are the potential marketplaces for Lumbini. About 10.000 pilgrims used to visit Mecca 50 years ago, and almost 3 million Muslim pilgrims visited the holy city of Mecca for the *hajj* in 2008. Saudi Arabia had deployed around 100.000 security personnel to keep order during the five days pilgrimage (USA Today, 2008). However, only 136001 international tourists / pilgrims (Indians are not included) visited Lumbini in 2012. More than 1.5 billion Buddhists and more than 1.5 billion Hindus respect and worship Buddha. It is also a center of attraction for non-Buddhists and non-Hindus. That is why Lumbini has a huge potential to attract millions of tourists. If Nepal can bring 5% of them, it will be miracle for Lumbini as well as for the Nepalese tourism industry. Nepal can tap the huge potential of spiritual tourism from the Buddhist world over. If the government of Nepal introduces and implements dynamic marketing strategy in international market, it definitely can attract more tourists in Lumbini.

1.10.6 Planning and Policy

NTMP (1972), LMP (1978, Tourism policy (1994) gave high priority for the development of Lumbini as a touristic destination and development of the infrastructures for tourists. VNY 1998 identified Lumbini as new potential touristic destination. LDT and NTB are responsible for the development of Lumbini and tourism as well. UNESCO, UNDP and other international organizations are supporting to the Nepal government financially and technically for the planning and development of the site.

Great heritage sites are a place of attraction for everybody irrespective of personal religious faith. Lumbini has great potentiality and could contribute significantly in economy, employment, peace process and development of universal brotherhood. Lumbini not only a pilgrimage site, it is an international tourist destination and the nerve center of greater Buddhist circuit tour. Package tours including various sites in and around Lumbini, Lumbini and other sites of Nepal, Lumbini and other sites in India can be developed. Here is the example of Buddhist circuit in and around Lumbini. There are 160 archeological sites in Lumbini Region exhibiting different event's in Buddha's life. The Buddhist Circuit Tour is a visual aid to Buddha's life and development of Buddhism. Those sites in and around Lumbini are to see, experience, worship and pay homage to the Buddha.

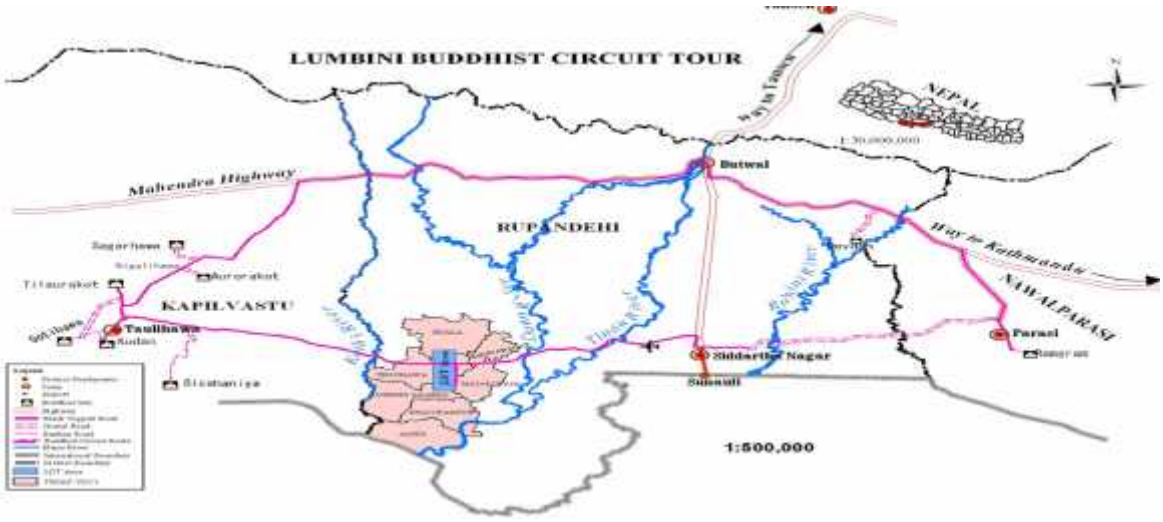


Figure 1.5 Buddhist Circuit in and Around Lumbini

As it is clear from the literature review there is a dearth of academic studies especially in pilgrimage tourism. The present study, therefore, attempts to analyze and find the literature on pilgrimage tourism, explore the economic impact of pilgrimage tourism in national economy, employment. This study will add to the fund of knowledge of the pilgrimage tourism and its impacts for the sustainability of the pilgrimage site. Perhaps this research would be a guideline for the countries at aspects similar to Nepal.

CHAPTER TWO

Research Methodology

In this chapter, the methodology adopted and major approaches required for the research such as sampling design, source of data, data collection procedures and statistical tools used in the study are described in details. The research includes modeling of time series data by using appropriate statistical tools which is one of the important parts of this study.

2.1 Research Design

The research is exploratory and primarily analytical in nature. To accomplish the objective of the study, the research is divided into different heading and sub-headings.

2.2 Source of Data

The data were collected from both primary and secondary sources.

- Primary data were obtained from field visits, questionnaire surveys and formal and informal interviews in Lumbini
- The secondary data and information were collected from publications such as journals, books, documents and reports from the library; bulletin, reports, plans published by Government and non-Governmental organizations, different seminar papers; and Internet search.

2.3 Data Collection Procedure

The primary data were collected from the primarily focused field Lumbini. Collection procedures were mainly based on questionnaires developed as per the requirement of the study.

- Questionnaire to the tourists/pilgrims were based on closed ended pattern with alternative provided.
- The experts were interviewed with structured questionnaires which were open ended in nature.
- The observations of pilgrimage sites, group discussion were also important procedure of collection of data.
- Formal and informal interviews from the relevant people were also included in the research.
- The questionnaire survey and interviews with pilgrims and tourists visiting in Lumbini were conducted between 2007 and 2008.

2.4 Sample Size

Determining sample size is a very important. Sometimes too large samples size may be costly while samples that are too little may lead to inaccurate results. Judgment sampling has been used in this research because samples were selected from the population based on finding, preceding knowledge on pilgrimage tourism about Lumbini, and their language and time availability.

Most of the tourists visiting Lumbini were found to stay for short period only. The probable tourist samples did not have time or had language problem or did not like to sit for an interview. That is why; the samples were selected by the judgment sampling of the researcher.

Table 3.1 Sample Sizes of the Research

Category	Samples
Tourists/Pilgrims	130
Tourism experts	36
Religious leaders/Philosophers	12
National groups	18
International diplomatic groups	5
Total	201

There are basically two categories of samples.

2.4.1 Category One

First categories of respondents were pilgrims/tourists visiting Lumbini at the time of survey from different country, age, genders and standard.

Altogether 130 tourists/pilgrims were interviewed individually as well as in a group. Out of total respondents, 75 individuals, 15 couple and 40 groups were interviewed. When they were in a group, the group leader consulted with rest of the members while responding to the questions so that the views expressed by the group leader were collective of the group in some cases.

Likewise, the researcher had interaction with 23 different groups of visitors/pilgrims visiting Lumbini with diverse purposes. Five groups were accompanied with special delegates from China and Thailand with pilgrimage purpose to Lumbini. Out of 18 national groups, 12 groups were of students and teachers for educational tour and 6 groups of adults who are governmental and non-governmental representatives visiting Lumbini.

2.4.2 Category Two

Second category of the respondents were tourism experts (officials of governmental and nongovernmental tourist organizations, NGO's, INGO's, hotels, travels, airlines), Nepalese

and foreign consultants who are directly or indirectly involved in tourism sector, religious leaders and philosophers.

The researcher had made 15presentations of research papers about Lumbini and pilgrimage tourism in Nepal in different national and international conferences, workshops and global summits. The comments, suggestions came from those presentations were also incorporated in the study. Furthermore, the researcher published more than 30 research papers in different journals, newspapers and magazines. Some of them are reviewed in chapter two.

2.5 Analytical Tools

The collected data are tabulated in frequency distribution and percentage. Analytical tools such as comparative table, ratios, percentage, trend, mean, percentile, correlation, regression analysis were used to analyze the data. Hypothesis related to the study are tested by using Chi square test of goodness of fit.

An attempt was made to fit the regression models and perform factor analysis to the survey data with 5 point rating scale of importance and level of satisfaction of factors attracting tourists in Lumbini. However, it did not give better result in regression modeling. All factors are important to attract tourists and if the level of satisfaction on it is satisfactory, then only tourist lengthen stay period, revisit and recommend others. That is why; the factor analysis was not effective for this.

Strength, Weaknesses, Opportunities, Threats and Constraints (SWOT) analysis was made to know the strengths, weaknesses, opportunities and threats of pilgrimage tourism in

Nepal from the field survey, observation, interaction with stakeholders and secondary data. Summary, conclusion and recommendation are outlined in the basis of study.

2.6 Non-linear Models

There are infinite numbers of non-linear models. However, only a small number of non-linear models have been found to be useful for modeling tourist data. The most popular non-linear models are the Auto Regressive Conditional Heteroskedasticity (ARCH) or Generalized Auto Regressive Conditional Heteroskedasticity (GARCH) models used for modeling and forecasting volatility which allow the behavior of a series to follow different process at different points in time (Brooks, 2002 p. 438).

Residual can be obtained from mean equation. When it is plotted, the graph shows small fluctuation (volatility) is causing small fluctuation (volatility). Further, big fluctuation cause big fluctuation (volatility). When volatility (residual) is like this the residual (error term) is conditionally heteroscedastic so that ARCH and GARCH models are introduced.

Engle (1982) proposed a model for $\{\sigma_t\}$:

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{p} \alpha_i e_{t-i}^2 \qquad (24)$$

where, $\alpha_0 > 0$ and $\alpha_1 \geq 0$ to ensure positive variance and $\alpha_1 < 1$ for stationary.

This model is called ARCH where the “autoregressive” property in principle means that old events leave waves behind a certain time after the actual time of the action. The process depends on its past. The terms “conditional heteroskedasticity” means that the variance (conditional on the available information) varies and depends on old values of the process. One can resemble this with the process having a short-term memory and that the

behavior of the process is influenced by this memory (Karlsson, 2002 p.16). In an ARCH (1) model, next period's variance only depends on last period's squared residual so a crisis that caused a large residual would not have the sort of persistence that we observe after actual crises.

It can be expected that $\sigma_t^2$is a time-changing weighted average of past squared observations; it is quite natural to define σ_t^2, not only as a weighted average of past u_t^2, but also of past σ_t^2. Empirical evidence shows that high ARCH order has to be selected in order to catch the dynamics of conditional variance. This leads to the extension of ARCH model to GARCH model introduced by Bollerslev (1986). GARCH (1,1) model is:

$$u_t = \sigma_t z_t \quad z_t \sim (0, 1) \qquad (25)$$

$$\pm_t^2 \; X\mu \; \Gamma \sim u_{tZ1}^2 \; \Gamma \quad \pm_{tZ1}^2 \qquad (26)$$

Where $\in$, $\Im$ and $\wp$are non-negative parameters and $\Im + \wp \prec 1$.

$\pm_t^2$ = Conditional variance of residual (volatility) at time t,

u_{tZ1}^2 = Previous year's squared residual derived from mean equation, known as ARCH term

$\pm_{tZ1}^2$ = Last year's conditional variance of residuals (volatility), known as GARCH term

z_t is a sequence of random variables with mean zero and unit variance

GARCH (1,1) model means 1st order ARCH term or autoregressive lags (or α) effect indicates the short run persistence of the shock, and 1st order GARCH term or moving average lags(or β) effects indicates the contribution of the shock to the long run persistence that is α + β. GARCH (1,1) model provides better results than of higher order. If the result shows that both ARCH and GARCH are significant, it means, the current year's volatility of monthly tourist arrivals $\pm_t^2$ is influenced by previous year's volatility

$\pm_{tZ1}^{2}$ and squared of the residual of mean u_{tZ1}^{2}. Hence, $\pm_{tZ1}^{2}$ and u_{tZ1}^{2} are family of $\pm_{t}^{2}$, $\pm_{tZ1}^{2}$ and u_{tZ1}^{2} are family shocks or own shocks. This is the outcome of GARCH (1,1) model.

GARGH (1, 1) has two parts, mean equation and variance equation such as:

1. Conditional Mean equation of GARCH (1,1) model is:

$$y_t \; \mathrm{X}c \; \Gamma \, AR(1) \; \Gamma \, AR(2) \; \Gamma \, MA(1) \; \Gamma \, MA(2) \qquad (27)$$

2. Conditional variance equation of GARCH (1, 1) model is:

$$\mathrm{GARCH}_t = C_0 + C_1 \mathrm{RESID}_{t-1}^{\;2} + C_2 \mathrm{GARCH}_{t-1} \qquad (28)$$

Alternatively, GARCH (1, 1) model can be defined by the following equation.

$$h_{t\Gamma 1} \; \mathrm{X}\mu \; \Gamma \sim \pounds_t^{\,2} \; \Gamma \quad h_t \qquad (29)$$

Where, h is variance, ε is the residual squared and t denotes time. ω, α and β are empirical parameters determined by maximum likelihood estimation. The equation tells us that tomorrow's variance is a function of:

-) today's squared residual,
-) today's variance,
-) the weighted average long-term variance

GARCH (1, 1) captures only once square residual and one square variance.

Using the GARCH model is possible to interpret the current fitted variance, h_t, as a weighted function of a long term average value (dependent on $\in$), information about volatility during the previous period ($\sim u_{tZ1}^{2}$) and the fitted variance from the model during the previous period ($\pm_{tZ1}^{2}$). Note that the GARCH model can be expressed in a form that how Auto Regressive Moving Average (ARMA) model for the conditional variance is formed. To see this, consider that the squared return at time t relative to the conditional variance is given by:

$$£_t \; X u_t^2 \; Z \pm_t^2 \qquad (30)$$

$$\text{Or } \pm_t^2 \; X u_t^2 \; Z £_t$$

Using the latter expression to substitute in for the conditional variance in (25)

$$u_t^2 \; Z £_t \; X \mu \; \Gamma \sim u_{tZ1}^2 \; \Gamma \quad (u_{tZ1}^2 \; Z £_{tZ1}) \qquad (31)$$

Rearranging,

$$u_t^2 \; X \mu \; \Gamma \sim u_{tZ1}^2 \; \Gamma \quad u_{tZ1}^2 \; Z \quad £_{tZ1} \; \Gamma £$$

So that,

$$u_t^2 \; X \mu \; \Gamma (\sim \; \Gamma \quad) u_{tZ1}^2 \; Z \quad £_{tZ1} \; \Gamma £ \qquad (32)$$

This expression is ARMA (1, 1) process for the squared errors (Brooks, 2002 p.453). The AR model is a random process and explains the dependency behavior of current observation on its own previous values, whereas MA model is used to describe a time series process as a linear function of current and previous random errors. ARMA (p, q), is the combined model for AR and MA components in a stationary time series (Lima & McAleer, 1999).

2.6.1 Arguments

GARCH model has gained fast acceptance and popularity in the financial world. The model can be explained by various arguments (Karlsson, 2002 p.17; Ghimire, 2013a p. 36):

- the GARCH process has a close relation to ARMA processes. This suggests that the theory behind the GARCH process might be closely related to the theory of ARMA processes, which is well studied and widely known.

- One can get a reasonable good fit to real life financial data even with a GARCH (1,1) model with only three parameters, provided that the sample is not too long so that the stationary assumption is unreliable.
- The general process for a GARCH model involves three steps. The first is to estimate a best-fitting autoregressive model; secondly, compute autocorrelations of the error term and lastly, test for significance.

2.6.2 Assumptions

The following are the assumptions in modeling the data:

1. E (u_t) = 0

2. Var (u_t) = $\pm^2$ Φ |

If variance is constant, there is homoscedasticity.

3. Cov(u_t, u_j) = 0 for i ≠ j.

4. The distributions are normally distributed ut√ N (0, $\pm^2$)

5. Stationary is a desirable property of an estimated AR model, for several reasons. One important reason is that a model whose coefficients are non-stationary will exhibit the unfortunate property that previous values of the error term will have a non-declining effect on the current value of y_t as time progresses. This is arguably counter-intuitive and empirically implausible in many cases (Brooks, 2002 p.340).

6. One of the assumptions of the ARIMA model is the presence of linear dependence in the observations of the series. The violation of this assumption can lead to false conclusions and must be tested additionally. The p-values for the JB statistic show that all GARCH type models produced normal residuals while the ARIMA model does not. ARIMA does not produce a relatively normal distribution of residuals.

7. The assumption of homoskedasticity is that the expected size of the error is constant and do not depend on the size of the variable. The assumption of homoskedasticity is

convenient from a mathematical point of view and is standard in regression theory. However, the assumption of heteroskedasticity is that the expected size of the error term is not constant.

8. One of the distinct features of time series is the non-constant volatility of data. The relative benefit of GARCH modeling compared to ARIMA modeling is that GARCH model provides a non-constant estimate of the volatility of the series. The non-constant volatility models provide superior forecasting ability. The aim of this research is to analyze the utility of the non-constant variance estimate when applied to log returns for the monthly tourist arrivals. Heteroscedasticity means non constant volatility.

2.6.3. Extension to GARCH (p, q)

GARCH (1, 1) model can be extended and modified in many ways. It can be generalized to GARCH (p,q) formulation with additional lags. Such higher order models are often used when the span of data is long (Engle, 2001 p. 166).

The GARCH (p,q) model is as follows:

$$\sigma_t^2 = \omega + \sum_{i=1}^{p} \alpha_i u_{t-i}^2 + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^2 \qquad (33)$$

The existing models can be divided into two main categories: symmetric and asymmetric models. In the symmetric models, the conditional variance only depends on the magnitude, and not the sign, of the underlying asset e_t.

The GARCH frame work proved to be very successful in predicting volatility changes. Empirically, a wide range of financial and economic phenomena exhibit the clustering of volatilities. As it has been seen, GARCH models describe the time evolution of the average size of squared errors, that is, the evolution of the magnitude of uncertainty.

Despite the empirical success of GARCH models, there is no real consensus on the economic reasons why uncertainty tends to cluster. That is why models tend to perform better in some periods and worse in other periods. It is relatively easy to induce ARCH behavior in simulated systems by making appropriate assumptions on agent behavior. For example, one can reproduce ARCH behavior in artificial markets with simple assumptions on agent decision-making processes. The real economic challenge, however, is to explain GARCH behavior in terms of features of agents behavior and/or economic variables that could be empirically ascertained (Engle et al, 2007). The class of GARCH models has proved particularly valuable in modeling time series with time varying volatility. The most often applied GARCH (1, 1) model with normal distributed innovation assumes that the conditional distribution of financial return given the return level and the volatility of the previous period follows a normal distribution.

The use of autocorrelation and partial autocorrelation functions to identify and check time series behavior of the ARMA form in the conditional mean is well established. The autocorrelation and partial autocorrelation functions for the squared process are useful in identifying and checking time series behavior in the conditional variance equation of the GARCH form. It is found that some of the series modeled exhibit auto correlated squared residuals even though the residuals themselves do not seem to be correlated over time (Box and Jenkins, 1976; Granger & Anderson, 1978; in Bollerslev, 1986).

For Nepal, it is crucial to obtain accurate estimates of the uncertainty surrounding monthly international tourist arrivals based on chronological data. An attempt was made to model the uncertainty in monthly international tourist arrivals and examine the associated volatilities of monthly tourist arrivals from 11 major tourist source countries, namely with ranks India, UK, Japan, USA, Germany, France, Sri Lanka, China, Bangladesh,

Netherlands and Italy for the period 1997–2008. The data series are analyzed in terms of the number of tourist arrivals at level, the corresponding logarithms (logs), annual differences, log-differences, and associated uncertainties. For the validity of the preferred series, the descriptive statistics were examined.

The choice of model that best explains that monthly tourists arrivals was chosen on the basis of the statistical significance (at the 5% level) of the AR and MA coefficients, of the seasonal dummy variables, and the absence of serial correlation in the unconditional shocks.

2.6.4 Estimation of GARCH Models

Since the model is no longer of the usual linear form, OLS cannot be used for GARCH model estimation. There are a variety of reasons for this, but he simplest and most fundamental is the OLS minimizes the residual sum of squares. The RSS depends only on the parameters in the conditional mean equation, and not the conditional variance, and hence RSS minimization is no longer an appropriate objective.

In order to estimate models from the GARCH family, another technique known as maximum likelihood is employed. Essentially, the method works by finding the most likely values of the parameters given the actual data. More specifically, a long-likelihood function is formed and the values of the parameters that maximize it are sought. Maximum likelihood estimation is employed to find parameter values (Brooks, 2002 p.455, Ghimire, 2013b p. 36).

The log-likelihood function (LLF) to maximize under a normality assumption for the disturbances is given by:

$$L = -\frac{T}{2}\log(2\pi) - \frac{1}{2}\sum_{t=1}^{T}\log(\sigma_t^2) - \frac{1}{2}\sum_{t=1}^{T}(y_t - \mu - \phi y_{t-1})^2/\sigma_t^2 \quad (34)$$

The software maximizes the function and generates parameter values that maximize the log-likelihood function and construct their standard errors.

2.6.5 The Jarque-Bera Test

JB test has been used to test the normality of the data series. $JB = \frac{n}{6}\left[S^2 + \frac{(K-3)^2}{4}\right] \sim \chi^2$ with two degrees of freedom, where S is a measure of skewness, K is a measure of Kurtosis and n is the samplesize.The null hypothesis that the series are normallydistributed is tested at the 5% level of significance by theJarque-Bera Lagrange multiplier test statistics.

2.6.6 Unit Root Test

Before estimating the conditional mean of the univariate time series, it is sensible to test for unit roots in the series as there are adverse consequences for estimation and inference in the presence of unit roots. In the traditional regression model, it is assumed that the variables are stationary and that the errors of the regression model are stationary, with zero mean and finite variance. In the case where the series are non-stationary, the judgment would be otherwise and leads to a spurious regression (Granger & New bold, 1974; in Shareef, & McAleer, 2007; Ghimire, 2013b p. 36). In this section,univariate time series data has been modeled where lagged dependent variables were included to capture dynamics. Furthermore, the conditional variance of the data generating process also modeled. If the series are non-stationary, then the variance of the data generating process will become infinitely large that affect the statistical inference. In this context, the Phillips-

Perron (1990) (PP) test for stationary, with truncated lags of order 5 for each of the 11 series in levels, logarithms and annual differences was conducted.

The Phillips-Perron (PP) test involves estimating the following auxiliary regression equation:

$$\zeta y_t \; X\sim \; y_{tZ1} \; \Gamma x_t' ¢ \; \Gamma £_t \qquad (35)$$

Where $\sim X ° Z1$, in order to test the null hypothesis H_0: $\sim$ =0 against the alternative hypothesis, namely $H_1 :\sim \Phi 0$. The test is evaluated using a modified t-ratio of the form:

$$\hat{t}_{\sim} \; Xt_{\sim} \quad \frac{¥_0}{f_0}^{\frac{1}{2}} Z \frac{T(f_0 \; Z¥_0)(se(\hat{\sim}))}{2 f_0^{\frac{1}{2}} s} \qquad (36)$$

Where $\hat{\sim}$ is the estimate, $t_{\sim}$ is the t-ratio of $\hat{\sim}$, se($\hat{\sim}$) is the standard error of $\hat{\sim}$, and s is standard error of the regression. In addition, $¥_0$ is consistent estimate of the error variance in the regression. The estimating $f_0$is an estimator of the residual spectrum at frequency zero.

A standard time series model assumes linearity and symmetric adjustments. However, many economic variables display asymmetric adjustment paths over time. The Augmented Dickey Fuller (ADF) test is considered more powerful in approximately symmetric time series

2.6.7 Seasonality

Seasonal indices can be developed to delineate the variation over different seasons of tourist arrivals. Monthly international tourist arrivals showed very strong seasonal patterns. It is imperative to identify and incorporate these patterns into the conditional mean. The traditional and most frequently used technique is the ratio-to-moving average (multiplicative) method. The technique is straightforward and computationally convenient.

In this approach, the fundamental assumption is that a moving average expresses the trend and cyclical component of the times series adequately. The original monthly international tourist arrivals series (TA_t) are divided by the respective moving average figure for each month (MA_t), and expressed as a percentage to produce the ratio-to-moving average (Ghimire & Shrestha, 2011 p. 8). These ratios are averaged over months and then isolated the seasonal and cyclical components. Based on these ratios, monthly seasonal indices are calculated as follows:

$$M_{Ratio} \text{ X } \frac{TA_t}{MA_t} \text{ 100\%.} \quad (37)$$

2.7 Regression Model of Earning from Tourism

The following regression model is developed in the study.

$$\text{Earning from tourism } (Y) \text{ X} b_0 \Gamma b_1 X_1 \Gamma b_2 X_2 \Gamma b_3 X_3 \Gamma £ \quad (38)$$

Where, Y = Earnings in '000 US $, X_1= Length of stay in days, X_2 = Annual tourist arrivals, X_3 = Per day expense of a tourist, £ = Error term/disturbance term

Assumptions: א~ N (0, σ^2)

If E (א, X) = 0, אand X are independent

Cov (X_k, X_{k-1}) = 0

2.8 Reliability of questionnaire

The internal reliability of questionnaires especially with Likert scale have been checked by using Cronbach's alpha. All results were highly significant (value of alpha more than 0.77).

EViews 6.1, SPSS 16, MS Excel 2003 software were used to compute the models and analyze the data.

CHAPTER THREE

Results

3.1 International Tourist Arrivals

An attempt has been made to analyze the international tourist arrivals in the world. World tourist arrivals increased to 940 million in 2010 compared to 883 million in 2009. There is (6.4%) growth in 2010 despite the setbacks of 2008-2009, in a year marked by persistent economic turbulence (financial crisis, commodity and oil price rises, and sharp exchange rate fluctuations), major political changes in the Middle East and North Africa. Europe has been the prime destinations for tourists with (50.51%) share followed by Asia and the Pacific (21.74%) in international tourist arrivals. Rest is shown in the following table (UNWTO, 2012).

Table 3.1 International Tourist Arrivals in Regions (Million)

Destination (Region)	1990	1995	2000	2005	2010	Share % 2010
World	435	528	674	799	940	100
Europe	261.5	304	385	440.7	474.8	50.51
Asia and the Pacific	55.8	82	110.1	153.6	204.4	21.74
Americas	92.8	109	128.2	133.3	150.7	16.03
Africa	14.8	18.8	26.2	34.8	49.7	5.29
Middle east	9.6	13.7	24.1	36.3	60.3	6.41

Source: UNWTO, 2012

3.1.1 Comparison of Nepal with World Top Ten Countries

An attempt was made to compare the international tourist arrivals in the world top ten countries and Nepal. France ranked as first with 79 million (8.21%) followed by USA (6.36%), China (5.92%), Spain (5.60%), Italy (4.64%), UK (3.01%), Turkey (2.87%), Germany (2.86%), Malaysia (2.61%) and Mexico (2.48%). Nepal's share was very negligible with (0.06%) in tourist arrival in the world total in 2010. Out of world top ten countries six are from Europe.

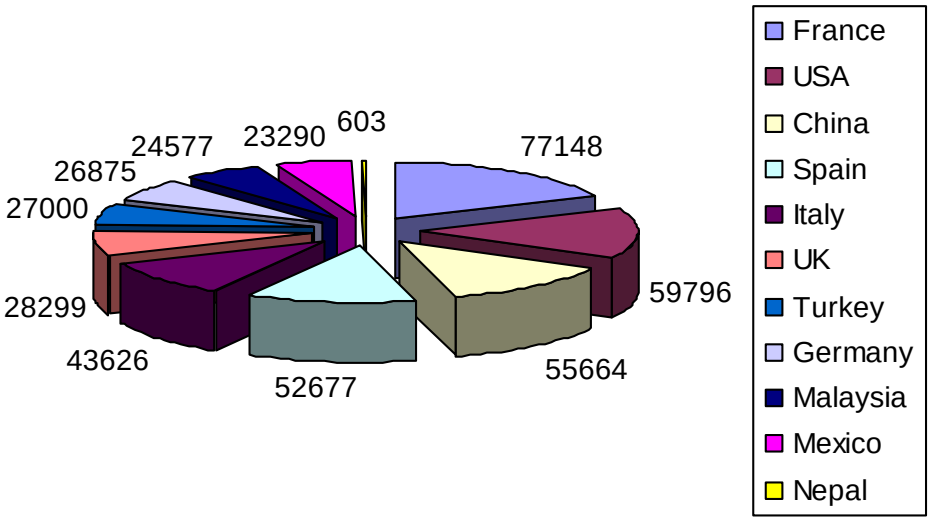


Figure 3.1 Comparison of Nepal with World Top Ten Countries in Tourists Arrivals

3.1.2 Comparison of Nepal with South Asian Countries

An attempt was made to compare the tourist arrivals in different countries in South Asia. As per following table, India has maximum (0.550%) followed by Pakistan (0.096%), Maldives (0.070%) and Nepal (0.064%). The data shows that Nepal is behind in attracting international tourists in South Asian region as well.

Table 3.2 Comparison of Nepal with South Asian Countries in Tourists Arrivals

Destination	2010 (in 000)	Share % 2010
World	940000	100
India	5168	0.550
Pakistan	907	0.096
Maldives	792	0.084
Sri Lanka	654	0.070
Nepal	603	0.064
Bangladesh	303	0.032
Bhutan	27	0.003

Source: UNWTO, 2012

3.2 Tourist Arrivals in Nepal

In terms of numbers, around six thousand tourists visited Nepal in 1962. The number rose to more than one hundred fifty thousand in 1978. There was an significant increase of tourist arrivals in Nepal because of the mega event Visit Nepal Year 1998. However, the event was not free from the politics. The unstable political situation, ten years armed

conflict of the country, Royal massacre, September 11 incident in USA, Hritik Roshan rumor in Nepal, hijacking of Indian airlines were the main reasons to have this type of uncertainty in tourism (Table C. 1). Although there is political uncertainty and various problems for tourists, there is slightly positive growth in tourist arrivals because of peace process and proposed Nepal Tourism Year 2011.

An attempt was made to analyze the trend of tourist arrivals in Nepal. The R^2 value and F Statistics shows that following models are found to be significant. The scatter plot shows that the tourist arrivals in Nepal is seemed to be linear up to 1999, however, there is heavy decline for two three years because of above mentioned reasons. Again positive increment can be seen after 2003 onwards. The result shows that none of the model found to be the best fit.

Table 3.3 Model Summary and Parameter Estimates of Tourist Arrivals

Equation	Parameters	p-value	t	R^2	F	df1	df2
Logarithmic:							
b_0	-1.58×10^8	0.001	-4.183	0.481	17.587	1	19
b_1	2.08×10^7	0.000	4.194				
Quadratic:							
b_0	-1.00×10^7	0.001	-4.036	0.481	17.608	1	19
b_1	0.000	0.639	-0.477				
b_2	2.599	0.000	4.196				
Cubic:							
b_0	-6.54×10^6	0.001	-3.956				
b_1	0.000	0.641	-0.474	0.481	17.619	1	19
b_2	0.000	0.639	-0.476				
b_3	0.001	0.000	4.198				
Growth:							
b_0	-38.943	0.006	-3.123	0.476	17.261	1	19
b_1	0.026	0.001	4.155				

Independent variable: Year
Dependent Variable: Tourists arrivals

The curve fitting of the annual tourist arrivals in Nepal is shown in the figure 3.2.

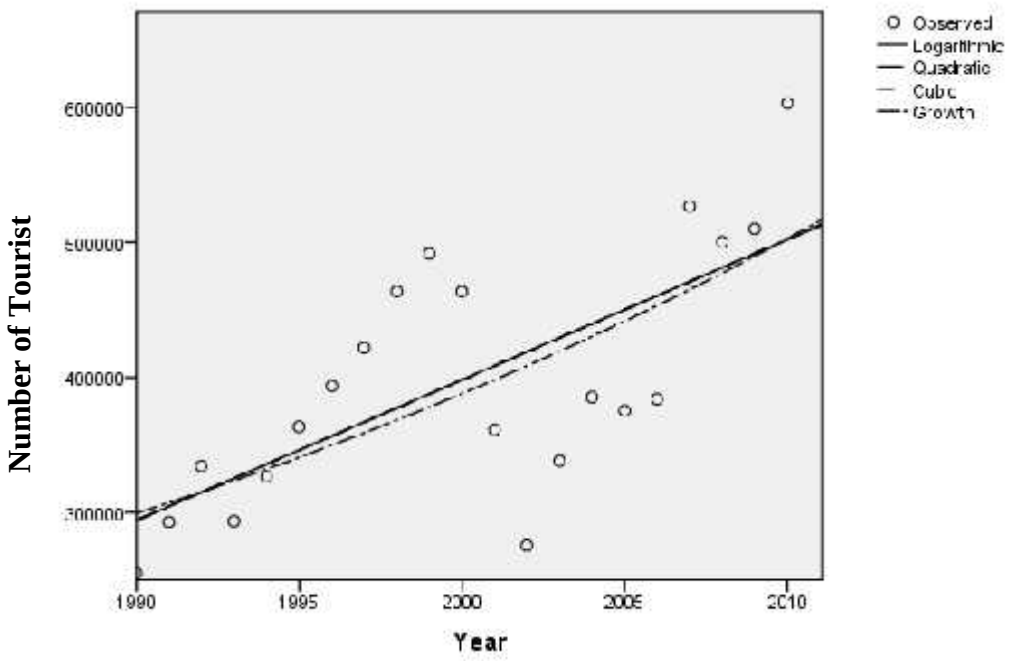


Figure 3.2 Curve fitting of Annual Tourist Arrivals in Nepal

3.2.1 Length of Stay

Longer the length of stay, higher will be the economic return. The 10th plan expected length of stay 13 days; however, the real length of stay was 10.2 days in 2006. The length of stay 12.67 days in 2010 is very close to that expected value of 10th plan.

3.2.2 Purpose of Visits

The purpose of visit of the tourists in Nepal is diverse in nature. The tourism statistics shows the tourists visiting with pilgrimage purpose were recorded as 6,713 (2.6%) of the total tourists arrived in 1990. The number of tourists with pilgrimage purpose fluctuated on the following years. The data shows that 101335 (16.8%) number of tourists/pilgrims visited Nepal in 2010. The rapid growth in pilgrimage purpose shows the prospects of pilgrimage tourism in Nepal.

An attempt was made to analyze the trend of tourist arrivals with pilgrimage purpose in Nepal. The R^2 value and F Statistics shows that following models are found to be significant. However, none of the model found to be the best fit. The scatter plot shows that there is rapid growth in tourist arrivals with pilgrimage purpose. Pilgrimage tourism has become one of the important purposes of visit because of world's top class Hindus and Buddhists pilgrimage destinations in Nepal.

Table 3.4 Model Summary and Parameter Estimates of Tourist/Pilgrim Arrivals

Equation	Parameters	p-value	t	R^2	F	df1	df2
Logarithmic:							
b_0	$-5.25x10^7$	0.000	-6.785	0.708	46.084	1	19
b_1	$6.91x10^6$	0.000	6.789				
Quadratic:							
b_0	$-3.44x10^6$	0.000	-6.765	0.710	46.480	1	19
b_1	0.000	0.212	-4.403				
b_2	0.865	0.000	6.818				
Cubic:							
b_0	$-2.28x10^6$	0.001	-6.754				
b_1	0.000	0.641	-4.391	0.711	46.680	1	19
b_2	0.000	0.639	-4.392				
b_3	0.000	0.215	6.832				
Growth:							
b_0	-268.612	0.000	-8.045	0.785	69.507	1	19
b_1	0.139	0.000	8.337				

Independent variable: Year

Dependent Variable: Tourists/Pilgrims

The curve fitting of the tourist visiting Nepal with pilgrimage purpose is shown in the figure 3.3.

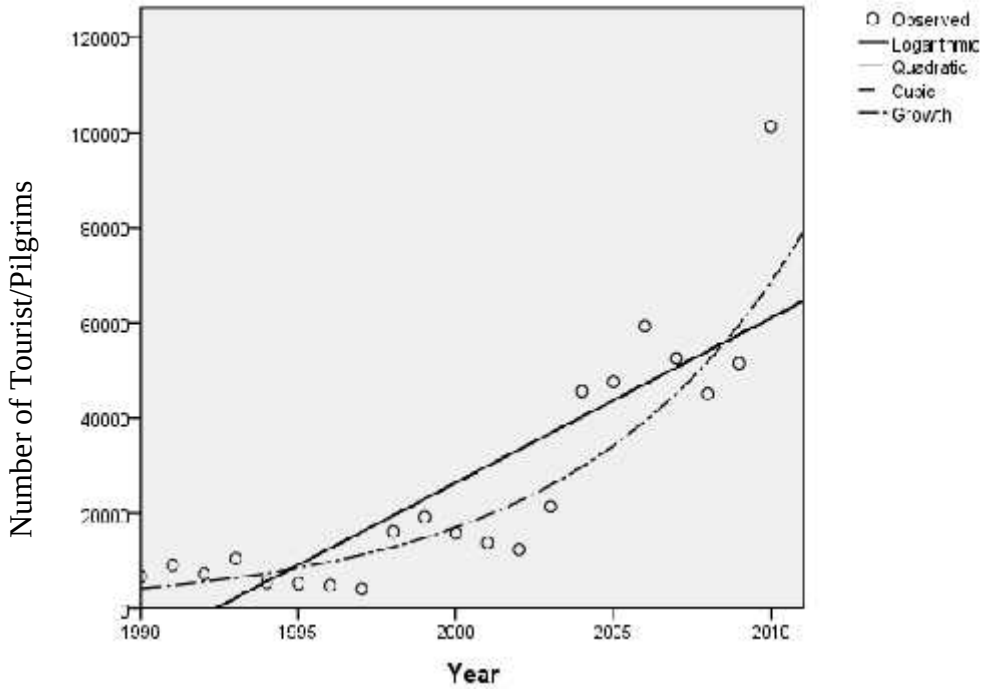


Figure 3.3 Curve Fitting of Pilgrimage Tourism in Nepal

The number of tourists visiting with pilgrimage purpose is low; however, the tourist visiting with other purposes also visit the pilgrimage sites which they do not mention in the form filled at immigration when they enter Nepal. Hindu tourists visiting Nepal with other purposes normally visit Pashupatinath and other popular Hindu shrines and Buddhist tourist visiting Nepal with other purposes visit Lumbini, Swayambhunath, and other Buddhist sites. Even tourist who are not Hindu or Buddhist also visit pilgrimage sites which is not recorded yet.

3.2.3 Tourist Arrivals by Age and Sex

Majority of the tourist visiting Nepal are from 31-45 years old age group, which is 189,852 and followed by 172,800 of age group 46-60 years. Likewise, 361,611 (60.0%) were male and 241,256 (40.0%) were female tourists visiting Nepal in 2010.

3.2.4 Tourist Arrivals by Purpose of Visit and Major Nationalities

The data (Appendix Table A.3) shows that the tourist arrivals with the purpose of pilgrimage from major tourist originating nations. The highest number of the pilgrims 22144 visited from India followed by 22052 from Sri Lanka, 10608 from Thailand, 9103 from China, 3013 from USA, 2926 from Korea and so on. However, thousands of Indian tourists who visit Nepal for pilgrimage purpose are not included in tourism statistics if they travel by land. Another interesting thing is that most of the pilgrims are from Asian countries. That is why; those countries are potential markets for pilgrimage tourism. As majority of the Buddhist and Hindu population are in the Asian countries, Nepal should give priority for the regional religious tourists. Regional tourists are less affected by international incidents as well. Development and publicity of the pilgrimage sites in the international market can attract more pilgrims and visitors from the major tourist origination countries in the world. During this study, it is found that 10% of the respondents visiting Nepal with other purposes visit pilgrimage sites.

3.3 Descriptive Statistics of Monthly Tourist Arrivals from Major Tourists Originating Countries

The ten year armed conflict (1997-2006) ended with devastating impacts such as loss of lives, damage of infrastructure, loss of livelihoods and an uncertain future of Nepal. Even after 2006 movement and peace agreement among political parties, the country is still facing with political instability. The unstable government is unable to solve the political problem and improve the security situation of the country which has been affecting tourism badly. Tourists from 73 countries are recorded, some other countries with very less number of tourist arrival are in others category.

