

**PRACTICES OF MANAGEMENT ACCOUNTING
TOOLS IN NEPALESE PUBLIC ORGANIZATIONS**

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RECOMMENDATION

This is to certify that the thesis:

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DECLARATION

I hereby declare that the present study entitled “Practices of Management Accounting Tools in Nepalese Public Organizations” submitted to Office of the Dean, Tribhuvan University, is based on my original research work. The results presented in the study have not been submitted elsewhere for the award of any degree.

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ABBREVIATIONS

AD	:	Anno Domini
ADB	:	Agriculture Development Bank.
AICL	:	Agricultural Inputs Company Ltd.
AIS	:	Accounting Information System.
ALIL	:	Agro-Lime Industries Ltd.
ARR	:	Average Rate of Return.
B/S	:	Balance Sheet
BEP	:	Break Even Point.
BOD	:	Board of Director
BS	:	Bikram Sambat
CAAN	:	Civil Aviation of Authority of Nepal.
CC	:	Cultural Corporation.
CDM	:	Central Department of Management.
CMPU	:	Contribution Margin per Unit.
CVP	:	Cost Volume Profit.
DDC	:	Dairy Development Corporation.
F/Y	:	Fiscal Year.
GAAP	:	Generally Accepted Accounting Principles.
GC	:	Gorkhapatra Corporation.

GDP	:	Gross Domestic Product.
GON	:	Government of Nepal.
HMG/N	:	His Majesty Government of Nepal.
HPPCL	:	Herbs Production and Processing Co. Ltd.
IRR	:	Internal Rate of Return.
ISML	:	Industrial Sector Management Ltd.
JEMCL	:	Janak Education Materials Center Ltd.
KSK	:	Karmachari Sanchaya Kosh.
MA	:	Management Accounting.
MBS	:	Master of Business Studies.
Mfg. OH	:	Manufacturing
Mgmt	:	Management.
MIS	:	Management Information System.
MOF	:	Ministry of Finance.
NAC	:	Nepal Airlines Corporation
NCCN	:	National Construction Company Ltd.
NCO	:	Net Cash Outlay.
NDL	:	Nepal Drugs Ltd.
NEA	:	Nepal Electricity Authority.
NECSC	:	Nepal Engineering Consultancy Service Center Ltd.

NFC	:	Nepal Food Corporation.
NIDC	:	Nepal Industrial Development Corporation.
NOC	:	Nepal Oil Corporation.
NPEs	:	Nepalese Public Enterprises
NRTL	:	Nepal Rosin and Turpentine Ltd.
NSCL	:	National Seeds Company Ltd.
NTC	:	Nepal Telecommunication Co. Ltd.
NTL	:	National Trading Limited.
P/L	:	Profit and Loss
PBP	:	Pay Back Period.
PEs	:	Public Enterprises.
PI	:	Profitability Index.
PV	:	Present Value.
RBB	:	Rastriya Banijya Bank.
RBS	:	Rastriya Beema Sansthan.
STCL	:	Salt Trading Corporation Ltd.
TU	:	Tribhuvan University.
UCFL	:	Udayapur Cement Factory Ltd.
VMOH	:	Variable Manufacturing Overheads
%	:	Percentage

χ^2 : Chi-Square

CHAPTER -1

INTRODUCTION

1.1 Background of the Study

Accounting refers to the process of identifying, classifying, recording, summarizing and interpretation the transaction in terms of money. Therefore, accounting is as art of recording, classifying and summarizing the transaction in financial terms so as to reflect financial of whole transactions. The objectives of accounting are to provide sufficient information to meet the need of the various users at the lowest possible cost. As such the accounting/accounts should aim to provide the right information to the right users/people in the right quantity at the right time and at minimum cost. And the benefit derived from using an information system for decision making must be greater than the cost of operating the system.

Since any business entity or enterprises involves different aspects of the use of Accounting. For precise understanding accounting has been classified according to the accounting disciplines from where vital information being gathered. They are financial accounting, cost accounting, management accounting and strategic management accounting.

Financial accounting is concerned with the recording of financial transactions of the business and provides information in financial terms to parties or people wanting information about the state of the business. It is that part of accounting which employs to communicate the financial information of a business unit. The object of financial accounting is to find out the profitability and to provide information about the financial position of the business concern.

Cost accounting is concerned with the classifying, recording and appropriate allocation of expenditure for the determination of the cost of products or services and for presentation of data for purposes of control and guidance may be appropriate. The main objective of cost accounting is to find out the exact cost per unit of product (Munakarmi, 2002, pp. 1-3).

Management Accounting is concerned with the provisions and use of accounting information to managers within organizations, to provide them with the basis to make informed business decisions that will allow them to be better equipped in their management and control function (www.wikipedia.org).

Accounting information system is a system of records, usually computer based, which combines accounting principles and concepts with the benefits of an information system and which is used to analyze and record business transactions for the purpose to prepare financial statements and provide accounting data to its users. Some accounting information systems are still manual, i.e. accounting records are made with a pen, paper and manual entries into accounting books (www.wikipedia.org).

Strategic Management Accounting is the advanced form of traditional management accounting. It involves the provision of information for the formulation of an organization's strategy and managing strategy implementation. It represents an attempt to find a framework for the various strategic elements in the field of management accounting (www.google.com).

Public Enterprises (PEs) are those enterprises, which are partially or wholly owned and controlled by government. PEs are the back bone of economic and industrial development of developing countries. Public enterprises have been granted operating and financial autonomy so they are autonomous in their state of affairs and personnel issues. On the other hand, they are funded by public fund and in capital investment decisions and the interest of public welfare and national policy issues. Government and parliament have controlled to keep accountable towards public through government and parliament. Moreover, public enterprises have an operating flexibility similar to private enterprise and social motives as government policy towards social welfare, thus, it is liked to say that balancing autonomy and accountability to the foundation of emerging public enterprise in the country.

It is well known fact that public enterprises have been established for the purpose of socio-economic development of the country. So, public enterprises in Nepal constitute a vital instrument for the socio-economic development of the country. It

enjoys a strategic and crucial position in our mixed economy. They have been established in many sectors for the overall development of the country with different goals and objectives. Since 1956, Nepal has witnessed growth and development of public enterprises. Nepal Government has to play a vital role in the development of the country for the purpose, makes massive investment to create necessary infrastructure and run some of the large manufacturing industries to the people (Shrestha B. P., 2004, p. 16).

As mentioned above Nepal started its planned economic development in 1956 with launching of first five-year plan. Since then the number of public enterprises has been increased substantially in the various field of national economy. There are 64 public enterprises before privatization program of Government of Nepal and now there 37 public enterprises (Annual Performance Review of Public Enterprises 2012, 2012)

Public enterprises that carry out economic activities are the important elements of the economy and also backbone of the country. Nepalese public enterprises are the foundation of modern industrialization. The primary goal of public enterprises is to contribute for the economic and social improvement for the broader environment. To fulfill these goals, it requires some resources like man, money, material, machinery, information and technology. But, these resources are limited. Main problem underlie in better utilization of available but scarce resources in such a way that competitive advantage can be achieved. To overcome these problems, various tools and techniques have been developed. Among various tools and techniques, **management accounting tools** have proved itself as a beneficial in every aspect of management activities from planning to decision making and control. The main objective of the management accounting is to help manager in overall managerial activities by providing proper information in time and helping them in planning, controlling and decision making processes.

Ministry of Finance (2012) has classified the PEs in different group on the basis of function performed by the enterprises are given below:

1. Industrial Sector:

- a) Herbs Production and Processing Company
- b) Hetauda Cement Industry Ltd.
- c) Janakpur Cigarette Factory
- d) Dairy Development Corporation
- e) Nepal Drugs Ltd.
- f) Udayapur Cement Industry Ltd.
- g) Nepal Orind Magnesite Pvt. Ltd.

2. Business Sector:

- a) Agricultural Inputs Company
- b) National Seeds Company
- c) National Trading Ltd
- d) Timber Corporation of Nepal
- e) Nepal Food Corporation
- f) Nepal Oil Corporation Ltd

3. Service Sector:

- a) Nepal Transit and Warehouse Co. Ltd
- b) Nepal Engineering Consultancy
- c) Nepal Airlines Corporation Ltd.
- d) National Productivity and Economic Development Centre Ltd
- e) Industrial District Management Ltd
- f) National Construction Company Ltd
- g) Civil Aviation Authority of Nepal

4. Social Sector:

- a) Janak Education Materials Centers Ltd
- b) Nepal Television
- c) Cultural Corporation
- d) Gorkhapatra Corporation
- e) Rural Housing and Settlement Development Company

5. Public Utility Sector:

- a) Nepal Drinking Water Corporation
- b) Nepal Electricity Authority
- c) Nepal Telecom Company Ltd.

6. Financial Sector:

- a) Rastriya Banijya Bank
- b) Agricultural Development Bank
- c) Nepal Industrial Development Corporation
- d) Rastriya Beema Sansthan
- e) Nepal Stock Exchange
- f) Karmachari Sanchaya Kosh
- g) Nagarik Lagani Kosh (Citizen Investment Trust)
- h) Deposit and Credit Guarantee corporation
- i) Nepal Awas Finance Limited

1.2 Statement of the Problem

The down falling trend of public enterprises, especially the industrial enterprises or the manufacturing enterprises has been the everlasting problem of our country. Hardly a handful of the public manufacturing enterprises have proved satisfactory, rest of all being a burden to the government. In the name of economic liberalization, many of the companies are either privatized or are in the process of privatization to get rid of the 2000/01 to 2011/12 conducted by Nepal Government, Ministry of Finance (2012) clearly mentions about the inefficiency of public enterprises.

Public enterprise is one of the most important innovations of 21st century. The main objective of creating public enterprise is to secure a combination of public ownership, public accountability and business management for the public benefits. The reasons behind the establishment of public enterprises are basically to accelerate the ratio of economic growth, to build development infrastructure, to make provision of public utility, to supply essential commodities, to generate employment opportunities, to maximize the foreign earnings, to rational utilization of natural resources and to contribute in the national funds.

The overall performance of the public enterprises is not satisfactory. One of the main reason of poor performance is poor planning, controlling and decision making process of management. Management accounting has proved itself as an important tool for effective management process (www.mof.gov.np). But whether or not

Nepalese public enterprises are practicing Management Accounting tools and techniques to carry out planning, controlling, and decision-making function? If not, what might be the reason and what are the difficulties? If yes, to what extent, management accounting tools practicing? Which tools and techniques of management accounting are mostly practicing and which are not practicing till now? In which sector of public enterprises can be applied management accounting tools to improve the competitiveness and capacity of the Nepalese Public Enterprises.

The study has addressed the following research issues: -

- How often the Nepalese public enterprises are practicing the management accounting tools and techniques to carry out planning, decision-making and controlling functions?
- What are the difficulties of applying management accounting tools in Nepalese Public Enterprises?
- Which business sector can apply management accounting tools to strengthen the enterprises?
- How can the public organizations overcome the difficulties of applying management accounting tools and techniques?

1.3 Objectives of the Study

The main objective of this research work is to study and examine the present practices of management accounting in Nepalese public sector organizations. The specific objectives are as follows: -

- To study and examine the extent of practices of management accounting tools and techniques exist in Nepalese Public Organizations.
- To identify the major difficulties for applying the management accounting tools in Nepalese Public Organizations.
- To assess the impact of MA tools on performance of sample organizations.
- To provide suggestions and recommendations to practice MA tools.

1.4 Significance of the Study

The study is significance in the following ways:

- It examines the application of management accounting tools in Nepalese Public Organizations.
- The research explores the problems and difficulties for the application of management accounting in Nepalese Public Organizations. Therefore it is useful to the managers, accountants, policy maker, who will be interested and concerned.
- The research provides information on the application of management accounting tools and techniques under different circumstances. Thus it will encourage to the authorities for use of management accounting in planning, controlling and decision making to those who are not practicing and least practicing till now.
- It provides literature to the researcher who wants to carry out further research on Management Accounting.

1.5 Limitations of the Study

Though efforts have been made to make the study more realistic, practical and informational for all the people, the study has suffered from a number of limitations from which we are confined by are:

- Due to resource and time constraints, it is not possible to cover whole aspects of research regarding environments.
- The study has pays focused on the practice of management accounting tools and techniques only. It does not consider the implementations aspects of the tools and techniques.
- The study is concerned only on the use of management accounting. It does not consider the economic aspects of the enterprises.
- The study focused only on the public organizations. Thus findings might not be applicable to the non-public organizations.

- The present study pays attention to the practices of management accounting tools and techniques in Nepalese context in the year 2012 only. Therefore, it does not address to other economic periods and the global context.

1.6 Organization of the Study

The whole study is organized into five chapters in the following order:

Chapter I: Introduction

This chapter includes overview, statement of the problem, objective the study, need of the study, the limitations of the study and scheme of the study.

Chapter II: Review of Literature

The second chapter reviews the pertinent literature related to this study: it includes the review or published books, journals, articles, theses and dissertations. Besides this, the laws, acts, policies, rules, and regulations relating to management accounting practice have also been reviewed under the study.

Chapter III: Research Methodology

This chapter consists of introduction, research design, sources and nature of data, population and sample, method of data collection and analysis of data.

Chapter IV: Presentation and Analysis of Data

The fourth chapter deals with systematic presentation and analysis of data where various analytical tools and techniques are used to analyze and interpret the data. This chapter also deals with the descriptive procedure where analytical tools cannot be used. This chapter is key chapter for the present study and findings from the analysis are mentioned.

Chapter V: Summary, Conclusion and Recommendations

The final chapter is summarizing the whole study. Recommendations, statement suggestions and problem solving suggestions are included. Basing on the findings, summary and conclusion are drawn.

Bibliography, appendixes, statistical results and tables have also been attached at the end of the study.

CHAPTER-2

REVIEW OF LITERATURE

2.1 Conceptual Framework of Management Accounting

2.1.1 Definition of Management Accounting

Management accounting is the presentation of formulates 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 control. It presents to management the accounting information in the form of processed data which if collects from financial accounting (Welsch et. al. 2006, p. 1).

Management accounting is the branch of accounting, which is concern with supplying relevant information to various users at appropriate time to enable them to take right decision in the organization. Some of the important definitions of management accounting are as follows:

“Management Accounting is that branch of accounting discipline, which facilitates management by communicating necessary information to carry out management functions smoothly. Planning, organizing, staffing, leading and controlling are the routine functions of management. Management accounting is an accounting discipline, that provides essential information to every hierarchy of management to perform management functions” (Singh et.al., 2004, p. 1.10).

From the above definitions, we can conclude that management accounting is the process of identifying, measuring, analyzing, interpreting and communicating accounting information to different concern user and department to meet organizational goals and objectives.

2.1.2 Origin and Evolution of Management Accounting

“So far as the question of origin of management accounting is concerned, there is not a definite answer. There is no such commonly accepted father and the date assigned to the beginning of managerial accounting discipline unlike the double entry system which is said to be introduced by the venous merchant, Luca Pacioli, in 1494. Management accounting covers the areas of revenues and expenditures, which need to be planned and controlled for the optimization of available resources. Management of revenue and expenditure has become a prime concern since the early stage of human civilization. But in business sector, the origin of modern cost management system goes back to the nineteen century. The application of management accounting ideas for cost minimization and revenue maximization is a recent development, which can be attributed to the time only after the 1900’s industrial revolution. Factory system, mass production, competition and consumerism compelled to think about some new ideas for cost reduction, qualify conformation, and customer satisfaction for survival in cutthroat competition in business. Management accounting was thought of as a sure shot to help in this regard” (Bajracharya et. al, 2009, p. 16).

“The period from 1900 to 1950 was the high time in the development of management accounting because ample resources were conducted to evolve new techniques in this discipline during that time. The wide use of management accounting has come into practice recently. Precisely speaking, it has been developed between 1930’s and 1960’s. A new school of management accounting thinking that has come to be known as the information economic approach extended the user- decision model approach. This new approach viewed management accounting systems as representative’s far new information. Recent development in the theory of the firm and of economic equilibrium with private information have led to new insights into the central role of accounting information when designing contracts between owners and managers and between senior managers and subordinate managers. The traditional tools of management accounting like product costing budgeting and performance evaluation have been augmented and updated with contemporary approaches such as activity base costing, customer profitability

analysis, value-chain analysis, target costing and strategic cost management” (Kaplan & Atkinson, 1998, pp. 4-10).

2.1.3 Functions of Management Accounting

The major functions of management accounting are as follows:

The Controllership Function

The controllership functions are discharged by the controller by applying budgetary control techniques, standard costing technique, and internal control technique. Then only evaluation of performance will be possible (Bajracharya et. al., 2009, p. 11).

The Stewardship Function

Stewardship function is a traditional approach of accounting that places an obligation on stewards or agents, such as directors to provide relevant and reliable financial information relating to resources over which they have control but which are owned by others, such as shareholders. Stewardship functions follow proper accounting procedures, which satisfy legal and commercial needs but are less rigorous and detailed than the professional practices of management of financial accounting. Not only stewards are responsible for providing information but they must also submit to an audit (Bajracharya, et. al., 2009, p. 11).

The Treasurer Ship Function

Treasurer is a financial manager in a staff position that is responsible for managing an organization’s relationship with inventors and creditors and maintaining custody of the organization’s cash, investments and other assets. Management of capital and investment is distinct area of treasure-ship functions. It consists of major activities like financial planning, dealing with capital and money markets, investment decisions, cash management, credit management and so on. Value maximization of the organization is its prime objectives (Bajracharya et. al., 2009, p. 11).

2.1.4 Objectives of Management Accounting

The main objective of management accounting is to provide relevant economic information to the top-level management to make strategic plans and decisions more competitive. These objectives are listed below:

- Providing information for planning and decision-making
- Budgeting
- Controlling
- Motivating managers and employees
- Measuring the performance
- Assessing the organizations competitive position
- Monitoring

2.1.5 Role of Management Accounting

A business enterprise today operates in a dynamic environment, which involves many new form of management problem. Management has to carry out its basic functions of cost minimization and maximization of profit in an atmosphere of uncertainty. Due to the complex environment the old technique of management by inspection is no longer considered dependable in a situation in which the modern management has realized that even slight error in policy decision may mean either losing a lot of business opportunities or going out of competition. A second chance may not come or even if it does, it may be costly or risky, it, therefore constantly staves to reduce the risk of mistakes in decision making by keeping abreast of such quantitative information which would help, analyze, its administrative action in order to reach judicious decision management, therefore, constantly staves to reduce the risk of making mistakes by looking for and analyzing relevant information's by means of which it hopes to take judicious decision and direct the administration in better manner (Shrestha K. , 1997, p. 1).

Management accounting is concerned with providing both financial and non-financial information that will help decision-makers to make good decisions. An understanding of accounting therefore requires an understanding of the decision-making process and an awareness of the users of accounting (Drury, 2001, p. 1).

Management accounting is the process of identifying, measuring, and analyzing, interpreting and communicating information for searching the goals of the company. Managerial accounting is an integral part of the management process and managerial accountants are important strategic partners in the company's management team (Hilton, 2007, pp. 5-6).

The role of management accounting now is very different from that of a decade ago. In the past it operated in strictly staff capacity but now it serves as internal source of business consultants. In many organizations management accountants take on leadership roles in their teams and are sought out for the ramble information they provide. Therefore, the goal of learning managerial accounting is not to be an accountant, rather of aims to produce confident entrepreneurs and capable managers (Bajracharya et. al, 2009, p. 3).

Managerial accounting concept emerged because of the complexity that exists in today's business decision making process. The main theme of developing this technique is to support the managers in handling managerial problems and to help in the decision making process.

The whole idea of managerial accounting is to assist strategic managers to perform management functions more effectively by providing relevant economic information. Management is the process of planning, decision making and control. An organization is the common place, where different physical resources, people and activities get managed by the system force. It is an integrative function directed towards achieving organizational goals. It is the management, which plans, decides, implements and has a control over different activities of the organization (Bajracharya et. al., 2009, p. 4).

Role of Management Accountant as a Staff Position

Managers who are only indirectly involved in operational activities hold staff positions. In institutions' staff positions include the advisory board, the public relation manager, and the chief officer among others.

The management accounting in organizational chart plays an advisory role. Therefore, management accounting is a staff function. Main responsibility of the management accountant is to keep economic information and to provide the relevant information to the strategic manager to make the business plans and decisions more economically rational. Therefore, the management accountant plays a key role in planning, decision-making, and cost control. Management accountant acts as a business partner of the firm.

2.1.6 Scope of Management Accounting

The scope of management accounting is very wide and broad based and it includes a variety of aspects of business operation. To keep the main aim of helping management in its functions (planning, directing, motivating, and controlling) management accounting knock the doors of related fields in search of information and their analysis. So the scope of management accounting is wide. The main scopes of the management accounting are given below:

- A. Financial Accounting:** Management accounting is closely concerned with the financial accounting because the past or historical data contained in the later and the experience derived there form the basis for future planning and control.
- B. Cost Accounting:** The cost accounting system provides the necessary tools for carrying out such functions efficiently. The tools include standard costing, inventory management, variable costing techniques etc.
- C. Budgetary Control:** Budgetary control means expressing the plans, policies and goals of the firms for a definite period in future. It controls the activities of the business by measuring the variance and inquiring the reasons of such variance so that the adverse variance may not be repeated again in future. So, it is also main important tools of management accounting.

- D. Tax Accounting:** Management accounting takes the help of tax accounting for the computation of taxable income, filing of return, payment of tax and possible tax reliefs as per the income tax act and rules.
- E. Statistical Methods:** Management accounting takes the different statistical methods like; averages, dispersion and skewness, correlation, regression, graphs, charts, diagrams etc for the helping to assist in forecasting and planning.
- F. Mathematical Technique:** Management accounting takes number of mathematical techniques like Linear Programming, Critical Path Method, Program Evaluation and Review Technique, Net Work Analysis, Queuing, Decision Theory, Simulation etc for the useful in collecting, analysis, interpreting and reporting information in a meaningful manner.
- G. Economics:** The various types of economic theories in the management of business have led to the development of a separate subject for study known as managerial economics. Management accounting takes the help of economics.
- H. Business Law:** Statutory provisions or regulations require due consideration while taking management decisions as business has to operate within legal environment.

