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**AIR TRANSPORTATION AND ITS IMPACT UPON THE
TOURISM INDUSTRY OF NEPAL**

Case Study: Tribhuvan International Airport

Bachelor's Thesis

CENTRIA UNIVERSITY OF APPLIED SCIENCES

Degree Programme in Tourism

November 2015

ABSTRACT

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Degree Programme Degree programme in Tourism		
Name of thesis AIR TRANSPORTATION AND ITS IMPACT UPON THE TOURISM INDUSTRY OF NEPAL Case Study: Tribhuvan International Airport		
Instructor		Pages 38+2
Supervisor Katarina Broman		
<p>This report was done to put focus on the importance of air transportation on the tourism industry of Nepal. It shows how air transportation is the main means of transportation in Nepal and connects international tourists to the region. This report is based on Tribhuvan International Airport in Kathmandu. The airport is the only international airport in the country. The tourism industry plays a vital role in the development of Nepal.</p> <p>The research method used was a secondary data analysis. The secondary data was collected from publications, annual reports provided by the Governing body of Nepal. The main idea behind the choice of secondary data was to use official data gathered by the tourism authority of Nepal. The statistics used in this thesis were collected from Ministry of Culture and Aviation Nepal (MOTCA) and the World Travel and Tourism Council (WTTC).</p> <p>This thesis was done to emphasize the relationship between aviation and its different kinds of impact upon Nepal and its development. This thesis also revealed the importance of the country's single international airport, Tribhuvan International Airport. The report showed the role and importance of aviation for the tourism industry. Development of tourism would never have been the same without air transportation. Even though air transportation is not at the level of the required standard, it provides a convenient and safe way to get into the country.</p>		

Key words Aviation, Nepal, TIA, Tourism

ABBREVIATIONS

AMSS	Automatic Message Switching System
ASR	Airport Surveillance Radar
ATAG	Air Transport Action Group
ATC	Air Traffic Control
CAAN	Civil Aviation Authority of Nepal
CNS	Communication, Navigation and Surveillance
GDP	Gross Domestic Product
ICAO	International Civil Aviation Organization
MOTCA	Ministry of Tourism, Culture and Civil Aviation
MSSR	Monopulse Secondary Surveillance Radar
NCR	Nepal Railway Company
NTB	Nepal Tourism Board
SIM	Subscriber Identification Module
SSR	Secondary Surveillance Radar
TIA	Tribhuvan International Airport
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asian Free Trade Area
T-MSSR	Terminal Monopulse Secondary Surveillance Radar
USD	United States Dollar
VIP	Very Important Person
V-SAT	Very Small Aperture Terminal
WTO	World Trade Organization
WTTC	World Travel and Tourism Council

ABSTRACT

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1 INTRODUCTION

Tourism is one of the largest and key sources of foreign currency in Nepal. Cultural and natural tourism, adventure and sports tourism, pilgrimage and religious destinations, and national parks and reserves are the areas of the Nepalese tourism industry. Tourism cannot be developed without a functioning transportation system. More than 74 percent tourists travelling to Nepal choose air transportation. On the other hand it is one and only channel that links remote tourist destinations to capital city and other parts. This shows how vital the air transportation is for Nepal and its tourism industry.

Tourism has emerged as one of the major global economic businesses in the 21st century. Tourism can be understood as a process of individuals or groups traveling from one place to another to gain pleasure or business experience. The tourism industry can only operate with the availability of other tourism essentials such as transportation, accommodation, entertainment, food and so on. Transportation is the most important contributor to the tourism industry. In general the main function of transportation is transit, carrying people and goods from one destination to another. People use transportation services to travel from one place to another seeking tourism or to deliver tourism goods.

Transportation is by far one of the most essential components of the tourism industry. A well-developed and functional transportation system means a well-structured possibility of reaching various markets and providing the best quality service to the traveler. People these days care about the traveling time more than the traveling distance. Those days when people used to say “How far have you travelled?” has become an old story. Air transportation has reduced the time required to travel from long to short time and boosted the long-distance trips.

Air travelling has become the most popular mode of travel in modern society. Air transportation has made possible to travel what earlier were long-lasting journeys in a short time period and increased the demand for long-distance trips. Recently the share of air transportation in the transportation market has grown significantly. Air transportation has

not only made an impact upon the tourism industry and developed countries, but it has made a huge impact upon developing countries and their economy.

The air transportation in Nepal started 66 years ago in 1949. Since the major part of the roads is still in a primitive and insufficient state, and the country is landlocked with no railway services, air transportation is considered to be a comparatively safer and more reliable source of transport. However the country's air service still has various areas to develop to make it a general standard. Nevertheless air transportation is still the first choice of transportation in Nepal for international tourists as well as for local passengers for traveling and prioritizing time, safety, comfort and aerial views of the Himalaya.

The aim of this research is to get acquainted with the relationship between the air transportation system and the tourism industry of Nepal, and to familiarize with the current status of Tribhuvan International Airport. This research will try to find out the current status of air transportation and its development progress, security and safety situation. The research will also try to find out the current status of TIA. During this research process, the air transportation will be the main study point; however all modes of transportation will be introduced. The report will analyze and understand the economic, social and environmental impact of air transportation.

This research is based on air transportation in Nepal. This research will be designed as a case study. All the data used for this research are secondary data. The data will be gathered from publications made by the governing body of Nepal, annual reports published by the Nepal Tourism Board and Aviation authorities. During the secondary data collection several websites and web articles will be used. This thesis consists of an introduction, theoretical framework, data analysis and conclusion. The Introduction has described the aim and objectives of the research. The theoretical framework will discuss modes of transportation and its various features and its role in the tourism industry. The data analysis part of this report will include the data provided by Nepal civil aviation. The conclusion will be drawn at the end and will discuss the research findings and future suggestions.

2 TOURISM IN NEPAL

According to World Trade Organization prediction, about 1.6 billion people will travel from one place to another as tourists by 2020. This prediction has been made on the base of development of tourism activity of during the past couple of decades and even over past century. A 20-year outlook of a commercial air travel produced by Boeing concludes that the passenger traveling between 2005 and 2024 will increase by an average rate of 4.8 per cent per year, and the transportation of cargo will increase by 6.2 per cent across the same time period. The same outlook predicts that global aircraft numbers will double by 2024 to over 35,000 commercial aircrafts. Airlines such as Emirates and Qantas are purchasing next generation aircrafts and Boeings (e.g. Boeing 787, The Airbus A 380), which proves the enormous importance of transportation in tourism industry. (Duval 2007, 3.)