Table 3.5 Tourist Arrivals from Top Eleven International Tourists Originating Countries in Nepal

Country	Years													
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Rank
India	133438	143229	140661	95915	64320	66777	86363	90326	96434	93722	96010	91177	1198372	1
U.K.	29998	35499	36852	37765	33533	21007	22101	24667	25151	22708	32367	33658	355306	2
Japan	35038	37386	38893	41070	28830	23223	27412	24231	18460	22242	27058	23383	347226	3
U.S.A.	30056	35902	39332	40442	32052	17518	18838	20680	18539	19833	29783	30076	333051	4
Germany	22374	23862	26378	26263	21577	15774	14866	16025	14444	14361	21323	18552	235799	5
France	21573	21992	24490	24506	21187	13376	15865	18938	14128	14835	20250	22402	233542	6
Sri Lanka	4021	11031	12432	16649	9844	9805	13930	16124	18770	27413	49947	37817	227783	7
China	0	0	5638	7139	8738	8715	7562	13326	21170	16800	27339	35166	151593	8
Bangladesh	6206	6004	9262	8731	7742	5507	5031	14607	20201	16474	24012	20067	143844	9
Netherlands	9214	14403	17198	16211	13662	8306	8443	11160	8947	7207	10589	10900	136240	10
Italy	11034	12864	12870	11491	8745	8057	8243	12376	8892	7736	11243	7914	121465	11

Source: MoTCA, 2008

An attempt was made to examine the associated volatilities of monthly tourist arrivals from 11 major tourist source countries in Nepal. The data series were analyzed in terms of number of tourist arrivals, the corresponding logarithms, annual differences and log-differences. It may be argued that the preferred series to model the monthly tourist arrivals to Nepal is one which has a distribution closer to a normal distribution. In order to examine the validity of the preferred series, the descriptive statistics of the series in levels, logarithms, annual differences and log-differences are examined.

The monthly tourist arrivals in levels depict very high coefficient of variation (CV) for 11 tourist source countries. Among them India has the lowest CV or highest consistency towards monthly tourist arrivals for Nepal. India also shows the highest average monthly tourist arrivals for Nepal with the highest consistency. Likewise, Sri Lanka has the highest CV or lowest consistency towards monthly tourist arrivals for Nepal (Ghimire & Shrestha, 2011 p.7). Among 5 Asian countries, Sri Lanka has the second position for the higher average tourist monthly arrivals for Nepal. Jarque-Bera, a test statistic of normality, shows that all the source countries have no normality patterns as the p-values for all the cases are less than 5% level of significance although the value of skewness for Japan is very close to zero. Sri Lanka has the highest value of skewness i.e. very close to 3 (positive skewness). Similarly, Japan and UK have the values of Kurtosis very close to 3. Although Japan has the significant value of non-normality, the values of skewness and kurtosis show that it should have some normality pattern on its monthly arrivals for Nepal. Sri Lanka, Netherlands, Italy, China and USA have very high degree of kurtosis.

When the series were transformed to natural logarithms, an examination of the descriptive statistics gave a very different pattern. The values of CV for all countries except Sri Lanka and China had considerably lower values. It was found that their average monthly tourist arrivals for Nepal were with a higher consistency. The p-values for Jarque-Bera statistics were more than 5% level of significant except China. So, they possessed the normality pattern in the monthly tourist arrivals to Nepal.

Annual differences of the 11 series were also analyzed using the descriptive statistics. The CV's for all countries were very high. The p-values for Jarque-Bera statistics were less than 5% level of significant except for France and Germany. So, these two countries had normality nature in their monthly tourist arrivals for Nepal. Consequently, except France and Germany, all the countries had higher values of kurtosis. Similarly, skewness also showed the same pattern for France and Germany.

Table 3.6 Descriptive Statistics of Monthly International Tourist Arrivals

Statistics	For Monthly Tourist Arrivals at levels (Series)										
	France	Germany	Italy	Netherland	India	Bangladesh	Sri Lanka	China	Japan	USA	UK
Mean	1621.8	1637.5	843.5	946.1	8322.0	998.9	1553.7	1128.2	2411.3	2305.9	2467.4
Median	1342.5	1360.5	713.0	809.5	7858.5	764.0	637.5	783.5	2219.5	1987.5	2019.5
Maximum	4900.0	5204.0	3455.0	3887.0	20407	3478.0	11955.0	5318.0	6019.0	6971.0	6399.0
Minimum	271.0	246.0	141.0	139.0	3277.0	187.0	0.0	261.0	472.0	908.0	693.0
Std. Dev.	988.0	1006.8	587.9	633.1	3333.0	649.0	2175.4	966.0	1264.3	1050.8	1247.2
Skewness	1.1	1.2	2.1	2.1	1.2	1.4	2.6	1.9	0.7	1.6	1.0
Kurtosis	3.8	4.4	8.3	8.5	5.1	5.0	10.7	6.7	2.8	6.2	3.4
Jarque-Bera	33.7	48.1	279.5	284.3	61.8	67.3	514.1	172.3	10.8	121.2	26.0
Probability	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CV	60.9	61.5	69.7	66.9	40.1	65.0	140.0	85.6	52.4	45.6	50.5

Note: The number of observations is 144 (12 years and 12 months) for each tourist source country

Table 3.7 Descriptive Statistics of Log of Monthly International Tourist Arrivals

Statistics	For Monthly Tourist Arrivals at logarithms (Series)										
	France	Germany	Italy	Netherland	India	Bangladesh	Sri Lanka	China	Japan	USA	UK
Mean	7.21	7.21	6.56	6.68	8.95	6.74	6.50	6.79	7.64	7.66	7.70
Median	7.19	7.19	6.56	6.71	8.95	6.68	6.65	6.67	7.73	7.61	7.61
Maximum	8.50	8.56	8.15	8.27	9.92	8.15	9.39	8.58	8.70	8.85	8.76
Minimum	5.60	5.51	4.95	4.93	8.09	5.23	3.04	5.56	6.16	6.81	6.54
Std. Dev.	0.62	0.61	0.61	0.61	0.39	0.62	1.46	0.70	0.58	0.41	0.49
Skewness	-0.15	-0.02	0.14	0.02	0.04	-0.02	-0.13	0.54	-0.43	0.41	0.03
Kurtosis	2.60	2.50	3.28	3.10	2.77	2.46	2.14	2.55	2.51	2.69	2.42
Jarque-bera	1.44	1.46	0.88	0.06	0.36	1.68	4.69	8.03	5.71	4.48	1.97
Probability	0.49	0.48	0.64	0.97	0.84	0.43	0.10	0.02	0.06	0.11	0.37
CV	8.65	8.49	9.29	9.06	4.39	9.23	22.40	10.30	7.58	5.39	6.42

Note: The number of observations is 144 (12 years and 12 months) for each tourist source country

Table 3.8 Descriptive Statistics of Annual Difference of Monthly International Tourist Arrivals

Statistics	For Monthly Tourist Arrivals at Annual difference (Series)										
	France	Germany	Italy	Netherland	India	Bangladesh	Sri Lanka	China	Japan	USA	UK
Mean	1.1	-1.7	6.9	16.1	26.5	20.0	65.0	29.7	17.9	17.9	33.7
Median	75.0	24.0	64.0	88.0	443.0	34.0	125.0	49.0	221.0	98.0	182.0
Maximum	3333.0	2549.0	1902.0	2070.0	5874.0	1172.0	3878.0	1956.0	1994.0	2633.0	1803.0
Minimum	-2664.0	-2517.0	-3174.0	-3506.0	-16192	-2481.0	-11814.0	-4547.0	-5453.0	-5024.0	-5007.0
Std. Dev.	1098.9	1022.9	720.5	723.1	3025	368.9	1509.3	528.4	1108.8	928.9	1168.9
Skewness	0.2	0.0	-2.2	-2.4	-2.9	-3.4	-4.2	-4.8	-3.0	-3.3	-2.9
Kurtosis	3.2	2.6	10.2	12.2	12.9	22.8	30.8	44.3	11.9	17.3	11.6
Jarque-Bera	1.2	0.9	426.7	642.3	774.5	2626.0	5003.4	10697.1	694.4	1487.4	644.5
Probability	0.55	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CV	104067.1	-58984.2	10481.3	4499.8	11414	1841.8	2322.3	1780.9	6193.7	5200.9	3472.8

Note: The number of observations is 132 (11 differences and 12 months) for each tourist source country

Table 3.9 Descriptive Statistics of Log Difference of Monthly International Tourist Arrivals

Statistics	For Monthly Tourist Arrivals at Log- difference (Series)										
	France	Germany	Italy	Netherland	India	Bangladesh	Sri Lanka	China	Japan	USA	UK
Mean	0.008	0.003	0.021	0.024	0.007	0.019	0.059	0.023	0.014	0.011	0.018
Median	0.052	0.035	0.118	0.103	0.062	0.051	0.262	0.059	0.105	0.053	0.099
Maximum	1.140	0.904	0.918	0.965	0.465	0.836	1.800	0.592	0.959	0.474	0.596
Minimum	-1.454	-1.358	-2.887	-2.501	-1.577	-1.766	-4.868	-1.931	-2.364	-1.635	-1.982
Std. Dev.	0.653	0.574	0.679	0.628	0.340	0.349	1.203	0.325	0.528	0.314	0.461
Skewness	-0.165	-0.135	-2.914	-2.832	-3.034	-2.824	-2.821	-3.493	-2.958	-3.445	-2.979
Kurtosis	1.969	1.714	11.058	10.674	12.126	13.244	10.553	17.688	11.216	15.743	11.359
Jarque-Bera	6.690	9.861	564.484	519.291	685.56	781.053	507.4	1,510.1	585.21	1,197.9	601.60
Probability	0.040	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CV	8,072.4	19,747	3,285.2	2,656.3	4,731.7	1,815.2	2,040.5	1,437.2	3,717.3	2,833.4	2,529.3

Note: The number of observations is 132 (11 differences and 12 months) for each tourist source country

Finally, the data series were transformed to log-differences. CV's for all the countries were very larger showing a great variability in log-difference of monthly tourist arrivals for Nepal. The p-values for Jarque-Bera statistics were less than 5% level of significant for all countries. Therefore, it is difficult to see the normality pattern for them in this type of transformation. However, France and Germany had relatively lesser degrees of skewness and kurtosis. So, they may have normality nature at 1% level of significance.

The above examination of the descriptive statistics suggested that the transformed series in log, log-difference and annual difference for only France and Germany were optimal as they reveal that they were closest to the normal distribution.

3.3.1 Unit Root Test

Non-stationary of time series is an important problem as it tremendously impacts the way in which data should be treated. Non-stationary data cannot be analyzed with traditional econometric techniques as in case of non-stationary some basic model assumptions are not met and correct reasoning on relationship between non-stationary time-series is impossible. That is why; it is necessary to test the stationary of data. The easiest way is to draw a figure of dataseries and visually inspect it. Prior to estimating the conditional mean of the univaritate time series, it is required to test whether there is a presence of unit roots in the series as their presence has adverse consequence for estimation and inference. An attempt was made to find the unit roots check whether the variables were stationary. Here, the aim was to model univariate time series data where lagged dependent variables were included to capture dynamics. Furthermore, it also modeled the conditional variance of the data. If the series are non-stationary, then the variance of the data generating process will become infinitely large

and thus the statistical inferences will be affected. In this context, the Phillips-Perron (PP) test for stationary with truncated lags of order 5 for each of 11 series in levels, logarithms, annual difference and log-difference were performed.

The null hypothesis is that monthly international tourists arrivals have a unit root. The critical values for the rejection of the null hypothesis of a unit root are -3.486 and -2.886 at 1% and 5% level of significance respectively. For Bangladesh and China, the test suggests that the series in levels and in logarithms have unit roots at 5% level of significance. However, for the rest of countries, the series are in levels and in the transformed form are stationary. These results are not particularly surprising. Enders (2004, p.176) states that non-stationary variables may have pronounced trend or appear to meander without a long-run mean or variance.

Table 3.10 Out Put of Unit Root Test

Null Hypothesis: FRANCE_LEVELS has a unit root Exogenous: Constant Bandwidth: 5 (Fixed using Bartlett kernel)				
			Adj. t-Stat	Prob.*
Phillips-Perron test statistic			-7.344744	0.0000
Test critical values:	1% level	-3.476472		
	5% level	-2.881685		
	10% level	-2.577591		
*MacKinnon (1996) one-sided p-values.				
Residual variance (no correction)				829195.3
HAC corrected variance (Bartlett kernel)				453813.8

Results of the test for the null hypothesis that monthly tourist arrivals have a unit root are given in the Table 3.11. This is precisely the case for Bangladesh and China, with both having very strong linear trends.

Table 3.11 Phillips-Perron Test for Stationary with Constant, Time Trend & Five Truncated Lag

Country	Levels	Logs	Annual difference	Log-difference
France	-7.344744	-6.649081	-18.07917	-14.68700
Germany	-6.224531	-5.346971	-13.25064	-10.63635
Italy	-9.063175	-8.290873	-21.85108	-19.97241
Netherlands	-8.261977	-7.528995	-21.69348	-19.81243
U K	-6.030232	-6.404668	-15.84175	-16.24894
India	-5.994103	-5.734570	-29.59334	-16.31013
Bangladesh	-2.197020	-2.692645	-15.20909	-17.82244
Sri Lanka	-3.975739	-5.569709	-11.27203	-12.87702
China	-1.941070	-2.085150	-16.50049	-15.00704
Japan	-5.746032	-6.287795	-14.08197	-15.19804
USA	-5.763900	-4.956598	-17.76780	-16.22388

These tests have been conducted using several lags, but the results were robust to such changes. The choice of implementing the PP test over the widely used Augmented Dickey-Fuller (ADF) test is due to mainly to the presence of GARCH errors. ADF test incorporate techniques explicitly accommodating a serial correlation structure in the errors, but not hetereoscedasticity. However, the PP test takes into account both serial correlation and hetereoscedasticity using non-parametric techniques. As argued in Phillips – Perron (1990), the PP test typically has higher power in finite samples than ADF test.

3.3.2 Results for Seasonality of the Monthly Tourist Arrivals

Monthly tourist arrivals to Nepal show very strong seasonal patterns, so it is imperative to identify and incorporate these patterns into the conditional mean. The traditional and most frequently used technique is the Ratio-to-Moving Average method. The technique is straightforward and computationally convenient. In this approach, the fundamental assumption is that a moving average expresses the trend and cyclical component of the time series adequately. The original monthly tourist arrivals (TA_i) are divided by the respective

moving average figure, (MA_i) for each month, and expressed as a percentage to produce the Ratio-to – Moving Average. These ratios are averaged over 12 months. The ratios will then isolate the combined effects of trend and cyclical variations (Ghimire & Shrestha, 2011 p.8).

The monthly seasonal indices are calculated based on levels or a transformed series such as logarithms or annual difference, they are qualitatively similar. Seasons in tourism are determined by months and the allocated index for a given month is always one. If the calculated index exceeds 1, then the monthly tourist arrivals exceed the trend and cyclical components due to underlying seasonal factors. The monthly seasonal indices estimated for monthly tourist arrivals in levels for 11 major source countries are given in the table, where the seasonal concentrations can be readily identified (Appendix: Table A.8).

As five of the eleven major tourist source countries of Nepal are from Western Europe, the seasonal concentrations of monthly tourist arrivals occur during European Winter months, roughly from September to March. The peak month for France, Germany, Netherlands and UK is October and the peak month for Italy is August. However, most of the Asian countries have different months for the peak seasonal index. The peak month for India is June, for Bangladesh is October and for Sri Lanka are March and August. November is peak month for China and Japan. Nevertheless, the peak month for Japan is March. For the same duration, the primary peak month for USA is October. June has been the lowest months for all countries except India. February was the lowest month for India. Primary peak months for India were May, June and July. Indian tourists feel usually very adverse and unpleasant environmental condition during those months in their country.

Table 3.12 Seasonal Indices for Monthly Tourist Arrivals

Month	Country										
	France	Germany	Italy	Netherland	U K	India	Bangladesh	Sri Lanka	China	Japan	USA
January	0.563	0.533	0.619	0.636	0.708	0.835	0.946	0.178	1.079	0.930	0.909
February	0.824	0.944	0.703	0.714	0.948	0.734	0.866	1.639	0.846	1.306	0.907
March	1.230	1.600	0.912	1.157	1.471	0.805	1.062	2.196	0.792	1.520	1.209
April	1.374	1.110	0.937	0.962	1.241	0.924	1.092	0.235	0.882	0.882	1.036
May	0.604	0.724	0.545	0.644	0.703	1.478	0.924	0.094	0.892	0.475	0.909
June	0.269	0.368	0.335	0.330	0.429	1.510	0.868	0.107	0.837	0.320	0.766
July	0.640	0.489	0.647	0.749	0.649	1.054	0.956	0.243	0.964	0.475	0.774
August	0.972	0.731	2.860	0.857	0.719	0.942	0.926	2.793	0.865	0.899	0.694
September	0.983	1.327	0.934	1.258	1.034	0.883	0.999	1.199	1.063	0.910	1.002
October	2.385	2.263	1.611	2.503	1.918	0.936	1.151	1.534	1.156	1.157	1.666
November	1.483	1.293	1.130	1.370	1.396	.827	1.066	1.370	1.277	1.637	1.255
December	0.662	0.612	0.762	0.811	0.779	1.065	1.136	0.405	1.340	1.481	0.868

Note: The Seasonal index more than 1 indicates the monthly tourist arrivals exceed the trend and cyclical components due to underlying seasonal factor.The number of observations is 144 (12 years and 12 months) for each tourist source country

3.3.3 The Conditional Model

An important task is to model the conditional mean. In order to estimate the conditional variance σ_t accurately, there is need of obtaining accurate estimates of the unconditional shocks, ε_i. Univariate time series data on monthly tourist arrivals show a considerable degree of habit persistence. Before deciding on a specific GARCH (1, 1) model, the Correlograms of the monthly tourist arrivals from the 11 main tourist resources, in levels, logarithms, annual differences and log-differences were examined (Appendix C).

The sample autocorrelation functions for France, Germany, Italy, UK, India, Japan and USA are all similar and have Damped Exponential Curves without Oscillation. They show that they all lie down extremely slow. Thus, the original time series are all non-stationary for those countries. Moreover, the monthly tourist arrivals in levels from them are non-stationary. These results are not also consistent with the PP test. Sri Lanka has a little bit different sample autocorrelation functions among above countries. However, the curve also lies down very slowly with irregular up-and-down fashion. Therefore, the monthly tourist arrivals at level from Sri Lanka have a non-stationary. This result is also not consistent with the PP test. Bangladesh and China have the sample autocorrelation functions, which are very different from other countries. The curves lie down at lag 1 in both cases. Therefore, the monthly tourist arrivals in levels from Bangladesh and China are stationary. Here, the results are also different from those of the PP test. Nevertheless, besides Bangladesh and China, all 9 countries are said to be stationary in their levels.

3.3.4 Results for Conditional Mean GARCH (1, 1) of Monthly Tourist Arrivals in Level

Estimates of the conditional mean for the GARCH (1, 1) model defined for the level of the monthly tourist arrivals for the 11 main tourist source countries is:

$$y_t \; \mathrm{X} c \; \Gamma \, AR(1) \, \Gamma \, AR(2) \, \Gamma \, MA(1) \, \Gamma \, MA(2)$$

The conditional mean estimates obtained through a modeling procedure are given in the table3.13. In particular, only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Germany, U K, India, China and USA as the AR(1) coefficients are very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. Netherland, France, Bangladesh and USA have AR (1) values different from that of other countries and the coefficients, although are very significant are all less than 1. That is why; those countries are showing a little less degree of habit persistent for the monthly tourist arrivals. However, Sri Lanka and Japan have negative AR (1) values, which are also highly significant. They have habit persistent in their monthly arrivals to Nepal but in an opposite fashion. It means there may be some adverse effect on their monthly arrivals to Nepal by the monthly arrivals of other countries (Appendix D).

Table 3.13 Conditional Mean GARCH (1, 1) of Monthly Tourists Arrivals in Level

Coefficients	France	Germany	Italy	Netherland	U K	India	Bangladesl	Sri Lanka	China	Japan	USA
AR(1)	**0.324** 7.975 0.000	**0.904** 20.053 0.000	**-0.560** -19.330 0.000	**0.676** 6.807 0.000	**1.560** 38.035 0.000	**1.330** 12.332 0.000	**0.443** 7.0966 0.000	**-0.884** -68.420 0.000	**1.016** 55.057 0.000	**-0.407** **-12.600** 0.000	**0.857** 38.380 0.000
AR(2)	**-0.180** -4.270 0.000	**-0.481** -19.503 0.000	**0.372** 12.200 0.000		**-0.590** -17.030 0.000	**-0.353** -3.520 .0004	**0.502** 8.970 0.000			**0.470** 14.64 0.000	
MA(1)		**- 0.091** -8.6E+14 0.000	**0.902** 1.05E+32 0.000	**-0.370** -4.297 0.000	**-0.901** -5.73E+08 0.000	**-0.815** -12.370 0.000		**0.909** 7.06E+16 0.000	**-0.350** -13.110 0.000	**0.820** 4.84E+09 0.000	**-0.365** -5.330 .000
MA(2)							**-0.331** -3.790 .0001			**-0.0381** -16826373 0.000	

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively.The number of observations is 144 (12 years and 12 months) for each tourist source country

3.3.5 Results for Conditional Variance GARCH (1, 1) of Monthly Tourist Arrivals in Level:

Conditional variance estimates for GARCH (1, 1) are given in the following table.

Table 3.14 Conditional Variance GARCH (1,1) of Monthly Tourists Arrivals in Level

Country	Coefficients				
	ω	α	β	Log-moment	Second moment
France	**152523.0** 8.88 0.000	**-0.1037** -2.55 .0107	**0.899** 2.24E+09 0.000	NA for $\alpha < 0$	0.7953
Germany	**743035.6** 10.443 0.000	**0.312** 3.309 0.0009	**-0.507** -4.173 0.000	NA for $\beta < 0$	-0.195
Italy	**284655.9** 11.68 0.000	**1.188** 34.14 0.000	**-0.3156** -5.55 0.000	NA for $\beta < 0$	0.8724
Netherland	**336546.0** 9.77 0.000	**1.304** 17.95 0.000	**-0.338** -2.707 .0068	NA for $\beta < 0$	1.1141
U K	**115415.0** 3.400 .0007	**2.0467** 84.979 0.000	-0.004 -0.7936 0.427	Not significant of β	2.0427
India	**3536596.0** 4.210 0.000	**1.025** 2.70 .0069	-0.105 -1.26 .206	Not significant of β	0.920
Bangladesh	**65084.96** 7.730 0.000	**1.130** 3.294 0.000	**-0.0386** -2.473 .0134	NA for $\beta < 0$	1.0914
Sri Lanka	**179834.0** 1.416 0.1568	**1.624** 3.111 0.0019	-0.0023 -0.318 0.750	Not significant of β NA for $\beta < 0$	1.6217
China	**58254.07** 3.259 0.0011	**1.207** 38.54 0.000	**-0.0471** -9.526 0.000	NA for $\beta < 0$	0.3022
Japan	**150836.2** 4.062 0.000	**1.187** 46.135 0.000	**-0.0381** -4.770 0.000	NA for $\beta < 0$	0.9482
USA	**155878.4** 6.024 0.000	**1.251** 4.170 0.000	**-0.0919** -3.924 0.0001	NA for $\beta < 0$	1.159

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$;
That for Second moment is $\alpha + \beta < 1$. For GARCH (1, 1), ω is the constant conditional volatility, α is the ARCH effect and β is the GARCH effect.

The conditional variance for the GARCH (1, 1) model for the monthly tourist arrivals is:

$$\mathbf{GARCH = C\ (4) + C\ (5)*RESID\ (-1)^2 + C\ (6)*GARCH\ (-1)}.$$

The second moment conditions are satisfied by France, Germany, Italy, India, China and Japan. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$. On comparing the results of the log-moment, they are seemed to be partially satisfied for most of the countries. The consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in level into any other form. However, the result shows that the estimate of the GARCH coefficients, or β, is significant for all the countries except UK, India and Sri Lanka. β is negative for all the countries except France. This does not permit to interpret its significance due to the regularity condition. While the estimated GARCH effect, or α, is significant in all cases and all are positive except for France. These results imply that a shock to the monthly tourist arrival series has short run persistent in all cases except France. A shock to the monthly tourist arrival series has long run persistent only in France.

3.3.6 Results for Conditional Mean GARCH (1, 1) of Monthly Tourist Arrivals in Log

The monthly tourist arrivals in levels are transformed to the Logarithm. Estimates of the conditional mean for the GARCH (1, 1) model when transformed to logarithm are given in the table3.15. The conditional mean estimates are obtained through a modeling procedure in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Germany, India, Sri Lanka, Japan and USA as the AR (1) has coefficients very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 1% level of significance. France, Netherland, and Bangladesh have AR (1) values different from that of other countries and the coefficients, although are very significant are all less than 1. That is why; those countries are showing less degree of habit persistent for the monthly tourist arrivals. Italy, U K and China have negative AR (1) values, which are also highly significant. They have habit persistent in their monthly arrivals but in an opposite fashion. It means there may be some adverse effect on their monthly arrivals to Nepal by the monthly arrivals of other countries.

Table 3.15 Conditional Mean GARCH (1,1) of Monthly Tourists Arrivals in Log

Coefficients	France	Germany	Italy	Netherland	U K	India	Bangladesh	Sri Lanka	China	Japan	USA
AR(1)	**0.444** 4.860 0.000	**1.008** 34.24 0.000	**-0.244** 12.900 0.000	**0.456** **8.770** 0.000	**-0.389** -3.640 0.000	**1.390** 32.559 0.000		**1.540** 8.500 0.000	-0.088 -1.660 0.097	**1.330** 28.170 0.000	**1.490** 45.160 0.000
AR(2)	**-0.386** -6.320 0.000	**-0.983** -40.017 0.000	**-0.945** -67.450 0.000	**0.172** 5.848 0.000	**0.378** 6.540 0.000	**-0.417** -10.110 0.000	**1.000** 31.460 0.000	**-0.6450** -5.100 0.000	**0.780** 16.880 0.000	**-0.366** -9.420 0.000	**-0.499** -15.560 0.000
MA(1)	0.187 1.830 0.067	**-0.0515** **-9.474** 0.000	**0.272** 144.26 0.000	**0.119** -2.250 0.0244	**0.8158** 7.719 0.000	**-0.820** -25.170 0.000	**0.292** 6.49 0.000	**-0.819** -4.530 0.000	**0.921** 20.820 0.000	**-0.932** -32.680 0.000	**-0.866** -55.210 0.000
MA(2)		**0.741** 12.870 0.000	**0.986** 574.770 0.000			**-0.066** -2.812 0.005	**-0.703** -15.570 0.000	0.135 1.760 0.078			

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively.The number of observations is 144 (12 years and 12 months) for each tourist source country

3.3.7 Results for Conditional Variance GARCH (1, 1) of Monthly Tourist Arrivals in Log

Conditional variance estimates for GARCH (1, 1) are given in Table 3.16. In case of the conditional variance for the GARCH (1, 1) model for the monthly tourist arrivals, the second moment conditions are satisfied by France, Germany, Bangladesh and Sri Lanka.

Table 3.16 Conditional Variance GARCH (1, 1) of Monthly Tourist Arrivals in Log

Country	Coefficients				
	ω	α	β	Log-moment	Second moment
France	0.068 5.976 0.000	**-0.188** -6.230 0.000	**0.899** 30.620 0.000	NA for $\alpha < 0$ Although Although significant of α and β	0.7113
Germany	**.0053** 352.85 0.000	-0.072 -0.949 0.3425	**1.040** -11.750 0.000	NA for $\alpha < 0$ Although significant of β	0.9680
Italy	**.0392** 5.490 0.000	**1.187** 10.211 0.000	**-0.0794** -3.255 .0011	NA for $\beta < 0$ Although significant of α and β	1.1076
Netherland	**0.0109** 2.002 0.0452	**2.857** 5.372 0.000	**-0.0021** -6708.3 0.000	NA for $\beta < 0$ Although significant of α and β	2.8500
U K	**0.028** 4.270 0.000	**1.660** 7.220 0.000	**-0.0088** -3.420 0.0006	NA for $\beta < 0$ Although significant of α and β	1.6512
India	**.00365** 4.040 0.0001	**2.280** 5.640 0.000	**-0.0051** -2.2900 0.0216	NA for $\beta < 0$ Although significant of α and β	2.2740
Bangladesh	**0.191** 4.59 0.000	**0.3070** 2.200 0.0276	**-0.239** -2.351 0.0187	NA for $\beta < 0$ Although significant of α and β	0.0680
Sri Lanka	**4.7522** 5.745 0.000	0.0046 0.810 0.416	**-1.003** -249.89 0.000	NA for $\beta < 0$ Although significant of β	-0.9984
China	**.0535** 4.240 0.000	**1.139** 2.910 0.0036	**-0.0179** -1.860 0.0619	NA for $\beta < 0$ Although significant of α and β	1.1211
Japan	**0.0211** 2.029 0.0424	**1.580** 3.941 0.001	**-0.0111** -1.960 0.0491	NA for $\beta < 0$ Although significant of α and β	1.5689
USA	0.0038 2.388 0.0169	**2.433** 5.750 0.000	-0.0014 -.5490 0.5828	NA for $\beta < 0$ Although significant of α	2.4316

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$;
That for Second moment is $\alpha + \beta < 1$. For GARCH (1, 1), ω is the constant conditional volatility, α is the ARCH effect and β is the GARCH effect.

Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$. On comparing the results of the log-moment from the table, they are seemed to be partially satisfied for most of the countries. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in logarithm into any other form. However, the result shows that the estimate of the GARCH coefficients, or β, is significant for all the countries except China and USA. The point to be noted here that β is negative for all the countries except France and Germany. This situation does not permit to interpret its significance due to the regularity condition. However, France and Germany show the long-run habit persistent to Nepal. While the estimated ARCH effect, or α, is significant in all cases except for Germany and Sri Lanka. So they all have the short-run persistent to Nepal.

3.3.8 Results for Conditional Mean GARCH (1, 1) of Monthly Tourist Arrivals in Annual Difference

The data series are transformed to annual differences. Estimates of the conditional mean for the GARCH (1, 1) model for the annual difference are given in the table3.17. The conditional mean estimates are obtained through a modeling procedure in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from France. Germany, Sri Lanka and USA have AR (1) coefficients very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. Italy has AR (1) value different from that of other countries and the coefficients, although it is very significant, it is less than 1. That is why; Italy is showing a little less degree of habit persistent for the monthly tourist arrivals. However, Netherland, U K, China and Japan have negative AR (1) values, which are also highly significant. They have habit persistent in their monthly arrivals to Nepal but in an opposite fashion. It means there may be some adverse effect on their monthly arrivals to Nepal by the monthly arrivals of other countries. Bangladesh has an insignificant value of AR (1). So it has no habit persistent to Nepal.

Table 3.17 Conditional Mean GARCH (1, 1) of Monthly Tourists Arrivals in Annual Difference

Coefficients	France	Germany	Italy	Netherland	U K	India	Bangladesh	Sri Lanka	China	Japan	USA
AR(1)	**1.040** 18.900 0.000	**0.706** 7.420 0.000	**0.106** 2.220 0.026	**-0.148** -2.530 0.0113	**-0.781** -9.300 0.000		**0.239** 0.995 0.319	**0.605** 11.250 0.000	**-0.730** -7.830 0.000	**-0.468** -4.694 0.000	**0.588** 56.650 0.000
AR(2)	**-0.540** -5.900 0.000	**-0.481** -19.500 0.000	**0.153** 4.810 0.000	0.344 7.910 0.000	**0.169** 1.960 0.049	**0.251** 24.300 0.000			**-0.164** -3.788 .0002	**0.524** 5.042 0.000	
MA(1)	**-1.410** -2.64E+15 0.000	**- 0.870** **-15.180** 0.000	**-0.560** -500131.50 0.000	**-0.380** -6.67E+13 0.000	**-0.327** -2.480 0.013	**-0.309** -134.080 0.000	**-0.580** -2.260 0.023	**-1.007** -38.690 0.000	**0.284** 3.460 0.0005	**0.010** 1600.900 0.000	**-0.867** -52.570 0.000
MA(2)	**0.470** 3.94E+11 0.000			**-0.390** -1.18E+10 0.000	-0.565 -4.460 0.000	**-0.410** -55.200 0.000				**-0.980** -69138.600 0.000	

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. The number of observations is 132(11 differences and 12 months) for each tourist source country

3.3.9 Results for Conditional Variance GARCH (1, 1) of Monthly Tourist Arrivals in Annual Difference

Conditional variance estimates for GARCH (1, 1) are given in table3.18.

Table 3.18 Conditional Variance GARCH (1, 1) of Monthly Tourists Arrivals in Difference

Country	Coefficients				
	ω	α	β	Log-moment	Second moment
France	**200905.90** 6.380 0.000	**-0.138** -2.580 .0097	**0.880** 43521581 0.000	NA for $\alpha < 0$ Significant of β	0.74
Germany	**671825.3** 5.073 0.000	**0.388** 2.810 .0049	**-0.431** -2.230 0.0255	NA for $\beta < 0$ Significant of α	-0.04
Italy	**340244.4** 6.470 0.000	**0.858** 20.90 0.000	**-0.287** -2.150 0.031	NA for $\beta < 0$ Significant of α	0.57
Netherland	**341183.9** 5.660 0.000	**0.575** 13.100 0.000	**-0.296** -4.350 0.000	NA for $\beta < 0$ Significant of α	0.28
U K	**890230.9** 4.900 .0007	**0.620** 2.570 0.0099	-0.181 -.1.920 0.0545	NA for $\beta < 0$ Significant of α	0.44
India	**184310.1** 1.600 0.1074	**2.886** 3.800 0.0001	-0.0043 -1.670 0.0941	NA for $\beta < 0$ Significant of α	2.88
Bangladesh	**88299.89** 6.440 0.000	**1.149** 2.150 0.0311	-0.0446 -0.823 0.4104	NA for $\beta < 0$ Significant of α	1.10
Sri Lanka	**1465734** 3.520 .0.0004	**0.539** 2.573 0.0101	-0.0401 -0.254 0.7995	NA for $\beta < 0$ Significant of α	0.50
China	**181770.6** 5.710 0.000	**0.530** 8.130 0.000	**-0.206** -1.570 0.1155	NA for $\beta < 0$ Significant of α	0.32
Japan	**146580.5** 2.525 0.0115	**-0.0013** -0.019 0.9844	**0.8635** 3031.35 0.000	NA for $\alpha < 0$ Significant of β	0.86
USA	**14495.16** 3.208 0.0013	**2.920** 5.880 0.000	**-0.0035** -28.050 0.000	NA for $\beta < 0$ Significant of α	2.92

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$;
That for Second moment is $\alpha + \beta < 1$. For GARCH (1, 1), ω is the constant conditional volatility, α is the ARCH effect and β is the GARCH effect.

In case of conditional variance for the GARCH (1, 1) model for the monthly tourist arrivals in annual difference, the second moment conditions are satisfied by all countries except India

and USA. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$. On comparing the results of log-moment from the table, they seemed to be partially satisfied for most of the countries. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in difference into any other form. The result shows that the estimate of the GARCH coefficients, or β, is significant for France and Japan only. The point to be noted that β is negative for all the countries except France and Japan. This does not permit to interpret its significance due to the regularity condition. Nevertheless, the difference of monthly tourist arrivals from France and Japan have a long-term persistent to Nepal. While the estimated ARCH effect, or α, is significant in all cases and all are positive except for France and Japan. These results imply that a shock to the monthly tourist arrival series in difference has short run persistent in all countries except France and Japan.

3.3.10 Results for Conditional Mean GARCH (1, 1) of Monthly Tourist Arrivals in Log Difference

Furthermore; the data are transformed to log difference. Estimates of the conditional mean for the GARCH (1, 1) model for the log-difference of the monthly tourist arrivals are given in the table3.19. The conditional mean estimates are obtained through a modeling procedure in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Germany, U K, India and Japan. They have AR (1) coefficients very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. Italy, China and USA have AR (1) value different from that of other countries and the coefficients, although it is very significant, it is less than 0.5. Those countries are showing a little less degree of habit persistent for the monthly tourist arrivals. However, France, Netherland and Sri Lanka have negative AR (1) values, which are also highly significant. They have habit persistent in their monthly arrivals to Nepal but in an opposite fashion. It means there may be some adverse effect on their monthly arrivals to Nepal by the monthly arrivals of other countries. Bangladesh has an insignificant value of AR (1) and has no habit persistent to Nepal.

Table 3.19 Conditional Mean GARCH (1,1) of Monthly Tourists Arrivals in Log Difference

Coefficients	France	Germany	Italy	Netherland	U K	India	Bangladesl	Sri Lanka	China	Japan	USA
	-0.509	0.990	0.185	-0.510	0.560	0.576		-0.431	0.495	0.665	0.413
AR(1)	-8.700	182.400	4.088	-10.140	7.090	8.260		-1.406	7.500	8.620	6.190
	0.000	0.000	0.000	0.000	0.000	0.000		0.1596	0.000	0.000	0.000
		-1.00	0.171	0.493		-0.144	-0.183			-0.195	0.101
AR(2)		-124.730	6.660	9.75		-2.670	-3.550			-3.201	3.450
		0.000	0.000	0.000		0.0074	0.0024			0.0014	0.0005
	0.876	-1.127	-0.853	0.067	-0.967	-0.835	-0.393	0.512	-0.953	-.879	-0.887
MA(1)	38.730	-41.270	-30.500	1.900	-26.400	-9.360	-6.740	1.780	-56.160	-8.900	-35.450
	0.000	0.000	0.000	0.056	0.000	0.000	0.000	.0746	0.000	0.000	0.000
		0.994		-0.926							
MA(2)		92.150		-26.610							
		0.000		0.000							

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively.The number of observations is 132(11 differences and 12 months) for each tourist source country

3.3.11 Results for Conditional Variance GARCH (1, 1) of Monthly Tourist Arrivals in Log Difference

Conditional variance estimates for GARCH (1, 1) are given in the table 3.20.

Table 3.20 Conditional Variance GARCH (1, 1) of Monthly Tourists Arrivals in Log Difference

Country	Coefficients				
	ω	α	β	Log-moment	Second moment
France	0.3168 4.120 0.000	-0.207 -8.190 0.000	0.590 1.830 0.066	NA for $\alpha < 0$ Insignificant of β	0.38
Germany	0.403 1.680 0.0919	-0.1059 -4.750 0.000	0.711 2.990 0.0027	NA for $\alpha < 0$ Significant of β	0.61
Italy	0.0527 6.919 0.000	1.283 5.460 0.000	-0.061 -2.522 0.0177	NA for $\beta < 0$ Significant of α	1.22
Netherland	0.0412 6384.006 0.000	-0.0779 -2.517 0.0188	0932 24.138 0.000	NA for $\alpha < 0$ Significant of β	0.02
U K	0.0016 0.3364 0.7365	0.561 7.094 0.000	-0.967 -26.405 0.000	NA for $\beta < 0$ Significant of α	-0.41
India	0.0469 1.822 0.0684	-0.0612 -2.596 0.0094	0.623 1.903 0.057	NA for $\alpha < 0$ Significant of β	0.56
Bangladesh	0.027 2.309 0.0209	-0.546 -3.94 0.0001	0.8411 8.255 0.000	NA for $\alpha < 0$ Significant of β	0.30
Sri Lanka	0.1529 3.138 0.0017	-0.0865 -2.380 0.017	0.992 88.59 0.000	NA for $\alpha < 0$ Significant of β	0.91
China	0.0131 3.660 0.0003	1.338 3.176 0.0015	-0.008 -1.340 0.1798	NA for $\beta < 0$ Significant of α	1.33
Japan	0.2068 1.239 0.2152	0.041 0894 0.3709	0.417 0.9309 0.3519	Insignificant of α and β	0.46
USA	0.0112 4.250 0.000	1.200 2.398 0.0165	-0.0474 -1.573 0.1155	NA for $\beta < 0$ Significant of α	1.15

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$;
That for Second moment is $\alpha + \beta < 1$. For GARCH (1, 1), ω is the constant conditional volatility, α is the ARCH effect and β is the GARCH effect.

In case of the conditional variance for the GARCH (1, 1) model for the monthly tourist arrivals series in log-difference, the second moment conditions are satisfied by all except Italy, China and USA. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$. On comparing the results of the log-moment from the table 4, they are seemed to be partially satisfied for most of the countries except for Japan. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in log-difference into any other form.