2.1.7 Career Opportunity in Management Accounting

Now a day's organizations are facing lots of problem. Management accounting is not a mandatory function in organization but the assumption is that an organization operated in accordance with the advice of management accountants will add more value to the firm by maximizing profits or by minimizing risks.

A competent managerial accountant can begin his/her career in any of the following fields:

- Profit planning manager in business organization,
- Financial analyst and consultant,
- Cost-management researcher,
- Teacher and trainer.

To keep up with the new development is their field managerial accountant often belongs to one or more professional organizations. The largest of these is the Institute of Management Accountants (IMA) in keeping with the importance of their role and the specialized knowledge they must have, management accountants can earn a professional certification in the United States, the IMA administers the certified management accountant (CMA) program. The requirements for becoming a CMA include meaning specified educational requirements and passing the CMA examination (Hilton, 2007, p. 15).

2.1.8 Limitations of Management Accounting

Though management accounting is the term used to described the accounting methods, systems and techniques which, coupled, with special knowledge and ability, assist management in its tasks of maximizing profits or minimizing losses, still its effectiveness is limited by a number of reasons some of the limitations of management accounting are listed as follows:

- A. Difficulty in Installation:** The installation of management accounting system requires restructuring of present organizational structure. This necessitates re-arrangement of the personnel and their activities, framing of new rules and regulation, frequent report etc. there is a possibility of opposition from some quarters or the others within the organization against such change.
- B. Intensive decision:** Decision taking based on management accounting that provides scientific analysis of various situations will be time consuming one. As such management may avoid systematic procedures for taking decision and arrive at decision using intuitive. And intuitive decisions limit the usefulness of management accounting.
- C. Development stage:** Management accounting is the recent branch of accounting and is still very much in a state of development. So it is faced with the problems of fluidity of concepts, improvement in techniques etc.
- D. Based on accounting information:** Management accounting is based on data and information provided to supply by financial and cost accounts. As

such the correctness and effectiveness of managerial decision will depend upon the quality of data provided by financial and cost accounts. So the effectiveness of management account is limited to the reliability of source of information.

- E. Lack of knowledge:** Management accounting has a wide coverage and is broad based. For taking decisions based on management should have a thorough knowledge in different fields such as Accounting Principles, Statistics, Economics, Management Principles, Tax – Laws, Engineering, Psychology etc. lack of knowledge in these fields on the part of decision-maker naturally limits the usefulness of management accounting.
- F. Personal prejudices and bias:** The interpretation of financial information may differ from person to person depending upon the capability of the interpreter. Analysis and interpretation of data and information may be influenced by personal bias. As such, the objectivity of decision may be affected by personal prejudices and bias.
- G. No substitute for management:** Management accounting can give pertinent information, but actions and decisions are the prerogatives of management. They can make even intuitive decisions ignoring information supplied by management accounting.

2.1.9 Management Accounting in Nepalese Perspectives

Management Accounting is a new subject matter and it is still in a developing stage in the context of Nepal. The decisions that take place are usually based on the intuition of the strategic manager. It can be said that the role of MA is yet to be recognized by Nepalese corporations. However, recently, with the country's entry into the WTO, the functions and importance of MA has been realized by the business people and companies in Nepal too. Accounting associations and institutions are trying to cover the wide range of MA in different business sectors. But lack of information about the tool, traditional approaches of concerned authorities, lack of such type of culture, lack of experts and extra cost burden might be the main reasons behind the not practicing of such tools. It creates an interest to the scholar

for conduct a research work entitled Practices of Management Accounting Tools in Nepalese Public Organizations (Bajracharya et. al., 2009).

2.2 A Brief Review of Management Accounting Tools

Management accounting reports to those inside the organization for planning, directing and motivating, controlling, decision making and perforation evaluation. It is a part of an organization's management information system. And managers rely on managerial accounting information to plan and control on organization's operations. To perform the managerial function management must be used various tools and techniques from accounting branch. Management accounting as a quantitative approach helps to discharge functions like planning, organizing, staffing, directing and controlling properly and effectively (Paul, 1994, p. 5).

The main management accounting tools and techniques which is necessary for planning, decision making and controlling can be expressed as follows:

2.2.1 Cost

Concept of Cost

Sacrifice or foregoing of resources made for the attainment of specific purpose is known as cost and are measured in monetary terms. Cost are collected, classified, determined, analyzed and controlled keeping in view the very purpose for which it has been incurred. Cost must be paid for production or purchase of goods and services (Wagle & Dahal, 2004, p. 2.1).

Management accounting has been started from cost. Managers require cost information for planning, controlling and decision making. The monetary units that must be paid for goods and services generally measure costs. Costs are initially recorded in elementary form e.g. repairs, salaries etc. costs are, then, grouped in different ways to help managers make decision.

Cost Accumulation

Cost accumulation refers to the collection of cost data through an accounting system. It can be also described as an act of polling of the cost. Costs are collected from different records (journal, ledgers, and other supporting vouchers) under natural classification such as materials, labor, and rent, insurance or in other forms as guided by the purpose of requirement.

Cost Centre

A cost centre may be a department, a division, a branch, a unit, a product, a segment or a person that is authorized and responsible for an expense. A cost centre is that segment of responsibility accounting which records only the cost incurred in the unit or division. The person in charge of a cost centre is held responsible for control of cost of his cost centre. The following are the types of cost centers:

- a. Personal cost centre
- b. Impersonal cost centre
- c. Operation cost centre
- d. Process cost centre
- e. Production cost centre
- f. Services cost centre

Classification of Costs

Cost classification is the process of grouping costs according to their common characteristics. In other words, it is the placement of like items together by virtue of their common features. Though costs are identified with cost units, cost centers or cost objectives in general, the same figures can be classified differently depending upon the very purpose or specific requirement of the management.

The costs can be classified different way for different purpose. The following represents the cost classification along with the criteria adopted for such classification: (Wagle & Dahal, 2004, p. 2.2).

A. Criteria: Elements

- i. **Materials:** cost involved in all of materials, supplies.
- ii. **Labor:** cost relating to personnel involved.
- iii. **Expenses:** all other costs except materials and labor e.g. power, rent, insurance etc.

B. Criteria: Traceability

- i. **Direct Costs:** Traceable to or identified with a given cost object easily e.g. direct material, direct labor.
- ii. **Indirect Costs:** Not identifiable with a given cost object easily e.g. indirect material, indirect labor, indirect expenses or overheads.

C. Criteria: Function

- i. **Manufacturing:** Costs involved in manufacturing or production activities.
- ii. **Administrative:** Costs involved in general administration and control activities.
- iii. **Selling and distribution:** Cost involved in selling and distribution activities.
- iv. **Research and development:** Costs involved in innovative activities.

D. Criteria: Variability or Behavior in Relation to Activity

- i. **Variable costs**
- ii. **Fixed costs**
- iii. **Semi variable cost or semi fixed or mixed costs**

E. Criteria: Inevitability

- i. **Period costs:** costs which are considered to be the general cost of being in the business, i.e. operating expenses. These costs are not included in the inventory valuation and as a result are charged as expenses in the period to which they relate.
- ii. **Product costs:** Costs which are related to manufacture or purchase of goods and are included in the inventory valuation are product cost.

F. Criteria: Controllability

- i. **Controllable costs:** Costs, which can be controlled by a particular level of authority within a time-frame.
- ii. **Uncontrollable costs:** Costs, which cannot be controlled by a particular level of authority within a time-frame.

G. Criteria: Computation

- i. **Prime cost:** Total of direct material, direct labor, and direct expenses if any
- ii. **Conversion cost:** Total of direct labor and manufacturing overheads.
- iii. **Total cost:** Total of prime cost and overheads.
- iv. **Unit cost:** Unitized cost ascertained by dividing total cost by the volume of selected activity base.

H. Criteria: Basis for computation

- i. **Historical cost:** Costs based on past or recorded figures.
- ii. **Replacement cost:** Costs based on present replacement value.
- iii. **Standard cost:** Costs targets set by management systematically.
- iv. **Pre-determined or estimated cost:** Costs determined in advance of the period for which they are going to be used but are not the target.

I. Criteria: Separability

- i. **Separate costs:** Costs which can be identified with particular unit.
- ii. **Common costs:** Costs which are common for two or more products which can produce separately.
- iii. **Joint costs:** Costs which are incurred in producing products, which must be necessarily, be produced together.
- iv. **By product costs:** Costs incurred for products, which are distinguished from joint products depending upon the significance of the value of the produced jointly and also the intention of the management.

J. Criteria: Normality

- i. **Normal costs:** Costs which are supposed to incur in the normal courses operation and forms of the parts of cost of goods sold.
- ii. **Abnormal costs:** Costs which are not supposed to incur in the normal course of operation and are charged to the revenue of the period.

K. Criteria: Possibility of determining the right costs

- i. **Engineered cost:** Costs for which right or proper cost can be effectively measured establishing input-output relationship through engineering analysis.
- ii. **Programmed of discretionary costs:** Costs for which right of proper cost cannot be objectively measured but depends solely on the management's intention and is therefore a matter of judgment.

Cost Allocation

Cost allocation is a process of tracing or re-assigning cost of one product or department to another product or department on the basis of quality of resources consumed to the particular cost centers. The direct cost or components of prime cost pose no problem in intermediate allocation of cost as they are early identified with cost objectives. But the indirect cost (overhead cost) create the problem of allocation because they are not early identifiable was cost objectives. So, they are two methods that can be applied to allocate costs (mainly overheads) which are given below

- a. Traditional method of allocating costs.
- b. Activity based costing method of allocating costs.

Whatever may be the method selected for allocation of costs, the following are the three pre-requisites of cost allocation:

- a. Accumulation of cost which requires to be allocated.

- b. Identification of the beneficiaries or the cost objectives required to share the allocation costs.
- c. Selection of an equitable or fair base to allocate accumulated cost among beneficiaries.

The main objectives of cost allocation are to provide information for economic decisions, to motivate managers and other employees, to justify costs or compute reimbursement, and to measure income and assets for reporting to external parties. Different cost allocations may be appropriate for different purpose. (Bajracharya et. al., 2009, p. 121)

Cost Behavior

All costs do not show the same behavior throughout the operation. There exists a relationship between costs and the volume of activity. The cost behavior of a firm consist the relationship proportion of variable fixed and mixed costs. A firm has many fixed costs but few variable cost or mixed costs and vice versa. The relationship between cost and activity is known as cost behavior which affects the managerial functions of planning, controlling and decision making.

Variable Cost

The costs of these inputs increase/decrease in proportion to increase/decrease in volume of cost driver are known as variable cost. In other words, If the activity level increased by 60%, the amount of the variable cost also increased by 60%. Variable cost is total increase but it remains constant it expressed on a per unit basis.

The variable cost includes following costs:

Manufacturing costs: Direct material, direct labor.

Variable portion of manufacturing overhead: Indirect materials, Supplies, power etc.

Variable costs show the following characteristics:-

- Variable cost per unit is fixed.
- Total variable costs are proportionately related to operate activity levels
- Cost that changes proportionately in total but remains fixed per unit is variable.
- Variable cost can be regulated and controlled in the same responsibility center and in the short run as well.

Step-variable cost

Unlike direct materials, the time of maintenance worker is obtainable only in large chunks, rather than in exact quantities. Though indirect labor is also sometimes considered to be a variable cost is doesn't behave in quite the same way as direct materials. A cost that increases or decreases only in response to fairly wide changes in the activity level is known as step-variable costs.

Fixed costs

A cost that remains unchanged in total is known as fixed cost. But the fixed costs per unit do change as activity varies. Fixed costs are sometimes referred to capacity costs. There are various capacity levels like: installed/ manufacture's rated capacity, practical capacity, and normal capacity etc.

Some key features of fixed cost are given below:

- Total fixed costs are constant.
- Fixed cost per unit is variable.
- Fixed costs are regulated and controllable under top management.
- Fixed costs are either capacity costs or the time costs or the committed costs.

Step fixed costs (Jumping costs)

Some cost remains fixed over wide range of activity level outside that ranged are known as step fixed costs.

Cost Estimation

Profits are the excess of revenues over expenses. One major areas of management for proffer planning are cost estimation, cost control and cost management. Management must have some way of estimating fixed and variable costs. Different cost exhibit a variety of cost behavior patterns. Cost estimation is the process of determining how a particular cost behaves. It is a process of determining the cost of certain levels of output.

Several methods are commonly used to estimate the relationship between cost and activity. Following method might be use to breakdown mixed costs into their fixed and variable elements as well as for the explanation of their relationship (Wagle & Dahal, 2004, p. 2.18).

$$Y = a + bX$$

Where, Y = Total cost (mixed cost) a = Total fixed cost, b = Variable cost per activity base X = Level of activity.

Following method might be of use to breakdown mixed costs into their fixed and variable elements as well as for the explanation of their relationship.

a. High – Low Point Method

For separating semi variable cost into fixed and variable cost, two level of activity, high and low are taken with their corresponding costs. Therefore, the differences in activity levels are ascertained. The difference in cost between highest and lowest level of activities is divided by the difference in activity of output. The result of division is variable cost per unit. This method assumes that fixed cost tends to remain constant and if there is any change reported. Such changes are only in variable cost. This method is also known as high low method (Dangol et. al., 2065, p. 24).

Variable cost per activity base

$$b = \frac{\text{High Cost} - \text{Low Cost}}{\text{High Units} - \text{Low Units}}$$

And,

Fixed cost (a) = Total cost of high activity level – Variable cost per activity Base × High Level of Activity or a = Total cost of low activity level – Variable Cost per Activity Base × Low level of activity i.e. Fixed cost per period, $a = Y - bX$

Where, Y = Total cost (mixed cost), a = Total fixed cost, b = Variable cost per activity base and X = Level of activity.

b. Least Square Method (Regression Analysis)

Least square method is a statistical method. It is a mathematical measure of the average relationship between two or more variable in terms of the original units of the data. It is also more accurate than the high-low method because it takes all the data for analysis rather than two extreme observations, which may not be representative of normal situations. In this method, first of all, variable cost per unit is calculated. After this, the fixed cost and variable cost can be separate by adopting the following formula.

Variable cost per activity base;

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

And, Y-axis intercept i.e. fixed cost per period;

$$a = \frac{\sum Y - b \sum X}{N}$$

Where, Y = Total Mixed cost (dependent variable).

a = Fixed cost (constant in total).

b = Variable cost per activity base (constant in per unit cost).

X = Level of activity i.e. volume of output (independent variable).

N = Number of observations.

2.2.2 Product or Service Costing Method

Finished and semi-finished products in the firm need a time and fair valuation for the purpose of profit determination in business. Value of the output is known as the inventorial product cost. This inventorial product cost becomes an asset in the balance sheet when the outputs are manufactured and these become expenses in income statement when the outputs are sold. Therefore, the system of product cost determination affects the size of asset and the size of income both. Two popular methods for product costing are absorption costing and variable costing. These are the tools or techniques of product costing.

Variable-Costing Method

Variable costing is more accurately perceived as direct costing or marginal costing as it applies only the variable production cost to the product variable costing approach also known as contribution approach. Variable costing system treats fixed manufacturing overhead (fixed factory overhead) as a period cost to be immediately charged against sales-not as a product cost to be counted as inventory and charged against sales as cost of goods sold when the inventory is sold more that the only difference between variable and absorption costing is the accounting for fixed manufacturing overhead. Variable costing is sometimes called direct costing. However variable costing is a more descriptive term, so we will use it exclusively in this text (Horngren et. al., 2003, p. 598).

Variable costing is that method of inventories costing in which all variable manufacturing costs are included as inventorial costs. All fixed manufacturing cost is excluded from inventor able costs. They are instead treated as costs of period in which they are incurred. Variable costing is a method of recording and reporting costs, which regards as product costs only those manufacturing costs, which tend to vary directly with the volume of activity.

Absorption Costing

Absorption costing is also known as full costing, since all types of manufacturing costs are included as product costs. Absorption costing assumes that fixed along with the variable cost constitutes the product cost. It absorbs all costs necessary for production. It considers fixed manufacturing overheads as a part of product cost (Horngren et. al, 2003).

2.2.3 Responsibility Accounting

Responsibility accounting focuses on responsibility centers. A responsibility center is a sub unit of an organization under the control of a manager who is responsible for the responsibility center. Responsibility accounting collects and reports planned and actual accounting information about the inputs and outputs of responsibility center (Khan & Jain, 1986, p. 132).

Responsibility accounting is a system of dividing an organization into smaller units in the form of divisions, segments, departments, branches, product line etc., each of which is to be assigned particular responsibilities. A responsibility center is a unit of an organization where an individual manager's is held responsibility for the unit's performance. Main responsibility centers are:

- Cost centers
- Revenue centers
- Profit centers and
- Investment centers.

The responsibility accounting system involves the major stages;

- To identify the responsibility centers
- To delegate of authority and responsibility
- To control of the object
- To establish the performance evaluation criteria
- To select of cost allocation basis (Singh et. al., 2004, p. 16.11).

2.2.4 Cost-Volume-Profit Analysis

Profit is a must for the survival and growth of any business entity. But profit does not just happen or improve. They are managed. Management of the profits requires planning, activating, coordinating and controlling of divergent organizational activities bearing direct or indirect effect on profit. Managers often classified costs as fixed or variable when making decisions that affect the column of output. The managers want to know such decisions will affect costs and revenues. They realize that many factors in addition total volume of output will affect costs. Yet, a useful starting point in their decision process is to specify the relationship between the volume of output and costs and revenues. Cost-volume-profit (CVP) analysis serves as a powerful tool in the hands of management for profit planning.

Cost-volume-profit (CVP) analysis examines the behavior of total revenues, total costs, and operating income as changes occur in the output level, the selling price, the variable price per unit and/or the fixed costs of a product (Horngren et. al., 2003, p. 562).

Cost volume profit analysis is the technique of summarizing the effects of changes in an organization's volume of activity on its cost, revenue and profit. Cost-volume-profit analysis applies marginal or variable costing principles while establishing the effect of the future courses of activities on the financial results of the firm. Knowledge of how cost behaves in response to change in volume and how profit behave in response to change in cost and volume helps management to make numerous short-term optional decisions relating to cost control and profit maximization. Answer to questions listed below can be obtained from CVP analysis- (Wagle & Dahal, 2004, p. 4.2).

- How much sales should be made to avoid loss?
- What should be the sales volume to earn a desired or target profit?
- What will be the profit or loss at the specified level of sales?
- What will be the effect of change in price, cost and volume on profit?
- How will profit be the affected when sales mix is changed?

- What will be the effect of planned expansion on cost-volume-profit relationship?
- Which product is the most profitable and which one is the least profitable?
- Should the sales of p product or operation of a plant be dropped?
- Should the firm be down temporary or not? etc.

CVP analysis should be used with caution and only as an approximate guide for decision making as it rests upon the various over simplified such as:

- All cost can be segregated into fixed and variable element.
- Fixed cost will remain unchanged and variable cost varies proportionately with activity.
- Single factor affecting costs and revenues are volume.
- They will be no change in technology, production methods, efficiency, and general price level.
- There are no stock level changes i.e. there is synchronization between production and sales.
- There is single product or in case of multi-product, the sales mix does not change.
- Uncertainty does not prevail etc.

Cost- volume-profit analysis is a supplementary tool of profit planning. It tells many things about the relationship between the business variables. Total variable costs are proportionate to the sales volume; whereas the fixed costs remain unchanged within the relevant range of the output levels. That is why net incomes are not in proportionate to sales. Knowing this relationship, one can assess the profit at forecasted sales volume. Likewise, required sales can be ascertained for the minimum level of profit (Bajracharya et. al, 2009, pp. 299-300).

The most widely known from CVP analysis is the break-even analysis. Break even analysis determines the breakeven point or a level of sales at which cost and revenue are in equilibrium and net income is zero. Thus break even analysis is a

specific way of presenting and studying the inter relationship between costs, volume and profit and is incidental CVP analysis or is often just first step in decision.

Contribution margin is the difference between the sales revenues and variable cost of production. Contribution margin consist the fixed cost and profit. So, contribution margin means how is left from sales revenue, after covering variable expenses that is contributed toward the covering of fixed expenses and then toward profit for the period. Contribution margin is used first to cover the fixed expenses, and then wherever remains after the fixed expenses are covered goes toward profit if the contribution margin is not sufficient to cover the fixed expense, then a loss occurs for the period.

2.2.5 Standard Costing

Concept of Standard Cost

Standard cost is a scientifically pre- determined cost, which is arrived at assuming a particular level of efficiency in utilization of material, labor and indirect services. A standard cost should be based on sound technical and engineering studies specified production methods, work-study and work measurement, clearly defined material specifications, and price and wages projections. Thus standard costs are planned cost that should be attained under a given set of operating conditions.

A standard cost is a measure of acceptable performance, established by management as a guide to certain economic decision. It is in short, a reflection of what management thinks a cost ought to be (Lynch & Williamson, 1994).

Standard cost is primarily used for the following purposes:

- Establishing budgets.
- Controlling costs and motivating and measuring efficiencies.
- Simplifying cost procedures and expending cost reports.
- Promoting possible cost reduction.
- Basis for establishing bids and contracts for setting selling prices etc.

Variance Analysis

The difference between standard cost and actual cost is called variance. If actual performance meets the standards, the achievement is considered good. Variance analysis is a task of comparing the actual performance with the predetermined performance standards to determine how well the targets have been met. If there is big gap between the actual results and the standards, the performance is considered poor. Normally variance can take two forms, namely

- **Favorable variances; and**
- **Unfavorable variance.**

When actual result is better than expected, a favorable (F) variance arises; where they are not up to standard an adverse variance arises. Variance helps to pinpoint the responsibilities for poor result. The expression of this relationship can be seen in the simple formula:

$$\text{Variance} = \text{Standard Cost} - \text{Actual Cost}.$$

The favorable and unfavorable variances deserve attention. An unfavorable variance may suggest a condition that may require correction. Favorable variances may suggest an opportunity that management can exploit. Variances, as a control device, are calculated to assign responsibility for deviations from the standard cost and thus to control the cost.

