

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Nepal is a sovereign independent country formerly known as the Kingdom of Nepal, now Federal Republic of Nepal since 15th Jestha 2065 as per the decision of Constitutional Assembly. In fact, it was the demand of the people of Nepal endorsed by the Second Jana-Andolan 2062-63. But, restructuring of the state is in process through the Constitutional Assembly. Nepal is a landlocked country with an area of 1,47,181 sq.km and is situated between the world's most populated countries China in the north and India in the rest fronts. The total area of Nepal is 0.3% of Asia which is 0.03% of the world. Nepal is known to be a country of natural beauty between the latitude of 26°22'N to 30°27'N and longitude of 80°4'E to 88°12'E. The elevation of the country ranges from 70 m above sea level to the highest on Earth. The land of Himalayan region is standing vertically up to the height of 8848m with a reknown Mt. Everest. Nepal is divided into Terai, Mountains and Himalayan regions. Terai occupied 17% of land, Mountains 68% whereas Himalayan region occupied only 15% of total land. The average length of the country is 885 km from east to west and average breadth is about 193 km north to south (Maximum from 241 km to minimum 145 km) Further Nepal is divided in 5 Development Regions, 14 Zones and 75 Administrative Districts. These are further subdivided in 3914 VDCs consists of 9 wards and 38 municipalities ranges from 9 to 35 wards. The population of Nepal was 2,31,51,423 (as per census 2058). The population of female was 1,15,87,502 where as male population was 1,15,63,921. More than 60 ethnic groups are found to living in this country sharing their unique culture in an amazing friendly way. Thus the country is a potpourri of ethnic groups and subgroups who speak over 70 languages and dialects. Supreme spirituality can be observed in people who belong to different religions like Hinduism, Buddhism, Christianity, and Muslims etc.

The economic activities of Nepal are mostly agriculture related. Most of the industries are based on agriculture. Where as tourism has also vital role on national economy. Nepal is a country that has a tremendous tourism potentiality. This Himalayan country is bestowed with vast wealth of natural resources and probably one of the richest storehouses of biodiversity in the world. This country is an attractive destination for tourists because of majestic Himalayas, diverse flora and fauna, friendly people, unique heritage and rich culture. Nepal offers an incomparable scope to conciseness of arts and culture to see and study the different aspect of the fine arts in its painting, sculpture, woodcarving, and architecture. The three main historic cities Kathmandu, Patan and Bhaktapur with numerous historical monuments, old places and palaces, squares, shrines and temples, ageless traditions and legends make it veritable living museum. The Kathmandu valley boasts seven world cultural heritage sites with in a radius of 20 km ie Swayambhu, Buddha, Pasupatinath, Chagunarayan, Bhaktapur Durbar Square, Kathmandu Durbar Square and Patan Durbar Square. Lumbini, birth palace of Lord Buddha in

southern Nepal is 8th cultural heritage where as Everest National Park and Chitwan National Park is registered as world natural heritage sites.

Thus, Nepal being potential in eco-tourism, cultural tourism and social tourism and being diversity in nature, it has to protect the bio diversity and also has to manage these resources to check any adverse impact which can distract tourists.

The modes of transportation for the People in Nepal are road and air. Nepal has no access to sea being a landlocked country so it has no water transportation. For overseas the only one alternative is through air transportation. Because of its geographical structure the road transportation through out the area is not possible. In most parts of Himalayan and hilly region air transportation is only the option. Even in other areas having road transportation, now a days people like to travel by air due to its comfort ness, time saving nature and security. Almost of foreign tourists mainly do come to this beautiful country for sight seeing, trekking and mountaineering expedition. Data reveal that in an average of 85% of foreign tourists do come by air. Tribhuvan International Airport is the only one airport as a gateway to the country. Data shows that the average duration of stay of tourists in the country is about 10 days. With in this short duration of stay, tourists do visit not only the Kathmandu valley but also go for trekking, visiting national parks, conservation areas, religious places out side the valley. To visit all this places within short duration of stay the efficient mode of transportation is by the air. So, domestic air transportation also plays a vital role for efficient mode of transportation.

Different organizations are established to promote Nepalese national economy, culture, identity, heritage etc. by either government, private or public. Among various organizations **Civil Aviation Authority of Nepal (CAAN)**, a governmental organization as a full autonomous body established to promote civil aviation and to provide air transportation service in affordable manner. Basically establishment of CAAN is for the development and expansions of civil aviation and for safe, regular, standard and efficient conduct of air transportation. CAAN is established on 31st December 1998 with a vision of "making air service efficient vehicle of high economic growth through wide scale tourism promotion and accessibility". Ensuring safe, secured, efficient, standard and quality service in civil aviation and airport operation is the mission of CAAN.

Organizations are social units, which carry out economic activities and are establish for the certain objectives and to achieve certain goal. For these objectives and goal, they require a system. Here the system may be defined in term of input, process and output. Input consists of structural and other (Human resources, materials, capital etc) requirements, process is management of input and output can be defined as a result. With the proper management of input the organization can get better results. To get through from cutthroat challenges only reliable option is good management. It protects organizations from unexpected and painful happenings.

For good management, management tools are powerful weapons. It helps the management to utilize resources in the systematic and scientific way. These tools are helpful from planning to decision making. Various tools and techniques of management have proved beneficial in every aspect of managerial activities. "Management Accounting" is a term among various tools and techniques. The main objective of management

accounting is to help managers in overall managerial activities by providing information and helping them in planning, controlling and decision making.

1.2 Role of Management Accounting

A business enterprise today operates in dynamic environment which includes many new issues of management problem. Quality production, research and development, product diversification, market enhancement and cutthroat competition forces the narrow margin of profit for any organization. Due to complex environment, management has to carry out its basic function of cost minimizations and maximization of profit in an atmosphere of uncertainty. The old technique of management is no longer considered dependable on the situation in which the modern management has realized that a slight error in the policy management may mean either losing a business opportunities or going out of competition. A second chance may not come or if it does, it may be costly or risky. Management can achieve this by using management accounting. Any accounting, which renders valuable information to help management, may be called management accounting. It is the form of accounting, which enables a business to be conducted more efficiently. Management accounting is mainly emphasizing to present the accounting information in proper way before the management and such accounting information being placed in a way as to assists management in its operations and functions.

"Management Accounting is the presentations of accounting information to formulate the policies to be adopted by the management and assists its day to day activities. It helps the management to perform all its functions including planning, organizing, staffing, directing and controlling. It presents to management accounting information in the form of processed data, which it collects from financial accounting." (Paul, 1994:1)

"Organizations need various economic information. They get it from management accounting, which is a language that communicates economic information to people inside and outside the organization. Management accounting covers accounting methods, systems and techniques which gives very useful information to management for effective planning and decision making. A success happens while the organization able to finance and regulate the necessary funds needed to these activities. Therefore for most companies management accounting is the appropriate form as absolutely vital." (Batty, 1982: 1-2)

"Management accounting information serves major roles in organizations. To enhance decision making, guides strategy, develops and focuses efforts related to improving organizational performance and to evaluate the contribution and performance of organizational units and members." (Kaplan and Atkinson, 1998:12)

"Management has recognized as quantitative facts for planning, controlling, and coordination. These quantitative facts should not only be related to the part of performance but should also indicate the future trend. Management accounting has to play role in all these areas." (Gupta, 1995:8)

"Management accounting is the process of identifying, measuring, analyzing, interpreting and communicating information for searching the goals of the company. Managerial

accounting is the part is the part of the management process and Management accounting are the strategic partner in company management team." (Hilton, 2002: 5-6)

"The role of management accounting is now very different from that of a decade ago. In the past it operated strictly staff capacity but now it serves as internal sources of business consultants. In many organizations, Management accountings takes leadership role in their term and are sought out for the ramble information they provide. Therefore the goal for learning managerial accounting is not to be an accountant, rather the aim to produce confident entrepreneurs and capable managers. (Bajracharya, 2004: 3)

Management accounting concepts emerged because of the complexity that exists in today's business decision making process. Its main theme is to simplify the planning and decision making process and provide support to achieve better organizational outcomes. It is important for every level of manager to involve in some sort of decision making process. The whole idea of Management accounting is to assists strategic managers to perform management functions more effectively by providing relevant economic information.

Thus management accounting is helpful not only to commercial institution, business and corporate houses but also to the civil services in term of controlling cost, forecasting expenses and helping to increase the overall productivity.

1.3 CIVIL AVIATION

1.3.1 Human Dream of Flying

The ultramodern reality is thought to be existed as the result of the different kinds of human wants and interests from the ancient ages. The thousands of endeavors undertaken by ancestors helped them to put their wants and interest on practical ground. The evolution of aviation is one of them. It is thought to be emerged from the freely flying wants of human being like a bird on the open sky from the ancient age. Nevertheless, the oldness of flying want of human is still unknown. Almost in all ancient civilization literatures, the flying machines, flying gods and same kind of flying things in various forms have been mentioned. In Hindu religious epic, Ramayan, the Ravan's *Puspakbiman* has been mentioned after which biman, it is believed that, Ravan had kidnapped Sita and carried to Lanka. Similarly, in ancient Egypt, Mesopotamiya etc civilizations the majestic winged flying gods were mentioned. However, the ancient Greek and Roman gods were described as they could fly whether they had featured wings or not. The various flying activities are thought to be existed along with the evolution of human civilization. The Poet Firdeshi has written in his famous book that the ancient King of Persia, Kaus, was able to fly by the help of kites. Hundred of years ago of BC, the stories of kings flying on chariot or fixing wings on their body are still found in ancient Chinese literature. In ancient Greek myths it is mentioned that Daedalus and Erakus flied on the sky connecting the feathered wings on the body by the help of candle. After ward they were down to sea as the candle was on liquid due to the heat of Sun because of flying high. In this way, the numerous

flying stories of ancient world help to conclude that the human dream of flying is very old and interesting as well.

1.3.2 Evolution of Aviation

Human beings own self tried as much as possible to fly like the bird on the sky but they could not fly for long time. They tried to fly with the help of different kinds of birds itself or the imitation of bird by using different techniques. In fact no body could understand the actual problem why they could not fly like birds. After all in the 15th century the Leonardo Da Vinci was the first man to study the problems of flight scientifically. He was concerned on the principle of flight of birds and in conclusion that human being himself could not fly like birds due to its different structure than birds. He had developed some remarkable principles for flight.

Observing the development of aviation the invention of hot air balloon has great importance. Joseph and Etienne Mongolfier designed the first hot air balloon, which was made of paper and flew in 1783, rising to height of 6000 ft. and traveling about a mile. In the same year, French physicist Jacques Charles made the first Hydrogen- balloon flight. He traveled 26 km beginning in Paris. Airship had been developed in the history of aviation by some improvement to hot air balloon. Huge airships were used even for the business purpose as well at the middle of 18th century. To the end, Otto Lilienthal one of the world's greatest proponents of gliding made controlled glides. Before that Sir George Cayles known as the "Father of Modern Aviation" formulated the basic principles of aerodynamics. He built and flew the world's first practical and airplane-a model glider in 1804.

In the evolution of aviation the contribution of Wright Brothers was on top most than others. It can be said that they were the main history of the aviation. These American brothers invent the aero plane and successfully completed the flight. Wilbur and Orville Wright completed their test flight on 17th Dec 1903 at Kitty Hawk of United States for the total time of 12 sec and 120 ft. of distance. In the same day on fourth attempt it was on the air about 59 sec and crossed 852 ft. of distance. This flight is popularly known as Flyer I. It was the first controlled flight by a "Heavier than air machine". The structure of Flyer I contained 40 ft. long wing where as the weight was 340 kg and a 77 kg of combustion engine with the power of 12 horse power. It was the first ever successful controlled flight by a human being on sky. The brothers showed the world that human being can fly on the sky like a bird by an aircraft. Flyer II and the III were the further improved invention of Flyer I. Flyer III had the record of 29 min flying time and passed 39 km of distance. These performances made them popular over America and rest of the world. They went to different corners of the world like America, France, Italy etc to show their invention on reality. The successful test flight gave them a chance of promoting their art and science to the business world. In fact, Wright Brothers contracted with the French and American company for the business production. Similarly in 1907 Paul Cornu of France named the first free vertical flight of a twin rotor helicopter but it took another 30 years before a successful model was developed.

The developments of aircrafts are based on the balance of four forces and the Bernoulli principle. For any flight the balance of major four forces are important ie Lift (up ward), Weight (down ward), Thrust (forward) and Drag (backward) force. Daniel Bernoulli developed the underlying principle of airplane wing design that an upward curved wing gives more lift than a flat wing when moving through the air.

Thus today's modern aviation is the contribution of human dream, above history, continuous improvement, its use, competition etc. Due to this very thing in aviation area aircrafts like Boeing 747, Air-bus 380, Antanov, Super sonic, Space shuttle, different kinds of military aircrafts etc has been developed. On the development of latest technology military forces have very great important role from the beginning. Introduction of different aircrafts, RADAR technology, Global Positioning System and many more are the boon of military. In fact they are in continuous search of new technology and development for better security purposes. On the earlier day's military force used the aircrafts for different purposes like logistic supports, regular flights, wars and others. After World War I and II, aircrafts are in use for civilian purpose as well. Now civil aviation is the heart of aviation rather than military.

1.3.3 International Civil Aviation Organization (ICAO)

1.3.3.1 Introduction

In the early years of aviation (before World War I) people with foresight had realized that the advent of the airplane added a new dimension to transport which could no longer be contained with in strictly national confines. During world war first and world war second the use of aviation was the major part of the war. For the development of the aviation military had great role due to its use in war. High technical development of aviation was happened at the period. Mostly air planes were used for carrying weapons, bombs, military forces and other logistic supports. In fact, war was surrounded by the aviation. Similarly, years between the two world wars, marked by the continuous growth of civil aviation in both the technical and commercial field, even though flying was not yet opened to the masses but remained a rather exclusive means of personal transport.

However, the search of higher speed greater reliability and covering of greater distances continued throughout in all industrialized states and each state forward in this field brought the great potential inherent to air transport closer to reality. Aviation mode during world war not only resulted horror and human tragedies but that its utilization significantly advanced the technical and operational possibilities of air transport in the world which had finally found peace again. In fact, for the first time large numbers of people and goods had been transported over long distances and ground facilities had been developed to permit this in an orderly expeditious manner.

To overcome potential air problem and the solution for the faced problems on the invitation of France the first important conference on an international air law code was convened in Paris 1910. This conference was attended by 18 European states and numbers of basic principals governing aviation were laid down.

Later the government of the United States conducted explanatory discussion with other allied nations during the early month of 1944. On the basis of talks, invitation was sent to fifty five allied and neutral states to meet in Chicago in November 1944. Among them only 52 states attended for five weeks (1st Nov -7th Dec). The delegates of the 52 Nations gathered, discussed and considered the problem of aviation and finally drafted the convention on international civil aviation which is known as Chicago Convention. This convention consists of 4 parts, 22 chapters and 96 articles which established the following 3 principles of air

- a. Exclusive and total sovereignty of state over their airspace.
- b. Freedom of flight in international air space.
- c. Ensuring the security of international civil aviation.

The Chicago Convention set up the following two supplementary agreements

I. The transit agreement

1. The privilege to flying across the territory of any other signatory power without landing.
2. The privilege of landing for non traffic purpose

II. The air transport agreement (widely known as 5th freedom of air)

1. The privilege to flying across the territory of any other signatory power without landing.
2. The privilege of landing for non traffic purpose.
3. The privilege of putting down passenger, mail and cargo taken on in the territory of state whose nationality the aircraft possess.
4. The privilege of taking on passenger, mail and cargo destined for the territory of the state whose nationality the aircraft possess.
5. The privilege of taking on passenger, mail and cargo destined for the territory of any other contracting state, and the privilege of putting down passenger, mail and cargo, coming from any such territory.

Now a days the 5th freedom is further classified as 6th, 7th and 8th freedom of air.

6. To take on passenger, cargo and mail between different countries via carrier country.
7. To carry traffic between different foreign countries.
8. To carry traffic between two points within the same countries.

The Chicago Convention laid down the provision of the permanent body charged with the administration of the principle is the International Civil Aviation Organization (ICAO). After the 26th ratification of the convention on international civil aviation was received on 5th March 1947, the ICAO therefore came into being, thirty days later on 4th April 1947.

Before this the interim provisional organization PICAO functioned for 20 months (1945 August-1947 April). During this period much of the work involved the drafting of recommendation for standard practices and procedures designed to ensure the safety, regularity and efficiency of international air transport. ICAO is now an affiliated agency of the United Nations Organization composed of 189 contracting states. Nepal adhered the Chicago Convention in 29th June 1960 and became a member state of ICAO. The head quarter of ICAO is at Montreal Canada.

1.3.3.2 Aim and Objective of ICAO

The aim and objectives of ICAO are to develop the principle and techniques of International Air Navigation and to foster the planning and the development of international air transport so as to:

- a. Ensure the safe and orderly growth of International Civil Aviation through out the world.
- b. Encourage the arts of aircrafts design and operation for peaceful purpose.
- c. Encourage the development of airways, airports and air navigation facilities for International Air Navigation.
- d. Meet the needs of the people of the world for safe regular, efficient and economical air transport.
- e. Prevent economic waste caused by unreasonable competition.
- f. Ensure that the rights of member states are fully respected and that every member state has a fair opportunity to operate International Airlines.
- g. Avoid discrimination between contraction states.
- h. Promote safety of flight in International air navigation.
- i. Promote generally the development of all aspect of international civil aeronautics.

ICAO has a sovereign body assembly and a governing body the Council. Assembly meets at least once in three years interval extra ordinary meeting may be held at any time up on the call of Council or at request of any member states addressed to the secretary general. Every contracting state are the member states having equal rights of representation and is entitled to one vote.

The Council is a permanent body responsible to the Assembly and is composed of 33 member elected by the assembly for the period of three years term. ICAO secretariat headed by the secretary general appointed by Council. One of the major duties of the Council is to adopt International Standards and Recommended Practices and to incorporate these as annexes to the Convention on International Civil Aviation.

Various technical, economic and legal publication and documents are available in six different languages English, French, Russian, Spanish, Arabic and Chinese. Among various documents Annexes to the Convention are very important for the operation of aviation. The state is obligated by the Chicago Convention to implement the Standards and Recommended Practices (SARPs) contained in the 18 Annexes to the Convention and administrated by ICAO.

1.3.3.3 Regional Offices

The world has been divided into several air navigation regions to establish the ICAO regional offices. Hence, ICAO maintains seven regional offices at the following places as shown in table:

Table 1.1

S. No.	Regional Offices	Headquarter
1	Asia and Pacific Office	Bangkok
2	Middle East Office	Cairo
3	Western and Central African	Dakar
4	Eastern and South African	Nairobi
5	European Office	Paris
6	South American office	Lima
7	North American, Central American and Caribbean	Mexico

Nepal is a member states of Asia and Pacific regional office.

1.3.4 Civil Aviation in Nepal

1.3.4.1 History of Civil Aviation in Nepal

The history of civil aviation in Nepal dates back in early 1950s. Nepal due to its adverse terrain has accorded high priority for the development of civil aviation. Although in 1947 a lone pilot landed his glider on the old golf course which is the present location of Tribhuvan International Airport (TIA). The formal beginning of aviation in Nepal started from April 1949 as the landing of 4 seated lone powered vintage Beach-Craft Bonanza aircraft of Indian Ambassador Mr. Sirjit Shing Mahathia at Gauchar. In 1950 the first chartered flight made by Himalayan Aviation Dakota from Gauchar to Kolkata then at the same year schedule air service started between Patna, Kolkata and Delhi by 28 seated DC-3 Dakota aircraft. It was a remarkable day for Nepal as on February 1951 His Majesty King Late Tribhuvan returned Nepal by DC-3 aircraft after the historic establishment of democracy BS 2007. In the same year schedule domestic flight started from Pokhara, Bhairawa, Simara and Biratnagar to Gauchar Kathmandu. On June 15 1955 King Mahendra inaugurated Gauchar airport and renamed it as Tribhuvan airport. The year 1957 added two milestones first one the formal establishment of Department of Civil Aviation under the Ministry of Works, communication and Transport and it is functioning under the Ministry of Tourism since 1983 (The Ministry has now been renamed as Ministry of Culture, Tourism and Civil Aviation) and second one was the transformation of grassy runway into concrete one of Tribhuvan airport. On July 1958 Royal Nepal Airlines Corporation started domestic flight to different destination. In 1959 RNAC (now NAC) fully owned by

HMG/N (now Government of Nepal) as a public sector undertaking it was established as national flag carrier on 1st July 1958.

The statutory regulation regarding civil aviation was introduced under Civil Aviation Act 2015 BS in 1959. Nepal obtained the membership of International Civil Aviation Organization ICAO on 29th June 1960. Due to its international structure and relation Tribhuvan Airport renamed as Tribhuvan International Airport in the year 1964. For the standardization of service only 3750 feet long runway extended firstly to 6600 feet in 1967 and later to 10000 feet long and 150 feet width in 1975. Very popular Thai Airlines starts its schedule jet air service in 1968 where as in 1972 RNAC started its service with own Boeing. In the same year Air Traffic Control services taken over by Nepalese personnel from Indian technician who were on field initially due to lack of Nepalese manpower. In new era of liberalization in civil aviation sector was laid as the government adopted a liberal open sky policy in 1992. Until mid 1992, RNAC was only the airline providing schedule air services domestically. However following the emergence of the airlines in the private sector in June 1992 there has been an unpredicted increase in the number of airlines. A comprehensive National Civil Aviation policy was introduced in 1993, which provided a healthy and competitive development of the airlines industry. So lots of private airlines including balloon and glider operator have received the Air Operator Certificate (AOC).

1.3.4.2 Establishment of Civil Aviation Authority of Nepal (CAAN)

There are lots of aircrafts owned by different airlines on Nepalese sky due to new and broad policy, adverse geographical location and beautiful destination of tourists. To cope with new challenges and opportunity regarding administration, technology and income in the aviation sector the Department of Civil Aviation has been transferred into Civil Aviation Authority of Nepal (CAAN) from Dec 31st 1998. Thus the date of establishment of CAAN is 31st Dec 1998. It is an autonomous body established under the Civil Aviation Authority Act 2053(1996). The authority has been established in order to make the operation of national and international flights, air communication and air transportation services safe, regular, standard and efficient. The prime goal (value) is to ensure flight safety and sustainability of civil aviation. The head office of authority is located on Babarmahal, Kathmandu Nepal.

Purpose of Establishment of CAAN

- # For the development and expansion of civil aviation.
- # For the safe, regular, standard and efficient conduct of air transportation.

1.3.4.2.2 Vision of CAAN

CAAN has a vision of making both the domestic and international air service an efficient vehicle of high economic growth through wide scale tourism promotion and accessibility.

1.3.4.2.3 Mission of CAAN

CAAN has a mission of ensuring safe, secured, efficient, standard and quality service in civil aviation and airport operation.

1.3.4.2.4 Strategy of CAAN

CAAN has a strategy in airport marketing, facilitating, diversifying revenue sources, monitoring organizational performance and providing human resources training.

1.3.4.2.5 Value of CAAN

CAAN has a value of Safety and Sustainability of Civil Aviation

1.3.4.2.6 CAAN as an Autonomous Body

1. The Authority shall be an autonomous and corporate body with perpetual succession.
2. The Authority shall have a seal of its own.
3. The Authority may, as a person, acquire use, sell or purchase or manage movable and immovable properties.
4. The Authority may, as a person, sue in its name and be sued upon the same name.

1.3.4.2.7 Function, Duties and Power of Authority

1. To provide permission and certificates to air services operators, flying school based on licensed by government.
2. To provide license, efficiency rating and certificates to the persons involved in air transportation services
3. To register aircraft and to engrave marking
4. To grant certificates of airworthiness to aircraft
5. To prescribe condition of flight of aircraft carrying passenger, mail and cargo
6. To inspect aircraft, hanger, flight of aircraft and arrangements relating to operation of air services
7. To provide rescue and fire fighting services
8. To specify the entry and exits point, air routes
9. To conduct and cause to conduct ground handling services at an aerodromes
10. To provide air traffic services, flight information services and alerting services
11. To control the sound of aircraft and to restrict pollution in the air
12. To prevent, control and prescribe the limits for carrying dangerous goods by aircraft
13. To enforce and cause to be enforce the SARPS adopted by ICAO and rectified by Government of Nepal
14. To offer advice to Government with regard to fixing passenger fare and cargo charge.

1.3.4.3 Organizational Structure

The organization is broadly divided into two groups Management Group and Specialist Group. The safety, security, inspection and standardization function fall under specialist group of various departments such as Aviation Technical Services, Air Traffic Services, Aviation Security, Aviation Safety, Civil Engineering etc. The implementation, management, regulatory and planning/ programming function fall under the Management Groups headed by Directorates of Airport Management and Development, Air Transportation and Regulation, Finance, Administration, Corporate Planning, Performance Evaluation and Monitoring. The main function of the organization is to

- i. Strengthen safety oversight capability and re strengthen aviation security.
- ii. Adopt commercial principles for self-reliance and sustainable development.

The total approved posts of the organization are 1065 from first to twelfth level described in table below;

Table No. 1.2

Officer Level	Classification	Number
12 th	Director General (DG) -1	6
	Deputy DGs -4	
	Academy Chief -1	
	General Manager -1	
11 th	Director/Regional Director	22
10 th	Chief Manager/ Deputy Director	42
9 th	Manager	86
8 th	Senior Officer	126
7 th	Officer	125
6 th	Assistant Officer	106
Assistant Level		
5 th	Supervisor / Senior Office Assistance	218
4 th	Office Assistance	83
3 rd	Driver	57
2 nd	Helper/Cleaner/Loader	21
1 st	Peon	173

Among 1065 approved posts CAAN Head Office covers 192 where as in very largest number TIA hold 454, Similarly Civil Aviation Academy 38 and other Offices and Domestic Airports concludes remaining 381 numbers.