However, the result shows that the estimate of the GARCH coefficients, or β, is significant for France, Germany, Netherland, India, Bangladesh and Japan only. The point to be noted here that β is negative for the countries Italy, UK, China and USA. These do not permit to interpret their significances due to the regularity condition. Nevertheless, the Log-difference of monthly tourist arrivals from France, Germany, Netherland, India, Bangladesh and Japan have a long-term persistent to Nepal. While the estimated ARCH effect, or α, is significant and positive for Italy, UK, China and USA. These results imply that a shock to the monthly tourist arrival series in log-difference has short run persistent in these countries.

3.3.12 Correlations of Monthly International Tourist Arrivals

An attempt was made to find the correlations coefficients of monthly tourist arrivals among the 11 main tourist source countries in Nepal. Out of 135 correlation coefficients, the overall mean is 0.3178, ranging from a maximum of 0.9340 between Germany and UK at level, to a minimum of -0.3864 between Sri Lanka and India at logarithm. There are altogether 28 negative correlations in different transformation.

The correlations of monthly international tourist arrivals of different countries at level are given in table no. 3.21. Of the 45 correlation coefficients, 13 are negative. The following ten pairs of countries (Germany, UK), (France, UK), (France, Germany), (Netherland, Germany), (USA, UK), (Netherland, France), (Netherland, UK), (Germany, USA), (France, USA), and (Bangladesh, China) have higher values of correlation coefficients in descending order.

Table 3.21 Correlations of Monthly International Tourist Arrivals

Country	India	UK	Japan	U.S.A.	Germany	France	S.ri Lanka	China	Bangla desh	Nether land
India	1									
UK	-0.1413	1								
Japan	-0.1346	0.6203	1							
U.S.A.	0.1301	0.8586	0.5775	1						
German	-0.1070	0.9340	0.5623	0.8398	1					
France	-0.1530	0.9047	0.5012	0.7584	0.8932	1				
S.Lanka	-0.2795	0.2999	0.2012	0.1196	0.2938	0.2878	1			
China	-0.1392	0.0690	-0.0999	-0.0461	-0.0369	0.0647	0.3275	1		
Bang.	-0.0748	0.1248	-0.1748	0.0134	0.0538	0.1265	0.3183	0.6767	1	
Nether	-0.0870	0.8461	0.4653	0.7874	0.8683	0.8580	0.1644	-0.0210	0.0351	1

The correlation coefficients which are displayed in Table 3.22 for the logarithm of monthly international tourist arrivals show that there are 12 negative correlations. The following ten pairs of countries (Germany, UK), (France, UK), (France, Germany), (Netherland, UK), (Netherland, Germany), (USA, UK), (Germany, USA), (Japan, UK), (Netherland, USA) and (France, USA) have higher values of correlation coefficients in ascending order.

Table 3.22 Correlations of Log of Monthly Tourist Arrivals

Country	India	UK	Japan	U.S.A.	Germany	France	Sri Lanka	China	Bangla desh	Nether land
India	1									
UK	-0.1470	1								
Japan	-0.1557	0.7136	1							
U.S.A.	0.1867	0.8185	0.5733	1						
German	-0.1241	0.9184	0.6997	0.7757	1					
France	-0.1644	0.9003	0.6897	0.7045	0.8952	1				
SriLanka	-0.3864	0.5175	0.5375	0.2173	0.5102	0.5586	1			
China	-0.1545	0.0567	-0.1259	-0.0689	-0.0901	0.0342	0.3293	1		
Bang.	-0.0019	0.1554	-0.1109	0.0732	0.0378	0.1173	0.2942	0.6824	1	
Nether.	-0.1445	0.8635	0.6406	0.7204	0.8515	0.8717	0.4791	0.0206	0.0941	1

Table 3.23 presents the correlations of the annual difference of the monthly tourist arrivals, where 3 negative correlations are appeared. The following ten pairs of countries (Germany, UK), (Germany, USA), (USA, UK), (France, UK), (France, USA), (Netherland, UK), (France, Germany), (Netherland, France), (USA, Japan), and (Netherland, USA) have higher values of correlation coefficients in descending order.

Table 3.23 Correlations of Annual Difference of Monthly Tourist Arrivals

Country	India	UK	Japan	U.S.A.	Germany	France	Sri Lanka	China	Bangla desh	Nether land
India	1									
UK	0.2287	1								
Japan	0.3288	0.44227	1							
U.S.A.	0.3273	0.71588	0.6470	1						
German	0.2531	0.76986	0.5094	0.7579	1					
France	0.2185	0.69993	0.5118	0.6800	0.6558	1				
S.Lanka	0.0147	0.17048	0.2880	0.2944	0.3436	0.1160	1			
China	0.2263	0.24124	-0.0466	0.1753	0.1459	0.1555	-0.0375	1		
Bang.	0.1294	0.29628	-0.0470	0.2433	0.3168	0.2198	0.0686	0.2428	1	
Nether.	0.2114	0.66134	0.4602	0.6268	0.5771	0.6552	0.0883	0.1100	0.2556	1

3.4 International Tourist Arrivals in Lumbini

The data shows that tourist arrivals in Lumbini has been fluctuated and affected by several reasons. An attempt was made to analyze the trend of international tourist arrivals (passport holders) in Lumbini. Several models were fitted. The R^2 value and F Statistics shows that the models which are shown in table 3.24 are found to be significant. However, none of the model is found to be the best fit.

Table 3.24 Model Summary and Parameter Estimates Tourist Arrivals in Lumbini

Equation	Parameters	p-value	t	R^2	F	df1	df2
Logarithmic:							
b_0	$-5.68x10^7$	0.000	-5.650	0.640	31.959	1	18
b_1	$7.48x10^6$	0.000	5.653				
Quadratic:							
b_0	$-3.71x10^6$	0.000	-5.627	0.642	32.254	1	18
b_1	0.000	0.310	-6.906				
b_2	0.935	0.000	5.679				
Growth:							
b_0	-176.563	0.000	-4.456	0.552	22.215	1	18
b_1	0.093	0.000	4.713				

Independent variable: Year

Dependent Variable: Tourist (Passport Holders only)

Because of the mega events (First World Buddhist Summit and Visit Nepal Year) in 1998, there is slightly increment in tourist arrivals. However, there is heavy decline in the number of tourists in the year 2002 because of the peace and security situation of the country, incompletion of the MayaDevi Temple and other national and international incidents. There is positive inclination in tourist arrivals after 2003 because of the completion and restoration of the Maya Devi Temple, Second World Buddhist Summit (Ghimire, 2013b p.37).

The curve fitting of the annual international tourist arrivals in Lumbini is shown in the figure 3.4.

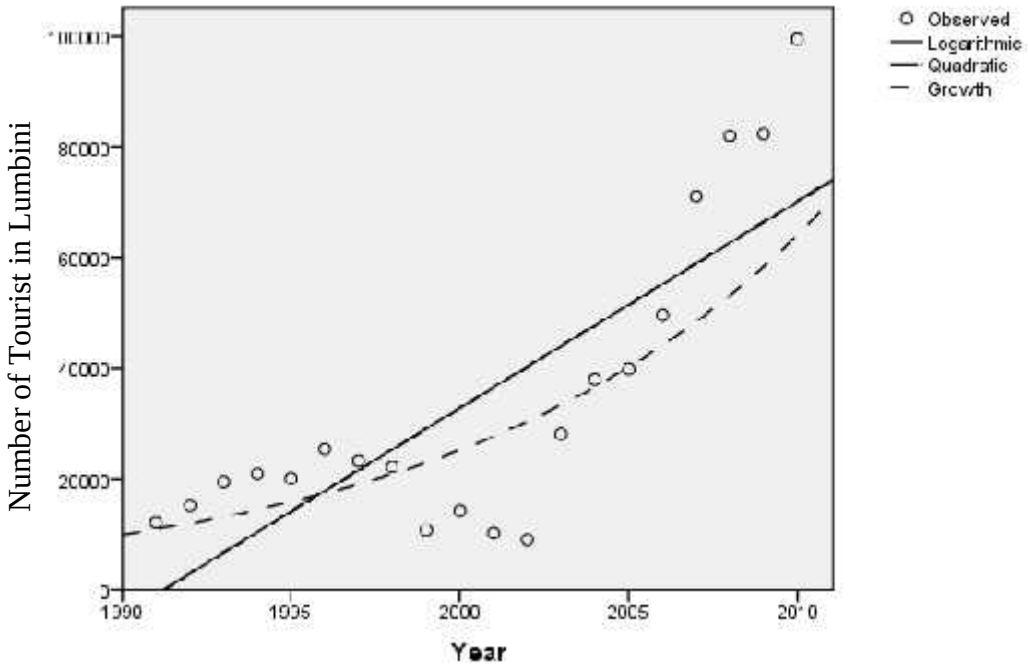


Figure 3.4 Curve fitting of International Tourist Arrivals in Lumbini

An attempt was made to explore the visiting patterns of tourists/pilgrims in Lumbini. The table 3.25 shows the number of tourists in groups from major destination. The data shows that majority of the tourist visit Lumbini in a group. Maximum 198 groups of tourists more than 40 in a group of Sri Lankan visited Lumbini in 2008. Group of more than 40 is the maximum number of groups in all four years. However, tourists from Thailand, Japan, Myanmar, South Korea and Taiwan were of20-30 and 30-40(Ghimire, 2013b p.38).

Table 3.25 Number of Tourist Arrival in Group from Major Destinations

Year	No. of tourist in group	Country							
		Sri Lanka	Thailand	Japan	Myanmar	Korea	Taiwan	Others	Total
2005	10-15	88	21	18	6	9	6	16	164
	16-20	91	28	22	13	18	10	18	200
	20-30	94	35	19	18	22	12	28	228
	30-40	77	62	16	16	18	11	21	221
	> 40	123	35	8	12	13	8	23	222
2006	10-15	52	21	27	4	7	7	70	210
	16-20	67	37	21	2	42	12	58	239
	20-30	75	101	18	26	28	16	59	323
	30-40	91	46	13	24	15	10	48	247
	> 40	175	53	8	17	12	6	44	315
2007	10-15	75	61	25	5	11	9	61	247
	16-20	96	55	18	16	28	12	73	298
	20-30	127	72	26	32	34	13	106	410
	30-40	125	92	15	28	41	8	91	400
	> 40	185	45	10	23	18	6	78	365
2008	10-15	70	62	14	23	15	12	83	279
	16-20	71	78	15	28	27	16	92	327
	20-30	113	105	25	46	48	15	102	454
	30-40	122	88	13	41	36	10	101	411
	> 40	198	42	8	24	28	9	85	394

Source: LDT, 2008

Usually larger group of tourists / pilgrims from Sri Lanka, Thailand, Japan, Myanmar, South Korea and Taiwan visit Lumbini via India. They spend couple of hours in Lumbini and go back to India for night stay. However, Nepal counts them as a one day staying tourists although they do not spend a single night in Nepal. Even a single day stay of a large number of tourists / pilgrims arriving Lumbini can create a large scale of employment here and contribute to Nepalese economy in a great extent. The government and concerned stakeholders need to address it immediately (Ghimire, 2013b p.38).

On the basis of the field reconnaissance, local information and the statistical data available, the Lumbini Master Plan has estimated 89,700 tourist arrivals for the year 1985, however, the real tourist arrival for that year was only 5059 in Lumbini. Likewise tourist arrivals in 2009 were 82445 which is less than the estimated tourist arrivals by Master Plan for the year 1985.

3.5 Major Tourist Originating Countries in Lumbini

An attempt was made to analyze the monthly tourist arrivals in Lumbini from 16 major tourist originating countries such as Sri Lanka, Thailand, South Korea, Myanmar, Japan, Taiwan, China, Singapore, Germany, Vietnam, USA, UK, Australia, Poland, Malaysia and Netherland.

Table 3.26 Tourist Arrival in Lumbini from Major Tourist Originating Countries

Country	Year							Rank of 5 years data
	2008	2007	2006	2005	2004	2003	Total	
Sri Lanka	31984	30375	21563	15520	12217	8673	120332	1
Thailand	14965	12880	9223	7828	7735	5164	57795	2
Korea	5791	5219	3443	3053	3365	2903	23774	3
Myanmar	5835	3641	2680	2106	2115	1099	17476	4
Japan	2251	2681	2165	2222	2724	2262	14305	5
Taiwan	1863	1303	1471	1509	1650	1174	8970	6
China	2278	2175	1659	1119	912	621	8764	7
Singapore	946	1214	513	526	966	536	4701	8
Germany	1277	926	690	501	558	657	4609	9
Vietnam	1734	916	559	614	404	200	4427	10
U.S.A.	1103	1022	557	470	496	637	4285	11
U.K.	1271	876	536	367	546	569	4165	12
Australia	1242	931	608	441	430	337	3989	13
Poland	992	1038	454	517	497	296	3794	14
Malaysia	800	590	540	437	651	563	3581	15
Netherland	1138	675	280	463	449	332	3337	16

Source: LDT, 2008

As Lumbini is the world top class pilgrimage destination for Buddhist and Hindus, center of attraction to all peace lovers, it could be the important touristic destination. The above table

represents the rank of first 16 tourist originating countries in Lumbini. The data shows that Buddhists countries especially (Asians) are the potential market of Lumbini. Most of the European countries, USA and Australia are not Buddhist countries but are also the potential market for Lumbini. The challenge is to continue this attraction in regional level and plan additional program to attract more tourists from West(Ghimire, 2013b p.40).

3.5.1 Results for Conditional Mean GARCH (1, 1) of Monthly Tourist Arrivals in Level

An attempt was made to estimates of the conditional mean for the GARCH (1, 1) model for the level of the monthly tourist arrivals for the 16 main tourist source countries in Lumbini. The conditional mean estimates are obtained through a modeling procedure in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Taiwan, China, Australia and Netherland. They have AR (1) coefficients very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. AR (1) value of South Korea is different from that of other countries and the coefficients, although it is very significant; it is very less than 1. That is why; it is showing a little less degree of habit persistent for the monthly tourist arrivals in Lumbini.

However, Japan, Poland and Myanmar Netherland have AR (1) values, less than 0.500, but all are insignificant. They have not at all habit persistent in their monthly arrivals to Lumbini.

Table 3.27 Conditional Mean GARCH (1, 1) of Monthly Tourists Arrivals in Level

Coefficients	Australia	China	Germany	Japan	Myanmar	Poland	Singapore	South Korea	Sri Lanka	Taiwan	Thailand	UK	USA	Vietnam	Malaysia	Netherland
AR(1)	0.730 7.990 0.000	0.828 9.720 0.000	-0.467 -3.449 0.0006	0.474 1.813 0.0697	0.368 1.889 0.058	0.244 0.535 0.592	0.435 15.43 0.000	0.234 2.040 0.041	-0.509 -2.609 0.009	1.032 8.255 0.000	0.517 3.800 0.000	0.414 2.070 0.038	0.638 2.058 0.039	0.665 5.450 0.000	0.586 4.080 0.000	0.735 5.304 0.000
MA(1)	0.0211 0.1052 0.913	0.0215 0.1167 0.907	0.974 54.08 0.000	-0.109 0.376 0.706	0.289 1.155 0.247	0.133 0.313 0.753	0.156 0.779 0.435	0.329 2.614 0.0089	0.890 11.57 0.000	-0.848 -3.040 0.0024	0.144 0.533 0.593	0.178 0.398 0.690	-0.066 -0.217 0.828	-0.024 -0.231 0.817	0.446 3.560 0.000	0.490 2.580 0.009

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p values respectively. The number of observations is 72 (6 years and 12 months) for each tourist source country

3.5.2 Result of Conditional Variance GARCH (1,1) of Monthly Tourists Arrivals in Level

Conditional variance estimates for GARCH (1, 1) are given in the table no. 3.28. In the case of the conditional variance for the GARCH (1, 1) model for the monthly tourist arrivals series in level, the second moment conditions are satisfied by most of the countries except Germany, South Korea and Taiwan. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$. On comparing the results of the log-moment, they are seemed to be partially satisfied for most of the countries. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in level into any other form.

However, the result shows that the estimate of the GARCH coefficients, or β, is significant for Germany only. The point to be noted here that β's are negative for all the countries except Germany, Japan, Myanmar, Poland, Sri Lanka and USA. However, the regularity condition does not permit to interpret its significance for some of them. Nevertheless, the level of Monthly tourist arrivals from Germany has a long-term persistent to Lumbini. While the estimated ARCH effect, or α, is significant for Australia, China, Singapore, South Korea and USA. These results imply that a shock to the monthly tourist arrival series in level has a short run persistent in all those.

Table 3.28 Conditional Variance GARCH (1, 1) of Monthly Tourists Arrivals in Level

Country	Coefficients				
	ω	α	B	Log-moment	Second moment
Australia	1584.6 1.890 0.058	0.584 2.000551 0.045	-0.107 -0.307 0.758	NA for $\beta < 0$ Significant of α	0.477
China	8346.48 2.787 0.0053	0.5273 2.034 .0.0419	-0.3387 -1.419 0.1559	NA for $\beta < 0$ Significant of α	0.189
Germany	-89.763 -0.806 0.420	-0.114 -1.217 0.223	1.180 7.650 0.000	NA for $\alpha < 0$ Significant of β	1.066
Japan	20434.92 2.478 0.0132	-0.0788 -4.121 0.000	0.223 0.557 0.577	NA for $\alpha < 0$ Not Significant of β	0.144
Myanmar	10265.2 0.689 0.490	0.1525 0.786 0.431	0.406 0.530 0.595	Not Significant for α and β	0.559
Poland	2417.06 0.938 0.347	-0.075 -2.731 0.0063	0.323 0.418 0.675	NA for $\alpha < 0$ Not Significant of β	0.248
Singapore	5946.68 4.180 0.000	0.958 3.290 0.001	-0.183 -0.694 0.487	NA for $\beta < 0$ Significant of α	0.775
South Korea	19319.31 2.425 0.015	1.338 3.700 0.000	-0.0465 -1.079 0.280	NA for $\beta < 0$ Significant of α	1.292
Sri Lanka	1634017 1.710 0.085	-0.070 -5.370 0.000	0.269 0.588 0.556	NA for $\alpha < 0$ Not Significant of β	0.199
Taiwan	1394270 4.680 0.000	3.139 1.254 0.209	-0.039 -0.445 0.656	NA for $\beta < 0$ Not Significant of α	3.100
Thailand	150907.4 1.786 0.074	0.605 1.586 0.112	-0.062 -0.324 0.745	NA for $\beta < 0$ Not Significant of α	0.543
U K	263370.8 1.859 0.063	0.794 0.255 0.798	-0.584 -0.951 0.341	NA for $\beta < 0$ Not Significant of α	0.210
U S A	1037.26 1.330 0.183	0.481 2.009 0.044	0.115 0.362 0.716	Significant of α Not Significant of β	0.596
Vietnam	6347.93 2.660 0.0078	0.194 1.314 0.1887	-0.610 -1.473 0.140	NA for $\beta < 0$ Not Significant of α	-0.416
Malaysia	6449.37 2.480 0.013	0.559 1.522 0.128	-0.238 -1.243 0.213	NA for $\beta < 0$ Not Significant of α	0.321
Netherland	39996.5 7.436 0.000	0.044 0.968 0.330	-0.993 -231.06 0.000	NA for $\beta < 0$ Not Significant of α	-0.949

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$;
That for Second moment is $\alpha + \beta < 1$. For GARCH (1, 1), ω is the constant conditional volatility, α is the ARCH effect and β is the GARCH effect.

3.6 Comparison of Lumbini with Other Pilgrimage Sites in Tourist Arrivals

Today, Lumbini holds a highly esteemed position in the world. Lumbini is the top class pilgrimage destination for Buddhists, not only this; it is equally respected by Hindus. There are more than 1.5 billion of Buddhists and 1.5 billion Hindus in the world. In addition to this; it is also a very popular destination for non-Buddhist and non-Hindus. The potentiality of Lumbini can attract millions of pilgrims and the visitors from all over the world. However, the statistics shows that (EITCDR, 2011, LDT, 2009):

- Mecca was in 11th rank with 6985000 tourists/pilgrims
- Jerusalem was in 49th rank with 2215200 tourists/pilgrims
- Lumbini's rank couldn't be identified with negligible 82445 tourists/pilgrims

The expansion of pilgrimage network among the pilgrimage destinations around Lumbini and the other sites in Nepal can increase the number of pilgrims and tourists. It can lengthen the travelers' stay period which can play significant role to generate more foreign currency, contribute on GDP and employment opportunities. Only 0.1 % of total Buddhists and Hindus visiting Nepal every year can contribute a lot in national economy.

3.7 Contribution of Tourism

There is some debate regarding the exact size, growth and contribution of tourism but it is clear that tourism is one of the largest industries in the world. In short, tourism’s economic impact is significant and still growing. In addition, tourism generally provides jobs of various types unskilled to skilled, part-time to full-time. As tourism is one of the fastest growing industries in the world, it employs seven percent (one in 15) of the world's workers.

Tourism plays an important role in the Nepalese economy, particularly in terms of foreign exchange earnings and employment. Reliable data on the number of persons employed in tourism-related activities are not available (U N, 2003b p. 40). As per contribution from Nepalese tourism industry MoCTCA (2010) shows that income per tourist per day is US$ 43.2, gross foreign currency earning in convertible currency is US$ 329.98 million and length of stay is 12.67 days.

The direct contribution of travel and tourism to GDP was Rs. 53.5 billion (4.0% of total GDP) in 2011, and is forecast to rise by 4.7% in 2012, and to rise by 3.7% pa, from 2012-2022, to Rs. 80.8 billion in 2022 (in constant 2011 prices). The total contribution of travel and tourism to GDP was Rs. 119.1 billion (8.8% of GDP) in 2011, and is forecast to rise by 4.8% in 2012, and to rise by 4.1% pa to Rs. 185.5 billion in 2022 (in constant 2011 prices (WTTC, 2012).

3.7.1 Comparison of Nepal with World Top Ten Countries in Tourism Receipts

An attempt was made to compare tourism receipts. The share of tourism receipts in Nepal in the world context is very negligible with 0.04%. World 1st rank country USA received 11.17% whereas 10th rank country Hong Kong (China) received 2.39% share of the total tourism receipts in the world. Although Australia, Macao (China) and Hong Kong (China) are not in the top ten tourist arrival list they are receiving more from tourism. Alternatively, Turkey, Malaysia, Mexico are in the top ten tourist arrival list but their receipts from tourism is low.

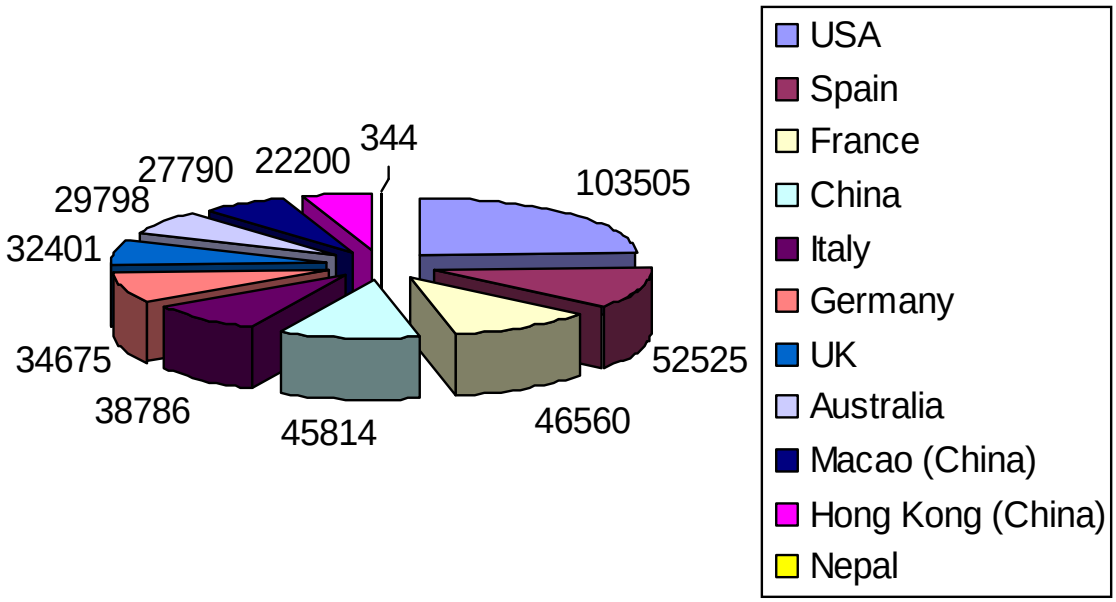


Figure 3.5 Comparison of Nepal with World Top Ten Countries in Tourists Receipts (Million)

3.7.2 Comparison of Nepal with South Asian Countries in Tourism Receipts

When compared Nepal with south Asian countries in tourism receipts, Nepal is lower than India, Maldives and Sri Lanka. This is because of low tourist arrivals, length of stay and per day expense. If stakeholders pay attention in those issues, there will be higher return from tourism.

Table 3.29 Comparison of Nepal with South Asian Countries in Tourists Receipts

Rank	Destination	2010 (Million US$)	Share % 2010
	World	927000	100
1	India	14160	1.53
2	Maldives	714	0.08
3	Sri Lanka	576	0.06
4	Nepal	344	0.04
5	Pakistan	305	0.03
6	Bangladesh	70	0.01
7	Bhutan	35	0.01

Source: UNWTO, 2012

3.7.3 Gross Foreign Exchange Earnings

An attempt was made to analyze the trend of gross foreign exchange earnings from tourism in convertible currencies in Nepal. The benefits of tourism are its contribution to the GDP, earning of foreign currency and employment. 10^{th} national plan for tourism development had expected US$ 60 per tourist per day income from tourists, in reality it was US$ 55.0 per tourist per day in 2006. However, there is increment and reached to US$ 73.0 in 2008.

3.7.4 Earning from Tourism

An attempt was made to find the regression analysis of the earning from tourism. Tourism earning is largely depending on tourist arrivals, per day expenses of a tourist and length of stay in days.

Table 3.30 Earning from Tourism: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.945[a]	0.894	0.875	32779.266

a Predictors: (Constant), Per day expense, Yearly tourist arrivals, Length of stay in days
b Dependent Variable: Earnings in '000 US$

Based on adjusted R^2, which has a value of 0.875 i.e. 87.5% variation in the total variation of the dependent variables, "Earning in '000 US$" is explained by the joint effort of three predictors tourist arrivals, per day expenses of a tourist and length of stay in days.

Table 3.31 ANOVA of Multiple Regressions

	Sum of Squares	df	Mean Square	F	p-value
Regression	153533816626.989	3	51177938875.663	47.630	.000
Residual	18266165029.011	17	1074480295.824		
Total	171799981656.000	20			

a Predictors: (Constant), Per day expense, Yearly tourist arrivals, Length of stay in days
b Dependent Variable: Earnings in '000 US$

The Table 3.31 revealed that Mean square due to Regression is more than Mean square due to Residual. That is why; the value of 'F' is greater. Its p-value 0.000 is less than level of significance of 5%. It can be concluded that Multiple regression is better fit to the Earnings from tourism in '000 US$ with respect to above three predictors.

Table 3.32 Linear Relationship between Earning and Tourist Arrivals, per day Expense of a Tourist and Length of Stay in Days

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	p-value	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
Constant	-394696.882	73201.034		-5.392	0.000	-549137.564	-240256.199
Length of stay in days	15357.974	6597.916	0.242	2.328	0.033	1437.588	29278.359
Yearly tourist arrivals	0.568	0.100	0.570	5.688	0.000	0.357	.778
Per day expense	3518.595	583.219	0.576	6.033	0.000	2288.111	4749.079

Dependent Variable: Earnings in '000 US$

The table 3.32 depicts that constant and regression coefficients are significantly different from zero at 5% level of significance as their respective p-values are less than 0.05. The result also predicts that per day change in length of stay of a tourist affects the total earning by US$ 15358; per day expense of a tourist affects the total earning by US$3519 and so on. Hence the estimated multiple regression model is:

$$\hat{Y}\ \mathrm{X}\hat{b}_0\ \Gamma\hat{b}_1 X_1\ \Gamma\hat{b}_2 X_2\ \Gamma\hat{b}_3 X_3$$

$$\ldots\hat{Y}\ \mathbf{= - 394696.9 + 15357.974 * X_1 + 0.568 * X_2 + 3518.595 * X_3}$$

Where, $\hat{Y}$ = Earnings in '000 US$, X_1= Length of stay in days, X_2 = Annual tourist arrivals, X_3 = Per day expense of a tourist

Table 3.33 Projection of Earning from Tourism

Year of arrivals	Earnings in '000 US$	Length of stay in days	Yearly tourist arrivals	Per day expense	Unstandardized Predicted Value	95% L CI for Earnings individual	95% U CI for Earnings individual
1990	63701	12.00	254885	27.20	30028.68905	-47987.64355	108045.02165
1991	58589	9.25	292995	31.00	22803.83986	-54226.04400	99833.72373
1992	61090	10.14	334353	26.40	43770.03838	-32047.63249	119587.70926
1993	66337	11.94	293567	26.40	48256.03570	-27280.30881	123792.38020
1994	88195	10.00	326531	39.40	82920.31044	10282.16915	155558.45173
1995	116784	11.27	363395	42.10	132856.58069	61678.85582	204034.30557
1996	116644	13.50	393613	31.90	148373.02351	72013.53237	224732.51466
1997	115904	10.49	421857	38.30	140701.51719	67493.49552	213909.53886
1998	152500	10.76	463684	44.20	189357.31631	116315.25335	262399.37927
1999	168100	12.28	491504	39.00	210200.98356	136992.82518	283409.14193
2000	166847	11.88	463646	38.20	185425.10166	113066.64491	257783.55842
2001	140276	11.93	361237	39.60	132971.04056	60750.64407	205191.43704
2002	106822	7.92	275468	64.80	111354.38059	31689.48754	191019.27364
2003	192832	9.60	338132	79.10	223052.40064	141834.10917	304270.69211
2004	179941	13.51	385297	45.10	190250.21661	111391.32944	269109.10379
2005	148441	9.09	375398	58.50	163896.47503	89547.78356	238245.16650
2006	162790	10.20	383926	55.00	173470.95602	101686.59223	245255.31982
2007	230617	11.96	526705	45.00	246385.18434	172110.41036	320659.95832
2008	351968	11.78	500277	73.00	327135.54314	248845.16571	405425.92058
2009	377172	11.32	509956	65.20	298121.58733	223102.68195	373140.49271
2010	329982	12.67	602867	43.20	294200.77938	214815.32395	373586.23481
.	.	14.00	1000000	79.00	666085.32510	542365.97038	789804.67983

Limited to first 100 cases
Source: MoTCA, 2010

Projection: In particular, Nepal tourism year 2011 is targeting to bring 1000000 tourists in Nepal. Taking it in consideration, length of stay as 14 days and per day expense of a tourist as 79 US$, the earning from tourism is projected. Hence the projected earning is 666085325 US$. The 95% approximate prediction interval for individual estimate of Y are (542365.97038, 789804.67983) in '000 US$.

3.7.5 Employment from Tourism

Employment is another important characteristic and impact of tourism. It can create two types of employments. They are direct jobs and roundabout job. Direct jobs factors are created by tourism stakeholders (hotels/lodges, travels, trekking agencies, airlines). Generation of new economic activities like hiring of cycles, parking of vehicles, taking care of tourist's goods, guiding, selling souvenirs are also additional economic activities. In addition to this, there is large number of people involved in roundabout job such as farming, fishery, laundry, tailoring, arts and craft, porters. All these economic impacts (employment, new economic activities) of tourism affect the daily life style of the people and consequently produce the socio-culture impact slowly.

Travel and tourism has emerged as a major job provider in Nepal. Travel and tourism generated 3.3% of total employment directly and 7.7% of total employment (jobs) indirectly in 2011. It is forecasted to grow by 3.7% directly and 3.8% in 2012 (WTTC, 2012).

Table 3.34 Employment from Tourism

Employment from Tourism	For the Year 2011	Forecast for 2012	Forecast (If 1000000 tourists visit)*
Direct	412,500	428,000	589300
Indirect	540,000	560,000	771400
Total	952,500	988,000	1360700

Source: WTTC, 2012
* Author's calculation

3.8 Amenities for Tourism

Amenities are very important things for tourism development and sustainability. An attempt was made to explore the current situation of amenities in Nepal.

3.8.1 Regular Flights to Nepal by International Carrier

Dynamic and regular air service is very important for the development of tourism. There has been a debate about the quality of services and number of aircrafts of national carrier and the condition of International Airport in Nepal. However, there are several international airlines which are providing efficient and regular air services. There are 27 airlines which are in operation in 2010. Several other airlines are in the process to start their flights in Nepal.

3.8.2 Registered Tourism Related Enterprises

Tourism related enterprises are very important institutions which provide necessary services to the tourists. This is where we attempted to get the registered records of the visiting tourists. Those organizations are growing every year. A very positive change can be seen in service related enterprises. The registered tourism related enterprises are shown in table3.35. Besides tourism enterprises there is increment in tourist guide, trekking guide and tourist police who can provide quality service to the tourists.

The hotel accommodation capacity in Nepal is found to be sufficient even for peak season. In particular, the maximum tourist arrivals were 79130 in October, 2010. The average of the month is 2638. There are 28485 beds in different standard hotels. It shows a tourist can enjoy with 10.8 beds. There are other options for stay in Nepal such as home stay either designed for tourism purpose or in relative's home, dharmalsalas, monasteries and tents.

Table 3.35 Registered Tourism Related Enterprises, Hotels, Guides and Police

Registered tourism related enterprises	**2009**	**2010**
Tourist Hotels (All category)	736	NA
Rooms	14272	NA
Beds	28485	NA
Travel Agencies	1,496	1,814
Trekking Agencies	1,096	1,240
Tourist Guide	2,548	2,668
Trekking Guide	5,987	6,745
Tourist Police	52	50

Source: MoTCA, 2010

When focused only to the Lumbini, there are budget hotels, lodges and modern star hotels in and around Lumbini. The vicinity of Lumbini has been extremely urbanizing and developing. The rapid growth in tourist standard hotels and guest houses, souvenir shops can be seen. The existing different class hotels and guest houses can easily accommodate present number of tourists. The available data shows that the accommodation capacity of Lumbini is more than 1200tourist standard beds. The research has shown that about 30% tourists stay in Lumbini. The current accommodation capacity is sufficient in Lumbini. Bhairahawa is also the desired accommodation site for the tourists. There are more than 15 tourist standard hotels with more than 700 beds in Bhairahawa. Majority of the tourists visiting Lumbini via India go back to India on same day. They don't stay in Lumbini or Bhairahawa.

3.9 Presentation of Survey Data

In this section, an attempt has been made to present the primary data analytically. Various methods of presentation have been used to illustrate and present data.

3.9.1 Demographic Characteristics of the Respondents

Nationality, Occupation and Education Completed: An attempt was made to find the nationality, occupation, marital status and educational background of the respondents. It is shown in the Table A.12, A.13, and A.14.

Sex: Among the respondents 47 (36.2%) were female and 83 (63.8%) were male.

Religion: Among the respondents (46.2%) were Buddhist followed by (6.9%) Hindu, (10.8%) Christian, (10.0%) other and (26.2%) did not mention their religion.

Age: Among the respondents (30.8%) were of the age group below 30, (17.7%) were of age group 30-40, (18.5%) were of age group 40-50, (13.1%) were of age group 50-60, (16.9%) were of age group above 60 and (3.1%) did not mentioned their age group.

3.9.2 Opinion on Present Situation and Potentiality of Pilgrimage Tourism

An attempt was made to know the opinion regarding the present situation of tourism in Nepal from the tourism experts. Experts believe that tourism changes as per situation and affected by national and international incidents. Those incidents and scenario have brought positive as well as negative repercussion on tourism. The political instability of the country had badly affected the tourism industry and still the political problem has not been resolved completely.

Tourism experts hold a strong belief that Nepal has great potentiality in pilgrimage tourism as it has world famous Hindu and Buddhist pilgrimage sites. People from the different parts of world like to know Nepal, experience, learn, know, discover the very ancient history, culture, religion and wisdom of east. Cultural practices are still alive and not influenced by modern materialism. Nepal has great potentiality to attract Buddhist and Hindu pilgrims in high number from Asian as well as western countries. Despite high potentiality of it, the benefits not achieved as anticipated. Of course, if promoted effectively, pilgrimage tourism has ample potential in Nepal. Tourism has tremendous possibility to grow in Nepal; however, still needs to work hard to regain the confidence of tourists visiting in Nepal.

3.9.3 Efforts of Stakeholders in Developing Pilgrimage Tourism

The attempts made to know the opinion regarding the effort of stakeholders in developing pilgrimage tourism in Nepal. A five point rating scale has been used to know the opinion of experts. It has been tested by using Chi-square test of goodness of fit of uniform distribution of 5 types of responses measured on the scale defined as very good, good, satisfactory, needs improvement and very poor. The experts have expressed varying views regarding the development of pilgrimage tourism in Nepal.

The calculated value of Chi-Square with p-value, mean, median and percentiles are calculated and shown in table 3.36.

Ministry of Culture, Tourism and Civil Aviation (MoCTCA): Majority of the respondents (44.4%) opined that the effort needs improvements. None of the respondents opined that the effort is very good. Median (P_{50}) being 2 indicates that effort of MoCTCA is poor and needs improvement.

Nepal Tourism Board (NTB): Majority of the respondents (44.4%) opined that the effort is satisfactory followed by (33.3%) opined that the effort needs improvements. None of the respondents opined for the effort is very good.Median (P_{50}) being 3 indicates that effort of Nepal Tourism Board is poor and needs improvement.

Lumbini Development Trust (LDT: Majority of the respondents (41.7%) opined that the effort needs improvements and (5.6%) of the respondents opined for the effort is very good.Median (P_{50}) being 2 indicates that effort of Lumbini Development Trust is poor and needs improvement.

Private Sector: Majority of the respondents (41.7%) opined that the effort needs improvement and (5.6%) of the respondents opined for the effort is very poor and very good.Median (P_{50}) being 3 indicates that effort of private sector is poor and needs improvement.

Tourism Organizations/Agencies: Majority of the respondents (38.9%) opined that the effort needs improvement and (2.8%) of the respondents opined for the effort is very good.Median (P_{50}) being 2.5 indicates that effort of tourism organizations/agencies is poor and needs improvement.

Table 3.36 Rating on Efforts of Stakeholders

Tourism Stakeholders	Very poor		Needs improvements		Satisfactory		Good		Very good		Not stated		Mean	Percentiles			Chi-Square	p- value
	N	%	N	%	N	%	N	%	N	%	N	%		25	50	75		
Ministry of Culture Tourism and Civil Aviation	8	22.2	16	44.4	8	22.2	2	5.6	0	0	2	5.6	2.33	2.00	2.00	3.00	18.444	0.001
Nepal Tourism Board	1	2.8	12	33.3	16	44.4	6	16.7	0	0	1	2.8	2.86	2.00	3.00	3.00	24.833	0.000
Lumbini Development Trust	6	16.7	15	41.7	8	22.2	4	11.1	2	5.6	1	2.8	2.56	2.00	2.00	3.00	21.667	0.001
Private sectors	2	5.6	15	41.7	10	27.8	6	16.7	2	5.6	1	2.8	2.83	2.00	3.00	3.75	25.667	0.000
Tourism organizations/associations	4	11.1	14	38.9	7	19.4	5	13.9	1	2.8	5	13.9	3.00	2.00	2.50	4.00	16.000	0.007

Source: Field survey

3.9.4Number of Visits in Nepal

An attempt was to know the number of visit of the tourists/pilgrims. Majority of the respondents (68.6%) came to Nepal for the first time and (3.2%) visited more than 30 times. The data shows that 31.4 % of the respondents repeated their visits in Nepal; it indicates that Nepal is not only the place to visit once but also it has potentiality to attract the tourists/pilgrims again and again.

Table 3.37 Number of Visits in Nepal

Number of visits	Number of tourist	Percent
1	81	68.6
2	13	11.0
3	6	5.1
4	7	5.9
5	3	2.5
6	1	0.8
13	1	0.8
20	2	1.6
More than 30 times	4	3.2
Total	118*	100.0

* Nepalese are excluded
Source: Field survey

3.9.5 Length of Stay in Nepal

Length of stay is one of the important factors that contribute significantly for the sustainability of tourism. The following table shows the length of stay of the respondents. Majority of the respondents 16.1% were staying 1 day and they are visiting Lumbini via India. Their economic contribution to Nepal is almost nil because they neither stay in Lumbini nor in Bhairahawa. They used to return back to India on same day spending few hours in Nepal. Whereas (83.9%) of the respondents' stay period is 2 days or more than 2 days in Nepal.