2.1 Nepal and Tourism

With the total land area of 147,181 square kilometers Nepal is landlocked country, located in South Asia between China in north and India in south, east and west. The country is divided into three main regions, Himalayan region, mid hill region and Terai region. The highest point of country is Mt. Everest (8,848 meters), while the lowest point is the Kechana Kalan (60 meters). Nepal is famous among tourists for many mountains and being a birthplace of Gautam Buddha. (Welcome Nepal 2012). Tourism is one of the potential sectors for the development of Nepalese economy. After agriculture, tourism might be the next big source of employment in Nepal. (NTB 2014)

Nepal is unique destination for hiking and trekking because of its unique combinations of landscapes and variety of cultures. Being rich in mountains and fast flowing rivers, adventure and ecotourism are the best attractions for the tourists. Being a landlocked country and surrounded by mountains, air transportation is the most popular mode of transportation for international tourists in Nepal. (CAAN, 2013)

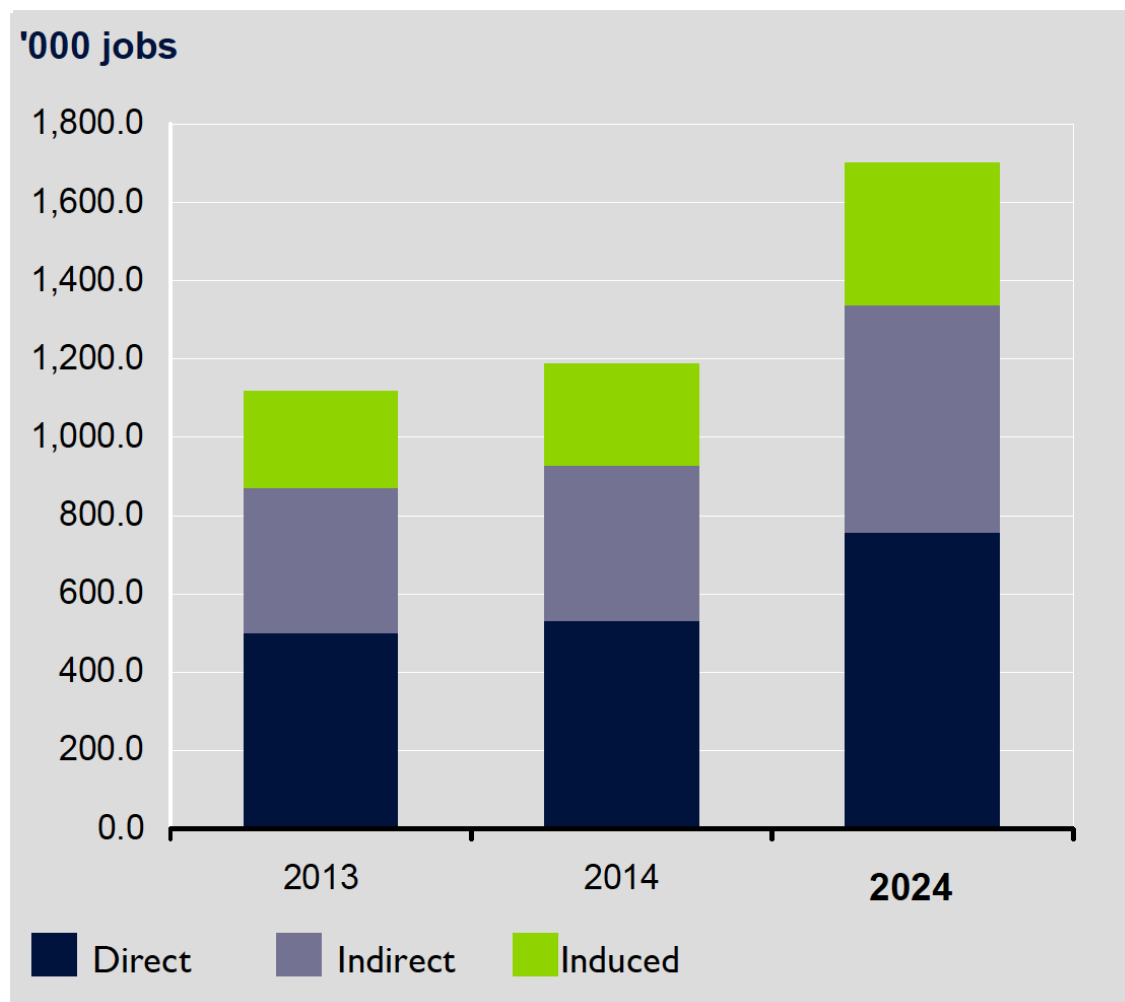
TABLE 1. Tourist arrivals by years, from 2003 to 2013 (Adapted from Nepal Tourism Statistic 2013,Nepal)

Year	Other countries	India	Total
2003	251,769	86363	338,132
2004	294,971	90,326	385,297
2005	278,964	96,434	375,398
2006	290,204	93,722	383,926
2007	430,695	96,010	526,705
2008	409,100	91,171	500,277
2009	416,072	93,884	509,956
2010	481,969	120,898	602,867
2011	586,711	149,504	736,215
2012	637,277	165,815	803,092
2013	616,642	180,974	797,616

Table 1 above shows number of tourist arrivals by year for the time interval of 10 years, from 2003 to 2013. The table shows that more than 30 percent of tourists are from Nepal's neighbor country India, and the rest of the tourists are from other countries. The above table shows that the number of tourist arrivals has been increasing slowly. The total number of tourists had increased in 2013 by 459,484 compared to the year 2003 that is more than double within 10 years. The table shows that year 2012 had the highest total number of tourist arrivals that is 803,092, and the year 2003 had the lowest number of tourist arrivals that is 338,132.

Tourism is one of the major sources of employment in Nepal. The total contribution of travel & tourism to employment (including wider effects from investment, the supply chain and induced income impacts) was 1,112,000 jobs in 2013 (7.0% of total employment), where around 510,000 people are employed directly in tourism business in Nepal. The figure represents 3.2 percent of the total employment in the country. By 2024 Travel and Tourism is forecast to support 1.7 million jobs, which would be 8.5 percent of total

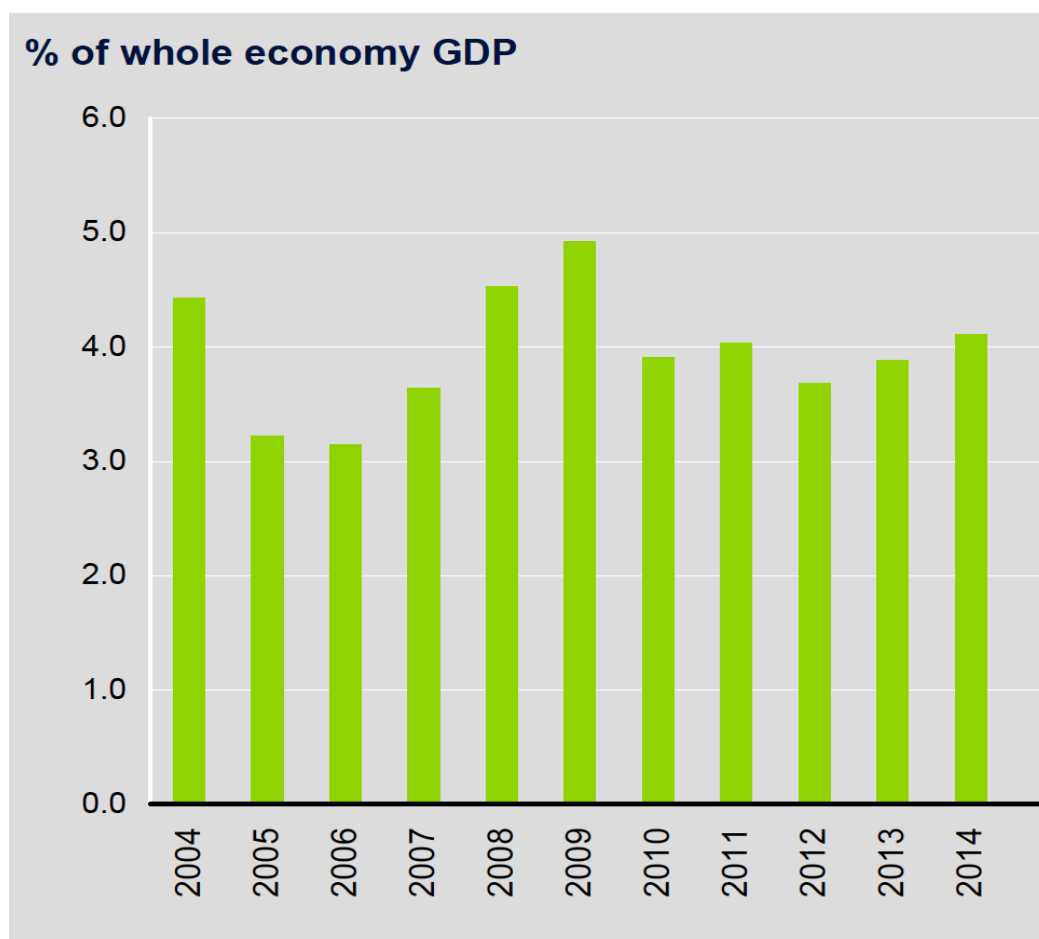
employment. These jobs are related to hotels, travel agencies, airlines and other transportation services. (WTTC 2014)