1.3.4.4 Constitution of the Board of Directors (A Supreme Body of CAAN)

1. A Board of directors comprising a chairman and the members as mentioned below shall be constituted for the operation, supervision and management of all the functions of the Authority

- | | |
|--|-----------------|
| a. Minister or Minister of State of Tourism and Civil Aviation or a person specified by Government | Chairman |
| b. A representative, Ministry of Tourism and Civil Aviation | Member |
| c. A representative, Ministry of Finance | " |
| d. One person nominated by Government from among persons belonging to the private sector or association or institution and having special knowledge and experience of the tourism industry | " |
| e. One person nominated by Government from among persons having qualification relating to Civil Aviation | " |
| f. . Two persons nominated by Government from among the directors of the corporation operating air service including the private sector engages in operation of air lines services | " |

- | | |
|----------------------------|-------------------------------|
| g. Director General | Member- cum- Secretary |
|----------------------------|-------------------------------|
2. Government of Nepal may add or reduce or change the chairman and the members of the Board of Directors by publishing a notification in Nepal Gazette.
 3. The tenure of the Chairman and the members nominated under clauses a, d, e and f of subsection 1 shall be for four years.

Provided that, Government of Nepal may, if it so desires, re nominate the chairman or the member whose tenure has expired.

The Board of Directors constituted under subsection 1 shall exercise all the powers and carry out the duties vested in the Authority as per Act and rules framed under the Act.

1.3.4.5 Financial Provision

As per Civil Aviation Authority of Nepal Act, 2053 the following legal provision has been documented for the financial status.

- a. Authority shall have its **own a central fund**. All the income and expenditures are done that from.

b. Transfer of Assets and Liabilities

1. Government shall evaluate all the properties of Air Transportation Service and Facilitation Developments Programs and transferred to authority as the government capital investment.
2. Plans operated by the foreign governments and organizations loan shall be transferred to authority as the principles and interests are paid back as determined by government.
3. All the plans operated either by government or by assistance from others shall be transferred to authority as the government capital investments.

c. Related to Financial / Economic Resources

Authority can accept

1. The loans and assistance from national banks, organizations or persons.
2. The loans and assistances from foreign governments and foreign or international organizations with prior permission from government.
3. Invest the amount on authorities own fund.
4. Operate the aircraft under own ownership for the generation of income.
5. Landing, housing, parking, ground handling charges for aircrafts and parking charges to other vehicles from the airports and areas owned by authority.
6. The charges from the over flying aircrafts.
7. The charges from aircrafts for using communicational and navigational equipments.
8. The charges from import and export of cargo from aircrafts.
9. The passenger service charge for providing quality service and facility to passenger.
10. Charges for providing aircraft operation related permission, rating, certification, renewal etc and conducting examinations related there of.
11. The airport terminal building entry charge.
12. Charges for providing fire fighting and search and rescue services.
13. Rents and charges from those as a business operators ie aviation fuel, duty free shop, flight catering, cargo handling, limo gin, ground handling.
14. Rents and charges for business and advertisement in airport.
15. Charges for providing electricity, water, telephone, fax, teller etc facilities with in airport area.
16. Extra charges for opening the airport or area for extra period than determined timing.
17. Rent and charges for providing other services.

Note: - Authority can discontinue its services if the rents and charges are not paid as the service and facilities are used by users.

1.3.4.6 Financial Structure of CAAN

The financial structure of CAAN is shown on table below;

Table No. 1.3

S. No.	Classification	Amount (in million)	Interest Rate (in %)	Payment year	Remarks
A	RPS	Rs. 1330	10.5	7	Dividend from 3 rd year 2 times a year.
B	CSL	1330	10.25	10	
C	Other loans				
	STIPD ADB 1451	487.10	10.25	15	
	TIAIP ADB 1521	1428.36	10.25	20	

	TIAIP OPEC 698P	624.25	10.25	12	
	Total	5199.71			
D	Total asset valuation as govt. capital investment.	8670	Valuation includes all land and other property of DCA to CAAN		

RPS - Redeemable Preferential Share

ADB - Asian Development Bank

STIDP - Second Tourism Infrastructure Development Project

CSL - Capital Structure Loan

TIAIP - Tribhuvan International Airport Improvement Project

1.3.4.7 Revenue and Expenditure Provision of CAAN

Basically CAAN revenue is based on the provision made by the CAAN Act, 2053. The main sources of income are the charges to different headings. The revenue collection from these charges can be classified into two terms ie Aeronautical and Non Aeronautical. Aeronautical income is from those charges for aeronautical services where as the non aeronautical income are the charges for non aeronautical services. **Aeronautical services** include the provision of runway, parking apron, ramp, terminal facilities, en-route navigation and terminal navigation. **Non-aeronautical services** include the facilities for doing business for providing goods and services to aviation industry, passengers and visitors to airports. Recently non-aeronautical revenue is also referred as commercial revenue.

Aeronautical Revenues:

-) Landing, Parking and housing charges of aircraft
-) Navigational facility charges
-) Over- flying Charges
-) Charter Charges
-) Meteorological service charges

Non-aeronautical Revenues:

-) Terminal Rent
-) Land Rent
-) Cargo Complex
-) CIP Room Charges
-) Advertisements
-) Security Charges
-) Penalty Charges
-) Manpower Training
-) Regulatory Fees
-) Air Traffic Facility Charges
-) Passenger Service Charges
-) Extension Hour Service Charges
-) Vehicle Parking Charges
-) Royalty and Others Deposits
-) Airport Entry Charges
-) Fuel Refueling Charges
-) Fee from Visitor Deck
-) Concessionaries

CAAN is an autonomous body and has to sustain by its own resources, thus the generation of revenue must be given high priority. It collects aeronautical and non-aeronautical revenues as per Bimansthal Dastur Niyamawali 2038 (Fourth revised 2062). This Niyamawali describes charges in detail at different conditions.

Similarly, CAAN Financial Management Rules 2057 has described the detail procedure of financial administration regarding transaction procedure for Revenue and

Expenditure, Budgeting procedure, Internal and Final Audit, Advance Management, Property Management, Process related to Procurement, Capital Expenses, Repair and Sales of goods and Auction or Write-off procedure of Assets.

1.3.4.8 Accounting Standard

CAAN has developed its own accounting manuals based on Nepal Accounting Standard (NAS) for the well management of the accounting procedure. These manuals guide the accounting personnel and others about transactions in systematic order and in detail. The manuals are classified into eight different headings given below;

- a. Budgeting and Budgeting Control
- b. Payroll Accounting Procedure
- c. General Accounting Procedure
- d. Cash and Bank Accounting Procedure
- e. Accounting of Advances
- f. Procurement and Store Accounting Procedure
- g. Accounting of Fixed Assets
- h. Accounting Procedure for Revenue Account

1.3.4.9 Airports of Nepal in Brief

There are 51 airports in total with in Nepal. Among them only one is International Airport named Tribhuban International Airport (TIA), four Regional Hub airports (Biratnagar, Pokhara, Nepalgunj and Bhairahawa), 42 other domestic airports and 4 airports under construction. Just 37 airports are in operation where as other are either closed (not in operation) or under construction. Here are the details of airports of our country.

1.3.4.9.1 Tribhuvan International Airport (TIA)

TIA is only the international airport of Nepal located at the capital city of Kathmandu on the coordinate's 27°41'50"N-85°21'28"E with an elevation of 4390 ft. It contributes national economy in general and socio-economic development of the entire nation as more than 80% tourists enter Nepal by air via this airport. For the quick, easy and reliable access to the rest of the world is through not other than TIA of KTM. In fact TIA is also a huge income generating airport for CAAN almost representing more than 80% of entire income. It has difficult geographical location as a constraint of surrounding mountains. TIA is facing reasonable problems in the expansion and technological development for upcoming challenges and opportunity of 21st century. Runway length is not sufficient (only about 10000 ft. of length and 150 ft of width) for the operation of large wide bodied aircraft. Because of unavailability of land for extension these longer aircraft can operate only under load restriction condition. Similarly, TIA does not have Instrument

Landing System (ILS) due to the high hills around the valley. In fact it is one of the difficult international airports in the world. The Apron capacity of the airport is suitable for 9 international Medium and wide body category Aircrafts and 15 Domestic Small Aircrafts. TIA provides Air Traffic Control Service, Aeronautical Communication and information Service, Rescue and Fire Fighting Service, RADAR Service etc.

1.3.4.9.2 Biratnagar Airport

Biratnagar airport has great potentiality of future. It is situated in second largest city itself Biratnagar after the capital city Kathmandu. This city is very popular in industrial sector and business. Lots of medium and large scale industries are in operation in this city and also great business activities as near by the boundary of India.

Biratnagar Airport serves as the hub of Eastern Development Region. The airport supports 6 STOL Airports- Taplejung, Bhojpur, Phaplu, Rumjatar, Lamidanda and Tumlingtar. This airport stands number one in terms of passenger movement. It is one of the Control Airport among eight through out the Nepal. CAAN is planning to develop this airport as a regional hub capable to operate medium sized Jet Boeing 757.

1.3.4.9.3 Gautam Buddha Airport

This airport lies near by popular city Bhairahawa which is a boarder city with India as well. It is also very popular in religious prospects as Lord Buddha's birth place Lumbini is not so far from here. Thus it has great opportunities of business activities and tourism promotion. Due to this CAAN has already begun to upgrade this airport as a regional international airport capable to serve medium sized jet aircraft. It is a domestic hub airport in the Western Development Region. It is also a Control Airport of Nepal.

In consideration of its prospects due to the existence of Lord Buddha's Birth Place Lumbini, CAAN has introduced a plan to acquire 25 Bighas of land in addition to already accomplished acquisition of 62 bighas land for the development of Gautam Buddha Airport into regional inter-national airport.

1.3.4.9.4 Nepalgunj Airport

It lies in Mid Western sector of Nepal on Banke District. Nepalgunj airport is very important one for western region. CAAN developed this airport as major one after TIA for western sector managing the Flight Information Service centre for those aircraft flying west of 83 degree east of longitude (now not in operation). Many airlines are operating its service on remote areas of mid western development region with base on this airport. Thus it is a major domestic hub after TIA in terms of number of airport network. This airport stands number 3 in terms of aircraft and passenger movement.

1.3.4.9.5 Pokhara Airport

Pokhara, the most popular tourist destination after Kathmandu lies about 200 km. west of Kathmandu valley. At an altitude of 2712 ft. AMSL, the Pokhara city serves as the platform for trekkers and mountaineers to Annapurna Area. The Pokhara valley itself offers picturesque looks of Fishtail (Machhapuchhre), Annapurna and Dhaulagiri mountains, beautiful lakes like Phewa, Rupa, and Begnas and deep gorges, falls and caves. The airport, the second busiest after TIA has already served as a base for helicopter to render charter flights to various tourist as well as remote destinations, and it takes 30 min by air to reach Pokhara from Kathmandu. It is a hub as well as control airport.

Now a day, the operations of gliders, especially hang gliders, Para gliders & Micro light are also the major attractions for adventurous and sports tourists visiting Pokhara.

1.3.4.9.6 Bharatpur Airport

Bharatpur airport is located in Chitwan district close to Narayanghat city a junction of eastern and western peoples. It is a fast growing domestic airport in terms of traffic and passenger. Although not being so far from KTM it has great potentiality of air transportation as the whole Chitwan District is being a centre of agriculture, economic and tourism development. Chitwan National Park and other places are very popular in world for wild life and jungle safari which means the prime centre for tourism. Since a year this airport has a great importance as a first time in Nepal the establishment of Fixed Wing Flying School Shivani Air. Shivani Air is providing pilot training in own country focus its classes and practices on this city.

1.3.4.9.7 Simara Airport

Simara Airport lies in Bara District, Narayani Zone, in central development Region of Nepal. Simara airport is one of the first few airports in Nepal which used to have a very good record of air traffic movement with Kathmandu when roads, bridges were not a reality and means of surface transport were also not sufficient. Simara is the most strategic domestic airport of Nepal for two reasons. It is just only 39 miles from Kathmandu by air. On the other hand, Raxaul, an Indian city is only 20 km away from this airport. The first flight service from this airport was started on July 4,1958 and was given with a grass airfield before it was paved in1999. Furthermore, the importance of this airport is due to its location near to Birgunj which is a commercial and industrial town linking Raxaul as well. That's why CAAN is planning to undertake further improvement of this control airport.

1.3.4.9.8 Janakpur Airport

Janakpur airport lies in the central region of Nepal and is the birth place of Goddess Sita, daughter of king Janak and consort of Lord Rama. It is a religious tourism center due to the existence of Ram- Janaki Temple and is listed in World Heritage Site. It is located at about nearly 383 km. South- East of Kathmandu.

Located towards south of Janakpur city, this airport is well connected with road network and there is a railway connection from Janakpur to Indian city, Jayanagar. The numbers of Indians coming to visit this holy place is increasing rapidly and has become a popular pilgrimage for tourism destination. Religio-cultural value also lies in famous Mithila art which typify wall painting, handicraft and paper art and painting- all traditional in form and content. They visit Janakpur and then fly to Kathmandu to visit Pashupatinath Temple. This airport has potential to attract more Indian visitors if air link is extended to nearby cities of Indian cities like Patna, Varanasi and others.

1.3.4.9.9 Lukla Airport

Lukla, the gateway to the Mount Everest, is a world famous tourist airport situated at an altitude of 9100 ft. above AMSL. This airport lies in the Solukhumbu District in Eastern Nepal. A trail to Mt. Everest base camp and Sagarmatha National Park starts from here. This airport is also the busiest STOL airport of Nepal as well as a major hub for earning foreign currency from tourists. In peak seasons Lukla airport handles more than 50 traffics a day. Approach and take off is one way allowing aircraft to enter and exit through a narrow entwined valley. Flights can be operated in all seasons.

1.3.4.9.10 Jomsom Airport

North of Pokhara, lying in between majestic mountains – Dhaulagiri and Annapurna and other towering peaks, jomsom airport perches at an altitude of 8800 ft. AMSL. This airport is the major door step to various trekking trails. It is one of the great tourist destinations of Nepal. The airport is serving as the second busiest STOL airport after Lukla. The major attractions are Muktinath, a destination for Hindu pilgrims. It is at one days' trek to the north and the upper Mustang trekking area. The flying time to reach from Jomsom from Pokhara is about 17 minutes. This airport is operationally safer for all seasons.

1.3.4.9.11 Chandragadhi Airport

Situated in Jhapa District in Far Eastern Nepal, Chandragadhi airport is a gateway for tourists coming from North Indian States of India as well as from Bhutan and Bangladesh. It is located 17 km from Birtamod and 34 km from Kakaravitta the exit/entry

point to India. Once stagnant due to low passenger demand, Chandragadhi has been making headway since the advent of private air operators in the domestic sector in 1992. Considering the potentiality of the air, Government decided to renovate its infrastructure. Chandragadhi handles many schedule flights a day with different types of aircraft.

1.3.4.9.12 Dhangadhi Airport

Dhangadhi airport is located in Kailali District in Seti Zone of Far- Western Development Region. The airport is located 125 km to the west of the current area hub of Nepalgunj. The airport is close to the Indian boarder and close to the Royal Suklaphant Wildlife Reserve. This airport has direct air links to Kathmandu and serves as Hub airport to remote airports of Far Western and Mid Western Development Region. As there is no hub airport in Far Western Development region, CAAN has just completed the extending and developing the runway to 1800m length and having 30 m breadth, as well as 85 x 20 m taxiway and 92 x 60 m Apron Area with blacktopped. This development project has been completed with public Private Partnership approach.

1.3.4.10 Airports of Nepal

Table No. 1.4

S. No.	Airport	Surface	Development	Zone	District	Operation Status
1	Taplejung	Grass	Eastern	Mechi	Taplejung	In operation
2	Chandragarhi	Paved	Eastern	Mechi	Jhapa	In Operation
3	Biratnagar	Paved	Eastern	Koshi	Morang	In Operation
4	Tumlingtar	Grass	Eastern	Koshi	Sankhusahawa	In Operation
5	Bhojpur	Grass	Eastern	Koshi	Bhojpur	In Operation
6	Rajbiraj	Grass	Eastern	Sagarmatha	Saptari	Not In Operation
7	Thamkharka	Grass	Eastern	Sagarmatha	Khotang	In Operation
8	Syangboche	Grass	Eastern	Sagarmatha	Solukhumbu	Not in Operation
9	Lamidanda	Grass	Eastern	Sagarmatha	Khotang	In Operation
10	Phaplu	Gravel	Eastern	Sagarmatha	Solukhumbu	In Operation
11	Lukla	Paved	Eastern	Sagarmatha	Solukhumbu	In Operation
12	Rumjatar	Grass	Eastern	Sagarmatha	Okhaldhunga	In Operation
13	Kangeldanda	Grass	Eastern	Sagarmatha	Solukhumbu	In Operation
14	Janakpur	Paved	Eastern	Janakpur	Dhanusha	In Operation
15	Ramechhap	Grass	Eastern	Janakpur	Ramechhap	In Operation
16	Jiri	Grass	Central	Bagmati	Sindhupalchowk	Not in Operation
17	Bharatpur	Paved	Central	Narayani	Chitwan	In Operation
18	Megghauli	Grass	Central	Narayani	Chitwan	In Operation
19	Simara	Paved	Central	Narayani	Bara	In Operation
20	TIA	Paved	Central	Bagmati	Kathmandu	Intl airport
21	Langtang	Grass	Central	Bagmati	Rasuwa	Not in Operation
22	Pokhara	Paved	Western	Gandaki	Kaski	In Operation
23	Palungtar	Grass	Western	Gandaki	Gorkha	Not in Operation
24	Manang	Grass	Western	Gandaki	Manang	In Operation
25	Gautam Buddha	Paved	Western	Lumbini	Rupandehi	In Operation

26	Jomsom	Paved	Western	Dhaulagiri	Mustang	In Operation
27	Balewa	Grass	Western	Dhaulagiri	Baglung	Not in Operation
28	Dhorpatan	Grass	Western	Dhaulagiri	Baglung	Not in Operation
29	Dang	Grass	Mid -Western	Rapti	Dang	In Operation
30	Salley	Grass	Mid -Western	Rapti	Rukum	In Operation
31	Chaujhari	Grass	Mid -Western	Rapti	Rukum	In Operation
32	Rolpa	Grass	Mid -Western	Bheri	Rolpa	Not in Operation
33	Nepalganj	Paved	Mid -Western	Bheri	Bheri	In Operation
34	Surkhet	Paved	Mid -Western	Bheri	Surkhet	In Operation
35	Rara	Grass	Mid -Western	Karnali	Mugu	In Operation
36	Kalikot	Grass	Mid -Western	Karnali	Kalikot	Under construction
37	Masinechaur	Grass	Mid -Western	Karnali	Dolpa	Under construction
38	Dolpa, Juphal	Grass	Mid -Western	Karnali	Dolpa	In Operation
39	Jumla	Paved	Mid -Western	Karnali	Jumla	In Operation
40	Simikot	Grass	Mid -Western	Karnali	Humla	In Operation
41	Sanfebagar	Grass	Far -Western	Seti	Achham	In Operation
42	Doti	Grass	Far -Western	Seti	Doti	In Operation
43	Bajura	Grass	Far -Western	Seti	Bajura	In Operation
44	Bajhang	Grass	Far -Western	Seti	Bajhang	In Operation
45	Tikapur	Grass	Far -Western	Mahakali	Kailali	Not in Operation
46	Dhangarhi	Paved	Far -Western	Mahakali	Kailali	In Operation
47	Kamalbazaar	Grass	Far -Western	Seti	Achham	Under construction
48	Darchula	Grass	Far -Western	Mahakali	Darchula	Not in Operation
49	Baiadi	Grass	Far -Western	Mahakali	Baitadi	Not in Operation
50	Mahendranagar	Grass	Far -Western	Mahakali	Kanchanpur	In Operation
51	Khanidanda	Grass	Eastern	Sagarmatha	Khotang	Under construction

1.3.4.11 Air Services in Nepal

Air services can be divided into international air services and domestic air services.

1.3.4.11.1 International Air Services

An international air service is directed as per the bilateral agreements between two countries. The agreements are known Air Service Agreement (ASA) and Memorandum of Understanding (MOU). The agreements describes in detail about the process, procedures and programs of air transportation between two countries. It even includes the number of airlines to operate, number of seats available, number of flights, types of aircrafts etc. Respective aviation authorities are responsible for the real action of the agreements.

Nepal has already signed the ASAs / MOUs with 35 different nations for the international air link. Among them it direct air link with only 14 nations such as Bangladesh, Bhutan, Bahrain, China, India, Japan, Malaysia, Oman, Pakistan, Qatar, South Korea, Singapore, Thailand and United Arab Emirates. For the different destinations of these fourteen nations, 20 international airlines are operating their services to Nepal. The airlines are as follows

- Air Arabia
- Air China
- Air Sahara
- Biman Bangladesh
- China Southern Airlines
- Dragon Air
- Etihad Airways
- GMG Airlines
- Gulf Air
- Hong Kong Express
- Indian Airlines
- Jet Airways
- Korean Air
- Nepal Airlines
- Orient Thai
- Pakistan International Airlines
- Qatar Airways
- Royal Bhutan Airways
- Silk Air
- Thai Airways

1.3.4.11.2 National (Domestic) Air Services

Domestic air services are directed as per the license from the Ministry and the Air Operator Certificate (AOC) from the CAAN. CAAN has issued 43 AOCs to the airlines companies for domestic air operation. Out of them, 22 companies have valid AOCs rest has been either invalid or cancelled. There are 18 airlines operated air services to various destinations in Nepal. They are as follows

- Agni Air
- Air Dynasty
- Buddha Air
- Cosmic Air
- Fishtail Air
- Flying Dragon Airlines
- Gorkha Airlines
- Impro Airways
- Karnali Air
- Manang Air
- Nepal Airlines Corporation
- Sita Air
- Shangri-la Air
- Shree Airlines
- Yeti Airlines
- UNMIN
- VVIP Wing
- Nepal Sainik Biman Sewa

The flights of Nepal Sainik Biman Sewa, VVIP Wing and UNMIN are the special flights for the national requirements. UNMIN is monitoring and supporting the peace process on Nepal at present. Similarly, Avia Club, Blue Sky Paragliding, Sunrise Paragliding and Fronties Paragliding are operating in Pokhara and Kathmandu for the aviation adventure and sports where as the Shivani Air on Bharatpur is for the training purpose to the Flying school.

1.3.5 Aviation and Tourism

Aviation helps to fly over every corner of the world with in hours. Due to this fastest means of transport now the whole earth has become like a village. That's why the concept of global village has been developed in 21st century. Aviation, Not only faster but also much and much comfortably can reach to destination like at home, at bed, fully facilitated and fully conditioned.

In the context of country like Nepal there is a big scope of aviation as the country has irregular topography having hundreds of hills and mountains. Development of roads to

these parts is excessively expensive and time taking. If managed a proper ground can reach there by air which is more easy and faster. Even though destinations are well linked by road transportation the importance of aviation is still large for those users of high capacity, necessity, time saving, staffs, patients, emergency and others.

Tourism can be termed as an industry generating income by the attraction (inducement) of people within country and outside towards the various aspect of local and national level identities such as natural resources, wildlife, plants (flora and fauna) places of cultural and historical importance, religious places, places of scenic beauty, adventures like rock climbing, mountaineering, rafting, trekking, jungle safari, hunting etc.

Defined as an industry the tourism directly generates money. It is an easy industry to run by the attraction of people and making them spend their money in their matter of choices. In the world it has been a very common and easy way of production of money. On the other hand people involved in visiting different places are those who have capacity to spend money. Thus many countries in the world are even dependent up on tourism as a basic means of national capital.

Tourism is a broad cultural interaction among the people from different corners of the world with different identities which also helps to share different ideas and information each others. Thus tourism can be a major resource of national economy, employment, recognition, interaction, protection, brotherhood etc.

Aviation sector plays an instrumental role in promoting tourism. Every popular and successful tourism destination has booming of strong airlines behind them. Data reveals that more than 85% of foreign tourists do come by air. During their short 10 days duration of stay tourists visit different places of natural beauties, cultural heritage, religious places and more others by efficient mode of air transportation with in country. Among them the very popular tourist destination, observing Himalayas closely by necked eyes (Mountain Flight) is possible only by aviation.

Thus these two sectors are interlinked to each other. These two sectors themselves are not a total. One cannot have its utility in isolation. Aviation industry is the combination of airlines, airports and services, trade and business, tourism etc where as tourism industry is interlinked with aviation, hotels, travels, expeditious, natural and cultural interface etc

Nepal's tourism is perceived and projected as a seasonal one. Most of tourism based on winter season. For the monsoon too, need to identify the target. Similarly the traffic rights and limited air seats were bottle necked towards increasing tourist arrivals in the country. There are more hotels rooms compared to air seats entitlements. Though late, the government is trying to catch up with global changes in aviation regulatory environment and becoming more liberal in granting traffic rights and air seats entitlements to the foreign airlines. Fare for traveling to Nepal seems to be enough to buy a whole tour package for tourist from various countries to travel to other destinations. Airlines have long been complaining of high operation cost due to poor condition of TIA and too high ground handling, landing and navigational fees. This has in turn heightened airfares to

Nepal. As only the gateway to the country for entrance and exit of tourists by air TIA should be fully improved to international standards. Poor services rendered at TIA heighten negative impression of Nepal among travelers.

Short term plan should be construction of an airport for the domestic operation somewhere in the vicinity of Banepa area with a high speed surface transportation connection. This will ease the traffic congestion and enhance the safety margin at the Kathmandu airport for the bigger jet traffic. Long term plans should focus on constructing at least one international airport somewhere in inner Terai region in close proximity to Capital. In order to grow aviation as an industry, with out any hesitation and delay, government should give a nod for all interested airlines to run flights to Nepal. At a time when the globalization bulldozer is swiftly flattening out monopolistic business, the days of protectionist policies are over. Undoubtedly, the aviation market should be left for full and cutthroat competition among the operators, giving all an equal role of playing fields. As the national flag carriers is in very poor condition and in a struggle of survival. Doing so the country is not going to be loser, but emerge gainer. At the cost of protection to airlines tourism industry should not suffer. The concept of internal tourism should be developed more for the development of both tourism and aviation. The visit must be easy and best for which aviation has one of the vital role including government policy, travel and tours, hotels etc.