Table 3.38 Length of Stay in Nepal (in days)

Days	Number of tourist	Percent
1	19	16.1
2	5	4.2
3	1	0.8
4	2	1.7
5	18	15.3
6	9	7.6
7	11	9.3
8	7	5.9
9	3	2.5
11-20	25	21.2
21-30	9	7.6
Above 30	9	7.6
Total	118	100.0

* Nepalese are excluded
Source: Field survey

3.10 Lumbini Focus

An attempt was made to learn about the people's take on the different aspects of Lumbini and Lumbini tourism from the respondents.

3.10.1 Importance of Lumbini

During the course of research, the researcher tried to find out the opinions of the experts about the importance of Lumbini. Ven. Sato (2008) believes Lumbini a very important place for Buddhists and needs to work collectively for development. Lumbini not only the Birthplace of Lord Buddha, it is like a diamond and could be sold in the international market. Nepal may not compete with developed countries in economy and infrastructures but they cannot compete with Nepal because of Lumbini. Lumbini has huge potential and importance of pilgrimage. Ven. Panumaant (2008) believes that pilgrimage to Lumbini is a faith, belief and a part of confidence. One can get wisdom and knowledge by pilgrimage. That is why

pilgrimage is a part of Buddhist. The Buddha himself advised Annanda to visit four sacred sites among them Lumbini is one. Those places are visited to remember what had happened in that place. Pilgrims visit Lumbini to reduce tension. Ven. Sunanda (2008) tells Lumbini is neither for religion nor for Buddhists only. It is for all in the world. Nepal should be proud of having Lumbini no matter to what religion or part of the country you are from and not to make Lumbini a political issue. Lumbini can change Nepal's future significantly.

3.10.2 Number of Visits in Lumbini

An attempt was made to find the frequency of visits made by visitors in Lumbini. Majority of respondents (70%) visited first time, (11.5%) visited second time and so on. The following table shows that (2.4%) of respondents visited Lumbini more than 30 times. Likewise, 30.0% of the respondents repeated their visits in Lumbini; it indicates that it has potentiality to attract the pilgrims/tourists for repeated visits.

Table 3.39 Number of Visit in Lumbini

Number of visit	Number of tourist	Percent
1	91	70.0
2	15	11.5
3	5	3.8
4	7	5.4
5	2	1.5
6	2	1.5
10-20	5	3.9
More than 30 times	3	2.4
Total	130	100.0

Source: Field survey

3.10.3 Purpose of Visit in Lumbini

An inquiry was made to know the purpose of visit of the respondents. Tourists/pilgrims visiting Lumbini have various purposes. As per their opinion (56.9%) visited Lumbini for

pilgrimage purpose whereas (25.4%) visited Lumbini as sightseeing purpose followed by (8.5%) visited as holiday pleasure. It shows that Lumbini is equally important for sightseeing and holiday pleasure. Purpose of visit could be the motivation for travel and the main driving force that makes tourists move away from their home to a desired destination.

Table 3.40 Purpose of Visit in Lumbini

Purpose of visit	Number of tourist	Percentage
Pilgrimage	74	56.9
Sight seeing	33	25.4
Conventional/ Meeting	5	3.8
Holiday pleasures	11	8.5
Business	2	1.5
Others	1	0.8
Not stated	4	3.1
Total	130	100.0

Source: Field survey

3.10.4 Willingness to Repeat Visit

An attempt was made toinquire about their willingness to repeat their visit in Lumbini. The report shows that majority of the visitors expressed their willingness to repeat their visit in Lumbini. The average percentage of visitors willing to repeat their visit was 87.4%.

Table 3.41 Willing to Repeat Visit in Lumbini

Country	Number of respondents	% of visitors	
		Yes	No
India	100	97.0	3.0
Sri Lanka	50	86.0	14.0
South Korea	56	89.3	10.7
Japan	41	85.4	14.6
China	22	72.7	27.3
Taiwan	18	88.9	11.1
Thailand	45	97.8	2.2
Others	152	80.3	19.7
Total	484	87.4	12.6

Source: Lumbini Visitors Survey-2004

3.10.5 Departure Place to Bhairahawa

Bhairahawa is the nearby city and entry point of Lumbini. There is an airport, tourist/public bus services from Kathmandu, highway linked from Pokhara and India. Tourists have various options to reach Lumbini. According to survey, (43.9%) depart for Lumbini from Kathmandu, (32.3%) from India, (12.3%) from Pokhara, (6.9%) from other places and (4.6%) did not mention. Definitely, Kathmandu is the prime place of departure to Lumbini; however, there are some tourists visiting Nepal with other purposes could also be encouraged to visit Lumbini.

Table 3.42 Departure Place to Bhairahawa

Category	Number of tourist	Percent
Kathmandu	57	43.9
India	42	32.3
Pokhara	16	12.3
Others	9	6.9
Not Stated	6	4.6
Total	130	100.0

Source: Field survey

3.10.6 Mode of Transportation

Bhairahawa is its nearby city with a domestic airport. Tourists traveling without guided tour usually change their mode of transportation from this place.

Table 3.43 Means of Transportation to Bhairahawa

Category	Frequency	Percent
Tourist bus	35	26.9
Plane	32	24.6
Public bus	38	29.2
Taxi/Micro van	11	8.5
Private car	5	3.8
Others	5	3.8
Not stated	4	3.1
Total	130	100.0

Source: Field survey

There are regular flights from Kathmandu to the Gautam Buddha Airport- Bhairahawa, tourist bus/public bus service from Kathmandu and other cities. From the survey finding, it has been shown that majority of the respondents (29.2%) used public bus followed by (26.9%) by tourist bus and (24.6%) by plane whereas (10.7%) used other vehicles.

3.10.7 Means of Transportation from Bhairahawa to Lumbini

Bhairahawa is the entry point to Lumbini; the tourists traveling to Bhairahawa by plane or any other vehicle have to take another vehicle from Bhairahawa. One can use direct tourist bus or public bus from Kathmandu to Lumbini as well. As per respondents there is lack of information about transportation options to go to Lumbini from Bhairahawa. The following table shows the means of transportations to Lumbini. Public bus can be the concrete options for those changing their vehicle at Bhairahawa but they have difficulty in finding public bus and communication as well. There is no information of bus schedule, departure time, travel expense, duration of travel in Bhairahawa.

Table 3.44 Means of Transportation from Bhairahawa to Lumbini

Category	Number of tourist	Percent
Tourist Bus	31	23.8
Public Bus	45	34.6
Taxi/ Micro-van	20	15.4
Private car	24	18.5
Others	8	6.2
Not Stated	2	1.5
Total	130	100.0

Source: Field survey

3.10.8 Organizer of the Visit

The respondents were asked about the organizer of their visit. The data shows that majority of the respondents 58.5% organized themselves, 34.6% visited with guided tour and 5.4% visited

with the organization of governmental or non-governmental organizations whereas (1.5%) did not mention.

Table 3.45 Organizer of the Visit

Category	Number of tourist	Percent
Guided Tour	45	34.6
Your Own	76	58.5
Others	7	5.4
Not stated	2	1.5
Total	130	100.0

Source: Field survey

The tourists visiting themselves without guided tour suffered from many problems. It is very difficult to search transportation, accommodation, restaurants and recreational centers for them in Lumbini. They explore and visit the sites themselves and their length of stay is also more than one day. More information centers are to be established and should maintain the secure and fully satisfied environment. Whereas tourists visiting with guided tour programme visit only the scheduled sites. They face comparatively less problems and their length of stay is short. When they are in a group and if they stay longer period their stay can contribute to sustainable tourism. Policies should be developed to tab them.

3.10.9 Travel from Bhairahawa to Lumbini

Travel from Bhairahawa to Lumbini has always been an issue of discussion because of the poor condition of the road, very slow and old vehicles, and crowed. Ghimire (2006) made an attempt to know the opinion from the respondents. The respondents expressed that the traveling by tourist bus or private car is more comfortable than traveling in the public bus are uncomfortable.

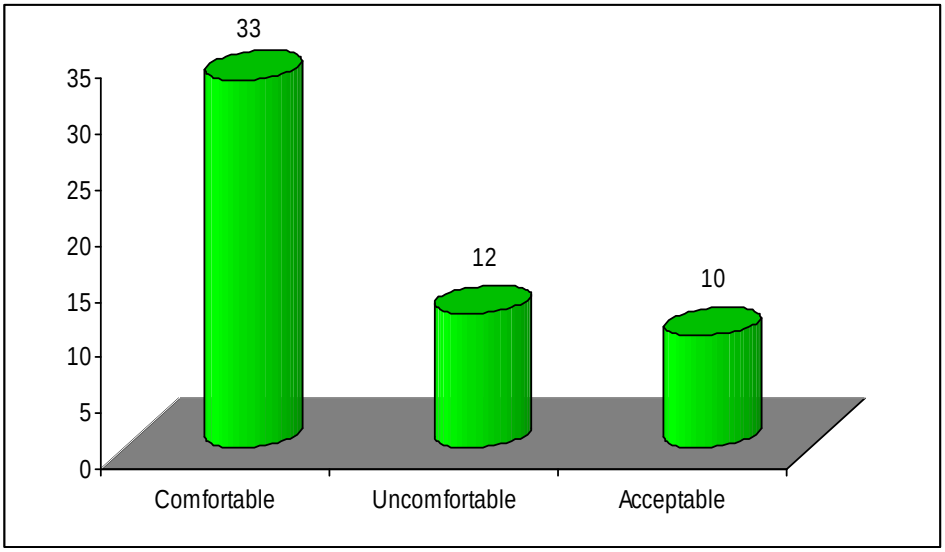


Figure 3.6 Travel from Bhairahawa to Lumbini

3.10.10 Interest to Visit Lumbini

An attempt was made to know the interest of the respondents to visit Lumbini. They were asked to give their opinion by multiple responses.

Table 3.46 Multiple Responses of Interest to Visit Lumbini

Category	Responses		Percent of Cases
	N	Percent	
To observe the birth place of lord Buddha	94	27.90%	72.30%
For the meditation in Lumbini	32	9.50%	24.60%
To study about Buddhism	43	12.80%	33.10%
To worship Lord Buddha	83	24.60%	63.80%
To buy souvenirs	8	2.40%	6.20%
To visit monasteries	45	13.40%	34.60%
To enjoy the nature's creation in Lumbini	28	8.30%	21.50%
Others (to Know Lumbini)	4	1.20%	3.10%
Total	337	100.00%	259.20%

Source: Field survey

The survey results shows that out of 337 respondents who have given multiple interests among 8 different interests, (72.3%) were interested to observe the birth place of Lord Buddha whereas (63.8%) visited to worship Lord Buddha. Likewise, (34.6%) were to visit

monasteries followed by (33.1%) to study about Buddhism, (24.6%) for meditation, (21.5%) to enjoy the nature's creation in Lumbini whereas (6.2%) visited Lumbini to buy souvenirs. The remaining (1.2%) out of total respondents visited to know about Lumbini.

Table 3.47 Chi-Square Tests

Category	Value	D f	p-value
Pearson Chi-Square	5.637[a]	7	0.583

An attempt was made to test whether there are an association between the interests of visit to Lumbini with 8 multiple responses across the two levels of sex. The p-values determined by the Chi-Square is greater than 5% level of significance. So, these two attributes are not significantly associated with each other in the statistical point of view.

Table 3.48 Cross Tabulation of Multiple Responses by Sex

Category		Sex		Total
		Female	Male	
To observe the birth place of lord Buddha	Count	32	62	94
	% of Total	24.60	47.70	72.30
For the meditation in Lumbini	Count	14	18	32
	% of Total	10.80	13.80	24.60
To study about Buddhism	Count	14	29	43
	% of Total	10.80	22.30	33.10
To worship Lord Buddha	Count	28	55	83
	% of Total	21.50	42.30	63.80
To buy souvenirs	Count	3	5	8
	% of Total	2.30	3.80	6.20
To visit monasteries	Count	20	25	45
	% of Total	15.40	19.20	34.60
To enjoy the nature's creation in Lumbini	Count	12	16	28
	% of Total	9.20	12.30	21.50
Others (to Know Lumbini)	Count	3	1	4
	% of Total	2.30	0.80	3.10
Total	Count	47	83	130
	% of Total	36.20	63.80	100.00

Source: Field survey

Based on Table 3.48, majority (47.7%) males and (24.6%) female are interested to observe the birth place of Lord Buddha. Similarly, (42.3%) male and (21.5%) females are enthusiastic to worship Lord Buddha and so on. For the rest of the responses, the males are seemed to be more dominant than females.

Furthermore, an attempt was made to test whether there are an association between the interests of visit to Lumbini with 8 multiple responses across the religions. The p-values determined by the Chi-Square is less than 5% level of significance. So, these two attributes are significantly associated with each other in the statistical point of view.

Table 3.49 Chi-Square Tests

	Value	D f	p-value
Pearson Chi-Square	43.653[a]	28	0.030

Based on Table 3.50, majority (30.0%) Buddhists are interested to observe the birth place of Lord Buddha among other religions. Similarly, Buddhists with higher percentages are seemed to be more dominant than other religions for all other responses for visiting Lumbini. Those who did not mention their religion with (16.9%) are interested in both responses, namely, “to observe the birth place of the Buddha” and “to worship the Buddha” and so on.

Table 3.50 Cross Tabulation of Multiple Responses by Religion

		Religion					Total
Category		Buddhist	Hindu	Christian	Others	Not mentioned	
To observe the birth place of lord Buddha	Count	39	9	13	11	22	94
	% of Total	30.0	6.9	10.0	8.5	16.9	72.3
For the meditation in Lumbini	Count	16	1	1	1	13	32
	% of Total	12.3	0.8	0.8	0.8	10.0	24.6
To study about Buddhism	Count	26	1	3	6	7	43
	% of Total	20.0	0.8	2.3	4.6	5.4	33.1
To worship Lord Buddha	Count	51	6	2	2	22	83
	% of Total	39.2	4.6	1.5	1.5	16.9	63.8
To buy souvenirs	Count	5	0	1	0	2	8
	% of Total	3.8	0.0	0.8	0.0	1.5	6.2
To visit monasteries	Count	20	4	5	8	8	45
	% of Total	15.4	3.1	3.8	6.2	6.2	34.6
To enjoy the nature's creation in Lumbini	Count	14	2	4	4	4	28
	% of Total	10.8	1.5	3.1	3.1	3.1	21.5
Others (to Know Lumbini)	Count	1	0	0	2	1	4
	% of Total	0.8	0.0	0.0	1.5	0.8	3.1
Total	Count	60	9	14	13	34	130
	% of Total	46.2	6.9	10.8	10.0	26.2	100.0

Source: Field survey

3.10.11 Influence to Visit Lumbini

There could be various influencing factors to visit Lumbini. They were asked to give their opinion by multiple responses. The survey results show that out of 225 respondents who have given multiple interests among 7 different influencing factors. (50.8%) were influenced by their religion and holly books, (38.5%) were influenced by their ritual works, (34.6%) by friends, (11.5%) were influenced by tour guides, 16.9% by guide books, (17.7%) were influenced by Advertisement (Internet/TV/Magazines/ brochures) and (3.1%) by other

reasons. The most interesting thing is that advertisement could be the best way to influence tourists; however, it has not been effective.

Table 3.51 Influencing Factors to Visit Lumbini

Category	Number of tourist	Percentage
Advertisement (Internet/TV/Magazines/ brochures)	23	17.7
Tour guide	15	11.5
Religion and Holy books	66	50.8
Friends	45	34.6
Guide book	22	16.9
Part of ritual works	50	38.5
Others…….	4	3.1
Total	130	

Source: Field survey

3.10.12 Stay in Lumbini

An attempt was made to find the tourist stay in Lumbini. Majority of the respondents (53.8%) stayed in hotels, (20.8%) in Monasteries, (15.4%) in lodges, (9.2%) did not mention and very less (0.8%) in relatives/friend's house. It is also found that they look for budget class accommodation. The respondents opined that the hotels in Lumbini are expensive. That is why; they search budget class accommodation in Lumbini or in Bhairahawa. On the other hand, tourists are often influenced by Indian guides and Indian hotels offer cheaper prices to the tourists so that they go back to India on same day.

Table 3.52 Stay in Lumbini

Category	Number of tourist	Percent
Hotel	70	53.8
Lodge	20	15.4
Monastery	27	20.8
Relatives/Friends House	1	0.8
Others	5	3.8
Not Stated	7	5.4
Total	130	100.0

Source: Field survey

3.10.13 Length of Stay at Lumbini

An attempt was made to know the length of stay of the tourists in Lumbini. Majority of the respondents 42.3% were staying for 1 day. However, the tourists not staying in Lumbini and returning back to India also stated their stay period as one day. Whereas (57.7%) of the respondents' stay period is 2 days or more than 2 days. The tourists visiting in their own organization are staying longer time in Lumbini and suffered with different problems.

Table 3.53 Length of Stay in Lumbini

Days	Frequency	Percent
1	55	42.3
2	39	30.0
3	18	13.8
4	4	3.1
5	3	2.3
6	11	8.5
Total	130	100.0

Source: Field survey

3.10.14 Strategies to Lengthen the Stay Period in Lumbini

The length of stay in Lumbini is less than a day in reality. Tourists who visit Lumbini (even just for few hours) take it as one day. An attempt was made to explore the strategies to lengthen the stay period in Lumbini.

The main factor to lengthen their stay period is peace and security situation of the country. Tourist visiting from different country should feel secure to stay. Quality service and pilgrimage network are also important factors to lengthen stay period. Transportation, service at hotel, tourist guide, information center also play key role. Likewise, attractiveness of the

site, facilities, mediation and religious functions are also important factors to lengthen stay period. The result is shown in table 3.54.

Table 3.54 Strategies to Lengthen the Stay Period in Lumbini

Strategies	Number of tourist	Percent
Peace and security under control	38	29.2
Quality of service	38	29.2
Attractiveness of site	27	20.8
Facilities	28	21.5
Pre information about the site	24	18.5
Pilgrimage network	37	28.5
Meditation and religious functions	20	15.4
Others	7	5.4
Not stated	1	0.8
Total	130	

Source: Field survey

3.10.15 Environmental Impact of Pilgrimage Tourism in Lumbini

An enquiry was made to identify the environmental impact of pilgrimage tourism in Lumbini.

Table 3.55 Opinion of Environmental Impact of Pilgrimage Tourism in Lumbini

Category	Number of tourist	Percent
No environmental impact	13	10.0
There is environmental impact	70	53.8
Don't know	26	20.0
Not Stated	21	16.2
Total	130	100.0

Source: Field survey

Those who found environmental impacts and replied "yes" were further asked to indicate the impacts. The first time visitors or those who are not spending longer time in Lumbini did not respond. (50.0%) of them found garbage/litter/pollution, (48.6%) found degradation of scenic appeal, 43.3% found maintenance of natural habitat and so on as shown in following table.

Table 3.56 Category of Environmental Impact of Pilgrimage Tourism in Lumbini

Category	Number of tourist	Percentage
Degradation of scenic appeal	34	48.6
Garbage/litter/pollution	35	50.0
Deforestation/destruction of fauna	29	41.4
Disturbance of natural sounds	30	42.9
Cleanliness	19	27.1
Better area protection	27	38.6
Maintenance of natural habitat	31	44.3
Total	70	

Source: Field survey

Tourism is generally considered a clean industry, which is based on nature, historical and pilgrimage sites and other attractions and is totally different from other industries. However, sometime visitors generate waste and pollution (air, water, solid waste, noise, and visual) which can place tourist attractions at risk due to improper uses or overuse of resources. As tourism develops, demand for land increases. Natural landscape and open space can be lost. The destruction or loss of flora and fauna can happen when desirable plants and animals are collected for sale or the land is trampled. Uncontrolled visitation or overuse by visitors can degrade landscapes, historic sites, and monuments (Kreag, 2001). Lumbini has been facing various environmental impacts. Lumbini was full of Sal forest before the adoption of the master plan. It has now been converted to a concrete park representing Buddhism and other kinds of basic infrastructures. One can experience air pollution caused by the dusty roads and the poor conditioned vehicles, solid waste problem, using Lumbini area as picnic spots, fulfillment of the need of firewood and pasture from the existing forest by the locals, sending their cattle inside master plan area are also environmental impacts occurred in Lumbini.

3.10.16 Socio Cultural Impacts of Pilgrimage Tourism in Lumbini

An enquiry was made to identify the socio-cultural impact of pilgrimage tourism in Lumbini.

Table 3.57 Opinion of Socio Cultural Impact of Pilgrimage Tourism

Category	Number of tourist	Percent
No socio cultural impact	11	8.5
There is socio cultural impact	61	46.9
Don't know	36	27.7
Not stated	22	16.9
Total	130	100.0

Source: Field survey

Those who found socio-cultural impacts and replied yes were further asked to indicate the impacts. Whereas first time visitors or not spending longer time in Lumbini, did not respond. (60.7%) of them found increased hotels/lodges/ tourism organization, (54.1%) found improved standard of living, (50.8%) found people begging for money or food and so on.

Table 3.58 Category of Socio Cultural Impact of Pilgrimage Tourism

Category	Number of tourist	Percentage
Degradation of Nepalese culture	12	19.7
Preservation of Nepalese tradition	25	41.0
People begging for money or food	31	50.8
Preservation of art and history	27	44.3
Change in lifestyle/imitation of the tourist	27	44.3
Urbanization	24	39.3
Increased communication	31	50.8
Modernization of facilities	31	50.8
Increased education/knowledge	28	45.9
Increased hotels/lodges/ tourism org.	37	60.7
Improved standard of living	33	54.1
Total	61	

Source: Field survey

Influxes of tourists bring various socio cultural impacts to the community. Tourism can improve the quality of life in an area by increasing the number of attractions, recreational opportunities, and services. Local residents get opportunities to interact with new people, experience different cultural practices and expose themselves to new perspectives. Tourism

can come to a community with a dark social and cultural side too. Illegal activities tend to increase in tourist areas. Lifestyle changes such as alterations in local travel patterns to avoid tourist congestion and the avoidance of downtown shopping can damage a community socially and culturally. Hotels, restaurants, and shops can push tourism development into residential areas, forcing changes in the physical structure. Local ethnic culture may alter to fit the needs of tourism, language and cultural practices (Kreag, 2001). By nature human adopts new thing or manners in which they feel comfortable. Sometimes, new habits are acquired from strangers just to get a new taste (Kunwar, 2002 p. 104). From the socio-cultural point of view alteration in the occupation is a key change caused by tourism in Lumbini. The local people were found to be seeking the better economic activities with more income. They either change the occupation or get trainings for better opportunities. Change of the life style, improved standard of living, awareness on tourism activities, presentation of their culture in improved ways are also examples of socio-cultural impacts.

3.10.17 Economic Impacts of Pilgrimage Tourism in Lumbini

An enquiry was made to identify the economic impact of pilgrimage tourism in Lumbini.

Table 3.59 Opinion of Economic Impact of Pilgrimage Tourism

Category	Number of tourist	Percent
No	17	13.1
Yes	68	52.3
Don't know	32	24.6
Not Stated	13	10.0
Total	130	100.0

Source: Field survey

Those who found economic impacts and replied yes were further asked to indicate the impacts. Whereas first time visitors or not spending longer time in Lumbini, did not respond.

(86.8%) found increased job opportunities, (67.6%) found improved standard of locals, (63.2%) found people begging for money or food, tax income and foreign exchange earnings and so on.

Table 3.60 Category of Economic Impact of Pilgrimage Tourism

Category	Number of tourist	Percentage
Job opportunities	59	86.8
Improved standard of living	46	67.6
People begging for money or food	43	63.2
Tax income & foreign exchange earning	43	63.2
Inflationary trends	5	7.4
Better infrastructure	26	38.2
Increased communication	39	57.4
Modernization of facilities	40	58.8
Consumption/utilization of local products	31	45.6
Total	68	

Source: Field survey

Further, visible and invisible impacts perceived by the respondents are given in the table 6.26.

Table 3.61 Impact of Pilgrimage Tourism

Visible Impacts	Invisible Impacts
Positive - Major construction in core area - Organization of events - Re-construction of Maya Devi temple - Increased number of hotels, restaurants, travels - More employment opportunity - Economic benefits by selling souvenir, local products, handicrafts to locals and stakeholders - Social change in local communities - Development of buffer zone and surrounding - Local communities' involvement in tourism - Land prices have raised - Development of basic infrastructures (Road, education, medical, communication, building and other facilities) - Awareness about Buddhism, Lumbini and tourism - Construction of International Monasteries - Contribution in the GDB **Negative** - Deforestation - Pollution -dust and dirt - Noise pollution - Degradation of archeological sites - Transportation problem - Drug, prostitution and begging	**Positive** - More publicity and awareness - Improving locals' livelihood - Tourism awareness - Local people and stakeholders are hopeful for better future of Lumbini - Pressure to build either international airport in Bhairahawa - Increase of sell of agricultural products like vegetable, chicken, milk - Peace related activities - Research activities - Training to the locals for arts and crafts - Branding of the country and place - Bringing the country in the new heights - Helps to support the social livelihood **Negative** - Language problem - Degradation of Nepalese culture and tradition

Source: Field survey

Tourism increases employment opportunities, generate income and raises standards of living. As tourism grows, additional opportunities are created for investment, development, and infrastructure for more developmental. Tourism also encourages improvements in transport

infrastructure resulting in upgraded roads and airports. Greater demand for goods, services, land, and housing may increase prices that in turn increase the cost of living (Kreag, 2001). Jobs creation by travels, hotels, lodges and monasteries have been a very important impact of tourism in Lumbini. Entry fee, job opportunities to the officials of LDT, taxes, donations are common visible symbols of economic impacts to LDT. Hiring of cycles, parking of vehicles, selling souvenirs and local products are additional economic impacts.

3.10.18MayaDeviTemple for Religious Function

An attempt was made to know the opinion regarding appropriateness of place and comfortableness of worshipping in Lumbini. Majority of the respondents (70.0%) think for appropriateness, (16.9%) found inappropriate and (13.0%) didn't give their opinion. Likewise, (78.5%) found comfortable, (11.5) found uncomfortable and (10.0%) didn't give their opinion.

Table 3.62 MayadeviTemple as an Appropriate Place for Religious Function

Category	Appropriate place for religious function		Comfortableness of worshipping	
	Number of tourist	Percent	Number of tourist	Percent
No	22	16.9	15	11.5
Yes	91	70.0	102	78.5
Don't know	12	9.2	8	6.2
Not stated	5	3.8	5	3.8
Total	130	100.0	130	100.0

Source: Field survey

As MayaDeviTemple is the center of attraction for the pilgrims and tourists in Lumbini. Most of the pilgrims/tourists visit Lumbini for short period and are satisfied by offering incense (*dhup*), lighting butter lamps and candles, praying and chanting for a few minutes and visiting the birthplace of Lord Buddha. This however, cannot be considered as fulfilling the desired religious functions of Buddhists. They are not allowed to perform any rituals inside the

temple; however, they want to perform in Lumbini. Pilgrims perform some of the religious functions near the Asokan Pillar in the open air and consequently suffering from various external agents such as heat, rain, wind and noise. Respondents urge to have separate and appropriate place to perform rituals near Maya Devi temple.

3.10.19 Satisfaction from the Visit

The visitors' survey of TRPAP has explored the satisfaction from the visit. The data shows that almost all visitors have been satisfied from their visit in Lumbini. Only a negligible number of visitors (0.8%) expressed dissatisfaction from the visit.

Table 3.63 Satisfaction from the Visit in Lumbini

Country	Number of respondents	% of visitors		
		Not satisfied	Satisfied	Completely satisfied
India	100	-	36.0	64.0
Sri Lanka	50	-	40.0	60.0
South Korea	56	-	41.1	58.9
Japan	41	4.9	63.4	31.7
China	22	4.5	40.9	54.5
Taiwan	18	-	50.0	50.0
Thailand	45	-	40.0	60.0
Others	152	0.7	50.7	48.7
Total	484	0.8	45.0	54.1

Source: Lumbini Visitors Survey-2004

Majority of them (54%) expressed complete satisfaction from the visit and (45%) were satisfied. The data shows that majority of Japanese are less satisfied by their visit means dissatisfaction in the development works, facilities etc. Majority of Indian, Sri Lankan, Thai and Korean are completely satisfied. It is found that majority of the pilgrims/tourists becomes so happy and satisfied by visiting only the site and don't care about problems and difficulties. That is why they reply it is very nice, peaceful, and more comfortable, we are satisfied.

3.11 Hypothesis of the Study

An attempt was made to test the hypothesis related to the study from the tourists/pilgrims. A five point rating scale defined as fully agree, agree, so so, disagree and fully disagree was used to know the opinion of respondents. The internal reliability of questionnaires especially with Likert scale have been checked by using Cronbach's alpha. The result was highly significant (value of alpha more than 0.858). To conform it, the following hypothesis are tested by using Chi-square test of goodness of fit of uniform distribution.

3.11.1 Nepal, the Whole Country is like a Pilgrimage Destination of Hindus and Buddhists

Majority of the respondents (57.0%) of them agree and fully agree on it whereas (28.5%) could not give decision and (14.6%) of the respondents disagree.

> ***H_o:*** Respondents respond equally to the statement Nepal, the whole country is like a pilgrimage destination of Hindus and Buddhists with respect to choices of agreement or disagreement.
>
> ***H_1:*** Respondents do not respond equally to the statement Nepal, the whole country is like a pilgrimage destination of Hindus and Buddhists with respect to choices of agreement or disagreement.

The calculated value of Chi-Square on the statement is 37.154 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the statement with respect to choices of agreement or disagreement. Further, the result shows that

P_{25}=3.00 and P_{75} = 5.00 and mean = 3.65. P_{25} being 3 indicates that the majority of respondents are in favor of "Nepal, the whole country is like a pilgrimage destination of Hindus and Buddhists ".

3.11.2 There is Religious Harmony between Different Religions in Nepal

Majority (66.9%) of the respondents agree it and minimal (9.3%) of the respondents disagree.

H_o: Respondents respond equally to the statement there is religious harmony between different religions in Nepal with respect to choices of agreement or disagreement.

H_1: Respondents do not respond equally to the statement there is religious harmony between different religions in Nepal with respect to choices of agreement or disagreement.

The calculated value of Chi-Square on the statement is 65.769 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the statement with respect to choices of agreement or disagreement. Further, the result shows that P_{25}=3.00 and P_{75} = 4.25 and mean = 3.79. P_{25} being 3 indicates that the majority of respondents are in favor of "There is religious harmony between different religions in Nepal ".

3.11.3 Pilgrimage Tourism can contribute in the National Economy and Employment

Majority (73.1%) of the respondents agrees it and (9.2%) of the respondents disagrees it.

H_o: Respondents respond equally to the statement pilgrimage tourism can contribute in the national economy and employment with respect to choices of agreement or disagreement.

H_1: Respondents do not respond equally to the statement pilgrimage tourism can contribute in the national economy and employment with respect to choices of agreement or disagreement.

The calculated value of Chi-Square on the statement is 66.923 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the statement with respect to choices of agreement or disagreement. Further, the result shows that P_{25}=3.00 and P_{75} = 5.00 and mean = 3.96. P_{25} being 3 indicates that the majority of respondents are in favor of "Pilgrimage tourism can contribute in the national economy and employment".

3.11.4 If More People Travel to the Pilgrimage Sites internationally, the World Would be a Better Place to Live in

Pilgrimage is the process for wisdom, satisfaction and responsibility. It has positive impact in the society, definitely pilgrimage plays vital role to make world a better place to live in. Majority (63%) agree and (16.2%) of the respondents disagree whereas (20.8%) could not give their opinion.

H_o: Respondents respond equally to the statement if more people travel to the pilgrimage sites internationally, the world would be a better place to live in with respect to choices of agreement or disagreement.

H_1: Respondents do not respond equally to the statement if more people travel to the pilgrimage sites internationally, the world would be a better place to live in with respect to choices of agreement or disagreement.

The calculated value of Chi-Square on the statement is 37.923 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the statement with respect to choices of agreement or disagreement. Further, the result shows that P_{25}=3.00 and P_{75} = 5.00 and mean = 3.74. P_{25} being 3 indicates that the majority of respondents are in favor of "If more people travel to the pilgrimage sites internationally, the world would be a better place to live in".

3.11.5 In Lumbini, One can Gain a Sense of Self Confidence

Lumbini being one of the important pilgrimage destination and a peace center, pilgrims/tourist feel pride to visit and get self-satisfaction. Majority of the respondents (50.8%) agree it, (17.7%) disagree and (31.5%) of the respondents did not give the opinion.

> ***H_o:*** Respondents respond equally to the statement in Lumbini, one gain a sense of self confidence with respect to choices of agreement or disagreement.
>
> ***H_1:*** Respondents do not respond equally to the statement in Lumbini, one gain a sense of self confidence with respect to choices of agreement or disagreement.

The calculated value of Chi-Square on the statement is 31.000 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the statement with respect to choices of agreement or disagreement. Further, the result shows that P_{25}=3.00 and P_{75} = 4.25 and mean = 3.53. P_{25} being 3 indicates that the majority of respondents are in favor of "In Lumbini, one gain a sense of self confidence".

Table 3.64 Rating of Hypothesis Related to Pilgrimage Tourism in Nepal

Factors	Fully Disagree		Disagree		So so		Agree		Fully Agree		Mean	Percentiles			Chi-Square	p-value
	N	%	N	%	N	%	N	%	N	%		25	50	75		
Nepal, the whole country is like a pilgrimage destination of Hindus & Buddhists	5	3.8	14	10.8	37	28.5	40	30.8	34	26.2	3.65	3.00	4.00	5.00	37.154	0.000
There is religious harmony between different religions in Nepal	4	3.1	8	6.2	31	23.8	55	42.3	32	24.6	3.79	3.00	4.00	4.25	65.769	0.000
Pilgrimage tourism can contribute in the national economy and employment	7	5.4	5	3.8	23	17.7	46	35.4	49	37.7	3.96	3.00	4.00	5.00	66.923	0.000
If more people travel to the pilgrimage sites internationally, the world would be a better place to live in	7	5.4	14	10.8	27	20.8	41	31.5	41	31.5	3.74	3.00	4.00	5.00	37.923	0.000
In Lumbini, one gain a sense of self confidence	6	4.6	17	13.1	41	31.5	34	26.2	32	24.6	3.53	3.00	4.00	4.25	31.000	0.000

Source: Field survey

3.11.6 Importance and Level of Satisfaction of Factors in Lumbini

The tourist arrivals largely depend on the importance and level of satisfaction of several factors in Lumbini. Factors such as weather and scenery, culture, preservation and developmental works in Lumbini, implementation of Lumbini master plan, facilities, tourism policies, sightseeing tours, service provided by tourist information office, darshan and pray; safety and shopping of the local products, handicraft, and souvenirs play significant role to attract tourists. An attempt was made to know the opinion of the respondents about the importance and level of satisfaction of those factors. Besides overall importance and level of satisfaction, 5 point rating scale was used for their responses. For importance, it is defined as very important, important, soso, less important and not important; and for level of satisfaction, it is defined as highly satisfactory, satisfactory, soso, less satisfactory and unsatisfactory.

The internal reliability of questionnaires have been checked by using Cronbach's alpha. The result was highly significant (value of alpha more than 0.78) for importance and (value of alpha more than 0.77) for satisfaction. The opinion of the respondents about the importance and level of satisfaction of those factors were tested by using Chi-square test of goodness of fit of uniform distribution of 5 type of responses measured on the scale as defined above are shown in table 3.65 and 3.66..

Weather and Scenery

> ***H_o:*** Respondents respond equally to the factor weather and scenery in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.
>
> ***H_1:*** Respondents do not respond equally to the factor weather and scenery in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 60.892 whereas on level of satisfaction is 41.323and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents are in favor of the factor "Weather and scenery in Lumbini". However, P_{50} being 3 indicates that respondents are not fully satisfied by "Weather and scenery in Lumbini".

Culture

H_o: Respondents respond equally to the factor culture in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor culture in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 89.969 whereas on level of satisfaction is 53.308 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Culture in Lumbini" is an important factor. Likewise, P_{25} being 3 indicates that respondents are satisfied by "Culture in Lumbini". Preservation of Nepalese culture will keep the tourism alive and it is the common responsibility of all stakeholders.

Preservation and Developmental Works

H_o: Respondents respond equally to the factor preservation and developmental works in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor preservation and developmental works in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 38.646 whereas on the level of satisfaction is 29.415 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Preservation and developmental works in Lumbini" is an important factor. However, P_{50} being 3 indicates that respondents are not satisfied by "Preservation and developmental works in Lumbini". Preservation of Nepalese culture will keep the tourism alive and it is the common responsibility of all stakeholders. As percentage of unsatisfactory is higher the government has to give high priority for preservation and developmental works at Lumbini.

Implementation of LMP

H_o: Respondents respond equally to the factor implementation of LMP with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor implementation of LMP with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 61.538 whereas on level of satisfaction is 72.800 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of

respondents opined as "Implementation of Lumbini Master Plan" is an important factor. However, P_{50} being 2 indicates that respondents are unsatisfied by "Implementation of Lumbini Master Plan". This type of dissatisfaction is because of delay in completion of the master plan. International and national communities as well as people want Lumbini in new dimension. Planners and stakeholders need to address it seriously for prompt implementation of LMP.

Facilities

H_o: Respondents respond equally to the factor facilities in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor facilities in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 75.015 whereas on level of satisfaction is 69.477 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Facilities in Lumbini" is an important factor. However, P_{25} being 2 indicates that respondents are unsatisfied by "Facilities in Lumbini".

Policies of Tourism Development

H_o: Respondents respond equally to the factor policies of tourism development in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor policies of tourism development in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 53.877 whereas on level of satisfaction is 29.692 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Policies of tourism development in Lumbini" is an important factor. However, P_{25} being 2 indicates that respondents are unsatisfied by "Policies of tourism development in Lumbini".

Hotels/Guest Houses

H_o: Respondents respond equally to the factor hotels/guest houses in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor hotels/guest houses in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 102.615 whereas on level of satisfaction is 49.631 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Hotels/guest houses in Lumbini" is an important factor. Whereas the result of satisfaction level shows P_{25} being 2 indicates that respondents are unsatisfied by "Hotels/guest houses in Lumbini". The data shows that hotels/guest houses are important

factors; however, they are unable to satisfy the tourists. It shows that service provided by hotel is not satisfactory.

Sightseeing Tours

H_o: Respondents respond equally to the factor sightseeing tours in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor sightseeing tours in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 77.415 whereas on level of satisfaction is 42.431 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Sightseeing tours in Lumbini" is an important factor. However, P_{25} being 2 indicates that respondents are unsatisfied by "Sightseeing tours in Lumbini". Compared to importance, the satisfaction level is poor and stakeholders should address this issue.

Tourist Information Office

H_o: Respondents respond equally to the factor tourist information office in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor tourist information office in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 85.631 whereas on level of satisfaction is 56.554 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Tourist information office in Lumbini" is an important factor. Likewise, P_{25} being 2 indicates that respondents are unsatisfied by "Tourist information office in Lumbini".

Darshan and Pray

H_o: Respondents respond equally to the factor darshan and pray in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor darshan and pray in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 80.738 whereas on level of satisfaction is 27.923 and p-valueof the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Darshan and pray in Lumbini" is an important factor. However, P_{25} being 2 indicates that respondents are unsatisfied by "Darshan and pray in Lumbini".

Feeling of Safety

H_o: Respondents respond equally to the factor feeling of safety in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor feeling of safety in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 35.923 whereas on level of satisfaction is 23.462 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 3 indicates that the majority of respondents opined as "Feeling of safety in Lumbini" is an important factor. However, P_{25} being 1 indicates that respondents are highly unsatisfied by "Feeling of safety in Lumbini". The unstable political situation and weak security situation had badly affected the tourism.

Shopping

H_o: Respondents respond equally to the factor shopping in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

H_1: Respondents do not respond equally to the factor shopping in Lumbini with respect to choices of importance or not important and satisfied or unsatisfied.