2.2.6 Budgeting for Planning and Control

A budget is a detail plan expensed in quantitative terms that specifies how resources will be acquired and used during a specified period of time. The procedures used to develop a budget constitute a budgeting system (Hilton, 2007, p. 74).

The various activities within a company should be coordinated by the preparation of plans of actions for future periods. These detailed plans are usually referred to as budgets (Drury, 2001).

The budget is not only a financial plan of actual and anticipated revenues and outlay of the enterprises but is also a documents of detailed programs and policies of action which they desired to pursue in the coming years to raise the level of economic activities (Ghimire, 2009, p. 275).

Purpose of Budgeting System

Budgets cover the following major activities for the management process (Wagle & Dahal, 2004, pp. 6.1- 6.2).

- A. Planning:** Planning is the process by which managers define goals and take necessary steps to ensure that these goals are achieved (Pant, 2009, p. 111).
- B. Facilitating communication:** communication is the transmission of information and understanding through the use of common purpose.
- C. Facilitating coordination:** Coordination is the process of attaching the action of individual member of division in an organization as a whole. It is a part of group work. Budgeting creates a favorable environment to attain the organizational as well as individual goals.
- D. Allocating resources:** Generally, an organization's resources are limited, and budgets provide one means of allocating resources among competing users.
- E. Controlling profit and operations:** A budget is a plan, and plans are subject to change. Nevertheless, a budget serves as a useful yardstick with which actual results can be compared.
- F. Evaluating performance and providing incentives:** Companies actual results with budgeted results also help managers to evaluate the performance of individuals, departments, divisions or entire companies. Since, budgets are used to evaluate the performance; they can also be used to provide incentives for people to perform well.

The Budgeting Process

Budget is a comprehensive plan of action prepared for achieving objectives. The main objective of a business firm is to make an excess of revenue over expenses so

as to maximize profits. But it is not a matter of dream or chance. There are no magic formulas of boosting the figure overnight. A systematic budgeting should encompass the following procedure; (Welsch et. al., 2006, pp. 73-78)

- Identification and evaluation of external variables
- Development of broad objectives of the enterprises
- Development of specific goals for the enterprises
- Development and evaluation of company strategy
- Executive management planning instructions
- Preparation and evaluation of project plan
- Development and approval of strategic and tactical profit plans
- Implementation of profit plans
- Use of periodic performance reports
- Implementation of follow up

Master Budget

The master budget is prepared for specific period and is static rather than flexible. It is the principle output of a budgeting system which is a comprehensive profit plan that ties together all phases of an organization's operations. It is a comprehensive plan, a coordinated set of detailed financial statement of the operating plans and schedule for a short period, usually a year. The master budget or schedule that is interdependent. The measure budgeting is a networking consisting of many separate budgets that are interdependent. A master budget normally consists of following types of budget:

- I. Operating Budget:** Operating budget relates to the physical activities, operations of a firm such as sales, production, purchasing, debtors' collection and creditors payment schedule. In specific term an operating budget has the following term:

- a. **Sales Budget:** A sales budget is a detailed schedule of expected sales for coming period. It is usually expressed in both amounts and units. Once the sales budget has been set, a decision can be made on the level of production that will be needed to support sales and the production budget can be set well. The sales budget is the starting point in preparing the master budget. The sales budget is constructed by multiplying the expected cash receipts for the forthcoming budget period. This computation is needed to assist in preparing the cash budget for the year. Expected cash receipts are composed of collection on sales made in the current budget period (Garrison, 2000, p. 306).

Sales budget is prepared from sales forecast. A sales forecast encompasses potential sales for the entire industry as well as potential sales for the firm preparing the forecast. Factors that are considered in making a sales forecast include:

- Past experience in terms of sales volume.
- Prospective pricing policy.
- Unfilled order backlogs.
- Market research studies.
- General economic condition.
- Industry economic condition.
- Movements of economic indicator such as gross national product, employment, prices and personal income.
- Advertising and product promotion industry competition.
- Market shares.

Sales results from prior years are used as a starting point in preparing sales forecast (Welsch et. al. 2006, p. 173).

$$\text{Sales Budget (in Rs.)} = \text{Sales Units} \times \text{SPPU}$$

- b. **The Production Budget:** The production budget specifies the planned quantity of goods to be manufactured during the budget period. After sales

budget has been prepared 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 need and proved for the desired ending inventory. The remainder will have to be produced. Thus production needs can be determined by adding budgeted sales units to the desired ending inventory and deducting the beginning inventory from the total (Horngren et. al., 2003, p. 182).

$$\text{Production Budget (in units)} = \text{Sales Units} + \text{Desired Closing Inventory} - \text{Opening Inventory}.$$

- c. **Purchase Budget:** Manufacturing Company purchases raw materials for its products to be produced. Purchase budget helps to determine the quantity and value of materials required for the budgeted period and also the inventory of materials required to be maintained.

$$\text{Purchase Budget (Rs)} = (\text{Raw Material Used Budget} + \text{Desired Closing Inventory of Raw Material} - \text{Opening of Raw Material}) \times \text{Cost Rate}.$$

- d. **Direct Material Budget:** Sufficient raw material will have to be available to meet production needs, and to provide for the desired ending raw materials inventory for the budget period. A direct material budget should be prepared to show the materials that will be required in the production process. The remainder will have to be purchased from suppliers.

$$\text{Planned Material Consumption} = \text{Planned Production Units} \times \text{Standard Raw Material Usage per Unit of output}.$$

- e. **Direct Labor Budget:** The direct labor hour budget is also developed form the production budget. Direct labor requirements must be computed so that the company will know whether sufficient labor time is available to meet production needs. Numbers of units of finished product to be produced each

period is multiplied by number of direct labor hour required to produce single unit to determine labor hour budget.

$$\text{Direct Labor Budget} = \text{Production Units} \times \text{Hour Rate} \times \text{Cost Rate}.$$

- f. The Manufacturing Overhead Budget:** The manufacturing overhead also known as factory overhead. It is the aggregate of indirect expenses of factory department. It include both variable and fixed manufacturing overhead such as factory rent and rates, lighting and heating, factory power, fuel and insurance, factory salaries, indirect wages and pension, factory stationary and printing etc. In other words, the manufacturing overhead budget should provide a schedule of all costs of production other than direct material and direct labor. A computation showing budgeted cash disbursement for manufacturing overhead should be made for use in developing the cash budget.

$$\text{Manufacturing Overhead Budget} = \text{Production Units} \times \text{VMOH Rate} + \text{Fixed Mfg OH}.$$

- g. The Selling and Administrative Overheat Budget:** Selling and administrative overhead budget is a significant portion of total expenses plan. It includes both fixed and variable expenses. It includes all costs related to selling, distribution and delivery of products to consumers and administrative expenses such as clerical wages, executive salaries, supplies, postage and telephone, sales commission and salaries, advertising and sales service expenses etc.

$$\text{Selling and Administrative Overhead Budget} = \text{Sales Units} \times \text{Rates per Unit} + \text{Fixed Selling Expenses}.$$

- II. Financial Budget:** Financial budgets are concerned with expected cash receipts/ disbursement, financial position and results of operation, the companies of financial budgets are:

- a. **The Budgeted Income Statement:** The budgeted income statement is one of the key schedules in the budget process. 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 bench mark against which subsequent company performance can be measured (Garrison, 2000, p. 3).
- b. **The Cash Budgets:** Cash budget is the detail showing cash receipt, cash disbursement and the cash balance. The cash budget is composed if four major sections:
- The receipt sections.
 - The disbursement sections.
 - The cash excess or deficiency section.
 - The financing sections.

The receipt sections of the opening cash balance added to whatever is expected in the way of cash receipts during the budget period and the disbursement section consists of all cash payments that are planned for the budget period. The cash excess or deficiency section consists of the difference between the cash receipts section totals and the cash disbursement section totals. And the financing section provides a detailed account of the borrowing and repayments projected to take place during the budget period.

- c. **Budgeted Balance Sheet:** Beginning with the current balance sheet adjusting it for the data contained in other budget develops the budgeted balance sheet. It shows the expected end of period balance for the organization assets, liabilities and owner's equity, assuming that planned operations are carried out. That is, it is prepared to determine the amount of budget net income on the basis of sales budget, production budget, labor cost budget overhead budget, purchase budget etc (Garrison, 2000, pp. 3- 5).

2.2.7 Flexible Budget and Overhead Cost Control

Flexible Budget

A flexible budget is one which is designed to provide information as to sales, expenses and profit for different level of activity which may be attained. A budget prepared in a manner so as to give the budgeted cost for any level of activity is known as a flexible budget. A flexible budget is also called a variable budget, dynamic budget, step budget, sliding- scale budget, expense formula budget and expense control budget.

A flexible budget calculates budgeted revenues and budgeted costs based on the actual output level in the budget period. A flexible budget is calculated at the end of the period. When the actual output known: a static budget is developed at the start of the budget period based on the planned output level for the period (Horngren et.al., 2003, p. 178).

The fundamental function of the flexible budget applies for expenses that are incurred because of the passage of time, output or productive activity or a combination of time and output or activity. Application of fundamental concept of flexible budget means that: (Wagle & Dahal, 2004, p. 7.1)

- Expenses must be identifying as to their fixed and variable components when related to output or productive activity.
- Expenses must be reasonably related to output or productive activity.
- Output or productive activity must be reliable measurable.
- Flexible budget for each expense must be for a specified time period and for a specified relevant range of output or productive activity.
- For planning and control purpose, flexible budget must be developed for each expense in each responsibility center in an enterprise.

Preparation of Flexible Budget

The flexible budget can be prepared from the three methods: Multi-activity method (Tabular method), the Formula method and the graphic method. The tabular method is budgeted figures for different activity levels are presented under the relevant

range. The levels of activity are generally expressed as production units or sales value etc. Variable cost per activity base and fixed cost is determined at first. While determining the variable and fixed cost, mixed costs are generally segregated by the using high low method of segregation.

The formula method provides a formula for each expenses account in each responsibility center. The formula gives the fixed amount and the variable rate per activity base.

$$\text{Flexible Budget (Budgeted Allowance; } Y) = \text{Fixed costs} + (\text{Unit Variable Cost} \times \text{Level of Activity})$$

$$\text{Or, } Y = FC + UVC \times LA$$

The flexible overhead budget is a primary tool for the control of the manufacturing overhead cost. Any organization uses the flexible budget to determine the level of overhead cost that should have been incurred, given the actual level of activity and then compares the overhead cost in the flexible budget with the actual overhead cost incurred. The first and the foremost thing to define in case of overhead cost control is the appropriate cost driver for the factory overheads. Manufacturing/Factory overhead is a pool of many different kinds of costs.

Overhead Variance

The difference between the standard overhead cost specified for the production achieved, and the actual cost incurred is known as overhead variance. The main objective of analyzing the factory overhead variances is to determine whether the total manufacturing overheads are over or under applied in the cost of production for the given level of output. There are several possible approaches to overhead variance analysis out of them one commonly used approach is three- variance analysis (Hilton, 2007).

2.2.8 Decision Regarding Alternative Choices in Business Operation

One of the major functions of management is decision making. Decision making is a process of selecting the best alternative from among the various courses of action available. The main goal of decision making is to select wisely one course of action amongst the alternatives plans of action, which is expected to optimize the objective of the decision makers concerning area. Decision making is concerned with the future and involves a choice between alternatives. It is an important as well as difficult task of management. Managerial account is a subject matter, which provides some logical tools and techniques to the management for rational decision-making process.

When managers make a choice from among a number of alternatives, all relevant costs and revenue associated with each alternative should be considered. Relevant information supports decision making. Information is relevant when it is logically related to the decision.

Process of Decision Making

Decision making is the art of selecting the best alternative among the various alternatives available to solve a given problem in case of business. The best alternative is one, which is likely to provide maximum profits and involve a minimum cost without violating the social responsibilities. This process involves the following steps:

1. Recognize and define the problem.
2. Identify the appropriate alternatives to solve the problem.
3. Collect the relevant information of alternatives.
4. Make differential revenue/ cost analysis.
5. Consider the opportunity costs and qualitative factors.
6. Select the best alternative.
7. Implement the selected alternatives.
8. Evaluation and follow up the decision.

Decision Situation

Various sort of decision situation, which manager has to make are:

i. Decision to Drop or Continue a Product Line

When a firm or company is divided into many departments, divisions, sections, branches and product lines to produce and sell various types of product, it is not necessary to earn profit by each product line, division, department, and branch. In case of loss or low profit from one or more, management should take decision whether to drop or continue product line in the future. While taking drop or continue product line decision, it is very important to consider various points i.e. alternative utilization of idle capacity like machine, labor, land etc, continuity of constant cost/fixed cost, department or traceable fixed cost, opportunity cost, government rules and regulation regarding dropping product, union activity, effect on other product lines, responses of material suppliers and regular customer etc.

ii. Decision to Accept a Special Order/Offer

A special order is one that has been offered for a bulk volume at a reduced price. Opportunity to consider order for a quantity of its regular product at a special price, usually less than that charged to regular customers, frequently arises for a management. When there is idle capacity such an offer may be attractive. The basis of decision-making should be the difference that it will make in the overall profit of the company. Essentially, if there is idle capacity, the special order is advantageous if the price amounts exceed out of pocket costs and the opportunity costs (Bajracharya et. al., 2009, p. 633).

iii. Decision to Make or Buy

Buying or outsourcing is the process of obtaining goods or providing from outside suppliers instead of producing the same goods or providing the same services within the organization. Decisions on whether to produce components or provide services within the organization or to acquire them from outside suppliers are called make-or-buy decisions. Many organizations buy some of their activities such as their payroll

and purchasing functions or the purchase of special components. Outsourcing is considered only when it will give financial advantages over making things within the company with no inferior quality.

iv. Replacement of Assets Decision

There may be many outdated equipment in the business or organization. So manager has to take an important decision regarding the replacement of existing machine with new and more sophisticated equipment. Generally, the economic advantages offered by such an investment is the realization of operating cost savings, which are translated into increased profits. A decision regarding the replacement of assets is long term capital investment decision required the use of discounted cash flow techniques. The main thing that should be understood here is how to treat the book value of old equipment. This is a problem that has been known to cause difficulty, but the correct approach is to apply relevant cost principles. As the past or sunk costs are irrelevant for decision-making, the book value of old assets does not matter in asset replacement decision.

v. Decision to Further Process Joint Products

A decision to be made by the management is whether to sell joint outputs at the split off point or to process them further. The decision criterion should be to choose the alternative, which will maximize the total contribution of the various joint products to the common processing costs. As the common processing costs before the split-off point are sunk costs that have already been incurred to create the joint products, they are irrelevant and will not be considered in the decision making process. The only relevant cost will be the additional common processing costs. A related short-term decision involves selecting an alternative processing plan for joint products when the proportion of the output from the common processing cost can be varied (Horngren et. al., 2003).

vi. Decision of Leasing vs. Buying

Leasing is a contract between an owner (Lessor) and a hirer (Lessee) for the hiring of a specific asset. In exchange for the lease rentals, the lessee obtains possession

and use of the asset, while the lessor retains legal ownership. The lessee has no right to acquire exercise right over the assets during the period of the contract. Leasing is an important source of financing for long lived assets. Some assets are financed for intermediate- term and some are for long-term.

Undertaking a contract to lease on asset is quite similar to borrowing money. There is an immediate cash inflow, because the lessee does not have to pay for the asset, followed by future cash outflows consisting of the payments specified in the lease contract. Alternatively, the user could have borrowed the full purchase price of the asset by accepting a binding obligation to make interest and principal repayments to the lender. Therefore, the cash flow consequence of leasing and borrowing is similar; consequently, leasing and borrowing should be compared as financing alternatives that are dependent on the investment decision. In other words, we assume that investments have been evaluated as part of a company's capital budgeting process and are profitable (Bajracharya et. al., 2009, pp. 489-490).

2.2.9 Pricing Decision

When the organization produces the goods and services, it must be needed to set the price for their product. An act of establishing /setting /fixing the price for an organization product or service is called pricing. In others words, pricing is the job or task of assigning exchange volume for goods or services provided by organization. Setting the price for an organization's product is one of the most important decisions a manager faces. It is also one of the most difficult or challenging because it should appeal to the customers; beat competitor; recover cost and provide surplus for survival, further growth and expansion etc. So the organization are price taker (When the price is determine by the market) pricing decision is to be made virtually by all types of firms irrespective of their nature and size. Pricing decision is influenced by number of factors such as market, customer's demand, cost, acting of competition, government policy etc (Wagle & Dahal, 2004, p. 9.1).

Economics theory suggests that under certain assumption the profit maximizing price and quality are determined by the intersectional of the marginal revenue and

the marginal cost curves. Actual pricing practices indicates that firm's use "cost based or cost plus" pricing where a 'mark up' for overhead and profit is added to the direct cost. According information's relating to cost plays a vital role in the respect.

Cost Based or Cost plus Pricing Methods

Probably the most easy, simple and widely used method of cost plus pricing is to set the price of product or services at an amount equal to its standard manufacturing cost plus a normal mark-up. Such a mark-up is intended to cover marketing and administrative costs and net profit before tax. Such an approach is termed cost based or cost plus pricing. It is claimed that cost plus pricing is widely used because it ensures that the selling price is greater than the total cost of a cost based price is greater than the total cost of a cost based pricing formulas have the following general forms (Wagle & Dahal, 2004, p. 9.2):

$$Price = Cost + (cost \times mark\ up\ percentage)$$

Cost plus pricing system include:

- a. Full cost or total cost or absorption cost pricing.
 - b. Variable or marginal cost or contribution margin pricing.
 - c. ABC pricing.
 - d. Target cost pricing.
 - e. Return-on-investing (ROI) pricing.
- a. Full Cost or Total Cost or Absorption Cost Pricing:** Full cost/total cost/absorption cost pricing uses conventional cost accounting principles to establish the total cost for a product to which is added a mark up to arrive selling price that is, if absorption or total manufacturing cost are taken into consideration, the mark up is intended to cover administrative and marketing costs and net profit before tax (Munakarmi, 2002, pp. 399-400).

$$Price = Absorbed\ Manufacturing\ Cost + (Mark\ up\% \times Absorbed\ Manufacturing\ Cost.)$$

- b. Variable or Marginal or Contribution Margin Pricing:** This method of pricing, the price of the product or services is determined by the accumulation of variable costs per unit plus a normal mark up. The variable cost thus accumulated, can either be manufacturing or total variable cost. If manufacturing variable costs are taken, the mark up must be sufficient to cover other variable cost.

$$\text{Price} = \text{Total Variable Cost} + (\text{Mark up \%} \times \text{Total Variable Cost})$$

- c. Activity Based Cost Pricing:** ABC pricing is also a form of cost based or cost plus pricing. It is a method of allocating manufacturing overhead to product using multiple application rates and a wide variety of cost drivers in multi-product firm. Therefore, all overhead cost incurred to carry out various activities should be considered product cost. For successful application of ABC techniques necessitate the following steps:

- Identify the major activities in the organization.
- Determine the cost driver for each major activity.
- Create a cost centre/cost pool for each major activity.
- Trace the cost of activities to products according to a product's demand for activities.

- d. Target Cost Pricing:** Target pricing is based on target costing. Target costing is methods of determining the cost of a product or service based on the price that customer are willing to pay. So in this method of pricing, the firm first of all determines the price at which the product sells so as to attain desired sales volume or market share. From the price thus determined, acceptable profit is deducted for ascertained of targeted cost (Wagle & Dahal, 2004, p. 9.8).

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

- e. Target ROI Pricing:** The price set so as to achieve a given rate of return on invested capital over and above the cost is known as target ROI pricing. ROI is the minimum profit on invested capital that must be earned at least to cover the opportunity cost of capital (Wagle & Dahal, 2004, p. 9.7).

Calculation of desired mark-up per unit as per ROI:

$$\text{Desired Markup as per ROI} = \frac{\text{Capital Employed} \times \text{ROI}\%}{\text{No. of Units Produced (Sales)}}$$

Where, $\text{Capital Employed} = \text{Owner's Equity} + \text{Interest Bearing Debt (i. e. long term)}$.

Or, $\text{Capital Employed} = \text{Fixed Assets} + \text{Net Working Capital}$.

Transfer Pricing

When goods or services are exchanged between various subunits or segments of a decentralized organization, the question arises what monetary values should be assigned to such exchanges or transfer? Unfortunately, there is no single transfer price that will please all the parties involved in transfer, namely- top management, the selling division and the buying division.

A transfer price is the price on subunit of an organization charges for products or services supplied to another subunit of the same organization. The transfer pricing creates revenue for the selling subunit numbers for both subunits. The operating income can be used to evaluate the performance of each submit and to motive managers (Horngren et. al., 2003, p. 904).

There are various transfer pricing schemes having different bases for computation. So the transfer pricing can be based on:

a. Market Based Transfer Pricing: Transfer pricing based on market value of the product or service is known as market based transfer pricing. Generally, market price 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 buying and selling divisions can buy and sell at market price (Fago, et. al. 2010, p. 9.33).

$\text{Transfe Price} = \text{Market Price} - \text{Selling and Distribution Expenses}$.

b. Cost Based Transfer Pricing: If the price cannot be determined from market, then the transfer price may be determined from cost based transfer pricing.

For these purpose the cost based transfer can be determined from namely variable cost, full cost, full cost plus a mark-up. Some use standard cost and some use actual cost. The actual cost based transfer price passes the inefficiencies of the selling division to the buying divisions with little incentive to control cost. The variable cost based transfer price has an advantage over the full cost or full cost plus a mark-up method when there is idle capacity in the firm. Under the full cost methods, fixed cost of the selling department becomes the variable cost to the buying division.

c. Negotiated Transfer Pricing: It is negotiated between the transferor and transferee units after considering all factors of supply and demand, quality and time of delivery and the price. That is an alternative to setting prices based on rules or formulae, transfer prices could be set by negotiation between the buying and selling divisions. This transfer pricing is most appropriate in situations when there are different selling costs for internal or external sales or where there exists several different market prices (Munakarmi, 2002, p. 434).

d. General Transfer Price Rule: The pros and cons of the different transfer pricing methods discussed so far give us an insight into their nature but do not provide an answer on to which model is optimal. From the forgoing discussion it is clear that it is not easy for a single transfer price to motivate managers to make optional decision, provide a reasonable measure of performance and ensure that divisional autonomy is not undermined. So the divisions do agree to a base, some form of competitive market price can be the best approach to the transfer pricing problem. It can be calculated from the following formula: (Wagle & Dahal, 2004, p.