GRAPH 1. Total contribution of travel and tourism to employment in Nepal, 2014 (adapted from WTTC Nepal 2014)

Graph 1 above shows the total contribution of travel and tourism industry to employment in Nepal by numbers. The graph shows the number has grown from 2013 to 2014. According to above table contribution of travel and tourism in 2024 is going to be even bigger than contribution of 2014. Above graphs predicts that a total of 1,7 million people are going to have employment related with tourism in 2024.

In 2012 the income generated from tourism business was USD 0.42 billion in revenue, which was 21.1 per cent of total exports. According to a report the tourism industry contributed USD 1.6 billion to the GDP of Nepal in 2013. This amount was 8.2 percent of total GDP. The direct contribution of tourism to GDP was USD 0.7 billion. (WTTC 2014)



GRAPH 2. The direct contribution of travel and tourism to GDP of Nepal (Adapted from WTTC Nepal)

Graph 2 above shows the direct contribution of travel and tourism to whole economy GDP of Nepal for the time interval of 10 years, from 2004 to 2014. It shows the percentage of contribution of tourism industry has gone up and down. According to the above graph

direct contribution of tourism to GDP of Nepal was highest in the year 2009. In 2010 the contribution was decreased by 1 percent, but from 2011 it started to grow slowly.

2.2 Impact of air transportation

Around 14.6 million direct jobs in the world are generated through the money expenditure of tourists arriving through air transportation. Indirectly, a further 13.4 million jobs in tourism industry are linked with the tourists arriving via air transportation. Furthermore direct and indirect tourism jobs supported by air transportation create 6.9 million jobs in other sectors of the economy. These indirect jobs are supported through the spending of workers working in air transportation sector. In Africa alone, over 2.5 million people are estimated to be employed by the tourism industry. These jobs are supported and linked with international tourists using air transportation and accounts for around 30 per cent of jobs in whole Africa. (ATAG 2014)

Aviation industry has become the major economic and employment contributor at the moment. Contribution to world GDP compared with other sectors, it has become larger than pharmaceuticals, textiles or automotive industries, global chemicals and food and beverages industries. Air transportation has become the key element of global economic development. It has become the very important transportation medium at the moment. Combined with the tourism industry, taking into consideration all direct, indirect and prompt economic effects, it has become the most significant economic sector. (ATAG 2014). Air transportation is vital for tourism as more than a half of total international tourists and around 35 per cent of goods of international trade are transported via air transportation. The estimated contribution of air transportation to the world GDP is about USD 2.4 trillion, equivalent to 3.4 per cent of world GDP. (ATAG 2014)

With fast, safe and reliable services air transportation brings tourist and host nation's culture together like no other transportation. It allows travelers to experience different social culture with greater value. Air transportation plays a central role in developing tourism and economy of many developing countries. Sustainable air transportation brings employment opportunities in a responsible and strategic way. Feature like paying for own

infrastructure (i.e. airports, terminals, runways, air traffic control) rather than depending upon funds and finances makes air transportation unique and self-sustainable. It makes tourism and trade possible, contributes in economic growth, improves living standard of local area, erases poverty, increases tax income and contributes to sustainable environment. In case of emergency, crises, and natural disaster air transportation is best way to supply medical support and other help. (ATAG 2011)

3 MODES OF TRANSPORTATION

This chapter will discuss the various modes of transportation. Transportation mode means the methods used for transporting people or freights. All the transportation modes are essential to the transportation system. Ranges of transportation modes are very wide, but basically they are categorized into three; air transportation, ground transportation, and water transportation. The modes of transportation vary depending upon the geographical structure and sources available at the destination. Each transportation mode has its own infrastructure, vehicles, and operations, and often has unique regulations. (Rodrigue, Comtois, & Slack 2013, 101).

3.1 Ground Transportation

Ground transportation is the most popular mode among all transportation modes. Unlike other modes of transportation it has the most types of transportation. Ground transportation plays a significant role in the tourism activity. Ground transportation has been dominating transportation modes for many years for transportation of both passengers and goods. Ground transportation mode operates in various sizes and scales. Rail transport, bus, car, coaches, cycles, motorbikes are the examples of ground transportation. Ground transport can be categorized into two categories under the tourism activity, first is personal transport and the second is supplied transport. Personal transport includes motor vehicles that are used for transport of people, and off-road, motorized vehicles and pedal-powered bicycles. Supplied transport includes package tours that consist of coaches or buses and rail travel. (Duval 2007,91)

In the context of tourism, ground transportation plays an important role for both tourists and tourist hosting nation or place. Usually most of the tourist destination ground transport is most dominant travel mode. Ground transport development can be used for both tourism development and economic development of hosting country. (Duval 2007, 93).

Ground transportation provides opportunity for tourists to choose from several travel options and costs less than other modes of transportation. Another reason behind its popularity is ground transports can be used for other than travelling and the capital costs of vehicle are usually small. Lower costs attract new entrepreneurs in this business. Another important advantage of ground transport in tourism is flexibility and multiple choices of routes to the destination and it has the unique features of providing door-to-door service for both passengers and goods. (Rodrigue et al. 2013, 102).

3.2 Air Transportation

Air transportation is the fastest and the most regulated transportation system currently. With new technology and development came along fastest jet planes and aircrafts, that allowed traveling faster than ever. Now the travelers can explore new areas and long distance travel in short time. The expansion in air transportation in tourism industry introduced many untouched and non-popular areas to western society. As a matter of fact at the moment any corner of world can be reached under 24 hours. It has managed to gain significant part of the transportation market in recent years, especially to destinations longer than 500 kilometers away. A scheduled air transportation system offers a safe, convenient, reliable, frequent, and consumer-centered service. Air transportation is becoming more and more popular among the travelers who want to arrive at destinations quickly. (Cooper, Fletcher, Fyall, Gilbert & Wanhill 2008, 419.)

Transporting more than 3.1 billion people and generating about 58.1 million jobs, air transportation industry has become one of the best industries Air transportation provides the world's fastest transportation service and it is the most popular transportation mode for long-distance travel. Air transportation makes possible to reach some of the world's remote places and helps to grow tourism industry and economy of the developing country. (ATAG 2014). Air transportation plays a central role in developing tourism industry. Over 52 per cent of international tourists now travel via air transportation. Tourism is very important process of development for some regions especially developing countries. Air transportation provides the only global transportation channel, which makes it important for worldwide tourism and business. (IATA 2014)

3.3 Water Transportation

Water transportation has been around for thousands of years and much like ground and air transportation it also has an integral relationship with tourism industry. Unlike air and land transportation potential of water transportation has been overlooked in relation to tourism development, and it is not widely used as popularly as ground and air transportation. Water transport dominated in transport services for many years, until the development of air transportation. The main advantage of water transport compared to other transportation is lower price. Travelers can carry themselves and their own vehicles as well and use them at the destination. (Cooper et. al. 2008, 417.)