The calculated value of Chi-Square on importance is 65.969 whereas on level of satisfaction is 54.800 and p-value of the Chi-square statistics is 0.000. Thus, it is concluded that respondents do not respond equally to the factor with respect to choices of importance or not important and satisfied or unsatisfied. Further, P_{25} being 2 indicates that the majority of respondents opined as "Shopping in Lumbini" is not an important factor. Likewise, P_{25} being 2 indicates that respondents are unsatisfied by "Shopping in Lumbini". The results show that neither the shopping is important factor nor tourists/ were satisfied. The reason is no proper place and materials for shopping. Shopping could be the important component for economic impact of tourism in Lumbini and stakeholders have to give priority on it.

Table 3.65 Rating of Importance of Tourist Attracting Factors in Lumbini

Factors	Not Important		Less Important		So so		Important		Very important		Not stated		Mean	Percentiles			Chi-Square	p-value
	N	%	N	%	N	%	N	%	N	%	N	%		25	50	75		
Weather & scenery	7	5.4	10	7.7	29	22.3	39	30.0	40	30.8	5	3.8	3.85	3.00	4.00	5.00	60.892	0.000
Culture	6	4.6	8	6.2	29	22.3	54	41.5	30	23.1	3	2.3	3.79	3.00	4.00	5.00	89.969	0.000
Preservation and developmental works	11	8.5	13	10.0	32	24.6	40	30.8	26	20.0	8	6.2	3.62	3.00	4.00	5.00	38.646	0.000
Implementation of LMP	9	6.9	11	8.5	37	28.5	45	34.6	23	17.7	5	3.8	3.59	3.00	4.00	4.00	61.538	0.000
Facilities	5	3.8	14	10.8	44	33.8	45	34.6	14	10.8	8	6.2	3.56	3.00	4.00	4.00	75.015	0.000
Policies	9	6.9	8	6.2	37	28.5	39	30.0	30	23.1	7	5.4	3.72	3.00	4.00	5.00	53.877	0.000
Hotels/guest houses	7	5.4	6	4.6	33	25.4	56	43.1	27	20.8	1	.8	3.72	3.00	4.00	4.00	102.61	0.000
Sightseeing tours	7	5.4	8	6.2	44	33.8	40	30.8	29	22.3	2	1.5	3.63	3.00	4.00	4.00	77.415	0.000
Tourist information office	1	.8	11	8.5	36	27.7	45	34.6	35	26.9	2	1.5	3.83	3.00	4.00	5.00	85.631	0.000
Darshan and pray	3	2.3	5	3.8	40	30.8	36	27.7	40	30.8	6	4.6	3.95	3.00	4.00	5.00	80.738	0.000
Feeling of safety	7	5.4	18	13.8	26	20.0	31	23.8	48	36.9	-	-	3.73	3.00	4.00	5.00	35.923	0.000
Shopping	11	8.5	30	23.1	49	37.7	26	20.0	12	9.2	2	1.5	3.03	2.00	3.00	4.00	65.969	0.000

Source: Field survey

Table 3.66 Rating of Level of Satisfaction of Tourist Attracting Factors in Lumbini

Factors	Unsatisfactory		Less satisfactory		So so		Satisfactory		Highly satisfactory		Not stated		Mean	Percentiles			Chi-Square	p-value
	N	%	N	%	N	%	N	%	N	%	N	%		25	50	75		
Weather & scenery	13	10.0	24	18.5	31	23.8	39	30.0	22	16.9	1	.8	3.28	2.00	3.00	4.00	41.323	0.000
Culture	9	6.9	12	9.2	27	20.8	56	43.1	26	20.0	-	-	3.60	3.00	4.00	4.00	53.308	0.000
Preservation and developmental works	29	22.3	34	26.2	24	18.5	26	20.0	14	10.8	3	2.3	2.78	2.00	3.00	4.00	29.415	0.000
Implementation of LMP	20	15.4	52	40.0	28	21.5	21	16.2	8	6.2	1	.8	2.60	2.00	2.00	3.00	72.800	0.000
Facilities	13	10.0	26	20.0	46	35.4	36	27.7	8	6.2	1	.8	3.02	2.00	3.00	4.00	69.477	0.000
Policies	20	15.4	33	25.4	35	26.9	24	18.5	11	8.5	7	5.4	2.95	2.00	3.00	4.00	29.692	0.000
Hotels/guest houses	22	16.9	36	27.7	28	21.5	36	27.7	4	3.1	4	3.1	2.82	2.00	3.00	4.00	49.631	0.000
Sightseeing tours	21	16.2	22	16.9	41	31.5	32	24.6	9	6.9	5	3.8	3.01	2.00	3.00	4.00	42.431	0.000
Tourist information office	9	6.9	24	18.5	38	29.2	41	31.5	16	12.3	2	1.5	3.28	2.00	3.00	4.00	56.554	0.000
Darshan and pray	13	10.0	20	15.4	41	31.5	40	30.8	16	12.3	-	-	3.20	2.00	3.00	4.00	27.923	0.000
Feeling of safety	38	29.2	40	30.8	19	14.6	21	16.2	12	9.2	-	-	2.45	1.00	2.00	4.00	23.462	0.000
Shopping	29	22.3	34	26.2	37	28.5	25	19.2	2	1.5	3	2.3	2.58	2.00	3.00	3.00	54.800	0.000

Source: Field survey

3.12 Estimation of the Annual Expenditure

An attempt was made to estimate the expenditure pattern of tourists in Lumbini. TRPAP conducted a visitor's survey to estimate the expenditure patterns of the pilgrims. The following table shows the estimated annual expenditure of the tourists for the year 2003.

Table 3.67 Estimated Annual Expenditure

Country	Tourist arrivals in 2003	Average Expenses/day, per person (NRs.)						
		Accommodation	Food	Traveling	Souvenirs Purchases	Donation to Monasteries	Total	Estimated Expenditure for 2003
Sri Lanka	8673	768	349	230	170	241	1758	15247134
Korea	2903	1089	409	204	444	377	2523	7324269
Japan	2262	2057	697	278	633	353	4018	9088716
China	621	1700	726	345	920	600	4291	2664711
Taiwan	1174	1863	976	322	488	379	4028	4728872
Thailand	5164	1957	983	782	538	651	4911	25360404
India	28053	690	234	160	382	118	1584	44435952
Others	7256	1699	715	288	385	777	3864	28037184
Total	56106							136887242

Source: Lumbini Visitors Survey-2004

In terms of average expenditure of the visitors by the country, tourists from Thailand were found the highest spending capacity with Rs. 4,911 per person per day; tourists from China were the next with an average expenditure of Rs. 4,291. Tiwani with Rs. 4,028, Japanese with Rs. 4,018, Korean with Rs. 2,523, Sri Lankan with Rs. 1,758 and Indian with Rs.1, 584. Expenditure ratio of non-Indian visitors to Indian visitors was 2.08:1.

3.13 Problems in and around Lumbini

An attempt was made to find the problems of tourists in Lumbini. Majority of the respondents (48.5%) opined that there is not any problem, (34.6%) of the respondents found different problems in Lumbini and (16.9%) of the respondents were unable to give their opinion.

Table 3.68 Status of Problems Around Lumbini

Category	Number of tourist	Percent
No	63	48.5
Yes	45	34.6
Don't know	20	15.4
Not stated	2	1.5
Total	130	100.0

Source: Field survey

The major problems addressed by the respondents are: very bad roads and poor transportation system, difficult to get around, no one at monasteries to explain significance of Lumbini and Buddhism, lack of information offices and materials, very crowded, slow and old public buses and language difficulties from Bhairahawa to Lumbini, lack of restaurants, lack of tourist guides, lack of toilets, lack of washing taps, beggars problem, no proper place for worshipping and praying, lack of information boards and location maps, lack of peace and security situation, lack of the quality service, lack of awareness to preserve the World Heritage Site, lack of publicity in national and international market.

CHAPTER FOUR

Discussion and Conclusions

This chapter summarizes and presents the synthesis of key findings of the study including implications.

4.1 Comprehensive Analysis of the Results

The history of modern tourism is not old as pilgrimage tourism-the oldest concept or original art of traveling. Pilgrimage is a significant type of tourism and the pilgrimage to the sacred and holy places such as Lumbini, Pashupatinath, Jerusalem and Mecca induced modern tourism. The origin and evolution of the *tirtha yatra* (pilgrimage) tradition of Hindus seems to be as old as their civilization or perhaps older than that.Nepal has become a decent destination for pilgrimage tourism with her large number of Hindu and Buddhist pilgrimage sites, shrines and temples.

NTMP (1972) played critical role in tourism history of Nepal. It identified the major tourism products of Nepal, suggested the potential destinations and activities suitable to these areas, and outlined promotional strategies and institutional managements for further growth of tourism. The plan recognized transportation as one of the important component of tourism in Nepal. The plan was designed as an instrument of action which identified developable regions and recommended priorities of developing them, based on long-term perspective of future tourism activities. The plan has given priority to develop Lumbini as an international pilgrimage destination and one of the important sightseeing destinations for the tourists in Nepal.

Today, Lumbini can be considered as a synonym of world peace center and a top class pilgrimage destination in the world. The grove of Lumbini had changed into a pilgrimage site soon after the *Parinirvana* of the Lord Buddha. The importance of Lumbini is so great that the Buddha himself advised his followers to make pilgrimage in Lumbini. LMP is a very ambitious plan for the overall development of Lumbini. However, the incompletion of the plan on time has been a great problem. UN Secretary General U Thant's pilgrimage to Lumbini in 1967 and the historic events held in Lumbini reconfirmed and enhanced Lumbini's status as the Fountain of World Peace and sacred pilgrimage shrine of the Buddhists and peace-loving people and helped to project it as a World Peace City.

In terms of international tourist arrivals France ranked as first with 79 million (8.21%) followed by USA (6.36%), China (5.92%), Spain (5.60%), Italy (4.64%), UK (3.01%), Turkey (2.87%), Germany (2.86%), Malaysia (2.61%) and Mexico (2.48%). Likewise, India has maximum (0.550%) followed by Pakistan (0.096%), Maldives (0.070%) in South Asian region. However, Nepal's share is very negligible with (0.06%) in international tourist arrival in the world total in 2010.

While analyzing the trend of tourist arrivals in Nepal, the R^2 value and F Statistics shows that linear, logarithmic, quadratic, cubic and growth models are found to be significant. The scatter plot shows that the tourist arrivals in Nepal is seemed to be linear up to 1999, heavy decline in following 2/3 years and again positive increment. None of the model found to be the best fit. The ten years armed conflict of Nepal made clear that the devastating short term impact in loss of lives, damage of infrastructure as well as the long term impact in loss of livelihoods and an uncertain future in Nepal. After 2006 movement and peace process also did

not solve the problem of continuous instability, and poor security situation of the country which has been affecting tourism badly.

The purpose of tourists or visitors is diverse in nature. The tourism statistics shows the tourists visiting with pilgrimage purpose were recorded as 6,713 (2.6%) of the total tourists arrived in 1990. The number of tourists with pilgrimage purpose fluctuated on the following years and the highest number 101335 (16.8%) obtained in 2010. While analyzing the trend of tourist arrivals with pilgrimage purpose in Nepal, the R^2 value and F Statistics shows that linear, logarithmic, quadratic, cubic and growth models are found to be significant. None of the model found to be the best fit. The scatter plot shows that there is rapid growth in tourist arrivals with pilgrimage purpose. Pilgrimage tourism has become one of the important purposes of visit because of world's top class Hindus and Buddhists pilgrimage destinations in Nepal and has great prospects.

It is crucial to obtain accurate estimates of the uncertainty surrounding monthly international tourist arrivals based on time series data. The data series were analyzed in terms of the number of tourist arrivals, the corresponding logarithms, annual differences, log-differences, and associated uncertainties in this research. The monthly tourist arrivals depict very high coefficient of variation (CV) for the 11 tourist source countries. Among them, India had the lowest CV or highest consistency towards monthly tourist arrivals. Jarque-Bera, a test statistic of normality, shows that all the source countries have no normality patterns as the p-values for all the cases are less than 5% level of significance although the value of skewness for Japan is very close to zero. But, Sri Lanka has the highest value of skewness very close to 3. Similarly,

Japan and UK have the values of Kurtosis very close to 3. Although Japan has the significant value of non-normality, the values of skewness and kurtosis show that it should have some normality pattern on its monthly arrivals. Sri Lanka, Netherland, Italy, China and USA have higher degree of kurtosis.

The null hypothesis is that monthly international tourists' arrivals have a unit root. The critical values for rejection of the null hypothesis of a unit root were -3.476472 and -2.881685 at 1% and 5% respectively. Except Bangladesh and China, for all the countries, the series in levels are stationary. For all the countries, the series in natural logarithm are stationary. The choice of implementing the PP test over the widely used Augmented Dickey-Fuller (ADF) test is due to mainly to the presence of GARCH errors. ADF test incorporate techniques explicitly accommodating a serial correlation structure in the errors, but not hetereoscedasticity. However, the PP test takes into account both serial correlation and hetereoscedasticity using non-parametric techniques. As argued in Phillips– Parron (1990), the PP test typically has higher power in finite samples than ADF test.

Monthly tourist arrivals to Nepal show very strong seasonal patterns. Five of the eleven major tourism source countries were from Europe. The seasonal concentrations of monthly tourist arrivals occur from September to March. However, for the same duration, most of the Asian countries have different months for the peak seasonality index such as peak month for India has been June, for Bangladesh has been October; for Sri Lanka has been March and August, for China and Japan have been November, and for USA has been October. June has been the lowest months for all countries except India.

Estimates of the conditional mean for the GARCH (1, 1) model at the level, logarithm, annual difference and log difference of the monthly tourist arrivals 11 main tourist source countries were obtained through a modeling procedure in which only significant variables were included until a parsimonious specification is achieved. There was a very strong degree of habit persistent in the monthly tourist arrivals from Germany, U K, India, China and USA as the AR(1) coefficients are very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. Netherland, France and Bangladesh have AR (1) coefficients very significant as they are less than 1. That is why; those countries are showing a less degree of habit persistent for the monthly tourist arrivals. However, Sri Lanka and Japan have negative AR (1) values, which are also highly significant. They have habit persistent in their monthly arrivals to Nepal but in an opposite fashion. It means there may be some adverse effect of their monthly arrivals to Nepal by the monthly tourist arrivals of other countries.

In case of the conditional variance for the GARCH(1, 1) model for the monthly tourist arrivals, the second moment conditions are satisfied by France, Germany, Italy, India, China and Japan. Regularity conditions for Log-moment are $\alpha \geq 0$, $\beta \geq 0$. On comparing the results of the log-moment, they are seemed to be partially satisfied for most of the countries. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in level into any other form. However, the result shows that the estimate of the GARCH coefficients, or β, is significant for all countries except UK, India and Sri Lanka. The point to be noted here that β is negative for all the countries except France. This does not permit to interpret its significance due to the regularity condition. While the estimated ARCH effect, or α, is significant in all cases and all

are positive except for France. These results imply that a shock to the monthly tourist arrival series has short run persistent in all cases except France. However, a shock to the monthly tourist arrival series has long run persistent only in France.

The correlations coefficients of monthly tourist arrivals among the 11 main tourist source countries in Nepal are calculated. Out of 135 correlation coefficients, the overall mean is 0.3178, ranging from a maximum of 0.9340 between Germany and UK at level, to a minimum of -0.3864 between Sri Lanka and India at logarithm. There are altogether 28 negative correlations in different transformation.

International tourist arrivals in Lumbini has been fluctuated and affected by several reasons. While analyzing the trend of international tourist arrivals in Lumbini, the R^2 value and F Statistics shows that linear, logarithmic, quadratic, cubic and growth models are found to be significant. Mega events in Lumbini have been helping to attract more tourists and enhance the Lumbini's status in the international market. Majority of the tourist visit Lumbini in a group. Most of the groups contained more than 30 tourists in a group. However, usually larger group of tourists/pilgrims make very short visit in Lumbini when they come via India. They do not stay in Lumbini and go back to India for night stay. If Nepal can stop them at least for one day it will have great impact in economy and employment. Beside pilgrimage purpose, Lumbini can be the attractive destination for the extra-religious activities such as sightseeing, cultural, historical. Today, Lumbini holds a highly esteemed position in the world. Lumbini is the top class pilgrimage destination for Buddhists, not only this; it is equally respected by Hindus. In addition to this; it is also a very popular destination for non-Buddhist and non-Hindus. There are more than 1.5 billion of Buddhists and 1.5 billion Hindus in the world. The

potentiality of Lumbini can attract millions of pilgrims and the visitors from all over the world. However, the statistics for the year 2009 shows very poor situation.

- Mecca was in 11th rank with 6985000 tourists/pilgrims
- Jerusalem was in 49th rank with 2215200 tourists/pilgrims
- Lumbini's rank couldn't be identified with negligible 82445 tourists/pilgrims

The conditional mean for the GARCH (1, 1) model are obtained through a modeling procedure of the monthly tourist arrivals for the 16 main tourist source countries in Lumbini in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Taiwan, China, Australia and Netherland. They have AR (1) coefficients very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. South Korea AR (1) value different from that of other countries and the coefficients, although it is very significant, it is very less than 1. That is why; it is showing a little less degree of habit persistent for the monthly tourist arrivals in Lumbini. However, Japan, Poland and Myanmar Netherland have AR (1) values, less than 0.500, but all are insignificant. They have not at all habit persistent in their monthly arrivals to Lumbini.

In the case of the conditional variance for the GARCH (1, 1) model for the monthly tourist arrivals series in level, the second moment conditions are satisfied by most of the countries except Germany, South Korea and Taiwan. On comparing the results of the log-moment, they are seemed to be partially satisfied for most of the countries.

Tourism plays an important role in the Nepalese economy, particularly in terms of foreign exchange earnings and employment. Reliable data on the number of persons employed in tourism-related activities are not available (U N, 2003b p. 40). The benefits of tourism are its contribution to the GDP, earning of foreign currency and employment. 10th national plan for tourism development had expected US$ 60 per tourist per day income from tourists, in reality it was US$ 55.0 per tourist per day in 2006. There is increment and reached to US$ 73.0 in 2008. However, MoCTCA (2010) shows that income per tourist per day is US$ 43.2, gross foreign currency earning in convertible currency is US$ 329.98 million and length of stay is 12.67 days.

The direct contribution of travel and tourism to GDP was Rs. 53.5 billion (4.0% of total GDP) in 2011, and is forecast to rise by 4.7% in 2012, and to rise by 3.7% pa, from 2012-2022, to Rs. 80.8 billion in 2022 (in constant 2011 prices). The total contribution of travel and tourism to GDP was Rs. 119.1 billion (8.8% of GDP) in 2011, and is forecast to rise by 4.8% in 2012, and to rise by 4.1% pa to Rs. 185.5 billion in 2022 (in constant 2011 prices (WTTC, 2012).

The share of tourism receipts in Nepal in the world context is very negligible with 0.04%. World 1st rank country USA received 11.17% whereas 10th rank country Hong Kong (China) received 2.39% share of the total tourism receipts in the world. When compared Nepal with south Asian countries in tourism receipts, Nepal is lower than India, Maldives and Sri Lanka. This is because of low tourist arrivals, length of stay and per day expense.

Tourism earning is largely depending on tourist arrivals, per day expenses of a tourist and length of stay in days. It is fund that the multiple regression model is better fit to the Earnings

from tourism in '000 US$ with respect to above three predictors. The result also predicts that per day change in length of stay of a tourist affects the total earning by US$ 15358; per day expense of a tourist affects the total earning by US$3519 and so on.

Travel and tourism has emerged as a major job provider in Nepal. Travel and tourism generated 412,500 jobs (3.3% of total employment) directly and 540,000 jobs (7.7% of total employment) indirectly in 2011. It is forecasted to grow by 3.7% directly and 3.8% in 2012 (WTTC, 2012).

The effort of stakeholders such as Ministry of Culture, Tourism and Civil Aviation, Nepal Tourism Board, Lumbini Development Trust, private sectors, tourism organizations/agencies are not satisfactory in developing pilgrimage tourism in Nepal. Majority of the respondents organized their visit to Lumbini by their own. Out of 337 respondents who have given multiple interests among 8 different interests, (72.3%) were interested to observe the birth place of Lord Buddha whereas (63.8%) visited to worship Lord Buddha. Likewise, (34.6%) were to visit monasteries followed by (33.1%) to study about Buddhism, (24.6%) for meditation, (21.5%) to enjoy the nature's creation in Lumbini whereas (6.2%) visited Lumbini to buy souvenirs. The remaining (1.2%) out of total respondents visited to know about Lumbini.

Tourism in Lumbini has been causing various environmental, socio-cultural and economic impacts. The survey result shows that almost all visitors have been satisfied from their visit in Lumbini.The tourist arrivals largely depend on the importance and level of satisfaction of several factors in Lumbini. Factors such as weather and scenery, culture, preservation and

developmental works in Lumbini, implementation of Lumbini master plan, facilities, tourism policies, sightseeing tours, service provided by tourist information office, darshan and pray; safety and shopping of the local products, handicraft, and souvenirs play significant role to attract tourists. For importance, it is defined as very important, important, soso, less important and not important; and for level of satisfaction, it is defined as highly satisfactory, satisfactory, soso, less satisfactory and unsatisfactory. The opinion of the respondents about the importance and level of satisfaction of those factors were tested by using Chi-square test of goodness of fit of uniform distribution of 5 type of responses measured on the scale as defined above.

Developing pilgrimage tourism is a very important aspect of tourism industry in Nepal. Nepal can attract millions of tourists/pilgrims because of her world top class pilgrimage destinations of Hindus and Buddhists. Nepal could develop pilgrimage tourism by promoting and publicizing in international market. Pilgrimage should be an organized tour and various packages with standard services and facilities should be provided. Infrastructure is the basic requirement for tourism development which is not possible without private participation. Having birthplace of Lord Buddha and other sacred Hindu sites are not enough to attract pilgrims. Design a focused package program; involve professional and institutions in planning and development, proper marketing in national and international markets, have basic facilities with peace and smooth political situation, reliable security system, develop long term and short term plan, coordination among stakeholders and local participation for developing pilgrimage tourism are very essential factors. Plans and policies are to be reviewed time and again by keeping in mind of social and political changes.

Higher benefits from pilgrimage tourism can be obtained by making pilgrimage sites main area of attraction, attracting more tourists from specific market, more marketing in Buddhist countries, exploring new pilgrimage sites, using the revenue generated from pilgrimage sites (entrance fee, donation, offerings) for its development of pilgrimage sites. Lumbini is an international tourist destination and its development will develop Nepal as well. Besides Lumbini, other pilgrimage sites should be developed properly by formulating a master plan. The accommodation facilities for tourists/pilgrims have to be identified and arranged in respective manner. The service providers need to have training and the tourist guides should know different international languages such as Thai, Korean, Chinese, and Japanese.

4.2 SWOT Analysis of Pilgrimage Tourism in Nepal

A SWOT analysis was made to know the strengths, weaknesses, opportunities and threats of pilgrimage tourism in Nepal from the field survey, observation, interaction with stakeholders and secondary data.

4.2.1 Strengths

In general:

- Nepal holds world top class pilgrimage destinations such as Lumbini, Pashupatinath, Manakamana, Muktinath and many more. Whole country is like a pilgrimage destination for Hindus and Buddhists.
- Nepalese culture, traditions and ritual are unique
- Tourists with various purposes can also experience pilgrimage in those sites
- Political situations of the country is improving

- Cheap and exciting destinations
- One of the best destinations for regional tourism (Asian) which is less affected by international incidents
- The only leaving goddess in the world- Kumari
- Nepal's diverse tourist attractions such as natural, historical, adventurous and many more

Lumbini:

- The Birthplace of Lord Buddha and the foremost site in relation to other sacred sites
- A sacred place of worship for millions of Buddhists from the world
- Declared as World Peace City by World Buddhist Summit 2004
- Listed as a World Heritage Site by UNESCO which carries a history of more than 2600 years
- Provides ultimate peace and nirvana
- Is the Fountain of World Peace
- Has national and international monasteries run by various countries and organizations
- Is the home of monks, nuns, clerics, peace lovers and spiritual leaders
- Has potentiality to develop as a world top class pilgrimage destination
- Gautama Buddha airport near Lumbini is planned to become an international airport
- A Buddhist University is established in Lumbini
- Is the nerve center in the World Buddhist circuit
- Equally respected and visited by millions of Hindus from the world
- Various organizations (UNESCO, UNDP, IUCN) are working to develop Lumbini
- One of the fast growing tourist destinations
- Religious harmony and cultural tolerance coexist peacefully

- Nature, wildlife, grassland and wetland
- Has international standard research institute LIRI
- Appropriate destination for MICE tourism

4.2.2 Weaknesses

Political instability has been the great problem in Nepal. Political parties had not understood the beauty of different cultures and religions. Yogi (2008) said, "Recent political development in the country is trying to destroy the religious, cultural, ethnic, social harmonies that have been existed since long in Nepal. New generation has no more interest to follow our age long tradition. Buddhists have high respect in the world because of which Tibetans are benefited. When there is a talk about Hinduism, India is taking advantage. Most of the Buddhist countries are getting benefits from Buddhism but Nepal is lacking behind and shadowed". Nepalese are honored by having Lumbini in Nepal. There is not a single city without a Buddhist temple. However, birthplace of Lord Buddha has been ignored. Nepalese could not understand the value of Lumbini. Just promoting Lumbini, Nepal can attract millions of tourists. Further, the political situation, safety, lack of basic infrastructures for tourism, lack of collaboration in image branding, promotion and marketing, lack of airlines and international airports, hopeless roads, lack of appropriate packaging for all target groups, lack of awareness, lack of clear cut vision of the concerned authorities, lack of pilgrimage network among different pilgrimage sites, lack of destination development plan and lack of cleanliness of the pilgrimage sites. Pilgrimage practices have been unplanned visit. In particular, politicization in LDT, inadequate budget for implementation of LMP, transportation system, facilities for tourists, planning and marketing.

4.2.3 Opportunities and benefits

As per the opinion of respondents, field observation, interaction with stakeholders during this research following are the possible benefits and opportunities from pilgrimage tourism:

a. Economically: If there is increase in tourist arrivals with increase of length of stay and per day expense of per tourist that results more economic gain and employment. There would be increasing investment including joint ventures in tourism related industries including hotels, resorts, airlines etc.

b. Partnership approach: Government, private sector and international organizations for the development infrastructure and tourism.

c. Culturally: Preservation of Nepalese culture, art and handicraft

d. Academically: Establishment of academic institutions and research centres (e.g. Lumbini could be learning centre of Buddhism and a centre of peace).

e. Politically: World Buddhist Summit 2004 had declared Lumbini as a World Peace City, it should be developed accordingly. It could be a centre of peace talks and declare Lumbini convention / declaration such as Colombo declaration and Geneva Convention.

f. Developing Lumbini not only as pilgrimage destination but also as an interfaith destination, peace destination, sightseeing touristic destination, meditation destination. Nepal (especially Lumbini) could be the best destination for MICE (Meetings, Incentives, Conferences, and Exhibitions).

g. Pilgrimage network: Developing circuit tour, village tour, pilgrimage network among pilgrimage sites in and around Lumbini, network with other pilgrimage sites of Nepal, network with other pilgrimage sites of India and other Asian countries.

j. Multiple indirect impacts on farming, fishery, local products and handicrafts

k. Human resource development for the national and international market

m. Pilgrimage tourism is less affected by national and international incidents

n. Better competition through professionalism with increased budget and focused marketing that yield better results

4.2.4 Threats and Constraints

Despite the potentiality of the pilgrimage tourism in Nepal, this research state following threats and constraints:

- Lack of package programmes and mostly unplanned and unorganized tour
- Lack of basic facilities and infrastructure in most of the pilgrimage sites
- Lack of proper pilgrimage networking among different sites
- Poor accessibility and difficult terrain
- Peace and security situation of the country
- Politicization in pilgrimage sites (Political appointment in key positions)
- Awareness and proper coordination among local and national stakeholders
- Aggressive marketing plan and budget in national and international markets
- Less priority given to pilgrimage tourism compared to other conventional tourism.
- Lack of enough literature highlighting importance of pilgrimage sites and pilgrimage process.
- Chances of defaming Nepal as a negative and unfriendly destinations for non-Hindus and non-Buddhists
- Increase of temporocentrism in the society and degradation of religious activities

- Lack of proper recording system of the pilgrims and their contribution to the economy

In particular, industrial expansion and urbanization in and around Lumbini, incompletion of LMP on time, pollution and dust, seasonality, long dry and hot season, India's rigorous marketing and developmental strategies in Buddhist sites, national and international politics to drag Lumbini in controversy, often politicization in LDT management.

4.3Sustainability of Pilgrimage Tourism

There are several factors affecting tourism for sustainable development. Pilgrimage network among different pilgrimage sites could be the best option for sustainable development of tourism. Greater Buddhist pilgrimage circuit, Lumbini and around circuit, interlink between Hindu and Buddhist pilgrimage sites, Hindu pilgrimage circuits, peace circuit are very important networks of pilgrimage tourism development. Mount Everest and Lumbini are icons of Nepal, have connection between these two sites. Tourist visiting with other purposes could visit Lumbini. Lumbini should be in national priority. All stakeholders including local have to participate in promoting tourism and sharing benefits.

Tourism has been identified as an effective means to take part in the global economy and reduce poverty. Tourism is a collective phenomenon and can be a key ingredient in the development of any country. Tourism is increasingly a major source of economic growth, employment and revenue for many of the world’s developing countries. By harnessing the strengths and expertise of each agency tourism can be developed. Togetherness with committed customers, employees, suppliers, local communities, tourism related industries,

government and non-governmental organizations can only deliver sustainable tourism. By the support and guidance of multi-stakeholder groups, tourism brings pleasure to those who travel with it. It is also the future to the places and the people who provide it, as well as a profit to all those who are involved in supplying it. Tourism aims to recognize the importance of the continuity of natural resources, culture, religion, history and the balances within it. Tourism would not be just a focus of economic development strategy based on its job creation, revenue, millions of capital investment, but it has a deep impact on the social and cultural life of any country.

The holy Lumbini not only belongs to Nepal and Nepalese people; it is a very important world heritage and belongs to the people around the globe. The sense of belongingness, therefore, is essential for the faster and smoother development of the complex and the region. Perhaps, it has been more than two decades since the implementation of the master plan had begun but ironically only one third has been accomplished. There is always thrust of big jump for the efficient implementation. Besides political, communal, religious barriers all Nepalese need to stand united for the conservation, development and publicity of Lumbini internationally which can draw the attention worldwide. There should be links between individuals and stakeholders, though these links are to be determined by ownership, religious, faith and historical connections, and the other identities discussed. Tourism networks among domestic and international organizations and sites are essential factors to develop tourism in Lumbini. Lumbini can be made all seasons destinations with additional attractions. Networks may be used as facilitatory mechanisms to create trust and enhance co-operation in business. Benefits gained from working together with all stakeholders could include image improvement, competitive advantage, resource optimization, an increase in information flows

and an ability to influence. It is a high time to cash the potentiality of pilgrimage tourism and Lumbini for the dramatic change in Nepalese tourism. Past is past and time has come to get through from the threats and constraints, not to bother with problems and uncertainty. Greater understanding, incentivize motivation and involvement in the process towards a common goal is required. Maximization of the potential capacities of tourism can help for sustainable tourism. Now the time has come to follow the footsteps of Lord Buddha who had once said that, "The one who does not act fast falls behind and fails".

4.4 Contribution of the Study

This study would be the milestone for the development of pilgrimage tourism and Lumbini. This study provides greater insight into the nature of pilgrimage tourism and enhancing the importance of Lumbini. It has explored the relationships, links and connectedness that exist (or not) between variety of stakeholders. No study of this kind has been undertaken reflecting on the sector in a qualitative and quantities manner. This provides insight into the variables that contribute not only to the economic sector but also considers the seasonal effects, national and international incidents. Furthermore, it would be an exemplary research on uncertainty of monthly internationaltourist arrivals based on chronological data and use of GARCH models in statistics as well. Over the course of the research, a number of publications, presentations, awareness creation were accomplished. This research demonstrates that Lumbini is the world top class destination, its development and sustainability can worth a lot for the country like Nepal. In a time of increasing competition and uncertainty in the tourism, stakeholders should explore many different avenues to increase sustainability within the sector.

4.5 Future Research

This was an inductive study and a step to start research on pilgrimage tourism and tourism statistics. Several questions are raised during this study; some are unanswered which formed the basis for fertile areas for future research. Tourism provides ripe opportunity to explore and understand people, their identities, place and impacts. The complexity and cross-cultural nature yields many potential aspects that deserve due consideration of further work. Studies of identity in other sectors, sites and disciplines would provide a depth of literature, statistical models and parameters that could yield some interesting results.

The research recommends a model for tourism in Lumbini.

$$\mathbf{T_i = f\ (P_i, M_i, S_i, H_i, A_i, N_i, R_i, AA_i, U_i)}$$

Where, T_i =Tourist attractiveness in Lumbini,

P_i = Pilgrimage importance,

Mi = Meetings, Incentives, Conventions and Exhibitions

S_i=Social factor,

H_i = Historical factors,

A_i = Archeological factor,

N_i = Natural factor,

R_i = Recreational and shopping opportunities,

AA_i = Accessibility and accommodation,

U_i = Stochastic disturbance term

The model could be transformed to the dynamic model in course of using it in further research.

4.6 Conclusion

At last, the most important recommendation is the Lumbini and LDT management should be free from the political, ideological, communal activities and feelings because Lumbini is the world Heritage Site, a destination for pilgrimage and faith tourism and belongs to all in the world. Lumbini not only provides an ultimate pilgrimage and nirvana for the Buddhists, it is also one of the important destinations for non-Buddhists too. The teachings of the Buddha and his message of compassion, devotion to the service of humanity, universal brotherhood, world peace, meditation, progress and welfare of mankind are more relevant to the today's world which is in the grip of tension caused by racial, communal and ideological conflicts, violence and nuclear armament race. This research demonstrates that Lumbini is the world top class destination, its development and sustainability can worth a lot economically for the country like Nepal. In a time of increasing competition and uncertainty in the tourism, stakeholders should explore many different avenues for sustainability within the sector.

CHAPTER FIVE

Summary and Recommendations

5.1 Summary of Research

Nepal is a country with a unique and diverse history and culture. It has been blending and carrying the history of thousands of years. Its archeological remains, structures, temples, monasteries, legends, religious books, rituals, caste/ethnic groups and festivals prove its multicultural and religious authenticity. Nepal has become a decent destination for pilgrimage tourism with her large number of Hindu and Buddhist pilgrimage sites, shrines and temples. Tourism is the dynamic industries which contribute significantly in the national economy needs always new things, ideas, activities and attractions.

Today, Lumbini can be considered as a synonym of world peace center and a top class pilgrimage destination in the world. The importance of Lumbini is so great that the Buddha himself advised his followers to make pilgrimage in Lumbini. It's strengths in this respect are – to name just a few – that it is Birthplace of Lord Buddha, a top class pilgrimage site, declared as World Peace City, a World Heritage Site, that it is hailed as the Fountain of World Peace that may provide ultimate peace and nirvana, that it hosts national and international Buddhist monasteries and therefore is the home of monks, nuns, peace lovers and spiritual leaders, that is the nerve center for Buddhist circuit, equally respected by millions of Hindus, that more than 160 religious, historical and archaeological sites related to the Buddha and his life have been identified in and around, that it is a fast growing tourist destination for various purpose. Despite Lumbini's huge potential it has been struggled by several reasons. For the Buddhists, Lumbini holds almost a similar position as Mecca, the sacred site for the Muslims.

The Saudi government has given high priority to develop it. They have a concrete plan, a budget, enthusiasm and commitment to preserve and develop it. Likewise, Jerusalem for Christians and Jews is also well developed and managed properly. Why is it so different in the case of Lumbini? It has great potentiality and could contribute significantly in economy, employment, peace process and development of universal brotherhood. Lumbini not only a pilgrimage site, it is an international tourist destination.LMP is a very ambitious plan for the overall development of Lumbini. However, the incompletion of the plan on time has been a great problem. In order to improve tourism, local capacity needs to be enhanced in several areas, since the local communities' role in enhancing the attractiveness of the holy site is meaningful. Pilgrimage is an important part of life in most of the religion and devotees are practicing it. However, it has not been in an organized way because of lack of awareness, time and resources. Pilgrimage network could be one of the important approaches to get higher benefits spiritually and economically from tourism in Lumbini. It helps to attract more pilgrims and increase the length of stay. The network could be developed among sites around Lumbini, Lumbini and other sites in Nepal, sites in Nepal and India, and many more. The increase in number of tourist arrivals, increase in length of stay, development of infrastructure, worldwide publicity and active involvement of governmental and non-governmental organizations ultimately contribute for the sustainable development of Lumbini and tourism in Nepal. The unstable political situation and weak security situation had badly affected the tourism in Nepal. Lumbini has important tourist attracting factors, however, the level of satisfaction is very poor and unsatisfactory. The proper marketing in international market can attract more tourists in Lumbini and the satisfaction of their visit can lengthen their stay period, revisit the site and recommend others to visit Lumbini. The stakeholders

have to work on it for quality tourism and better return. Seasonality has been one of the important problems in Lumbini as the summer especially July, August and September are very hot, humid and rainy months in Lumbini. Tourists with other than pilgrimage purpose usually do not visit in those months. However, larger number of Buddhists pilgrims from Sri Lanka, India, China and Korea visit Lumbini in those months. Priority should be given to the regional and domestic tourism to draw more pilgrims/tourists in those months. If Nepal wants to develop Lumbini and get benefits from it, the first thing is not to drag it into political and ideological controversy. The holy Lumbini not only belongs to Nepal and Buddhists people; it is a very important pilgrimage and world heritage site. The sense of belongingness, therefore, is essential for the faster and smoother development of the complex and the region.

5.2 Recommendations and Improvements for Sustained Tourism

As pilgrimage tourism could not have been developed in a professional (institutional) ways, there could be several strategies to develop pilgrimage tourism in Nepal. The best ways are pilgrimage tour packages and networking among important pilgrimage sites. Minimization of threats and constraints; and boosting of strengths can contribute for sustained tourism. There is always need of improvements, development and utilization of world famous tourism products and get benefit from it. The current research recommends following points for better tourism in Nepal and Lumbini as well.

7.5.1 Networking, Planning and Marketing

- Package programme should be developed with various options
- Basic facilities such as toilets, bath rooms, washing taps, shoe lockers, worshipping materials on the way from main gate to MayaDevi Temple

- Coordination and involvement of national and international organizations for development of the pilgrimage network and package programme
- Lumbini has seasonality problem in tourist arrivals. Planning and programmes should be developed in such a way that it should be all season destination and destination for all. Organize additional activities and attractions during off seasonal months. Peace tourism, responsible tourism, youth tourism, eco-tourism, community tourism, cultural tourism, sport tourism can be the additional attractions in those months
- Auspicious day Baishakh Purnima (Full moon day of May) should be announced as World Peace Day, World Meditation Day
- Lumbini can be appropriate platform for MICE (Meetings, Incentives, Conventions and Exhibitions) events. Establish ultra-modern conference hall and exhibition center
- Rigorous marketing plan in national and international level with all kinds of information materials and technologies. There must be information materials at BusPark and airport about departure time, duration of travel and travel cost
- Greater Lumbini (sites in and around Lumbini) Master Plan
- Establishment of modern Cricket and football stadium near Lumbini to promote sport tourism. International matches can be organized so that international players, officials and audience come to Nepal.
- Organize/provide venue for International and national conferences, seminars, workshops, sport events, peace prize distribution in Lumbini
- Get experience that how Mecca, Jerusalem and other international destinations are developed and connected

7.5.2 Community Involvement

- Community participation is one of the important aspects of tourism development in Lumbini. There are multiple (direct and indirect, positive and negative)impacts from tourism. The tourism ultimately develops the periphery of the destination and locals will be benefited. Locals have to be involved in decision making process.
- Community should promote local handicrafts, agricultural products so that they will be economically benefited
- Community should protect traditional dresses, traditions and rituals, arts and handicrafts.
- Massive tree plantation and maintenance of natural habitat

7.5.3 Education and Awareness

- Education is the fundamental factor to stimulate, empower and aware the host community. Tourism university and collages, training centers, workshops, research, publications play vital role to educate and aware about tourism

- Lumbini Buddhist University had already been established. Collaborate with national and international universities for exchange and partnership programmes
- Bilingual and multilingual training, workshops and seminars
- Awareness about hospitality, heritage management and responsible tourism development
- Training to the locals and service providers
- Establish a tourism and hospitality university
- Encourage research scholars, writers and presenters

7.5.4 Infrastructure Development

- Wide road, regular, faster and modern transportation system from Bhairahawa to Lumbini. Regular smokeless and soundless transportation system, disable and elder people friendly transportation in Lumbini area
- Re-utilize the Sri Lankan pilgrimage rest house and build more pilgrimage rest houses
- Establishment of the shade to protect Asokan Pillar otherwise, it would be destroyed because of sun and rain in the days to come
- A properly managed worshipping, praying and other religious functions performing site near Maya Devi temple
- Development and conservation of Devdaha, Ramgram, Kudan, Kapilvastu and other sites related to Lord Buddha in and around Lumbini
- Maintain greenery in and around Lumbini.