1.4 Focus of Study

Organizations are backbone of economic development. It is good employment generator as well. As an organization, CAAN (an autonomous body of government) is not an exceptional. As mentioned earlier above management accounting has vital role for an organization, the need of this study is to examine and check that the CAAN is applying management accounting system.

An organization becomes successful when management accounting provides good information. The different types of information are not useful only to the organization itself but also to other business houses to make them successful. Success happens from a good management, planning, controlling, cost, manpower etc. When every things is planned and controlled it will very easy to make future decision.

This research is focused management accounting practices by CAAN. So the focused is on an autonomous body named Civil Aviation Authority of Nepal (CAAN).

1.5 Statement of the Problem

CAAN being an organization of both regulatory and service provider has different organizational segments for defined objectives. CAAN Head Office is responsible for the regulatory and other administrative functions where as the Civil Aviation Academy of CAAN is for the production of trained manpower. The airports are for the service provider. The airports are the main sources of income of CAAN. Almost all of its income is generated from the airports. The airports are situated at different geographical locations

covering convenient to remote areas. The facilities available on the convenient airports are higher than the remote. Here the existing facility to its employee also determines the level of service. Latest developments and technologies first used to be applies on those convenient offices. Similarly, huge amount of budget, the computerized system, trained and skilled manpower are concentrating to convenient establishments where as in case of the remote areas it is just opposite. For the similarity and simplicity to its accounting personnel, CAAN it-self developed the accounting manuals covering on eight different faculties. There is still the question mark concerning how many of them following the proper system.

CAAN is in the process of recovering cost since the fiscal year 2060/61. Before that, it was operating at huge loss since the establishment of FY 2059/60. Success is not a matter of chance; it is a matter of implementing plan systematically. Profit can be achieved through well planning and management. Management accounting provides techniques to aid management functions. CAAN it-self is not performing well. It is due to poor planning, controlling and decision making processes. Only qualified competent and good skilled managers can do the best business (performance).

This research study was aimed to find out the answers of the following questions relating to CAAN operations.

- i. Is CAAN practicing management accounting tools?
- ii. Which management accounting tools were mostly practiced?
- iii. What were the major difficulties in the application of management accounting tools?
- iv. In which areas of CAAN management accounting tools should be applied to strengthen the CAAN activities?
- v. Were the personnel's well skilled and professional in management accountings?

1.6 Objectives of Study

The main objectives of this research are to examine and study the practices of management accounting tools and techniques in CAAN. The specific objectives are as follows:

- i. To study and examine the management accounting tools practiced in CAAN.
- ii. To identify the management accounting tools not in use.
- iii. To identify the difficulties in applying management accounting tools in CAAN.
- iv. To recommend the areas where management accounting tools can be applied to strengthen the organization.

- v. To make recommendation to overcome the difficulties in applying management accounting tools in CAAN.

1.7 Significance of Study

The present research work is the study of the practice of the management accounting tools in CAAN. This might be useful to all those organizations intend to implement this system. This study will be significant in the following matters.

- i. It examines the application of management accounting tools.
- ii. It explores the problems and potentialities and useful to overcome from the existing problems.
- iii. It provides information on the application of the tools under different circumstances which will encourage the use of management accounting tools and techniques in decision making.
- iv. It will help to know about the financial activities of CAAN in brief.
- v. Last but not least, it provides literature to the researchers who want to carry on further research in this field.

1.8 Limitation of Study

Research itself is a difficult task due to its own natural characteristics. Every research and study needs sufficient time, effort, investment and data. These characteristics can be termed as limitations. The present research has the following limitations.

- i. This research is based basically on primary data. Secondary data were also used.
- ii. The study is concerned with management accounting. It does not consider the other economic aspects in detail.
- iii. The study paid attention on the practice of management accounting tools and techniques.
- iv. The study is focused only on "CAAN". Thus findings might not be applicable to other organization which does have different objectives and goals.

1.9 Organization of Study

This thesis has been divided into five chapters. They are:

Chapter 1	Introduction
Chapter 2	Review of Literature
Chapter 3	Research Methodology
Chapter 4	Data Presentation and Analysis
Chapter 5	Summary, Conclusion and Recommendation

The introduction chapter covered background of the study, role of management accounting, civil aviation history, organizational introduction, focus of study, statement of the problems, objective of study, significance of study and limitations of study.

The second chapter focused as review of literature. It contained the conceptual framework and past research literature on profit planning and control and the practices of management accounting.

The third chapter dealt with the research methodology to be adopted for the study consisting research design, sources of data, data gathering procedure, data processing procedure, population and sample and research variables.

The fourth chapter dealt with presentation, analysis and interpretation of data. It consisted analysis of questionnaires, analysis of open-end opinions and major finding of the research.

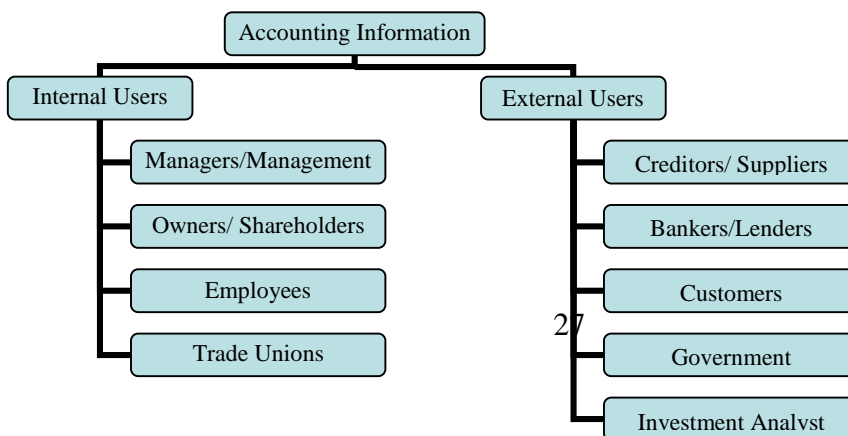
The last chapter contained summary, conclusion and recommendation.

Chapter II LITERATURE REVIEW

2.1 Accounting

Accounting has rightly been termed as the language of the business. It communicates the result of business operations to the various parties who have some stake on the business. The objective of accounting is to provide sufficient information to meet the need of various users at the lowest possible cost. As such, the accounts/ accounting should aim to provide the right information to the right user/ people in the right quality at the right time and at minimum cost. The user of accounting information can be grouped into following two categories

Users of accounting information



Historically, Accounting is concerned with recording, classifying, summarizing, analyzing and interpreting the past transactions for an accounting period of a business enterprise. In modern time it has historical as well as managerial function. In managerial function it is concerned with planning the future activities of an organization and controlling the operations of the business. This helps the management in looking forward. The actual results are compared with the predetermined targets with the objectives of promoting maximum operational efficiency. Accounting information can be gathered and provided through various branches of account that includes

- Financial Account
- Cost Account

2.2 Financial Accounting

Financial account is concerned with the recording of financial transactions of the business and it provides information in financial terms to parties or people, wanting information about the state of business. Financial accounting is useful to management as well as to external users such as potential owners, creditors, government etc. It provides information regarding the status of business and results of its operation. The functions of Financial Accounting are

- Recording of information, ie financial transactions.
- Classification of data
- Preparation of financial statements
- Interpreting financial information
- Communicating results
- Making information more reliable by using Generally Accepted Accounting System

Management needs information for planning, controlling and coordinating business activities. But information provided by financial account isn't sufficient in meeting informational needs of the management because of some limitations those are

- Historical nature
- Not helpful in price fixation
- Cost control is not possible
- Recording of actual costs
- Appraisal of policies is not possible
- Not helpful in strategic decision
- Provide quantitative information not qualitative one

2.3 Cost Accounting

Cost Accounting is concerned with the classifying, recording and appropriate allocation of expenditure for the determination of the cost of products or services and presentation of data for the purposes of control and guidance to management. The main objective of cost accounting is to find out cost per unit of production or service or for a process. Cost accounting is the process of accounting for cost. It records income and expenditure relating to production of goods and services. It is concerned with cost ascertainment and cost control. It involves the preparation of right information to right person at right time so that it may be helpful to the management for planning, controlling and decision making. Cost accounting helps management to

- ascertain selling price to the product and services
- provide reliable cost data
- formulate business policies
- analyze and classifying the cost
- make decision regarding make or buy and drop or continue
- help in cost reduction and cost control

Cost accounting has the following limitations

- It is not an independent system of accounts
- Cost varies with purpose. Difficult to determine for service sector
- It presents a base for taking the best decision but does not give a solution of the problem
- Techniques are based on some presumed notions
- Different views are held by different accountants about the items to be included in cost

2.4 Evolution of Management Accounting

The last three decades have witnessed an almost startling change in the development of accounting from a mere device of recording and compiling of income and expenditure relating to past business of economic activity, starting with systematic recording of transactions and costs. Subsequently supplemented by integration of financial and cost records the basic structure of traditional accounting has been enriched by financial and cost control, enriched by budgetary control, embellished by production planning and control and engrafted by a system of reporting on performance.

In short, it has led to the emergence of what in technical language is known as management accounting. The term management accounting is of recent origin even in USA where though a lot was about controllership function, financial control, operational control, management services, system work, methods and procedures production planning and other methods connected with management till recently very few people looked upon "management accounting" as a subject distinct from accounting. This subject was discussed under the title "Budgetary Control" and corresponding modernization of accounts at the international accounting congress held at Amsterdam. So far as evidence goes, the term management accounting was first coined and used by the British team of accountants that visited the United States in 1950 under the auspices of Anglo-American productivity council. Since then the term has become quite familiar in USA as well as in other countries. (Goyal and Singh, 1997:6-7)

2.5 FUNCTIONS OF MANAGEMENT ACCOUNTING

The manner in which Management Accounting satisfies the various needs of management for arriving at appropriate business decisions may be described as follows:

a) Modification of Data: Accounting data required for decision making purposes is supplied by management accounting through resort to a process of classification and combination which enables to retain similarities of details without eliminating the dissimilarities, e.g., combination of purchases for different months and their break-up according to class of product, type of suppliers, days of purchase, territories, etc.

b) Analysis and Interpretation of Data: Though management accounting is concerned with records of past achievements, maintenance of values, fixation of responsibilities and basis for assessing the future development, it is more concerned with the analysis and interpretation of such data which has opened up new directions for its use by management. The data becomes more meaningful and is placed in proper perspective when it is provided by means of measurement, its relationship with other data is established and it is ranked in terms of its relative significance.

c) Facilitating Management Control: Management Accounting enables all accounting efforts to be directed towards control of the destiny of an enterprise. Standards for performance and measure of deviation there from are essential elements of any system control. Then, control has an organizational aspect also in as much as lines of communication are required for the collection and transmission of control information. This is made possible through budgetary control and standard costing which are in integral part Management Accounting.

d) Formation of Business Budgets: Planning, which is the creative aspect of management job, is done by management accounting through the process of budgeting. Planning involves the setting up of objectives, a search for optional strategies for accomplishing the objectives, and the selection of the most appropriate strategies by comparing them with reference to some discriminating criteria. For this purpose a wide array of techniques of probability, forecasting, trends, correlation and even downright guessing are used.

e) Use of Qualitative Information: Management accounting does not restrict itself merely to financial data for helping management in the decision-making process and frequently draws upon sources, other than accounting, for such information as is not capable of being readily convertible into monetary terms. Sources of such information include statistical compilations, engineering records, case studies, and minutes of meetings, reports of productivity, special surveys and many other business documents.

f) Satisfaction of Information Needs of Levels of Management: Management Accounting has a system of processing accounting data in a way that yields concise information covering the entire field of business activities at relatively long intervals for the top management, technical data for specialized personnel's regularly and detailed figures relating to a particular sphere of activity at short intervals for those at the lower rungs of organizational

ladder. This is the function of controller's establishment, which is concomitant of Management Accounting.

2.6 Objectives of Management Accounting

The principal objectives of management accounting are to assist the management for achieving the goals of an organization, ie. maximization of profit. Management accounting supplies accounting information to the management for planning, formulating policies, controlling business operations, and making decisions. The major objectives/ purposes of management accounting can be summarized as follows:

a. Planning and Policy Formulation

Planning is one of the primary functions of management. It involves forecasting, setting goals, framing policies, determination of alternative courses of actions and deciding on the programs of activities to be undertaken. Management accounting helps management greatly in these processes.

b. Help in Controlling Performances

Management accounting devices like standard costing and budgetary control are helpful in controlling performance. The actual results are compared with predetermined objectives. The management is able to find out the deviations and take necessary corrective measures.

c. Help in Organizing

Organizing is related to the establishment of relationship among different individuals in the concerns. It also includes the delegation of authority and mixing the responsibility. Management accounting is connected with the establishment cost center, preparation of budget, preparation of cost control account and fixing of responsibility for different functional departments.

d. Helpful in Interpreting Financial Information

Management accounting presents the financial information to management. It helps the management analyzing and interpreting different accounting information for selecting the most profitable course of action.

e. Motivating Employees

Targets are laid down for the employees. They feel motivated in achieving their targets and further incentives may be given for improving performance.

f. Reporting to Management

The performance of various departments is necessary to communicate regularly to the management. One of the primary functions of management accounting is to keep the management fully informed about the performance of organization. It helps management in taking proper and timely decision and action.

g. Helps in Decision Making

Decision-making is an important and prime function of management. Management Accounting can make the decision making process more modern and scientific by providing significant information relating to various alternatives in the terms of cost and revenue. It prepares a report on the feasibility of various alternatives and makes an assessment of their financial implications. It also deals with a number of techniques, which could be used, in judging the profitability and feasibility of the alternative selected on the basis of cost and revenue data.

2.7 Advantages of Management Accounting

The following are the advantages of the management accounting system.

- a. Management Accounting analyzes and interprets systematically the information collected from within and outside the business and communicates the result to the management. This will help in implementing managerial policy decision effectively.
- b. Management Accounting helps in comparing actual performance with the budgeted standard and reporting management any deviation for corrections.
- c. All the business activities are planned well ahead based on the accounting information applying budgeting and forecasting techniques.
- d. Management accounting techniques help in the business control its activities efficiently. It helps in utilizing its capital in an optimal way.
- e. It helps to get rid of the seasonal and cyclical fluctuations.
- f. It facilitates coordination between different departments and helps in attaining objectives of the business as a whole.
- g. Management Accounting often compares the actual performance with the standard and analyzes the reason for any deviation there has and offers suggestions to take corrective measures.

2.8 Limitations of Management Accounting

Though Management Accounting is a helpful tool to the management as it provides information for planning, controlling and decision making, still its effectiveness is limited by a number of reasons. Some of the limitations of management accounting are listed as follows:

a) Based on Accounting Information

Management Accounting is based on data and information provided to supply by financial and cost accounts. As such the correctness of managerial decisions will depend upon the quality of data provided by financial and cost accounts.

b) Lack of Knowledge

The use of management accounting requires the knowledge of a number of related subjects like accounting principles, statistics, economics, principle of management etc

c) Intensive Decision

Decision taking based on management accounting that provides scientific analysis of various situations will be time consuming one. Management may arrive at decision using intuitive. And intuitive decisions limit the usefulness of management accounting.

d) Management Accounting is only a Tool

The tools and techniques of management accounting provide only information and not decision. Decisions are to be taken by the management and implementations of decisions are also done by management.

e) Evolutionary Stage

Management accounting is still in developmental stage and has not yet reached a final stage. The techniques and tools used by this system give varying and differing results.

f) Personal Prejudices and Bias

The interpretation of financial information may differ from person to person depending up on the capability of the interpreter. As such the objectivity of decision may be affected by personal prejudices and bias.

g) Psychological Resistance

Changes in traditional accounting practices and organizational set up are required to install the management accounting system. It calls for a rearrangement of personnel and their activities and framing of new rules and regulations which generally may not be liked by the people involved.

2.9 HISTORY OF MANAGEMENT ACCOUNTING IN NEPAL

The first king of Nepal in Lichhavi period circulated the first coin called “Manaka” during the period 464-491 A.D. Then King Mahendra Malla had circulated the coin named “Mahendra Mally” in Malla period. From that time, it can be said that transaction begins in proper way. It is also said that small number of transactions used to be performed in lichhavi and Malla periods. Some written records of accounting have been traced to the 18th century. After the unification of Nepal by the king Prithvi Narayan Shah the great in 1825 B.S., the chief of the district level soldiers used to keep the accounts of the government offices. In 1814 a book called “Laldhadda” was created for recording matters about land management and another book called “Mothdhadda” was also used for keeping accounts. These two records were important steps in the history of accounting in Nepal. “Kitab khana” was established for recording the salaries paid to government personnel. In the process of

development of accounting in 1879 (1936) B S , Kharidar Gunawanta a senior official that time propounded "Syaha Shresta Pranali" which was an advanced form of an accounting and used up to 1965-66 fiscal year. A "Faram Shresta Pranali" was introduced in 1911 (1968 B S) especially to use in Terai Region. After the overthrow of Rana Regime, the first budget was started in Nepal in 1951 A.D. The auditor general's office was established in 1959. In 2017 B.S. "Bhuktani shreshta Pranali" was adopted which was little bit based on the double entry book keeping system. After detailed study of 288 days committee made a report to introduce a new accounting system.

New accounting system based on double-entry bookkeeping is in practice for recording transactions in government ministries, departments and offices. Management accounting protects business properties. Management accounting is possible because accounts supply the following information to the manager or the owner.

1. How much the business has to pay to the others?
2. How much the business has to recover from others?
3. How much the business has the (a) fixed assets, (b) cash in hand, (c) cash at bank, (d) stock of materials.

In order to enable the users of financial information to draw important conclusions regarding the working of a company over a number of years, it is essential that the accounting practices and methods remain unchanged from one accounting period to another. But some companies in Nepal lack consistency.

2.10 NEPALESE ACCOUNTING STANDARDS WITH INTERNATIONAL ACCOUNTING STANDARDS

The International Accounting Standards Committee (IASC) was formed in 1973 to develop worldwide Accounting Standards. More than 100 organizations from 80 different countries participated in the IASC's efforts to develop international reporting standards. In many of the countries, compliance with the standards of the IASC is strictly voluntary, and much work remains to be done in developing International Accounting Standards. The Accounting Standards are issued for use in the preparation and presentation of the financial statements out of various alternative accounting treatments. Accounting standards identify such alternative, which should be preferred.

Accounting Standards in reporting accounting information is compulsory every country. It is, therefore, obvious that a detailed knowledge of the IAS is compulsory for accountants in Nepal. However, it is to be noted that Accounting Standards should not influence the local regulations, which govern the preparation and presentation of financial statements in our country.

2.11 A Brief Review of Management Accounting Tools

Management accounting is such techniques, which help to discharge functions like planning, organizing, staffing, directing and controlling properly and efficiently.

(Paul, 1994:5)

Such tools can be identified as such:

2.11.1 Cost Concept

The term cost has a wide variety of meanings. In common use, the word cost means price. But in management terminology the term cost refers to expenditure and not the price.

"Cost is the amount of expenditure (actual or nominal) incurred on or attributable to a given thing" – Terminology

Cost is the amount of resources given up in exchange of some goods and services. It is the price of economic resources used as a result of producing or doing something. It is the amount of expenditure incurred on a given items which could be material, labour, machine or product.

Managers require cost information for planning, controlling and decision making. The monetary units that must be paid for goods and services are the costs. Managers want to know the cost for decision making. This is called cost objective/object. It is defined as any activity or resources for which a separate measurement of cost is desired. Here cost allocation and cost accumulation are important factors for cost objective.

2.11.1.1 Cost Accumulation

Cost accumulation refers to the collection of cost data through an accounting system. Usually the costs are collected under ledger accounts heading materials, labour etc. Costs are related to products and services that generate the resources of an entity. These costs can be separated into three cost components:

- i. Direct material
- ii. Direct labour
- iii. Overhead cost

Materials refer to the commodities supplied to an undertaking for the purpose of consumption in the process of manufacture or rendering service or transformation into products.

Labours refer to labour charges to activities, jobs, products or services. Labour cost includes wages, allowances, bonus, gratuity, pension, provident fund, insurance policy, medical etc.

Cost indirectly related to materials, labour and expenses are known as overhead. Such cost cannot be traced to any unit of production it represents common to several cost units or cost centers. It is aggregate of all indirect material, labour and expenses.

2.11.1.2 Cost Classification and Behavior

Cost classification is the process of grouping cost on the basis of their common features. Costs are to be classified suitably to identify with cost centers or cost units. Classification of cost is either by on the basis of relationship or cost objectives. Some of the types of cost are as follows: variable, fixed, mixed, prime, relevant, direct, indirect, avoidable, unavoidable, opportunity, controllable or uncontrollable etc.

The cost structure consist the relative proportion of variable, fixed and missed cost. Management of any organization wants to know how costs will be affected by changes in the organizational activity. The relationship between cost and activity is known as cost behavior which affects the managerial functions of planning, controlling and decision making.

Variable cost varies in direct proportion to changes in the activity level. Variable cost in total increase or decrease if the activity level increases or decreases but it remains constant if expressed on a per unit basis.

Step variable cost is a cost that increases or decreases only for response to fairly wide changes in activity level.

Fixed costs remain constant in total amount despite the changes in the level of activity fixed costs per unit does changes as activity varies. Fixed cost per unit basis decreases as the level of activity increases and vice-versa.

Step fixed cost remain fixed over a wide range of activity but jump to a different amount for activity levels outside that range.

Semi-variable cost is the cost or expenditures that cannot be categorized on purely fixed or variable. Mixed costs contain both variable and fixed cost elements.

Following equation can be used to express the relationship between mixed cost and the level of activity.

$$y = a + bx$$

Where, y = total mixed cost

a = total fixed cost

b = variable cost per unit activity

x = level of activity

2.11.1.3 Cost Allocation

Cost allocation is tracing and reassigning costs to one or more cost objectives such as activities, departments, customers or product. The major problem in cost allocation is

whether and how indirect cost / overhead are allocated to products or services. The term cost allocation cost assignment, cost apportionment and cost distribution all describe the process of taking a given common cost and dividing it between various cost objects. Cost allocation requires the following steps

- Defining the cost objects
- Accumulating the common costs to be assigned to the cost objects
- Choosing a method for distributing the accumulated common costs to the cost objects.

The allocation process should be rational and systematic so that allocations are useful in product or services costing and to managers for planning, controlling and decision making.

2.11.1.4 Methods of Mixed Cost Segregations

2.11.1.4.1 The High-Low Method

As the name suggested by, this method consider two level of activity cost. It considers the output at different levels. For separating semi-variable cost into fixed and variable cost, two level of activity high and low are taken with their corresponding cost. Therefore, the difference in cost and difference in activity level are ascertained. The difference in cost between highest and lowest level of activities are divided by the difference in activity or output. The result of division is variable cost per unit. This method assumes that fixed cost trends remain constant and if there is any changes are only in variable cost. (Dangol, 2005:25)

$$\text{Variable cost per unit} = \frac{\text{High cost} - \text{Low cost}}{\text{High unit} - \text{Low unit}}$$

2.11.1.4.2 Least Square Method

Least square method is a statistical method. It follows regression equation to segregate mixed cost into variable. It is an accurate and trusted method of segregation fixed and variable cost from mixed cost. In this method, first of all, variable cost per unit is calculated. Then fixed cost is calculated. (Dangol, 2005:27)

$$b = \frac{N \sum XY - \sum X \sum Y}{N \sum X^2 - (\sum X)^2}$$

$$a = \frac{\sum X^2 - \sum X - \sum X \sum Y}{N \sum X^2 - (\sum X)^2}$$

Where, b = variable cost per unit
a = fixed cost per unit

2.11.1.4.3 Analytical Method

This method also known as "Degree of variability" techniques because the genesis of this method lies in measuring the extent of variability of costs on a careful analysis of each item to determine how far the cost varies with volume, variable overheads under this method computed as follows:

$$\text{Variable overhead} = \text{Budgeted mixed overhead} \times \text{Degree of variability}$$

(Brown and Howard, 1964:249)

2.11.2 Product Costing

Product costs can be identified with goods produced or purchases for resale.
(Hornngren, 1991:128)

Two popular methods drawn for product costing are variable costing (Direct / marginal costing) and Absorption costing (Fixed costing). The cost of product and profit there on can be ascertained using these two techniques.

2.11.2.1 Variable / Direct Costing

A direct costing method that includes only variable manufacturing costs. Variable costing is more accurately perceived as direct of marginal costing as it applies only the variable production costs to the product. This costing approach that fixed manufacturing overheads is regarded as an expired cost to be immediately changed against sales not as an unexpired cost to be held back as inventory of changed against sales later as a part of cost of goods sold. Further more the direct costing approach to the inventorying of costs is not confined to only direct material and labour. It also includes on indirect cost the variable manufacturing overheads as a part of product cost. (Hornngren, 1991: 539)

The only thing that can affect net income under direct costing is a change in sales a change in production has no impact when direct costing method is in use.

2.11.2.2 Absorption Costing

Absorption costing includes both variable and fixed manufacturing overheads in the product costs that flow through the manufacturing accounts. It absorbs all cost necessary to production. It considers fixed manufacturing overhead as a part of product cost. On this each unit of product has to bear its total share of cost; i.e. each unit of product must bear an equitable portion of all manufacturing cost. Net income is affected by changes in production when absorption costing in use.

2.11.3 Standard Costing

The word standard "means" a norm or a criterion. Standard cost is thus criterion cost, which may be used as a yardstick to measure the efficiency with the actual cost has been incurred. The difference between actual costs and pre-determined costs provides

management with necessary information for controlling costs. In standard costing techniques, in order to control cost, an attempt is made to ascertain before hand what the costs should be and further attempt is made to ensure that actual costs do not exceed these pre-determined costs.