Although the popularity of water transportation has been decreasing worldwide cruise tourism is growing. In the past several decades the growth of cruise tourism has been significant. According to Industry Association about 10.5 million cruise vacationers have been traveling on cruises in 2005. (Duval 2007, 122)

4 AIR TRANSPORTATION IN NEPAL

The air transportation in Nepal started with the establishment of Tribhuvan International Airport (TIA) back in 1949, just two years before advent of democracy in the country. Since then more than 40 airports have been founded all over Nepal. Though TIA is still the sole international airport of the country. Air transportation in Nepal has become major transportation mode for foreign tourists as well as for those who can afford a comparatively more expensive price than road transportation. Air transportation is the one and only source of transportation for many tourist destinations in Nepal. The air transportation in Nepal has very important role for the development of the Nepalese tourism industry. (Visit Nepal, 2013)

4.1 Statistical information about air transportation

After 65 years of operation, air transportation system of Nepal has been developing, and growing with airlines operating from many countries around the globe. Today Nepal has a bilateral agreement and memorandum of understanding with 36 different countries. But still 22 of them do not have direct flights to or from Nepal. These kinds of provisions of the air service agreements provide over 5.2 million seats on air transportation to or from Nepal, however only 45 percentage of its total capacity is being utilized. (CAAN, 2013)

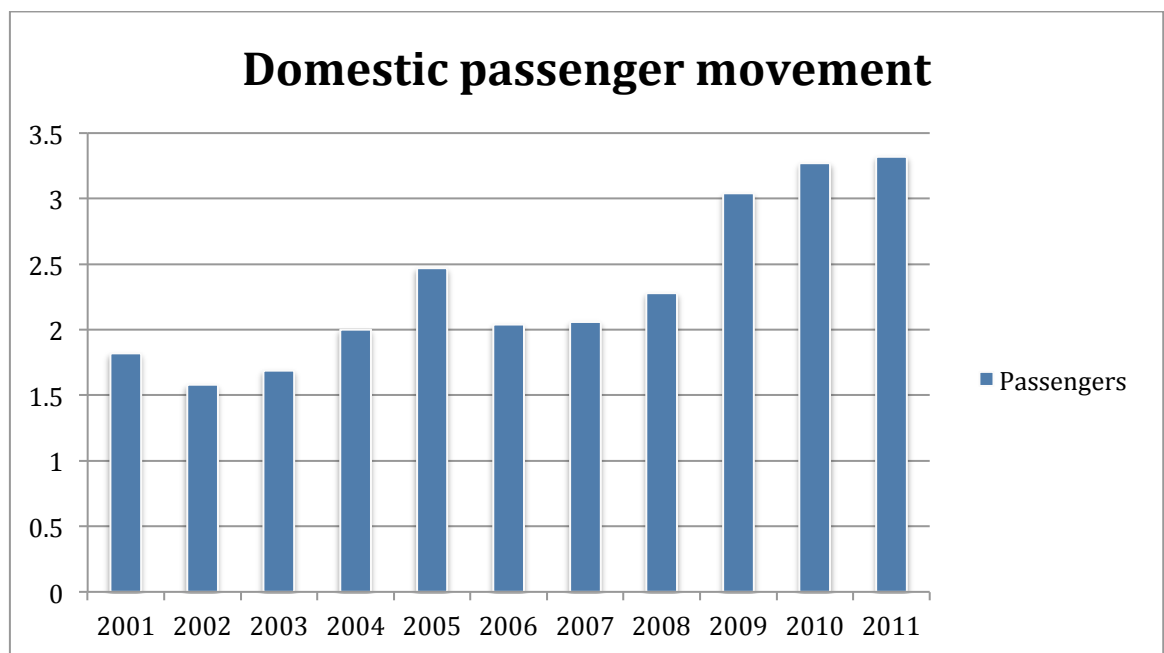
About 75 percent of international tourist travel to Nepal through air transportation. This high number of traveling tourists suggests that the air transportation is one of the most important parts of Nepalese tourism industry. According to Ministry of Tourism and Civil Aviation (MOTCA) in 2013, 594,848 tourists arrived in Nepal by air transportation. Table below shows that in 2014, India and China were the top countries from Asia to travel to Nepal. It shows United Kingdom and Germany were top countries from Europe to travel to Nepal. The table also shows that more than 74 percent of total tourists are arriving in Nepal by using air transportation. (MOTCA 2013)

TABLE 2. Tourist arrivals by nationality and means of transportation in Nepal, 2013.
(Adapted from Nepal Tourism Statistic 2013, 45)

Countries	Means of Transport	
	Air	Land
Australia	18,250	2,219
Bangladesh	21,363	1,047
Canada	11,084	1,048
China	62,616	50,557
Denmark	4,783	537
France	19,455	2,387
Germany	19,132	3,131
India	167,282	13,692
Italy	8,774	1,200
Japan	24,172	2,522
Netherlands	8,013	2,503
Spain	9,031	1,381
United Kingdom	32,381	3,287
United States of America	43,047	4,308
Others	145,465	112,949
Total	594,848	202,768

Air transportation is not only vital for international tourists traveling to Nepal, but it is also a major means of transportation for domestic tourists and passengers. Nepal has a total of 56 airports, one of them is international airport and the rest of them are all domestic airports. Among 56 airports, only 32 airports are in operation at the moment, and 6 of them are under construction. More than 1.5 million people travel through these airports annually. (CAAN Report, 2014).

Nepal is surrounded by high mountain and hills, and most of its tourist attraction sites are located in hilly region. Mountainous geographical location, steep rivers, and difficult weather condition creates huge problems in the development of transportation. For more than 30 million inhabitants only 43 percent of population has access to 12-month functioning road transportation. Due to the poor development of the road transportation it is impossible to provide quality roadways services. (World Bank, 2010)



GRAPH 3. Domestic passenger movement by air transportation in Nepal (in millions)
(Adapted from CAAN Report, 2012)

Graph 3 above presents the number of domestic passenger movements in Nepal for the time interval of 11 years, from 2001 to 2011. It shows that the number of passenger movement has been increasing gradually within those 11 years. The number of passenger movement in 2011 had increased by 1.5 million compared to 2001. Graph above shows that during this 11-year time period, two years 2002 and 2006 had passenger movement decreasing when compared to previous years. The graph shows that, the year 2002 had the lowest number of domestic passenger movement and the year 2011 had highest number of domestic passenger movement.

4.2 Challenges of transportation

With a lack of water transportation, the country depends upon road transportation and aviation to transport. The road network of Nepal consist of 17,282 km of roads, and more than 60 percent of roads are concentrated in plain region of the country. The poor condition of road network is affecting the economic and social development of remote hill and mountainous region. Nepal also has railway transportation system but only for 57 km. Nepal Railways Company (NRC), a government agency, owns the 53-kilometer narrow-gauge rail line, which is operated between Jaynagar in India to Janakpur in Nepal, and a 21-kilometer portion from Janakpur to Bijalpura. Air transportation is very important for Nepal to connect remote hilly areas with the cities. International air transportation is vital for tourism development whereas domestic air transportation is very important for the economic and social development of Nepal. (World Bank, Transportation, Nepal, 2013)

For the developing country like Nepal transportation plays a very important role in its development. Nepal is landlocked country with China in the north and India in the South. For country like Nepal all types of transportation are hugely important. A well-developed and managed transportation system is backbone of host country for its development. In the case of Nepal, the transportation system is not well managed and developed, although there has been implementation of several plans and strategies for its development. Nepal's transportation development faces several challenges, such as lack of integrated sector policies, heavily dependence on foreign aid for the development of road sector, poor monitoring and inadequate and irregular maintenance of current systems. The foreign donors provide more than 60 percent of development of transportation expenditure. The government of Nepal has identified and recognized the importance of transportation systems and it has been included in several national plans and strategies. (World Bank, 2013)

The transportation sector is vital for country like Nepal for economic development. With the geographical situation and poor economy of Nepal, it is challenging to develop and manage well-functioning transportation system. Nepal has the lowest road density in South Asia region. One third of its population is still away from all- weather transportation.