7.5.5 Training and Human Resource Development

- Research in the pilgrimage, historical and archeological sectors should be encouraged.
- Train and involve more locals in tourism and decision making process so that they will take responsibilities and ultimately the benefits go to them
- Avoid politicization in LDT and NTB. Instead of making it employing political workers, it should be the workplace of professionals

7.5.6. Collaboration among Stakeholders

- International communities are the important stakeholders for over all development of Lumbini and other important heritages and monuments
- Nepalese embassies and consulate offices should work in respective countries for tourism promotion

- Prepare and execute calendar of events to attract tourists in off seasons
- Develop network with stakeholders to attract other type of tourist visiting Nepal such as a tourist who goes for a trekking or mountaineering can go to Lumbini for one day
- Time bound completion of the Lumbini Master Plan in collaboration with national and international stakeholders
- Time bond expansion of the Gautam Buddha airport to make an International airport
- Materialization of the concept World Peace City and Greater Lumbini
- Allocate adequate budget for proper planning and development of tourism infrastructure
- If government is giving 24 hrs visa, tourist have to stay at least a day in Nepal. Implement and monitor it effectively. Organize different programmes to retain them at least for a day in Nepal.

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APPENDIX

Table A.1 International Tourists Arrival in Nepal

Year	Total Number	Growth Rate %	Index	By Air		By land		Average length of stay
				Number	% of Total	Number	% of Total	
1962	6179		100	……		……..		……..
1966	12567		203	11206	89	1361	11	……
1970	45970		744	36508	79	9462	21	……
1974	89838		1454	74170	83	15668	17	13.20
1978	156123		2527	130034	83	26089	17	11.84
1982	175448		2839	153509	87	21939	13	13.33
1986	223331		3614	182745	82	40586	18	11.16
1990	254885		4125	226421	89	28464	11	12.00
1991	292995	15.0	4742	267932	91	25063	9	9.25
1992	334353	14.1	5411	300496	90	33857	10	10.14
1993	293567	-12.2	4751	254140	87	39427	13	11.94
1994	326531	11.2	5285	289381	89	37150	11	10.00
1995	363395	11.3	5881	325035	89	38360	11	11.27
1996	393613	8.3	6370	343246	87	50367	13	13.50
1997	421857	7.2	6827	371145	88	50712	12	10.49
1998	463684	9.9	7504	398008	86	65676	14	10.76
1999	491504	6.0	7954	421243	86	70261	14	12.28
2000	463646	-5.7	7504	376914	81	86732	19	11.88
2001	361237	-22.1	5846	299514	83	61723	17	11.93
2002	275468	-23.7	4458	218660	79	56808	21	7.92
2003	338132	22.7	5472	275438	81	62694	19	9.60
2004	385297	13.9	6236	297335	77	87962	23	13.51
2005	375398	-2.6	6075	277346	74	98052	26	9.09
2006	383926	2.3	6213	283816	74	100107	26	10.20
2007	526705	37.2	8524	360713	68	165992	32	11.96
2008	500277	-5.0	8096	374,661	74.9	125616	25.1	11.78
2009	509,956	1.9	8253	379,322	74.4	130,634	25.6	11.32
2010	602,867	18.2	9757	448,800	74.4	154,067	25.6	12.67

Source: MoTCA, 2010

Table A.2 Tourist Arrivals by Purpose of Visit in Nepal

Year	Holiday Pleasure	Trekking & Mountaineering	Business	Pilgrimage	Official	Conv. Conf.	Rafting	Others	Not Specified	Total arrivals
1990	161839 (63.50)	39999 (15.7)	11728 (4.6)	6713 (2.6)	26578 (10.4)	2838 (1.1)	-	5190 (2.0)	-	254885 (100)
1991	177370 (60.5)	42308 (14.40)	14601 (5.0)	9103 (3.1)	37274 (12.7)	5441 (1.9)	-	6898 (2.4)	-	292995 (100)
1992	237711 (71.1)	35166 (10.5)	31765 (9.5)	7219 (2.2)	20967 (6.3)	815 (0.2)	-	710 (0.2)	-	334353 (100)
1993	170279 (58.0)	69619 (23.7)	19495 (6.6)	10429 (3.6)	15812 (5.4)	5367 (1.8)	-	2566 (0.9)	-	293567 (100)
1994	168155 (51.5)	76865 (23.5)	23522 (7.2)	5475 (1.7)	20431 (6.3)	5361 (1.6)	-	26722 (8.2)	-	326531 (100)
1995	183207 (50.4)	84787 (23.3)	21829 (6.0)	5257 (1.4)	20090 (5.5)	5272 (1.5)	-	42953 (11.8)	-	363395 (100)
1996	209377 (53.2)	88945 (22.6)	25079 (6.4)	4802 (1.2)	20191 (5.1)	6054 (1.5)	-	39165 (10.0)	-	393613 (100)
1997	249360 (59.1)	91525 (21.7)	27409 (6.5)	4068 (1.0)	24106 (5.7)	5824 (1.4)	-	19565 (4.6)	-	421857 (100)
1998	261347 (56.4)	112644 (24.3)	24954 (5.4)	16164 (3.5)	22123 (4.8)	5181 (1.1)	-	21271 94.6)	-	463684 (100)
1999	290862 (59.2)	107960 (22.0)	23813 (4.8)	19198 (3.9)	24132 (4.9)	5965 (1.2)	-	19574 (4.0)	-	491504 (100)
2000	255889 (55.2)	118790 (25.6)	29454 (6.4)	15801 (3.4)	20832 (4.5)	5599 (1.2)	-	17291 (3.7)	-	463646 (100)
2001	187022 (51.8)	100828 (27.9)	18528 (5.1)	13816 (3.8)	18727 (5.2)	0 0	-	22316 (6.2)	-	361237 (100)
2002	110143 (40.0)	59279 (21.5)	16990 (6.2)	12366 (4.5)	17783 (6.5)	0 0	-	58907 (21.4)	-	275468 (100)
2003	97904 (29.0)	65721 (19.4)	19387 (5.7)	21395 (6.3)	21967 (6.5)	0 0	-	111758 (33.1)	-	338132 (100)
2004	167262 (43.4)	69442 (18.0)	13948 (3.6)	45664 (11.9)	17088 (4.4)	0 0	-	71893 (18.7)	-	385297 (100)
2005	160259 (42.7)	61488 (16.4)	21992 (5.9)	47621 (12.7)	16859 (4.5)	0 0	-	67179 (17.9)	-	375398 (100.0)
2006	145802 (38.0)	66931 (17.4)	21066 (5.5)	59298 (15.4)	18063 (4.7)	0 0	-	72766 (19.0)	-	383926 (100.0)
2007	217815 (41.4)	101320 (19.2)	24487 (4.6)	52594 (10.0)	21670 (4.1)	8019 (1.5)	65 (0.0)	78579 (14.9)	22,156 (4.2)	526705 (100.0)
2008	148180 (29.6)	104822 (21.0)	23039 (4.6)	45091 (9.0)	43044 (8.6)	6938	243 (0.0)	99,391 (19.9)	29,529 (5.9)	500277 (100.0)
2009	40,992 (8.0)	132,929 (26.1)	22,758 (4.5)	51,542 (10.1)	24,518 (4.8)	9,985 (2.0)	285 (0.1)	186,849 (36.6)	40,098 (7.9)	509,956 (100)
2010	63,082 (10.5)	70,218 (11.6)	21,377 (3.5)	101,335 (16.8)	26,374 (4.4)	9,627 (1.6)	730 (0.1)	252,473 (41.9)	57,651 (9.6)	602,867 (100)

Source: MoTCA, 2010 (Note: Figures inside parenthesis represent percentage of the total.).

Table A.3 Tourist Arrivals by Purpose of Visit & Major Nationalities in 2010

Nationality	Holiday & Pleasure	Trekking & Mountaineering	Business	Pilgrim age	Official	Conference	Rafting	Travel/Visit	Others	Not Stated	Total
Australia	1,062	4,584	293	1,554	284	166	42	6,320	1,209	729	16,243
Bangladesh	3,664	131	382	536	973	511	8	6,197	835	3,233	16,470
Belgium	604	1,011	53	479	96	17	5	2,177	367	466	5,275
Bhutan	231	17	94	1,906	1,077	54	2	509	521	331	4,742
Canada	991	2,197	229	893	282	88	28	3,701	741	172	9,322
China	6,543	1,292	1,595	9,103	593	199	90	16,752	3,195	6,998	46,360
Denmark	243	915	112	338	192	53	3	2,122	344	37	4,359
France	1,535	7,636	241	1,609	237	104	34	9,887	1,391	1,876	24,550
Germany	1,764	6,808	490	2,251	546	165	32	7,465	1,418	1,644	22,583
India	4,591	1,656	10,148	22,144	14,125	4,309	51	34,070	13,479	16,325	120,898
Israel	458	1,463	103	389	79	9	-	1,438	216	439	4,594
Italy	791	1,685	135	648	81	41	19	5,002	720	1,104	10,226
Japan	3,564	2,790	728	1,545	703	183	2	10,916	1,062	1,839	23,332
Malaysia	1,463	307	480	1,124	126	91	12	2,360	484	305	6,752
Netherland	1,131	2,306	230	2,185	196	144	13	5,560	1,175	531	13,471
Pakistan	664	69	342	58	619	629	2	661	462	867	4,373
Poland	313	862	23	652	13	19	9	1,423	210	318	3,842
Korea	6,710	2,585	887	2,926	392	166	8	3,558	1,680	1,408	20,320
Russian Fed	426	1,925	136	768	187	33	42	2,279	349	701	6,846
Singapore	451	798	268	470	44	63	9	4,058	322	2,454	8,937
Spain	634	2,012	83	1,084	80	16	5	7,741	894	1,163	13,712
Sri Lanka	7,519	53	44	22,052	284	249	-	6,960	6,020	2,350	45,531
Switzerland	344	1,607	134	388	181	49	6	1,835	365	411	5,320
Chinese Taipai	2,162	470	94	1,046	22	31	10	2,174	356	493	6,858
Thailand	4,060	396	149	10,608	235	123	7	4,652	824	474	21,528
U.K.	2,232	9,413	919	2,245	1,145	301	179	12,707	2,666	3,284	35,091
U.S.A.	3,200	5,389	1,100	3,013	1,682	432	42	15,738	3,207	2,622	36,425
Others	5,594	9,495	1783	9,186	1,760	1323	70	21,574	6,818	3839	61,442
Not Specified	138	346	102	135	140	59	-	1,020	287	1,238	3,465
Total	63,082	70,218	21,377	101,335	26,374	9,627	730	200,856	51,617	57,651	602,867

Source: MoTCA, 2010

Table A. 4 Tourist Arrival by Sex and Age

Year	Sex				Age groups						Total
	Male		Female								
	Number	%	Number	%	0-15	16-30	31-45	46-60	61&Over	Not specified	
1962	3231	52.3	2948	47.7	-	-	-	-	-		6179
1966	7500	59.7	5067	40.3	255	3792	3697	2627	2196		12567
1970	26157	56.9	19813	43.1	1613	16302	11240	9559	7256		45970
1974	53454	59.5	36384	40.5	2605	36025	24885	16800	9523		89838
1978	92581	59.3	63542	40.7	5933	5698	44807	30756	17642		156123
1982	108504	61.8	66944	38.2	8656	61438	55638	33951	15765		175448
1986	136967	61.3	86364	38.7	12243	73656	71694	42707	23031		223331
1990	155311	60.9	99574	39.1	10620	85903	82292	49388	26682		254885
1991	177574	60.6	115421	39.4	17174	96634	94539	54320	30328		292995
1992	197051	58.9	137302	41.1	18624	105123	111096	65651	33859		334353
1993	179178	61	114389	39	15289	91947	96665	59768	29898		293567
1994	205389	62.9	121142	37.1	20097	96016	106260	66174	37984		326531
1995	224769	61.9	138626	38.1	22878	106603	120212	76647	37055		363395
1996	233055	59.2	160558	40.8	22185	94924	116307	89751	70446		393613
1997	251358	59.6	170499	40.4	23840	121286	126828	107111	42792		421857
1998	267871	57.8	195813	42.2	26763	122103	151846	12110	41782		463684
1999	286161	58.2	205343	41.8	30967	150307	155985	113314	40913		491504
2000	266937	57.6	196709	42.4	19136	119816	148063	125140	51491		463646
2001	213465	59.1	147772	40.9	14608	95801	115678	93621	41529		361237
2002	174710	63.4	100758	36.6	12425	67774	99622	67017	28630		275468
2003	204732	60.5	133400	39.5	16056	78357	99740	85753	58226		338132
2004	255303	66.3	129994	33.7	38734	84125	128267	96920	37251		385297
2005	257972	68.7	117426	31.3	30429	57115	114103	106077	67674		375398
2006	218818	57	165108	43	37433	75626	123541	95260	52066		383926
2007	290688	55.2	236017	44.8	38870	112879	164488	130756	69927	9785	526705
2008	286983	57.4	213294	42.6	42581	106596	150171	121387	60531	19,011	500277
2009	288,155	56.5	221,801	43.5	84,891	140,805	141,955	99,197	39,638	3,470	509,956
2010	361,611	60.0	241,256	40.0	41,156	120,395	189,852	172,800	64,593	14,071	602,867

Source: MoTCA, 2010

Table A.5 Comparison of Nepal with World Top Ten Countries in Tourists Arrivals

Rank	Destination	2010 (in 000)	Share % 2010
	World	940000	100
1	France	77148	8.21
2	USA	59796	6.36
3	China	55664	5.92
4	Spain	52677	5.60
5	Italy	43626	4.64
6	Turkey	27000	2.87
7	UK	28299	3.01
8	Germany	26875	2.86
9	Malaysia	24577	2.61
10	Mexico	23290	2.48
	Nepal	603	0.06

Source: UNWTO, 2012

Table A. 6 Comparison of Nepal with World Top Ten Countries in Tourists Receipts (Million)

Rank	**Destination**	**2010 (Million US $)**	**Share % 2010**
	World	927000	100
1	USA	103505	11.17
2	Spain	52525	5.67
3	France	46560	5.02
4	China	45814	4.94
5	Italy	38786	4.18
6	Germany	34675	3.74
7	UK	32401	3.50
8	Australia	29798	3.21
9	Macao (China)	27790	3.00
10	Hong Kong (China)	22200	2.39
	Nepal	344	0.04

Source: UNWTO, 2012

Table A 7 International Tourist arrivals in Lumbini

Year	Number of tourist	Growth rate %	Index
1991	12016		100
1992	15197	26.5	126
1993	19439	27.9	162
1994	20972	7.9	175
1995	20023	-4.5	167
1996	25400	26.9	211
1997	23280	-8.3	194
1998	22119	-5.0	184
1999	10715	-51.6	89
2000	14135	31.9	118
2001	10135	-28.3	84
2002	9036	-10.8	75
2003	28053	210.5	233
2004	37892	35.1	315
2005	39792	5.0	331
2006	49595	24.6	413
2007	71053	43.3	591
2008	82075	15.5	683
2009	82445	0.5	686
2010	99508	20.7	828

Source: LDT, 2010

Table A.8 Seasonal Indices for Monthly Tourist Arrivals

	January	February	March	April	May	June	July	August	September	October	November	December
France: Mean	0.609	0.841	1.216	1.364	0.640	0.403	0.681	0.978	0.982	2.125	1.459	0.702
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.463	0.695	1.070	1.219	0.494	0.257	0.535	0.832	0.836	1.979	1.314	0.556
U. Limit	0.755	0.987	1.362	1.510	0.786	0.549	0.827	1.124	1.128	2.271	1.605	0.848
Germany: Mean	0.602	0.945	1.542	1.070	0.778	0.429	0.562	0.793	1.267	2.081	1.254	0.676
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.456	0.799	1.396	0.924	0.632	0.283	0.416	0.647	1.121	1.935	1.108	0.530
U. Limit	0.748	1.091	1.688	1.216	0.924	0.575	0.708	0.939	1.413	2.227	1.400	0.822
Netherlands: Mean	0.641	0.724	1.223	0.969	0.650	0.403	0.760	0.865	1.343	2.125	1.484	0.812
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.495	0.578	1.078	0.823	0.504	0.257	0.614	0.719	1.197	1.979	1.338	0.666
U. Limit	0.786	0.870	1.369	1.115	0.796	0.549	0.906	1.011	1.489	2.271	1.630	0.958
Italy: Mean	0.663	0.772	1.002	1.044	0.591	0.419	0.703	2.125	1.036	1.575	1.234	0.836
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.517	0.626	0.856	0.898	0.445	0.273	0.557	1.979	0.890	1.429	1.088	0.690
U. Limit	0.809	0.918	1.148	1.190	0.737	0.565	0.849	2.271	1.182	1.721	1.380	0.982
U K: Mean	0.687	0.934	1.473	1.221	0.681	0.413	0.608	0.695	1.033	2.125	1.368	0.762
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.541	0.788	1.327	1.075	0.535	0.267	0.462	0.549	0.887	1.979	1.222	0.616
U. Limit	0.833	1.080	1.619	1.367	0.827	0.559	0.754	0.841	1.179	2.271	1.514	0.908
Bangladesh: Mean	0.915	0.727	1.140	1.204	0.828	0.741	0.902	0.883	0.999	1.274	1.135	1.253
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.769	0.581	0.994	1.058	0.682	0.595	0.756	0.737	0.853	1.128	0.989	1.107
U. Limit	1.061	0.873	1.286	1.350	0.974	0.887	1.047	1.029	1.145	1.420	1.281	1.399
India: Mean	0.735	0.602	0.718	0.868	1.748	1.784	1.069	0.913	0.803	0.922	0.707	1.130
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.589	0.456	0.573	0.722	1.602	1.638	0.923	0.767	0.657	0.776	0.561	0.984
U. Limit	0.881	0.748	0.864	1.014	1.894	1.930	1.215	1.059	0.949	1.068	0.853	1.276
Sri Lanka :Mean	0.643	1.229	1.547	0.712	0.508	0.501	0.665	1.949	1.073	1.238	1.133	0.803
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.497	1.083	1.401	0.566	0.362	0.355	0.519	1.803	0.927	1.092	0.987	0.657
U. Limit	0.789	1.375	1.693	0.858	0.654	0.647	0.811	2.095	1.219	1.384	1.279	0.949
Japan: Mean	0.859	1.263	1.550	0.794	0.561	0.403	0.561	0.825	0.831	1.087	1.795	1.472
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.713	1.117	1.404	0.648	0.415	0.257	0.415	0.679	0.685	0.941	1.649	1.326
U. Limit	1.004	1.409	1.695	0.940	0.707	0.549	0.707	0.971	0.977	1.233	1.941	1.618
USA: Mean	0.825	0.851	1.358	1.084	0.829	0.642	0.636	0.511	1.027	2.028	1.436	0.772
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.679	0.705	1.212	0.938	0.683	0.496	0.490	0.365	0.881	1.882	1.290	0.626
U. Limit	0.971	0.997	1.504	1.230	0.975	0.788	0.782	0.657	1.173	2.174	1.582	0.918
China: Mean	1.123	0.768	0.648	0.781	0.809	0.725	0.900	0.765	1.096	1.233	1.501	1.651
Std. Err	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074
L, Limit	0.977	0.622	0.502	0.635	0.663	0.579	0.754	0.619	0.950	1.087	1.355	1.505
U. Limit	1.269	0.914	0.794	0.927	0.955	0.871	1.046	0.911	1.242	1.379	1.647	1.797

Note: The Results presented in this table, are obtained from Two-Way ANOVA PERFORMANCE. *L. Limit* and *U. Limit* are formed by the 95% confidence interval. This interval shows a significant effect of seasonality of the average monthly tourist arrivals at each country at 5% level of significance.

Table A. 9 Gross Foreign Exchange Earnings in Convertible Currencies

Year	Total Earning		Percentage change in US$	Average Income per capita in US$	Average Income per visitor per day in US$
	US$ (000)	Rs. (000)			
1980	51632	614480	46.6	422.5	38.0
1981	44935	550496	-13.0	398.7	38.0
1982	33441	439647	-25.6	275.8	21.0
1983	35667	536364	6.7	275.8	24.0
1984	41273	679189	15.7	350	33.0
1985	39185	719365	-5.1	308.3	27.0
1986	50841	1077802	29.7	302.4	27.0
1987	60229	1304656	18.5	318.5	27.0
1988	63502	1486837	5.4	327.5	27.0
1989	68343	1838520	7.6	347.6	29.0
1990	63701	1868873	-6.8	326.5	27.2
1991	58589	2260808	-8.0	292.2	31.0
1992	61090	2838100	4.3	268.2	26.4
1993	66337	3225464	8.6	315.6	26.4
1994	88195	4341700	32.9	393.7	39.4
1995	116784	6059000	32.4	474.5	42.1
1996	116644	6599700	-0.1	430.3	31.9
1997	115904	6698700	-0.6	401.9	38.3
1998	152500	10024482	31.6	475.8	44.2
1999	168100	11421084	10.2	479.1	39.0
2000	166847	11827403	-0.7	453.7	38.2
2001	140276	10468205	-15.9	472.4	39.6
2002	106822	8300553	-23.8	512.0	64.8
2003	192832	14508396	80.5	765.9	79.1
2004	179941	13146534	-6.7	609.8	45.1
2005	148441	10600345	-17.5	532.0	58.5
2006	162790	11784644	9.7	561.0	55.0
2007	230617	15185071	41.7	535.0	45.0
2008	351968	24802195	52.6	860.3	73.0
2009	377172	28996950	7.2	739.6	65.3
2010	329982	23428700	-12.5	547.4	43.2

Source: MoTCA, 2010 (Nepal Rastra Bank), 2010)

Table A.10 Gross Foreign Exchange Earnings from tourism

Year	Tourist arrival	Average length of stay	Per day per tourist income	As % of GDP
1990	254885	12.00	27.20	3.2
1991	292995	9.25	31.00	3.6
1992	334353	10.14	26.40	3.7
1993	293567	11.94	26.40	4.1
1994	326531	10.00	39.40	4.1
1995	363395	11.27	42.10	3.8
1996	393613	13.50	31.90	3
1997	421857	10.49	38.30	3.3
1998	463684	10.76	44.20	3.6
1999	491504	12.28	39.00	3.2
2000	463646	11.88	38.20	2.9
2001	361237	11.93	39.60	2.1
2002	275468	7.92	64.80	2.6
2003	338132	9.60	79.10	3.7
2004	385297	13.51	45.10	1.8
2005	375398	9.09	58.50	1.5
2006	383926	10.20	55.00	1.4
2007	526705	11.96	45.00	2.3
2008	500,277	11.78	73.00	2.6

Source: MoTCA, 2008 (Nepal Rastra Bank), 2008)

Table A.11 Nationality of the respondents

Country	Number of tourist	Percent
Australia	11	8.5
Austria	2	1.5
China	5	3.8
Germany	7	5.4
India	3	2.3
Japan	7	5.4
Korea	3	2.3
Nepal	12	9.2
Singapore	2	1.5
Spain	2	1.5
Sri Lanka	14	10.8
Thailand	6	4.6
U.K.	6	4.6
U.S.A.	6	4.6
Vietnam	3	2.3
Others	37	28.5
Not stated	4	3.1
Total	130	100.0

Source: Field survey

Table A.12 Occupation of respondents

Occupation	Number of tourist	Percent
Student	10	7.7
Teacher	7	5.4
Researcher	2	1.5
Tour Operator	2	1.5
Job Holder	22	16.9
Businessmen	7	5.4
Technician	9	6.9
Journalist	2	1.5
Others	12	9.2
Not stated	57	43.8
Total	130	100.0

Source: Field survey

Table A.13 Education completed

Category	Number of tourist	Percent
High School	1	0.8
Undergraduate	22	16.9
Graduate	18	13.8
Advance level	8	6.2
Not stated	81	62.3
Total	130	100.0

Source: Field survey

TableA.14 Distance for Lumbini Circuit Tour

SN	From	To	Km.	Drive
1.	Airport	MayaDeviTemple	17.4	25 Min.
2.	Bhairahawa	MayaDeviTemple	21.1	30 Min.
3.	MayaDeviTemple	Kudan	29.42	45 Min.
4.	Kudan	Gotihawa	4.33	15 Min.
5.	Gotihawa	Tilaurakot	7.32	20 Min.
6.	Tilaurakot	Niglihawa	8.85	20 Min.
7.	Niglihawa	Aaraurakot	1.25	3 Min.
8.	Aaraurakot	Sagarhawa	5.21	10 Min.
9.	Sagarhawa	Devdah	65.3	1.5 Hrs.
10.	Devdaha	Ramgram	25.19	40 Min.
11.	Ramgram	Bhairahawa	28.56	1Hrs.
12.	Bhairahawa	Airport	3.7	5 Min.
13.	LumbiniGarden Walk	-	7.5	-
14.	EkalaVillage Walk	-	3.0	-
15.	ShivagadhiyaVillage Walk	-	3.5	-
16.	TenuhawaVillage Walk	-	2.2	-
17.	LumbiniAdarsaVillage Walk	-	5.5	-
18.	MadhuwaniVillage Walk	-	6.5	-

Source: TRPAP, 2006

Table A.15 Accommodation in and Around Lumbini

Name	Quality	No. of beds
Lumbini Hokke Hotel	Star category	92
Lumbini Hotel Kasai	Star category	60
Buddha Maya Garden Hotel	Star category	76
Lumbini Bamboo Resort	Star category	32
New LumbiniGarden (New Crystal) Hotel	Star category	120
Lumbini Buddha Hotel	Lodging/Food	36
Hotel Lord Buddha International	Lodging/Food	36
Hotel Peaceland	Lodging/Food	32
Hotel Ananda Inn	Lodging/Food	48
Lumbini Village Hotel	Lodging/Food	32
Hotel Lumbini	Lodging/Food	18
Mayadevi Guest House	Lodging/Food	20
Lumbini Guest House	Lodging/Food	15
LumbiniGarden Lodge	Lodging/Food	16
Royal Guest House	Lodging/Food	12
Sri Lankan Pilgrim Rest	Lodging/Food	170
Gautam Buddha Lodge	Lodging/Food	20
LumbiniBuddhaGarden Resort	Lodging/Food	20
Lumbini Asoka Pillar Resort	Lodging/Food	36
Stupa Rest Point	Lodging/Food	48
HotelBuddhaPalace	Lodging/Food	20
Rainbow Osel Guesthouse	Lodging/Food	20
Sunflower Lodge	Lodging/Food	18
Shantee Lodge	Lodging/Food	24
Rahul Guest House	Lodging/Food	20
Buddha Bhoomi Guest House	Lodging/Food	18
Manakamana Lodge	Lodging/Food	20
SiddarthaPalace Lodge	Lodging/Food	24
Siddartha Guest House	Lodging/Food	42
Korean Monastry	Lodging/Food	150
PanditaramaMeditationCenter (only for mediators)	Lodging/Food	35
Nepal Nun Society	Lodging/Food	50
Mahabodhi Society India	Lodging/Food	150
Shanti Stupa Japan (only for researchers)	Lodging/Food	30

B. Unit Root Test

Country: France

Null Hypothesis: FRANCE_LEVELS has a unit root
Exogenous: Constant
Bandwidth: 5 (Fixed using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.344744	0.0000
Test critical values:	1% level	-3.476472	
	5% level	-2.881685	
	10% level	-2.577591	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	829195.3
HAC corrected variance (Bartlett kernel)	453813.8

Phillips-Perron Test Equation
Dependent Variable: D(FRANCE_LEVELS)
Method: Least Squares
Date: 07/24/10 Time: 10:28
Sample (adjusted): 2 144
Included observations: 143 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FRANCE_LEVELS(-1)	-0.616286	0.077705	-7.931124	0.0000
C	1003.003	147.7848	6.786915	0.0000

R-squared	0.308494	Mean dependent var	1.055944
Adjusted R-squared	0.303589	S.D. dependent var	1098.890
S.E. of regression	917.0370	Akaike info criterion	16.49406
Sum squared resid	1.19E+08	Schwarz criterion	16.53550
Log likelihood	-1177.325	F-statistic	62.90272
Durbin-Watson stat	1.697754	Prob(F-statistic)	0.000000

Null Hypothesis: LN_FRANCE has a unit root
Exogenous: Constant
Bandwidth: 5 (Fixed using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-6.649081	0.0000
Test critical values:	1% level	-3.476472	
	5% level	-2.881685	
	10% level	-2.577591	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.302735
HAC corrected variance (Bartlett kernel)	0.163800

Phillips-Perron Test Equation
Dependent Variable: D(LN_FRANCE)
Method: Least Squares
Date: 07/24/10 Time: 10:29
Sample (adjusted): 2 144
Included observations: 143 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_FRANCE(-1)	-0.552142	0.075209	-7.341448	0.0000
C	3.983520	0.544435	7.316794	0.0000

R-squared	0.276540	Mean dependent var	0.001080
Adjusted R-squared	0.271409	S.D. dependent var	0.649155
S.E. of regression	0.554102	Akaike info criterion	1.670953
Sum squared resid	43.29115	Schwarz criterion	1.712391
Log likelihood	-117.4731	F-statistic	53.89685
Durbin-Watson stat	1.560983	Prob(F-statistic)	0.000000

Null Hypothesis: FRANCE_DIFF has a unit root
Exogenous: Constant
Bandwidth: 5 (Fixed using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-18.07917	0.0000
Test critical values:	1% level	-3.476805	
	5% level	-2.881830	
	10% level	-2.577668	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	1201144.
HAC corrected variance (Bartlett kernel)	186984.7

Phillips-Perron Test Equation
Dependent Variable: D(FRANCE_DIFF)
Method: Least Squares
Date: 07/24/10 Time: 10:29
Sample (adjusted): 3 144
Included observations: 142 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FRANCE_DIFF(-1)	-1.045992	0.085556	-12.22580	0.0000
C	-3.417338	92.63729	-0.036889	0.9706

R-squared	0.516358	Mean dependent var	-20.99296
Adjusted R-squared	0.512903	S.D. dependent var	1581.503
S.E. of regression	1103.768	Akaike info criterion	16.86483
Sum squared resid	1.71E+08	Schwarz criterion	16.90646
Log likelihood	-1195.403	F-statistic	149.4703
Durbin-Watson stat	2.003292	Prob(F-statistic)	0.000000

Null Hypothesis: FRANCE_LOG_DIFF has a unit root
Exogenous: Constant
Bandwidth: 5 (Fixed using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-14.68700	0.0000
Test critical values:	1% level	-3.476805	
	5% level	-2.881830	
	10% level	-2.577668	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.416849
HAC corrected variance (Bartlett kernel)	0.068052

Phillips-Perron Test Equation
Dependent Variable: D(FRANCE_LOG_DIFF)
Method: Least Squares
Date: 07/24/10 Time: 10:30
Sample (adjusted): 3 144
Included observations: 142 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FRANCE_LOG_DIFF(-1)	-0.930441	0.084990	-10.94770	0.0000
C	-0.003782	0.054572	-0.069309	0.9448

R-squared	0.461232	Mean dependent var	-0.012247
Adjusted R-squared	0.457384	S.D. dependent var	0.882720
S.E. of regression	0.650234	Akaike info criterion	1.991015
Sum squared resid	59.19256	Schwarz criterion	2.032646
Log likelihood	-139.3621	F-statistic	119.8522
Durbin-Watson stat	1.921541	Prob(F-statistic)	0.000000

Note: Similar calculations were made for all 11 tourist source countries.

C. Correlograms of the Monthly Tourist Arrivals from 11 Main Tourist Source Countries

Table C.1 France

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.953	0.082	133.509	1	0	0.953	0.083
2	0.914	0.082	257.267	2	0	0.067	0.083
3	0.875	0.082	371.347	3	0	-0.022	0.083
4	0.840	0.082	477.281	4	0	0.03	0.083
5	0.806	0.081	575.510	5	0	-0.002	0.083
6	0.774	0.081	666.867	6	0	0.01	0.083
7	0.743	0.081	751.547	7	0	-0.011	0.083
8	0.715	0.080	830.609	8	0	0.026	0.083
9	0.687	0.080	904.186	9	0	-0.007	0.083
10	0.659	0.080	972.249	10	0	-0.025	0.083
11	0.635	0.080	1035.948	11	0	0.039	0.083
12	0.610	0.079	1095.278	12	0	-0.011	0.083
13	0.590	0.079	1151.068	13	0	0.026	0.083
14	0.570	0.079	1203.569	14	0	0.009	0.083
15	0.550	0.078	1252.917	15	0	-0.004	0.083
16	0.530	0.078	1299.075	16	0	-0.012	0.083
17	0.510	0.078	1342.095	17	0	-0.014	0.083
18	0.489	0.077	1382.037	18	0	-0.008	0.083
19	0.471	0.077	1419.355	19	0	0.013	0.083
20	0.453	0.077	1454.122	20	0	-0.006	0.083
21	0.436	0.076	1486.595	21	0	0.005	0.083
22	0.420	0.076	1517.037	22	0	0.008	0.083
23	0.405	0.076	1545.527	23	0	-0.002	0.083
24	0.390	0.076	1572.116	24	0	-0.006	0.083
25	0.374	0.075	1596.868	25	0	-0.005	0.083
26	0.359	0.075	1619.786	26	0	-0.011	0.083
27	0.343	0.075	1640.904	27	0	-0.012	0.083
28	0.326	0.074	1660.196	28	0	-0.019	0.083
29	0.312	0.074	1678.033	29	0	0.019	0.083
30	0.298	0.074	1694.435	30	0	-0.008	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C.2 Germany

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.893	0.082	117.271	1	0	0.893	0.083
2	0.842	0.082	222.343	2	0	0.221	0.083
3	0.784	0.082	314.093	3	0	0.005	0.083
4	0.742	0.082	396.863	4	0	0.051	0.083
5	0.713	0.081	473.666	5	0	0.079	0.083
6	0.670	0.081	542.141	6	0	-0.038	0.083
7	0.654	0.081	607.869	7	0	0.100	0.083
8	0.615	0.080	666.287	8	0	-0.059	0.083
9	0.621	0.080	726.369	9	0	0.184	0.083
10	0.594	0.080	781.815	10	0	-0.057	0.083
11	0.581	0.080	835.235	11	0	0.024	0.083
12	0.576	0.079	888.118	12	0	0.071	0.083
13	0.546	0.079	935.911	13	0	-0.080	0.083
14	0.534	0.079	981.947	14	0	0.010	0.083
15	0.492	0.078	1021.420	15	0	-0.082	0.083
16	0.485	0.078	1060.134	16	0	0.068	0.083
17	0.478	0.078	1097.914	17	0	0.092	0.083
18	0.454	0.077	1132.285	18	0	-0.108	0.083
19	0.425	0.077	1162.648	19	0	-0.072	0.083
20	0.404	0.077	1190.368	20	0	0.062	0.083
21	0.407	0.076	1218.693	21	0	0.062	0.083
22	0.389	0.076	1244.743	22	0	-0.022	0.083
23	0.372	0.076	1268.832	23	0	-0.076	0.083
24	0.345	0.076	1289.739	24	0	-0.021	0.083
25	0.338	0.075	1309.972	25	0	0.091	0.083
26	0.341	0.075	1330.698	26	0	0.037	0.083
27	0.343	0.075	1351.878	27	0	0.064	0.083
28	0.313	0.074	1369.583	28	0	-0.185	0.083
29	0.286	0.074	1384.558	29	0	-0.036	0.083
30	0.280	0.074	1399.038	30	0	0.085	0.083

a. The underlying process assumed is independence (white noise).

b. Based on the asymptotic chi-square approximation.

Table C.3 Netherlands

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.836	0.082	102.816	1	0	0.836	0.083
2	0.769	0.082	190.332	2	0	0.231	0.083
3	0.668	0.082	256.781	3	0	-0.070	0.083
4	0.640	0.082	318.345	4	0	0.164	0.083
5	0.571	0.081	367.673	5	0	-0.046	0.083
6	0.547	0.081	413.239	6	0	0.063	0.083
7	0.524	0.081	455.347	7	0	0.096	0.083
8	0.488	0.080	492.222	8	0	-0.062	0.083
9	0.475	0.080	527.382	9	0	0.085	0.083
10	0.464	0.080	561.126	10	0	0.057	0.083
11	0.436	0.080	591.131	11	0	-0.070	0.083
12	0.427	0.079	620.236	12	0	0.090	0.083
13	0.398	0.079	645.698	13	0	-0.048	0.083
14	0.403	0.079	671.918	14	0	0.067	0.083
15	0.394	0.078	697.282	15	0	0.071	0.083
16	0.396	0.078	723.045	16	0	-0.022	0.083
17	0.360	0.078	744.519	17	0	-0.062	0.083
18	0.337	0.077	763.493	18	0	-0.016	0.083
19	0.305	0.077	779.103	19	0	-0.045	0.083
20	0.289	0.077	793.222	20	0	0.028	0.083
21	0.297	0.076	808.289	21	0	0.107	0.083
22	0.274	0.076	821.213	22	0	-0.099	0.083
23	0.258	0.076	832.767	23	0	-0.005	0.083
24	0.235	0.076	842.466	24	0	-0.002	0.083
25	0.260	0.075	854.374	25	0	0.102	0.083
26	0.268	0.075	867.123	26	0	0.072	0.083
27	0.288	0.075	882.005	27	0	0.036	0.083
28	0.256	0.074	893.891	28	0	-0.138	0.083
29	0.232	0.074	903.72	29	0	-0.037	0.083
30	0.210	0.074	911.881	30	0	0.004	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C.4 Italy

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.794	0.082	92.749	1	0	0.794	0.083
2	0.751	0.082	176.187	2	0	0.325	0.083
3	0.671	0.082	243.319	3	0	0.032	0.083
4	0.648	0.082	306.419	4	0	0.118	0.083
5	0.638	0.081	368.032	5	0	0.143	0.083
6	0.611	0.081	424.929	6	0	0.031	0.083
7	0.592	0.081	478.651	7	0	0.032	0.083
8	0.515	0.080	519.618	8	0	-0.135	0.083
9	0.480	0.080	555.450	9	0	-0.029	0.083
10	0.436	0.080	585.279	10	0	-0.016	0.083
11	0.408	0.080	611.615	11	0	-0.022	0.083
12	0.388	0.079	635.598	12	0	0.012	0.083
13	0.373	0.079	657.98	13	0	0.046	0.083
14	0.374	0.079	680.548	14	0	0.082	0.083
15	0.354	0.078	701.008	15	0	0.033	0.083
16	0.283	0.078	714.140	16	0	-0.179	0.083
17	0.253	0.078	724.748	17	0	-0.031	0.083
18	0.237	0.077	734.126	18	0	0.050	0.083
19	0.240	0.077	743.776	19	0	0.034	0.083
20	0.236	0.077	753.258	20	0	0.009	0.083
21	0.231	0.076	762.353	21	0	0.023	0.083
22	0.217	0.076	770.481	22	0	0.034	0.083
23	0.203	0.076	777.675	23	0	0.051	0.083
24	0.247	0.076	788.399	24	0	0.168	0.083
25	0.208	0.075	796.076	25	0	-0.123	0.083
26	0.232	0.075	805.672	26	0	0.029	0.083
27	0.224	0.075	814.671	27	0	0.032	0.083
28	0.211	0.074	822.756	28	0	-0.079	0.083
29	0.220	0.074	831.582	29	0	0.009	0.083
30	0.199	0.074	838.854	30	0	-0.029	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C.5 UK

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.897	0.082	118.221	1	0	0.897	0.083
2	0.854	0.082	226.198	2	0	0.255	0.083
3	0.815	0.082	325.229	3	0	0.086	0.083
4	0.783	0.082	417.246	4	0	0.057	0.083
5	0.744	0.081	500.945	5	0	-0.017	0.083
6	0.695	0.081	574.618	6	0	-0.079	0.083
7	0.677	0.081	645.000	7	0	0.104	0.083
8	0.656	0.080	711.569	8	0	0.052	0.083
9	0.644	0.080	776.237	9	0	0.074	0.083
10	0.611	0.080	834.760	10	0	-0.070	0.083
11	0.623	0.080	896.043	11	0	0.188	0.083
12	0.616	0.079	956.399	12	0	0.013	0.083
13	0.592	0.079	1012.607	13	0	-0.083	0.083
14	0.583	0.079	1067.627	14	0	0.043	0.083
15	0.569	0.078	1120.461	15	0	0.004	0.083
16	0.561	0.078	1172.072	16	0	-0.013	0.083
17	0.549	0.078	1221.951	17	0	0.055	0.083
18	0.502	0.077	1264.053	18	0	-0.197	0.083
19	0.488	0.077	1304.132	19	0	0.050	0.083
20	0.451	0.077	1338.574	20	0	-0.130	0.083
21	0.433	0.076	1370.616	21	0	0.074	0.083
22	0.402	0.076	1398.43	22	0	-0.047	0.083
23	0.386	0.076	1424.306	23	0	0.022	0.083
24	0.360	0.076	1447.017	24	0	-0.065	0.083
25	0.358	0.075	1469.600	25	0	0.129	0.083
26	0.346	0.075	1490.933	26	0	-0.062	0.083
27	0.337	0.075	1511.326	27	0	0.090	0.083
28	0.329	0.074	1530.911	28	0	-0.125	0.083
29	0.298	0.074	1547.178	29	0	-0.025	0.083
30	0.281	0.074	1561.778	30	0	-0.080	0.083

a. The underlying process assumed is independence (white noise).

b. Based on the asymptotic chi-square approximation.