9.11)
$$\text{Transfer Price} = \text{Additional Outlay Cost per Unit Incurred Because Goods are Transferred} + \text{Opportunity Cost per Unit to the Organizaton Because of Transfer.}$$

2.2.10 Ratio Analysis

An analysis of financial statement with the help of ratio may be termed as ratio analysis. It is a mathematical relationship between two related items express in quantitative form. When this definition of ratio is explained with reference to the

items shows in financial statement, then it is called accounting ratio. So, the ratio is the measurement of quantitative relationship between two or more items of financial statements connected with each others. The quantitative relationship may be expressed in terms of proportion, in rate, in time, in percentage or coefficient. There are different types of ratios analysis which is listed under:

Liquidity Analysis

It measures the adequacy of a firm's cash resources to meet its near term cash obligations. Short-term lenders such as suppliers and creditors use liquidity analysis to assess the risk level and ability of a firm to meet its current obligations. Satisfying these obligations requires the use of the cash resources available as of the balance sheet date and the cash to be generated through the operating cycle of the firm. Under liquidity analysis, therefore calculate the current ratio and quick ratio.

Long Term Debt and Solvency Analysis

It examines the firm's capital structure in terms of the mix its financing sources and the ability of the firm to satisfy its long-term debt and investment obligations. This analysis contains the debt equity ratio and debt to total capital ratio.

Activity Analysis

To carryout one's operations, a firm needs to invest in both short-term (inventory and accounts receivable) and long-term (property, plant and equipment) assets. Activity analysis describes the relationship between the firm's level of operations (usually defined as sales) and the assets needed to sustain the activity. This analysis contains the investor turnover, daily sales outstanding, fixed assets turnover, total assets turnover and capital employed turnover ratios.

Profitability Analysis

Profitability is an indicator of efficiency of the business organization. Profitability ratio measures the management overall efficiency as show by the return generated from sales and investment. Higher the profitability ratio shows the efficiency of the

management. Profitability is compare in relation to sales as well as investment. So, profitability analysis consists of some ratio i.e., Net Profit Margin, Gross Profit Margin, Operating Cash Flow Margin, Return on Assets (ROI) and Return on Common Stockholders' Equity.

2.2.11 Cash Flow Analysis

Cash flow as a phrase that is used to describe both cash inflow and cash flows. It is indicated to show all the cash inflow and outflows of a firm during a period. Cash flows and outflows is one of the major management tasks. The analysis of events and transactions that effects the cash position of company is termed as cash flow analysis. While calculating cash flow statement from income statement; adjustments data for prepaid and outstanding expenses as well as incomes must be converted from accrual basis to cash basis. Cash flow statement should reports the cash flows during the period classifying on operating, investing and financing activities (Wagle & Dahal, 2004, pp. 11.1-11.2).

Operating Activities

Cash flow from operating activities is primarily derived from the principal revenue producing activities of the enterprise. Therefore, they generally result from the transactions and other events that enter into determination of net profit or loss. It is referred to as working capital, sales, and expenses of the business. It is specially generated form daily internal activities of business such as sales and collection from customers, cash paid to suppliers and employee, cash paid for operating expenses, interest and taxes, short term bank loan, marketable securities etc.

Investing Activities

Cash flow from investing activities is generated internally from non-operating activities. On this activities would included investments in plant and equipments or other fixed assets, nonrecurring gains or losses or other sources of cash outside of normal operations.

Financing Activities

The separate disclosure of cash flows arising from financing activities is important because it is useful in predicting claims on future cash flows by providers of capital to the enterprise. So the financing activities are those external sources and uses of cash such as lenders, investors, and shareholders that affect cash flow. On these activities, there are included such as a new loan, the repayment of a loan, the issuance of stock and the payment of dividend etc.

2.2.12 Capital Budgeting

Capital budgeting (or investment appraisal) is the planning process used to determine whether an organization's long term investments such as new machinery, replacement machinery, new plants, new products, and research development projects are worth pursuing. It is budget for major capital, or investment, expenditures (www.wikipedia.org)

Capital budgeting is the process of planning and controlling the long term and short term expenditures for expansion and contraction of investments in fixed assets. A major issue in planning capital expenditures is the problem of ensuring that a company has the capacity to produce, acquire or be able to deliver the goods and services that will be needed to meet its sales and service plan. A major issue in controlling the actual expenditure of funds is the problem of ensuring that the actual expenditures are consistent with the plans and that funds are available when the expenditures are incurred (Welsch et. al. 2006, pp. 394-395).

Capital budgeting is the process of planning expenditure on assets whose cash flows are expected to extend beyond one year. Capital budgeting typically involves substantial expenditure, and before a firm can spend a large amount of money, it must have the funds lined up – large amount of money are not available automatically. Therefore, a firm contemplating a major capital expenditure program should plan its financing far enough in advance to be sure funds are available (Brigham & Houston, 2004, p. 499).

Capital budgeting is long term planning for making and financing proposed capital outlays. Most expenditure for plant, equipment and other long lived assets affect

operations over a series of years. They are large, permanent commitments that influence long-run flexibility and earning power. Decisions in this area are among the most difficult, primarily because the future to be foreseen is distant and hard to perceive. Because the unknowable factors are many, it is imperative that all the knowable factors be collected and properly measured before a decision is reached (Horngren et. al., 2003, pp. 340-341).

The investment decisions of a firm are generally known as the capital budgeting, or capital expenditure decision. A capital budgeting decision may be defined as the firm's decision to invest its current funds must efficiently in the long- term assets in anticipation of an expected flow of benefits over a series of years. The long term assets are those which affect the firm's operations beyond the one –year period. The firm's investment decisions would generally include expansion, acquisition, modernization and replacement of the long-term assets. Sell of a division or business (divestment) is also analyzed as an investment decision. Activity such as change in the method of sales distribution, or undertaking as advertisement campaign or a research and development program has long-term implications for the firm's expenditures and benefits; therefore, they may also be evaluated as investment decisions. It is important to note that investment in the long-term assets invariably requires funds to be tied up in the current assets such as inventories and receivables. As such, investment in fixed and current asset is one single activity (Pandey, 2000, p. 353).

Methods of capital Budgeting

A number of capital budgeting techniques are in use in practice. They may be grouped in the following two categories:

1. Non- Discounted Cash Flow Criteria
 - Payback Period (PBP)
 - Accounting Rate of Return (ARR)

2. Discounted Cash Flow (DCF) Criteria

- Net Present Value (NPV)
- Internal Rate of Return (IRR)
- Profitability Index (PI) (Pandey, 2000, p. 356).

Payback Period (PBP)

The payback period of an investment proposal is the amount of time it will take for the after-tax cash inflows from the project to accumulate to an amount that covers the original investment. The following formula defines an investment project's payback period.

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Annual After Tax Inflow}}$$

There is no adjustment in the payback method for the time value of money. A cash inflow in year 5 is treated the same as a cash inflow in year 1 (Hilton, 2007, pp. 755-756).

Acceptance Rules

The project having payback period less than its life is accepted and vice versa. The shorter payback period is preferable.

Average or Accounting Rate of Return (ARR)

The accounting method is so called because it determines the return by accrual methods. As a rate of return, the resulting percentage is a measure of profitability, overcoming the major disadvantage of the payback method. The accounting method, like the payback is comparatively simple. The formula is

$$ARR = \frac{\text{Average Income or Profit or Return}}{\text{Average Investment}} \times 100$$

Where,
$$\text{Average Income} = \frac{\text{Total Income or Profit or Return}}{\text{Number of Years}}$$

$$\text{Average Investment} = \frac{\text{Original Investment} - \text{Salvage Value (if any)}}{2}$$

(Source: Lynch & Williamson, 1994, p. 431).

Acceptance rules

As an accept or reject criterion, this method will accept all these projects whose ARR is higher than the minimum rate established by management and reject these projects which have ARR less than the minimum rate. This method would rank a project as number one if it has highest ARR and lower rank would be assigned to the project with lowest ARR (Pandey, 2000, p. 370).

Net Present Value (NPV)

The net present value method is the classic economic method of evaluating the investment proposals. It is one of the discounted cash flow (DCF) techniques explicitly recognizing the time value of money. It correctly postulates that cash flow arising at different time periods differ in value and are comparable only when their equivalents-present values- are found out. (Pandey, 2000, pp. 356-357). The net present value method is a discounted cash-flow approach to capital budgeting. With the present value method or cash flows are discounted to present value, using the required rate of return.

NPV is computed using the following equation:

$$NPV = PV \text{ of Future CFAT} - NCO$$

$$NPV = \frac{A_1}{(1+i)} + \frac{A_2}{(1+i)^2} + \frac{A_3}{(1+i)^3} + \dots \dots \dots + \frac{A_n}{(1+i)^n} - A_0$$
$$= \sum_{t=0}^n \frac{A_t}{(1+i)^t} - A_0$$

Where,

A_0 to n = Cash flow in the period 0 to n.

T = Time period

i = Discount rate, or required rate of return (Van Horne, 2002, p. 141).

Acceptance rules

It should be clear that the acceptance rule using the NPV method is to accept the investment project if its net present value is positive ($NPV > 0$) and to reject it if the NPV is negative ($NPV < 0$). The market value of the firm's share would include if projects with positive net present values are accepted. This will be so because the positive net present value will result only if the projects generate cash inflows at a rate higher than the opportunity cost of capital. A project may be accepted if $NPV=0$. A zero NPV implies that project generates cash flows at a rate just equal to opportunity cost of capital. Thus the NPV acceptance rules are;

- Accept, $NPV > 0$
- Reject, if $NPV < 0$
- May accept, if $NPV = 0$

The NPV method can be used to select between mutually exclusive projects; the one with the higher NPV should be selected. Using the NPV method, projects would be ranked in order of net present values; that is, first rank will be given to the project with highest positive net present value and so on (Pandey, 2000, p. 359).

Internal Rate of Return (IRR)

The IRR is the rate of return the firm expects to earn if the project is purchased; thus it is defined as the discount rate that equates the present value of a project's expected cash flows to the investment outlay, or cost. As long as the rate of return expected from a project its IRR is greater than the rate of return required by the firm for such an investment, the project is acceptable. The IRR can be computed as: (Wagle & Dahal, 2004, p. 12.12)

IRR is that discount rate at which; PV of annual CFAT = NCO.

$$\text{Or, } \frac{A_1}{(1+i)} + \frac{A_2}{(1+i)^2} + \frac{A_3}{(1+i)^3} + \dots + \frac{A_n}{(1+i)^n} - A_0 = 0$$

$$\text{Or, } \sum_{t=0}^n \frac{A_t}{(1+i)^t} - A_0 = 0$$

Where A_1 to n are the cash flows for period t , whether it is a net cash outflow or inflow, n is the last period in which a cash flow is expected, and \sum denotes the sum of discounted cash flows at the end of periods 0 through n (Van Horne, 2002, p. 141).

The exact rate is found in the following way once the two rates leading to positive and negative net present value are ascertained in the process of trial and error:

$$IRR = Lower Rate + \frac{NPV \text{ at Lower Rate}}{NPV \text{ at Lower Rate} - NPV \text{ at Higherer Rate}} (HR - LR)$$

Acceptance Rules

The acceptance criterion generally employed with the internal rate of return method is to compare the internal rate of return with a required rate of return known also as the cut off, or hurdle, rate. If the internal rate of return exceeds the require rate, the project is accepted: if not, it is rejected (Van Horne, 2002, p. 141).

Profitability Index (PI)

Another time-adjusted method of evaluating the investment proposals is the Benefit-Cost (B/C) ratio or Profitability Index (PI). It is the present values of cash inflows, at the required rate of return, to the initial cash outflow of the investment. It may be gross or net, net being simply gross minus one. The formula to calculate benefit-cost ratio or profitability index is as follows:

$$PI = \frac{PV \text{ of Cash Inflows}}{\text{Initial Cash Outlay}}$$

Acceptance rules

The following are the PI acceptance rule:

- Accept, if $PI > 1$
- Reject, if $PI < 1$
- May accept, if $PI = 1$

When PI is greater than one, then the project will have positive net present value (Pandey, 2000, p. 364).

2.3 Review of Articles

Cinguini, L. and Tenucci, A., Management Accounting for Service: A Research Agenda, the purpose of the paper is to point out a research agenda for Management Accounting under the emergent Service-Dominant (S-D) Logic. S-D Logic is widely discussed in the field of Marketing; the paper tries to extend S-D Logic in the Management Accounting context and develops some related considerations. The conclusions of the paper trace some aspects addressed as core in the distinction between Goods-Dominant Accounting and Service-Dominant Accounting. Considering the new changing service environment, the role of management accounting in providing information to support managerial decision making and control can be widely renewed. The research implications were the paper opens many underexplored topics on Management accounting in the interface with service and traces a research agenda for further research.

Dugdale, Jones and Green, Contemporary Management Accounting Practices in UK Manufacturing, Prevailing wisdom in management accounting research suggests that absorption costing methods are widespread in manufacturing companies. However, some of our previous investigations revealed a number of companies using contribution margin methods of internal reporting. Now our findings from a document-based interviewing study of 41 manufacturing companies show that there is a rich diversity of contemporary UK reporting practices, that are constrained neither by the financial accounting requirements of SSAP9, nor by any sense of general management accounting trends. Instead, Financial Directors choose from a toolkit of 'traditional' and 'innovatory' practices in constructing reporting systems appropriate to their varied commercial needs. Within this diversity there is a strong leaning towards contribution margin approaches. These diverse reporting practices cover a wide range of management accounting techniques in relation to contribution, margin, profit, variances, budgets and forecasts. The project had three specific objectives:

- To investigate whether internal management accounting policies and reporting are currently dominated by the requirements of financial reporting.
- To establish the nature of innovatory forms of management information and begin to explore where and why they have been introduced.
- To disseminate innovative practice in management accounting.

The findings were as follows:

- **Costing techniques**

The study reveals that virtually all the techniques developed since the late nineteenth century, and evident in the historical literature, are still in use today. There are examples of ‘traditional’ techniques such as absorption-costing, standard costing and marginal costing as well as ‘contemporary’ techniques such as activity-based costing and throughput accounting. New techniques are often marketed by denigrating existing methods, identifying them as ‘problems’ before unveiling new techniques as the ‘solution’. For example, standard costing was once hailed as more effective and much less expensive than the ‘job-order cost plans’ of the early twentieth century. Direct costing was sold as simpler and more informative than absorption costing. Activity-based costing promised to be more accurate and to avoid the misleading signals of traditional costing methods. However, ‘old’ methods have not died: they are still taught, examined and used.

- **Prevalence of contribution statements in internal financial reporting**

In the report participating companies are broadly categorized as ‘contribution companies’ or ‘gross margin companies’. This was not easy because of ubiquitous references within companies to ‘gross profit’, ‘gross margin’ and ‘manufacturing margin’ applied to P&L lines that textbooks would refer to as ‘contribution margin’. However we conclude that 28 (approximately 68%) of the survey companies employ contribution statements. All these companies treat material cost as variable and 21 companies (75%) treat labor as a variable cost. Other ‘variable’ costs appear less frequently: variable production overhead in 12 companies; transport/distribution costs in 7 companies and variable selling costs in 3 companies.

- **Prevalence of standard costing but limited variance analysis**

Most (29) of the 41 companies employ standard costs and, of those that do not, 8 have only limited manufacturing operations or are engaged in contract work. Therefore only 4 companies (less than 10%) do not employ standard costing where this might be expected. All (29) 'standard costing companies' set standards for materials, most (26) set standards for labor and about two-thirds (20) set overhead recovery rates. However, standard cost variances often do not appear as part of P&L information. Over half of these 'standard cost companies' base P&L reports on actual costs; some 'add back' variances while others frequently update material standards so that they approximate actual costs. Although not necessarily appearing in the P&L most of these companies calculate some material and labor variances for control purposes. Overhead variances are less prevalent and only one company reports subdivisions of both variable and fixed overhead variances. No company subdivides the fixed overhead volume variance into capacity and efficiency elements. Variance reporting is therefore very selective.

- **Inter-relationships between financial presentation and costing systems**

Financial reporting presentation and costing methods are inter-related and most of the 28 'contribution companies' make a P&L adjustment for 'overhead in stock' that allows 'bottom line' profit or loss to be reported on a full cost basis. Surprisingly, 11 of these 'contribution companies' establish 'full' standard costs in order to value stock consistent with financial reporting requirements. In these companies a contribution orientation is loosely coupled with a full standard cost system. In 'gross margin' companies systems are usually more tightly coupled: 7 companies adopt a gross margin approach and, consistently, adopt full standard costing. Contribution companies can trace variable costs to products or product groups and, in some companies, this analysis provides the starting point for further analysis of segment profitability, attributing overhead to products, markets or distribution channels. This is reminiscent of activity-based ideas and several companies had experience of activity-based costing, usually intended to establish more accurate product costs. However, although one-off ABC exercises had provided some valuable insights, none of the survey companies were currently using the technique.

2.4 Review of Thesis/ Dissertation Report

In this section the reviews of thesis relating to management accounting practices have been considered. There were only few thesis/dissertations written on management accounting practices in Nepalese Public Enterprises when browsed through computer records of thesis reports presented earlier in Tribhuvan University Central Library.

Shrestha, (2008), had conducted a research on the topic "*Management Accounting Practices in the Public Trade Companies of Nepal*" an unpublished master level thesis submitted to Faculty of Management, T.U. He had focused his study to examine the practice of Management Accounting tools in Public Trade Companies in Nepal. Shrestha's research was based on only primary sources of data. In this thesis he had pointed out various objectives and findings. Some remarkable objectives were as follows:

- To find out the Management Accounting tools and techniques in PTCs in Nepal.
- To identify the process of planning, controlling and decision making process of PTCs in Nepal.
- To identify the major difficulties in using Management Accounting tools and techniques in PTC's in Nepal.
- To make suggestions to overcome the difficulties in practicing Management Accounting tools and techniques in PTCs in Nepal.

Some major findings were as follows:

- Management Accounting helps to managers to formulate organizational strategies as well as policy. PE's as practicing Management Accounting tools such as Capital Budgeting, Annual Budgeting, Cash Flows and Ratio Analysis.
- Management Accounting is help to managers to formulate organizational strategies as well policy for decision making.

- Lack of information and cognizance about Management Accounting tools are the main factors causing problem in the application of such tools.
- Nepalese Public Trade Companies were prepared budget by committee, planning department and chief of finance division mostly. It is also recommended to take outside expert's service for budget prepared.
- Nepalese Public Trade Companies should practice not only full cost pricing and transfer costing pricing but also activity base cost pricing and variable cost pricing.
- Nepalese Public Trade Companies should use not only profit and loss account but also use/practice Standard Costing, Budgetary Control, Ratio Analysis, Cash Flow Analysis and Activity Based Costing for evaluation of overall performance of companies at the end of the accounting year.

Dallakoti, (2008), had conducted a research on the topic "*A Study on Management Accounting Practices in Civil Aviation Authority of Nepal*" an unpublished master level thesis submitted to Faculty of Management, T.U. He had focused his study to examine the Management Accounting tools practiced in CAAN. Dallakoti's research was based on primary and secondary data collection. In his research, he had pointed out various objectives and findings. Some of remarkable objectives were as follows:

- To study and examine the Management Accounting tools practiced in CAAN.
- To identify the difficulties in applying Management Accounting tools in CAAN.
- To identify the Management Accounting tools not in use.
- To recommend the areas where Management Accounting tools can be applied to strengthen the organization.
- To make recommendation to overcome the difficulties in applying Management Accounting tools in CAAN.

Some major findings were as follows:

- It is the ground reality that the transportation service throughout 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.
- 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 outside training centers.

Thebe, (2009), had conducted a research on the topic, “*The Balance Scorecard: Measuring Total Business Unit Performance (A Comparative Study of Commercial Banks)*” an unpublished master level thesis submitted to Faculty of Management, T.U. The main objective of her study was comparison of Nepal Investment Bank Limited and Kumari Bank Limited by using balance scorecard a tool of strategic Management Accounting. The specific objectives of this study were as follows:

- To assess the total business performance of each company from financial, customer, internal business process and learning and growth perspectives.
- To compare the two companies on the basis of above four perspectives and identify the one company stronger than others on various factors.
- To determine the relationship between financial indicators with non financial indicators.

Some major findings were as follow:

- With the help of rank correlation, it has found that the weight given by both banks on financial, customer, internal business process and learning and growth perspectives are highly associated.
- After the test of cause effect model, out nine objects, five objects developed by KBL have zero correlation while only one object with NIBL has zero correlation.
- Among four perspectives three perspectives favor NIBL. It shows the better performance of NIBL through BSC approach.

Shrestha, (2009), had conducted a research on the topic, “*Management Accounting Practices in the Public Financial Sector in Nepal*” an unpublished master level thesis submitted to Faculty of Management, T.U. The main objective of his study was the state of practices of Management Accounting Tools in financial sectors in Nepal. Shrestha's research was based on only primary collection. In his research, he had pointed out various objectives and findings.

Some of remarkable objectives were as follows:

- To evaluate the process of planning controlling and decision making process of Public Financial Sector in Nepal.
- To identify the major difficulties for practicing the Management Accounting tools in Public financial Sectors Nepal.
- To make suggestion and recommendation to overcome the difficulties in Public Financial Sector in Nepal.

Some major findings were as follow:

- The types of budget practiced in PES's of Nepal were operational budget, Cash Budget, Master Budget and Program Budget. Almost PFS's of Nepal practiced operational budget while some prepared master budget. Cash budget and Program Budget were practiced too and most of PES's of Nepal practiced operational budget only for carryout operational activities.