Historical costing is not an effective method of exercising cost control because it does not provide yardstick with actual performance may be compared. Historical costing is not preceded by planned costs which are a must for effective cost control. Planned cost or standard cost is a pre-determined cost based on a technical estimate for material, labour, and overhead for a selected period of time and for a prescribed set of working conditions. It is determined in advance of production of what should be cost, when standard costs are used for the purpose of cost control, the technique is known as "standard costing". Therefore standard costing is preparation of standard costs and applying them to measure the variations from standard costs and analyzing the causes of variations with a view to maintain maximum efficiency in production. This technique is complementary to the actual costing can be historical costing system. The system of standard costing can be used in all types of industries but it is more commonly used in industries producing standardized products, which are repetitive nature.

(Jain and Narang, 1992: 5.230-5.231)

2.11.4 Most Widely Used Standard

Basically, standard falls into two categories they are ideal / perfection standard and practical / attainable standard. Even though other types of standards are also in practice which is classified as current standard, basic standard and normal standard, the main two are described as follows:

2.11.4.1 Ideal (Perfection) Standard

Ideal standard is the expression of the absolute minimum costs possible under the best, conceivable conditions, using specification and equipment. No provision is made for wastage, spoilage, machine breakdowns and the like. This approach maintains that the resulting unfavorable variances will constantly remind managers of the perpetual need for improvement in all phases of operations. These standards might have an adverse effect on employee's motivation and they tend to ignore unreasonable goals.

(Jain and Narang, 1992: 5.234)

2.11.4.2 Practical (Current Attainable) Standard

Currently attainable standards are cost that can be achieved by a specified level of effort. Allowances are made for normal spoilage, waste and non-productive time. The level of effort specified for the standards varies from company to company. There are two interpretations of practical standards. The first interpretation has standard set just tightly enough so that employees regard their fulfillment as highly probable if normal effort and diligence are exercised. (Horngren, 1991: 217)

2.11.5 Variance Analysis

The deviation of actual from the standard is known as variance. Here, the deviation of the actual cost or profit or sales from the standard cost or profit or sales is known as variance. Variance analysis is helpful in controlling the performance and achieving the profits that have been planned.

When actual cost is less than standard cost or actual profit is better than standard profit, it is known as favorable variances and such a variance is usually a sign of efficiency of the organization. On the other hand when actual cost is more than standard profit is called unfavourable variance and it is indicator of inefficiency of the organization.

Variances can be classified into controllable and uncontrollable variances. If a variances due to inefficiency of cost center, it is said to be controllable variances. Such variances can be corrected by taking a suitable action. On the other hand uncontrollable variance does not relate to an individual or department but arises due to external reason like increases in prices of materials. (Jain and Narang, 1992: 5.239)

Direct materials variances and direct labour variances are mostly used for analysis of variances.

2.11.6 Budgeting

A budget is a detailed plan outlining the acquisition and use of financial and other resources over some given time period. It represents a plan for the future expressed in formal quantitative terms. The act of preparing a budget is called budgeting.

Budget is a comprehensive and coordinated plan for operations and resources of enterprises expressed in the financial terms for achieving organizational objectives. It is a mechanism to plan future activities to realize the expectation of the firm. It is one of the comprehensive approaches that have been developed to facilitate effective performance of the overall management process. It is a systematic and formalized approach for performing significant phases of management planning and control function.

(Fago, Subedi & Gyawali, 2004: 5.1)

Budget is a formal statement of future plans usually expressed in monetary terms.
A budget is

- Essentially a plan in monetary terms to attain a given objectives.
- Prepared and approved
- Prior to defined period of time
- Usually showing planned income to be generated
- Expenditure to be incurred and
- Capital to be employed during that period

2.11.7 Master Budget

Master budget is the organization's formal plan of action for forth coming budget period expressed in financial term. It is static rather than flexible. The master budget embraces an operational decisions and financial decisions. Operational (functional) budget are based for master budget where as financial budgets are also very useful and part of Master Budget.

2.11.7.1 Operational Budget

Operational budget are concerned with the process of preparing the budget of each physical activities / operation of a firm such a production, sales, purchasing, debtor collection and creditors payment schedule etc. In specific term and operating budget has the following term.

2.11.7.1.1 Sales Budget

Sales budget is the budget, which forecasts future sales of each product in each region in each units of time. A sales budget should be prepared to shown the detail like product wise, region wise, and time sales to meet overall objectives of the organization. Sales budget is the foundation of all other budgets. Therefore, a sales plan should be realistic. A realistic sales plan incorporates such management decision as objectives, goals and strategies and translates than into planning as volume of gods, price and amount by region, product and time. Sales budget is prepared from sales forecast. A sales forecast encompasses potential sales for the entire industries as well as potential sales for the firm preparing forecast.

2.11.7.1.2 The Production Budget

After sales budget has been prepared, the second step is production budget. Production budget is concern with determining the quality of the production to be produced each units of time. Production budget is prepared to coordinate the sales budget and inventory policy of organization. The production requirement for the forth coming budget period can be determined and organized in the form of a production budget sufficient goods will have to be available to meet sales needs and proved for the desired ending inventory. A portion of these goods will already exist in the form of beginning inventory. The remainder will have to produce. Thus, production can be determined by adding budgeted sales units to the desired ending inventory from the total.

(Horngren, Foster and Datar, 1999:182)

$$\text{Production units} = \text{Planned sales} + \text{Closing stock} - \text{Opening stock}$$

2.11.7.1.3 Purchase Budget

In case of merchandising firm, instead of preparing production budget it would prepare merchandise purchase budget showing the amount of goods to be purchased from its suppliers during the period. The merchandise purchase budget is in the same basic format as the production budget, except that it shows goods to be purchased rather than goods to be produced.

$$\text{Purchase} = \text{Material usage} + \text{closing stock of raw material} - \text{opening stock of raw Material}$$

2.11.7.1.4 Direct Material Budget

After production budget direct material budget should be prepared to show the materials that will be required in the production process. Sufficient raw materials will have to be available to meet production needs and to provide for the budget period part of this raw materials requirement will already exist in the form of a beginning raw material inventory. The remainder will have to be purchased from supplier.

2.11.7.1.5 Direct Labour Budget

The direct labour budget is also developed from the production budget. Direct labour requirements must be computed so that the company will know whether sufficient labour time is available to meet production needs. Just knowing in advance, the company can develop plan to adjust the labour forces as the situation may require. Direct labour requirement can be computed by multiplying product to be produced by each period by the number of direct labour hours required to produce a single unit. Many different types of labour may be involved. If so, then computation should be type of labour needed. The hour of direct labour time resulting from these computations can then be multiplied by the direct labour cost per hour to obtain budgeted total direct labour cost.

$$\text{Direct Labour Cost} = \text{production} \times \text{standard usage rate} \times \text{wages rate}$$

2.11.7.1.6 The Manufacturing Overhead Budget

The manufacturing overhead budget provides a schedule of all costs of production other than direct material and direct labour. It is an aggregate of indirect expenses which includes both variable, fixed and semi variable overhead. i.e rent and rates, power, fuel, stationary, printing, canteen, medical, repair, entertainment etc. These costs should be broken by cost behaviour for budgeting purposes and a predetermined overhead rate developed. This rate will be used to apply manufacturing overhead to units of products throughout the budget period.

2.11.7.1.7 The Selling and Administrative Overhead

The selling and administrative expenses overhead budget contains a listing of anticipated expenses for the budget period that will be incurred in areas other than manufacturing. The budget will be made up of many smaller individuals submitted by various persons having responsibility for cost control on selling and administrative matters.

If the number of expenses items is very large, separate budgets may be needed for the selling and administrative functions.

2.11.7.2 Financial Budgets

Financial budgets are concerned with expected cash receipts/disbursement. Financial position and results of operations the components of financial budgets are:

2.11.7.2.1 The Budgeted Income Statement

The budgeted income statement is one of the key schedules in the budget process. It is concern with forecasting total assets and properties and capital and liabilities of the company by time period. It is the document that tells how profitable operations are anticipated to be in the forth coming period. After it has been prepared, it stands as a benchmark against which subsequent company performance can be measured.

(Garrison, 1985:313)

2.11.7.2.2 The Cash Budget

Cash budget is the details showing cash receipt, cash disbursement and the balance cash. The cash budget is composed four major sections.

- The receipt sections
- The disbursement sections
- The cash excess or deficiency sections
- The financing sections

The receipt section consists of the opening balance of cash added to whatever is expected in the way of cash receipts during the budget period. The major sources of receipts will be from sales. The disbursement sections consist of cash payments that are planned for the budget period. Those payments will include raw material purchase, direct labor payments, manufacturing overhead cost and so on. Other cash disbursements are income, tax, capital, equipment, purchase, dividend payment and so on.

The cash excess or deficiency sections consist of the difference between the cash receipts section totals and the cash disbursement section totals. If a deficiency exists the company will need to arrange for the borrowed finds from its bank. If excess exists, funds borrowed in previous period can be repaid for the idle funds can be placed in short term investment.

The financing sections provide a detailed account of the borrowing and repayments projected to take place during the budget period. It also includes a detail of interest payment that will due on money borrowed.

The cash budget is to ensure that sufficient cash is available at all time to meet the level of operations that are outlined in the various budget. Cash budget can help a firm to

avoid cash balances that are surplus to its requirement by enabling management to take steps in advance to invest the surplus cash in short term investments.

2.11.7.2.3 Budgeted Balance Sheet

The budgeted balance sheet is developed by beginning with the current balance sheet and adjusting it for the data contained in the other budgets. (Garrison, 1985: 315) The balance sheet is the final document in the master budget and even in financial record keeping. The balance sheet shows the final balance of all the account titles. So it can be said list of the ending balance of all assets, liabilities and equities.

2.11.8 Zero Base Budgeting

Zero base budgeting is a method of budgeting in which managers are required to start from zero level every year and justify all costs as if the programs involved were being initiated for the first time. By this means, no costs are viewed as being on going in nature. The manager must start at the ground level and present justification for all costs in the proposed budget, regardless of the type of cost involved. The main task under zero base budgeting is to ascertain tasks, which are as very important to the organization as for coming periods. If they are not more useful now, they should be omitted. Zero base budgeting is very useful where cost benefit analysis is taken into consideration.

(Fago, 2004: 362)

Zero base budgeting differs from traditional budgeting, in which budgets are generally initiated on an incremental basis, that is, manager starts with last year's budget and simply adds to it (or subtract from it) according to anticipated needs. The manager does not have to start at the ground each year and justify on going costs (such as salaries) for existing programs. (Gautam &Bhattarai, 2004: 317)

Zero base budgeting though is not really new concept, only the review of the departmental costs. Manger's are in ad-vocation since long time in depth review of departmental cost. This review should be done annually, zero base budgeting lays down where as critics of zero base budgeting says it should done every five years. The only difference is the frequency of review of departmental cost. (Garrison, 1985: 317)

2.11.9 Activity Based Budgeting

Activity Based Budgeting is a technique of allocating manufacturing overheads to products using multiple application rates and a wide variety of costs drivers in multi-product firm. It maintains the relationship between overheads costs and the activities that cause them. The manufacturing costs are based up on certain cost driver and the increasing and decreasing ratio of costs depends upon the quantity of cost driver.

(Horngren, Foster & Datar, 1999: 190)

Activity Based Budgeting applies the principles of activity based costing. It focuses budgeted cost of necessary activities needed for products and services. Activity Based Budgeting is a process of developing master budget using information obtained from activity based costing. Following procedure are taken for Activity Based Budgeting

- Determination of goods and services to be produce for customers in the future.
- Determination of necessary activities needed to produce predetermined quantities of goods and services.
- Determination of resources and cost required.
- Estimation of each resources quantity.
- Take action to adjust the capacity of resources.

Advantages of Activity Based Budgeting

- More realistic budget
- More useful budget due to its clear nature of expenses and cost change with change in activity level
- Activity Based Budgeting explain the reasons of budgeting because it uses the activity based costing information which explains the relationship between cost drive, cost and resources consumed. (Fago, 2004: 366)

2.11.10 Flexible Budget

A budget prepared at different level of activity is a flexible budget. Flexible budget will furnish the budgeted figure for any level of activity, which a company may actually attain. It reflects costs, revenues and profits at the various level budgeted activities. It is also called a variable budget, step budget, sliding scale budget, expenses formula budget, dynamic budget, expenses control budget and so ... on. It is a budget permits revision of estimates of operating cost and profit, which changes in sales or production volume. This budget is prepared on the basis of time, demand of product, and cost of product. In static budget it is prepared at a single level of activity with prospect of modification in the light of the changed circumstances is fixed / static budget.

It is difficult to forecast the future activity accurately, which demands some degree of changes to cope within the business environment. In the case a flexible budget can be used comfortably to reduce the margin of deviation between estimation and actual performance. A flexible budget enables an organization to estimate the expenditure at different level activity. It is used as a yardstick to measure the efficiency at the level of performance achieved and tools for controlling the cost. The flexible budget approach says "Give me any activity level you choose, and I will provide a budget tailored to that particular level". Under flexible budgeting, budgets are drawn for a series of possible sales and production volumes including the actual. In the beginning of the period, budgets are constructed for a no. of alternative production volume to take case of the changing market conditions and government policies. Usually flexible budgets are prepared for minimum of three activity levels.

- The most optimistic
- The most pessimistic
- The most likely

(Fago, Subedi & Gyawali, 2004:7.1-7.2)

2.11.11 Capital Budgeting

Capital budgeting is the process of planning and controlling the strategic (long term) and tactical (short term) expenditure for expansion and contraction of investments in operation (fixed) assets. It is the use of funds to obtain operational assets that will (a) help to earn future revenues or (b) reduce future cost. (Welsch, Hilton & Gordon, 1993: 394)

Capital budgeting is the process of investment evaluating, planning and financing major investment projects of an organization. The capital budgeting decision involves a current outlays or services of outlays of cash resources in return for an anticipated flow of future benefits. In other word, the capital budgeting is an evaluation system of capital expenditure decision which involve current outlays but are likely to produce benefits over period of time longer than one year. These benefits may be either in the form of increased revenue or reduction in costs. So, it includes addition, disposition, modification and replacement of fixed assets.

Capital budgeting is the planning to expenditure whose return stretches beyond a one-year time interval. It is the process of deciding whether or not to commit resources to a project whose benefit would spread over several time periods. It considers proposed capital outlays and their financing. The main exercise involved in capital budgeting is related the benefits to costs in some reasonable manner which would be consistent with the project maximizing objectives of the business capital budgeting decision is the most important areas of managerial decisions as they involve more extended estimation and prediction of things to come requiring a high order of intellectual ability of their economic analysis. Heavy spending on capital assets since the Second World War has stimulated a geniuses and lively interest on the part of economists, financial analysis, and accountant in managerial approaches to capital budgeting decisions. Capital has three aspects. It ranks various in descending order, uses the company's minimum desired rate of return (average of cost of capital) as the cut off point for determining whether projects should be accepted or rejected. In doing so, the limitation imposed by top management decision the total volume of investment to be made has also to be taken into account. These three aspects are inter wined, it is extremely difficult to weave them together in one harmonious whole so that the way may be passed for optimum investment decision. (Goyal & Singh, 1997: 101)

For this purpose numerous methods of measuring the economic value (investment worth) of an investment can be found in management accounting and financing. The methods of appraising capital expenditure proposal can be classified into two broad categories:

2.11.11.1 Discounted Cash Flow (DCF) Methods

The discounted cash flow methods explicitly recognize the effects of the time value of money and in that way measure economic value or investment worth as a true interest rate. The basic concept is that investment cost is cash out flow at a present value, and the related cash inflows necessarily are future values. These future cash inflows must be discounted to their present values so that they can be appropriately subtracted, added and compared with investment cost. The true rate of interest for any investment is the rate that will discount the future net cash inflows to a sum that exactly equals the investment cost. Discounting cash flows covered following methods:

2.11.11.1 Net Present Value Method (NPV)

Net present value is the method of evaluating capital investment proposals by finding the present value of the net cash flows, discounted at the rate of return required by firm. NPV method is important because it gives a direct measure of the amount benefit to the firm's shareholder. To apply the net present value (NPV) method to a proposed investment proposal a manager first determines some minimum desired rate of return. The minimum rate is called the required rate of return, target rate, hurdle rate, discount rate, cut-off rate or cost of capital. Then all expected cash flows from the project are discounted to the present, using this minimum desired rate. If the sum of the present values of the cash inflow is zero, or positive, the project is desirable and if negative it is undesirable. When choosing among several investments, the one with largest net present value is the most desirable. (Horngrén, 1991: 392)

This method requires determination of three items for a project;

- Initial cash outflows
- Future net cash inflows
- Target rate of return

If the computed amount difference between the initial net cash investment (the net present value cash paid for the investment) and computed present value of the net cash inflows from the investment is favourable (i.e. positive) to the net cash inflows, the project will earn more than the target rate of return. If the difference is not favourable to the net cash inflows, the project will not earn the target rate of return. When ranking competing projects, the one with the highest net present value is ranked first (absent any other compelling factor). (Welsch, Hilton & Gardon, 1998: 409)

Decision criterion

It should be clear that the decision rule using in NPV method is to accept the investment projects if its net present value is positive ($NPV > 0$) and to reject it if the net present value is negative ($NPV < 0$). Positive NPV generates more cash than is needed to service its debts and contribute to net wealth of the stockholders, which result in the increased price of a firm's share. Negative NPV is unable to generate more cash than is needed to service its debts and to contribution net wealth of the shareholders. Thus NPV rules are

- Accept if $NPV > 0$
- Reject if $NPV < 0$

-May accept if $NPV = 0$

An NPV zero signifies that the projects cash inflows are just sufficient to repay the investment capital and to provide the required rate of return on that capital. It implies that the firms in different between accepting and rejecting the project. However in practice it is rare if ever such a project will be accepted as such a situation. Simply implies that only the original investment has been recovered. As decision criteria this method can be used to make a choice between mutually exclusive projects. Using the NPV methods, project would be ranked in order of net present values; that is first rank will be given to the first priority with highest positive net present value and so on.

2.11.11.2 Internal Rate of Return (IRR) Method

The internal rate of return is defined as that discount rate which forces the present value of a projects expected cash inflows to equal to zero, and that value of IRR is the internal rate of return.

IRR techniques is also known as yield on investment marginal efficiency of capital, marginal productivity of capital, marginal efficiency of capital rate of return, time adjustment of return and so...on. Like the present value method this method also considers the time value of money by discounting the cash streams. The basis of the discount factor is however different in both cases. In the case of the present value method the discount rate, usually the cost of capital, it determinants are external to the proposal under consideration. The IRR on the other hand, is based on facts, which are internal to the proposals. In other word, while arriving at the required rate of return for finding out present values the cash flows-inflows as well as outflows are not considered but the IRR depends entirely on the initial outlays and the cash proceeds of the project which is being evaluated for acceptance or rejection. It is, therefore, appropriately referred as internal rate of return. IRR has following advantages (a) it avoids the necessity of selecting a target or minimum rate of return for discounting (b) the true rate of return on an investment is computed (c) it bases preferences on the true rate of return (rather than on a amount difference called net present value) and (d) it does not have the reinvestment burden.

Decision criterion

The decision rule is used in the IRR method, to accept the project of its internal rate of return is higher than the opportunity cost capital ($r > k$). The project shall be rejected if its internal rate of return is lower than the opportunity cost of capital ($r < k$). The decision maker may remain indifferent of the internal rate of return is equal to opportunity cost of capital. Thus the IRR decision rules are:

- Accept if $r > k$
- Reject if $r < k$

-May accept if $r = k$

Note: k is known as the required rate of return, cutoff or hurdle rate.

2.11.11.1.3 Profitability Index

Yet another time adjustment capital budgeting is profitability index. The profitability index is similar to net present value approach. Profitability index measures present value of return per rupee invested. While the NPV shows the present value of return in lump sum. A ratio of total present value of cash flow and initial cash outlays is called profitability index. The profitability index is calculated under;

$$\text{Profitability index} = \frac{\text{Total present value (TPV)}}{\text{Net cash outlays (NCO)}}$$

Decision criterion

Using the profitability index, a project will accept when the profitability index is greater than 1 ($p > 1$). When profitability index is less than 1 ($p < 1$) project will be rejected. Profitability index is greater to or less than one, the net present value is greater, equal or less than zero respectively. In other word, NPV will be positive when profitability index is greater than one, will be negative when profitability index is less than one. Thus the NPV and PI approaches give the same result regarding the investment proposals.

-Accept if $PI > 1$

-Reject if $PI < 1$

-May accept if $PI = 1$

2.11.11.2 Short-Cut and Simple Methods

This is the traditional method of measuring investment worth. This method does not consider the time value of money. This method does not evaluate the future money with present value. The following techniques are applied under this method.

2.11.11.2.1 Payback Period (PBP)

The Payback Period is very simple and traditional method of measuring investment worth. The Payback Period defined as the expected number of years required to recover the original investment. This method answer the questions; how many year will take for the cash benefit to pay the original cost of an investment, normally disregarding salvage value cash benefit here represents, CFAT, ignoring interest payment. Thus PBP measures the no. of requires for CFAT to pay back the original outlays required in investment proposal.

There are two way of calculating PBP. The first method can be applied when the cash flow of the project is equal during the period of project's life i.e. CFAT are uniform. In such situation the initial cost of the investment is divided by the constant annual cash flow.

$$PBP = \frac{\text{Investment}}{\text{Constant annual cash flow}}$$

The second method is used when the annual CFAT are unequal. In such situation, PBP is calculated by the process of cumulating cash inflows till the time when cumulative cash flows become equal to the original investment outlays.

Decision criterion

The PBP can be used as a decision criterion to accept or reject investment proposal. One application of this technique is to compare the annual payback i.e. the payback set up the management in terms of the maximum period during which initial investment must be recovered. If the annual pay back is less than the pre determined payback, project would be rejected. Alternatively the payback can be used as a ranking method. When mutually exclusive projects are under consideration, they may be ranked according to the length of the Payback Period.

2.11.11.2.2 Average Rate of Return

The average rate of return (ARR) method of evaluating proposed capital expenditure is known as the accounting rate of return. It is based upon accounting information rather than cash flows. There is no unanimity regarding the definition of the rate of return. There are number of alternatives methods for calculating the ARR. The most common usage of the average rate of return (ARR) expresses it as follows:

$$ARR = \frac{\text{Averge annual profits after taxes}}{\text{Average investment over the life of the project}}$$

The average profit after taxes are determined by adding up the after tax profits expected for each year of the projects life and dividing the result by the number of year. In case of annuity, the average after tax profits is equal to any year's profits.

Decision criterion

With the help of the ARR, the financial decision maker can decide whether to accept or reject the investment proposal. As an accept reject criterion, the actual ARR would be compared with a pre-determined of a minimum required rate of return or cut-off rate. A project would qualify to be accepted if the actual ARR is higher than the minimum desired ARR, other wise; it is liable to be rejected. Alternatively the ranking method can be used to accept or reject proposals. Thus, the alternative proposals under consideration may be arranged in the descending order of magnitude, starting with the proposal with the

highest ARR and ending with the proposal having the lowest ARR. Obviously, projects having higher ARR would be preferred to projects with lower ARR.

2.11.12 Analysis of Risk and Uncertainty under Capital Budgeting

Risk is a factor, which is created due to inability of decision maker to make actual forecast. Generally, management does not prefer higher risky projects. The analysis of risk and uncertainty is an important element in the capital budgeting decision. The risk is the variability of the actual returns from expected returns in terms of cash flows. The capital budgeting decision is based on the benefits derived from the project and those benefits are measured in terms cash flow. The estimation of future return is done on the basis of various assumptions. The return of project in terms of cash inflows depends upon the factor like price, sales, volume, effectiveness of the advertisement campaign, competition, cost of raw materials, manufacturing costs and so ... on. Those factors depend upon the variable like the status of the economy, rate of inflation etc. The actual return in term of cash inflow may be different than the estimated cash flow. This is technically referred as a risk. The term risk in the investment decision may be defined as the differences in the actual return from the project in the future over its working life in relation to the estimated return as forecast at the time of the initial capital budgeting decision.

The decision situation with reference to risk analysis in capital budgeting decision can be divided into (1) uncertainty (2) risk (3) certainty.

The main distinction between risk and uncertainty is that risk involves the situation in which the probabilities of the particular event for future activities are already know but under uncertainties those probabilities are not already known. The term risk and uncertainty will be used interchangeably to refer to an uncertain decision making situation.

In the conclusion, risk with reference to capital budgeting results from the variation between the estimated and actual returns. The greater the variability between the two considers as a highly risky projects and lower the variability between the two is considered as lower risky project. (Fago, Subedi, & Gyawali, 2004:12.26)

For analysis of risk and to make the reliable decision regarding capital budgeting, the following techniques are used:

2.11.12.1 Traditional Techniques for Risk Analysis

2.11.12.1.1 Risk Adjusted Discount Rate (RAD)

The risk adjusted discount rate (RAD) approach is one of the simplest and the most widely used methods for incorporating risk into capital budgeting decision. Under this method, the amount of risk inherent in a project would have relatively high discount rates and relatively safer projects would have relatively lower discount rates. The risk-adjusted discount rates presumably represent the differential risk in different classes of investment.

The rationale for using different RAD's for different project is as follows. The cost of capital (k) is the minimum acceptable required rate of return.

Decision criterion

This approach can be used with both the NPV and IRR

- i. If NPV is possible by using the risk adjustment rates proposal would be qualified for acceptance.
- ii. If NPV were negative by using the risk adjusted rates proposal would qualified for reject.

2.11.12.1.2 Certainty Equivalent Co-efficient

Under this method, the risky ness of the project is taken into consideration by adjusting the expected cash flows and not the discount rate. This method does not consider risk premium in discounting process. For analysis of risk under the certainty equivalent co-efficient method, two types of cash flow of a project is estimated, which are risky cash flow and risk less cash flow.

$$\text{Certainty equivalent coefficient of variance} = \frac{\text{Risk less cash flow}}{\text{Risky cash flow}}$$

(Fago, Subedi & Gyawali, 2004:12.29)

Decision criterion

The decision criterion here can either be the NPV methods or the IRR method. Using the NPV method, the proposal would be accepted if the NPV of the certainty equivalent cash inflow is positive, other wise it would be rejected. If the IRR method is employed, the internal rate of return (r), that equates the present value of certainty equivalent cash inflows with the present value of the cash inflows, would be compared with the risk free discount rate. As the practice with this method, if r exceeds the risk free rate, the investment project would be accepted. If not, would be rejected.