Table C.6 Bangladesh

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	-0.107	0.082	1.688	1	0.194	-0.107	0.083
2	0.139	0.082	4.544	2	0.103	0.129	0.083
3	0.106	0.082	6.212	3	0.102	0.136	0.083
4	0.080	0.082	7.170	4	0.127	0.091	0.083
5	0.075	0.081	8.016	5	0.155	0.064	0.083
6	0.123	0.081	10.339	6	0.111	0.108	0.083
7	0.125	0.081	12.755	7	0.078	0.125	0.083
8	0.023	0.080	12.837	8	0.118	0.005	0.083
9	0.149	0.080	16.294	9	0.061	0.094	0.083
10	-0.071	0.080	17.094	10	0.072	-0.099	0.083
11	0.059	0.080	17.636	11	0.09	-0.031	0.083
12	0.103	0.079	19.337	12	0.081	0.074	0.083
13	-0.047	0.079	19.691	13	0.103	-0.065	0.083
14	0.152	0.079	23.434	14	0.054	0.103	0.083
15	0.034	0.078	23.619	15	0.072	0.042	0.083
16	0.119	0.078	25.94	16	0.055	0.103	0.083
17	-0.011	0.078	25.959	17	0.075	-0.003	0.083
18	0.078	0.077	26.962	18	0.08	0.004	0.083
19	-0.040	0.077	27.225	19	0.1	-0.062	0.083
20	0.162	0.077	31.648	20	0.047	0.105	0.083
21	-0.089	0.076	32.989	21	0.046	-0.131	0.083
22	0.028	0.076	33.120	22	0.06	-0.035	0.083
23	0.061	0.076	33.775	23	0.068	-0.002	0.083
24	-0.145	0.076	37.435	24	0.04	-0.153	0.083
25	0.172	0.075	42.653	25	0.015	0.157	0.083
26	0.046	0.075	43.028	26	0.019	0.111	0.083
27	0.055	0.075	43.576	27	0.023	0.077	0.083
28	0.044	0.074	43.934	28	0.028	0.068	0.083
29	0.101	0.074	45.796	29	0.025	0.066	0.083
30	-0.023	0.074	45.896	30	0.032	-0.018	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C.7 India

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.590	0.082	51.132	1	0	0.590	0.083
2	0.516	0.082	90.515	2	0	0.258	0.083
3	0.439	0.082	119.289	3	0	0.101	0.083
4	0.448	0.082	149.490	4	0	0.162	0.083
5	0.567	0.081	198.117	5	0	0.337	0.083
6	0.478	0.081	232.871	6	0	0.014	0.083
7	0.418	0.081	259.725	7	0	-0.032	0.083
8	0.379	0.080	281.909	8	0	0.026	0.083
9	0.427	0.080	310.295	9	0	0.139	0.083
10	0.442	0.080	340.923	10	0	0.024	0.083
11	0.394	0.080	365.465	11	0	-0.038	0.083
12	0.394	0.079	390.134	12	0	0.082	0.083
13	0.347	0.079	409.411	13	0	0.005	0.083
14	0.378	0.079	432.569	14	0	0.019	0.083
15	0.364	0.078	454.209	15	0	-0.011	0.083
16	0.322	0.078	471.193	16	0	-0.026	0.083
17	0.268	0.078	483.068	17	0	-0.095	0.083
18	0.237	0.077	492.475	18	0	-0.058	0.083
19	0.216	0.077	500.340	19	0	-0.083	0.083
20	0.246	0.077	510.596	20	0	0.031	0.083
21	0.284	0.076	524.342	21	0	0.099	0.083
22	0.217	0.076	532.462	22	0	-0.053	0.083
23	0.231	0.076	541.763	23	0	0.050	0.083
24	0.233	0.076	551.313	24	0	0.085	0.083
25	0.259	0.075	563.129	25	0	0.067	0.083
26	0.270	0.075	576.114	26	0	0.004	0.083
27	0.209	0.075	583.935	27	0	-0.032	0.083
28	0.184	0.074	590.042	28	0	-0.012	0.083
29	0.190	0.074	596.661	29	0	0.022	0.083
30	0.158	0.074	601.255	30	0	-0.118	0.083

a. The underlying process assumed is independence (white noise).

b. Based on the asymptotic chi-square approximation.

Table C.8 Sri Lanka

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.251	0.082	9.263	1	0.002	0.251	0.083
2	0.345	0.082	26.839	2	0	0.300	0.083
3	0.273	0.082	37.916	3	0	0.160	0.083
4	0.326	0.082	53.893	4	0	0.189	0.083
5	0.319	0.081	69.241	5	0	0.165	0.083
6	0.279	0.081	81.111	6	0	0.084	0.083
7	0.413	0.081	107.341	7	0	0.248	0.083
8	0.226	0.080	115.269	8	0	-0.007	0.083
9	0.279	0.080	127.389	9	0	0.018	0.083
10	0.166	0.080	131.728	10	0	-0.084	0.083
11	0.246	0.080	141.320	11	0	-0.001	0.083
12	0.266	0.079	152.548	12	0	0.071	0.083
13	0.167	0.079	157.049	13	0	-0.063	0.083
14	0.334	0.079	175.114	14	0	0.152	0.083
15	0.129	0.078	177.846	15	0	-0.061	0.083
16	0.235	0.078	186.895	16	0	0.026	0.083
17	0.157	0.078	190.996	17	0	0.022	0.083
18	0.331	0.077	209.250	18	0	0.179	0.083
19	0.109	0.077	211.266	19	0	-0.130	0.083
20	0.249	0.077	221.757	20	0	0.096	0.083
21	0.125	0.076	224.423	21	0	-0.143	0.083
22	0.081	0.076	225.553	22	0	-0.104	0.083
23	0.142	0.076	229.052	23	0	-0.051	0.083
24	0.098	0.076	230.728	24	0	-0.020	0.083
25	0.258	0.075	242.507	25	0	0.125	0.083
26	0.105	0.075	244.467	26	0	0.019	0.083
27	0.170	0.075	249.649	27	0	0.069	0.083
28	0.130	0.074	252.693	28	0	0.063	0.083
29	0.063	0.074	253.421	29	0	-0.062	0.083
30	0.140	0.074	257.035	30	0	0.009	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C. 9 Japan

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.823	0.082	99.651	1	0	0.823	0.083
2	0.806	0.082	195.879	2	0	0.398	0.083
3	0.774	0.082	285.118	3	0	0.171	0.083
4	0.749	0.082	369.361	4	0	0.094	0.083
5	0.765	0.081	457.974	5	0	0.210	0.083
6	0.693	0.081	531.128	6	0	-0.133	0.083
7	0.684	0.081	602.826	7	0	0.005	0.083
8	0.650	0.080	668.062	8	0	-0.019	0.083
9	0.662	0.080	736.217	9	0	0.135	0.083
10	0.628	0.080	798.015	10	0	-0.061	0.083
11	0.603	0.080	855.492	11	0	0.009	0.083
12	0.608	0.079	914.315	12	0	0.079	0.083
13	0.599	0.079	971.916	13	0	0.082	0.083
14	0.572	0.079	1024.818	14	0	-0.117	0.083
15	0.544	0.078	1072.972	15	0	-0.032	0.083
16	0.560	0.078	1124.400	16	0	0.134	0.083
17	0.536	0.078	1171.887	17	0	-0.031	0.083
18	0.520	0.077	1216.959	18	0	-0.084	0.083
19	0.466	0.077	1253.440	19	0	-0.128	0.083
20	0.472	0.077	1291.234	20	0	0.121	0.083
21	0.475	0.076	1329.859	21	0	0.038	0.083
22	0.447	0.076	1364.270	22	0	-0.076	0.083
23	0.429	0.076	1396.268	23	0	-0.023	0.083
24	0.381	0.076	1421.653	24	0	-0.025	0.083
25	0.394	0.075	1449.081	25	0	-0.005	0.083
26	0.371	0.075	1473.604	26	0	-0.057	0.083
27	0.335	0.075	1493.781	27	0	-0.065	0.083
28	0.315	0.074	1511.749	28	0	0.014	0.083
29	0.300	0.074	1528.197	29	0	0.012	0.083
30	0.273	0.074	1541.986	30	0	-0.136	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C. 10 USA

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	0.781	0.082	89.779	1	0	0.781	0.083
2	0.695	0.082	161.308	2	0	0.217	0.083
3	0.605	0.082	215.829	3	0	0.027	0.083
4	0.579	0.082	266.186	4	0	0.141	0.083
5	0.592	0.081	319.25	5	0	0.193	0.083
6	0.523	0.081	360.867	6	0	-0.105	0.083
7	0.471	0.081	394.923	7	0	-0.035	0.083
8	0.442	0.080	425.184	8	0	0.076	0.083
9	0.449	0.080	456.574	9	0	0.095	0.083
10	0.472	0.080	491.526	10	0	0.083	0.083
11	0.457	0.080	524.560	11	0	0.019	0.083
12	0.456	0.079	557.620	12	0	0.074	0.083
13	0.434	0.079	587.834	13	0	0.001	0.083
14	0.392	0.079	612.664	14	0	-0.106	0.083
15	0.418	0.078	641.081	15	0	0.121	0.083
16	0.429	0.078	671.377	16	0	0.103	0.083
17	0.436	0.078	702.883	17	0	0.005	0.083
18	0.390	0.077	728.235	18	0	-0.099	0.083
19	0.341	0.077	747.837	19	0	-0.029	0.083
20	0.345	0.077	768.024	20	0	0.061	0.083
21	0.338	0.076	787.557	21	0	-0.041	0.083
22	0.349	0.076	808.501	22	0	0.014	0.083
23	0.308	0.076	824.992	23	0	-0.018	0.083
24	0.264	0.076	837.240	24	0	-0.045	0.083
25	0.297	0.075	852.84	25	0	0.112	0.083
26	0.262	0.075	865.081	26	0	-0.113	0.083
27	0.269	0.075	878.081	27	0	-0.008	0.083
28	0.250	0.074	889.411	28	0	0.024	0.083
29	0.229	0.074	899.014	29	0	-0.012	0.083
30	0.178	0.074	904.884	30	0	-0.178	0.083

a. The underlying process assumed is independence (white noise).
b. Based on the asymptotic chi-square approximation.

Table C. 11 China

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic			Partial Autocorrelation	Std. Error
			Value	df	Sig.[b]		
1	-0.087	0.082	1.119	1	0.29	-0.087	0.083
2	0.058	0.082	1.613	2	0.446	0.051	0.083
3	0.039	0.082	1.838	3	0.607	0.049	0.083
4	0.075	0.082	2.675	4	0.614	0.080	0.083
5	0.184	0.081	7.775	5	0.169	0.196	0.083
6	0.059	0.081	8.308	6	0.216	0.090	0.083
7	0.143	0.081	11.436	7	0.121	0.143	0.083
8	0.078	0.080	12.380	8	0.135	0.092	0.083
9	0.185	0.080	17.733	9	0.038	0.179	0.083
10	-0.097	0.080	19.208	10	0.038	-0.118	0.083
11	0.073	0.080	20.061	11	0.045	-0.015	0.083
12	0.135	0.079	22.964	12	0.028	0.073	0.083
13	-0.044	0.079	23.274	13	0.039	-0.108	0.083
14	0.120	0.079	25.606	14	0.029	0.014	0.083
15	0.021	0.078	25.680	15	0.042	0.023	0.083
16	0.195	0.078	31.895	16	0.010	0.157	0.083
17	0.013	0.078	31.922	17	0.015	0.022	0.083
18	0.007	0.077	31.931	18	0.022	-0.006	0.083
19	-0.076	0.077	32.894	19	0.025	-0.110	0.083
20	0.208	0.077	40.220	20	0.005	0.142	0.083
21	0.027	0.076	40.348	21	0.007	-0.038	0.083
22	-0.037	0.076	40.590	22	0.009	-0.059	0.083
23	0.030	0.076	40.742	23	0.013	-0.079	0.083
24	-0.133	0.076	43.848	24	0.008	-0.188	0.083
25	0.273	0.075	57.062	25	0.000	0.203	0.083
26	0.008	0.075	57.074	26	0.000	0.102	0.083
27	0.026	0.075	57.193	27	0.001	0.049	0.083
28	-0.006	0.074	57.200	28	0.001	-0.020	0.083
29	0.002	0.074	57.201	29	0.001	-0.013	0.083
30	0.012	0.074	57.228	30	0.002	-0.018	0.083

a. The underlying process assumed is independence (white noise).

b. Based on the asymptotic chi-square approximation.

D. Calculation of Conditional Mean and Variance

Dependent Variable: FRN_LN
Method: ML - ARCH (BHHH) - Normal distribution
Date: 10/13/10 Time: 14:30
Sample (adjusted): 3 144
Included observations: 142 after adjustments
Failure to improve Likelihood after 12 iterations
Bollerslev-Wooldrige robust standard errors & covariance
MA backcast: 0, Variance backcast: ON

GARCH = C(5) + C(6)*RESID(-1)^2 + C(7)*GARCH(-1)

	Coefficient	Std. Error	z-Statistic	Prob.
C	7.121673	0.032201	221.1622	0.0000
AR(1)	0.444538	0.091317	4.868084	0.0000
AR(2)	-0.386609	0.061094	-6.328075	0.0000
MA(1)	0.189113	0.103310	1.830543	0.0672
Variance Equation				
C	0.068522	0.011465	5.976406	0.0000
RESID(-1)^2	-0.187765	0.030099	-6.238323	0.0000
GARCH(-1)	0.899537	0.029376	30.62134	0.0000

R-squared	0.370047	Mean dependent var	7.212412
Adjusted R-squared	0.342049	S.D. dependent var	0.619656
S.E. of regression	0.502629	Akaike info criterion	1.371255
Sum squared resid	34.10584	Schwarz criterion	1.516965
Log likelihood	-90.35913	F-statistic	13.21694
Durbin-Watson stat	1.813478	Prob(F-statistic)	0.000000

Inverted AR Roots	.22+.58i	.22-.58i
Inverted MA Roots	-.19	

Note: Similar calculations were made for all 11 tourist source countries at levels, logarithm, annual differences and log differences.

D. Publications and Research

1. Lumbini Pilgrimage: Prospects and Challenges. *Lumbini Darpan The Mirror of Lumbini Development Trust* published by Lumbini Development Trust in 2013.
2. GARCH modeling and Analysis of Tourist Data in Lumbini published in the *Journal of Tourism and Hospitality Education* published by White House School of Hotel Management(Affiliated to IMI University Centre, Switzerland) in 2013.
3. Tourism: A Major Factor to Attain the Millennium Development Goals in Nepal. *Souvenir (XIXth NATTA National Convention - 2013 & 49th NATTA Annual General Assembly).*Kathmandu: Nepal Association of Tour & Travel Agents (NATTA) in 2013.
4. Flying light A debate on whether to charge airfares according tothe weight of the passengers is underway. Is it feasible?published on*Kathmandu Post Daily* on August 18, 2013.
5. Taulanusar hawai bhada kina? Published on *Kantipur Daily*on June 15, 2013
6. Lumbini as International Pilgrimage Destination: Authenticity and Significance published in THE *GAZE Journal of Tourism and Hospitality*. Kathmandu: InternationalSchool of Tourism and Hotel Management (Affiliated to SalzburgUniversity of Applied Sciences, Austria) in 2012.
7. GARCH Model in Monthly Tourist Arrivals in Nepal. The Journal of Mathematics and Statistics. Kathmandu: Department of Mathematics and Statistics, Padmakanya Campus, TribhuvanUniversity, 2 (1) pp. 37-43 in 2012.
8. Modelling the uncertainty of international tourist arrivals in Nepal published in THE *GAZE Journal of Tourism and Hospitality* published by International School of Tourism and Hotel Management (Affiliated to Salzburg University of Applied Sciences, Austria) in 2011.
9. Pilgrimage tourism: A case study of Lumbini-Nepal published in the *Journal of Tourism and Hospitality Education* published by White House School of Hotel Management(Affiliated to IMI University Centre, Switzerland) in 2011.
10. Lumbini: A Touristic overview published in *Lumbini: Present Status and Future Challenges* published by United Nations Educational, Scientific and Cultural Organization (UNESCO), Kathmandu in 2006.
11. New Strategies for tourism marketing in Nepal, published in *Journal of Business studies* (A special issue in the International Conference on Tourism), Tirunvanthanpuram: University of Kerala, 2004.
12. Tourism Policy Perspective in Nepal: Some Observations, published in *Public Administration Journal (Paj*), Kathmandu: Public Administration Campus, Tribhuwan University, 2002/03, Vol. XVII and XVIV.

13. Impact of Pilgrimage Tourism in Nepal A Case Study on PashupatinathTemple, Kathmandu, Nepal published in *Proceedings of IV National Conference on Science and Technology*published byNepal Academy of Science and Technology (NAST), 2004.

14.Paryatan Vikashka Tagaraharu published in *Kantipur Daily,* September 27, 2012.

15. Visit Lumbini 2012: Hopes and Instability Lamentableness of the Cheap Politics with Buddha and Lumbini published in *The Reporter Weekly*, October1, 2012.

16.Interfaith, Buddhism and Lumbini published in *the Reporter Weekly* on May 7, 2012

17.Lumbini Bikashko khancho published in *Kantipur Daily* on May 8, 2012

18. Lumbini Paryatan: Nepalko Arthik Sambriddhiko Aadhar published in *Karobar Daily* on May 6, 2012

19. Nepalma Dharmik Paryatanko Mahatto ra Gorkhama yeska sambhawanaharu, published in *Gorkha Tourism* on May 2011.

20.Dharmik Paryatanko Mahatwo, Chunauti ra Sambhawana published in Naya Sat-Marga published by J P Pratisthan, Kathmandu, Nepal in June 2010.

21. Lumbini Mathiko Rajnitiko Krambhanga kina ra kahile ?published in *Rajdhani Daily* on May 27, 2010

22.Tourism in Gorkha: A Boon and Challenges, published in *Gorkha Tourism,* May 2010

23.*Impact of Pilgrimage Tourism for sustainable tourism – A case study on PashupatinathTemple, Kathmandu,* under the University Grant Commission, Kathmandu, Nepal in 2004.

24.*Lumbini Darsan Barsa (Visit Lumbini Year-2006),* Published in Rajdhani Daily Newspaper, 9 September 2005, Kathmandu.

25.*Significance of Visit Lumbini Year 2006*, Published in Rising Nepal, English Daily Newspaper, 16 September, 2005, Kathmandu.

26. 2550th Buddha Jayanti: Lumbini Darshan Barsa 2063 Abadharana published in *Smarika* published by Dharmodaya Sava, Kathmandu, Nepal.

27.*Trend of Pilgrimage Tourism in Lumbini: An Overview*, Published in International Tourism Conference Perspectives in Tourism Marketing (Conference Proceedings), Mugla, Turkey, May 2005.

28.*Nepalko Paryatan: Arthatantrako Merudanda, published in Aajako Samacharpatra, September 25, 2008.*

29.Lumbini: The Interfaith and Pilgrimage Destination, published in The Himalayan Times, May 20, 2009.

30.*Dhanna Gahro Dharmic Paryatan,* published in Rajdhani Daily, 25th September 2004.

31.*Importance of Education on Tourism Awareness*, published in Rising Nepal, 16 July 2002.

32.*Drug Abuse problems and Nepalese Tourism, Published in Ashara Darpan 2002*: An annual Publication of Ashara Sudhar Kendra, Kathmandu, Nepal.

E. Presentation and Participations

- Presented a paper in an international conference on "*Pilgrimage Tourism Networks: Prospects and Challenges in Nepal" organized by Lumbini International Research Institute, January10-14, 2010.*
- *Commentator of a paper "Lumbini Tourism Development" in a Nnational Seminar organized by Women Buddhist Association on July 2, 2010.*
- Presented a paper in a workshop on "Buddhist Pilgrimage in Nepal: Significance and constraints", organized by SiddarthaUniversity, February 13, 2010.
- Presented a paper *"Status of Nepalese Tourism: A Statistical Approach"* on a conference organized by Central Department of Statistics, TribhuwanUniversity on May 2006.
- Presented a research paper " Buddhism and Interfaith: The Gateways for World Peace in the 21st Century" in a Workshop organized by SiddarthaUniversity.
- Presented a concept paper "Visit Lumbini Year 2063 Silver Centenary Golden Jubilee (2550) of the Lord Buddha" in a Workshop organized by SiddarthaUniversity.
- *Presented a paper "Lumbini: A Touristic overview" in a workshop organized* byUnited Nations Educational, Scientific and Cultural Organization (UNESCO), Kathmandu in 10-11 November 2005.
- Presented a paper on "Lumbini: Birthplace of Lord Buddha - the Fountain of World Peace (A destination of Pilgrimage and Faith Tourism)" in the 3rd Global Summit on through Tourism organized by International Institute of Peace through Tourism, USA from 2-6 October 2005 in Pattaya, Thailand.
- Presented a paper on "Pashupatinath: An Ultimate Hindu Pilgrimage Derstination in Nepal" in International Conference on Tourism organized by University of Kerala, India from 27-28 December, 2004.
- Presented a Research Paper in Fourth National Conference on Science and Technology: 10 Chaitra 2060-13 Chaitra 2060 organized by Nepal Academy of Science and Technology NAST, Kathmandu, Nepal.
- Participated in the Research Methodology Workshop for the Ph.D. participants: 4-13 Shrawan 2060 B.S. organized by Dean's Office, Institute of Science and Technology, Tribhuwan University, Kathmandu, Nepal.
- Participated and presented a group discussion outcome in the Conference on Sustainable Tourism: Markets, Linkage and Learning from 27-28 November 2003 in Kathmandu, Nepal organized by Nepal Tourism Board and SNV-Nepal.
- Participated in the National Seminar on the Interpretation of Lumbini Ashokan Pillar Inscription from February 16-17, 2004 in Lumbini organized by LDT.

E.1 Questionnaire for Tourism Experts

Dear Sir/Madam

This is my pleasure to inform you that I am undertaking a Ph.D. research to study the "Impact of Pilgrimage Tourism for Sustainable Tourism Development: Special focus on Lumbini" from Tribhuwan University Kathmandu. Therefore, you are kindly requested to fill this questionnaire. In this connection your valued contributions and suggestions would be highly appreciated and the information will be used only for my Ph.D. research.

Him Lal Ghimire (Researcher)

Central Department of Statistics, Tribhuwan University, Nepal

1. Name:……..…….. 2. Country: …… 3. Sex: ……

4. What do you think about the present situation of tourism in Nepal?

5. How do you think the potentiality of pilgrimage tourism in Nepal?

6. How can Nepal develop the pilgrimage tourism?

7. How do you evaluate the efforts of following agencies for the development of pilgrimage tourism with reason?

5- Very good, 4 – Good, 3. Satisfactory, 2 - Needs improvements, 1 - Very poor)

Government/MoCTCA	1	2	3	4	5
Nepal Tourism Board (NTB)	1	2	3	4	5
Lumbini Development Trust (LTD)	1	2	3	4	5
Private sector	1	2	3	4	5
Tourism organizations/associations	1	2	3	4	5
Public	1	2	3	4	5
Any others (…….)	1	2	3	4	5

8. How can Nepal receive higher benefits from pilgrimage tourism ?

9. What are the weaknesses to develop pilgrimage tourism in Nepal ?

10. How do you rate the different policies, plans regarding pilgrimage tourism up to now ?

a. Highly satisfactory ( ) b. Satisfactory ( ) c. So So ( )

d. Less satisfactory ( ) e. Dissatisfactory ( )

Please give reasons: ……

11. How do you rate the implementation of the Lumbini Master Plan ?

a. Highly satisfactory ( ) b. Satisfactory ( ) c. So So( )

d. Less satisfactory ( ) e. Dissatisfactory ( )

Please give reasons: …….

12. How can it be implemented promptly?

13. Does the Master Plan needs appropriate correction ?

Yes ( ) No ( ) Don't know ( ), If the answer is yes, what are the suggestion of correction ?

1. …… 2.…… 3.…… 4.……

14. What visible and invisible impacts have you noticed from pilgrimage tourism in Lumbini ?

Visible impacts:

Invisible impacts:

15. Does the policies for the development of pilgrimage tourism are enough and appropriate ?

Yes ( ) No ( ) Don't know ( ), If the answer is no, what are the suggestion of correction ?

1. …… 2.…… 3.…… 4.……

16. Comparing to the total Buddhist population, why very low figure are visiting Lumbini ?

17. Do you think Lumbini should be visited by the Buddhists at least once in life ?

Yes/No. Why?

18. How can Lumbini be developed as world peace city and one of the important touristic destinations?

19. Do you think any special programme to be conducted annually in Lumbini to attract international and domestic pilgrims and visitors?

20. What do/did you expect to gain from the events like World Buddhist Summits in Lumbini ?

21. How can Nepal be benefited from Lumbini ?

22. What is your opinion about the pilgrimage network among the Buddhist pilgrimage sites around Lumbini, Nepal and India ?

23. Is there any model which Nepal should adopt for the development of pilgrimage tourism ?

24. Please provide suggestions to promote Nepal as a sustained destination by pilgrimage tourism.

E.2 Questionnaire for Pilgrims/tourists

Dear Sir/Madam

This is my pleasure to inform you that I am undertaking a Ph.D. research to study the "Impact of Pilgrimage Tourism for Sustainable Tourism Development: Special focus on Lumbini" from Tribhuwan University Kathmandu. Therefore, you are kindly requested to fill this questionnaire. In this connection your valued contributions and suggestions would be highly appreciated and the information will be used only for my Ph.D. research.

Him Lal Ghimire (Researcher)
Central Department of Statistics, Tribhuwan University, Nepal

Background information

1. Name:……..…… 2. Nationality/District (for Nepalese):……

3. Sex: …… 4. Religion: ……5. Age: ……years 6. Marital status: Married ( ) Unmarried ( )

7. Occupation: …… 8. Education : a. Completed: …… b. Attended: ……

9. How many times did you visit Nepal ? Please mention the times (…….)

10. What is your purpose of visit to Nepal ?

a. Pilgrimage ( ) b. Sightseeing ( ) c. Adventure ( ) d. Conventional/meeting ( )
e. Holiday pleasure ( ) f. Business ( ) g. Trekking Mountaineering ( ) h. Other…… ( )

If pilgrimage, mention the pilgrimage sites that you visited (Please specify times also)

a. …… ( ) b. …… ( ) c. …… ( )

11. Did/do you visit any pilgrimage sites in other countries in this or any other journey?

If yes, the pilgrimage site visited ……

12. What is your proposed budget for the trip? NRs…….. US$…….

13. Your mode of transportation from …….. to Bhairahawa is …….and from Bhairahawa to Lumbini is …….

14. Who/what is the organizer of your visit to Lumbini ?

a. Guided tour b. Your own c. Others……

General features

15. Give your opinion on the following propositions: (1-Fully disagree, 2- disagree, 3- undecided, 4-agree, 5-Fully agree)

Nepal, the whole country is like a pilgrimage destination of Hindus and Buddhists	1	2	3	4	5
There is religious harmony between different religions in Nepal	1	2	3	4	5
Pilgrimage tourism can contribute in the national economy and employment	1	2	3	4	5
If more people travel to the pilgrimage sites internationally, the world would be a better place to live in	1	2	3	4	5

16. What do you rate about the marketing effort being done at present by the government for pilgrimage tourism ?

1 2 3 4 5

(5- Highly satisfactory, 4- Satisfactory, 3- So so, 2- Less satisfactory, 1- Unsatisfactory)

Focus on Lumbini

17. Why are you interested to visit Lumbini (tick as many as appropriate)?

a. To observe the birth place of Lord Buddha ( ) b. To the meditation in Lumbini ( )

c. To study about Buddhism ( ) d. To worship Lord Buddha ( )

e. To buy souvenirs ( ) f. To visit the monasteries ( )

g. To enjoy the natures creation in Lumbini ( ) h. Others……..……. ( )

18. What are the interesting things that you found in/around Lumbini (Mention as many as appropriate?)

a. …… b. …… c…….

19. What influenced your visit to Lumbini? (Mention as many as appropriate)

a. Advertisement (Internet/TV/Magazines/ brochures) b. Tour guide c. Holy books

d. Friends e. Guide book f. Others……

20. How do you rate the following? (1-Fully disagree, 2- disagree, 3- undecided, 4-agree, 5-Fully agree)

In Lumbini, I gain a sense of self confidence.	1	2	3	4	5
I want to reduce my tension in Lumbini	1	2	3	4	5

21. Your stay in Lumbini in:

a. Hotel b. Lodge c. Monastery \d. Relative/friends house e. others……

22. How long do you want to stay in: a. Nepal ……days b. Lumbini …….. days.

23. What should be done to lengthen the stay period ?

1. …….. 2…… 3……

24. How often have you visited Lumbini (Please specify times) ( )

Do you perceive any environmental impacts of pilgrimage tourism in Lumbini ?

Yes ( ) No ( ) Don't know ( ), If the answer is yes, what kind of impact do you perceive?

a. Degradation of scenic appeal ( ) b. Garbage/litter/pollution ( )

c. Deforestation/destruction of fauna ( ) d. Disturbance of natural sounds ( )

e. Cleanliness ( ) f. Better area protection ( )

g. Maintenance of natural habitat ( ) h. Others …… ( )

25. Do you perceive any socio cultural impacts of pilgrimage tourism in/around Lumbini ?

Yes ( ) No ( ) Don't know ( ), If the answer is yes, what kind of impact do you perceive?

a. Degradation of Nepalese culture ( ) b. Preservation of Nepalese tradition ( )

c. People begging for money or food ( ) d. Preservation of art and history ( )

e. Change in lifestyle/imitation of the tourist ( ) f. Urbanization ( )

g. Increased communication ( ) h. Modernization of facilities ( )

i. Increased education/knowledge ( ) j. Increased stakeholders (hotels/lodges/org)()

k. Improved standard of living ( ) l. Others ……. ( )

26. Do you perceive any economic impacts of pilgrimage tourism in/around Lumbini ?

Yes ( ) No ( ) Don't know ( ), If the answer is yes, what kind of impact do you perceive?

a. Job opportunities ( ) b. Improved standard of living ( )

c. People begging for money or food ( ) d. Tax income & foreign exchange earning()

e. Inflationary trends ( ) f. Better infrastructure ( )

g. Increased communication ( ) h. Modernization of facilities ( )

i. Consumption/utilization of local products ( ) j. Others ……. ( )

27. How do you rate the satisfaction of the following aspects of Lumbini?

(5- Highly satisfactory, 4- Satisfactory, 3- So so, 2- Less satisfactory, 1- Unsatisfactory)

Weather and Scenery	1	2	3	4	5
Culture	1	2	3	4	5
Preservation and development works	1	2	3	4	5
Implementation of Lumbini Master plan	1	2	3	4	5
Facilities	1	2	3	4	5
Policies	1	2	3	4	5
Hotel/guest house	1	2	3	4	5
Sightseeing tours	1	2	3	4	5
Tourist information office	1	2	3	4	5
Darshan and pray	1	2	3	4	5
Feeling of safety	1	2	3	4	5
Shopping	1	2	3	4	5

28. How do you rate the importance of the following aspects of Lumbini?

(5- Very important, 4- Important, 3- So so, 2- Less important, 1- Not important)

Weather and Scenery	1	2	3	4	5
Culture	1	2	3	4	5
Preservation and development works	1	2	3	4	5
Implementation of Lumbini Master plan	1	2	3	4	5
Facilities	1	2	3	4	5
Policies	1	2	3	4	5
Hotel/guest house	1	2	3	4	5
Sightseeing tours	1	2	3	4	5
Tourist information office	1	2	3	4	5
Darshan and pray	1	2	3	4	5
Feeling of safety	1	2	3	4	5
Shopping	1	2	3	4	5

29. Do you find any problem around Lumbini? Yes ( ) No ( ) Don't know ( )

If the answer is yes, what kind of problem do you find? (Mention as many as appropriate)

a. …….. b…… c……..

30. What are your suggestions to solve these problems?

31. How Lumbini can be developed as one of the important pilgrimage site in the world?

32. Do you think Buddhists should visit Lumbini at least once in life?

Yes ( ) No ( ) Don't know ( ), If the answer is yes, why ? If the answer is no, why ?

33. Do you prefer Lumbini to be a world peace city ? Yes ( ) No ( ) Don't know ( )

If the answer is yes, why ? If the answer is no, why ?

34. Do you find the MayaDeviTemple is appropriate for its religious functions? Yes ( ) No ( )

35. Do you find Lumbini comfortable for worshipping, prayer and meditation? Yes ( ) No ( )

If no, what should be done to make it comfortable?

36. Comparing to the total Buddhist population and importance of Lumbini, why pilgrims/visitors ratio is low?

37. Have you visited/planning to visit the sites related to Lord Buddha's life around Lumbini (Kapilvastu, Devdaha, Ramgram, Kudan etc.)? If yes, which site did you visit andwhy?

38. What is your opinion about the Pilgrimage network among the sites related to Buddha around Lumbini?

39. What is your the best experience in/around Lumbini?

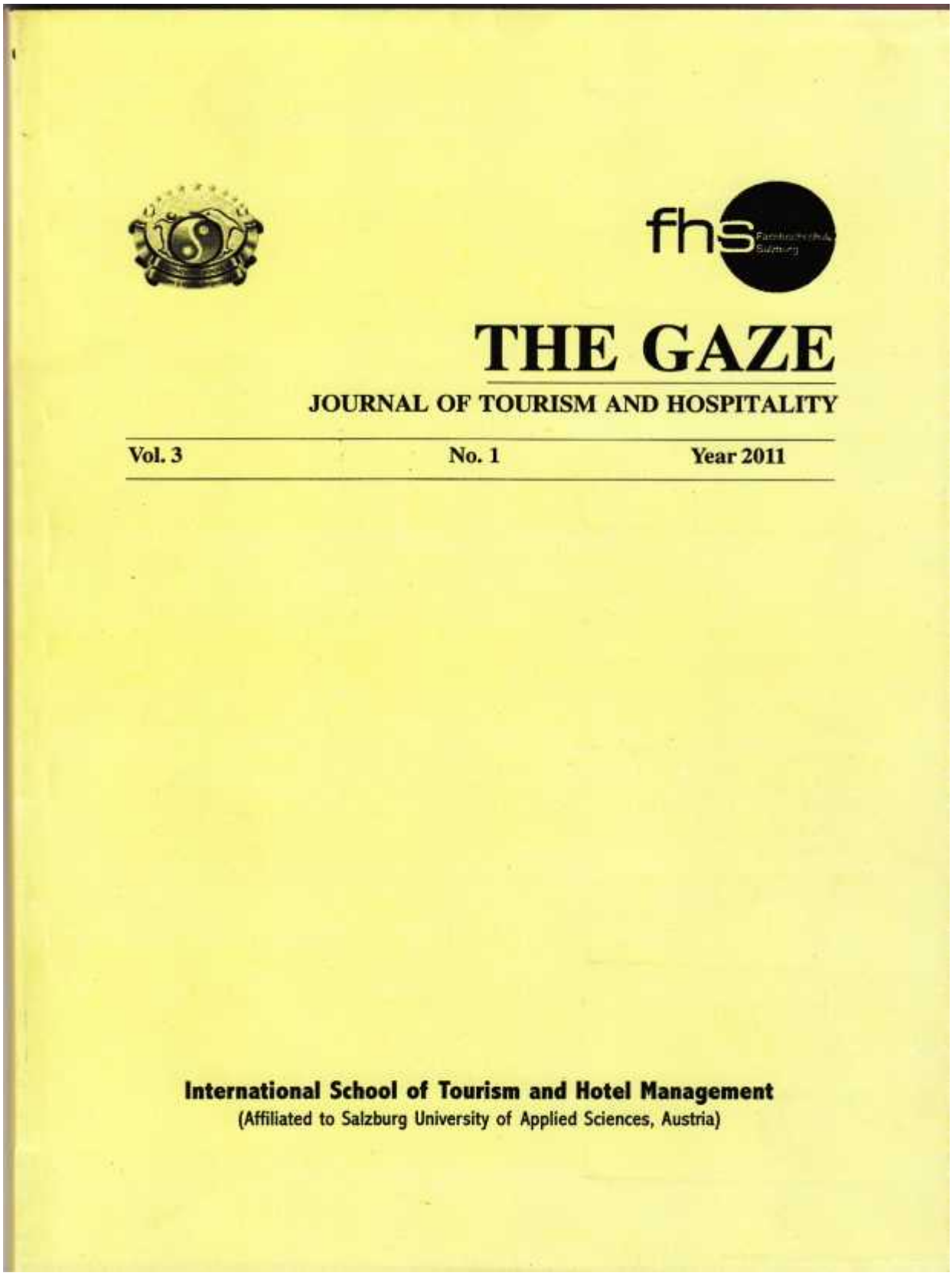
40. Would you like to extend some suggestions to improve pilgrimage tourism in Lumbini as well as Nepal?