- Reasons for not practicing Management Accounting Tools were lack of expertise, high cost/quite expensive, no information about the tools and governmental policy.
- The past budget estimate of historical expenses were the basis used for preparation of budget. Zero base budgeting was not practiced because of government policy and unwilling of the management.

Thapa, (2010) had conducted a research on the topic, "*Management Accounting Practices In Joint Venture Banks of Nepal*" an unpublished master level thesis submitted to Faculty of Management, T.U. The main objective of this research is to examine and study the practice of management accounting tools in joint venture banks in Nepal. Thapa's research was based on only primary collection. In his research, he had pointed out various objectives and findings. Some of remarkable objectives were as follows:

- To study and analysis the present practice of management accounting tools in the joint venture banks of Nepal.
- To identify the areas where management accounting tools can be applied to strengthen the banks in commercial activities.
- To make recommendations to overcome the difficulties in applying management accounting tools in joint venture banks.

Some major findings were as follow:

- While analyzing the application of management accounting tools practiced in Nepalese Joint Venture Banks for planning, controlling and decision making, it was found that ratio analysis, cash flow analysis and capital budgeting are widely practiced representing 100%, 100% and 100% respectively. Similarly, cost-volume-profit analysis, responsibility accounting and cost segregation into fixed and variable tools were practiced representing 71%, 42% and 42% respectively. Zero base budgeting and flexible budgeting were practiced by 14% and 42% respectively.
- In the case of budget preparation system in JVB'S of Nepal, it was found that 85% joint venture banks' budget was prepared by finance department, 85% by

budget committee and 42% by planning department. But banks are not using outside experts for budget preparation.

- Types of budget practiced in JVB's of Nepal were cash budget, operational budget, master budget and annual budgeting. Almost 57% JVB's of Nepal practiced operational budget while 85% practiced master budget, 14% practiced cash budget and 100% practiced annual budgeting.
- Regarding types of budget practice in JVB's of Nepal, it was found that 100% JVB's of Nepal prepare short term budget. It was also found that medium term budget was prepared just by 14% and long term budget was not practiced by any bank.
- The cost and revenue estimation was used by 85% of JVB's of Nepal on the basis of past trend analysis. 42% and 28% banks use judgmental analysis and market survey analysis.
- With regard to capital budgeting techniques practiced by Nepalese joint venture banks, it was revealed that nearly 28% of joint venture banks are using average rate of return method, 42% of banks are using internal rate of return method. Similarly, 71% of them are using payback period. Net present value and profitability index are applied by 100% respectively.
- For decision making, quotation process is used by 85% joint venture banks of Nepal. Similarly, special order decision, tender process and lease or purchase decision were also applied by 28%, 28% and 71% joint venture banks respectively.
- For the process of pricing service, 57% JVB'S of Nepal used full cost pricing and 42% JVB'S of Nepal used target return on investment method. Variable cost base pricing and ABC costing method was not used by any joint venture banks.
- To segregate mixed cost into fixed and variable, just 42% JVB'S of Nepal used average method and 42% of joint venture banks use analysis method.
- To adjust risk while evaluating capital investment 85% of them use estimated cash flow technique. Sensitivity analysis and higher IRR were practiced by 42%, and 57% respectively. Similarly, short payback period was used by just 28% JVB'S of Nepal.

- To measure and control the overall performance of the banks at the end of accounting year, 100% JVB'S used profit or loss made by the banks. Budgetary control, ratio analysis and cash flow analysis were practiced by 28%, 57% and 71% JVB'S of Nepal. It can be seen in table that standard costing was not used by any joint venture bank of Nepal to evaluate overall performance.
- The nature of the business of banks was taken as major difficult for the application of managerial accounting tools and techniques by almost all CB's of Nepal.
- While examining different banks, it was found that management accounting tools were in practice in one way or the other but banks were practicing most of the privileged tools of management accounting such as sensitivity analysis, judgmental analysis, past actual expenses basis for budget preparation. Banks were not practicing new advance technique of management accounting tools such as: zero base budgeting, activity based costing and target costing etc. This was because companies did not have any information and cognizance about the tools.
- From the open-end analysis, it was found that the major difficulties for application of new advance management accounting tools were:
 - Lack of information,
 - Lack of cognizance about the tools,
 - Lack of expertise and
 - Trend of follow-up past trend.

2.5 Research Gap

There is a vast gap between the present research and previous researches. Previous research works were conducted on management accounting practice in public financial sector, public limited companies and commercial banks by just taking few samples out of total population. Most of the previous researches of accountancy have been conducted on profit planning and control by convening the budgeting practices in manufacturing companies, especially in PEs, Joint Venture Banks, Listed Companies etc. They were either a case study of particular company or a

comparative study of two different companies. A few numbers of researches have been also made in the area of receivable management, inventory management, CVP analysis, financial performance analysis, capital expenditure planning and so on. But these all are only a part of management accounting. This cannot represent the overall practices of management accounting in Nepalese companies. Most of the dissertations have been prepared based on secondary data and all of the findings are similar to each other. The previous researchers did not disclose which of the management accounting tools are in practices which are not and why. Thus to fill up these gap the current research has been conducted. This research is a survey type of research which is mostly based on the primary sources of data. It examines the current practice of management accounting tools in Nepalese Public Organizations. It has disclosed the reason about the tools which are not practiced by the organizations and has suggested to apply new tools such as zero budgeting, activity based costing, target costing, ROI pricing, market survey in managerial activities of planning, controlling and decision making.

So this study will be fruitful to those interested scholars, students, teachers, civil societies, stakeholders, businessmen and government authorities for academically as well as policy perspectives.

CHAPTER- 3

RESEARCH METHODOLOGY

3.1 Introduction

Research Methodology refers to the various steps that are generally adopted by researcher in studying one's research problem along with the logic behind it. Thus, research methodology is a systematic and organized effort to investigate a specific problem that needs a solution (Wolf & Panta, 2005, p. 203).

The procedure to achieve the objectives of the study is research methodology. The objective of this study is to examine the present practice of management accounting and difficulties for application of management accounting tools and techniques in Nepalese Public Enterprises. The study intended to show the effectiveness of management account in planning, controlling and decision making of government owned business organizations.

3.2 Research Design

When a particular research area has been identified, research problem defined, and the related literature in the area have been reviewed; the next step is to construct the research design. Choosing an appropriate research design is crucially important to success of the research project. The decision you make in this stage of your research study ultimately determines the quality of your research results. A faulty research design may result in misleading findings (Pant, 2009, p. 112).

This research is based on primary source of information. As per the nature of study, specific survey research design has been followed with descriptive and analytical approaches to examine the issue and to achieve the objectives. The survey has naturally pointed only such information, which is related to specific purposes which are to describe current practices and event and to analyze the fact.

3.3 Population and Sample

In this study all the public organizations are the population. To make the research more reliable for these all enterprises (which are 37 enterprises in public ownership (www.mof.gov.np)), total population has considered as sample population. The entire population is divided into business sector (i.e. Industrial sector, Trading sector, Social service sector, Public utility sector and financial sector) from heterogeneous individuals. The Public Enterprises are classified on the basis of functions performed by them. Then a simple judgment sampling procedure is used to draw the sample from each group. In this way 24 PEs has been taken as sample by using stratified judgment sampling for proportionate allocation of population, which represents 65.33% of total population.

The table given below clearly describes the total population, sample population and percentage of the sample on total population of the research:

Table 0-1 Population and Sample of the Study

S.N.	Business sector	Total Population	Sample Draw	Sample %
1	Industrial Sector	7	5	71
2	Trading Sector	6	4	67
3	Service Sector	7	5	71
4	Social Service Sector	5	3	60
5	Public Utility Sector	3	2	67
6	Financial Sector	9	5	56
Total		37	24	65

3.4 Nature and Sources of Data

The study consists of both secondary and primary data in nature. Primary data have been collected through the discussion with concerned experts and subject, observation and structure questionnaires as well as unstructured interview. The data have also been collected using questionnaire consisting of both closed and open ended questions. The secondary data including information are collected from:

balance sheet, financial statements, operational reporting of particular organization. Similarly bulletins, articles, journals, Central Bureau of Statics, library, Economic Survey, plans and different websites have been used.

3.5 Data Collection Procedure

For the reliability and effectiveness of research work true and correct information are essential. In order to achieve the objectives of the study primary information is the original source of this study with prior appointments to the concerned authorities of public enterprises. As per requirement of the study these information have been collected from public enterprises for meeting the specific objective through developing the scheduled questionnaire and distributed it to the concerned authorities like department chief of finance / accounts, manager who was available as well as responsible. Some public enterprises did not feel and show responsibility to provide information. Some public enterprises provided the information kindly showing interest and accepting awareness of the context and to get more information, discussion, personnel interview, observation, opinions survey also conducted with the concerned authorities. But several secondary data have been also used in this research. To find out the identification, condition capacity, performance of public enterprises, such types of data were used. It helped the researcher to get more information.

3.6 Data Processing and Analysis Techniques

The answer received from questionnaire need tabulation and analysis. The data are classified and tabulated with a systematic manner in a frequency distribution form. The data are tabulated into various tables according to the subject's requirement. Processing of data has been done in computer by using Ms. Excel program. Simple percentage tools have been applied to analyze and interpret the findings. Most of the analysis and interpretation are expressed in spectral group of enterprises. PEs individual special practices have been also interpreted in some cases.

3.7 Tools of Analysis

The following management accounting tools have been considered while collecting, presenting and analyzing the data: -

- Cost Segregation into Fixed and Variable
- Break Even Analysis
- Cost-Volume-Profit Analysis
- Standard Costing
- Budgeting (Long Term and Short Term)
- Responsibility Accounting
- Decision Making
- Capital Budgeting
- Ratio Analysis
- Cash Flow Statement
- Activity Based Budgeting
- Zero Based Budgeting
- Pricing Techniques etc.

3.8 Research Variables

The following management accounting variables have been considered as major research variables while collecting, presenting and analyzing the data: -

- Planning and Budgeting
- Marketing Plan and Customer Relation
- Goal Congruence
- Cost of Production
- Resources: Human, Finance, Physical and Information.

3.9 Hypothesis of the Study

Hypothesis 1:

There is no significance difference between the practices of MA tools and techniques in the manufacturing and service companies. (Practice of MA techniques and type of companies are independent.)

Hypothesis 2:

The major accounting related decision doesn't depend on the result of management accounting techniques. (Major accounting related decision-making process and management accounting techniques are independent.)

3.10 Reliability and Validity of the Data

The data and information were collected from the primary source to meet the specific objectives of the study. It makes the research work more valid, reliable and objective. The major portion of reliability and validity of data depend upon the interest, level, professionalism, intension, nature, age and capacity of the respondents. The researcher had tried to meet the authentic and prime authorities of the enterprises to get the correct information with personnel discussion, observation and opinion survey. Check and balance types questions were also included in the questionnaire.

CHAPTER-4

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

The basic objective of this study as stated in chapter one is to have true insight into the present practices of management accounting tools in Nepalese public organizations. This is a survey type of research. To achieve the specific objectives of the research, this chapter presents the presentation, analysis and interpretation of data. In this study the effort has been made to assess and analysis the management accounting practice, to disclose the actual position of management accounting practice in Nepalese public organizations.

It is survey types of research. So the study is based on the primary source of information. The data has been collecting from the respective public enterprises by developing the scheduled questionnaire. For the facilitating to the study, the enterprises are classified into six different business sectors as per the nature and function performed by the company. Out of the total population about 65.33% has been used as a sample by using stratified judgment sampling.

Tables have been developed based on the subject matter of questions. For the analyzing and interpreting of findings, the simple percentage tool has been applied. Most of the analysis and interpretation has expressed in special group of enterprises that is industrial sectors, trading sectors, service sectors, social service sectors, public utility sectors and finance sectors. Individual practices and open-ended operations of PEs have been also analyzed, interpreted and arranged as per requirement.

The statistical tools chi- square (χ^2) has also used to test the hypothesis related to the management accounting. Two different hypotheses have been tested.

4.2 Percentage Analysis of Management Accounting Tools Practice in Nepalese Public Organizations

The given table No. 4.1 represents the present practices of management accounting tools in Nepalese Public Organizations. The prime tools of management accounting that is cost segregation, cost volume profit analysis, standard costing, flexible budget and overhead cost control, budgeting annually, budgeting long term, responsibility accounting, ratio analysis, cash flow analysis and capital budgeting has been used in survey to identify the present practice of management accounting in Nepalese Public Organizations and also practiced by different business sector which have been expressed in percentage in the following table:

Table 0-2 Percentage Analysis of Management Accounting Tools Practice in Nepalese Public Organizations

SN	Business Sectors		Industrial		Trading		Service		Social Service		Public Utility		Financial		Total	Total %
	Management Accounting Tools	Population	7	6	7	5	3	9	37							
		Sample	5	4	5	3	2	5	24							
		Sample %	71	67	71	60	67	56	65							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	-		
1	Cost Segregation		-	-	1	25	2	40	-	-	-	-	3	60	6	25
2	Cost Volume Profit Analysis		3	60	-	-	2	40	1	33	1	50	2	40	9	38
3	Standard Costing		3	60	-	-	2	40	-	-	-	-	-	-	5	21
4	Flexible Budget and OH cost control		-	-	1	25	-	-	1	33	-	-	2	40	4	17
5	Budgeting Annually		5	100	4	100	5	100	3	100	2	100	5	100	24	100
6	Budgeting Long Term		-	-	1	25	-	-	-	-	-	-	4	80	5	21
7	Responsibility Accounting		4	80	2	50	2	40	2	67	-	-	4	80	14	58
8	Ratio Analysis		3	60	1	25	-	-	1	33	1	50	4	80	10	42
9	Cash Flow Analysis		4	80	3	75	3	60	2	67	2	100	4	80	18	75
10	Capital Budgeting		2	40	2	50	3	60	-	-	2	100	-	-	9	38
Total			24		15		19		10		8		28		104	

(Source: Field Survey 2012)

In the context of Industrial/Manufacturing sectors, there is found only fully practiced of annual budgeting. Responsibility accounting and cash flow analysis are

the second highest practicing (which is 80%) in this sector. Similarly, Cost Volume Profit Analysis and ratio analysis are being practiced by 60% industrial sectors. Capital budgeting is practiced by 40% industrial sectors but standard costing, flexible budget and overhead cost control, long-term budgeting have not found in practicing in industrial sectors.

In case of trading sector, here is also found fully practiced of only annual budgeting. Whereas, cash flow analysis is practicing by 75%. Similarly, responsibility accounting and capital budgeting are practicing by 50% in trading sector cost segregation, flexible budgeting and overhead cost control, long-term budgeting and ratio analysis are practicing by 25%. But cost volume profit analysis and standard costing have not found in practicing in trading sectors.

Similarly in the context of service sector, here is also found fully practicing of annual budgeting. And then, cash flow analysis is practicing by 60% from these sectors. On the same way, cost segregation, cost volume profit analysis, standard costing, responsibility accounting and capital budgeting are being practiced by 40% from service sectors. But here are also not found to practice of flexible budgeting, long-term budgeting and ratio analysis on these sectors.

On the same way in social service sectors, 100% of these sectors are practicing of annual budgeting and the secondly, 67% of these sectors are practicing of responsibility accounting and cash flow analysis. Similarly, cost volume profit analysis, flexible budgeting and overhead cost control and ratio analysis are practicing by 33% from these sectors. But the practice of cost segregation, standard costing, long-term budgeting and capital budgeting are not found on these sectors.

In public utility sectors, here are found to fully practice of annual budgeting, cash flow analysis and capital budgeting while cost volume profit analysis and ratio analysis are practicing by 50% on these sectors. Cost segregation, standard costing, long-term budgeting and responsibility accounting have not found in practice on these sectors.

So far in financial sectors, 100% of financial sectors are practicing only the annual budgeting. Long term budgeting, responsibility accounting, ratio analysis and cash flow analysis are practicing by 80% on these sectors while cost segregation is practicing by 60% on these sectors. Similarly, cost volume profit analysis, flexible budgeting and overhead cost control are practicing by 40% organizations of financial sectors. On these sectors, standard costing and capital budgeting have not found to practice.

In sum up, 100% of total enterprises are practicing the annual budgeting, 75% cash flow analysis, 58% responsibility accounting, 42% ratio analysis, 38% cost volume profit analysis and also capital budgeting, 25% cost segregation, 21% long term budgeting and standard costing and 17% flexible budgeting and overhead cost control has been found in practice in Nepalese PEs for the management decision for covering planning and controlling.

Finally, the survey is proved that the widely used tools in Nepalese PEs are annually budgeting and secondly cash flow analysis. And then responsibility accounting, ratio analysis, CVP analysis and capital budgeting, and flexible budgeting and OH cost control respectively are used in practice which are playing nominal role to the Nepalese PEs.

4.3 Reasons for Non-practicing MA Tools and Techniques in Nepalese Public Organizations

The following table shows the level of reason for not practicing of the prime accounting tools which has mentioned in topics no 4.2 for the management decisions. In the context of Nepalese PEs, there are so many reasons for not practicing of management accounting which are described under with sector wise with the help of questionnaire surveying purpose:

Table 0-3 Reasons for Non-practicing MA Tools and Techniques in Nepalese Public Organizations

SN	Reason for Non-Practicing the MA	Population	Sample		Lack of Expertise		High Cost		No Information of tools	
			No	%	No	%	No	%	No	%
1	Industrial	7	5	71	3	60	2	40	2	40
2	Trading	6	4	67	1	25	2	50	1	25
3	Service	7	5	71	1	20	-	-	-	-
4	Social Service	5	3	60	1	33	1	33	-	-
5	Public Utility	3	2	67	-	-	1	50	1	50
6	Financial	9	5	56	2	40	2	40	1	20
Total		37	24	65	8	33	8	33	5	15

(Source: Field Survey, 2012)

In the context of industrial sector, the maximum i.e. and 60% of the industrial sectors have not practiced all prime tools due to the lack of expertise, 40% of these sectors have no information to use all the prime tools of accounting and 40% due to high cost reasons.

In case of trading sector, 50% of the sample organizations are not practicing prime management accounting tools because of lack of information and 25% each due to high cost reason and lack of expertise.

In service sector, 20% of total service sectors have not used of all prime management accounting tools due to the lack of experience reason. Rest 80% service sectors have not specified any reason on this matter for not using all prime MA tools.

On the same way for the social service sector, here is also 33% of total social service sector have mentioned for not using prime management accounting tools due to the lack of experience and high cost. The remaining social sectors have not mentioned about the specific reason for not using the prime management accounting tools for the managing decisions.

Similarly, 50% of the total public utility sectors have mentioned for not practicing of the prime management accounting tools due to the high cost and also not get the proper information. But the remaining 50% of these enterprises are not practicing because of the poor service and shortage of product.

Regarding in financial sector, lack of the experience and high cost about the tools becoming the main reasons in 40% financial sector for non-practicing the management accounting. And the only 20% financial sectors have mentioned non availability of information for not practicing the all prime management accounting tools.

In sum up, out of total public enterprises 33% of companies mentioned from high cost and lack of experience for the non- practicing of prime management accounting tools, and 15% of PEs mentioned no information of tools for non- practicing of prime management accounting tools.

4.4 Percentage analysis of Management Accounting Techniques Practice in Nepalese Public Enterprises

4.4.1 Practice of Segregation of Mixed Costs into Fixed and Variable In Nepalese Public Enterprises

The following table represents the practice of segregating mixed cost into fixed and variable in Nepalese enterprises. Usually four different methods i.e. high-low point method, regression analysis method, average analysis method and analytical method have been used to segregate the mixed cost in questionnaire. In this types of costs, some of part contains fixed cost and some of contains variable cost. To perform better managerial function from planning and control, it must be necessary to segregate into fixed and variable. It helps to the manager for the decision and also effective for planning and controlling.

Table 0-4 Practice of Segregation of Mixed Costs into Fixed and Variable In Nepalese Public Enterprises

SN	Industry	Population	Sample		High-Low		Regression		Average		Analytic	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	-	-	-	-	4	80	-	-
2	Trading	6	4	67	-	-	-	-	4	80	-	-
3	Service	7	5	71	-	-	-	-	-	-	2	40
4	Social Service	5	3	60	-	-	-	-	-	-	-	-
5	Public Utility	3	2	67	-	-	-	-	1	50	-	-
6	Financial	9	5	56	-	-	-	-	4	80	1	20
Total		37	24	65	-	-	-	-	13	54	3	13

(Source: Field Survey 2012)

From the above table, 80% each of the industrial sectors, trading sectors and financial sectors are practicing average method to segregate the mixed costs into fixed and variable. But service sectors and social sectors have not found to practice of average analysis method of management accounting tools for the planning and controlling decision.

Secondly, 40% of the service sectors and 20% of financial sectors are found to practice the analytical method for this purpose but the remaining 60% of the service sectors have not found to use any of the segregation of cost techniques. The other remaining sectors that is industrial, trading, social service and public sectors also have not found to practice the analytical method of management accounting tools for the decision of planning and controlling.

High-low method and regression method which are the effective and real techniques to segregate the mixed costs have not found to practice these methods in Nepalese PEs of management accounting tools for the decision of planning and controlling.

Out of the total companies, it is found that the maximum practice of segregate the cost in Nepalese PEs of management accounting tools is average analysis method which is 54% and second practice is analytical method which is only 13%. The reasons behind the non-practicing of high-low method and regression method have found that the authorities are not aware about the tools and techniques. Almost of the sectors said for non-practicing these method which are very difficult to

calculate, time consumed and also an expensive technique than the average and analytical methods. But the public sectors said that it is not applicable for practicing the all segregation of mixed costs into fixed and variable cost.

4.4.2 Practice of Budget in Nepalese Public Enterprises

The given table below reveals the types of budget and its practice in Nepalese PEs. There are three types of budget i.e. operating budget, cash budget and overall master budget has been used for business sectors.