2.11.12.1.3 Sensitivity Analysis

The reliability of the NPV and IRR of the project depends upon the reliability of the forecasts of variable on estimated cash inflows. It involves a number of possible outcomes in evaluating a project for providing to the decision makers on different outcomes. The sensitivity analysis provides different cash flow estimate under three assumptions.

- The worst (the pessimistic / conservative)
- The expected (the most like / moderate)
- The best (the most optimistic / aggressive)

The large in the difference between the pessimistic and optimistic cash flow is considered as riskier project and vice-versa. The accepting or rejecting the projects depends upon the attitude of decision maker toward the risk.

Sensitivity analysis enables managers to assess how responsive the NPV is to changes in the variable, which are used to calculate it. The application of sensitivity analysis can indicate those variables to which the NPV is most sensitive, and the extent to which these variables may change before the investment result in a negative NPV. Sensitivity analysis indicates why a project might fail. Management should review any critical variables and also pay particular attention to controlling those variables to which NPV is particularly sensitive, once the decision has been taken to accept the investment.

2.11.12.2 Statistical Techniques for Risk Analysis

2.11.12.2.1 Assignment of Probabilities

The concept of probability is for incorporating risk to evaluate capital budgeting proposals. The probability distribution of cash flows over time provides information about the expected value of return and the dispersion of the probability distribution of possible returns. On the basis of the information an accept-reject decision can be taken.

The application of this theory in analyzing risk in capital budgeting depends upon the behaviour of the cash flows, from the point of view of behavioural cash being independent or dependent. The assumption that cash flows are independent over time signifies that future cash flows are not affected by the cash flows in the preceding or following year.

Decision criterion

1. NPV must be positive to accept the project
2. IRR must be greater than cost of capital to accept projects

2.11.12.2.2 Standard Deviation

Standard deviation measures the tightness, or variability of a set of outcomes. Standard deviation is defined as the square roots of the mean of the squared deviation where is the difference between an outcomes and the expected value of all outcomes.

Greater the standard deviation is said the higher degree of risk and lower the standard deviation is said the lower degree of risk. The project, which has higher degree of standard deviation is not generally accepted and vice-versa.

2.11.12.2.3 Co-efficient of Variance

Co-efficient of variance (C.V.) standardized measure of the risk per unit of return, calculated as the standard deviation divided by the expected return.

$$\text{C.V.} = \frac{\text{Standard deviation}}{\text{Expected cash flow}}$$

Higher the co-efficient of variation is considered as the higher degree of risk and lower the co-efficient of variation is considered as the lowest degree of risk.

(Weston, 1996:190)

2.11.12.2.4 Decision Tree

The decision tree (DT) approach is another useful alternative for evaluating risky investment proposals. The outstanding feature of this method is that it takes into account the impact of all probabilistic estimates of potential outcomes. In other words, every possible outcome is weighted in probabilistic terms and then evaluated. The DT approach is especially useful for situations in which decisions at one point of time also affect the decisions of the firm at some later date. Another useful application of the DT approach is for projects which require decisions to be made in sequential parts.

A decision tree is a pictorial representation in tree form which indicates the magnitude, probability and inter-relationship of possible outcomes. The format of the exercise of the investment decision has an appearance of a tree with branches and, therefore, this method is referred to as the decision tree method. A decision tree shows the sequential cash flows and the NPV of the proposed project under different circumstances.

2.11.13 Financial Statement Analysis

Financial statements are annual documents prepared by the organization. They are prepared for periodical review on the progress made and results achieved during the period under review. They generally refer to income statement and balance sheet drawn by business at the end of each financial year. The analysis of financial statements is done to obtain a better insight into a firm's position and performance. Generally the creditors, investors, management regulating authorities are interested in analysis of the financial statements. (Munankarmi, 2002: 462)

Financial statement analysis involves a comparison of a firm's performance with that of other firm's in the same lines of business, which often is identified by the firm's industry classification. FSA is a summarized view of financial position and operation of the firm. Financial analysis is used to determine the firm's financial position in order to identify its current strength and weakness and to suggest actions that might enable the firm to take advantage of its strength and correct its weakness.

Financial statement analysis is important not only for the firm's managers but also for the firm's investors and creditors. Internally; financial manager use the information provided by financial analysis to make financing and investment decision to maximize the firm's value. Externally, creditors and stockholders use financial statement analysis to evaluate the attractiveness of the firm as an investment by examining its ability to meet its current and expected financial obligation.

Basically Ratio Analysis is the technique used in financial statement analysis

2.11.13.1 Ratio Analysis

The ratios are designed to show relationships between financial statement accounts within firms and between firms. Translating accounting numbers into relative value, or ratio, allows comparing the financial position of one firm to another firm, even if their sizes are significantly different. It is used for measuring liquidity, solvency, profitability and management efficiency of a firm equally useful to the internal management, prospective investors, creditors and outsider.

Ratio analysis is a tool of scanning financial statement of the firm. Through this, one comes to know that in which areas of the operation the organization is strong and in which areas it is weak. Ratio analysis of the business enterprises centers of measuring or guide concerning the expected capacity of the firm to meet its future financial obligations or expectations. It is a mathematical relationship between two related item expressed in quantitative forms. The relationship can be expressed as percentage, fraction and proportions of number. Ratio reveals the relationship in a meaningful way so as to enable to draw conclusions from them. Rational of ratio analysis lies in the fact that it makes related information comparable.

Ratio can be classified for the purpose of exposition into four board groups.

2.11.13.1.1 Liquidity Ratio

Liquidity ratio is the pre-requisite for the survival of a firm. It shows the relationship of a firm's cash and other current assets to its current liabilities. It measures the short-term solvency position of the firm. The importance of adequate liquidity in the sense of the ability of a firm to meet current or short term obligations, when they become due for payment to the short-term creditors of a firm.

2.11.13.1.2 Leverage Ratio

Leverage ratio can be said as financial leverage which shows long term solvency position of the firm in its ability to assure the long term creditors with regard to periodic payment if investors during the period of the loan and payment of principal on maturity or in pre-determined installments at due dates. It helps to know the relationship of long-term debt with shareholders fund or total capital.

2.11.13.1.3 Profitability Ratio

Profitability ratio is an indicator of efficiency of the business organization. Profitability ratio measures the managements overall efficiency as shown by the return

generates from sales and investment. Higher profitability shows the efficiency of the management.

2.11.13.1.4 Activity Ratio

Funds of creditors and owners are invested in various assets to generate sales and profit. It is said that “the better the management of assets, the larger the amount of sales”. Activity ratios are employed to evaluate the efficiency with which the firm manages the utilization its assets. These ratios are called turnover ratios, because they indicate the speed with which assets are being converted or turned over into sales. Activity ratio, thus involves a relationship between sales and assets. A proper balance between sales and assets generally reflects that assets are managed well several activity ratios can be calculated to judge the effectiveness of assets utilization. (Pandey, 1997: 119-123)

2.11.13.2 Categories of Ratio Analysis

The financial ratios can be categorized into the following ways

Liquidity Ratios

- Current Ratio
- Liquid /Quick/Acid test ratio
- Inventory turnover ratio
- Debtors turnover ratio

Leverage Ratios

- Debt-equity ratio
- Debt total capital ratio
- Coverage ratio

Activity Ratios

- Inventory/stock turnover ratio
- Debtors turnover ratio
- Average collection period
- Fixed assets turnover ratio
- Total assets turnover ratio
- Capital employed turnover ratio

Profitability Ratios

- Gross profit ratio
- Net profit ratio
- Operating ratio
- Return on capital employed
- Return on shareholders capacity
- Return on equity capital
- Return on assets
- Earning per share
- Earning per yield ratio
- Price earning ratio
- Divided per share
- Divided yield ratio

2.11.14 Cash Flow Analysis

All business activities are carried with cash and all profitable activities must result in net inflows of cash. It is therefore useful to establish activities must result in a net inflow of cash. The quantum of the flows of cash into business is as a result of operations and other transactions. It should be remembered that cash inflow and profit are often different. It is possible that in a business suffering a loss, there may be still an increase in cash because of trading operation. (Gupta, 1997:30.2)

Cash flow analysis is done through preparing cash budget. Cash as important current asset should be managed carefully. Though it is zero earning assets, it is held by the firm with different purposes such as:

- Transaction motive
- Precautionary motive
- Speculative motive

A cash flow basically includes two parts cash inflows and cash outflows. Cash inflows arise from transactions such as cash sales, collection of accounts and notes receivable, interest received on investment, sales of capital assets and miscellaneous income sources. While cash outflow arises from payment of material, direct labour, expenses, capital additions, retirements of debt and dividend paid. The cash flow analysis while planning cash inflows and outflow ignore the non-cash items such as depreciations, amortization etc.

Management has to evaluate whether the company has ability to meet unexpected obligations and ability to take advantage of new business opportunities that may arise. And for this, the management has to use cash flow analysis. CFA measure the actual cash available for the firm. Cash flow analysis is done through the statement of cash flows. A cash flow statement is defined as "a statement of company's ability to generate cash from various activities and their need of cash". Recognizing the importance and usefulness of cash flow analysis Nepal Company Act 2053 B.S. made mandatory to present cash flows statement along with balance sheet and income statement. (Munankarmi, 2002: 505)

2.11.15 Cost Volume Profit Analysis

The analysis of relationship between cost, volume and profit is CVP analysis. It is an important tool for managerial decision making. Through this cost control and profit planning is possible. Generally it provides the answer to the following questions

- What sales volume is needed to avoid losses?
- What sales volume is needed to earn desired profit?
- What will be the effects of change in price? etc

Management can take information regarding

- Break even point (No gain no loss)
- Profitable and least profitable products

- Continue or discontinue the production or operation of plants.
- Margin of safety etc

CVP analysis determines the Break Even Point and Margin of safety for an organization. The aim of CVP analysis is to have fair estimation of total cost, total revenue and profit at various sales volumes. Here Break Even Point is the condition of “no profit and no loss”. If sales or production volume is higher than the BEP volume there will be profit and if sales volume is less than BEP sales there will be loss. Similarly Margin of Safety is a position above the BEP i.e., the excess of budgeted (actual) sales over the break- even sales volume. It gives management a feel for how close projected operation is to be organizations Break Even Point. Thus managers can have better idea using CVP analysis on organizational decision making process.

2.11.16 Decision-Making

Decision making is an important tool of management accounting. It is the process of choosing the best alternative among available alternatives. Manager's have to take decisions like where to invest, what to do about an employee, who is not performing well, where should the firm's new warehouse be built, what subject should receive top priority at the departmental meeting, which product should be accepted or not, make or buy the component, what to produce, what to sell, what types of advertisement is launched, where, when and how about production and distribution etc. It is one of the ways through which managers influence the efficient and effective accomplishment for goals. In decision making, cost is always a key factor. The cost of one alternative must be compared against the cost of other alternatives as one step in the decision-making process. To be successful in decision making, managers must have tools at their disposal to assist them in distinguishing between relevant and irrelevant cost so that latter can be eliminated from the decision frameworks.

Management is the practice of consciously and continuously shaping of formal organization. It is the art of decision making central to doing that. Decision making is the process of identifying and selecting course of action to some a specific problem.

(Stroner, Freeman & Gilbert, 2000:239)

As cost is the key factor for decision, the cost can be classified as relevant and irrelevant from decision perspective. The cost, which is avoidable or change with the change in alternatives is relevant and vice-versa. Variable cost, Opportunity cost, Avoidable cost, Differential cost are the relevant cost where as Sunk cost and Committed costs are irrelevant from decision making perspective.

(Khan & Jain, 1993: 830)

Various sorts of decision situation, which managers have to make, are;

2.11.16.1 Special Order Decision

For the decision of special order, focuses given to relevant cost and benefits. When excess capacity exists the only relevant cost usually will be the variable costs associated with the special order otherwise the opportunity cost of using the firm facilities for the special order are also relevant to the decision. The decision depends upon the short term financial result. Profit will increase if the special order exceeds the relevant cost. If the total revenue is longer than the relevant cost the order should not be accepted.

(Munakarmi, 2002: 350)

2.11.16.2 Sell Now or Further Process Decision

When an item of production passes through various processes, it is saleable at different stage/ point. In deciding at what stage to sell the product, the two critical variables are important as the identification of sunk costs and calculations of incremental returns at various sales alternatives. All costs whether fixed or variable, incurred before the sell or process further point, should be treated as sunk and therefore irrelevant costs. The incremental returns relevant to the decision point at the revenues idle as a result of not processing the product further and if they could be diverted to some other use, opportunity cost would be also become relevant to the decision analysis. (Garrison, 1985: 557)

2.11.16.3 Make or Buy Decision

Many firms have to choose between manufacturing certain components themselves and acquiring them from outside supplier. Incremental analysis provides solution to this kind of decision problem. The relevant information is the committed / avoidable costs if the firm wouldn't be required to incur fixed costs to produce the components. If, however, there is need to enlarge the capacity of existing plant or the existing capacity of the plant is diverted for the production of the components, opportunity costs in terms of lost contribution will be relevant to the decision analysis. (Horngren, 1991: 136)

2.11.16.4 Equipment Replacement

Management has to decide whether the machine or equipment be returned or replaced for short range. Replacement involves additional fixed cost. Here book value or written down value and loss on sales of old machine is irrelevant for decision. Sales proceeds of old equipments are relevant for the decision and should be considered for this analysis. Replacement of machinery may bring down the cost per unit but it may involve capital outlay. Here firm may have to decide at what point replacement will be justified. Profit and loss on sales of assets replaced may affect tax payment and this taxation should be included in analysis. (Munakarmi, 2002: 357)

2.11.16.5 Lease or Purchase

Leasing is a contract between the owner (lessor) and the hirer (lessee) for the hiring of specific assets i.e. plant and machinery, office equipment, vehicles etc. Instead of acquiring these assets for itself, the company enters into an agreement with the leasing company. No initial funds are required but there is a regular charge for lease payment. Leasing of assets from the lessor on purchase of assets by borrowing the full purchase price of asset should be compared as financing alternatives based on capital budgeting process mostly NPV method. Thus a firm has to evaluate whether it will purchase an asset or acquire it on lease basis.

2.11.17 Price of the Product and Service

Many firms who produce substitute products like their competitors have no pricing problem at all. For their product, market prices already exist. They can't charge more than the market price. No need to calculate pricing for the products as they simply charge the price that the market directs them to accept but there are the firms, facing the problem of pricing decision.

Pricing decisions are the decisions that managers have to make about what to charge for the products and services they deliver. The pricing of the product is not just a marketing decision or a financial decision; rather it is a decision touching on all aspects of a firm's activities and such affects the entire enterprise. As the price changes on products largely determine the quantities customers are willing to purchase, the setting of prices indicates the inflows of revenues consistently fail to cover all the costs of the firm, and then in the long run, the firm cannot survive. (Garrison, 1985: 499)

For pricing decision, economists have their own view while an accountant has their own perspective. An economic theory indicates that companies acting optimally should produce and sell units until the marginal revenue equals marginal cost. The market price is the price that creates a demand for these optimal numbers of units. But economic theory of pricing based on marginal cost and revenue approach is subject to criticism on the ground that this model of pricing is applicable only in monopoly and monopolistic competition markets. This model of pricing on marginal revenue and cost is not applicable to oligopolistic situations. Thus management accountants have a different perspective regarding pricing decisions. They consider cost as the key factor to pricing decisions of the standard product. (Horngren, Foster & Datar, 1999: 430-431)

The ways of pricing for the products and services are given below:

- Cost plus pricing
- Target cost pricing
- Variable cost pricing
- Full cost pricing

2.11.17.1 Cost plus Pricing

Cost plus pricing method is simple and easy method to use. Cost plus pricing policies provides stability to pricing decision and a defensible rationale for the price increase. Cost plus pricing is widely used in practice to establish a starting point in the process of determining a price. Cost plus formulas are simply; they can be applied in mechanically without taking the time of management. They make possible for a company with hundreds of product or services to cope with the tasks of updating prices for existing products and setting initial prices for new product.

Cost plus pricing formulas can be used effectively with a variety of cost definitions, but the mark-up percentage must be appropriate for the type of cost used. It is imperative that price-setting managers understand that ultimately the price must cover all costs and a normal profit margin. Generally cost plus pricing is computed as

$$\text{Price} = \text{cost} + (\text{mark up percentage} \times \text{cost})$$

There are two approach of computing cost in cost plus pricing

- Absorption approach
- Contribution approach

Under absorption approach in cost plus pricing while computing the cost both variable and fixed manufacturing overhead are taken into consideration. Then add some mark up to the cost and thus arrive at target selling price.

Under contribution approach in cost plus pricing to compute the cost, only the variable manufacturing overhead is taken into the consideration and then to add some mark-up percentage to cover fixed manufacturing overhead, selling and administrative overhead target selling price. (Horngren, Foster & Datar, 1999:133-436)

Determination of Mark-up Percentage

One of the crucial elements in cost plus pricing is mark-up percentage. This mark up should be enough to recover the buried cost and desired profit. To determine the desired mark up percentage, manager can use the return on investment (ROI) approach as a base. Under absorption approach of cost plus pricing, the mark up percentage is computed as such. (Garrison, 1985:506-509)

$$\text{Mark-up \%} = \frac{\text{Desired return on assets employed} + \text{selling \& administrative exp}}{\text{Volume in units} \times \text{units costs of manufacture}}$$

Under contribution approach, mark up % is computed as such

$$\text{Mark-up \%} = \frac{\text{Desired return on assets employed} + \text{fixed cost}}{\text{Volume in units} \times \text{unit variable expenses}}$$

2.11.17.2 Target Cost Pricing

Most of the companies set the price of new product to earn sufficient revenue to cover all costs and desired profit. Peter Ducker said "this is true but irrelevant; customers do not ensure manufacture a profit. The only sound way to price is to start out with what the market is willing to pay".

Target pricing is based on the target costing. Target costing is a method of determining the cost of product based on target price that customers are willing to pay. The marketing department determines a target price before designing and introducing a new product.

$$\text{Target cost} = \text{Anticipated selling price} - \text{Desired profit}$$

Generally, the target price is determined at level, which helps the company to achieve a desired market share and sales volume. Under this method, product cost is calculated by deducting anticipated profit from anticipated selling price. If the product cost is above the target cost, then the product designer focuses on modification of design of the product so that it reduces the cost of product to target cost.

(Fago, Subedi & Gyawali, 2004:9.21)

Developing target price and target cost requires the following;

- Developing a product that satisfies the needs of potential customer
- Chose a "target price" base on customers' perceived value for the product and prices completions charge and a target operating
- Income per unit
- Drive a target cost per units by subtracting the target operating
- Income per unit from the target price
- Perform value engineering to achieve target cost

2.11.17.3 Full Cost Pricing

Under this method of pricing, selling price is determined by adding certain percentage of mark up on total production cost of goods and services. The total cost includes all variable manufacturing costs as well as fixed manufacturing cost for determination of selling price.

In long run, price must cover all cost and normal profit margin. Full cost pricing system covers all variable costs, fixed cost as well as required level of mark up. It provides a justifiable price those trends to be perceived as equitable by all parties. Consumers generally understand that a company must make a profit on its product or services in order to remain in business. Justifiable a price as total cost of production, sales and administrative activities plus a reasonable profit margin seems reasonable to buyers.

(Fago, Subedi & Gyawali, 2004:9.2)

2.11.17.4 Transfer Pricing

When one division of an organization provides goods and services to another division it charges price to the division. Transfer prices are the amount charged by one division of an organization for the goods and services that is supplied to another division of the same organization. Transfer prices represent the value of goods or services transfer to other division. When one division supplied goods and services to another division, they have to be expressed in monetary value; such monetary value expression is known as transfer pricing. Transfer pricing is also known as Intra Company pricing. The transfer pricing is a revenue to one division on the return of providing goods and services where as it is a cost to another division for acquiring of goods and services. Transfer pricing is necessary where out put of one division becomes input on other division.

(Fago, Subedi & Gyawali, 2004:9.30)

2.11.17.5 Method of Transfer Pricing

- i. Market based transfer pricing
- ii. Cost based transfer pricing
- iii. Negotiated transfer pricing
- iv. General formula approach to transfer pricing

2.11.17.5.1 Market Based Transfer Pricing

Transfer price based on market value of the product or services is known as market based transfer pricing. Generally, market pricing is used for determination of transfer pricing of the product. Market based transfer pricing is appropriate when both buying and selling divisions are operating at full capacity. Both the buying and selling divisions can buy and sell at market price. The internal transfer pricing may be then external market price less marketing cost.

Transfer pricing = Market price – selling and distribution expenses

2.11.17.5.2 Cost Based Transfer Pricing

Subunit may choose a transfer price based on the cost of producing the product. Examples include variable manufacturing costs, manufacturing (Absorption) costs and full product cost. Full product costs include all production costs, as well as costs from other business functions such as research and development design, marketing distribution and consumer service. The cost used in cost-based transfer price can be actual costs or budgeted costs.

2.11.17.5.3 Negotiated Transfer Pricing

Under this method, the transfer price is negotiated between the transferor and transferee by considering the factors like demand and supply, quality of product, time of delivery etc. selling price is negotiated between buying and selling division. When the goods are not sold into market the manager of the organizations makes a negotiation for determining selling price, which is known as negotiated transfer pricing.

2.11.17.5.4 General Formula Approach to Transfer Pricing

There is no hard and fast rule for transfer pricing which would lead to optimal decision for an organization as a whole. According to general rule, the transfer price is set in that point which helps to recover the variable costs plus opportunity costs.

2.12 A Brief Review of the Previous Research Work

Researches on the area of management accounting practices in Nepalese context are not made in remarkable number. Many researches were in the area of profit planning and control in Nepalese context. As profit planning and control covers some of the aspects of management accounting, researches made on these areas are taken into consideration for the sake of review to examine the position of profit planning and control practice in Nepalese company. Many of the researches were done on manufacturing concerns. An attempt is made here to review some of the researches, which have been submitted in profit planning and control in the context of Nepal.

2.12.1 Mr. Khagendra Prasad Ojha (1995) had conducted a research in the topic “Profit Planning in Manufacturing Public Enterprises: A Case Study of Royal Drugs Limited and Herbal Production and Processing Company Limited.” This research was mainly centered with the practice and its effectiveness in RDL and HPPCL.

The time period of this research covered six years from FY 2046/47 to FY2051/52. The necessary data were collected through secondary as well as primary sources.

The basic objectives of research work by Mr. Ojha were to get sufficient knowledge about:

- i. Types of budgetary planning practiced by the company.
- ii. Major market of company's product.
- iii. Sales forecasting techniques used by the company.
- iv. Techniques used to determine pricing of product by the company.
- v. Technique used to measurement and control of overall performance at the end of each accounting year.

In his research, Mr. Ojha had pointed out various findings and recommendations. Major findings of the research works were:

- i. Inadequate planning of profits due to lack of skilled planners.
- ii. Inadequate authority and responsibility to planning department.
- iii. Failure in achievements due to inadequate evaluation of internal and external variables.
- iv. Failure due to inadequate forecasting system.
- v. Lack of entrepreneurship and commercial concept in overall operations of the enterprises.

Some remarkable recommendations were as follows.

- i. Plans and programs should not be formulated on traditional ad-hoc basis. Budgets should be prepared on systematic way by the help of experts and skilled planners.
- ii. Planning and Development department should make more autonomous and responsible.
- iii. Internal and external variables directly and indirectly affect the organizational performance. Thus, the organization must aware of these variables.
- iv. The organizations should develop the entrepreneurship and commercial concepts to cope with new challenging environment.
- v. The pricing of products and the forecasting system should be based on accounting techniques and tools.

2.12.2 Mr. Manish Raj Shakya (1999) had conducted a research entitled “Profit Planning in Lumbini Sugar Mill Limited.” The research was centralized to examine the application of budget as tools of profit planning in Lumbini Sugar Mills Ltd.

Time period covered by the research was seven years from FY 2048/49 to FY 2052/53. Necessary data and other information had been accumulated from primary as well as secondary sources of data.

Basic objectives of research work conducted by Mr. Shakya were to get sufficient knowledge about

- i. Types of profit planning and budgeting practiced by the company.
- ii. Planning used by the company to maximize company share in market.
- iii. Role of government in development of company financial position.
- iv. Cost reduction techniques used by the company.
- v. Pricing techniques used by the company.

In his research work Mr. Shakya had pointed out various findings and recommendations.

Some major findings were given as below

- i. Government of Nepal intervenes in setting objectives, goals and strategy.
- ii. No systematic plan is developed.
- iii. Government of Nepal plays major role in fixing price.
- iv. Variable costs occupied a dominant role on total cost. It occupies 80.61%.
- v. Lack of planning expert in developing budget.
- vi. No planning activities for cost reduction.

Some remarkable recommendations were as follows

- i. Plans and programs should be developed on systematic way.
- ii. HMG/N should not interfere the organizational interest. It must be free to set its functions.
- iii. Price of product should be determined on business principle.
- iv. There should be expert planner and skilled manpower for the budget preparation and other organizational planning and programs.
- v. The Mill should focus towards the cost reduction by applying modern tools.

2.12.3 Mr. Narayan Prasad Bhattarai (2000) had conducted a research on the topic "Profit Planning in Central Zoo". The main focus of the research was the application of profit planning and control and its effectiveness in central zoo.

The time period covered by the research was from FY 2051/52 to FY 2055/56. Necessary data and other information were collected from both the secondary and primary sources of data.

Basic objectives of research work conducted by Mr. Bhattarai were to get sufficient knowledge about,

- i. Types of budgeting practiced by the Zoo.
- ii. Cost reduction techniques used by the Zoo.
- iii. Pricing techniques used by Zoo.
- iv. Goals and objectives of Zoo regarding the development.

In this research, Mr. Bhattarai had pointed out various findings and recommendation.

Major findings of research works were:

- i. Central Zoo has no system of preparing strategic long term profit plans before privatization but afterward has prepared a master plan which is gradually being applied.
- ii. Goals and objectives are not clearly communicated to the lower level and lack of responsibility accounting system.
- iii. Participation of lower level in planning and decision making is nill and there is still shortage of management by objectives technique.
- iv. Public participation approach helps for the entire wildlife conservations and environment protection.