Construction of new roads and airports and maintenance of current networks are the foremost challenges of Nepal. Nevertheless, percentage of population having access to paved road transportation has been more than doubled from 24 percent to 51 percent over the past six years. (World Bank, NEPAL country snapshot, 2015)

4.3 Opportunities

Nepal has signed two multilateral agreements with eight countries and become part of South Asian free trade area (SAFTA) and south Asian association for regional cooperation (SAARC). Also it has a bilateral air service agreement with 36 countries. Government of Nepal has started a policy of providing instant arrival visa up to maximum of 30 days at the Airport after the payment of 30 US Dollars. However the duration can be extended later at the tourist ministry in need. This kind of service will promote and increase the international tourist arrival and air traffic to Nepal. Due to the commercial agreement with India, Maldives, Bhutan, Qatar, UAE and many more there are reduced custom duties and taxes. (CAAN, 2013)

Nepal is densely populated nation, more than 30 million inhabitants occupy an area of 147,181 square kilometers. The lack of water transportation and poor road transportation systems implies a significant number of air transportation users. The market of air transportation is not only limited within local people but it also has a huge potential market for international tourists. Nepal has an incredible environment that makes huge potential for tourism development. It has incredible bio diversity, and place of many natural sites. Nepal has eight of the world's ten tallest mountains on earth including Mt. Everest, and many national parks. It has a climate that ranges from Artic conditions to sub-tropical. Nepal is also rich in cultural diversity; within the area of 147,181 square km it is home for 125 different ethnic groups and 100 different spoken languages. (CAAN, 2013)

There are still many touristic places that have not been explored by tourism and are not connected by any means of transportation. Due to the geographical difficulties construction of road transportation and railway becomes very difficult and costly. In that situation air

transportation is the only option for means of transportation. The air transportation is not only popular among international travelers but it is becoming popular for domestic traveler also. With the expansion of aviation industry the cost of air transportation has become reachable for local people, safer and quicker than road transportation, and for some places the only means of transportation these are the reasons behind increasing number of domestic air traveler (CAAN, 2013)

Geographically Nepal is a small country with huge potential. Geographical and cultural diversity that exist within small area are vast. Even though the country is very rich on fast flowing rivers, the power cut is a major problem, which has to be solved in the future. Construction and maintenance of an infrastructure are directly affected by these power cuts. The government of Nepal has prioritized the development process and aims to provide the transportation facilities to its people within a maximum of 2 hours walk time in hill region and maximum of 4 hours walk time in plain region by 2017. (Sitaula, 2010)

With the development of highway, fast track and expressways, country can develop other area at the same time. Advanced and standard level transportation systems would provide the important support to the development of internal and external tourism industry, hydropower development, and international trade, manufacturing and commerce with neighbor countries. Development of transportation infrastructure would also be vital for reducing poverty and helping country's economic, social and administrative development. (Sitaula, 2010)

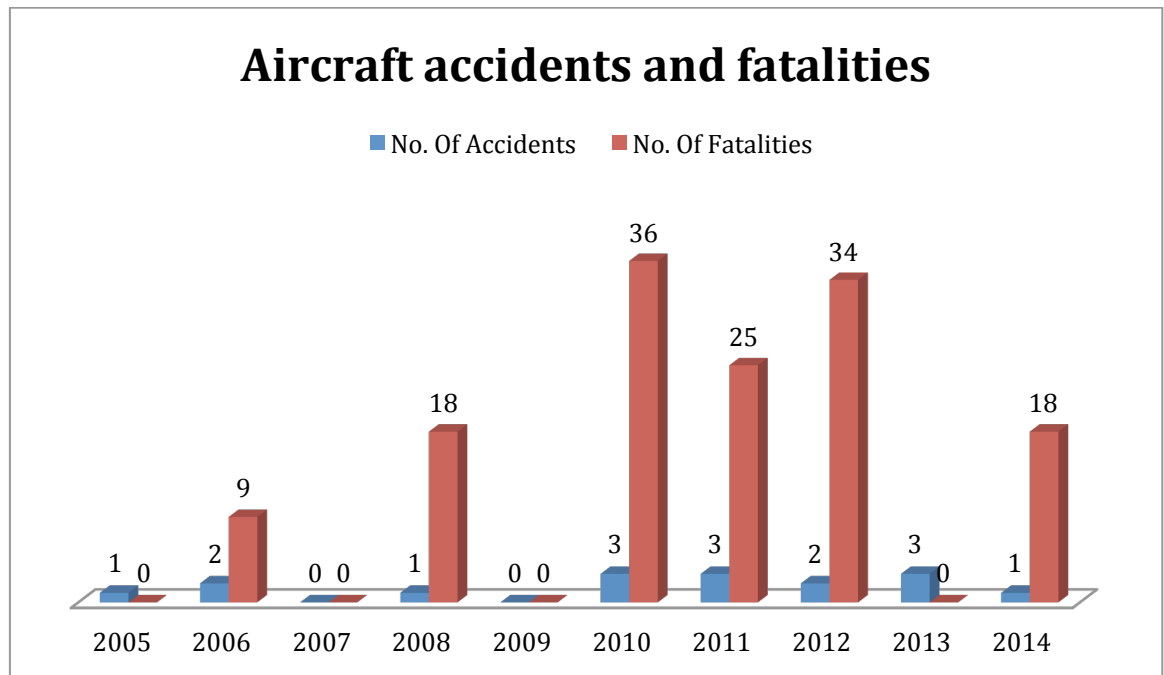
4.4 Aviation safety in Nepal

The air transportation plays vital part in global tourism activity. One of the major objectives of the civil aviation is to ensure safety, sustainability, security, and efficient operation at all level of aviation activities. To promote global safe and organized civil aviation in 1944 a specific agency under United Nations (UN), the International Civil Aviation Organization (ICAO) was created. ICAO works with 191 member states and aviation industry to establish international civil aviation Standards and Recommended

Practices (SARPs) and policies to provide safe and sustainable aviation service. Each ICAO member state must follow and establish and implement the safety aviation system that includes the SARPs and policies of ICAO to reach global aviation standard. (ICAO, Safety Report)

In 1957, the Department of Civil Aviation was established under then His Majesty's Government of Nepal Ministry of Work, Communication and Transport. The regulation regarding civil aviation was introduced under Civil Aviation Act in 1959. In 1960 Nepal became a member state of ICAO. On December 31, 1998, the department of Civil Aviation was transformed into an autonomous body called the Civil Aviation Authority of Nepal (CAAN). After that CAAN has been working under ICAO with the objectives of safer, efficient, regular and standard aviation system. The primary responsibility of CAAN is to provide and maintain high safety level of civil aviation. CAAN is also responsible for construction, maintenance and equipping airports with new navigation tools and facilities. (Civil Aviation Authority of Nepal 2015)