Table 0-5 Practice of Budget in Nepalese Public Enterprises

SN	Industry	Population	Sample		Operating Only		Cash Only		Overall Master	
			No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	-	-	4	80	1	20
2	Trading	6	4	67	-	-	1	25	3	75
3	Service	7	5	71	4	80	-	-	1	20
4	Social Service	5	3	60	2	67	1	33	-	-
5	Public Utility	3	2	67	2	100	-	-	-	-
6	Financial	9	5	56	1	20	-	-	4	80
Total		37	24	65	9	38	6	25	9	37

(Source: Field Survey 2012)

In the context of industrial sector, 80% of manufacturing PEs are practicing cash budget only, and remaining 20% of the same enterprises are practicing overall master budget of management accounting tools for the decision of planning and controlling.

In case of trading sector, 75% of trading PEs are practicing overall master budget and remaining 25% of the same PEs are practicing only cash budget. The operating budget only has not found to practice on these trading sectors.

In case of service sector, 75% of service sectors are practicing operating budget only and remaining 25% of service sectors are practicing only overall master budget. In these sectors, there has not found to practice of cash budget for the planning and controlling decision.

In the context of social service sector, 67% of this PEs are practicing only operating budget and remaining 33% enterprises are practicing cash budget only to provide their social type services.

The public utility sectors are found only fully practicing of operating budget only for operational activities.

In the financial sector, 80% of PEs are practicing overall master budget and remaining 20% of PEs are practicing operating budget only.

In sum up, 38% PEs are practicing operational budgeting only, 37% PEs are practicing overall master budget and remaining 25% practicing cash budget only to carry out their day-to-day operational activities. From the survey found that operating budgeting has found mostly practiced in Nepalese public enterprises.

4.4.3 Base for Preparing Budgeting in Nepalese Public Enterprises

The table below reveals the base for budgeting preparation in Nepalese PEs. Different four types namely based on past budget estimate, based on past actual expenses, zero based budget and activity based budget have mostly used for this purpose. So these four types of option have included in survey and the survey found that the following result:

Table 0-6 Base for Preparing Budgeting in Nepalese Public Enterprises

SN	Industry	Population	Sample		Past Budget Estimate		Past Actual Expenses		Zero Based Budget		Activity Based	
			No	%	No	%	No	%	No	%	No	%
1	Industrial	7	5	71	2	40	1	20	1	20	1	20
2	Trading	6	4	67	2	50	1	25	-	-	1	25
3	Service	7	5	71	1	20	2	40	-	-	2	40
4	Social Service	5	3	60	1	33	2	67	-	-	-	-
5	Public Utility	3	2	67	1	50	1	50	-	-	-	-
6	Financial	9	5	56	1	20	2	40	1	20	1	20
Total		37	24	65	8	33	9	38	2	8	5	21

(Source: Field Survey 2012)

In industrial sector, 40% of manufacturing PEs are practicing the past budget estimate, 20% each enterprises are practicing the past actual expenses, zero based budget and activity based budget as a base to prepare of budget.

In the context of trading sector, 50% enterprises are practicing the past budget estimate, 25% of these enterprises are taking past budget estimate for the base of preparation the budget and 25% are practicing activity base budget for the preparation of budget. Here, zero base budgets has not found in practice for the preparation of budget.

In case of service sector, 40% enterprises are practicing the past budget estimates and activity based for the basis to prepare the budget and 20% enterprises are practicing past actual expenses as a base to prepare the budget. Here is also not found the practice of 'zero based budgeting' as base of budget preparation.

Similarly in social service sector, 67% enterprises are practicing to prepare budget on the basis of past actual expenses and 33% enterprises are also practicing to prepare the budget on the basis of past budgeting estimate. Zero based budget and activity based budget have not found in practice for the preparation of budget.

Likewise in public utility sector, 50% each of enterprises are practicing to prepare the budget on the basis of past budget estimate and past actual expenses. Zero base budget and activity based budget have not found in practically use in these sector for the preparation of budget.

Finally in financial sector, 40% enterprises are practicing to prepare the budget on the basis of past actual expenses and 20% each of the enterprises are practicing to prepare the budget on the basis of past budgeted expenses, Zero base budget, Activity base budgeting techniques.

In sum up, 38% enterprises are preparing the budget on the basis of past actual expenses and 33% of the enterprises are preparing the budget on the basis of past budgeted expenses, 21% of them are using Activity based budgeting techniques and 8% are using zero base budgeting. From the above survey, it is cleared that the most of the countries widely practicing the past actual expenses and past budget estimate

as a base to prepare the budget. The used of zero based has only found to practice in financial sector in certain case only.

4.4.4 Responsible for the Budget Preparation System Practice in Nepalese Public Enterprises

The following table represents the budget preparation system practiced in Nepalese PEs. Normally, budget committee, planning department, finance department and outside experts has been involved to prepare the budget. Above mention four alternatives have been included in an option while making the survey.

Table 0-7 Responsible for the Budget Preparation System Practice in Nepalese Public Enterprises

SN	Industry	Population	Sample		Committee		Planning Department		Finance Department		Outside Experts	
			No	%	No	%	No	%	No	%	No	%
1	Industrial	7	5	71	1	20	3	60	1	20	-	-
2	Trading	6	4	67	2	50	1	25	1	25	-	-
3	Service	7	5	71	2	40	2	40	1	20	-	-
4	Social Service	5	3	60	1	33	1	33	1	33	-	-
5	Public Utility	3	2	67	-	-	1	50	1	50	-	-
6	Financial	9	5	56	-	-	2	40	3	60	-	-
	Total	37	24	65	6	25	10	42	8	33	-	-

(Source: Field Survey 2012)

From the above table it is found that, in 60% of the industrial sector are practicing the budget from planning department and 20% each of the same sectors are practicing the budget from committee and finance department. In the industrial sector, there is not found to prepare the budget from outside expert.

In the context of trading sector, 50% trading sector are preparing budget from committee, 25% trading sector are practicing from planning department and 25% trading sector are practicing from finance department. In this sector, there is also not found the practicing budget from outside experts.

Likewise in service sector, 40% enterprises are practicing budget from committee and planning department and only 20% enterprises are practicing the budget from

finance department. Outside expert has not found in practice for the preparation of budget in this sector.

In case of social service sector, 33% each of the enterprises are preparing the budget from finance department, with the help of committee and planning department. Here is also not found to practice the budget from outside experts.

In public utility sector, 50% enterprises are preparing the budget from planning department and finance department. In this sector, there is not found to prepare budget from committee and outside expert.

In finance sector, 75% enterprises are preparing budget from finance department and 50% enterprises are preparing budget from planning department.

Out of total PEs, 42% enterprises are preparing the budget from planning department, 33% from finance department and 25% from budget committee. But in Nepalese public enterprises are not found any practiced of hiring the outside experts to prepare the budget. Regarding preparation of budget, it is found that the most of the enterprises have been collected information from three different department and the finance department as well as planning department compiled the budget as per requirement.

4.4.5 Types of Budget Practice in Nepalese Public Enterprises

The following table reveals the type of budget on the basis of time period practice in Nepalese PEs. Generally three types of budget i.e. short-term budget (up to one year), medium term budget (one to five years) and long term budget (five years and more) are widely used in business sector. While making the survey, different three alternatives have been included for the option in survey.

Table 0-8 Types of Budget Practice in Nepalese Public Enterprises

SN	Industry	Population	Sample		Short Term Budget		Medium Term Budget		Long Term Budget	
			No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	5	100	-	-	-	-
2	Trading	6	4	67	4	100	-	-	-	-
3	Service	7	5	71	5	100	1	20	-	-
4	Social Service	5	3	60	3	100	-	-	-	-
5	Public Utility	3	2	67	2	100	1	50	1	50
6	Financial	9	5	56	5	100	1	20	1	20
Total		37	24	65	24	100	3	13	2	8

(Source: Field Survey 2012)

From the survey it is found that all of the enterprises (i.e. 100%) are practicing short-term budget. But 20% in service sector 50% Public utility sector and 20% in financial sector are also practicing the medium term budget. 50% of public utility and 20% of financial sector enterprises are also practicing the long term budget. Industrial sector, trading sector and social service sector are only practicing of short-term budget.

Generally business enterprises prepared the long term budget at the time of company establishment. Long-term budget shows the goal, objectives, mission, vision and target of enterprises in the long term. Different environment must be considered while preparing the budget. It provides guidelines to operate the daily activities in short-term, medium term and long-term. But in the PEs have not found interested to prepare the medium term and long-term budgets.

4.4.6 Present Practice of Long Term Investment Decision in Nepalese PEs

The following table represents the present practice of long term investment decision in Nepalese PEs. Long term means more than one year's period. Different five types of techniques i.e. payback period (PBP), Average rate of return (ARR), net present value (NPV), internal rate of return (IRR) and profitability index (PI) have been included in option, while conducting the survey.

Table 0-9 Present Practice of Long Term Investment Decision in Nepalese PEs

SN	Industry	Population	Sample		PBP		ARR		NPV		IRR		PI	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	-	-	1	20	3	60	-	-	-	-
2	Trading	6	4	67	1	25	1	25	1	25	-	-	-	-
3	Service	7	5	71	2	40	-	-	2	40	2	40	-	-
4	Social Service	5	3	60	2	67	1	33	1	33	1	33	-	-
5	Public Utility	3	2	67	1	50	1	50	1	50	1	50	1	50
6	Financial	9	5	56	4	80	2	40	2	40	2	40	2	40
Total		37	24	65	10	42	6	25	10	42	5	21	3	13

(Source: Field Survey 2012)

In industrial sector, 60% enterprises are practicing the NPV and 20% enterprises are practicing the ARR techniques for the long term investment decision.

Similarly in trading sector, 25% enterprises are practicing the PBP, ARR and NPV analysis of long term investment techniques for the investment on fixed assets. The other enterprises of this sector are not practice any tool of long term investment.

In case of service sector, 40% enterprises are practicing PBP, NPV and IRR for long term investment decision.

In social service sector, 67% social service sectors are practicing PBP technique and 33% social service sector are practicing ARR, NPV and IRR for the long term investment decisions.

In public utility sectors, 50% public enterprises are practicing all techniques i.e. PBP, ARR, NPV, IRR and PI for the long term investment decision.

In financial sector, 80% financial enterprises are practicing PBP techniques for the long term investment decision and 40% financial enterprises are practicing ARR, NPV, IRR and PI for the long term investment decisions.

In sum up, 38% of total enterprises are practicing PBP and NPV, 29% practicing ARR, 24% enterprises practicing IRR and 14% enterprises practicing PI for the long term investment decision in Nepalese PEs.

4.4.7 Present Practice of Pricing Mechanism for the Product/ Service in Nepalese PEs

The following table represents the pricing mechanism practiced in Nepalese PEs. Business house have determined the price of their product/service on the basis of full cost based pricing (absorption costing), variable (marginal) cost based pricing, going rate pricing (market determined), target return on investment pricing and activity based costing pricing. Different five alternatives and open-end options have been included in survey for suitable choice.

Table 0-10 Present Practice of Pricing Mechanism for the Product/ Service in Nepalese PEs

SN	Industry	Population	Sample		Full Cost		Variable Cost		Going Rate		Target Return		Activity Based	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	1	20	2	40	2	40	-	-	-	-
2	Trading	6	4	67	2	50	-	-	1	25	-	-	1	25
3	Service	7	5	71	-	-	1	20	-	-	-	-	1	20
4	Social Service	5	3	60	-	-	1	33	-	-	-	-	2	67
5	Public Utility	3	2	67	-	-	-	-	1	50	1	50	1	50
6	Financial	9	5	56	-	-	-	-	1	25	1	25	-	-
Total		37	24	65	3	13	4	17	5	21	2	8	5	21

(Source: Field Survey 2012)

In industrial sector, 20% manufacturing enterprises are practicing full cost based pricing system and 40% of this enterprises are practicing variable cost based and going rate pricing system to determine the price of product produced. On this sector there has not found to practice of target return on investment and activity based pricing techniques.

In trading sector, 50% trading companies are practicing full cost base pricing technique and 25% trading companies are practicing going rate and activity based technique to determine the price. The other technique has not found to apply for the determination of price of products.

In service sector, 20% of service enterprises are practicing variable cost based and activity based pricing techniques to determine the price of their services.

Similarly in social service sector, 33% enterprises are practicing variable cost based and 67% enterprises are practicing activity based pricing technique to determine the price of service.

In case of public utility sector, 50% enterprises are practicing going rate, target return on investment and activity based pricing techniques to determine the price of services.

In financial sector, 25% enterprises i.e. only RBB is practicing the going rate and target return on investment technique for the determination of price. But in this sector this is not applicable.

Thus out of total enterprises, 13%, 17%, 21%, 8% and 21% Nepalese PEs are practicing full cost, variable cost, going rate, target return on investment and activity based pricing respectively to determine the price of products/services. In some enterprises, government fixed the price as per the recommendation of management and board. But in some financial institution determines the price on market base of their service.

4.4.8 Practice of Transfer Pricing Techniques for Internal Purpose in Nepalese Public Enterprises

The following table no shows the practice of transfer pricing in Nepalese PEs. A business enterprise has charged the price of its product/service from one department to another department. Widely using methods to determine the price into intra organizations are market price based, cost price based, target return based and

negotiation based. Different four alternatives were included while making the survey to find out the transfer pricing practice in Nepalese PEs.

Table 0-11 Practice of Transfer Pricing Techniques for Internal Purpose in Nepalese Public Enterprises

SN	Industry	Population	Sample		Market Based		Cost Based		Target Return Based		Negotiations	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	-	-	4	80	-	-	-	-
2	Trading	6	4	67	2	50	3	75	-	-	-	-
3	Service	7	5	71	1	20	1	20	-	-	3	60
4	Social Service	5	3	60	-	-	1	33	-	-	-	-
5	Public Utility	3	2	67	-	-	1	50	-	-	-	-
6	Financial	9	5	56	-	-	1	20	-	-	-	-
Total		37	24	65	3	13	11	46	-	-	3	13

(Source: Field Survey 2012)

In case of industrial sector, 80% manufacturing enterprises are practicing cost based transfer pricing technique to transfer their semi product/service into another department. 20% enterprises have not found to practice of any transfer pricing to transfer their semi-finished product for the further process.

In trading sector, 50% trading companies are transferring their products on the basis of cost accrued on it and 75% companies are also transferring their products on the basis of cost based.

In the context of service sector, 20% enterprises are practicing two technique i.e. market base and cost based of transfer pricing. 60% enterprises are practicing negotiations based of transfer pricing.

In case of social sector, 33%enterprises are practicing cost based transfer pricing technique and remaining 67% enterprises have not found any practiced of transfer pricing technique.

In case of public utility sector, 50% enterprises are practicing cost based transfer pricing technique. Remaining 50% enterprises have not found to practice any technique of transfer pricing.

In financial sector, 20% enterprises are practicing cost based transfer pricing. Remaining 80% enterprises have not found to practice any technique of transfer pricing.

In sum up, 46%, of total enterprises are practicing cost based, 13% market based and negotiation based of transfer pricing techniques each. Target return based of transfer pricing has not found to practice in any Nepalese PEs.

The main reasons behind the non-practicing of transfer pricing in the PEs are lack of such type of culture, difficult to calculate the cost of semi product and service, multi type of product/ service which they produce, and nature of business. In the absence of transfer pricing technique business firm cannot measure the performance of individual department. It makes also difficulties to control the activities of departments. The transfer pricing techniques must be necessary to make the autonomous of the department's activities and to decentralize the authority and responsibility of the business enterprises.

4.4.9 Present Practice of Pricing the Issued Inventory in Nepalese Public Enterprises

The following table no represents the methods of inventory valuation in Nepalese PEs. Widely used methods to evaluate the value of inventory are LIFO, FIFO, Simple Average, Weighted Average and Specific Items. The above mentions five alternatives have been available to the represents for an option to the survey findings.

Table 0-12 Present Practice of Pricing the Issued Inventory in Nepalese Public Enterprises

SN	Industry	Population	Sample		LIFO		FIFO		Simple Average		Weighted Average		Specific Items	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	-	-	4	80	1	20	-	-	-	-
2	Trading	6	4	67	-	-	4	100	1	25	1	25	-	-
3	Service	7	5	71	-	-	3	60	-	-	-	-	1	20
4	Social Service	5	3	60	-	-	2	67	-	-	1	33	1	33
5	Public Utility	3	2	67	-	-	2	100	-	-	-	-	-	-
6	Financial	9	5	56	-	-	4	80	-	-	-	-	-	-
Total		37	24	65	-	-	19	79	2	8	2	8	2	8

(Source: Field Survey 2012)

In industrial sector, 80% manufacturing enterprises are practicing FIFO method for the issued inventory. While, 20% practicing simple average method to evaluate the value of inventory. The practice of FIFO, weighted average and specific items have been not found in practice in industrial sector.

In the context of trading sector, 100% enterprises are practicing FIFO method for the issued inventory. 25% enterprises are also practicing the simple average and weighted average to evaluate the value of inventory. The practice of LIFO, weighted average and specific items have not found in practice in trading sector.

In case of service sector, 60% enterprises are practicing FIFO method for the issued inventory and 20% enterprises are practicing specific items to evaluate the inventory.

Similarly in social service sector, 67% enterprises are practicing FIFO method to evaluate the inventory and 33% enterprises are practicing weighted average and specific items to evaluate the inventory.

In public utility sector, 100% enterprises are practicing only FIFO method to evaluate the inventory.

In financial sector, 80% enterprises are practicing only FIFO method to evaluate the inventory and remaining 20% enterprises have not found any practice of inventory valuation.

In sum up, 79% enterprise practiced FIFO method and 8% enterprises practiced simple average, weighted average and specific items for inventory valuation. The survey found that the service and financial institutions have not kept any inventory except stationery and office accessories. Therefore there may be the less practice of inventory valuation. It is also found that, most of the PES is using FIFO method to evaluate the inventory because it is easy to calculate and manage.

4.4.10 Present Practice of Management Accounting Decision Techniques in Nepalese Public Enterprises

The following table reveals the practice of decision techniques in Nepalese PEs. From the management accounting point of view, the major decision techniques are make or buy the component, lease or purchase the fixed assets, drop or continue the any product or service line, sale now or further process the product, accept or reject a special offer and so on. In such types of decision techniques, management must be considers the cost and revenue from differential analysis. The above mentions five techniques and opinion space have included in the survey to identify the practice of decision techniques for such type of decisions.

Table 0-13 Present Practices of Management Accounting Decision Techniques in Nepalese Public Enterprises

SN	Industry	Population	Sample		Make/Buy		Lease/Purchase		Drop/Contd.		Sale/Further		Special Offer	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	2	40	-	-	-	-	2	40	-	-
2	Trading	6	4	67	1	25	-	-	1	25	1	25	1	25
3	Service	7	5	71	-	-	-	-	-	-	-	-	-	-
4	Social Service	5	3	60	1	33	1	33	-	-	-	-	-	-
5	Public Utility	3	2	67	-	-	1	50	-	-	-	-	1	50
6	Financial	9	5	56	-	-	1	20	1	20	-	-	1	20
Total		37	24	65	3	13	3	13	2	8	2	8	3	13

(Source: Field Survey 2012)

In the context of industrial sector, 40% enterprises are practicing make or buy decision techniques and 40% enterprises are practicing sale or further process decision technique. 20% enterprises have not found any practice of management accounting decision technique.

In case of trading sector, 25% enterprises are practicing make or buy, 25% enterprises are practicing drop or continue and sale or further process and 25% enterprises are practicing special offer decision from the management accounting point of view. 25% enterprises have not found any practice of management accounting decision technique.

In case of service sector, the enterprises have not practicing any accounting technique for the management decision making process. The main reason behind the non-practicing of such techniques may be the nature of business which they operate.

In case of social service sector, 33% enterprises are practicing the make or buy and lease or purchase decision techniques. 67% enterprises have not found any practice of management accounting decision technique.

In case of public utility sector, 50% enterprises are practicing the lease or purchase the fixed assets and special offer decision for the management decisions. The remaining 50% enterprises have not found any practice of management accounting decision techniques.

In financial sector, 20% enterprises are practicing lease or purchase the fixed assets, drop or continue the product or service and special offer decision for the management accounting point of view. 80% enterprises have not found any practice of management accounting decision techniques.

In sum up, 13% enterprises are practicing make or buy decision, lease or purchase decision and special offer decision technique. While, 8% enterprises are practicing drop or continue and sale or further process decision techniques. The main reason

behind the non-practicing of such MA techniques have been lack of cognizance about the tools, long procedures and lack of culture for such type of practice.

4.4.11 Practices of Measure and Control Mechanism to Evaluate the Overall Performance in Nepalese Public Enterprises

The following table represents the practice of measure and control the overall performance in Nepalese PEs. All types of organization want to watch measure and control the overall performance at the end of certain accounting period. Most of the organizations used profit and loss criteria, budgetary control, standard costing, flexible budget and ratio analysis techniques to measure and control the overall performance. These techniques also help to identify the financial performance and position of the enterprises. The above mention five techniques and open opinion space has been included to the respondents for the alternatives.

Table 0-14 Practices of Measure and Control Mechanism to Evaluate the Overall Performance in Nepalese Public Enterprises

S N	Industry	Population	Sample		Profit and Loss A/c		Budgetary Control		Standard Costing		Flexible Budgeting		Ratio Analysis	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	5	100	2	40	-	-	-	-	-	-
2	Trading	6	4	67	4	100	1	25	-	-	-	-	1	25
3	Service	7	5	71	4	80	1	20	-	-	-	-	-	-
4	Social Service	5	3	60	3	100	-	-	-	-	-	-	-	-
5	Public Utility	3	2	67	2	100	1	50	-	-	-	-	1	50
6	Financial	9	5	56	4	80	4	80	-	-	1	20	1	20
	Total	37	24	65	22	92	9	38	-	-	1	4	3	13

(Source: Field Survey 2012)

In industrial sector, 100% enterprises are practicing profit and loss criteria and also 40% enterprises are practicing budgetary control techniques to measure and control the overall performance. Other tools like standard costing, flexible budgeting and ratio analysis have not found in practice.

In case of trading sector, 100% enterprises are practicing profit and loss criteria and also 25% enterprises are practicing budgetary control and ratio analysis to measure

and control the overall performance. Other tools like standard costing and flexible budget have not found in practice in this sector.

In service sector, 80% enterprises are using profit and loss criteria to measure and control the performance. But 20% enterprises are using budgetary measure and control criteria to overall evaluation of the firm.