Some recommendations of the research were,

- i. The goals and objectives of the Zoo should be communicated to all level of staffs and develop the responsibility and accountability.
- ii. Lower level participation should be encouraged and provided the chances for planning and decision making.
- iii. Zoo should focus on the development and management of more wild lives with as much as natural environment to attract more people.

2.12.4 Mrs. Dozy Tater (2001) had conducted a research in the "Profit Planning in Soft Drinks Industry: A Case Study of Bottlers Nepal Limited Balaju." The period covered by her was of six years starting from FY 1993/94 to FY 1999/00. Necessary data were collected from primary and secondary sources. The basic objective of the study was to examine how far the different functional budgets were being applied as tools of profit planning in business enterprises.

The specific objectives of the study were:

- i. To examine the present planning adopted by the company.
- ii. To examine the forecast approach of Bottlers Nepal.
- iii. To identify the BEP of the company.
- iv. To evaluate the variance between targets and actual of BN Ltd.

In this research, Mr. Bhattarai had pointed out various findings and recommendation.

Major findings of the research works were:

- i. Specific goals and targets were not founds to be defined clearly to achieve the basic objectives of BN Ltd.
- ii. There was lack of defined authority and responsibility. So there is no proper coordination between the various departments.
- iii. Inadequate profit planning due experts/planners.
- iv. Financial performance of the company was not satisfactory.
- v. Company failed to maintain its periodic performance and no proper reward and punishment system.

The main recommendations of the study for the further improvement of the company were:

- i. Adopt the comprehensive profit planning from the very beginning to the field.
- ii. Fix a target of sales revenues and make an attempt by adding new product.
- iii. Analyze SWOT (strength & weakness and opportunity & threats) to improve the company's capability.
- iv. Develop different functional, financial budgets in detail separating the costs into variables/ fixed, controllable/ uncontrollable.

2.12.5 Miss Pratima Dongol (2001) had conducted a research on the topic "Profit Planning in Manufacturing Public Enterprises: A Case Study in Hetaunda Cement Industry Ltd. Miss Dongol had focused her study in the application of profit planning concepts in PEs.

The time period covered by the research was five years from FY 2051/52 to FY 2055/56. Data for the study was collected through secondary as well as primary.

Basic objectives of research work conducted by Miss. Dangol were to get knowledge about:

- i. Application of profit planning tools of the company.
- ii. Methods used by company to forecasts sales.
- iii. Types of budget practiced by the company.
- iv. Methods used to determine pricing by the company.

Miss Dongol had pointed out various findings and recommendations on his study.

Major findings of the research works were:

- i. No proper application of any effective sales forecasting technique.
- ii. Planning of budgeting policy of the company is very poor and no system of taking corrective action for preplanning.
- iii. Decision making power is centralized.
- iv. There are no clear cut duties and responsibilities of the employees.

Some recommendations of the study were as follows:

- i. Budget should be prepared on the realistic ground ie sales budget, production budget, purchase budget, labour budget and overall profit planning. For this trained and highly qualified manpower should be hired.
- ii. A separate cost section should be established for the depth study of cost and its control.
- iii. Deviation from the budgets must be analyzed and necessary corrective action in time.
- iv. Decision making procedure should be more participative. Discussion should be made with all level of staffs.

2.12.6 Miss Abha Subedi (2001) had conducted a research entitled "Profit Planning in Commercial Bank: A Case Study of Rastriya Banijya Bank". Miss Subedi had focused her study in the investment policy of RBB with the practice of profit planning and its effectiveness.

The time period covered by this research was five years from FY 1993/94 to FY 1997/98. The data and other necessary information were collected by using secondary data.

Basic objectives of research work conducted by Miss. Subedi were about

- i. Types of budgetary control by the bank.
- ii. Loan providing techniques used by the bank.
- iii. Bad debt recovering techniques used and level of success achieved.
- iv. Major area covered by banks for investment.

She had pointed out various findings and recommendations

Major findings of the research works were:

- i. Investment pattern of RBB is mainly towards the security of land, gold and silver.
- ii. There is no proper manpower planning which causing problem of overstaffing and extra cost burden.
- iii. No systematic application of budgeting.
- iv. Activities of the bank are centered to urban areas only.
- v. Numbers of branches have been increasing each year.

Some remarkable recommendations of the study were:

- i. Investment pattern of RBB should be diversify to cope with the modern and competitive market.
- ii. RBB should enlarge its service to the remote areas.
- iii. While granting loan the RBB must study in the depth about the customer, loan security and the purpose.
- iv. It should develop strict procedure to collect huge amount of bad debt.

2.12.7 Mr. Sagar Sharma (2002) had conducted a research on "Management Accounting Practice in the Listed Company of Nepal". For this study Mr. Sharma classified the different companies listed in Nepal Stock Exchange to the different groups according to their nature of service ie manufacturing, trading, service, financial etc. He collected the data required for the study from primary sources. Questioners and discussion with the stakeholders was the base of study.

The prime objectives of the study were

- i. To find out how far the Nepalese companies practice the management accounting tools and techniques.
- ii. The management accounting tools not in use and the difficulties on application.
- iii. To recommend the areas and measures for the application of management accounting tools and techniques.

In his study, he pointed out various findings and recommendations.

Major findings of the research works were:

- i. Different types of management accounting tools, which are taught in the colleges, were not found applied by the listed companies.
- ii. Nepalese listed companies were infant stage in practicing the management accounting tools such as Zero Base Budgeting, Activity based costing, target costing, capital budgeting, ratio analysis etc.
- iii. While preparing budgets most of the companies based on actual expenses, 26% of companies used past estimates to prepare budgets. There is no practice of Zero Base Budgeting due lack of information and cognizance about the format and the way of developing it.
- iv. On budget preparation, there is no practice of taking consultancy services.

Some remarkable recommendations of the study were:

- i. A separate management accounting dept should be established and furnished with the experts.
- ii. Companies can be improved by allowing greater autonomy and more accountability.
- iii. It should hire the professional experts for the budget preparation and other planning activities.
- iv. Enterprises should be motivated for the application of new advance and modern management accounting tools.

2.12.8 Miss Kalpana Bhattarai (2004) had conducted a research in the topic "Budgeting in Public Enterprises: A Case Study of Nepal Telecom". The necessary data were collected through secondary as well as primary sources. The time period covered by the study is of five years from FY 2055/56 to 2060/61.

The main objectives of her study were

- i. To examine the application of profit planning in NTC.
- ii. The budgeting practices of the corporation.
- iii. Techniques followed to determine pricing by the company.
- iv. Methods of segregation cost into fixed and variable.

She had pointed out various findings through the study were

- i. Budgets were prepared just to fulfill the formalities which were not used effectively for profit planning process.
- ii. Long term and short term budgets were prepared but long term budget was confined only to the top level.
- iii. The company was not able to maintain proper coordination between various directorates in regard the goals and objectives.
- iv. The company failed to analysis its strengths and weaknesses in depth due to monopoly market.
- v. Lack of skilled planners and experts.

Some remarkable recommendations of the research were

- i. Budget should be prepared in detail and systematically. It should be used effectively.
- ii. Budgeting and other planning activities should be made by skilled and expert planners. For this it should manage internally or hire from outside.
- iii. Cost should be classified and analyzed systematically. It should use cost segregation tools and cost control techniques.
- iv. The environmental factor, upcoming challenges and latest developments in communication world should be taken into consideration for the betterment of the organization.
- v. Better coordination and controlling activities should be carried on the organization.

2.12.9 Mr. Bodha Raj Tripathee(2005) had conducted a research in the topic " Profit Planning in Manufacturing Enterprises of Nepal: A Case Study of Harisiddhi Brick and Tile Factory Ltd". The period covered was of fourteen years from FY 2047/48 to FY 2060/61. Necessary data were collected from primary and secondary sources.

The basic objectives of the study were to examine how far the different functional budgets were being applied, the cost segregation and control, pricing techniques adopted, sales and production forecasting as tools of profit planning in manufacturing enterprise concentrating on HBTFL.

Mr. Tripathee had pointed out some remarkable findings and recommendations from his study. They were as follows:

- i. The company has not prepared the targeted annual program and budgets systematically.
- ii. There is a wide gap between annual sales and targeted sales.
- iii. Excessive fixed cost is responsible for not operating in BEP.
- iv. The performance of the company is very poor due to inability of management to control over financial charges.
- v. After privatization of the company there is improvement in the sector of additional investment, product diversification and capacity expansion but poor in terms of sales revenue maximization.
- vi. The factory is suffering from poor profit planning due to lack of planning experts.
- vii. Expenses have not been classified systematically.
- viii. The company fails to maintain its periodic performance and no proper reward and punishment system to motivate employees.

2.12.10 Mr. Phanindra Raj Kharel (2006) had submitted a research entitled "Budgeting Practices in Public Manufacturing Enterprises: A Case Study of Dairy Development Corporation". The time period covered for this study was five years from the Fiscal Year 2056/57 to 2060/61. The required data was collected through secondary as well as primary sources.

Basic objectives of the research work conducted by Mr. Shrestha were to get knowledge about:

- i. Application of profit planning tools in the DDC.
- ii. The budgeting practices by the company.
- iii. Long term and tactical short term planning system in DDC.
- v. Methods used by company to forecasts production and sales.
- vi. Methods used to determine pricing by the company.

The major findings of the research works were

- i. DDC had not strategic planning of milk collection, practicing only tactical planning.
- ii. The corporation had not proper practice of segregating cost into fixed and variable.
- iii. There was not separate planning department and expert planner so; planning was based on traditional ad-hoc basis.
- iv. The top level executive are only involved in planning and decision making and lower level participation was not encouraged.
- v. There were no proper forecasting techniques, the budgeted sales of milk and dairy products were higher than the actual sales.

Some remarkable recommendations of the research study were

- i. DDC should try to forecast and prepare long range forecasting of profit planning.
- ii. The collecting and processing cost can be reduced according to profit plan by classifying the costs into fixed and variable.
- iii. Budget should be prepared on the realistic ground i.e. sales budget, production budget, purchase budget, labour budget etc and overall profit planning.
- iv. DDC must hire trained and highly qualified manpower for budgeting and planning.
- v. DDC must take fair and profitable price for its product.

2.12.11 Mr. Ailendra Kumar K C (2006) had submitted a thesis on the topic "A Management Accounting Practices on Public Enterprises in Nepal". For this study Mr. K C categorized the public enterprises of Nepal to different sector regarding their nature of services i.e. industrial, commercial, financial, public utility, social and service sector. Data required for the study was based on primary data. Information was collected through schedule questionnaire and discussion.

The main objectives of the study were

- i. To examine the present practice of management accounting tools in the public enterprises of Nepal.
- ii. To find out the major difficulties on application of tools.
- iii. To identify the areas where management accounting tools could be applied.
- iv. To recommend the measures for the application of management accounting tools and techniques.

The Major findings of the research works were

- i. Most of the enterprises practiced "capital budgeting", "cash flow", "ratio analysis", "annual budget" for the planning and controlling and decision making.
- ii. While preparing budget, almost all the enterprises practiced "Overall master budget" rather than "cash budget and operational budget"
- iii. "Actual past expenses" was the base for preparation of budget. The advanced tools like "Zero Base Budgeting" and "Activity Based Costing" were not practiced in the public enterprises. Similarly in most of the enterprises "Committee" prepared the budget, there was no practice of taking consultant service.
- iv. For the measurement of overall performance in the public enterprises, most of the enterprises practiced "Profit and Loss" criteria. The practice of "Standard costing" and "Ratio Analysis" was almost nil to measure their overall performance.
- v. Regarding cost segregation into fixed and variable, it was found that 61% of the enterprises practiced "High Low" method and 50% of the enterprises practiced "Average method" and 17% of the enterprises practiced "Analytical Method".
- vi. While examining different enterprises, it was found that management accounting tools were in practiced in one way or other but enterprises were practicing almost of the privileged tools.

Some of the remarkable recommendations were as follows:

- i. To implement the tools congenial environment is the most. For this, a Separate management accounting should be established and experts should be hired.
- ii. It is necessary to interact regularly in between academicians and the organization.
- iii. While preparing budgets and other planning activities, enterprises should hire professional expert.
- iv. Cost and revenue estimation should be based on tools like zero base budgeting, market survey and statistical tools rather than past trend.
- v. Public enterprises must be out of political interference and the political stability.

2.12.12 Mr. Raj Kumar Duwadi (2007) had submitted a thesis on the topic "A Study on Management Accounting Practices in Joint Venture Banks". For this study Mr. Duwadi collected the data from six joint venture banks with the head office located in Kathmandu valley. Data required for the study was based on primary data. Information was collected through schedule questionnaire and discussion.

The main objective of the study were

- i. To study and analysis the practices of management accounting tools being used in joint venture banks.
- ii. To identify the areas where management accounting tools can be applied.
- iii. To study the method used in evaluation of investment proposals and the types of securities accepted in providing loan.
- iv. To make recommendations to overcome from the difficulties in applying management accounting tools.

The major findings of the research work were

- i. Capital budgeting, cash flow analysis, ratio analysis and annual budgeting practiced by almost 100% of banks. Break even analysis and responsibility accounting were practiced about 83% and 33% respectively where as the tools like activity base costing, standard costing, long term and zero based budgeting were unusual in joint venture banks.
- ii. While preparing the budget there was no practice of taking consultancy service. The committee and the chief of finance division prepared the budget.
- iii. While evaluating loan proposal all the JVB focused on valuation of assets, purpose of loan, analysis of customer back ground with customer social status and the chances of loan recovery.
- iv. JVBs mostly accepted the securities like land and building, government bonds, treasury bills, shares and debentures, gold and other valuable assets.

Some remarkable recommendations of the research work were

- i. Techniques like high- low point method, average method and analysis method should be used to segregate costs.
- ii. Joint venture needs to use responsibility accounting for the cost control and performance evaluation.
- iii. Use of outside expert should be used by JVBs for the budget preparation.
- iv. JVBs were not found practicing cash budget. So, they should practice cash budget which gives all details about sources and uses of cash.

2.13 Research Gap

Most of the previous research works conducted on accounting was on Profit Planning and Control. The study on profit planning and control covered the budgeting practices, performance of the companies and their exiting problems. They were like a case study. The findings of the previous researchers were mostly based on secondary data. These types of research works did not disclose which management accounting tools were in practice, which were not and why?

Similarly, very few research works were done in the sector of management accounting practices. The study focused on the management accounting practices in different Nepalese companies and the public enterprises of Nepal. The main objective of the study was to find out how far the Nepalese companies or the public enterprises practices the management accounting tools and techniques to their business for better performance and results. They covered the listed companies and public enterprises through by classifying them to different groups as their nature of services. The findings of these studies were based on primary data.

Thus almost all the previous research work was either in budgeting practices or in profit planning and control or the study on management accounting practices of listed companies and public enterprises in Nepal as a whole. There was no depth study in a single organization regarding the application of management accounting tools and techniques to their business and services. Thus to fill up this gap the current research work was conducted concentrating on a single organization i.e. CAAN an autonomous body of the Government of Nepal. This kind of research work helps to know very much about the organization in depth for the organization itself and the stakeholders as well. This research work focused on the current practices of management accounting tools and techniques in the CAAN and also trying to provide the information about the civil aviation around the world and in Nepal. It has disclosed the reasons about the tools which were not practiced by CAAN and suggested how the authority can apply those in practice to make organization successful.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

Research Design is the plan, structure and strategy of investigation conceived to obtain answers to research questions. Generally, research design refers to definite procedure and techniques, which guide to study and propounds ways for research viability.

Both analytical as well as descriptive approach has been applied for this study to analyze the present practice of management accounting tools and techniques by CAAN.

3.2 Nature and Sources of Data

The information and data were collected mostly through primary sources, but the secondary data were also useful to analyze in depth. Questionnaires, discussion and interview with directors, managers, account personals and other stakeholders of the CAAN were the sources of primary data. The secondary data were collected from Annual Reports, Souvenirs, Bulletins, journals, articles, website and other relevant published and unpublished documents of CAAN.

3.3 Population and Sample

This research aims to study the management accounting practices on CAAN, a single organization. In fact, this research work was concentrated to the organization CAAN as a whole. The organization can be classified into three different functional sectors for this study, Head office for regulatory and administrative function, Civil Aviation Academy for the production of trained manpower and the airports for the service provider. Thus, it can be said that all the airports, academy and head office were as total population. Out of them the head office, academy and other six airports (Bharatpur, Biratnagar, Chandragadhi, Janakpur, Pokhara and Simara) were considered as the target population (Sample) for the research study.

3.4 Data Collecting and Processing Procedure

The study was mainly based on the primary data, information were collected by developing a scheduled questionnaire. The questionnaires were distributed to the finance chief and the accounting personnel of those offices. All of them responded well. Twenty-four 'Tick Mark' questions were included in the questionnaire. To get more and reliable information fruitful discussion were also made concentrating on management accounting practices, organizational status and the performance. Information collected in the way was noted down to use during data analysis and presentation.

Data collected from the sources were in raw form. They were classified in chronological order and tabulated in a required form. Accounting tools were used for analysis of data if required. Thus, formats, tables and tools were used to explain wherever necessary.

3.5 Research Variables

Simple percentages were used to interpret data. Similarly the practices of management accounting tools like budgeting, cost segregation, standard costing, Zero base budgeting, capital budgeting, pricing techniques, cost volume profit analysis, ratio analysis, cash flow analysis, variance analysis, decision making Procedure, Preparation of financial documents, short term and long term planning were the major research variables.

CHAPTER IV PRESENTATION AND ANALYSIS OF DATA

4.1 INTRODUCTION

The basic objective of the study was to examine the present practice of management accounting tools in Civil Aviation Authority of Nepal and to identify and recommend the areas where management accounting tools could be applied to strengthen the organization. This chapter covered the analysis and interpretation of the data focusing on CAAN in detail.

To meet the objectives of research work the structured questionnaires were given to accounting personnel of six different airports (Bharatpur, Biratnagar, Chandragadhi, Janakpur, Pokhara and Simara), Civil Aviation Academy and Head Office of CAAN. All of them have given positive response. Beside questionnaires necessary direct discussion was made with the chief of finance division, managers, accountants and senior person of the organization to get more information. They cooperated very well. The view of managers, accountants and the finance chief were also included in this chapter. Thus collected data and information were properly processed, tabulated and analyzed.

4.2 Tabulation and Graphical Presentation of Practices of Management Accounting Tools.

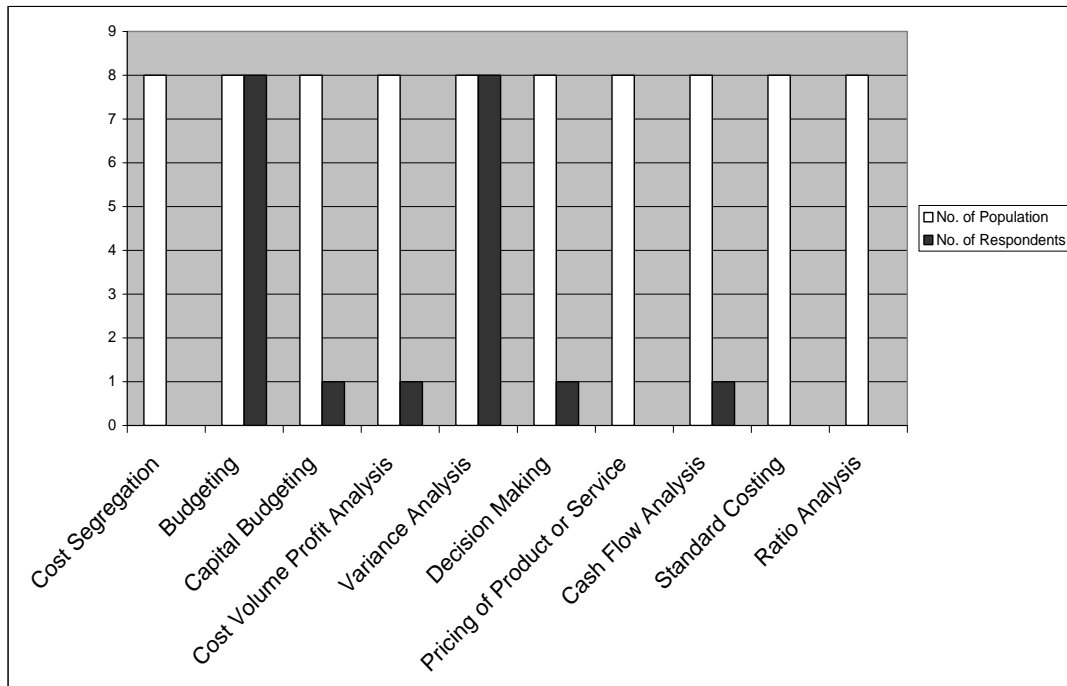
Management accounting tools practiced by CAAN are presented in tabular and graphical form in the following tables and figures:

4.2.1 Percentage Analysis of Management Accounting Practices.

Table No. – 4.1

S. No.	Tools	No. of Population	No. of Respondents	%
1	Cost Segregation	8	0	0
2	Budgeting	8	8	100
3	Capital Budgeting	8	1	13
4	Cost Volume Profit Analysis	8	1	13
5	Variance Analysis	8	8	100
6	Decision Making	8	1	13
7	Pricing of Product or Service	8	0	0
8	Cash Flow Analysis	8	1	13
9	Standard Costing	8	0	0
10	Ratio Analysis	8	0	0

Figure No. – 4.1



The above table no. 4.1 shows the scenarios of the practice of management accounting tools in CAAN. CAAN practiced the tools like Budgeting and Variance Analysis on budget by 100% of its official units. The tools like, Cost Volume Profit Analysis, Capital Budgeting, Decision Making and Cash Flow Analysis were found practicing by 13% that was from the finance division of CAAN head office. These tools were not practiced by the other units (airports) of CAAN. Similarly, the practice of Cost

Segregation, Pricing of Product or Service, Standard Costing and Ratio Analysis were not adopted at all in CAAN.

Thus the practice of Budgeting and its Variance Analysis were common where as the tools like CVP Analysis, Capital Budgeting, Decision Making and Cash Flow Analysis were only practiced by head office. The tools not in practice were Cost Segregation, Pricing, Standard Costing and Ratio Analysis.

The main reasons of not practicing these tools were

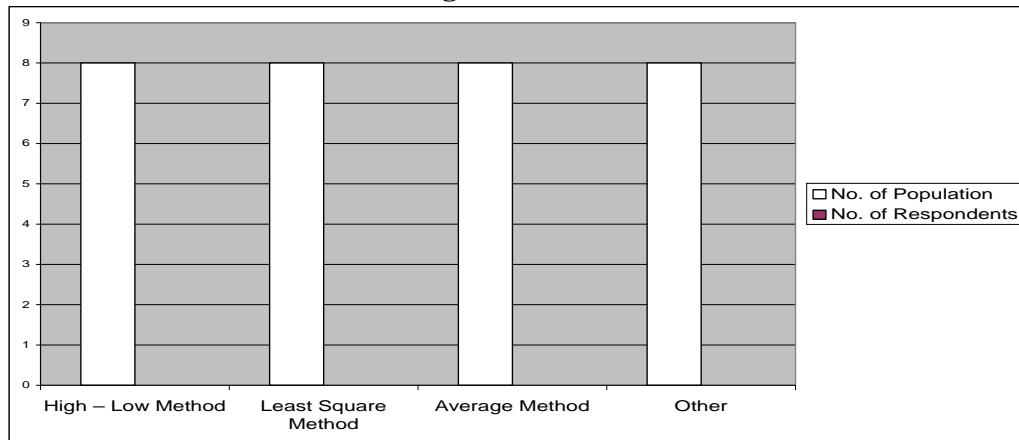
- Lack of knowledge about the tools.
- No information about the tools
- Lack of resources, experts and trained manpower.
- High cost / quite expensive nature

4.2.2 Methods of Segregating Mixed Cost into Fixed and Variable

Table No. – 4.2

S. No.	Methods	No. of Population	No. of Respondents	%
1	High – Low Method	8	0	0
2	Least Square Method	8	0	0
3	Average Method	8	0	0
4	Other	8	0	0

Figure No. -4.2



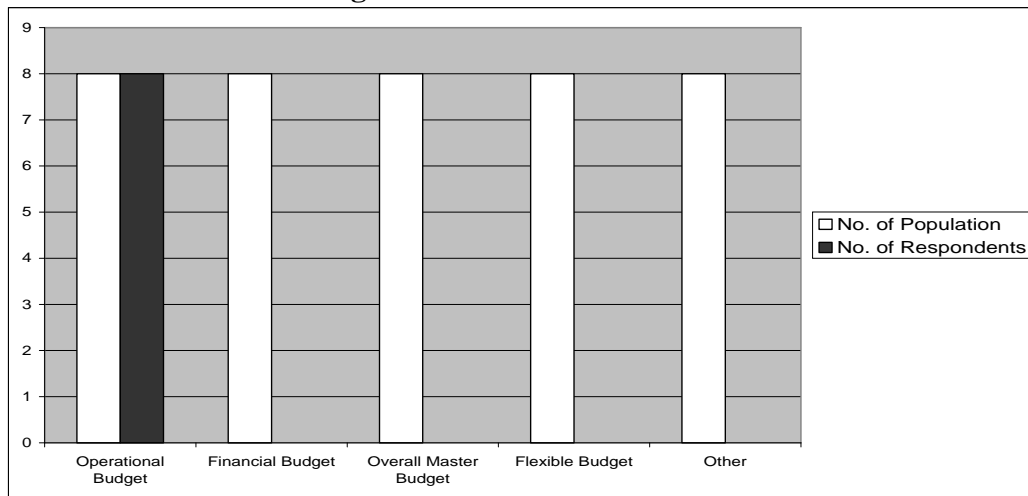
The above table no 4.2 shows the practice of segregating mixed cost into fixed and variable in CAAN. From the table it is clear that CAAN was not practicing any methods of Cost Segregation. In fact there was no practice of Cost Segregation. It seems CAAN is not aware of cost management. It has happened due to the ignorance of the value of cost segregation by the organization and also the lack of knowledge and expert manpower.