Safety of aviation has been, is, and will remain the top priority of CAAN. After since becoming member of ICAO, CAAN has developed and implemented the aviation safety policies and strategies prescribed by ICAO. About 55 percent of ICAO SARPs has been registered and implemented by CAAN, that is 6 percent lower than global average. To close this gap CAAN has participated in various types of activities, international security panels and forums, so that newer technology can be installed in aviation security. In order to strengthen the aviation security level, CAAN has started to provide training for high-level officers of Nepal Police. To monitor ever-growing passenger number at TIA, CAAN has a plan of installing additional X-ray machines and walkthrough metal detectors. CAAN also has installed automatic security equipment in major hub airports. (CAAN Reports, 2014)



GRAPH 4. Aircraft accidents and fatalities from the year 2005 to year 2014, Nepal (Adopted from Aviation Safety Network, 2015)

Graph 4 above shows the total number of flight accidents and number of fatalities that occurred in Nepal during last decade. The graph shows that during the period between 2005 and 2014 a total of 16 air transportation accidents happened, where 140 people were killed. The average number of fatalities per aircraft accidents is comparatively low with average aircraft accident history (Aviation safety network, 2015). The main reason behind low average of fatalities is because all above occurred aircraft accident are domestic airline accidents, which has comparatively very low passenger carrying capacity to international aircrafts. The graph above shows year 2007 and 2009 are the years without any aircraft accidents. Year 2010 was the most disastrous year for Nepal aviation industry, because in 2010 there were three aircrafts accidents with 36 human casualties.

There was one aircraft accident in year 2005 without any human fatalities. In year 2006 two small aircraft of Yeti Airlines crashed. Luckily one aircraft did not have any casualties but 9 people were killed in the other aircraft. Year 2007 was the aircraft accident free year.

In year 2008 aircraft owned by the Yeti Airlines crashed near Lukla Tenzing Hilary airport where 18 people were killed. Year 2009 was also successful for Nepal aviation industry, because it was also accident free year. Year 2010 was most disastrous year for Nepalese air transportation industry in past 10 years. In 2010 there were three aircraft accidents of three different airlines companies. One aircraft was crashed in April, Nepal Airlines owned it, and fortunately the accident was without any human casualties. The second aircraft, which was owned by Agni air crashed in August and killed 14 people. In December 2010 aircraft carrying 22 people with crewmembers crashed and killed all 19 passengers and three crewmembers. (Aviation safety network, 2015)

In 2011 three aircrafts crashed, Makalu Air's aircraft crashed near Talcha Airport but luckily it did not have any casualties. In October 2011 aircraft owned by Nepal army crashed and killed 6 people. Third aircraft owned by Buddha Air crashed in September, which had 19 human casualties. In year 2012 there were two aircraft accidents. Agni Air's aircraft crashed in May with 15 human casualties. Sita Air's aircraft had even more shocking accidents in September 2012, where 19 people were killed out of 22. Year 2013 had three different aircraft accidents, but luckily none of accidents had human fatalities. In 2014, 18 people were killed in an accident happened with a plane owned by Nepal Airlines. (Aviation Safety Network, 2015)

5 RESEARCH METHODOLOGY

The main objective of this chapter is to present the overall research method used to complete this thesis report. This chapter will help the reader to understand the objective of this thesis report and the research method used during the thesis writing and data collection. In this chapter the aim of this research, the chosen method of research, and the data collection method will be discussed.

5.1 Objectives

The main aim of this thesis is to analyze the importance of air transportation and Tribhuvan International Airport for the development of the Nepalese tourism industry. The aim of the thesis consist of two different objectives; to underline the importance of air transportation for the Nepalese tourism industry, to describe current status of Tribhuvan International airport and factors that affect its services. This thesis also aims to evaluate the current condition of Tribhuvan International Airport, its impact upon economic and social development of Nepal and its difficulties. During this research secondary data will be used.

5.2 Research method and data collection

“The term ‘qualitative’ is used to describe research methods and techniques which use, and give rise to, qualitative rather than quantitative information.” (Veal 2006, 193). Qualitative research is done in such a way that; it tends to acquire great level of data information from a relatively small area of study. A successful research depends upon a selection of an appropriate research method. It is very important for researcher to know the limitation and advantage of selected research method. In the past there have been many different opinion presented about the selection of appropriate method for tourism research. Basically researcher who has the knowledge of both qualitative method and quantitative method will be able to study and analyze the data or subject applicably in travel and tourism. (Veal 2006, 95)

During the research writing researcher must not make claims, which cannot be justified by the research methods. (Veal 2006, 3, 95). The author has chosen to use a qualitative research method for this thesis report. There are two types of data sources that can be used for research: primary data and secondary. To complete this research the author has chosen secondary data collection method. Secondary data that are used for this research are basically statistical records, annual reports, government documents, and research data collected by previous researchers. (Jennings 2001, 63)

There are both merits and demerits of using secondary data. Various researches have been conducted and number of data has also been collected in different fields. Thus, the previously collected data allow researcher to go back in time and study past data within a moment. Secondary data are set in such way so that future predictions, past trends and comparison between several types of data can be done. It is also very easy to access most of the secondary data and most of them are also free of charge for researcher. Easy and quick to reach, low cost and effort, easy to make comparison, high level of quality, and possibility of test makes secondary data collection method the choice for this thesis writing. Using of secondary data also has some demerits; sometimes access of secondary data becomes very difficult and secondary data designed in a way researcher might unable to understand its main purpose and its way of process. Another disadvantage of secondary data is the data may not be complete and it also might be biased data. (Jennings 2001, 68-70)

To complete this thesis author has gathered the secondary data from many different sources, such as Ministry of Tourism and Civil aviation of Nepal, Civil Aviation Authority, World travel and tourism council, and Aviation safety Network. All the presented data will be based on the outcomes of primary sources. This research process will be the data analysis of secondary data. As for case study an overview of Tribhuvan International Airport will be presented, where its statistical information, background, opportunities, and difficulties will be discussed.

5.3 Validity and reliability

“Validity is the extent to which the information collected by the researcher truly reflects the phenomenon being studied.” (Veal 2006, 41). In general validity describes the concept of truthfulness and accuracy of the data. This thesis aims to get valid and accurate information and findings from collected data. Even if the results of research are great, positive or favorable if the data are not valid and are inconsistent, the research will be considered as failed or unsuccessful. The validity of data depends upon people’s behavior and attitudes. It is not possible to use all gathered data. The result and findings of this research depends upon secondary source.

Regarding data source of this research all the data are taken from publications and reports published from related authorities, websites, and the Internet and all the data have been presented accurately, therefore it is a valid research. In order to have effective data, genuine sources like WTTC, ATAG, which are international organizations and governing publications, such as CAAN, MOTCA and TIAAIRPORT has been used as primary source for data.

“Reliability is the extent to which research findings would be the same if the research were to be repeated at a later date or with the different sample subjects.” (Veal, 2006, 41). It is very important for research that data that have been collected during research are collected from reliable source. The source and data from a research is reliable even though multiple researches has been carried out during different time periods. However, due to human nature and conditions, the result may slightly vary between different studies.