In the context of social service sector, 100% enterprises are measuring and controlling their overall performance from profit and loss made them. The other tools like budgetary control, standard costing, flexible budget and ratio analysis have not found in practice in social service sector.

Likewise in public utility sector, 100% enterprises are using profit and loss criteria and 50% enterprises are also practicing budgetary control and ratio analysis to measure the performance and control the activities of the enterprises. Standard costing and flexible budgeting have not found in practice in this sector.

Finally in financial sector, 80% enterprises are using profit and loss account and budgetary control and rest 20% enterprises are practicing flexible budgeting and ratio analysis to measure the performance and control the activities. Standard costing has not found in practice in this sector.

Out of the total enterprises, 92% enterprises are practicing profit and loss criteria, 38% practicing budgetary control, 14% practicing ratio analysis and 5% practicing flexible budgeting to measure and control the overall performance of the enterprises. It is also find that profit and loss made by the enterprises during the period has been the widely used technique to measure and control the overall performance. The used of other techniques have been comparatively below then its requirement. The standard costing has not practiced in Nepalese PEs to measure and control overall performance till now.

4.4.12 Practice of Cost and Revenue Forecast / Estimate Mechanism in Nepalese Public Enterprises

The following table represents the practice of cost and revenue estimation mechanism in Nepalese PEs. Cost and revenue estimation is an important tool of management accounting from planning and control. Most of the organization used zero base analysis, past trend analysis, engineering analysis, market survey and judgment analysis to forecast/estimate their cost as well as revenue. Above mentions five alternatives has been included for the option, while making the survey.

Table 0-15 Practice of Cost and Revenue Forecast / Estimate Mechanism in Nepalese Public Enterprises

SN	Industry	Population	Sample		Zero Based		Past Trend		Engineering		Market Survey		Judgment	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	-	-	5	100	-	-	-	-	-	-
2	Trading	6	4	67	-	-	4	100	-	-	-	-	2	50
3	Service	7	5	71	-	-	4	80	1	20	1	20	1	20
4	Social Service	5	3	60	-	-	2	67	-	-	1	33	-	-
5	Public Utility	3	2	67	-	-	2	100	1	50	-	-	1	50
6	Financial	9	5	56	1	20	5	100	1	20	2	40	1	20
Total		37	24	65	1	4	22	92	3	13	4	17	5	21

(Source: Field Survey 2012)

In industrial sector, 100% enterprises are practicing past trend analysis to forecast their future cost and revenue. The other methods are not in practiced to estimate the cost and revenues of future period.

In case of trading sector, 100% enterprises are practicing past trend analysis and 50% enterprises are also practicing the judgment analysis to forecast the cost and revenue. Zero based, engineering and market survey analysis has not found in practice in this sector.

In service sector, 80% enterprises are practicing past trend analysis and 20% practicing engineering analysis, past trend analysis, market survey and judgment analysis to forecast the company's cost and revenue. The use of zero based analysis has not found in practice in this sector.

Similarly in social service sector, 67% enterprises are estimating their future cost and revenue on the basis of past trend and remaining 33% enterprises are practicing their cost and revenue on the basis of market based.

In the context of public utility sector, 100% enterprises are practicing past trend analysis and 50% enterprises are also practicing engineering and judgment analysis to forecast the cost and revenue. Zero base and market based analysis have been not practiced in this sector.

Finally in financial sector, 100% enterprises are predetermining their future cost and revenue on the basis of past trend; while 40% enterprises are practicing market survey and 20% enterprises are practicing zero based, engineering and judgment analysis to forecast the cost and revenue of the company.

Out of the total enterprise, 92% of PEs are forecasting/estimating their cost and revenue on the basis of past trend; while 21%, 17%, 13% and 4% enterprises are forecasting/ estimating their cost and revenue on the basis of judgment, market survey and market based, engineering and zero based analysis respectively. From the survey it is also found that, past trend analysis becomes the widely practicing technique in public sector enterprises for forecasting purpose.

4.5 Percentage Analysis of Effective Factors for Major Management Accounting Related Decision- Making Process in Nepalese Public Enterprises

The following table represents the percentage of effective factor, that effect to the major accounting related decision-making process in Nepalese PEs. Major accounting related decisions are these decisions in which MA tools and techniques played a vital role. Without considering the accounting technique and accounting

analysis business enterprises cannot perform effectively and efficiently. Most of the accounting decisions of PEs may be affected from the MA tools and techniques, government's policy, objective of the company and interest of the management. Different four alternatives and open opinion have been included in the option for the survey purpose.

Table 0-16 Percentage Analysis Of Effective Factors For Major Management Accounting Related Decision- Making Process In Nepalese Public Enterprises

SN	Industry	Population	Sample		MA Techniques		Government Policy		Objective of Co.		Interest of Mgmt.	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	1	20	3	60	4	80	1	20
2	Trading	6	4	67	2	50	3	75	1	25	-	-
3	Service	7	5	71	-	-	3	60	3	60	1	20
4	Social Service	5	3	60	2	67	2	67	2	67	-	-
5	Public Utility	3	2	67	2	100	1	50	1	50	1	50
6	Financial	9	5	56	1	20	-	-	-	-	4	80
Total		37	24	65	8	33	12	50	11	46	7	29

(Source: Field Survey 2012)

In industrial sector, 80% enterprises are practicing of decision- making from objective of company, 60% enterprises are practicing the decision-making from government policy and 20% enterprises are practicing from MA technique and interest of management equally. The role of the MA technique and interest of management accounting tools and technique in this sector is very low.

In case of trading sector, government policies are playing in 75% enterprises. Similarly in 50% enterprises MA technique and in 25% enterprises objective of the company is dominating for the major accounting related decision-making process.

In service sector, government policy and objective of the company is playing a vital role in 60% of enterprises equally for their accounting related decision-making process. Only 20% enterprises are affecting the interest of management decisions. The survey also found that management accounting tools and techniques has not any role in service sector for accounting related decision criteria.

In the context of social sector, management accounting technique, government policy and objective of the company are affecting to 67% of enterprises each for accounting related decision-making process.

In public utility sector, 100% enterprises are considering the MA tools and techniques to make accounting related decisions. But 50% enterprises are also considering the government policy, objective of the company and interest of management equally.

Regarding in financial sector, 80% enterprises are considering the interest of the management to make accounting related decision and rest 20% enterprises are practicing only MA technique to make accounting related decision. From the survey it is also found that and objective of the company have no role in this sector for accounting related decision-making.

In sum up, 50% of total enterprises are effective from government policy. 46% are effective from objective of the firm. 33% are effective from MA techniques and 29% are effective from the interest of management for the management accounting related decision-making process. The government policy is effective in more than the other policies.

4.6 Percentage Analysis of Difficulties for the Application of Managerial Accounting Tools and Techniques in Nepalese Public Enterprises

The following table reveals the difficulties for the application of MA tools and techniques in Nepalese PEs. The major difficulties for the application of Ma tools and techniques may be lack of knowledge, nature and size of business, high cost, long procedure and traditional approaches and so on. Different five difficulties have been included for the option, while making the survey.

Table 0-17 Percentage Analysis of Difficulties for the Application of Managerial Accounting Tools and Techniques in Nepalese Public Enterprises

SN	Industry	Population	Sample		Lack of Knowledge		Nature and Size of Business		High Cost/ Expensive		Long Procedure		Traditional Approaches	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Industrial	7	5	71	3	60	1	20	1	20	-	-	2	40
2	Trading	6	4	67	1	25	-	-	-	-	-	-	3	75
3	Service	7	5	71	2	40	2	40	-	-	-	-	3	60
4	Social	5	3	60	1	33	1	33	-	-	-	-	3	100
5	Public Utility	3	2	67	1	50	-	-	-	-	-	-	2	100
6	Financial	9	5	56	2	40	2	40	-	-	1	20	3	60
Total		37	24	65	10	42	6	25	1	4	1	4	16	67

(Source: Field Survey 2012)

In industrial sector, 60% enterprises are not practicing the MA because of lack of knowledge and information. Traditional approaches of concerned authorities have been becoming difficulties in 40% enterprises. 20% enterprises are affecting from nature and size of business and high cost. More than two factors have been becoming the difficulties for the application of managerial accounting tools in most of manufacturing enterprises.

In case of trading sector, 75% enterprises have difficulties for the application of MA tools from traditional approaches and rests 25% enterprises have difficulties from lack of knowledge and information.

In service sector, traditional approaches are becoming the major barriers in 60% of service companies and lack of knowledge and nature and size of business are becoming reasons in 40% enterprises for the application of MA tools and techniques.

Similarly in social service sector, 100% enterprises are becoming difficulties for the application of managerial accounting tools and techniques from the traditional approaches and 33% enterprises barrier from lack of knowledge and nature and size of business for the application of managerial accounting tools and techniques.

In case of public utility sector, 100% enterprises are not practicing effective MA because of traditional approaches and rest 50% enterprises are not practicing effective MA due to the lack of knowledge.

Finally in financial sector, 60% enterprises have barrier for the application of MA tools and technique due to the traditional approaches. Lacks of information about the tools and nature and size of the business are playing a dominant role in 40% enterprises, whereas long procedures are becoming the major difficulty for the application of MA tools and techniques in 20% enterprises.

Out of total enterprises, 67% enterprises are becoming barriers for the application of MA tools and techniques due to the traditional approaches. Lack of information and cognizance about the tools is playing in 42% enterprises as a difficult element whereas, 25% enterprises' feeling is the nature and size of the business as a difficulty factor for proper utilization of MA tools and techniques. High cost and long procedure is becoming the barrier for application of MA tools and techniques in 4% enterprises.

4.7 Test of Hypothesis

Research hypothesis is an educated guess about the overcome of an empirical test designed to answer a research question.

The chi-square test (χ^2) is used to see that, the principles of classification of attributes are independent. In this test, the attributes are classified into a two ways table. The observed frequency in each cell is known as cell frequency. The total frequency in each row or column of the two ways whether there is any association or relationship between two or more attributes.

To make the research specific, precise and objective, hypothesis have been tested related to the dependency and independency of PEs in practicing of MA tools and techniques. Broadly the public enterprises are classified into two categories i.e. manufacturing and service (non-manufacturing) companies for the sake of

hypothesis. The industrial sector is kept in manufacturing companies and other remaining sectors are kept in service companies.

Hypothesis: I

Null Hypothesis (H₀): There is no significance difference between the practices of MA tools and techniques in the manufacturing and service companies. (Practice of MA techniques and type of companies are independent)

Alternative Hypothesis (H₁): There is significance difference between the practices of MA tools and techniques in the manufacturing and service companies. (Practice of MA techniques and type of companies are dependent)

Satisfying the assumption of χ^2 test

The test statistics under the H₀ is given by

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where, $O = \text{Observed frequency}$

$E = \text{Expected frequency}$

$$\text{Or, } E = \frac{RT \times CT}{N}$$

Where, RT = Row Total,

CT = Column Total,

N = Grand Total.

Table 0-18 Practice of MA Tools and types of Companies 2x2 Contingency Table

Types of Companies	Practice of MA Tools		
	Yes	No	Total
Manufacturing	(a) 24	(b) 16	40
Service	(c) 19	(d) 11	40
Total	43	27	80

(Source: table no 4.1)

Hence, Calculated $\chi^2 = 1.5784$ (See Appendix- 2).

$$\text{Degree of freedom}(d.f.) = (r - 1) \times (c - 1)$$

$$= (2 - 1) \times (2 - 1)$$

$$= 1$$

Level of significance = 5%

Critical value: The tabulated value of χ^2 at 5% level of significance for 1 degree of freedom is 3.841.

Where, Calculated $\chi^2 = 1.5784$, Tabulated $\chi^2 = 3.841$

Decision: Since the calculated value of χ^2 is less than the tabulated value of χ^2 (Cal $\chi^2 < \text{Tab } \chi^2$). Thus the null hypothesis (H_0) is accepted. Therefore, we conclude that there is no significant evidence of difference between the practices of MA tools in the manufacturing and services companies of Nepalese PEs.

Hypothesis: II

Null Hypothesis H₀: The major accounting related decision doesn't depend on the result of management accounting techniques. (Major accounting related decision-making process and management accounting techniques are independent.)

Alternative Hypothesis H₁: The major accounting related decision depends on the result of management accounting techniques. (Major accounting related decision-making process and management accounting techniques are dependent.)

Satisfying the assumption of χ^2 test,

The test statistics under the H₀ is given by:

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Table 0-19 Dependency of Major Accounting Related Decisions upon the Result of MA Techniques 2x2 Contingency Table

Types of Companies	Dependency of Decision		
	Yes	No	Total
Manufacturing	(a) 1	(b) 3	4
Service	(c) 7	(d) 10	17
Total	8	13	21

Where, Calculated $\chi^2 = 0.00074$ and Tabulated $\chi^2 = 3.841$ (See Appendix-3)

Decision: Since the calculated value of χ^2 is less than the tabulated value of χ^2 (Cal $\chi^2 < \text{Tab } \chi^2$). Thus the null hypothesis (H₀) is accepted. Therefore, we conclude that the major accounting related decisions don't depend upon the result of MA techniques. Major accounting related decisions making process and management accounting techniques are independent.

In Nepalese PEs major accounting related decision-making process and MA techniques are independents. Most of the enterprises are making the account related major decisions without the proper consideration gave result that there is no direct relationship between the MA tools and techniques and major accounting related decision-making process. The account related decisions of PEs are affected by the other factors like government policy, objective of the company, temperament of management and so on.

Nepalese PEs have not any clear cut policy for the broad and long term objectives. They have not been successful to maintain the co-ordination between the departments within organization.

4.8 Major Findings of the Study

After analysis of the data, the followings major findings have been drawn:

- a. While examining the tools practiced by Nepalese PEs for management activities covering planning, decision-making, controlling activities, it is found that, the widely used tools in Nepalese PEs are annually budgeting and secondly cash flow analysis that represents 100% and 75% respectively. Responsibility accounting is also in practice rating 58%. The other tools like ratio analysis, CVP analysis and capital budgeting, and flexible budgeting, OH cost control are practiced by less than 50% enterprises.
- b. Regarding the mixed cost segregation into fixed and variable, it is found that the maximum practice of segregate the cost in Nepalese PEs of management accounting tools is average analysis method which is 54% and second practice is analytical method which is only 13%. The reasons behind the non-practicing of high-low method and regression method have found that the authorities are not aware about the tools and techniques. Almost of the sectors said for non-practicing these method which are very difficult to calculate, time consumed and also an expensive technique than the average and analytical methods. But the public sectors said that it is not applicable for practicing the all segregation of mixed costs into fixed and variable cost.

- c. In industrial sector, annual budgeting is practicing by 100% enterprises. 80% manufacturing enterprises are practicing responsibility accounting and cash flow analysis. Cost volume profit analysis, standard costing, ratio analysis are also practicing by 60% manufacturing enterprises and only 40% enterprises are practicing capital budgeting. The practices of cost segregation, flexible budget and overhead cost control, and budgeting long term have been not found in used in this sector.
- d. Similarly in trading sector, annual budgeting is practicing by 100% enterprises and 75% enterprises are practicing cash flow analysis. Responsibility accounting and capital budgeting are practicing by 50% in this sector and cost segregation, flexible budgeting and overhead cost control, long-term budgeting and ratio analysis are practicing by 25% in trading sectors. But cost volume profit analysis and standard costing have not found in practicing in trading sectors.
- e. In case of service sectors most of the managerial accounting tools are in use but the rate of practice of MA tools are not encouraging. Here is found fully practicing of annual budgeting. And then, cash flow analysis is practicing by 60% from these sectors. On the same way, cost segregation, cost volume profit analysis, standard costing, responsibility accounting and capital budgeting are being practiced by 40% from service sectors. But here are also not found to practice of flexible budgeting, long-term budgeting and ratio analysis on these sectors.
- f. On the same way in social service sectors, 100% of these sectors are practicing of annual budgeting and the secondly, 67% of these sectors are practicing of responsibility accounting and cash flow analysis. Similarly, cost volume profit analysis, flexible budgeting and overhead cost control and ratio analysis are practicing by 33% from these sectors. But here are also not found to practice of cost segregation, standard costing, long-term budgeting and capital budgeting on these sectors.
- g. In public utility sectors, here are found to fully practice of annual budgeting, cash flow analysis and capital budgeting while cost volume profit analysis and ratio analysis are practicing by 50% on these sectors. Cost segregation,

standard costing, long-term budgeting and responsibility accounting have not found in practice on these sectors.

- h. So far in financial sectors, 100% of financial sectors are practicing only the annual budgeting. Long term budgeting, responsibility accounting, ratio analysis and cash flow analysis are practicing by 80% on this sector while cost segregation is practicing by 60% on these sectors. Similarly, cost volume profit analysis, flexible budgeting and overhead cost control are practicing by 40% of financial sectors. On these sectors, standard costing and capital budgeting have not found to practice.
- i. To carry out business and non-business activities of enterprises, 38% PEs are practicing operational budgeting only, 37% PEs are practicing overall master budget and remaining 25% practicing cash budget only to carry out their day-to-day operational activities. From the survey found that operating budgeting has found mostly practiced in Nepalese public enterprises.
- j. At the time of preparation of the budget, past actual expenses and past budget estimate are found widely practicing in Nepalese PEs. 38% of the totals PEs are practicing past actual expenses, 33% enterprises are practicing past budget estimate, 21% enterprises are practicing activity base budgeting and 8% enterprises are practicing zero based as a base to prepare of budget. From the survey it is also found that, most of the enterprises are considering two or more elements as a base. The used of zero based has only found to practice in financial sector in certain case.
- k. Similarly examining the budget preparation system, involvement of planning department is high in practicing. The role of this department is 42%. 33% enterprises are preparing the budget from finance department and 25% from committee. But in Nepalese public enterprises are not found any practiced of hiring the outside experts to prepare the budget. Regarding preparation of budget, it is also found that the most of the enterprises have been collected information from three different department and the finance department as well as planning department compiled the budget as per requirement.
- l. Similarly the type of budget practice in Nepalese PEs, it is found that all of the enterprises (i.e. 100%) are practicing short-term budget. Industrial sector, trading sector and social service sector are only practicing of short-term

budget. Generally business enterprises prepared the long term budget at the time of company establishment. Long-term budget shows the goal, objectives, mission, vision and target of enterprises in the long term. Different environment must be considered while preparing the budget. It provides guidelines to operate the daily activities in short-term, medium term and long-term. But in the PEs have not found interested to prepare the medium term and long-term budgets.

- m. While making long-term investment decisions PBP, NPV, ARR and IRR tools of capital budgeting are widely practice in Nepalese PEs. Lack of cognizance about the tools, long procedure, lack of experts and lack of such types of tradition are main reasons behind for none practicing of capital budgeting tools while making the long term investment decision.
- n. While pricing mechanism for the product/service produced by them, 13%, 17%, 21%, 8% and 21% Nepalese PEs are practicing full cost, variable cost, going rate, target return on investment and activity based pricing respectively to determine the price of product/service. In some enterprises, government fixed the price as per the recommendation of management and board. But in some financial institution determines the price on market base of their service.
- o. Similarly in transfer pricing practice, the cost based transfer pricing techniques are widely practice in Nepalese PEs. Some of enterprises are also practicing market based and making the negotiation for transfer pricing purpose. Target return based of transfer pricing has not found to practice in any Nepalese PEs. The main reasons behind the non-practicing of transfer pricing in the PEs are lack of such type of culture, difficult to calculate the cost of semi product and service, multi type of product/service which they produce, and nature of business.
- p. While examining the inventory valuation techniques in Nepalese PEs, it is found that 79% enterprise are practicing FIFO method and 8% enterprises practicing simple average, weighted average and specific items for inventory valuation. The survey found that the service and financial institutions have not kept any inventory except stationery and office accessories. Therefore there may be the less practice of inventory valuation. It is also found that, most of

the PES are using FIFO method to evaluate the inventory because it is easy to calculate and manage.

- q. While examining the practices of measure and control mechanism to evaluate the overall performance, it is found that 92% enterprises are practicing profit and loss criteria, 38% practicing budgetary control, 13% practicing ratio analysis and 4% practicing flexible budgeting to measure and control the overall performance of the enterprises. It is also find that profit and loss made by the enterprises during the period has been the widely used technique to measure and control the overall performance. The used of other techniques have been comparatively below then its requirement. The standard costing has not practiced in Nepalese PEs to measure and control overall performance till now.
- r. Similarly examining the practice of cost and revenue estimation/forecast mechanism in Nepalese PEs, it is found that 92% of PEs are forecasting/estimating their cost and revenue on the basis of past trend. While also 21%, 17%, 13% and 4% enterprises are forecasting/ estimating their cost and revenue on the basis of judgment, market survey and market based, engineering and zero based analysis respectively. From the survey it is also found that, past trend analysis becomes the widely practicing technique in public sector enterprises for forecasting purpose.
- s. On the same way for the examining the proportion of effective factors for the major accounting related decision-making process in Nepalese PEs, the survey find that 50% of total enterprises are effective from government policy. 46% are effective from objective of the firm. 33% are effective from MA techniques and 29% are effective from the interest of management for the management accounting related decision-making process. The government policy is effective in more than the other policy which is 50%.
- t. From the survey it is found that 67% enterprises are becoming barriers for the application of MA tools and techniques due to the traditional approaches. Lack of information and cognizance about the tools is playing in 42% enterprises as a difficult element. Whereas, 25% enterprises are feeling to the nature and size of the business as a difficult factor for proper utilization of MA tools and techniques. High cost and long procedure is becoming the barrier for

application of MA tools and techniques in 4% enterprises. From the open end opinion of respondents, lack of cultural and tradition of practice, lack of co-ordination between the departments, lack of clear cut objectives, lack of support of management, poor performance of entity, nature and product of entity are also becoming the difficulties in Nepalese PEs for application of MA tools and techniques in effective decision making and control.

u. From the hypothesis it is found that:

- **Hypothesis 1:** There is significance difference between practice of MA in manufacturing and non-manufacturing sector. Most of the MA tools are widely applicable in manufacturing enterprises. The hypothesis has proved that the practicing process of MA in manufacturing and non-manufacturing (service sectors) are slightly different.
- **Hypothesis 2:** In Nepalese PEs major accounting related decision-making process and MA techniques are independents. Most of the enterprises are making the account related major decisions without the proper consideration gave result that there is no direct relationship between the MA tools and techniques and major accounting related decision-making process. The account related decisions of PEs are affected by the other factors like government policy, objective of the company, temperament of management and so on.

v. Nepalese PEs have not any clear cut policy for the broad and long term objectives.

w. Nepalese PEs have not successful to maintain the co-ordination between the departments within organization.