4.2.3 Budget Practices in CAAN

Table No. – 4.3

S. No.	Types of Budget	No. of Population	No. of Respondents	%
1	Operational Budget	8	8	100
2	Financial Budget	8	0	0
3	Overall Master Budget	8	0	0
4	Flexible Budget	8	0	0
5	Other	8	0	0

Figure No. – 4.3



The above table 4.3 shows the types of budget prepared in CAAN. From the table it is clear that CAAN practiced only the Operational Budget to carry out its regular operational activities. All the official units of CAAN practiced the Operational Budget. Thus the percentage is 100 for operational budget. Other budgets like Master Budget, Flexible Budget and Cash Budget were not in practice in CAAN.

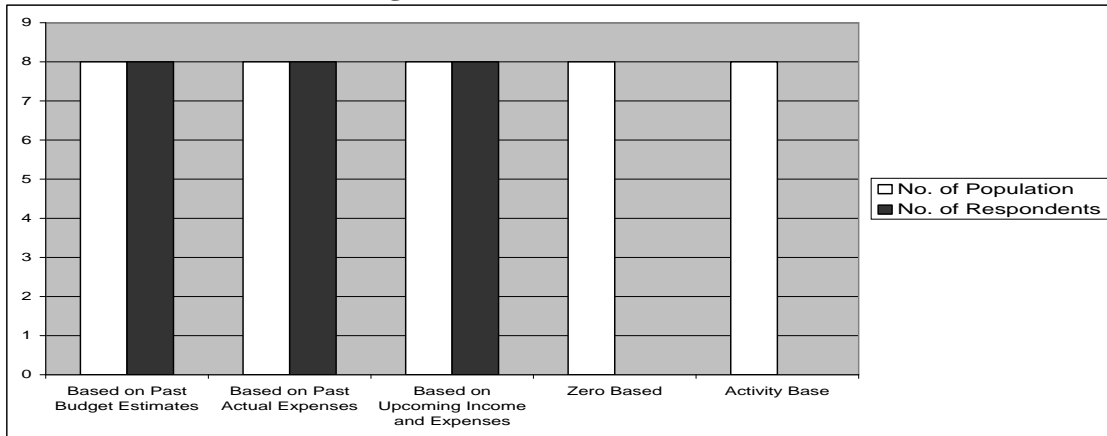
4.2.4 Basis for Budget Preparation in CAAN

Table No.- 4.4

S. No	Base	No. of Population	No. of Respondents	%
1	Based on Past Budget Estimates	8	8	100
2	Based on Past Actual Expenses	8	8	100

3	Based on Future Income and Expenses	8	8	100
4	Zero Base	8	0	0
5	Activity Based	8	0	0

Figure No. – 4.4



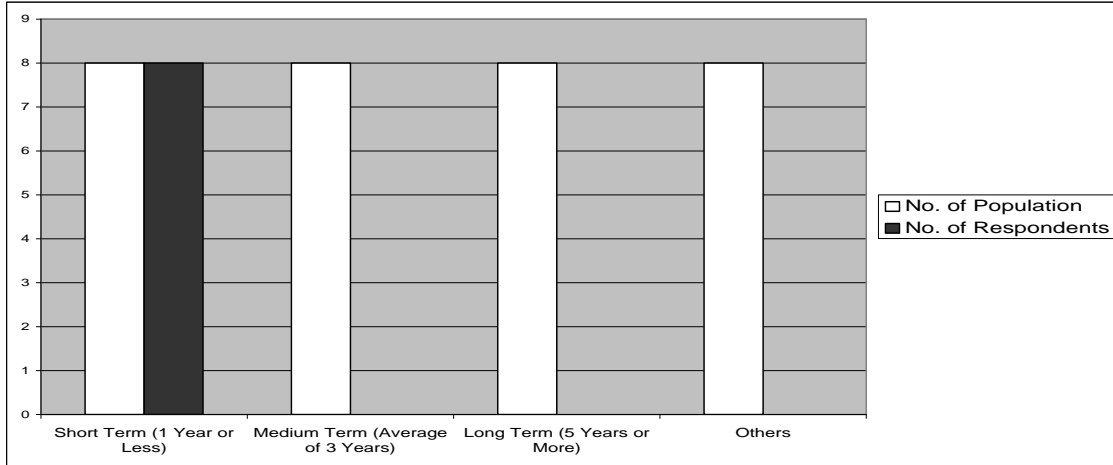
The above table 4.4 shows the basis on which Budget Preparation in CAAN is made. From the above table it is clear that CAAN use to prepare the budget based on Past Budget Estimates, Past Actual Expenses and future Income and Expenses. The practice of these tools in all the units was found 100%. Where as there was no practice of modern useful tools like Zero Base and Activity Based Budgeting. It is due to the lack of expertise and willing to pay more for it. Thus budgets were prepared on traditional concept.

4.2.5 Types of Budget Based on Period Practiced in CAAN

Table No.- 4.5

S. No.	Types of Budget	No. of Population	No. of Respondents	%
1	Short Term (1 Year or Less)	8	8	100
2	Medium Term (Average of 3 Years)	8	0	0
3	Long Term (5 Years or More)	8	0	0
4	Others	8	0	0

Figure No. – 4.5



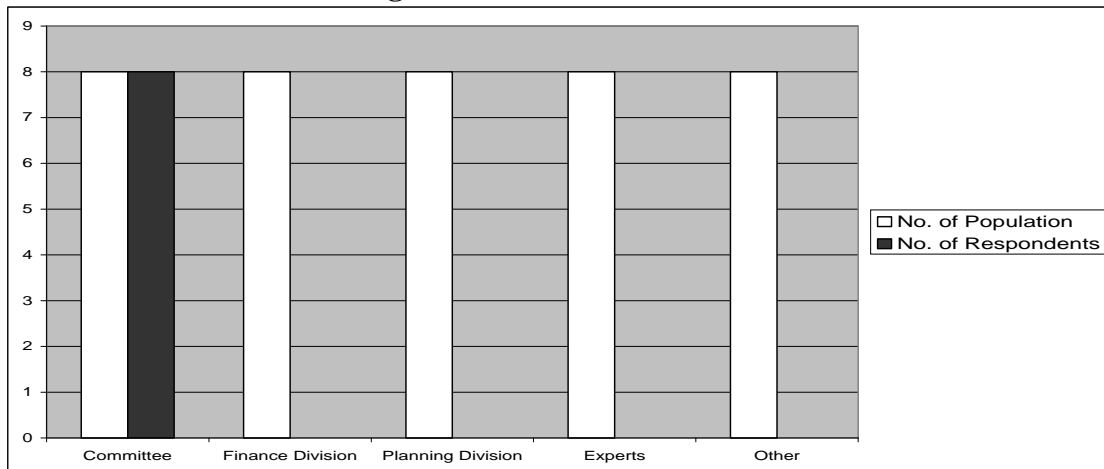
The above table 4.5 shows the types of budget practiced in CAAN. From the table it seems that CAAN use to practice only the Short Term Budget also termed as Annual Budget. All of its units followed the Annual Budget thus the practice is 100%. Other kinds of budgets like Medium and Long Term Budget were not in practice. CAAN has no practice in preparing Long Term Budget, it takes long time, need lot of exercise and cost. Similarly, it is quite difficult to predict expenses for the future for long period.

4.2.6 Budget Preparation System in CAAN

Table No. – 4.6

S. No.	Methods	No. of Population	No. of Respondents	%
1	Committee	8	8	100
2	Finance Division	8	0	0
3	Planning Division	8	0	0
4	Experts	8	0	0
5	Other	8	0	0

Figure No. - 4.6



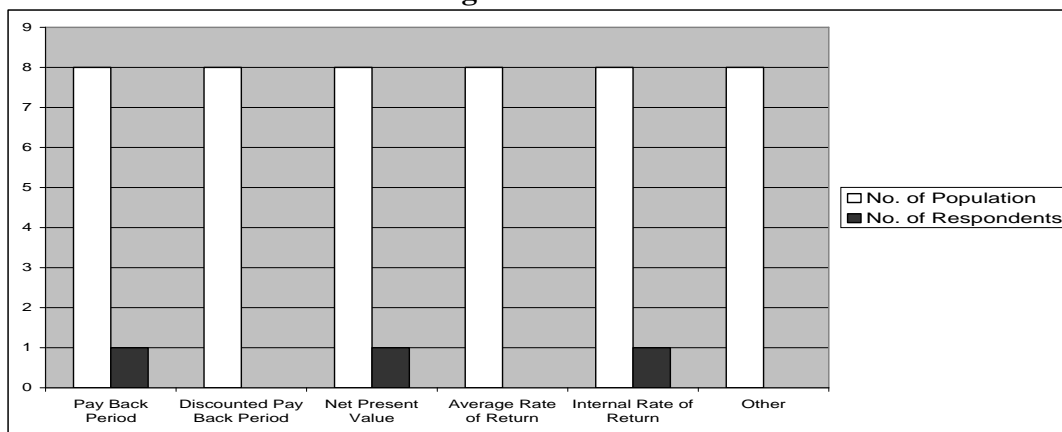
The above table 4.6 shows that the scenario of budget preparation system in CAAN. From the table it is cleared that budget was prepared by the committee in CAAN. 100% of its units followed the committee system for the budget preparation. Members from different departments including from finance, corporate, planning and development departments, in house experts and senior management form the committee. At first, the committee collects the necessary data and information from different units and finalize in the form of budget after necessary discussion, consultation, field visit etc. The consultation with out side expert was nil for the budget preparation. The main reason is hiring them are expensive and the authority does not have separate funds to hire them.

4.2.7 Practice of Capital Budgeting Tools in Purchasing Fixed Assets or Making Long Term Investment

Table No. – 4.7

S. No.	Tools	No. of Population	No. of Respondents	%
1	Payback Period	8	1	13
2	Discounted Payback Period	8	0	0
3	Net Present Value	8	1	13
4	Average Rate of Return	8	0	0
5	Internal Rate of Return	8	1	13
6	Other	8	0	0

Figure No. – 4.7



The above table 4.7 shows the practice of application of Capital Budgeting Tools in purchasing Fixed Assets or Making Long Term Investment Decision in CAAN. From the

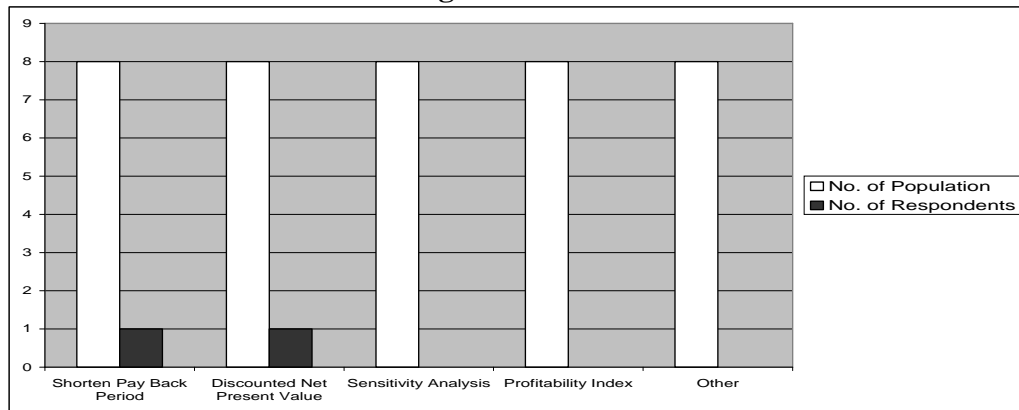
table it is clear that CAAN use to practice the tools like Payback Period, Net Present Value and Internal Rate of Return for the purchase of fixed assets or the long term investment. These tools were used only by the head office thus the using percentage is just about 13%. Other official units of CAAN did not use the tools to analyze. It was due to the lack of knowledge and use ness about the tools. If necessary, it was analyzed from the finance division of head office to its units.

4.2.8 Adjustment of Risk while Evaluating Capital Investment in CAAN

Table No. – 4.8

S. No.	Tools	No. of Population	No. of Respondents	%
1	Shorten Payback Period	8	1	13
2	Discounted Net Present Value	8	1	13
3	Sensitivity Analysis	8	0	0
4	Profitability Index	8	0	0
5	Other	8	0	0

Figure No. – 4.8



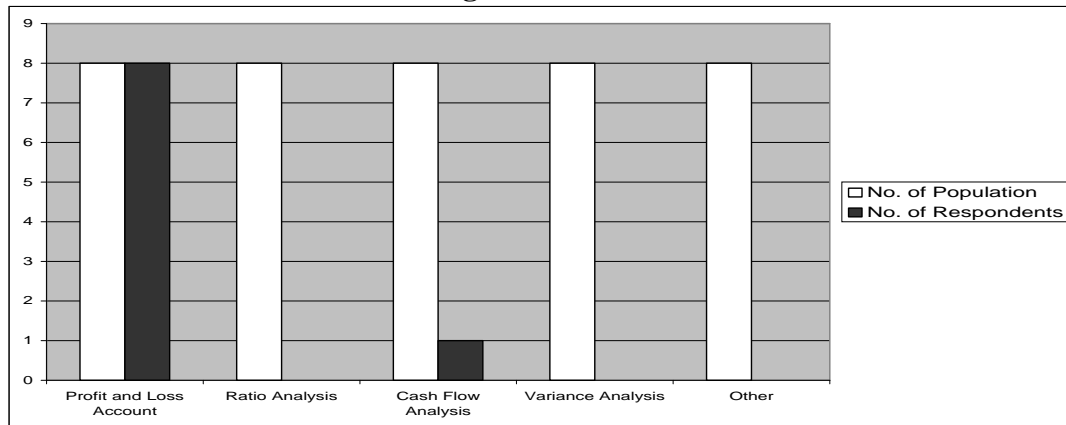
The above table 4.8 shows the practice of Risk Adjustment while Evaluating Capital Investment in CAAN. From the table it seems that 13% of CAAN official unit used the tools like Shorten Payback Period and Discounted Net Present Value. In fact the risk evaluation on capital investment was done only by the head office. The other units were not practicing the Risk Adjustment tools as they were not involve in the practice of other Capital Budgeting tools for the purchase of fixed assets or the long term investment. The practice of the useful tools like Sensitivity Analysis and Profitability Index was nil.

4.2.9 Tools Practiced for the Overall Performance

Table No. – 4.9

S. No.	Tools	No. of Population	No. of Respondents	%
1	Profit and Loss Account	8	8	100
2	Ratio Analysis	8	0	0
3	Cash Flow Analysis	8	1	13
4	Variance Analysis	8	0	0
5	Other	8	0	0

Figure No. – 4.9



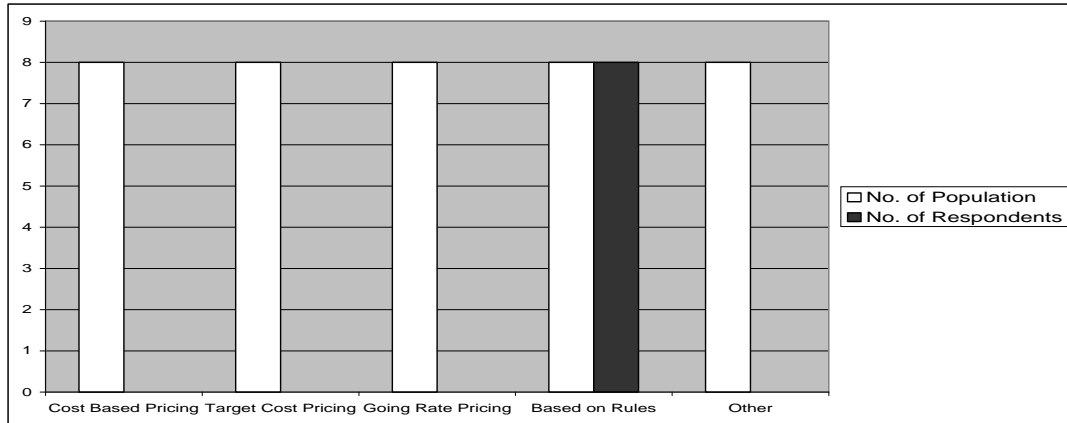
The above table 4.9 shows the tools practiced for the Overall Performance Evaluation in CAAN. From the table it is clear that the use of Profit and Loss Account for the Overall Performance Evaluation was 100%. The main base of evaluation was P/L Account for CAAN. Whereas the Cash Flow Analysis was used only by 13%, which was from the head office of CAAN. Central Cash Flow Analysis was practiced in the organization. The uses of other tools like Ratio Analysis, Variance Analysis and Cost Volume Profit Analysis were found nil due to lack of expert manpower.

4.2.10 Practices for Pricing of Products and Services in CAAN

Table No. – 4.10

S. No.	Pricing Techniques	No. of Population	No. of Respondents	%
1	Cost Based Pricing	8	0	0
2	Target Cost Pricing	8	0	0
3	Going Rate Pricing	8	0	0
4	Based on Rules	8	8	100
5	Other	8	0	0

Figure No. – 4.10



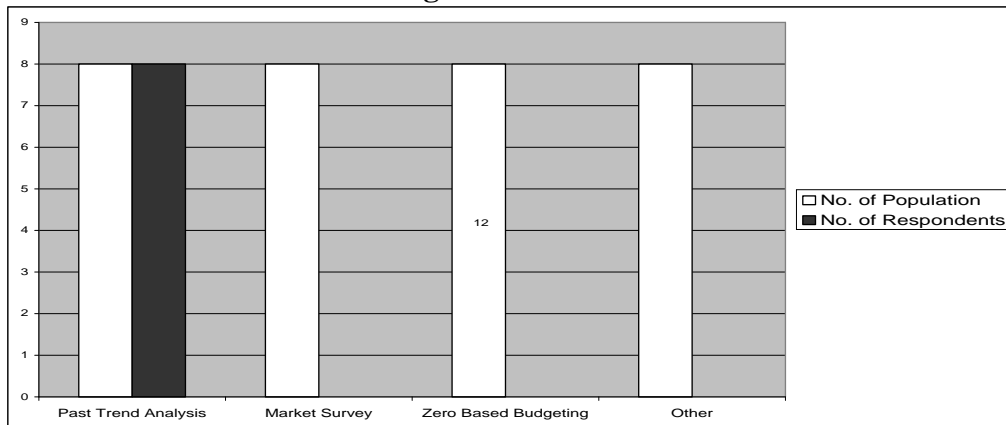
The above table 4.10 shows the Practices for Pricing of Products and Services in CAAN. From the table it is clear that being an autonomous and a service providing organization CAAN practices the pricing of its service based on rules and regulations. The charges either aeronautical or non-aeronautical were based on regulations approved by government. The more reliable tools like Cost Based Pricing, Target Cost Pricing and Going Rate Pricing practices were nill in CAAN.

4.2.11 Cost and Revenue Estimation Practices in CAAN

Table No. – 4.11

S. No.	Tools	No. of Population	No. of Respondents	%
1	Past Trend Analysis	8	8	100
2	Market Survey	8	0	0
3	Zero Base Budgeting	8	0	0
4	Other	8	0	0

Figure No. – 4.11



The above table 4.11 shows the Cost and Revenue Estimation Practices in CAAN. From the table it is clear that the practice of Past Trend Analysis was 100% for the Cost and Revenue estimation in CAAN. All of the official units of CAAN practiced the past trend analysis for the estimation. Other useful methods like Zero Base Budgeting and Market Survey were not used by CAAN.

4.2.12 Practices of Transfer Pricing

The transfer pricing method is very useful for those business houses, which rendered services to the customers through department to department. While transferring the products from one department to another department, the department it self fixes the price for its output. As CAAN directly rendered its services to the customer rather than department-to-department, there was no place for transfer pricing.

4.2.13 Decision Making Practices

CAAN practiced the Decision Making tool as required. It mostly used the decision methods like Lease or Buy and Drop or Continue to render the service. Where as the Special Order and Make or Buy was not practiced by CAAN.

4.2.14 Inventory Valuation Method

Regarding Inventory Valuation, CAAN does not have asset department so the fixed assets and stocks were not valued since long. Where as on the official units the operational stocks were valued on the basis of Weighted Average Method rather than other methods such as LIFO and FIFO.

4.2.15 Accounting System

For the proper accounting system, CAAN itself developed eight different accounting manuals based on NAS (Nepal Accounting Standard) to its organizational accounting obligation. The manuals are the basic guidelines for the accounting personnel. It gives entire vision and idea about the financial activities from the beginning. The manuals are classified into eight different headings such as Budgeting and Budgeting Control, Payroll Accounting Procedure, General Accounting Procedure, Cash and Bank Accounting Procedure, Accounting of Advances, Procurement and Store Accounting Procedure, Accounting of Fixed Assets and Accounting Procedure for Revenue Account.

All the accounting and financial personnel were known about the manuals developed by CAAN. It had been in practice through different training and workshops. The accounting personnel themselves were also qualified on the field. The authority was satisfied with the performance of accounting personnel. Trainings, seminars and workshops were provided to the persons on periodic as well as when required.

The accounting procedure starts from the beginning of financial activities. Preparation of voucher, ledger posting, subsidiary books account, trial balance are the basic accounting activities where as the income statement, profit and loss account, balance sheet and cash flow statements are financial statements, provides the organizational financial performance. CAAN was practicing all of these procedures. Regarding the audit system, CAAN had two kinds of audit system in practice first one the internal audit from the in house experts and the second final audit from the authorized government office (Mahalekha Parichhak).

4.2.16 Management and Management Accounting

Management accounting is helpful to management for the planning, controlling and decision making activities. Management can get the valuable and important information from management accounting. CAAN management body had the practice of getting the information from accounting and finance division as necessary. Management themselves were also interested on this field to get the required information and to fulfill their duties and responsibilities. This process was highly helpful to them to make good decision for the organizational development. But, in some cases due to different factors, management was compelled to make decision even though not favourable for the organization from financial perspective.

4.2.17. Airport Status

Operation of aircraft on the airfield and on the Nepalese sky is the major sources of income of CAAN. While analyzing the airports regarding its income and expenses most of the airports of Nepal were operating in loss. Few of them were operating in profit. Out of 51 airports, only 10 airports were operating in profit. The profitable airports were Tribhuvan International Airport the only one international airport and 9 other domestic ie. Lukla, Jomsom, Chandragadhi, Biratnagar, Simara, Pokhara, Nepalgunj, Surkhet and Rumjatar. More than 80% of CAAN income was generated from TIA. Contribution of rest airports were not more than 20%.

Thus most of the airports were operating in loss due to traditional approach, lack of other income sources, least flight movement, insufficient charges, political interference and lack of business policy.

4.3 Major Findings

From the comprehensive analysis of available data, the following findings can be drawn for CAAN:

4.3.1 Related to Management Accounting Practices

- While examining the tools practiced by CAAN it was found that there was 100% application of "Annual Budgeting" and "Variance Analysis" where as the application of "Capital Budgeting", "Cost Volume Profit Analysis", "Decision Making", "Cash Flow Analysis" were only 13% for planning, controlling and decision-making.
- Some of very important and useful management tools such as Cost Segregation, Long Term Budgeting, Pricing of Product, Standard Costing and Ratio Analysis were not in practice in CAAN for its managerial decision.
- The authority was not practicing the Segregation of cost into fixed and variable. Authority was thus unable to find out the nature of cost, which seems that CAAN was not taking opportunity of cost control and management.
- CAAN practiced only the Operational Budget. It was prepared by budget committee on the basis of past actual expenses and future income and expenses. All the time Short term Budget (1 year or less) was in practice rather than Medium and Long Term Budget.
- The reason of not practicing tools like "Cash Budget", "Zero Base Budgeting", "Medium and Long Term Budget" were due to lack of information, knowledge, experts and willingness.

- While preparing budget, there was no practice of taking consultancy services. The practice of hiring outside expert was nil. The reason behind this was hiring them were too expensive.
- CAAN mostly used the tools like Net Present Value, Payback Period and Internal Rate of Return while purchasing the fixed assets and making long term investments. Similarly, to adjust risk on evaluating capital investment CAAN used Shorten Payback Period and Discounted Net Present Value. For this, the practice of Sensitivity Analysis, Profitability Index and Decision Tree were found nil.
- For the measurement of overall performance, the authority used Profit and Loss Account and Cash Flow Analysis. The practice of Variance Analysis, Standard Costing and Ratio Analysis were found nil. Variance Analysis was done only for budgetary purpose.
- The price of service provided by CAAN was fixed already by the rules and regulations approved by government named Bimansthal Dastur Niyamawali 2038 (Fourth revised 2062) and CAAN Financial Management Rule 2057. The most of the prices of its services were not based on cost recovery principle. Thus, CAAN was compelled to exercise price bounded by the rules and regulations.
- For the cost and revenue estimation, the authority practiced only Past Trend Analysis. The practice of Market Survey and Zero Base Budgeting were found nil to forecast the future cost and revenue.
- On central level, the Inventory Valuation was not in practice as the asset department was not established in CAAN. The operational inventory was valued on Weighted Average Method on other official units.
- Due to the nature of business of CAAN, It practiced the methods like Lease or Buy and Drop or Continue as the Decision Making tool. But in some cases (regarding operation of airport even in huge loss) decision making could not made based on management accounting principle.
- The accounting procedure of CAAN found satisfactory as the authority itself developed accounting manuals for this purpose. The personnel were also qualified and provided training as required. The authority had its own internal audit system.
- Management Information System on the authority found satisfactory. It means the relationship between management and finance division was good.

4.3.2 Difficulties on Application of Management Accounting Tools

On the period of this study, direct conversation was made with chief of finance, accountants and managers of CAAN to know their opinions about the use of management accounting tools. Some key opinions considered worthy and are cited here. From the analysis of data, conversation and discussion, it was found that the major difficulties for application of management accounting tools were as follows:

- CAAN practiced the tools as the continuation of traditional system. No more research and development programs were made for latest technology. Most of the procedures were based on traditional approach not new and innovative.
- Lack of communication and information about the modern development on the field of management accounting.
- Lack of knowledge about the management accounting tools.
- Lack of information about the entire benefit of modern tools comparing with present practices.
- Lack of skilled manpower on this field.
- Lack of willing to hire outsider expert to take consultancy service and to familiarize the modern useful developments.
- Some tools were not necessary till to apply on the organization.
- Political instability and interference were also the factors causing difficulties on the real implementation of management accounting tools.
- Huge cost burden was other helping factor for not the proper application of management accounting tools.