6 CASE STUDY TRIBHUVAN INTERNATIONAL AIRPORT

Airports are one of the most developed and functioning part of tourism business. The definition of airport has been changed many times, in the early development of airports they were simply recognized as a building that provided a waiting area for customer. Today they are defined as a multi-million business and airports are more than just transportation terminal, in major cities airports are major integrated transport hubs, with the wide range of other routes. (Page 2009, 208). Nepal has a total of 44 airports, among them TIA is the only airport with international services. The TIA today operates 27 international airlines from major international cities. The domestic airlines operate throughout the country from TIA runway. (TIAIRPORT, 2015)

6.1 About TIA

Tribhuvan International Airport (TIA) is located 5.56 km east of Kathmandu, capital city of Nepal and is the largest and only international airport of Nepal. The TIA is the only door to Nepal via air transportation; it plays the vital role in tourism industry. TIA has become not only the main center for global trade and business but it also serves domestic and international airlines. TIA is not at the level of international airport standards. However, it is equipped with basic airport facilities like money exchange, tourists information center, instant photo booth, communication stall, shops, taxi service and tourists can buy mobile SIM card instantly. (TIAIRPORT, 2015)

TIA has been divided into two terminals, one for domestic flights and the other one for international flights, and it also has a terminal for VIP guests. The airport has just one runway, so it cannot afford to accommodate all the flights flying in and out. The TIA has a 10,000 ft. by 150 ft. runway dimension, which can handle 9 International Medium and Wide Body Category Aircraft, 17 small aircrafts, and 13 helicopters. The airport is situated in middle of the city, and it is connected through the public bus, shuttle and prepaid taxis of the cities. (TIAAIRPORT, 2015)



GRAPH 5. Image of Tribhuvan International Airport (Adapted from Google 2015)

Being the one and only international airport and almost without water transportation and with only insufficient roadways makes TIA a single choice of entry point for foreign travelers. As a result TIA is one of the first impressions an international traveller will have and last impressions they will have when they are leaving. All the travelers, who want to travel directly to Nepal, use air transportation as their primary means of transportation. Air transportation is one effective choice here for convenient means of transportation. In fact, most of the hilly regions in Nepal are not connected with any means of transportation, and airway is the only option that links these remote parts of country to major cities. (Visit Nepal, 2013)

6.2 Chronological development of TIA

TIA was started in a small green cow-grazing pasture, the "Gaucharan", in year 1949. TIA is the main airport of Nepal. The first aircraft that landed at TIA was a single engine aircraft. After that TIA opened the gate for aviation system in Nepal. In 1950 a Dacota Aircraft (DC3) of an Indian registration provided its service for the first time as a

scheduled service, connecting Kathmandu to Patna, Calcutta and Delhi. 1952 was another remarkable year for TIA, because it started to provide service for domestic flights from Kathmandu to Pokhara, Bhairahawa, Simara, and Biratnagar.

In 1955 it was named Tribhuvan Airport. After fifteen years of operation in 1964 TIA was declared as an international airport. In 1989 construction of International Terminal Building was completed, and it was the same year that landing of Concorde was done for the first time. In 1995 installation of Airport surveillance radar (ASR) and Secondary surveillance radar (SSR) system, domestic terminal building expansion, very small aperture terminal (V-SAT) terminal and Automatic message switching system (AMSS) installation started, and from 1998 radar systems and ASR/SSR systems were brought into operation. (TIAIRPORT, 2015). In 2013 TIA installed the communication, navigation and surveillance (CNS) and Air traffic management (ATM) equipment to enhance the Air traffic control (ATC) capacity of the airport. In 2014 with the help of Japanese government, installation of terminal Monopulse secondary surveillance Radar (T-MSSR) and enroute MSSR has been started (CAAN, 2014)

6.3 Statistical information of TIA

According to MOTCA in 2013 29 airlines flew about 3.14 million passengers through TIA. It was increased by 7.35 per cent from year 2012. Airport authorities expect to grow more in coming years as the numbers of airlines have doubled their frequency amid higher demand. In total, foreign and domestic carriers combined carried about 4.68 million passengers in 2013. TIA saw 92,695 takeoffs and landings in 2013. On an average 254 flights took off and landed daily in year 2013. (MOTCA 2013)

Table 3 below shows the number of international flights and passenger movement at TIA for each month in 2013. It shows that the numbers of flights and passengers are higher during the last quarter of year. October has the highest number of passenger movement and February has the lowest number of passenger movement in total. The table also shows in general that number of flights is related with number of passenger movement, when the

passenger movement is higher flight movement is also higher. The table also shows that passenger movement is higher during the tourism season, which is the period from September to November.

TABLE 3. Numbers of international flight and Passenger movement at TIA by month, 2013 (adapted from Nepal Tourism Statistic 2013, 100)

Months	Flight movement			Passenger Movement		
	Departure	Arrival	Total	Departure	Arrival	Total
Jan.	974	974	1,948	132,488	112,650	245,138
Feb.	870	870	1,740	121,142	112,437	233,579
Mar.	973	975	1,948	143,132	132,905	276,037
Apr.	919	916	1,835	127,052	141,075	268,127
May	951	953	1,904	143,409	111,873	255,282
Jun.	913	913	1,826	134,136	105,164	239,300
Jul.	966	966	1,932	135,302	111,641	246,943
Aug.	976	975	1,951	130,308	113,596	243,904
Sep.	982	983	1,965	108,093	137,047	245,140
Oct.	1,074	1,077	2,151	141,482	164,644	306,126
Nov.	1,100	1,102	2,202	151,890	137,784	289,674
Dec.	1,109	1,108	2,217	164,778	126,274	291,052
Total	11,807	11,812	23,619	1,647,235	1,493,067	3,140,302

Table 4 below shows the volume of domestic passenger movement at Tribhuvan international airport for each month of year 2013. The table shows that number of passenger arrival and passenger departure are almost equal. The table shows that the number of passenger movement is highest in October; while passenger movement is lowest in January in total.

Table 4. Domestic passenger movement from Tribhuvan International Airport by month, 2013 (adapted from Nepal tourism statistics 2013, 103)

Months	Departure	Arrival	Total
Jan.	51,761	50,339	102,100
Feb.	58,181	59,156	117,337
Mar.	72,221	69,221	141,433
Apr.	72,980	73,833	146,813
May.	65,072	69,903	134,975
Jun.	55,004	57,604	112,608
Jul.	52,259	53,849	106,108
Aug.	56,752	57,560	114,312
Sep.	65,876	59,932	125,808
Oct.	85,407	79,755	165,162
Nov.	73,493	81,555	155,048
Dec	60,094	60,806	120,900
Total	769,100	773,504	1,542,604

Table 4 below presents the number of aircraft movement, amount of cargo movement, and mail movement at TIA for each month of year 2013. According to below table number of aircraft movement is higher during the last three months of the year. December has the highest number of aircraft movement, while February has the lowest number of aircraft movement. As for the cargo movement the table shows, that the period of July to October has higher number of outgoing movement. Similarly June has the highest number of incoming cargo movement, while January has the lowest number of incoming cargo movement. The table also shows the number for mail movement at TIA. As for table below December has the highest number for both incoming and outgoing mail movement.