CHAPTER-5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Effective management process requires managers to plan, organize, direct, coordinate, motivate, control, report and communicate divergent activities pursued by an organization towards the attainment of organizational goals effectively in a changing environment. Management principles can be applied at all organizations and at all levels of an organization.

Public enterprise is one of the most important innovations of 21st century. The main objective of creating public enterprise is to secure a combination of public ownership, public accountability and business management for the public benefits. The reasons behind the establishment of public enterprises are basically to accelerate the ratio of economic growth, to build development infrastructure, to make provision of public utility, to supply essential commodities, to generate employment opportunities, to maximize the foreign earnings, to rational utilization of natural resources and to contribute in the national funds.

One of the important parts of management is MA. Management Accounting is the process of identification, measurement, accumulation, analysis, preparation, interpretation and communication of information used by management to plan, evaluate and control within an entity and to assure appropriate use of and accountability for its resources. Management accounting also comprises the preparation of financial reports for non management groups such as shareholders, creditors, regularity agencies and tax authorities. But, whether Nepalese PEs are applying managerial accounting tools and techniques or not? Cost segregation, CVP relationship, overall budgeting, pricing, standard costing, ABC costing, responsibility accounting, financial performance analysis, cash flow analysis are the

major MA tools. Whether Nepalese PEs are getting advantages from the managerial accounting or not? To identify these facts, this research has been done.

The main objective of this research work is to study and examine the extent of practices of management accounting tools and techniques made in Nepalese public enterprises. The research has also identified the major difficulties for applying the management accounting tools Nepalese companies.

The research is completely based on primary sources of information. Secondary data have been also used. The data has been collected from the respective public enterprises by distributing the scheduled questionnaire. The PEs are classified into six different business sectors which have been done by the ministry of finance corporation co-ordination division. 65% of the total population has been used as a sample by using stratified judgments sampling procedure. The raw data has been properly processed, tabulated and analyzed. Sample percentage tool has been applied to analyze and interpret the findings. Most of the analysis and interpretation have been expressed in business group of enterprises. The statistical tool Chi-square (χ^2) has been used to test the hypothesis.

The managerial accounting tools i.e. annual budgeting, cash flow analysis, responsibility accountings have been found widely practicing. The other tools like ratio analysis, CVP analysis and capital budgeting, flexible budgeting and OH cost control are practiced by less than 50% enterprises. At the time of preparing the budget, past actual expenses and past budget estimate are found widely practicing and involvement of planning department is high for the preparation of budget in Nepalese PEs . From the survey it is also found that, most of the enterprises are considering two or more elements as a base. The used of zero based has only found to practice in financial sector in certain case. While making long-term investment decisions PBP, NPV, ARR and IRR tools of capital budgeting are widely practice in Nepalese PEs. Lack of cognizance about the tools, long procedure, lack of experts and lack of such types of tradition are main reasons behind for none practicing of capital budgeting tools while making the long term investment decision. FIFO method is widely found for inventory valuation. Most of the enterprises are practicing profit and loss criteria to measure, evaluate and control the overall

performance of the Nepalese PEs. Similarly past trend analysis are widely used for the practice of cost and revenue estimation/ forecast mechanism in Nepalese PEs. From the survey it is also found that the traditional approaches are becoming barriers for the application of MA tools and techniques in Nepalese PEs. The hypothesis is proved that, practicing of MA in Manufacturing and service enterprises are slightly difference and major MA related decisions are effective from the government policy.

5.2 Conclusion

Management accounting is the presentation of accounting information to formulate the policies to be adapted by the management and assists its day-to-day activities. It helps the management to perform all its function including planning, organizing, staffing, directing and control. It presents to management the accounting information in the form of processed data, which it collects from financial accounting. These various MA tools and techniques are thought in the college and universities. But they are not used in Nepalese PEs. It shows a gap between the theory and practice.

The managerial tools like standard costing, cost segregation and allocation, ratio analysis, CVP analysis and capital budgeting, flexible budgeting and OH cost control are not real practiced in Nepalese PEs. The practice of overall master budget is very low. Activity base budgeting and zero base budgeting are not proper practicing at the time of preparing the budget in Nepalese PEs. In Nepalese PEs are not found any practiced of hiring the outside experts to prepare the budget. Different environment must be considered while preparing the budget. It provides guidelines to operate the daily activities in short-term, medium term and long-term. But in the PEs have not found interested to prepare the medium term and long-term budgets. Pricing strategy is completely based on cost of production and or government decision. Target return on investment pricing technique is not practicing in Nepalese PEs. It is found that, most of the PES are using FIFO method to evaluate the inventory because it is easy to calculate and manage. The survey is also found that the service and financial institutions have not kept any inventory except stationery

and office accessories. Therefore there may be the less practice of inventory valuation. Almost companies are practicing profit and loss coeternal to measure and control the overall performance of the company. Similarly in transfer pricing practice, the cost based transfer pricing techniques are widely practice in Nepalese PEs. Some of enterprises are also practicing market based and making the negotiation for transfer pricing purpose. Target return based of transfer pricing has not found to practice in any Nepalese PEs. The main reasons behind the non-practicing of transfer pricing in the PEs are lack of such type of culture, difficult to calculate the cost of semi product and service, multi type of product/service which they produce, and nature of business. Similarly past trend analysis is the most used technique to forecast the future cost and revenue of the company. The effective forecasting techniques like zero based analysis, engineering analysis, market survey, judgment analysis, and activity based analysis are not taking a wide range in Nepalese companies. Government's policy is affecting nearly fifty percent of the Nepalese PEs. From the survey it is found that more than fifty percent enterprises are becoming barriers for the application of MA tools and techniques due to the traditional approaches. From the open end opinion of respondents, lack of cultural and tradition of practice, lack of co-ordination between the departments, lack of clear cut objectives, lack of support of management, poor performance of entity, nature and product of entity are also becoming the difficulties in Nepalese PEs for application of MA tools and techniques in effective decision making and control. Practicing mechanism of MA in manufacturing and service enterprises are slightly difference. But MA related decision making processes are independent from the management accounting tools and techniques.

The conclusion of this study is Nepalese PEs are not properly practicing the MA tools and techniques. They are operating their business as a routine work without broad mission and vision. Nepalese PEs are facing the different problems such as lack of expertise, lack of co-ordination between the departments as well as personnel, vested interest of management, lack of tradition, nature and size of the business, traditional approaches of concerned authorities and so on behind the non practicing of MA

5.3 Recommendations

Mainly, this study is made for the partial fulfillment of MBS level. The recommendation of this study may be important for those who are concerned directly or indirectly with the stakeholders of management accounting. That can be improved and required attention to bring some improvement in Nepalese PEs to practice the managerial accounting. The following recommendations are prescribed from the analysis and major findings of this survey:

- Managerial Accounting has to focus their mind with the use of management accounting tools and techniques. For planning activities tools like cost estimation, classification and allocation, profit measurement and recognition, ratio analysis, CVP analysis and capital budgeting, flexible budgeting and OH cost control can be used.
- Considering the controlling activities tools like budgetary control, variance analysis, standard costing, responsibility accounting, flexible budgeting, cash flow analysis, financial statement analysis, differential analysis, environmental analysis can be used. While implementing any tools of management accounting, it is recommended to analyze cost and benefits of the tool.
- To implement the effective managerial accounting tools and techniques, a separate managerial accounting department should be established within organization. Those companies who cannot establish a separate department can manage it under their existing accounting, finance or planning department. Management accounting experts should be hired. If the company cannot hire the outside experts, they can send their existing employee for short-term training program. If this also is not feasible for them, they can manage it by taking service from fee base consultants.
- If possible, companies are recommended to prepare the overall master budget. At the time of preparing the budget, past actual expenses and past budget estimate are found widely practicing in Nepalese PEs. But it is not only based for the preparing the budget. Along with these, zero based and environmental analysis should also be taken into consideration. It is because

what happen in the past might not be occur in future. Similarly, co-ordination between planning department, finance department and the company's board of director must be equally necessary. If possible companies should be hired the experts professional as well for planning purpose.

- Generally business enterprises prepared the long term budget at the time of company establishment. Long-term budget shows the goal, objectives, mission, vision and target of enterprises in the long term. Different environment must be considered while preparing the budget. It provides guidelines to operate the daily activities in short-term, medium term and long-term. In Nepalese PEs there is found practicing only short-term budget. So they should not be prepared only short-term budget but also prepare the mid-term and long term budget as well with specific mission, vision, goal and objectives.
- While making long-term investment decisions PBP, NPV, ARR and IRR tools of capital budgeting are widely practice in Nepalese PEs. It is also recommended that DPB and PI techniques must be practiced for long-term investment decisions.
- While pricing mechanism for the product/service produced by them, they should be equally practiced of full cost, variable cost, going rate, target return on investment and activity based pricing respectively to determine the price of product / service.
- From the study, it is found that, most of the Nepalese PEs are practicing FIFO method to evaluate the inventory management because it is easy to calculate and manage. So for the valuation inventory of the PEs, other techniques like average method, LIFO method should also be practiced to reach the nearest point of the result.
- Nepalese PEs should not be used only from profit and loss criteria to measure and control the overall performance of the company. It is suggested to use other techniques such as budgetary control, ratio analysis, flexible budgeting and standard costing to evaluate the overall performance.

- Similarly examining the practice of cost and revenue estimation/forecast mechanism in Nepalese PEs, it is found that most of the PEs are forecasting/estimating their cost and revenue on the basis of past trend. But it is risky because if it might not be happen in future. So for the forecast/estimation mechanism of the PEs, other techniques such as judgment, market survey, market based, engineering and zero based analysis should be also practice for forecasting purpose.
- Academicians who have better knowledge about the MA tools and techniques should put an effort to develop environmental friendly tools and techniques into practice. So that Nepalese PEs should be beneficial from the managerial accounting.
- From the survey it is found that most of the enterprises are becoming barriers for the application of MA tools and techniques due to the traditional approaches, lack of information and cognizance about the tools, nature and size of the business, high cost and long procedure. So they should be updated with new tools and techniques that are practiced around the globe in the best performing companies. Unnecessary formalities should be corrected to enhance the effectiveness while decision making.
- Internal and external information should be needed for proper application of managerial accounting tools and technique. Therefore, it is recommended to keep MA information system. It helps to make them informative throughout time to time about every aspect of MA and its application.
- Nepalese PEs are facing unnecessary government intervention and overstaffing. So, it is recommended to make them autonomous for their own activities and solve overstaffing by applying different restructuring methods
- Nepalese PEs should be maintained a proper co-ordination and co-operation between the different departments and personnel's within organization. Effective motivation programs and carrier growth opportunities should be also provided to the employees.

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APPENDIX

Appendix- 1 Research Questionnaires

The questionnaires are baseline to conduct a research work entitled, “Practice of Management Accounting Tools in Nepalese Public Organization” in partial fulfillment for the degree of Master of Business Studied (MBS). All alternatives are equality important. The reliability and validity of result depends on the response of the respondent.

Name of company:

Address of company:

Would you kindly answer the following questions? Please circle (O) the alternative/alternatives to answer the questions.

1. Please select the category your company:

- a. Manufacturing
- b. Service
- c. Public Utility
- d. Trading
- e. Social Service
- f. Financial

2. Would you kindly select which of the following mentioned management accounting tools are practiced in your organization for planning, controlling and decision making?

- a. Cost Segregation into Fixed and Variable
- b. Cost Volume Profit Analysis (BEP)

- c. Standard Costing
- d. Flexible budget and overhead cost control
- e. Budgeting annually
- f. Budgeting Long term
- g. Zero Based Budgeting
- h. Activity Based Budgeting
- i. Responsibility Accounting
- j. Ratio Analysis
- k. Cash Flow Analysis
- l. Capital Budgeting
- m. Pricing Techniques

3. If your organization has not practiced any of the above mention tools, what might be the reason?

- a. Lack of experience
- b. High cost / quite expensive
- c. No information about the tools
- d. Other, please specify

4. What technique does the company practice to segregation the mixed cost into variable and fixed?

- a. High-low point method
- b. Regression Method
- c. Average method
- d. Analysis method
- e. Other, please specify

5. What type of budget (on the basis of nature) is your organization practicing?

- a. Operating Budget only
- b. Cash budget only
- c. Overall Master Budget
- d. Other, please specify

6. On what basis, is your organization preparing budget?

- a. Based on past budget estimate
- b. Based on past actual expenses

- c. Zero based
- d. Activity based
- e. Other, please specify

7. Who is responsible to prepare the budget in your organization?

- a. Committee
- b. Planning department
- c. Finance department
- d. Outside experts
- e. Other, please specify.....

8. What type of budget (on the basis of period) is your organization practicing?

- a. Short term budget (up to one year)
- b. Medium term (one to five years)
- c. Long term budget (five years and more)
- d. Other, please specify.....

9. While making the long term investment decision or purchasing the fixed assets which of the following capital budgeting tools are practiced?

- a. Pay Back Period (PBP)
- b. Average Rate Of Return (ARR)
- c. Net Present Value (NPV)
- d. Internal Rate of Return (IRR)
- e. Profitability Index (PI)
- f. Other, please specify.....

10. Which of the following managerial accounting decision techniques are being practiced in your organization for such types of decision making process?

- a. Make or buy component
- b. Lease or purchase the fixed assets
- c. Drop or continuous the product / service line
- d. Sell now or further process
- e. Special offer decision
- f. Other, please specify.....

11. Which technique is being practiced for pricing the products/services in your company?

- a. Full cost based pricing (Absorption)
- b. Variable cost based pricing (Marginal)
- c. Going rate pricing (Market determined)
- d. Target return on investment pricing
- e. Activity based costing pricing
- f. Other, please specify.....

12. Which transfer pricing technique is being practiced in your organization?

- a. Market based pricing
- b. Cost based pricing
- c. Target return based pricing
- d. Negotiation
- e. Other, please specify.....

13. Which method is your company following for pricing the issue of inventory (stock)?

- a. Last in first out (LIFO)
- b. First in first out (FIFO)
- c. Simple average
- d. Weighted average
- e. Specific items
- f. Other, please specify.....

14. How does the organization measure and control the overall performance at the end of the accounting period?

- a. Profit and loss made by the company
- b. Budgetary measure and control
- c. Standard costing technique
- d. Flexible budgeting
- e. Ratio analysis
- f. Other, please specify.....

15. Which of the following technique/techniques is your organization practicing to forecast/estimate the costs and revenues of the organization for the future periods?

- a. Zero based analysis
- b. Past trend analysis
- c. Engineering analysis
- d. Market survey
- e. Judgment analysis
- f. Other, please specify

16. What is the main factor, that effect to the major accounting related decision- making process in your company?

- a. Management accounting techniques
- b. Government policy of the company
- c. Objective of the company
- d. Interest of the management
- e. Other, please specify.....

17. What might be the major difficulties for the application of managerial accounting tools and techniques in your organization?

- a. Lack of information and expertise
- b. Size and nature of business
- c. High cost/quite expensive
- d. Long procedure
- e. Traditional approaches of concerned authorities
- f. Other, please specify.....

Seal of the Company

Date: -

Signature:

Designation of respondent: -

Name of respondent: -

Appendix- 2 Test of Hypothesis

Satisfying the assumption of χ^2 test

The test statistics under the H_0 is given by

$$\chi^2 = \frac{(O-E)^2}{E}$$

Where, $O = \text{Observed frequency}$

$E = \text{Expected frequency}$

$$\text{Or, } E = \frac{RT \times CT}{N}$$

Where, RT = Row Total,

CT = Column Total,

N = Grand Total.

Practice of MA Tools and types of Companies 2x2 Contingency Table

Types of Companies	Practice of MA Tools		
	Yes	No	Total
Manufacturing	(a) 24	(b) 16	40
Service	(c) 19	(d) 11	40
Total	43	27	80

Calculation of χ^2

SN	O	$E = \frac{RT \times CT}{N}$	$(O - E)$	$(O - E)^2$	$\frac{(O - E)^2}{E}$
(a)	24	$\frac{40 \times 43}{80} = 21.5$	2.5	6.25	0.2907
(b)	16	$\frac{40 \times 27}{80} = 13.5$	2.5	6.25	0.3906
(c)	19	$\frac{40 \times 43}{80} = 21.5$	-2.5	6.25	0.3289
(d)	11	$\frac{40 \times 27}{80} = 13.5$	-2.5	6.25	0.5682
					$\sum \frac{(O - E)^2}{E} = 1.5784$

(Source: Table no. 4.1)

Hence, $Calculated \chi^2 = 1.5784$

$$Degree\ of\ freedom(d.f.) = (r - 1) \times (c - 1)$$

$$= (2 - 1) \times (2 - 1)$$

$$= 1$$

Level of significance = 5%

Critical value: The tabulated value of χ^2 at 5% level of significance for 1 degree of freedom is 3.841.

Where, Calculated $\chi^2 = 1.5784$, Tabulated $\chi^2 = 3.841$

Appendix-3 Test of Hypothesis

Dependency of Major Accounting Related Decisions upon the Result of MA Techniques 2×2 Contingency Table

Types of Companies	Dependency of Decision		
	Yes	No	Total
Manufacturing	(a) 1	(b) 3	4
Service	(c) 7	(d) 10	17
Total	8	13	21

Since cell frequencies (a and b) are less than 5, we should apply Yates correction for calculating χ^2 . For this purpose we have to add 0.5 to cell frequency a (i.e. 1), and adjust the remaining frequencies by fixing row total and column total. Thus 2×2 contingencies table is presented in the following revised table.

Adjusted 2×2 contingency Table

Types of Companies	Dependency of Decision		
	Yes	No	Total
Manufacturing	(a) 1.50	(b) 2.50	4
Service	(c) 6.50	(d) 10.50	17
Total	8	13	21

Calculation of χ^2

SN	o	$E = \frac{RT \times CT}{N}$	$(O - E)$	$(O - E)^2$	$\frac{(O - E)^2}{E}$
(a)	1.50	$\frac{4 \times 8}{21} = 1.524$	-0.024	0.000576	0.00037
(b)	2.50	$\frac{4 \times 13}{21} = 2.476$	0.024	0.000576	0.00023
(c)	6.50	$\frac{8 \times 17}{21} = 6.475$	0.024	0.000576	0.00009
(d)	10.50	$\frac{17 \times 13}{21} = 10.524$	-0.024	0.000576	0.00005
					$\sum \frac{(O - E)^2}{E} = 0.00074$

Hence calculated $\chi^2 = 0.00074$

Degree of freedom (d.f.) = $(r - 1) \times (c - 1)$

$$= (2 - 1) \times (2 - 1)$$

$$= 1$$

Level of significance = 5%

Critical value: The tabulated value of χ^2 at 5% level of significance for 1 degree of freedom is 3.841.

Where, Calculated $\chi^2 = 0.00074$ and Tabulated $\chi^2 = 3.841$

Appendix-4 Respondents of the Questionnaires

Industry Sector	Name & Address Of Company	Name & Designation of Respondents
Manufacturing sector		
	Nepal Rosin and Turpentine Ltd. Kathmandu.	Shanta Bahadur Shrestha Accounts office
	Dairy development corporation Lainchaur, Kathmandu	Ram Bahadur Thapa Manager, Finance Department
	Nepal Drugs Ltd. Babarmahal, Kathmandu	Bhuban Shrestha Office, accountants
	Herbs Production & Processing Co. Ltd. Kathmandu	Pritam Man Shakya Chief Officer Accountants
Trading sector		
	National Trading Limited Teku, Kathmandu	Sumitra Manandhar Chief Officer Accountants
	Nepal Oil Corporation Babarmahal, Kathmandu	Nagendra Sah Chartered Accountant.
	Nepal Food Corporation Bhadrakali Plaza, Kathandu	Amar Bahadur Khadka Department Chief, Accounts
	Salt Trading Corporation Ltd Kalimati-14, Kathmandu	Dharma Data Sharma Chartered Accountant
Service sectors		

	Industrial Sector Management Balaju, Kathmandu	Rajendra Bahadur Thapa Senior Officer
	National Construction Company Bhadrakali Plaza, Kathmandu	Managal Krishna Shrestha Manager, Finance
	Nepal Airlines Corporation NAC Building, Kathmandu	Ganesh Bahadur Chand Manager Finance
	Civil Aviation Authority Of Nepal Kalimati- 14, Kathmandu	Bashudev Lal Shrestha Ma Finance
Social service sector		
	Gorkhapatra Sansthan Bhugolpark, kathmandu	Gautam Shrestha Senior Accountants Officer
	Janak Education Materials Center Ltd Santothimi, Bhaktapur	Bal Mukunda Khanal Deputy Director
	Cultur Corporation Kantipath, Kathmandu	Ramesh Bdr. Bhandari Department Chief, Finance
Public utility sector		
	Nepal Telecommunication Corporation Bhadrakali Plaza, Kathmandu	Surya Bdr. Pokhrel Depty Manager, Finance
	Nepal Water Supply Corporation Tripureshwor, Kathmandu	Kalian Singh Thapa Manager Finance
Financial sector		
	Agriculture Development Bank Ram Shah Path, Kathmandu	Yagya Neupane Chartered Accountant
	Rastriya Banijya Bank RBB Plaza, Singhadarbar, Kathmandu	Kabi Raj Adhikari Department Chief, Finance
	Karmachari Sanchaya Kosh Harihar Bhawan, Kathmandu	A.K. Shrestha Manager Accounts
	Rastriya Beema Sanssthan Ram Shah Path, Kathmandu	Dhurba Bahadur Singh Chief Manager.
	Nepal Stock Exchange Limited	