4.3.3 Suggestions for the Application of Management Accounting Tools in CAAN

- There is big gap between traditional practices and modern developments. In fact modern development on the field of accounting are very useful than present practices for the planning, controlling and decision making. CAAN should try to grab the new techniques and tools for better result.
- All the necessary information and knowledge should be gained from different sources such as hiring experts, sending staffs on training, recruitment of skilled manpower etc.
- Based on cost benefit analysis (if the tools are suited for authority) convey all the information and knowledge through different trainings, seminars and workshops to the staffs.

- Academicians should also put effort to bring the useful techniques and tools in light through different programs such as books, journals, advertisement and other campaigns.
- Seminars and workshops should be conducted for the managers so they could be acquainted with the new tools with its usefulness and benefits.
- Authority should increase the investment regarding the application of new and innovative programs.
- There should have political stability and leave the authority from unnecessary interference.

4.3.4 Other Findings of CAAN

- According to clause 18 of the CAAN Act 2053, CAAN is to be run on the basis of business principles. But in fact it was not running so far like a business houses. Most of the airports were operating in loss. It is due to lack of detail business plans and principles.
- While establishing CAAN the total assets of DCA were evaluated amount about Rs 8670.00 Million. Out of total 50% was land value. The present land value was calculated based on the commercial value, which seemed high for CAAN. Thus CAAN is overcapitalized due to the over valuation of DCA assets. The ownership of the assets was not still transferred to CAAN from the government. This had been created technical difficulty in promulgating CAAN's own tariffs rule because section 10 (1) (d) of the Act 2053 has authorized to collect charges from the "**airports owned by CAAN**". It means unless the ownership is formerly transferred to CAAN it has only the tenant right.
- Regarding financial structure, except the amount of Rs 8670.00 Million from DCA to CAAN as capital investment of government, CAAN had the responsibility of Rs 1330 Million as Cumulative Redeemable Preferential Share on the interest rate of 10.5 % where as other total amount of Rs 3869.71 Million loans on the interest rate of 10.25 % must paid back with in 12-20 years period. Here the fact was that the government got these very amounts of loan on the interest rate of only 1-3 % from different national and international parties. After the CAAN establishment, the loan responsibility was transferred to the authority and fixed the interest rate of 10.25 – 10.5 %. Which showed the government was like a businessperson rather than national promoter and guardian.
- The authority had a Corporate Planning, Performance Evaluation and Monitoring Directorate, which was responsible for the identification, formulation and

implementation of short term, long term and mid term commercial projects. Its other function involved in the provision of professional advisories and supports, updating of assets record in coordination with finance department, diversification of products by identifying alternative resources, monitoring and follow up commercial projects already executed, followed by their review and evaluation. The directorate was not found enough strong in the field of corporate planning to run the authority on business principles.

- Civil Aviation Academy was functioning as a sole institution to train manpower required for CAAN in various disciplines like air traffic services, rescue and fire fighting services, radio maintenance, aviation safety, computer etc. There was no such faculty on the academy to provide trainings concentrating managerial and accounting disciplines. For these trainings, huge amount was paying to out side-training centers.

- CAAN was facing challenges in collection of the overdue / outstanding revenues from airlines and other clients. A substantial proportion of due was with Nepal Airlines Corporation, Necon Air and Cosmic Air etc.

- According to clause 5 of CAAN Act 2053, "Authority can conduct and cause to conduct the ground handling services at an aerodrome." But in practice the ground handling was done by NAC solely since long and generating income more than 50 Million a year. CAAN always tried to get the ground handling service from NAC as per the Act but due to external forces it was unable to grab that very opportunities.

- "CAAN is an autonomous and corporate body with perpetual succession" is written on CAAN Act 2053. It is free and independent to take decision regarding the development of the organization but in fact due to its organizational structure (Board of Director) it could not perform like a full autonomous organization. The major decision should be approved from the BOD which is presided by **Minister or Minister of State of Tourism and Civil Aviation** and the members from different sectors like airlines, tourism and aviation expert, member from Ministry of Finance, Ministry of Tourism and Civil Aviation. Thus, decision processes were affected directly or indirectly from government interest and others.

- It is the ground reality that the transportation service through out the nation is quite difficult due to its geographical structure. So that in most part of the country the only assess of transportation is possible through air services. The construction of aerodromes and its regular operation is very much expensive than others. Even in huge loss, CAAN was operating large numbers of airports for its public responsibilities as a service provider but due to that government was not providing any subsidies to CAAN. In some cases, the aerodromes were constructed, on the interest of political leaders and parties even the future perspective is very poor.

Such airports were made on grants or loan from different sectors and transferred all the responsibilities to CAAN.

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Nepal, a sovereign independent country is a unique combination of natural beauty, biodiversity, geographical structure, unique heritage, different cultures, supreme spirituality and brotherhood between people and political changes. The political changes happen rapidly on the country since the great Peoples Movement – II at 2006 (Jana Andolan – 2 2062/63). The Andolan was happened for the establishment of peace and full democracy and got it after 19 days long and historic Peoples Movement. Poll for the Constitutional Assembly was held on Chaitra 28, 2064. From this assembly on 15th jetha, 2065 Nepal is declared the "Federal Democratic Republic of Nepal". Now Nepal is looking for the new constitution and restructuring of the state for the bright future.

Due to complex geographical structure of Nepal, regarding the mode of transportation, the road transportation is not possible through out the country. In most parts of Himalayan and Hilly region air transportation is only the alternative. Thus air transportation is very popular and important in Nepal due to this fact and its comfort ness, time saving nature and security. There are at present just more than 50 airports in Nepal. Civil Aviation Authority of Nepal (CAAN) operates all the airports and regulates the aviation. CAAN is established as an autonomous organization on 31st Dec 1998 to promote and regulate the civil aviation and to operate the airports of Nepal.

There are unbelievable developments in the sector of science and technology from the ancient age to 21st century now. Human dream of flying like a bird is not only possible but the flying is now highly sophisticated and easy. From the historic moment of Wright Brother to the present moment of Airbus 380, the aviation sector is in top of development.

The development of latest technologies, the geographical structure, unstable political status, high risk and the high performance requirement makes the smooth operation of any organization tough in Nepal. To overcome from this challenges and opportunities Management is such tool / weapon which lead the organization towards achieving the goals through optimum usage of scarce resources in a dynamic environment. External and internal environments are the factors, which makes both the trouble and easiness for the organizational activities. Mostly it creates challenges uncertainty and risk rather than opportunities. To minimize the existing risk and create the certainty in the organization, management is very suitable one. So, for the good management of any organization the proper utilization of management tools and techniques are helpful to achieve their objectives. Various tools and techniques of management have proved beneficiary in every aspect of managerial activities. Management Accounting is a term among various tools and techniques. The objective of management accounting is to help managers in overall managerial activities by providing information and helping them in planning, controlling and decision making. It acts as a strategic business partner in support of management for organizational decision. Management accounting covers accounting methods, systems and techniques which gives very useful information to management for effective planning and decision procedure.

The main objectives of the present research were to examine the present practice of management accounting tools, to identify the difficulties on the application and to recommend for the practices of management accounting tools in Civil Aviation Authority of Nepal to strengthen the organizational performance.

As per the nature of the study, research design is followed with descriptive and analytical approach. The major data regarding the practices of management accounting were collected from primary source. Questionnaires were distributed and table talks were also made as necessary to gather information. The details about the management accounting and the aviation were grabbed from different books, journals, articles, websites, previous thesis etc. Information was presented as per the requirement of the study.

From the analysis, it was found that management accounting tools such as "Annual Budgeting", "Capital Budgeting", "Cost Volume Profit Analysis", "Variance Analysis", "Decision Making", "Cash Flow Analysis" were practiced by the CAAN for planning, controlling and decision-making. Where as, the tools like Cost Segregation, Long Term Budgeting, Pricing of services, Standard Costing, Ratio Analysis, Zero Base Budgeting etc was not practiced by the authority. Lack of information, knowledge, skilled manpower, extra cost burden, nature of service, political instability and interference were the main reasons behind not practicing such tools.

5.2 Conclusion

From the research, it has been found that there is big gap between the theory and practical because most of the accounting tools are not applied in the authority which is taught in the academic institutions. Tools like "Annual Budgeting", "Capital Budgeting", "Cost Volume Profit Analysis", "Variance Analysis", "Decision Making", "Cash Flow Analysis" are in practice but the tools like Cost Segregation, Long Term Budgeting, Pricing of Services, Standard Costing, Ratio Analysis, Zero Base Budgeting, Activity Based Budgeting, Activity Based Costing are not in practice.

In CAAN, practices of hiring outside expert and sending own staffs for training to carry out innovative activities in the field of management accounting are almost null. But it is practiced on other faculty like air traffic services, aviation security etc. It can be said that authority is still on infant stage in practicing management accounting tools although it is operating since long.

For the detail practice of management accounting tools, hiring of outside expert, training to staffs and recruitment of skilled manpower will be good idea but no provision of these things on authority because of huge and extra cost burden. It seems that authority is with the concept that management accounting is similar to financial accounting. But financial accounting is just concern with recording of financial transactions and presents information in financial term. It is only a useful factor for management accounting. Management accounting has great role on good planning, controlling and decision making procedure. New tools and techniques such as Zero Base Budgeting, Activity Based Budgeting, Activity Based Costing and Target Costing have been developed around the world but practice of these tools in CAAN is null. Lack of information, knowledge and willing ness about management accounting tools are the main factors causing problem in the application of such tools.

CAAN Act 2053 clearly declared that CAAN is an autonomous organization in the sector of aviation. In practice, it does not seem as an autonomous body. The strategic planning, implementation and decision procedure of CAAN is directly or indirectly interfered by the government and politics. Government or politician fixes the construction of new airports and its operation rather than CAAN even though the airports are not economically viable. One of the reasons for this is due to the public responsibility of CAAN, not only a profit making organization. Authority is not getting any subsidies and grants from government for its public obligation.

Similarly, CAAN is overcapitalized as the assets of DCA were overvalued than the market price causing this the capital liability of CAAN is high. The interest rate on the loan amount whatever transferred to the authority is extreme higher than its real value. Government itself got it on 1-3 % interest rate where as transferred to CAAN on the rate of 10.25 – 10.50 % which seems government is a business maker rather than organizational promoter. Due to the payment period of loan and preferential redeemable share, CAAN will face financial crises on near future if the terms are not extended. The financial statements of the authority show that it is in good rhythm as the authority earning better

and better than last years. In the same way, it is said that the assets will be transferred to the authority but the ownership of assets are not still transferred to the authority which creating technical difficulties on organizational development.

Among 51 airports, only 10 airports are operating in profit rest are either operating in huge loss or not in operation. The main income is generated from aviation related charges ie aeronautical charges. The contribution of non aeronautical income is negligible. For more income and at least to operate airports on break even detail plan and policy seems essential for CAAN. For this, the Corporate Planning Directorate can play huge role in CAAN. Business plans and policy searches the extra and alternative resources for generation of income.

The future of CAAN seems bright if it can grab the upcoming opportunities in the sector of aviation and equally necessary to make strategy for the weaknesses. The monopoly market on airport operation, CAAN's autonomous character, fast growing trend of aviation and Nepal as an attractive destination around the world are the backbone for its bright future.

5.3 Recommendations

Civil Aviation today, around the globe is the combination of both challenges and opportunities. The high demand and rapid growth in the sector of aviation is the bright sign of opportunity where as the management of this high demand and rapid growth with the safe and secure flight is the main challenges. Similarly, from any kind of incident, accident and activities regarding security threats are other challenges.

Nepal being a mountainous country, it is facing some extra opportunities and challenges including above. The physical structure of Nepalese airports like terminal facility, runway structure and other essential technical facilities are poor due to its rural ness, terrains and financial capabilities.

Being an autonomous enterprise, it is the responsibility of CAAN to cope with the existing and upcoming challenges and opportunities. The authority should fit with global and internal environment. Management should think in global perspective not only national. Information should be updated for better utilization of limited resources and achievement of goals. For the good and effective management the application of management accounting makes management more strong on the field of planning, controlling and decision making. It also helps to cope with the opportunities and challenges created by the industrial globalization through WTO. Nepal is also a member country of WTO since 2004 April 23rd.

It is already discussed in detail about the status on the application of management accounting procedure and its problems for the application of management accounting in

CAAN. Here are the recommendations to CAAN based on this research study for the well application of management accounting and other managerial perspective presented below:

- To strengthen the CAAN and to carryout managerial activities, the uses of management accounting tools and techniques are recommended.
- For this Environment is very important factor for any organizational activities. Positive environment is necessary for the application of any system, procedure or tools. A separate Management Accounting Department should be established in the organization. Management accounting expert should be hired. If cannot hired the expert it can send its employee for training. If not feasible this also, manage it by taking services of fee based consultant.
- The management accounting department should be responsible for the detail study of present practices and modern developments. All the developments, information and knowledge should be gained and analyzed its useful ness, importance and cost benefits.
- On the basis of detail analysis, the tools and techniques suited for the authority must be applied. For this, convey all the necessary information, strategy and program to the management. Recruitment of new skilled manpower and the training to the employees are other steps for the full implementation.
- It is recommended that the authority should create an environment of interaction between the academicians and the authority. It can be benefited for the knowledge about the new tools and techniques of management accounting.
- Academicians should put effort to bring management accounting tools into the light by the help of books, journals, articles and campaigns such as seminar, workshop and training. It is helpful to get more information about the tools and techniques. Long term as well as short term training packages should be offered for the managers about the techniques of management accounting and to update the knowledge and skill.
- The authority should not depend only on the practices of traditional system. It should be motivated for the new and modern system through the research and development programs. For this authority should spend certain percentage of their earnings.
- The authority is recommended to practice the cost segregation tool for the segregation of mixed cost into fixed and variable which is very helpful to find out the nature of cost.
- Budgeting and planning activities should be conducted by hiring the professional experts. It helps to prepare budget by the maximum utilization of its limited resources on systematic way.

- The Budget should not be only Operational; authority should practice the "Cash Budget" also. Develop airport wise and CAANs comprehensive annual budgeting system. Similarly, the practice of Medium and Long term budget is equally necessary for the authority like CAAN.
- Budget preparation should not be based only on "Actual Past and upcoming income and expenses". Along with this environmental factor should also be taken into consideration. It is because what happened in the past might not occur in the future. The advance tools like Zero Based Budgeting and Activity Based Budgeting are recommended to practice for the preparation of more realistic budget.
- It is recommended to CAAN, for the risk adjustment while purchasing fixed assets or making long-term investment through the tools like Shorten Payback Period and Sensitivity Analysis.
- Authority mostly depends on "Profit and Loss Account and Cash Flow Analysis" for the measurement of overall performance. It is suggested to CAAN not only depend on these techniques. Along this, the tools such as Ratio Analysis, Variance Analysis and Standard Costing should be used. Beside these, present performance should be compared with past performance of the authority.
- While estimating cost and revenue for future period, authority should not be based on "Past Trend" only. What happened in the past might not happen in future. So for the estimation, tools like "Zero Base Budgeting", "Market Survey" and "Statistical Tools" should be practiced. This helps the enterprises to reach to correct estimation.
- For the Pricing of the service delivered by the CAAN, It is recommended that the exiting rules and regulations should be amended as per the business principle. The rules and the regulations must have the flexibility to the extent of at least cost recovery principle, other wise it should based on Going Rate Pricing, Target Return on Investment, Activity Based Cost Pricing etc. Similarly, each airport should have its own charging mechanism for the revenue generation.
- The Decision Making procedure should be applied properly on the sector like operation of plants and machinery and the airports. The decision making is poor in the sector of airport operation due to the public responsibility of the authority and the interference from the agencies like government, politicians and locals. It should be revised for the well sake of the authority.
- CAAN must establish the Asset Department for the well management of its property. All the properties should be registered and revalued on the fixed period. The Inventory Valuation system should also be applied on the basis of tools like LIFO, FIFO or Weighted Average Method.

- Management Information System (MIS) should make more effective and interactive. The system itself should be more informative and interactive. The frequent interactive programs should be held in between management and the staffs.
- The accounting system of CAAN should be developed fully on computer-based system. Necessary infrastructural development and training to the accounting personnel is needed for the better organizational performance.
- The authority should be updated with new tools and techniques that are practiced around the globe to cope with the changing environment, cost minimization and better service quality.
- Performance of Authority can be improved by allowing greater autonomy and more accountability. Similarly, the authority must be out of unnecessary governmental, political and other kind of interference. The political stability is equally necessary for the smooth operation of authority.
- Morality concept should be developed in the authority for the fair, regular, responsible and accountable environment.
- Various programs should be launched for the motivation of staffs. The performance monitoring and evaluation system must be fair and effective for their contribution. Performance based incentive system should be launched for this.
- The authority should be able to analyze its "Strength, Weaknesses, Opportunities and Threats" (SWOT Analysis). It helps to know about the actual condition of organization and its challenges, which is helpful for the strategic management over the challenges, weaknesses and threats.
- CAAN is to be run on the basis of business principles as stated on the clause 18 of the CAAN Act 2053. But the fact is just reversing than the statement. Most of the airports are operating in loss. Authority cannot stop running those airports solely due to its nature of service and the deep obligation to the Nation and the people of Nepal. The losses can be minimized through the alternative sources of income. This can be achieved by the help of detail business plan and principle.
- The Corporate Planning, Performance Evaluation and Monitoring Directorate of CAAN should try its best for the identification, formulation and implementation of comprehensive business plan for immediate, short term, mid term and long-term period. Individual airport wise business plan and financial projections are necessary for this policy. The concentration should be given on the generation of more non-aeronautical income rather than aeronautical.
- Investment in commercially non-viable airports should not be encouraged. The investment model should be participative in between Government, Local Body and CAAN for the construction of social sector and important airports from regional balance point of view.

- The authority should get the subsidies and grants from the government for its operation of airports on those remote sectors, which are necessary to operate for the sake of public and running financially very poor.
- CAAN is overcapitalized due to the over valuation of DCA assets. Out of total assets, about 50% is land value. The present land value is calculated based on the commercial value, which is high for CAAN. The land value should be calculated in the accounting principle of "Cost Price or Market Price, which ever is lower".
- The ownership of the assets should be transferred to CAAN from the government as far as immediate. Which will helpful for the authority to overcome from the difficulties facing in promulgating CAAN's own tariffs rule because section 10 (1) (d) of the Act 2053 has authorized to collect charges from the "airports owned by CAAN". It means unless the ownership is formerly transferred to CAAN it has only tenant right over the assets.
- The interest rate whatever fixed earlier (10.5%) by the government to CAAN for the loan repayment is now become only on 8% which also seems higher to the authority as the government it self got it in between 1-3% of interest rate. The interest rate should again be revised on the basis of actual currency inflation exchange rate of Nepal Rastra Bank. A review on this aspect indicates that 5% interest rate per year could be reasonable.
- Civil Aviation Academy should be functioned as a whole institution to train manpower required for CAAN in the more disciplines like management and accounting.
- To collect the overdue / outstanding revenues from airlines like Nepal Airlines Corporation, Necon Air and Cosmic Air and other clients, CAAN should make strong mechanism with tight rules and regulations. From the help of government only, it can collect a substantial proportion of due from the Nepal Airlines Corporation.
- The management of ground handling is the sole responsibility of CAAN according to clause 5 of CAAN Act 2053. But in practice it is done by NAC and generating huge income. Now it is negotiated in between CAAN and NAC that the authority will get only 10% of its income. Which again seems very pain full, so CAAN it self have to get ground handling from NAC with the help of Government.
- CAAN as a regulator should try best to follow strictly ICAO SARPs, have zero accident or a level of zero fatality per year and ensure a healthy growth of Nepalese Civil Aviation Industry. The motto should be concentrated towards the Safe, Orderly and Expeditious Flight.

- CAAN as an airport operator quality service, customer satisfaction, demand based facilities, regular operation of airports and recovery of at least operational expenses should be the prime target for its better organizational developments.
- It is necessary to CAAN for the review of its legal status, which are not suitable for the present environment. Immediate amendment is required for the status like CAAN Act 2053, CAAN Financial Administration Rules 2057, Bimansthal Dastur Niyamawali 2038 (revised 2062) etc. The rules and regulations must be clear, concise and understandable, no double standard.

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www.icao.int

Dear Sir,

I would like to introduce myself as the student of Shanker Dev Campus engaged in research work for the partial fulfillment of the requirements of the Degree of Masters of Business Studies (MBS) of Tribhuvan University. The topic for the research work is "A Study on

Management Accounting Practices in Civil Aviation Authority of Nepal (CAAN)"

I humbly request for your valuable comments, views, suggestions and information regarding this matter. So, requesting you to manage short time to fill up the questionnaire and for fruitful discussions. I would very much appreciate for your coordination.

I assure that the information from the organization will be used only for the research work.

I hope for your kind co-operation and support.

Thank You

Niranjana Dallakoti
Shanker Dev Campus
Roll : 1139/059

Questionnaire

1. Which of the following Management Accounting tools are using in CAAN?

Management Accounting tools	yes	no
Segregation of Cost		
Long Term Budgeting		
Annual Budgeting		
Cost Volume profit Analysis		

Capital Budgeting		
Variance Analysis (Budget or other)		
Decision Making		
Pricing of Service or Product		
Cash Flow Analysis		

2. If you aren't using Management Accounting tools, what may be the reasons?

- i. Lack of knowledge
- ii. Lack of information
- iii. Not necessary till now
- iv. Lack of Policy

3. Which technique does the authority use to segregate the Mixed Cost into Variable and Fixed?

- i. High Low Method
- ii. Least Square Method
- iii. Average Method
- iv. Other (if any)

4. What type of Budgeting is in use?

- i. Operational Budget
- ii. Financial Budget
- iii. Master Budget
- iv. Flexible Budget
- v. All of the above
- vi. Other (if any)

5. Who prepares the Budget?

- i. Committee
- ii. Finance Division
- iii. Account Division
- iv. Experts
- v. Planning and Development Division
- vi. Other (if any)

6. What type of Budget does the authority use?

- i. Annual Budget
- ii. Medium Term Budget
- iii. Long Term Budget
- iv. Other (if any)

7. On what basis does the authority prepare Budget?

- i. Based on past budget estimates
- ii. Based on past actual expenses
- iii. Based on Future income and expenses
- iv. Activity Base
- v. Zero Base
- vi. Other (if any)

8. What technique does the authority use for Cost and Revenue Estimation?

- i. Past Trend Analysis
- ii. Market Survey
- iii. Zero Base Budgeting
- iv. Other (if any)

9. While purchasing Fixed Assets which of Capital Budgeting tools are used?

- i. Payback Period
- ii. Discounted Payback Period
- iii. Accounting Rate of Return (ARR)
- iv. Net Present Value (NPV)
- v. Internal Rate of Return (IRR)
- vi. Other (if any)

10. How the authority adjusts for Risk while evaluating Capital Investment?

- i. Payback Period
- ii. Discounted Payback Period
- iii. Net Present Value (NPV)
- iv. Sensitivity Analysis
- v. Profitability Index (PI)
- vi. Cost Volume profit Analysis
- vii. Other (if any)

11. Which method is used for Inventory (Stock) Valuation?

- i. LIFO
- ii. FIFO
- iii. Weighted Average Method
- iv. Simple Average Method
- v. Other (if any)

12. What technique does the office practice for Pricing of Product or Services?

- i. Cost Based Pricing
- ii. Target Cost Pricing
- iii. Going Rate Pricing
- iv. Based on Rules
- v. If any

13. Does the authority properly manage the accounting procedure and financial statements?

Details	Yes	No
Voucher		
Ledger Posting		
Trail Balance		
Subsidiary Books A/C		
Income Statements		
Profit and Loss A/C		
Balance Sheet		
Cash Flow Statements		

14. How does the authority measure the Overall Performance at the end of the year?

- i. Shown by P/L A/C
- ii. Cash Flow Analysis
- iii. Ratio Analysis
- iv. Variance Analysis
- v. Other (if any)

15. What is the status of the accounting personnel presently working in authority?

- i. Skilled
- ii. Qualified
- iii. Semi Skilled
- iv. Unqualified
- v. Unskilled
- vi. Other (if any)

16. Are the accountings personnel follow the accounting manual developed by CAAN?

- i. Yes
- ii. No
 - If not why...
 - a. Lack of knowledge
 - b. Lack of information
 - c. Do not need

17. Does the finance division satisfy with the performance of the accounting personnel?

- i. Yes
- ii. No
- iii. Other (if any)

18. What is necessary to make effective accounting?

- i. Training, workshop, seminars etc
- ii. Skilled manpower
- iii. Qualified manpower
- iv. All of the above
- v. Other (if any)

19. How far the top management is interested on accounting?

- i. Highly interested
- ii. Moderate
- iii. Uninterested
- iv. Other (if any)

20. Does the top management receive information from finance division?

- i. Yes
- ii. No
- iii. Do not need
- iv. Other (if any)

21. What kind of information or knowledge does the top management wants to know?

- i. Proper financial (Accounting) System
- ii. On decision making procedures
- iii. Regarding income and expenses
- iv. Regarding purchase and sales
- v. Other (if any)

22. What is the financial position of the airports operating in Nepal?

- i. Most of them operating in profit
- ii. Most of them operating in loss
- iii. Operating in Break Even Position
- iv. Other (if any)

23. Why most of the airports are operating at loss?

- i. Traditional approach
- ii. Lack of other income sources
- iii. Political pressure
- iv. Not sufficient charges
- v. All of the above
- vi. Other (if any)

24. How airports can earn profit?

- i. Increasing flight movement
- ii. Increasing charges and services
- iii. Diversifying the income sources
- iv. Apply business policy
- v. All of the above
- vi. Other (if any)