Table 5. Total aircraft and cargo monthly movement at TIA in 2013.(adapted from TIA, Civil aviation report, 2014, 74)

Months	Aircraft movement	Cargo movement in kilograms		Mail movement in kilograms	
		Out	In	Out	In
Jan.	1,948	441,593	454,653	6,225	16,847
Feb.	1,740	460,217	496,08	4,922	17,175
Mar.	1,948	683,290	569,837	7,593	11,877
Apr.	1,835	728,537	630,796	9,696	16,225
May	1,904	946,468	547,954	11,725	18,888
Jun.	1,826	801,592	795,530	8,253	12,165
Jul.	1,932	1,061,921	535,598	8,515	9,462
Aug.	1,951	1,004,383	645,616	8512	11,322
Sep.	1,965	1,140,260	709,070	8,820	10,490
Oct.	2,151	1,078,740	637,207	10,761	11,751
Nov.	2,202	774,374	660,913	7,915	16,677
Dec.	2,217	934,978	761,179	13,863	22,903
Total	23,619	10,056,353	7,442,433	175,782	282,582

6.4 Facilities and services of TIA

TIA is considered as the lifeline to Nepal and gateway to the world. Anything that interrupts or harms or the TIA air operations including airfield operations, is very sensitive and will have a strategic effect on the national and international level. An airport is the first and last place a traveler will have an impression of. TIA was designed keeping in mind customer services and facilities. The airport has two public terminals and one VIP terminal. The airport provides many facilities and services for the passengers. The airport has two points for customs clearance. Passengers without any dutiable items can go to green points, while passenger having dutiable items must go through red point. The airport has bank counter at both arrival and departure lounge for the currency exchange. All

foreign passengers entering Nepal must have residence permit or visas during the arrival except people of Indian nationality. (TIAIRPORT, 2015)

TIA provides executive lounges for the business class passengers as well as star alliance gold cardholders. TIA also provides room especially for commercially important people (CIP), CIP room is used by person who wants to rest on arrival and has someone else to take care of custom, immigration and luggage clearance. Passenger can buy and sell their home currencies on counter; government authorizes the exchange rate of this counter; so the passenger can freely exchange their currency. (TIAIRPORT, 2015)

Once traveler gets out of arrival, traveler can use the pre-paid taxis; the booking of taxi can be done in advance according to the traveler's wish. The airport also has information center operated by Nepal Tourism Board (NTB), at this information center traveler can make reservation for a hotel of own choice. Traveler can collect pamphlets, free magazines, and other material on tourism. The TIA has two press conference rooms equipped with modern technologies that can be used for business conferences. The TIA also provides cargo transportation services. It has two different offices for incoming cargo and outgoing cargo.

The TIA also provides the place to enjoy different kind of local cuisine and beverages for travellers and passengers. TIA also has the duty free shop from where travelers can buy souvenir, snacks, beverages, alcohol, cigarettes and other items. The airport is equipped with escalator and lifts, special washrooms, and special rooms for handicapped people. TIA also has the post office, souvenir shop, medical services and Internet services. (TIAIRPORT, 2015)

6.5 Difficulties of TIA

Tribhuvan International Airport is the only means of transportation for international transportation, with another international airport under construction. TIA can currently

support an average of 40 operations per hour on their runway in good weather conditions. Heavy congestion with busy traffic, with limited space for expansion and aircraft parking is becoming huge problem. The airport is situated in the middle of the city, and has very small area for expansion. (Airport-technology, 2015)

In April 2015 a major earthquake with the magnitude of 7.8 hit Nepal, making its center near Mt. Everest. It killed more than 8,000 people and injured more than 23,000. Hundreds of thousands of people were made homeless across all over the country, it destroyed many century-old monuments including world heritage sites. (CNN, 2015). After the earthquake there was lot of aid and support headed towards Nepal from many countries and international organizations, but it was not reaching the victim as soon as it was supposed to and the reason was that there were not enough runways at TIA, and it was the only international airport. TIA was even closed several times during the crisis for repair due to the earthquake. Even if it was operating the runway it was so crowded that many airlines had to fly for hours, waiting for free space to land. (NPR, 2015)

In 2013, the Civil Aviation Authority of Nepal urged every international airline flying via TIA to find alternatives to their aircrafts, because in its runway some cracks had appeared. Similarly in November 2014 during the SAARC Summit, handling the VIP visits became a problem and it showed the limitation of TIA. At that period TIA asked a number of international flights to operate during the night times, while domestic carriers were asked to park in other airports outside of Kathmandu. These kinds of incident suggest that TIA has been operating beyond its limitations. (The Kathmandu Post, 2015)

TIA is facing major problems to accommodate all aircrafts during a catastrophic event; like earthquake of 2015, which requires swift and speedy handling of response and recovery missions. However an expansion program has been launched and the construction of expansion is expected to be complete by 2018. At the moment it is allowed to operate only until midnight, however after the expansion it will be able to operate 24 hours a day. According to TIA, the expansion program will generate 500 employment opportunities during the construction period and 2,000 after its completion. The expansion project

includes demolition of the current domestic terminal and construction of new domestic terminal, expansion of international aircraft parking space, development of a new aircraft maintenance base, and the construction of a new 1,400-meter parallel taxiway. The airport is expected to handle 5.85 million passengers by the end of year 2015. (Airport-technology, 2015)

7 FINDINGS

This research was intended to find out two objectives. The first was to find out relationship between air transportation and tourism industry and second was to find out current status of Tribhuvan International Airport. During this report several conclusions were drawn about the tourism of Nepal and its relation with aviation industry. In general this report analyzed the importance of air transportation for development of Nepalese tourism industry and for whole economy of Nepal. It shows that tourism is one of the main sources of foreign income and employment resource for Nepal. The research work of the report shows the current status of travel and tourism in Nepal. It shows that travel and tourism is a major source of employment and income for people as well as for country.

This research work confirmed that air transportation is the most important and popular transportation mode for international tourists traveling to Nepal. It also showed how important air transportation is for Nepal, because of being a landlocked country. It also showed that the aviation industry of Nepal is growing every year. This report also revealed that air transportation is gaining popularity among domestic traveler of the country, and about 50 percent of total passengers are domestic travellers. This report also showed the recent statistics of international tourists. The number of arriving tourists increased in 2014 compared to the year 2013. Most of the international tourists use air transportation to visit Nepal.

This research also revealed the importance of TIA for country's tourism industry. Every year more than 3 million people travel through TIA. This report also shows the importance of Tribhuvan International Airport to the Nepalese tourism industry. For global tourists TIA is a main door of entrance to Nepal and also the major trade point of the country. TIA plays a vital role for Nepalese tourism industry as well as Nepalese economy. Despite the fact of being the single international airport TIA still lacks international standards in aviation services, but it promises to improve and provide the standard services to passengers in the future.

8 CONCLUSION

The main reason for choosing this topic and case study as TIA was because the author is from Nepal and the author wants to point out the current severe condition of the only international airport of the country. During the writing process selection of suitable research method and data collection method were challenging task, however the whole research writing and findings have been very productive and beneficial.

Tourism is one of the major source of earning foreign currency and source of employment in Nepal. Nepal has an incredible geographical diversity and has an immense potential for being top tourism destination. Having huge tourist attractions and cultural diversity has not benefitted the country's tourism industry, as it should be. After so much potential the country is still struggling to attract more than one million tourists every year. The main reason behind fewer tourism growth rates is the country's poor transportation system, lack of international airports, lack of transportation mode for international tourists, lack of infrastructure development, still undiscovered touristic attractions. Even though the country does not have world-class standard transportation service, the tourism industry is increasing and it is expected to grow even bigger in future.

After 65 years of operation TIA still remains the only international airport in Nepal. The number of passenger traveling through air transportation is growing day by day, but the capacity of TIA for passenger handling has not been increased comparatively, which makes it even harder to operate smoothly. Political instability, safety issues and lack of space for expansions, difficult landing for bigger aircrafts make it even harder for TIA to provide world-class facilities and services for travelers. Increasing number of travelers and aircrafts, no possibility of expanding runway and below average standard service level suggests Nepal definitely needs another international airport to develop tourism industry.

Being a landlocked country with hilly geography increases the value of air transportation for Nepal. Air transport is the major means of connection to the world and it is a convenient and safe way to travel. The development of air transportation has changed the

status of tourism industry of Nepal. There is no other convenient way of entering Nepal, except for air transportation. This result from the report claims that unless there is development of other transportation modes, the air transportation will be the only key for developing the Nepalese tourism industry, and the importance of TIA will be even more significant in the future.

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