41. Any special remarks or comments?

Table F Tourism experts

Ajaya Kumar Chaudhari	Tourism consultant, LDO representative, Rupandehi
Annanda Ghimire	Tourism Consultant
Bhola B. Thapa	Managing Director.- Present Travel
Bishnu Mni Bhattarai	General Secretary Nepal Mountaineering Association
Deebas B.Shah	Tourism consultant
Dhruba Narayan Shrestha	President-NATA
Dr. Annanda W.P. Guruge	Paper presenter, World Buddhist Summit 1998, USA
Dr. Cristoph Cueppers (Germany)	Director, LIRI, Lumbini
Dr. Hari Sharma	Chief Executive Officer -NATA
Gyan Bahadur Rai	Officer, MoCTCA
Medini Prasad Sharma	Joint Secretary, MoCTCA
Mohan Kumar Sapkota	Director General, Department of Immigration
Nagendra Prasad Ghimire	Joint Secretary, MoCTCA
Noritada Morita	Tourism consultant, Japan
Pavitra Kumar Karki	General Secretary-NATA
Prakash Darnal	Officer, MoCTCA
Prof. Dr. K.N. Baral	TribhuwanUniversity
Prof. Dr. T.R. Baidhya	Vice Chancellor, LumbiniBuddhistUniversity
Prof.Dr. Prem Khatry	Culture Department, TU
Rabi Junj Pandey	National Programme Manager, TRPAP
Rabi Paudel	Immediate Past President-NATA
Radhe Shyam Dhar Dwivedi	Tourism consultant, India
Rajendra Paudel	Village tourism Advisor/ TRPAP
Reena Sherma	Tourism consultant
Reijo Harkonen	Journalist and Tourism Consultant, Finland
Shang Kaiqin (China)	Representative of high level delegation from China
Shankar Prasad Koirala	Joint Secretary, MoCTCA
Sunil Shakya	Vice President, KGH Group of Hotels
Suraj Shakya	Managing Director-Lalit Mandap Travel
Tek Bahadur Dangi	Chief Executive Officer, NTB
Yajna Prasad Gautam	Joint Secretary, MoCTCA
Yeera Pradhan	Tourism Stakeholder
Dipendra Purush Dhakal	Former Secretary- MoCTCA and a Tourism Consultant
Dipak Chhetri Neupane	Founder President, Siddarthanagar Hotel Association
Hari Dhoj Rai	Chief, Information Section, LDT
Shamir Thapa	Principal, SilverMountainSchool of Hotel Management
Ven. Dr. Sunanda Mahastabira	Nepalese monk, Chairman, SiddarthaUniversity
Ven. Santo	Japanese monk, Peace Pagoda, Lumbini
Ven. Panumaant,	Thai monk, Royal Thai Monastery, Lumbini
Dr. Chinta Mani Yogi	School Head and a Philosopher
Krishna Khanal	Religious leader and a Philosopher

G. Journal Article 1



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International School of Tourism and Hotel Management
Dillibazaar, P.O.Box: 5196, Kathmandu, Nepal
Tel: 977 1 4434350, 4434185
Email: thegaze@ist.org.np
Website: www.ist.org.np

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CONTENTS

Modelling the Uncertainty of International Tourist Arrivals in Nepal

*Him Lal Ghimire**
*Rajendra Man Shrestha***

Abstract

Tourism is an education in sharing by different kinds of people as well as in understanding various aspects of history, art and nature which connect not only people living close to each other, but also those coming from a long way. Several researchers had used various mathematical models in tourism. As a result of time-varying effects, there have been fluctuations in international tourist arrivals in Nepal. These fluctuations in demand can have significant impacts. It is therefore very important that tourism planners and policymakers should have an understanding of volatility and models to forecast volatility of tourist arrivals which is relatively new area of studies. Generalized Autoregressive Conditionally Heteroscedastic (GARCH) Model is a non-linear model widespread used in econometrics. Monthly tourist arrivals to Nepal show very strong seasonal patterns, so it is imperative to identify and incorporate these patterns into the conditional mean. This paper aims to use GARCH model for monthly tourist arrivals in Nepal from 11 major countries.

Key words: *descriptive statistics, time-varying, fluctuations, volatility.*

Introduction

Tourism is an education in sharing by different kinds of people as well as in understanding those aspects of history and art which connect not only people living close to each other, but also those coming from a long way. Tourism is a complex phenomenon which is supported by and stimulates a whole network of varied resources and skills; tends increasingly to combine local infrastructures with global demand (Galli and Guerzoni, 2002 : 3). Tourism is defined by WTO for statistical purpose with three important components: purpose of visit, origin of traveler and length of stay in the destination. On the basis of which a potential difference between visitors, tourists and excursionists also marked out. Tourists are defined as those who travel away from their usual environment for a period not exceeding one consecutive year, for specific purpose. Depending upon origin and duration of stay, the tourists first

* Mr. Ghimire is Ph.D. Research Scholar of Tribhuwan University, Nepal. him@ullens.edu.np
** Mr. Shrestha is Ph.D. Scholar of Tribhuwan University, Nepal.

categories be recognized (Weaver, 1998 : 2). People started to travel from one place to another, leaving their home area, with different motives. However, historical records show that people travel for trade and religious rites in the ancient world. They were impelled by the innate human desire to explore their surroundings, discover the unknown and seek near experiences. Other motivations like curiosity, health, sports and knowledge make them travel for pleasure to renewed places (Tewari, 1994 : 2).

Tourism is also a multi-layered phenomenon which includes travel agencies, tour operators, airlines, cruise lines, car rental agencies, credit cards companies, public relation firms, tourism bureaus and the media (Shrestha, 2002; in Stephanie, 2000 : 9). Today, tourism is also the subject of great media attention and the media obviously promotes tourism. Tourism is a socio-economic phenomenon comprised of the activities and experiences of tourists and visitors away from their home environment, serviced by the travel and tourism industry and host destinations. The sum total of this activity, experience and service can be seen as the tourism product. Understanding the interrelationship between several parts of the system enables all tourism stakeholders to improve planning and management effectiveness and enhance the likelihood of success (UN, 2003 : 7).

Nepal is the country of birthplace of Lord Buddha with the highest mountain in the world, the great Himalayas and many pearls of natural beauty, historical and cultural diversity, tourism has been familiar in Nepal since long. Tourism is one of the dynamic and productive business activities directed for the production and services. It is an activity generating a number of economic and social benefits to the country. It provides the goods and services for the customers (generally foreigners) which ultimately generates employment and income for the locals. With this not only the tourism stakeholders generate the earning from the operation of the business activities, but also the people related directly or indirectly with such business generate their earning. Further, tourism as an economic activity produces various direct, indirect and induced impacts in the economy. It plays an important role in the Nepalese economy, particularly in terms of foreign exchange earnings and employment opportunities. Further, the resultant income flows and circulates in the economy and boosts other economic activities ultimately inducing many rounds of income. Therefore, the role of tourism becomes distinct and significant in the economic growth and development of the country like Nepal (Ghimire, 2009 : 29; in Gautam, 2008 : 63).

Review of literature

Modelling the volatility of tourism demand is a relatively new area of studies. Nevertheless, there have been some attempts in this area, most notably Chan, Lim and McAleer (2005), Chan et al. (2005) and Shareef and McAleer (2005). The main utility of the multivariate volatility models used is that they explicitly take into account volatility correlation between markets. A wide range of other univariate and multivariate conditional volatility models can be used in estimation. The authors estimated three multivariate models such as Constant Conditional Correlation GARCH (CCC-GARCH) approach of Bollerslev (1990), Vector Autoregressive Moving Average GARCH (VARMA-GARCH) of Ling and McAleer (2003) and VARMA Asymmetric GARCH (VARMA-AGARCH) of Hoti et al (2002). Chan, Lim

and McAleer find the presence of interdependent effects in the conditional variances between the four leading source countries, and asymmetric effects in tourist arrivals. The authors reported that their estimates are robust to the alternative specifications of the multivariate conditional variance. Chan et al. (2005) used several techniques to investigate the conditional volatility in monthly international tourist arrivals to Barbados, Cyprus and Fiji. They estimate a constant volatility linear regression model by OLS as a baseline for comparison with three time-varying conditional volatility models ARCH, GJR and EGARCH. Overall, the authors report evidence of short run persistence, and occasionally long run persistence, of shocks to international tourist arrivals.

Bollerslev (1986), incorporating the concept of the ARMA (autoregressive moving average) model in the ARCH model by adding the conditional variance of the previous lags into the ARCH model, proposes the Generalized ARCH (GARCH) Model. The GARCH (p, q) model specification for the conditional variance equation is:

$$\sigma_t^2 = \alpha_0 + \sum \alpha_i \varepsilon_{t-i}^2 + \sum \beta_j \varepsilon_{t-j}^2 \text{, where } \alpha_0 > 0, \alpha_i \geq 0,\ \beta_j \geq o \text{ (i = 1,2, ...p, j = 1, 2 ,....., q)}$$

Here, σ_t^2 is the conditional variance at time t, $\acute{a}_0$ is a constant parameter, $\acute{a}_i$ are coefficients, ε_{t-i}^2 are the ARCH terms, and ε_{t-j}^2, the last period's forecast conditional variances, are the GARCH terms. Just like the ARCH model, all the coefficients in the RHS of the equation, namely $\acute{a}_i$ and $\grave{a}_i$, are required to be non-negative so that the equation would not be meaningless. In the GARCH model, $\acute{O}\acute{a}_i + \acute{O}\grave{a}_i$ must be less than 1 to satisfy the stationary condition. If $\acute{O}\acute{a}_i + \acute{O}\grave{a}_i$ is close to 1, it means that the impact of news on volatility will last for a long time.

McAleer, Chan and Marinova (2002) used monthly data on international tourist arrivals, univariate and multivariate uncertainty models are estimated for 14 tourism source countries, as well as total tourist arrivals. There was a distinct seasonal pattern in each tourist arrivals series. Although there are several alternative methods for modelling seasonality, twelve seasonal dummy variables are included for simplicity in the respective tourist arrivals models of monthly international tourist arrivals from source $i = 1,...,15$, TA_{it}, as follows:

$$TA_{it} = \sum_{j=1}^{12} \phi_{ij} D_{jt} + \varepsilon_{it} \quad \text{where } D_{jt} = 1 \text{ in month } j = 1,..,12, \text{ and } D_{jt} = 0 \text{ elsewhere.}$$

Regarding the regularity conditions of the GARCH (1, 1) model, both the log-moment and second moment conditions were satisfied for Austria, Belgium, France, Germany, Italy and Switzerland. Although the log-moment condition could not be calculated for Finland, Norway and Sweden, the second moment condition was satisfied, so that the QMLE were consistent and asymptotically normal. Such results suggested that the empirical estimates were statistically valid for these tourism source countries. Overall, these univariate results suggested that, in general, the GARCH (1, 1) model provides an accurate measure of the uncertainty in international monthly tourist arrivals shocks for the 14 leading source countries, as well as total tourist arrivals, to the Canary Islands. The univariate estimates suggested that the GARCH (1, 1) conditional volatility model provides an accurate measure of uncertainty in

monthly international tourist arrivals from the 14 leading source countries, and total monthly tourist arrivals. The estimated conditional correlation coefficients indicated whether there is specialization, diversification or independence in the international tourism demand shocks to the Canary Islands. At the multivariate level, the conditional correlations in the monthly tourist arrivals shocks were generally positive, varying from small negative to large positive correlations. These estimates suggested that the shocks from alternative tourist sources were independent or specialized rather than diversified. Therefore, the Canary Islands should specialize on tourist sources that provided the largest numbers and growth in tourist arrivals rather than diversify the tourism base.

Shareef and McAleer (2007) on "Modelling the uncertainty in monthly international tourist arrivals to the Maldives" estimated monthly international tourist arrivals and the associated uncertainty for the eight principal tourist source countries in the paper. Univariate and multivariate time series models of conditional volatility (or uncertainty) were estimated and tested by the researchers. The conditional correlations were estimated and examined to discover whether there is specialization, diversification or segmentation in the international tourism demand shocks from the major tourism source countries to the Maldives. The estimated static conditional correlations for monthly international tourist arrivals, as well as for the respective transformed series, were found to be significantly different from zero, but also relatively low. These estimates gave an indication of the relationship between shocks to the growth rate of monthly international tourist arrivals, as well as the direction of causality in the monthly international tourist arrivals across the eight major international tourist sources to Maldives. The research also recommended the government and major tour operators to emphasize their marketing efforts independently of each tourist source country. This paper has been very relevant to this study.

The data series were analyzed in terms of the number of tourist arrivals, the corresponding logarithms (logs), annual differences, log-differences, and associated uncertainties. Monthly tourist arrivals to Maldives showed very strong seasonal patterns and were imperative to identify and incorporate these patterns into the conditional mean. The fundamental assumption was that a moving average expressed the trend and cyclical component of the times series adequately. The original monthly international tourist arrivals series (TA_t) were divided by the respective moving average figure for each month (MA_t), and expressed as a percentage to produce the ratio-to-moving average. These ratios were averaged over months and then isolated the seasonal and cyclical components.

The researchers used following general form:

$$TA_t = ARMA(p,q) + \sum_{i=1}^{12} \phi_i D_{it} + \sum_{i=1}^{12} \theta_i D_{it} t + \varepsilon_t$$

Conditional Volatility = GARCH (1,1)

Where TA_t, is monthly tourist arrivals at time t. D_{it}(= 1, 2, ... 12 and is equal to zero elsewhere) denotes seasonal dummies; t = 1 to T, where T = 120 for all eight series. $D_{it}t$ is the seasonal dummy multiplied by the deterministic time trend to capture the trend effect of the seasonal dummies. Several models have been tested and fitted to determine the most appropriate ARMA process to describe monthly international tourist arrivals from the eight major tourist originating countries to Maldives. The choice of model that best explains monthly

tourists to Maldives was chosen on the basis of the statistical significance (at the 5% level) of the AR and MA coefficients, of the seasonal dummy variables, and the absence of serial correlation in the unconditional shocks.

Several researchers had used various mathematical models in tourism. However, very few researchers have used it in the context of Nepal. Gautam (2008$_s$: 65) used regression equation of economic growth model: $y_t = \alpha + \sum_{i=0}^{n} \beta_i X_{t-i} + \mu_t$. The coefficients were estimated by using Ordinary Lest Square (OLS) method both in levels and logarithm form.

Methodology

There are infinite numbers of non-linear models. However, only a small number of non-linear models have been found to be useful for modeling tourist data. The most popular non-linear models are the ARCH or GARCH models used for modeling and forecasting volatility which allow the behaviour of a series to follow different process at different points in time. As a result of time-varying effects, such as changes in economic fortunes abroad, natural disasters, ethnic and political conflicts, crime, terrorist incidents, and other exogenous factors, there have been periods of considerable fluctuation in international tourism demand to Nepal. These fluctuations in demand can and do have a significant impact on the solvency of hotels, airlines, travels, employment in the industry and overall economic activity. It is therefore very important that tourism planners and policymakers have an understanding of volatility and models to forecast volatility of tourist arrivals.

For Nepal, it is crucial to obtain accurate estimates of the uncertainty surrounding monthly international tourist arrivals based on time series data. An attempt was made to model the uncertainty in monthly international tourist arrivals and examine the associated volatilities of monthly tourist arrivals from 11 major tourist source countries, namely with ranks India, UK, Japan, USA, Germany, France, Sri Lanka, China, Bangladesh, Netherlands and Italy for the period 1997–2008. The data series were analyzed in terms of the number of tourist arrivals at level, the corresponding logarithms (logs), annual differences, log-differences, and associated uncertainties. It may be argued that the preferred series to model monthly international tourism demand is one which has a distribution closest to a normal distribution. For the validity of the preferred series, the descriptive statistics were examined.

Generalized Autoregressive Conditionally Heteroscedastic (GARCH) Model is a non-linear model widespread used in econometrics. Following specification was considered:

$$y_t = E(y_t / F_{t-1}) + \varepsilon_t$$

$$\varepsilon_t = D_t \eta_t$$

Where $y_t = (y_{1t}, \ldots\ldots, y_{nt})'$ measures the tourist arrivals from the 11 leading source countries and total tourist arrivals, $\eta_t = (\eta_{1t}, \ldots\ldots, \eta_{nt})'$ is a sequence of independently and identically distributed (iid) random vectors that was obtained from standardizing the tourist

arrivals shocks, η_t, using the standardization $D_t = diag(h_{1t}^{1/2}, \ldots\ldots, h_{mt}^{1/2})$, F_t is the past information available to time t, m is the number of tourism source countries, including total tourist arrivals, and $t = 1,\ldots,$ monthly observations.

Engle (1982) in his model assumes that the conditional variance is a positive function of the value of the previous error terms instead of a fixed constant. In other words, the error variance depends on p lags of squared errors, and the GRCH (p, q) model is specified as follows:

$$\sigma_t^2 = \alpha_0 + \sum \alpha_i \varepsilon_{t-i}^2 \text{ , where (i = 1,2, ...p)}$$

Here, is the conditional variance at time t, á$_0$ is a constant parameter, á$_i$ are coefficients, and are the GARCH terms. Since is a conditional variance, its value must always be positive. In order to ensure that the equation is meaningful, all the coefficients in the RHS of the equation, namely, á$_i$ are required to be non-negative. Since the conditional variance, is affected by the past error terms, and á$_i$ are always non-negative, the present volatility is positively correlated with the past error terms, which is known as volatility clustering.

Since the model is no longer of the usual linear form, OLS cannot be used for GARCH model estimation. There are a variety of reasons for this, but the simplest and most fundamental is the OLS minimizes the residual sum of squares. The RSS depends only on the parameters in the conditional mean equation, and not the conditional variance, and hence RSS minimization is no longer an appropriate objective.

In order to estimate models from the GARCH family, another technique known as maximum likelihood is employed. Essentially, the method works by finding the most likely values of the parameters given the actual data. More specifically, a long-likelihood function is formedand the values of the parameters that maximize it are sought. Maximum likelihood estimation can be employed to find parameter values for both linear and non-linear models.

EViews 6.1 and SPSS 16.0 software were used to compute the models and analyze the data.

Tourist arrivals in Nepal

An attempt has been made to analyze the international tourist arrivals. UNWTO world tourism barometer shows that international tourist arrivals reached 924 million, up 16 million over 2007, representing a growth of 2% in 2008. The year 2008 has been extremely volatile world economy (financial crisis, commodity and oil price rises, sharp exchange rate fluctuations), tourism demand slowed significantly through the year. The last six months of 2008, in particular, showed an abrupt shift in trends, with international tourist arrivals flat or showing negative growth. Overall, the 5% growth between January and June gave way to a 1% decline in the second half of the year. World's first ranked country France had (9.02%) share in tourist arrival followed by Spain (6.49%). Nepal's share is very negligible with (0.06%) in world total (UNWTO, 2009 p 3; Nepal Tourism Statistics, 2008).

In terms of numbers only six thousand odd tourists were in 1962 that the number rose to more than one hundred fifty thousand in Nepal by 1978. With full effort of 5 years till the

special tourism year "Visit Nepal Year (VNY) -1998", there was an increase of tourist arrivals in Nepal. However, for several reasons, Nepal is still unable to attract significant number of tourists despite its world top class tourism products. Nepal Tourism Year 2011 is also unable to bring momentum in Nepalese tourism industry. The target of getting 1 million tourists in a year is almost impossible. The unstable political situation of the country has been the main reason to have this type of uncertainty in tourism.

Descriptive statistics of monthly tourist arrivals

For Nepal, it is crucial to obtain accurate estimates of the uncertainty surrounding monthly international tourist arrivals based on chronological data. An attempt was made to model the uncertainty in monthly international tourist arrivals and examine the associated volatilities of monthly tourist arrivals from the 11 major tourist source countries as mentioned above. The descriptive statistics for monthly international tourist arrivals in levels is given in tables. It may be argued that the preferred series to model the monthly tourist arrivals to Nepal is one which has a distribution closer to a normal distribution.

The monthly tourist arrivals series in levels depict very high coefficient of variation (CV) for the 11 tourist source countries. Among 11 countries, India has the lowest CV i.e. highest consistency towards monthly tourist arrivals pattern for Nepal. It also shows highest average monthly tourist arrivals for Nepal. Sri Lanka has the highest CV i.e. lowest consistency towards monthly tourist arrival pattern for Nepal. Among 5 Asian countries, Sri Lanka has the second position for the higher average tourist monthly arrivals for Nepal. Jarque-Bera, a test statistic of Normality, shows that all the source countries have no normality patterns as the p-values for all the cases are less than 5% level of significance although the value of skewness for Japan is very close to zero. Sri Lanka has the highest value of skewness very close to 3, higher positive skewness. Similarly, UK has the values of Kurtosis very close to 3. Although, Japan has smaller Skewness and higher Kurtosis, it shows a non-normality nature in monthly tourist arrivals. . Sri Lanka, Netherlands, Italy, China and USA have very higher degree of kurtosis. Monthly tourist arrival data should have normality for further analysis. To achieve this property, suitable transformations are to be done (see Table no 2).

Unit root test

Prior to estimating the conditional mean of the univaritate time series, it is required to test whether there is a presence of unit roots in the series as their presence has adverse consequence for estimation and inference. In the classical regression model, it is assumed that the variables are stationary and errors are also stationary with zero mean and constant variance. In the case where the series are non-stationary, the judgment would be otherwise and leads to a spurious regression (Granger & Newbold, 1974; Shareef & McAleer, 2007). Here, the aim is to model univariate time series data where lagged dependent variables are included to capture dynamics. Furthermore, it is also modeled the conditional variance of the data generating process. If the series are non-stationary, then the variance of the data generating process will become infinitely large and thus the statistical inferences will be affected. In this context, the Philip-Perron (1990) (PP) test for stationary with truncated lags of order 5 for

each of the eleven series in levels and the results are given in the appendix.

Results of the test for the null hypothesis that monthly tourist arrivals have a unit root are given in the table (see Table no 4). The critical values for the rejection of the null hypothesis of a unit root are -3.486 and -2.886 at 1% and 5% level of significance respectively. For Bangladesh and China, the test suggests that the series in levels have unit roots at 5% level of significance. Similarly, for the same two countries, the test suggests that the series in logarithms have also unit roots at 5% level of significance. However, for the rest of countries, the series are in levels and in the transformed form are stationary.

These results are not particularly surprising. Enders (2004 : 176) states that 'non-stationary variables may have pronounced trend or appear to meander without a long-run mean or variance'. This is precisely the case for Bangladesh and China, with both having very strong linear trends. These tests have been conducted using several lags, but the results were robust to such changes. The choice of implementing the PP test over the widely used augmented Dickey-Fuller (ADF) test is due to mainly to the presence of GARCH errors. ADF test incorporate techniques explicitly accommodating a serial correlation structure in the errors, but not hetereoscedasticity. However, the PP test takes into account both serial correlation and hetereoscedasticity using non-parametric techniques. As argued in Phillips - Parron (1990), the PP test typically has higher power in finite samples than ADF test.

Results for seasonality of the monthly tourist arrivals

Monthly tourist arrivals to Nepal show very strong seasonal patterns, so it is imperative to identify and incorporate these patterns into the conditional mean. The traditional and most frequently used technique is the Ratio-to- Moving Average (Multiplicative) Method to find it. The technique is straightforward and computationally convenient. In this approach, the fundamental assumption is that a moving average expresses the trend and cyclical component of the time series adequately. The original monthly tourist arrivals (TA_i) are divided by the respective moving average figure, (MA_i) for each month, and expressed as a percentage to produce the Ratio-to-Moving Average. These ratios are averaged over 12 months. The ratios then isolated the combined effects of trend and cyclical variations.

Regardless of whether, the monthly seasonal indices are calculated based on tourist arrivals on levels. Seasons in tourism are determined in months and the allocated index for a given month is always one. If the calculated index exceeds 1, then the monthly tourist arrivals exceed the trend and cyclical components due to underlying seasonal factors. The monthly seasonal indices estimated for the monthly tourist arrivals in levels for the 11 major source countries are given in (see Table no. 5), where the seasonal concentrations can be readily identified.

As five of the eleven major tourism source countries are from Western Europe, the seasonal concentrations of monthly tourist arrivals occur during European Winter months, roughly from September to March. The peak month is October for France, Germany, Netherlands and United Kingdom and August is the peak month for Italy. However, for the same duration, most of the Asian countries have different months for the peak seasonality index. Therefore, the peak month for India has been June, that for Bangladesh has been

October; peak months for Sri Lanka have been March and August. China and Japan have peak month, November. Nevertheless, the peak month for Japan has been March too. During the same duration, the primary peak month for USA has been October. March and November have also shown the secondary peak months for USA.

The lowest months for countries like France, Germany, Italy, Netherlands, United Kingdom (Western European countries), Japan, Sri Lanka, Bangladesh (Asian countries) and USA (Northern American country) have been during their summer months where they tend to choose domestic tourism to overseas travel. Only country, India has February as the lowest month. Peak seasonal months for India were May, June and July as Indian tourists feel usually very adverse and unpleasant environmental condition during those months in their country. More than 20% of tourists from Italy, Netherlands and Sri Lanka have visited Nepal on December. Sri Lanka is only the country from where the tourists have visited Nepal mostly on two months such as November and December. Sri Lanka has the least tendency (less than 0.72%) to visit Nepal on January and February.

The tourists from France have more than 10% for months March, April, October and November. Germany is the only country from where more than 10% tourists have visited Nepal on March. However, about more than 8% tourists from all 11 countries have visited Nepal from September to December. Moreover, Indian tourists have shown the highest percentage (of 34.34%) to visit Nepal among all 11 countries. In ranking, the United Kingdom, USA and Japan have been almost at second position to visit Nepal. Similarly, France, Germany and Sri Lanka have about the third position for their number of tourists visiting Nepal.

Results for conditional mean GARCH (1, 1) of the monthly tourist arrivals

Estimates of the conditional mean for the ARMA (p, q) GARCH (1, 1) model defined as for the level of the monthly tourist arrivals for the 11 main tourist source countries are given in (see Table no 6). The conditional mean estimates are obtained through a modeling procedure in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Germany, United Kingdom, India, China and USA as the AR(1) has coefficients very close to 1 or more than 1. Moreover, the coefficients are also highly significant at 5% level of significance. Netherlands, France, Bangladesh and USA have AR(1) values different from that of other countries and the coefficients, although are very significant are all less than 1. That is why; those countries are showing a little less degree of habit persistent for the monthly tourist arrivals. However, Sri Lanka and Japan have negative AR(1) values, which are also highly significant. They have habit persistent in their monthly arrivals to Nepal but in an opposite fashion. It means there may be some adverse effect on their monthly arrivals to Nepal by the monthly arrivals of other countries.

Results for conditional variance GARCH (1, 1) of the monthly tourist arrivals

In case of the conditional variance for the GARCH (1, 1) model the variance model is defined as: GARCH = C (4) + C (5)*RESID (-1)^2 + C (6)*GARCH (-1) for the monthly tourist

arrivals, the second moment conditions are satisfied by France, Germany, Italy, India, China and Japan. Regularity conditions for Log-moment are á e" 0, â e" 0. On comparing the results of the log-moment, they are seemed to be partially satisfied for most of the countries. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in level into any other form (see Table no 7).

However, the result shows that the estimate of the GARCH coefficients, or â, is significant for all the countries except United Kingdom, India and Sri Lanka. The point is to be noted here that â is negative for all the countries except France. This does not permit to interpret its significance due to the regularity condition. While the estimated ARCH effect, or á, is significant in all cases and all are positive except for France. These results imply that a shock to the monthly tourist arrival series has short run persistent in all cases except France. However, a shock to the monthly tourist arrival series has long run persistent only in France.

Conclusion

In this paper, the uncertainty of monthly international tourist arrivals from the eleven major tourist source countries to Nepal have been modeled based on historical data. The empirical results provided a gauge to compare the conditional means and the conditional volatilities associated with monthly international tourist arrivals. It also enabled validation of the regularity conditions under lying the model and high-lighted the importance of evaluating the uncertainties surrounding monthly international tourist arrivals. After 2006 movement and peace process also didn't solve the problem of continuous instability and poor security situation of the country which has been affecting the tourism badly. However, tourism is one of the more obvious non-human casualties of this tragic phenomenon which created fear to the visitors. Tourism accounts for a substantial proportion of foreign exchange earnings, which enables the importation of consumer as well as capital goods for economic development, leads to a significant share of government revenue, is a key determinant of development expenditure, and provides employment for a considerable proportion of the workforce.

The monthly tourist arrivals series in levels depict very high coefficient of variation (CV) for the 11 tourist source countries. Jarque-Bera, a test statistic of Normality, shows that all the source countries have no normality patterns as the p-values for all the cases are less than 5% level of significance although the value of skewness for Japan is very close to zero. Sri Lanka has the highest value of skewness very close to 3, higher positive skewness. Similarly, UK has the values of Kurtosis very close to 3. Although, Japan has smaller Skewness and higher Kurtosis, it shows a non-normality nature in monthly tourist arrivals. Srilanka, Netherlands, Italy, China and USA have very higher degree of kurtosis. Monthly tourist arrival data should have normality for further analysis. To achieve this property, suitable transformations are to be made.

As five of the eleven major tourism source countries are from Western Europe, the seasonal concentrations of monthly tourist arrivals occur during European Winter months, roughly from September to March. The peak month is October for France, Germany, Netherlands and United Kingdom and August is the peak month for Italy. However, for the

same duration, most of the Asian countries have different months for the peak seasonality. The peak month for India has been June, that for Bangladesh has been October and peak months for Sri Lanka have been March and August. China and Japan have peak month, November. Nevertheless, the peak month for Japan has been March too. During the same duration, the primary peak month for USA has been October. March and November have also shown the secondary peak months for USA.

ARMA (p,q)–GARCH(1,1) model showed that there was a considerable degree of habit persistence and seasonality, particularly for the peak tourist season, which coincides with the European winter months. The conditional mean estimates are obtained through a modeling procedure in which only significant variables are included until a parsimonious specification is achieved. It is evident from the results that there is a very strong degree of habit persistent in the monthly tourist arrivals from Germany, United Kingdom, India, China and USA. In the case of the conditional variance for the GARCH (1, 1) model, the second moment conditions are satisfied by France, Germany, Italy, India, China and Japan. Regularity conditions for Log-moment are á e" 0, â e" 0. On comparing the results of the log-moment, they are seemed to be partially satisfied for most of the countries. Hence, the consistency and asymptotic normality of the QMLE are not guaranteed. This situation suggests the transformation of the monthly tourist arrivals in level into any other form. However, the result shows that the estimate of the GARCH coefficients, or â, is significant for all the countries except United Kingdom, India and Sri Lanka. The point is to be noted here that â is negative for all the countries except France. This does not permit to interpret its significance due to the regularity condition. While the estimated ARCH effect, á is significant in all cases and all are positive except France. These results imply that a shock to the monthly tourist arrival series has short run persistent in all cases except France. However, a shock to the monthly tourist arrival series has long run persistent only in France.

Tourism brings several good things to the country but equally poses many threats and socio-cultural, environmental and economical distortion which could be rather controlled by the planning and implementations of the policies, concrete actions and prompt commitments. Nepal should be very much careful for conservation and utilization of the world's top class tourism products for the sustainable development. The government and policy makers should think to minimize or control the incidents which affect the tourism industry badly. The government should have far sighted and concrete plan for the sustainable tourism development and should develop necessary policies and code of conducts, ensure the tourists for quality services and their security, repaint the country's present image as one of the world's economic but very exciting destination (Ghimire, 2003 : 45). Because of Nepal's diverse touristic attraction, it can be the destination for all and destination for whole year.

Table 1: Descriptive statistics of top ten international tourist arrivals

Country	Years													
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	Rank
India	133438	143229	140661	95915	64320	66777	86363	90326	96434	93722	96010	91177	1198372	1
U.K.	29998	35499	36852	37765	33533	21007	22101	24667	25151	22708	32367	33658	355306	2
Japan	35038	37386	38893	41070	28830	23223	27412	24231	18460	22242	27058	23383	347226	3
U.S.A.	30056	35902	39332	40442	32052	17518	18838	20680	18539	19833	29783	30076	333051	4
Germany	22374	23862	26378	26263	21577	15774	14866	16025	14444	14361	21323	18552	235799	5
France	21573	21992	24490	24506	21187	13376	15865	18938	14128	14835	20250	22402	233542	6
Sri Lanka	4021	11031	12432	16649	9844	9805	13930	16124	18770	27413	49947	37817	227783	7
China	0	0	5638	7139	8738	8715	7562	13326	21170	16800	27339	35166	151593	8
Bangladesh	6206	6004	9262	8731	7742	5507	5031	14607	20201	16474	24012	20067	143844	9
Netherlands	9214	14403	17198	16211	13662	8306	8443	11160	8947	7207	10589	10900	136240	10
Italy	11034	12864	12870	11491	8745	8057	8243	12376	8892	7736	11243	7914	121465	11

Source: Nepal Tourism Statistics, 2008

Table 2: Descriptive statistics of monthly international tourist arrivals

Statistics	For Monthly Tourist Arrivals at levels (Series)										
	France	Germany	Italy	Netherlands	India	Bangladesh	Sri Lanka	China	Japan	USA	UK
Mean	1621.8	1637.5	843.5	946.1	8322.0	998.9	1553.7	1128.2	2411.3	2305.9	2467.4
Median	1342.5	1360.5	713.0	809.5	7858.5	764.0	637.5	783.5	2219.5	1987.5	2019.5
Maximum	4900.0	5204.0	3455.0	3887.0	20407	3478.0	11955.0	5318.0	6019.0	6971.0	6399.0
Minimum	271.0	246.0	141.0	139.0	3277.0	187.0	0.0	261.0	472.0	908.0	693.0
Std. Dev.	988.0	1006.8	587.9	633.1	3333.0	649.0	2175.4	966.0	1264.3	1050.8	1247.2
Skewness	1.1	1.2	2.1	2.1	1.2	1.4	2.6	1.9	0.7	1.6	1.0
Kurtosis	3.8	4.4	8.3	8.5	5.1	5.0	10.7	6.7	2.8	6.2	3.4
Jarque-Bera	33.7	48.1	279.5	284.3	61.8	67.3	514.1	172.3	10.8	121.2	26.0
Probability	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CV	60.9	61.5	69.7	66.9	40.1	65.0	140.0	85.6	52.4	45.6	50.5

Note: The number of observations is 144 for each tourist source country (Alpha = 5%).

Table 3: Percentage of Arrivals to Nepal in each month during period 1997 – 2008

Month	Countries										
	France	Germany	Italy	Netherlands	India	Bangladesh	Sri Lanka	China	Japan	USA	UK
January	4.51	4.69	2.63	2.70	5.07	4.34	0.40	4.42	2.60	5.20	3.44
February	7.34	7.95	4.05	4.18	5.74	5.83	0.71	5.15	3.70	5.57	4.71
March	10.41	13.41	4.84	4.70	6.38	6.43	1.10	5.59	4.43	5.96	5.20
April	11.92	9.00	5.33	5.47	6.88	6.99	1.34	6.12	6.40	6.70	5.60
May	5.00	5.78	5.87	6.11	7.21	7.50	1.92	6.66	7.00	7.21	6.06
June	2.22	2.90	6.68	6.88	7.67	7.87	3.18	7.60	7.64	7.67	7.10
July	5.26	4.07	7.23	7.94	8.07	8.43	8.07	8.18	8.31	7.94	7.87
August	8.05	5.79	7.58	8.55	8.56	8.93	9.84	8.80	8.95	8.45	8.81
September	8.02	10.91	8.61	9.18	9.10	9.34	12.02	9.34	10.86	9.10	9.81
October	19.71	19.24	10.21	10.52	9.60	9.78	16.50	11.02	12.00	10.04	11.94
November	12.43	10.98	13.69	12.32	11.74	10.94	21.10	12.43	13.36	11.42	13.22
December	5.14	5.29	23.27	21.46	13.97	13.61	23.82	14.70	14.75	14.74	16.26

Table 4: Unit Root test (Phillips-Perron Test for stationary with Constant, time trend and five truncated lag)

Tourist Source	Levels	Logs	Annual difference	Log-difference
France	-7.344744	-6.649081	-18.07917	-14.68700
Germany	-6.224531	-5.346971	-13.25064	-10.63635
Italy	-9.063175	-8.290873	-21.85108	-19.97241
Netherlands	-8.261977	-7.528995	-21.69348	-19.81243
U K	-6.030232	-6.404668	-15.84175	-16.24894
India	-5.994103	-5.734570	-29.59334	-16.31013
Bangladesh	**-2.197020**	**-2.692645**	-15.20909	-17.82244
Sri Lanka	-3.975739	-5.569709	-11.27203	-12.87702
China	**-1.941070**	**-2.085150**	-16.50049	-15.00704
Japan	-5.746032	-6.287795	-14.08197	-15.19804
USA	-5.763900	-4.956598	-17.76780	-16.22388

Note: The null hypothesis is that monthly international tourists' arrivals have a unit root. The critical values for rejection of the null hypothesis of a unit root are **-3.476472** and **-2.881685** at **1% and 5%** respectively. The two items in bold indicates non-rejection of the null hypothesis of a unit root. The series in levels **are stationary** for **all** countries except **Bangladesh and China**. The series in natural logarithm **are stationary** for **all** countries.

Table 5: Seasonal Indices for monthly tourist arrivals, 1997-2008

Month	Country										
	France	Germany	Italy	Netherlands	U K	India	Bangladesh	Sri Lanka	China	Japan	USA
January	.563	.533	.619	.636	.708	.835	.946	.178	1.079	.930	.909
February	.824	.944	.703	.714	.948	.734	.866	1.639	.846	1.306	.907
March	1.23	1.60	.912	1.157	1.471	.805	1.062	2.196	.792	1.520	1.209
April	1.374	1.110	.937	.962	1.241	.924	1.092	.235	.882	.882	1.036
May	.604	.724	.545	.644	.703	1.478	.924	.094	.892	.475	.909
June	.269	.368	.335	.330	.429	1.510	.868	.107	.837	.320	.766
July	.640	.489	.6471	.749	.649	1.054	.956	.243	.964	.475	.774
August	.972	.731	2.860	.857	.719	.942	.926	2.793	.865	.899	.694
September	.983	1.327	.934	1.258	1.034	.883	.999	1.199	1.063	.910	1.002
October	2.385	2.263	1.611	2.503	1.918	.936	1.151	1.534	1.156	1.157	1.666
November	1.483	1.293	1.130	1.370	1.396	.827	1.066	1.370	1.277	1.637	1.255
December	.662	.612	.7621	.811	.779	1.065	1.136	.405	1.340	1.481	.868

Note: The Seasonal index, more than 1 indicates the monthly tourist arrivals exceed the trend and cyclical components due to underlying seasonal factor.

Table 6: Conditional mean of monthly tourists arrivals in level, 1997-2008

Coefficients	France	Germany	Italy	Netherlands	U K	India	Bangladesh	Sri Lanka	China	Japan	USA
AR(1)	**0.324** 7.975 .000	**0.904** 20.053 .000	**-0.560** -19.33 .000	**0.676** 6.807 .000	**1.56** 38.035 .000	**1.33** 12.332 .000	**.443** 7.0966 .000	**-.8835** -68.42 .000	**1.0164** 55.057 .000	**-.407** -12.6 .000	**.857** 38.38 .000
AR(2)	**-0.180** -4.27 .000	**-0.481** -19.503 .000	**0.372** 12.20 .000		**-.590** -17.03 .000	**-.353** -3.52 .0004	**0.502** 8.97 .000			**.470** 14.64 .000	
SAR(1)						**-.916** -163.7 .000		**.6746** 10.11 .000			
SAR(2)						**.6746** 10.11 .000					
MA(1)		**- 0.0907** -8.6E+14 .000	**0.902** 1.05E+32 .000	**-0.37** -4.297 .000	**-0.901** -5.73E+08 .000	**-0.815** -12.37 .000		**0.909** 7.06E+16 .000	**-.350** -13.11 .000	**.820** 4.84E+09 .000	**-.365** -5.33 .000
MA(2)							**-.331** -3.79 .0001			**-.0381** -16826373 .000	
SMA(1)											

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively.

Table 7: Conditional variance of GARCH (1,1) monthly tourists arrivals in level

Country	Coefficients				
	ω	α	β	Log-moment	Second moment
France	152523.0 8.88 000	-0.1037 -2.55 .0107	0.899 2.24E+09 000	NA for α < 0	0.7953
Germany	743035.6 10.443 000	0.312 3.309 .0009	-0.507 -4.173 000	NA for β < 0	-0.195
Italy	284655.9 11.68 .000	1.188 34.14 .000	-0.3156 -5.55 .000	NA for β < 0	0.8724
Netherlands	336546.0 9.77 .000	1.304 17.95 .000	-0.338 -2.707 .0068	NA for β < 0	1.1141
U K	115415.0 3.40 .0007	2.0467 84.979 000	-0.004 -.7936 0.427	Not significant of β	2.0427
India	3536596.0 4.21 .000	1.025 2.70 0069	-0.105 -1.26 .206	Not significant of β	0.920
Bangladesh	65084.96 7.730 .000	1.130 3.294 .000	-0.0386 -2.473 .0134	NA for β < 0	1.0914
Sri Lanka	179834.0 1.416 .1568	1.624 3.111 .0019	-0.0023 -.318 .750	Not significant of β NA for β < 0	1.6217
China	58254.07 3.259 .0011	1.207 38.54 .000	-0.0471 -9.526 .000	NA for β < 0	0.3022
Japan	150836.2 4.062 .000	1.187 46.135 .000	-0.0381 -4.77 .000	NA for β < 0	0.9482
USA	155878.4 6.024 .000	1.251 4.170 .000	-0.0919 -3.924 .0001	NA for β < 0	1.159

Note: The three entries corresponding to each parameter are their estimates in bold, their calculated asymptotic z values and their p-values respectively. Regularity conditions for Log-moment are α e" 0, β e" 0;
That for Second moment is α + β < 1. For GARCH (1, 1), ω is the constant conditional volatility, á is the ARCH effect and β is the GARCH effect.

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